

Ref No.: RSEZDOC/HO/2022/087

Date: November 7th, 2022

To: Registrar

National Electric Power Regulatory Authority ("NEPRA")

NEPRA Tower, Attaturk Avenue (East)

G-5/1, Islamabad

SUBJECT: APPLICATION FOR GRANT OF SUPPLY LICENSE

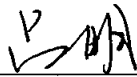
I, Lyu Ming, Chief Executive Officer, being the duly authorized representative of Rashakai Special Economic Zone Development and Operations Company (Pvt.) Limited ("RSEZDOC" or "Petitioner") by virtue of BOARD MEETING MINUTES dated Aug 2nd, 2022, hereby apply to the National Electric Power Regulatory Authority for the grant of a Supply License to the Petitioner pursuant to Section 20 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

I hereby certify that the documents-in-support attached with this application are prepared and submitted in conformity with the provisions of the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021, and undertake to abide by the terms and provisions of the above-said regulations. I further undertake and confirm that the information provided in the attached documents-in-support is true and correct to the best of my knowledge and no material omission has been made.

I further certify that the Petitioner has not been denied any license under the applicable laws and rules of NEPRA.

A bank check in the sum of Rupees 2,421,020, being the license application fee calculated in accordance with Schedule II to the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021 is also attached herewith.

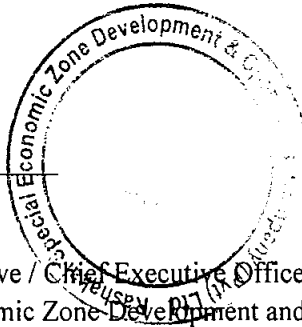
Yours sincerely,

For and on behalf of**Rashakai Special Economic Zone Development and Operations Company (Pvt.) Limited**

Lyu Ming

Authorized Representative / Chief Executive Officer

Rashakai Special Economic Zone Development and Operations Company (Private) Limited



**BEFORE THE
NATIONAL ELECTRIC POWER REGULATORY AUTHORITY**

**PETITION FOR THE GRANT OF
SUPPLY LICENSE**

**ON BEHALF OF
RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATIONS
COMPANY (RSEZDOC)**

Dated: 11 November 2022

Legal Consultants

RIAA Barker Gillette
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Block H, Fazl-ul-Haq Road,
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SUPPLY LICENCE PETITION
RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATIONS COMPANY

INDEX OF DOCUMENTS AND INFORMATION

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APPLICATION

I.

**EXTRACTS FROM MINUTES PASSED BY THE BOARD OF DIRECTORS OF
RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND
OPERATIONS COMPANY (PVT.) LIMITED DATED AUG 2nd, 2022**

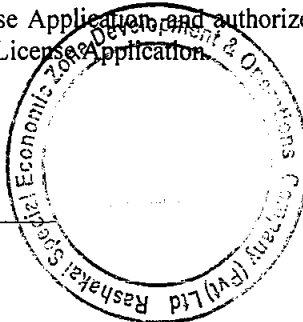
RESOLVED that Rashakai Special Economic Zone Development and Operations Company (Pvt.) Limited ("RSEZDOC") shall apply to the National Electric Power Regulatory Authority (NEPRA) for a supply license in respect of RSEZDOC's supply project in Rashakai Special Economic Zone, and in relation thereto, sign all requisite documentation, pay all applicable fee and undertake all other necessary and ancillary acts and deeds.

RESOLVED FURTHER that an application for a supply license to be made to the NEPRA with regards to the aforesaid distribution project (the "License Application").

RESOLVED FURTHER that LYU MING, Chief Executive Officer of RSEZDOC, bearing Passport No. PE1476327, be and hereby singly authorized to sign the License Application and any documentation ancillary thereto, represent before and provide any information required by NEPRA in relation to the License Application, do all lawful acts and deeds necessary and ancillary for the processing, completion and finalization of the License Application, and authorize legal advisors to represent RSEZDOC before the NEPRA in respect of the License Application.



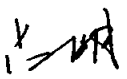
Lyu Ming
DIRECTOR/CEO
Rashakai Special Economic Zone Development and Operations Company (Pvt.) Limited



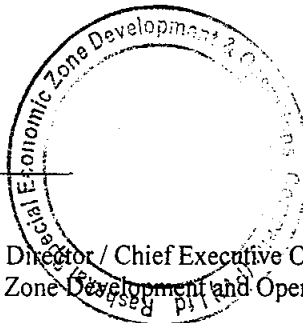
CERTIFICATION

CERTIFIED, that, the above resolution was duly passed by circulation to the Board of Directors of RSEZDOC on Aug 2nd, 2022

FURTHER CERTIFIED, that the said minutes has not been rescinded and is in operation and that this is a true copy thereof.



Lyu Ming
Authorized Representative / Director / Chief Executive Officer
Rashakai Special Economic Zone Development and Operations Company (Pvt.) Limited



VAKALATNAMA

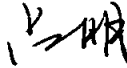
We, Rashakai Special Economic Zone Development and Operations Company (Pvt.) Limited (the "Company"), hereby appoint and constitute **Mr Nadir Altaf, Mr. Fahim Khan and Ms Zoya Mohyuddin** ("Authorized Persons") to appear and act for and on behalf of the Company as our advocates in connection with the preparation, filing and follow up of the Company's application for grant of a supply license (the "Licence Application"), in respect of the supply project in Rashakai Special Economic Zone, to the National Electric Power Regulatory Authority ("NEPRA") and represent us in connection herewith.

We also authorize the said Authorized Persons or any one of them to do all acts and things necessary, incidental to or deemed appropriate for the processing, completion and finalization of the Licence Application with NEPRA, as appropriate.

Dated: November 7th, 2022

For and on behalf of

Rashakai Special Economic Zone Development and Operations Company (Pvt.) Limited



Lyu Ming
Authorized Representative / Director / Chief Executive Officer
Rashakai Special Economic Zone Development and Operations Company (Pvt.) Limited



ACCEPTED

RIAA BARKER GILLETTE

AFFIDAVIT OF CORRECTNESS

I, Lyu Ming, Authorized Representative of Rashakai Special Economic Zone Development and Operations Company (Pvt.) Limited, do hereby solemnly affirm & declare on oath as under:

1. That the accompanying application has been filed under my instructions;
2. That whatever has been stated in the accompanying application is true & correct to the best of my knowledge & belief and nothing material has been concealed in respect thereof; and
3. That, I have sought legal advice in the matter from my legal counsels and I believe their advice to be correct and accurate to the best of my knowledge and belief.

DEPONENT



Lyu Ming

Authorized Representative / Director / Chief Executive Officer

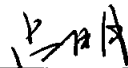
Rashakai Special Economic Zone Development and Operations Company (Pvt.) Limited



VERIFICATION

It is verified on oath at Islamabad on 7th day of November 2022 that the contents of the affidavit are true & correct to the best of my knowledge.

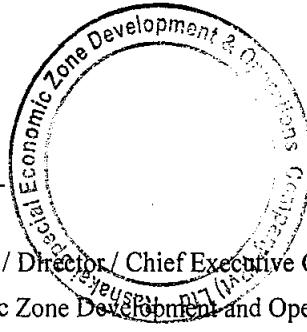
DEPONENT



Lyu Ming

Authorized Representative / Director / Chief Executive Officer

Rashakai Special Economic Zone Development and Operations Company (Pvt.) Limited



AFFIDAVIT

I, Lyu Ming, Authorized Representative of Rashakai Special Economic Zone Development and Operations Company (Pvt.) Limited, do hereby solemnly affirm & declare on oath that Rashakai Special Economic Zone Development and Operations Company (Pvt.) Limited has not been granted any other license under the Regulation of Generation, Transmission and Distribution of Electric Power Act (Act No. XL of) 1997.

DEPONENT



Lyu Ming

Authorized Representative / Director / Chief Executive Officer

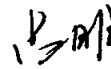
Rashakai Special Economic Zone Development and Operations Company (Pvt.) Limited



VERIFICATION

It is verified on oath at Islamabad on 7th day of November 2022 that the contents of the affidavit are true & correct to the best of my knowledge.

DEPONENT



Lyu Ming

Authorized Representative / Director / Chief Executive Officer

Rashakai Special Economic Zone Development and Operations Company (Pvt.) Limited



COMPANY INFORMATION

II.



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SUPPLY LICENCE PETITION
RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATIONS COMPANY

SL PETITION - TABLE OF CONTENTS

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PETITION: For the grant of Supply License on behalf of Rashakai Special Economic Zone Development and Operations Company ("RSEZDOC" or "Petitioner")

1 LEGAL REGIME

- 1.1 Under the Regulation of Generation, Transmission and Distribution of Electric Power Act (Act No. XL of) 1997 (the "**NEPRA Act**"), the Authority is mandated to, *inter alia*, grant licenses for generation, transmission, distribution and supply of electric power and perform such functions which are consequential or incidental thereto.
- 1.2 The Petitioner has filed this petition for the grant of a supply license (the "**SL Petition**") before the National Electric Power Regulatory Authority (the "**NEPRA**" or the "**Authority**") pursuant to Section 23E of the NEPRA Act, the NEPRA Licensing (Electric Power Supplier) Regulations 2022 (the "**Supply Regulations**") and other enabling provisions of NEPRA Rules, Regulations, Codes and Applicable Documents.
- 1.3 Specifically, the Petitioner's supply network will be located at the Rashakai Special Economic Zone ("**RSEZ**"), District Nowshera, Khyber Pakhtunkhwa (KPK) for the sole and exclusive supply of power to the RSEZ.
- 1.4 The intended area falls within the service territory of the Peshawar Electric Supply Company Limited ("**PESCO**") pursuant to its distribution license No. 07/DL/2002 dated 30 April 2002, as provisionally extended. Having stated the foregoing, the RSEZ is not connected to PESCO's distribution and supply network.
- 1.5 PESCO's exclusivity over supply of electricity in its service territory expired on 29 April 2022 and its distribution license was provisionally extended by NEPRA vide its order dated 31 May 2022 on the following condition:

"PESCO shall not have any exclusivity for the provision of Distribution and/or Electric Power Supply services and the Authority shall reserve its right to issue other licences in its Service/Concessional Territories."

[Emphasis Added]

- 1.6 In light thereof, the Authority is empowered under the NEPRA Act to allow the Petitioner to supply power in the RSEZ.

2 THE PETITIONER - RSEZDOC

- 2.1 The Petitioner is a 'special purpose vehicle' of the China Road and Bridge Corporation ("**CRBC**") and Khyber Pakhtunkhwa Economic Zone Development Management Company ("**KPEZDMC**") (collectively referred to as the "**Sponsor**"), incorporated and existing under the laws of Pakistan. Copies of the Certificate of Incorporation, the Memorandum of Association and Articles of Association of the Petitioner are appended as **Annex A-1** and **Annex A-2**, respectively.

- 2.2 The Petitioner has an authorised capital of Rs. 10,000,000 (Ten Million Pak Rupees) divided into 1,000,000 (Ten Hundred Thousand) ordinary shares of Rs. 10 (Ten Pak Rupees) each. All of the Petitioner's authorised capital has been paid-up.
- 2.3 The Petitioner has been incorporated by its Sponsor to *inter alia* undertake the development of the RSEZ. By way of background, the Sponsor is the designated developer for RSEZ, an economic zone duly sanctioned and approved under the Special Economic Zone Act 2012 (details of which are provided in Part 3 of this SL Petition). In pursuance thereof, CRBC and KPEZDMC entered into an agreement for jointly undertaking the development of this flagship CPEC project.
- 2.4 To make the RSEZ functional for the industries set-up therein and to provide seamless electric power connectivity, the Petitioner now seeks to develop its own distribution and supply network for the RSEZ and is currently in the process of laying the required distribution infrastructure.
- 2.5 The Petitioner intends to procure power for distribution to the RSEZ from PESCO, initially at a single-point, for which no wheeling will be required. PESCO's commitment to sell power to CRBC for this purpose is evidenced in the letter dated 19 January 2022 and technical sanction dated 3 March 2022, appended as **Annex B**.
- 2.6 The objectives of the Petitioner will include *inter alia* engaging in the activities relating to the business of construction, ownership, management, control, operation and maintenance of the electricity distribution lines, electrical distribution facilities, electrical circuits, transformers and sub-stations as well as the movement and delivery of electric power on distribution lines, undertaking distribution activities and distribution business, interconnection services and facilities and the matters connected therewith and incidental thereto.
- 2.7 As the supply of electric power in Pakistan is a regulated activity, the Petitioner requires permission from the Authority in the form of a Distribution Licence. Separately, the Petitioner has also applied for a Supply License to undertake supply of electric power in RSEZ.

3 THE SPONSOR – CRBC & KPEZDMC

- 3.1 CRBC is a multi-billion dollar Chinese state-owned company with over 30 years of construction experience in the Pakistani market. CRBC has been primarily involved in the construction and development of key infrastructure projects in Pakistan, including the notable Sukkur Bypass and Karakoram Highway. As one of the leading Chinese investors, CRBC is backed by the China-Pakistan Economic Corridor and has full support of the Government of Pakistan. A company profile of CRBC is appended as **Annex C-6**.
- 3.2 KPEZDMC, a company incorporated and existing under the laws of Pakistan, is owned by the Government of Khyber Pakhtunkhwa ("**GoKP**") and has specialised and regional experience in the development and management of special economic zones in the province of Khyber Pakhtunkhwa ("**KP**").
- 3.3 The composition of the Petitioner's shareholding is as follows:
- 3.3.a CRBC (through its subsidiary company RB Industrial Investment and Development (Hong Kong) Limited) owns 91% of the paid-up shares;

3.3.b KPEZDMC owns the remaining 9% of the paid-up shares.

4 THE RASHAKAI SPECIAL ECONOMIC ZONE

- 4.1 The RSEZ is an approved economic zone under the Special Economic Zone Act 2012 ("**SEZA**") in Rashakai, KP which will house various industrial and commercial enterprises (also referred to as zone enterprises under the SEZA).
- 4.2 The approval of an economic zone is made by a high-level committee, titled as the Board of Approval, comprising of *inter alia* the Prime Minister of Pakistan, Chairman of the Board of Investment and key federal ministers.
- 4.3 An approved special economic zone, which includes the developer of the economic zone and zone enterprises, receive special (federal and provincial) governmental assistance, incentives and tax rebates. The Board of Investment ("**BOI**") *inter alia* acts as a one-stop facilitating agency between the Federal Government and developers.
- 4.4 BOI has entered into a concession agreement with CRBC and KPEZDMC in relation to the RSEZ project and consequently, extended its full support to the Petitioner to undertake distribution and supply of power for RSEZ.
- 4.5 Section 29(5) of the SEZA provides that all federal and provincial authorities, which includes NEPRA, are *inter alia* required to fully cooperate with the BOI and special economic zones authorities in facilitating the activities of developers.
- 4.6 In light of the national interest involved and governmental support extended to the Petitioner, it is imperative that the Authority favourably considers this SL Petition.

5 PURPOSE OF THE SUPPLY LICENCE

- 5.1 The RSEZ is being developed to be the first of its kind economic zone under the SEZA with an in-house power distribution and supply network.
- 5.2 As RSEZ is a large-scale industrial estate of an unprecedented size for Pakistan, the reliable distribution and delivery of electric power is critical for the success of the project. CRBC has the financial and technical prowess to set-up a strong distribution network which will meet the needs of the zone enterprises in the RSEZ.
- 5.3 In pursuit of its objective, the Petitioner has already developed approximately eighty percent (80%) of the distribution and supply infrastructure and it is expected that the total load shall be 202.6 MW. The progress report of the RSEZ project and the distribution and supply network is appended as **Annex E-9**.
- 5.4 Needless to say, the provision of a reliable electricity distribution and supply is key to ensuring the viability of the RSEZ as a project. Moreover, RSEZ eventual self-sufficiency may serve to set a precedent for other economic zones, which in turn will serve to reduce the load on the overburdened distribution companies.

- 5.5 In light of the foregoing, the Petitioner requests the learned Authority to favourably consider this SL Petition for the grant of a supply licence, which will enable the Petitioner to reliably distribute and supply electric power to the zone enterprises of RSEZ . The grant of a supply license to the Petitioner will pave the way towards energy sustainability and electrical reliability for other similar economic zones in the country.
- 5.6 The Petitioner has constituted a team of experts and consultants to undertake the proposed distribution activities. The profiles of the Petitioner's management staff is appended with this SL Petition as **Annex C-7** and **Annex C-9** as per the requirement of the NEPRA, which include:
- 5.6.a the curriculum vitae of the Petitioner's senior management, technical and professional staff; and
- 5.6.b evidence of the availability of adequate technical resources to the Petitioner to carry out the distribution activities and such evidence consists of:
- employment records of engineering and technical staff of the Petitioner;
 - verifiable references in respect of the experience of the applicant and its proposed sub-contractors.

6 DETAILS AND SALIENT FEATURES OF THE SUPPLY LICENCE

- 6.1 The proposed distribution infrastructure and the line route to be constructed by the Petitioner are fully explained in **Annex E-2**, including the Load Flow Study, etc.
- 6.2 The Petitioner seeks the supply licence in order to sell electricity by way of a 132 MV distribution and supply network with an installed capacity of 210 MW, consisting of two 132kV grid-stations. More specifically the network will comprise of, *inter alia*, bays with associated control protection and metering system, transformer bays, power transformers, single busbar arrangement, incomers, Substation Automation System, grid station AC/DC auxiliary supply, etc.
- 6.3 The majority of the distribution and supply network will be overhead and is designed to be a low loss system, offering improved distribution efficiencies.
- 6.4 All the material and equipment to be used and procured by the Petitioner will be in accordance with NEPRA/NTDC approved specifications.
- 6.5 The land on which the supply system is to be established is hard, solid ground, suitable for the construction of the infrastructure and for the setting up of other ancillary equipment.

7 FINANCIAL STRENGTH

- 7.1 The Petitioner' primary sponsor, CRBC, has demonstrably strong financial capabilities to fund the development of proposed distribution network. Evidence of the financial strength of the both the Petitioner and CRBC is appended as **Annex C-3**.

8 FEASIBILITY STUDY, SYSTEM STUDIES & SPECIFICATION OF EQUIPMENT

- 8.1 A comprehensive feasibility study for the RSEZ has been undertaken which *inter alia* includes the site layout and plan for construction of various facilities, including the distribution and supply network, estimated investment and the socio-economic impact assessment of the project. The said feasibility study is appended herewith as **Annex E-1**.
- 8.2 Separately, the Petitioner hired reputable consultants to finalize the feasibility study of the electrical system (distribution and supply) of RSEZ. The feasibility study for the electrical system (distribution and supply) specifying the type, technology, model, technical details, operational characteristics, system interconnection and design consists of the following documents, appended herewith as **Annex E-2**:
1. Grid Interconnection Studies, as approved by NTDC vide its letter dated 20 June 2022;
 2. External Electrification Design Book of the 11kv distribution network;
 3. General Layout Plan and Single Line Diagram of GS-I substation, as approved by NTDC vide its letter dated 25 November 2021.
- 8.3 The Petitioner has reviewed the relevant technical details of the distribution infrastructure to be established with necessary specifications including the control and protection system.
- 8.4 The distribution infrastructure established by the Petitioner will be compliant with the requirements of the applicable environmental laws and policy and the infrastructure and routing alternatives of the Petitioner will be based on such environmental considerations including construction activities, right-of-way clearing and impacts of construction and operation of towers, access roads, substations and related facilities.
- 8.5 The details and specifications of the distribution equipment form part of the feasibility study.

9 ENVIRONMENTAL IMPACT ASSESSMENT (THE "EIA")

- 9.1 The EIA (as approved) for the RSEZ project, which includes the distribution and supply network, is attached herewith as **Annex E-8** hereto.

10 BILLING AND COLLECTION

- 10.1 The details relating to metering, billing and collection are appended with this SL Petition as **Annex F-9**.

11 COMMUNICATION

- 11.1 The Substation Automation System shall be used to collect data from instruments and relays located at grid station and to transmit data at load dispatch centre (LDC), RSEZ for monitoring and controlling purpose. The collected data from relays and instrument shall be viewed on one or more SAS host computers that will be located at LDC, RSEZ. Based on the information received from the grid stations, automated or operator- driven supervisory commands can be pushed to grid station control devices which are then referred to as the field device.

12 O&M, TRAINING & DEVELOPMENT

- 12.1 The Petitioner shall implement the operation & maintenance, training and development programmes that meet the Authority's approved specifications. These programmes shall be developed before the commencement of operations of the Petitioner. The Petitioner plans to employ, *inter alia*, experienced and trained personnel to carry out the operation and maintenance of the distribution system.

13 ADDITIONAL INFORMATION

- 13.1 The Petitioner shall provide NEPRA such further or additional information, clarification or explanation as it may require from time to time.
- 13.2 It is respectfully submitted that the Petitioner also requests the Authority to allow it to supplement and submit such information and supporting material that it may deem appropriate.

14 PRAYER

14.1 In light of the forgoing, the Petitioner respectfully prays that the learned Authority kindly:

- 14.1.a accept the instant SL Petition and grant the supply licence to the Petitioner for the purpose of supplying electric power within the area of the RSEZ;
- 14.1.b allow the Petitioner to engage in the activities relating to the business of construction, ownership, management, control, operation and maintenance of the supply network, including the distribution lines, electrical distribution facilities, electrical circuits, transformers and sub-stations, the movement and delivery of electric power, interconnection services and facilities and the matters connected therewith and incidental thereto;
- 14.1.c allow such other reliefs which is just, fair, proper, better and necessary in these circumstances.

Dated: 11.11.2022

PETITIONER

Rashakai Special Economic Zone
Development and Operations Company

through

RIAA Barker Gillette
3rd Floor, 65-W, Executive Heights,
Block H, Fazl-ul-Haq Road,
Blue Area, Islamabad
Tel: (051) 111-LAWYER
Fax: (051) 2852427-30
www.riabarkergillette.com

CERTIFICATE OF INCORPORATION

RSEZDOC's Certificate of Incorporation is appended herein below.

A078517



SECURITIES AND EXCHANGE COMMISSION OF PAKISTAN
COMPANY REGISTRATION OFFICE

CERTIFICATE OF INCORPORATION

[Under section 16 of the Companies Act, 2017 (XIX of 2017)]

Corporate Universal Identification No. 0154049

I hereby certify that RASHAKAI SPECIAL ECONOMIC ZONE
DEVELOPMENT & OPERATIONS COMPANY (PRIVATE) LIMITED is this
day incorporated under the Companies Act, 2017 (XIX of 2017) and that the company
is limited by shares.

Given under my hand at Islamabad this Seventeenth day of July, Two
Thousand and Twenty.

Incorporation fee Rs. 101000.0/= only



(Syed Jamal Ahmed Zaidi)
Additional Joint Registrar
Islamabad

No. ADI 36123
Dated 17/7/20



SECURITIES AND EXCHANGE COMMISSION OF PAKISTAN
Company Registration Office
ISLAMABAD

ACKNOWLEDGEMENT OF FILING
[See-regulation-13 (1)]

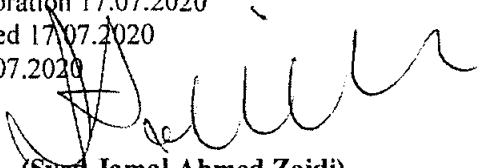
No. ADR-I/0154049

Dated: 17.07.2020

**In the matter of RASHAKAI SPECIAL ECONOMIC ZONE
DEVELOPMENT & OPERATIONS COMPANY (PRIVATE) LIMITED - PLOT
NO.3D, STREET 65, MUSLIN MARKET, F-10-3,, ISLAMABAD, ISLAMABAD
Islamabad Urban Islamabad Capital Territory (I.C.T.) 44000**

The receipt of the under mentioned document(s) filed, registered and recorded pursuant to the provisions of the Companies Act, 2017 (XIX of 2017), is hereby acknowledged.

1. Application for Company Incorporation 17.07.2020
2. Memorandum of Association dated 17.07.2020
3. Articles of Association dated 17.07.2020


(Syed Jamal Ahmed Zaidi)
Additional Joint Registrar
State Life Building, 7-Blue Area,
Islamabad

Fee. Rs. 800 /-

Process ID: 3376212

MEMORANDUM AND ARTICLES OF ASSOCIATION

RSEZDOC's Memorandum and Articles of Association are appended herein below.

A078517



SECURITIES AND EXCHANGE COMMISSION OF PAKISTAN
COMPANY REGISTRATION OFFICE

CERTIFICATE OF INCORPORATION

[Under section 16 of the Companies Act, 2017 (XIX of 2017)]

Corporate Universal Identification No. 0154049

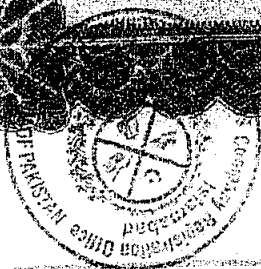
I hereby certify that RASHKANI SPECIAL ECONOMIC ZONE
DEVELOPMENT & OPERATIONS COMPANY (PRIVATE) LIMITED is this
day incorporated under the Companies Act, 2017 (XIX of 2017) and that the company
is limited by shares.

Given under my hand at Islamabad this Seventeenth day of July, Two
Thousand and Twenty.

Incorporation fee Rs. 101000.0/- only

(Syed Jamal Ahmed Zaidi)
Additional Joint Registrar
Islamabad

No. ADI 36123
Dated 17/7/20



CERTIFIED TO BE TRUE COPY

Deputy Registrar
Company Registration Office Islamabad

Inc. Form-II

COMPANIES (INCORPORATION) REGULATIONS, 2017

[See Section 16 of the Act and Regulation 5]

APPLICATION FOR COMPANY INCORPORATION

PART-I

(To be completed by the applicant in block letters)

1.1 Name of the Company **RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT & OPERATIONS COMPANY (PRIVATE) LIMITED**

1.2 Fee Payment
Details

1.2.1 Challan No

0183089871000097

1.2.2 Challan Amount
(Rs.)

101,000.00

PART-II

Section – A - Company Information

2.1* Correspondence Address

City

District

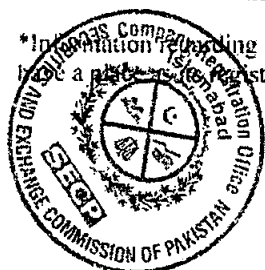
Province

Telephone
Number

Email
Address

Mobile Number

*Information regarding Correspondence address is to be provided only if the company does not have a registered office at the time of Incorporation of company.



2.2 Registered office Address, if any

PLOT NO. 3d, STREET 65, MUSLIN MARKET, F 103, ISLAMABAD, PAKISTAN

City

ISLAMABAD

District

NIL

Province

NIL

Telephone Number

0092-51-2252086/2252086

Website(if any)

NIL

Mobile Number

03155900558

Email Address

rashakaisez@yahoo.com

2.3 Principal line of business (Brief objects as per clause 3 (i) of the Memorandum may be mentioned)

The principal line of business of the Company is development, financing, construction, marketing, management and operation of Special Economic Zone in Rashakai, Tehsil, District Nowshera, Khyber Pakhtunkhwa along with any ancillary business thereto.

Section - B - Capital Structure

	Class/ Kind	Face Value	Number of shares	Total Amount
2.4 Authorized Capital	Ordinary share	PKR10.00	1,000,000/-	PKR10,000,000.00/-
2.5 Paid Up Capital	Ordinary share	PKR10.00	1,000,000/-	PKR10,000,000.00/-

Section - C - Special business information*

(Applicable in case of Banking Company, Non-banking Finance Company, Insurance company, Modaraba management company, Stock Brokerage business, forex, managing agency, business of providing the services of security guards and any other business restricted under any other law or as may be notified by the Commission)

2.6 Nature of business in case of specialized business requiring license / permission / approval (please specify and also attach NOC / approval of the relevant authority)

Nil

*(Additional documents will be required by the Commission)

Section - D - Company subscribers, directors, chief executive officer, and in case of Private



member company, nominee

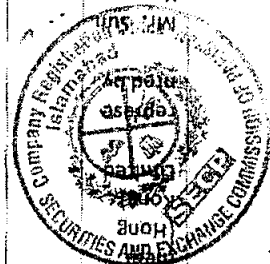
2.7 State Number of directors fixed by subscribers:

[Please note that as per law a company must have minimum director as follows:]

Kind of Company	Minimum number of directors required by law
Single Member Company	01
Private Limited Company	02
Public Limited Company	03

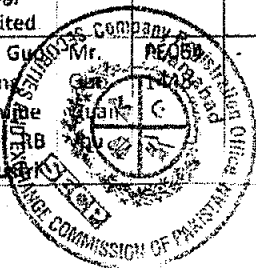
2.8 Details of subscribers, directors and chief executive officer *

Name	ICOP / NICN	Inco rporat ed in (with former national ity and nationality of the origin, if different)	**Occupation	Resident al address/ case of (in direct Subscrib er/ CEO) Please specify	Nu mber of shares subscribed (for subscriber)	Signature
RB Industrial Park Invest ment & Develop ment	7116	4297-000-09-19-3	Chinese	Compan y Employee	Units 06-11, 23A/F KA WAH CTR 191 JAVA RD NORTH HONG KONG	
Khayber Pakhtun khwa	0099	947			Industrial Estate,	
Yanuo	PE164	5315			Subscrib er	
					Nine hundred and ten thousand (910,000)	
					Ninety thousand (90,000)	



Handwritten signature: J. J. J.

Econom ic Zones Develop ment & Manage ment Compan y					Mayataba d, Peshawar , Khyber Pakhtunk hwa, Pakistan		
represe nted by							
Mr. Faisal Saleem Rahman	Mr. Saleem Rahman	16101-4770592-5	Pakistan	Compan y Employe e		Subscriber	
Mr. Sun Yaoguo Nominee of RB Industrial Park Investment & Development (Hong Kong) Limited	Mr. Sun	PE1645315	Chinese	Compan y Employe e	Beijing China Units 06-11, 23A/F KA WAN CTK 191 JATA RD NORTH POINT, HONG KONG	Director & CEO	
Mr. Li Zhihuai Nominee of RB Industrial Park Investment & Development (Hong Kong) Limited	Mr. Li Hai	PE0659528	Chinese	Compan y Employe e	Beijing China House No.2 St No.23 F-8/1, Islamabad Pakistan	Director	
Mr. Gu Meng Nominee of RB Industrial	Mr. Gu Meng	PE0659528	Chinese	Compan y Employe e	Beijing China	Director	

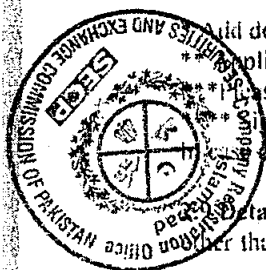


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al Park Investm ent & Develop ment (Hong Kong) Limited						CSS Andingmiao wai Avenue, Dongcheng, Beijing, China				
Mr. Lyu Yan Nomine e of RB Industri al Park Investm ent & Develop ment (Hong Kong) Limited	Mr Lyu Ke	PE201 6010	-	Chinese	Compan y Employee	Beijing China ✓ House #2, St # 32, F-8/1, Islamabad, Pakistan	-	Director		
Mr. Faisal Saleem Rahman Nomine e of Khyber Pakhtun khwa Econom ic Zones Develop ment & Manage ment Compan y	Mr Salee m ur Rah man	16101- 47705 92-5	-	Pakistan	Compan y Employee	6 - Park Avenue, University Town, Peshawar	-	Director		



* Add details as applicable

* Not applicable on subscribers other than natural persons

* Please also mention names of other companies where directorship is held.

* Signature of subscribers and consent to act as director or chief executive as the case may be.
* If online submission, the document will be signed electronically.

* Details of Nominee (only in case of single member company - Nominee shall not be a person other than relatives of the member- namely, a spouse, father, mother, brother, sister and son or

daughter)

Name of Nominee

NIC of Nominee

Residential address of Nominee

Telephone number of Nominee

Email address of Nominee

Relationship of Nominee with
subscriber

Signature of Nominee

Section – E- If the company limited by shares intends to adopt tables contained in First Schedule to the Act, tick the relevant table.

☒ Table A- Part I (Articles of association of company limited by shares)

☐ Table A- Part-II (Articles of association of single member company limited by shares)

Section – F- The company limited by shares in case it has not adopted articles of association contained in First Schedule to the Act, company limited by guarantee and unlimited company shall attach the articles of association.

PART-III

Declaration under section 16

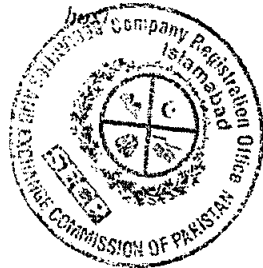
3.1 Declarant Name

MR. LYU YAN

3.2 Declarant Profession /
Designation
(Please check relevant)

☐ Authorized Intermediary

☒ a person named in the articles as Director of the
proposed company



3.3 Declaration

I do hereby solemnly and sincerely declare that:

- a) I have been authorized as declarant by the subscribers;
- b) all the requirements of the Companies Act, 2017, and the regulations made there under in respect of matters precedent to the registration of the said Company and incidental thereto have been complied with
- c) I make this solemn declaration conscientiously believing the same to be true.

3.4 Declarant Signature



3.5 Registration No of authorized intermediary, if applicable

NIL

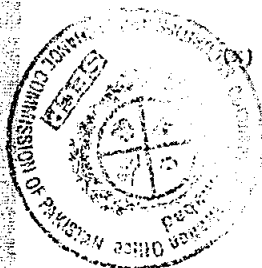
3.6 Date

Day		Month		Year			
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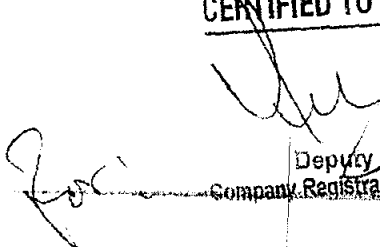
Enclosures:

- (i) Original paid bank challan evidencing payment of fee;
- (ii) Memorandum of Association;
- (iii) Articles of Association, where applicable;
- (iv) Copies of valid NIC/NICOP of the subscribers/directors/chief executive officer or copy of Passport in case of a foreigner;
- (v) Copy of valid NIC/NICOP of Nominee only in case of single member company or copy of Passport in case of a foreigner;
- (vi) Copy of valid NIC of witness in case of physical filing;
- (vii) NOC/Letter of Intent/ License (if any) of the relevant regulatory authority in case of specialized business;
- (viii) Authority letter for filing of documents for the proposed company as per requirement of clause (vi) of sub-regulation (2) of regulation 5.
- (ix) Copy of valid NIC/Passport of person duly authorized by the Board of directors of a body corporate which is a subscriber along with copy of Board resolution and attendance sheet. In case of a subscriber which is a limited liability partnership, copy of valid NIC/ Passport of designated partner empowered to act as such, along with copy of instrument empowering him;

In case the subscriber is a foreign company or a foreign body corporate, the profile of the company, detail of its directors, their nationality and country of origin, certified copy of its charter, statute or memorandum and articles etc.

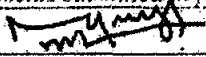


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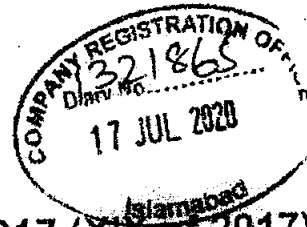
7/7/20

Deputy Registrar
Company Registration Office Islamabad

- (xi) In case of foreign subscriber/ officer, an undertaking on stamp paper of requisite value duly signed, notarized and witnessed to the effect that in case name of subscriber/officer is not security cleared by Mol, the subscriber/officer and the company, shall take immediate steps for replacement and shall transfer shares if any, held by the subscriber.

Witness to above signatures: (For the documents submitted in physical form)

Signatures:	
Full Name (in Block Letters)	MR MUHAMMAD KHURRAM KHAN
Father's/ Husband's name	MR AKHTAR ZEB KHAN
Nationality	PAKISTANI
CNIC No.	13503-1941201-1
Usual residential address	HOUSE#312/2, ST#20, SEC-1, AIRPORT HOUSING SOCIETY, RAWALPINDI.





THE COMPANIES ACT, 2017 (XIX of 2017)

(COMPANY LIMITED BY SHARES)

MEMORANDUM

OF

ASSOCIATION

OF



Rashakai Special Economic Zone Development
& Operations Company (Private) Limited



THE COMPANIES ACT, 2017 (XIX of 2017)

(COMPANY LIMITED BY SHARES)

MEMORANDUM OF ASSOCIATION OF

"Rashakai Special Economic Zone Development & Operations Company (Private) Limited"

1. The name of the company is **Rashakai Special Economic Zone Development & Operations Company (Private) Limited.**
2. The registered office of the Company will be situated in Islamabad Capital Territory
3. (i) The principal line of business of the company shall be to carry on the business of development, financing, construction, marketing, management and operation of Special Economic Zone in Rashakai, Tehsil, District Nowshera, Khyber Pakhtunkhwa along with any ancillary business thereto, under the provisions of the Special Economic Zones Act 2012, Special Economic Zone Rules 2013 and other allied laws. It can deal in all types of developed and non-developed land for various purposes of industrial, commercial and residential properties mainly for the industrial and commercial purposes and allied types of property as well as matters ancillary thereto with the applicable approvals and permissions from the concerned authorities and in compliance with applicable laws and regulations.

(ii) Except for the businesses mentioned in sub-clause (iii) hereunder, the company may engage in all the lawful businesses and shall be authorized to take all necessary steps and actions in connection therewith and ancillary thereto.

(iii) Notwithstanding anything contained in the foregoing sub-clauses of this clause nothing contained herein shall be construed as empowering the Company to undertake or indulge, directly or indirectly in the business of a Banking Company, Non-banking Finance Company (Mutual Fund, Leasing, Investment Company, Investment Advisor, Real Estate Investment Trust management company, Housing Finance Company, Venture Capital Company, Discounting Services, Microfinance or Microcredit business), Insurance



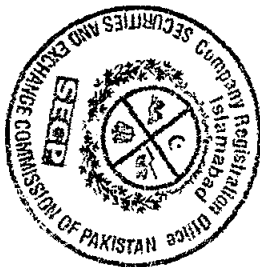
Business, *Modaraba* management company, Stock Brokerage business, forex, managing agency, business of providing the services of security guards or any other business restricted under any law for the time being in force or as may be specified by the Commission.

(iv) It is hereby undertaken that the company shall not:

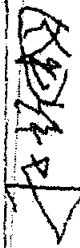
- (a) engage in any of the business mentioned in sub-clause (iii) above or any unlawful operation;
- (b) launch multi-level marketing (MLM), Pyramid and Ponzi Schemes, or other related activities/businesses or any lottery business;
- (c) engage in any of the permissible business unless the requisite approval, permission, consent or licence is obtained from competent authority as may be required under any law for the time being in force.

4. The liability of the members is limited.

5. The authorized capital of the company is Rs 10,000,000 (Rupees Ten Million Pak Rupees only) divided into 1,000,000 (ten hundred thousand) ordinary shares of Rs.10/- (Rupees ten only) each.



We, the several persons whose names and addresses are subscribed below, are desirous of being formed into a company, in pursuance of this memorandum of association, and we respectively agree to take the number of shares in the capital of the company as set opposite our respective names:

Name and surname (present & former) in full (in Black Letters)	NIC No. (in case of foreigner, Passport No)	Father's/ Husband's Name in full	Nationality (ies) with any former Nationality	Occupation	Usual residential address in full or the registered/ principal office address for a subscriber other than natural person	Number of shares taken by each subscriber (in figures and words)	Signatures
RB Industrial Park Investment & Development (Hong Kong) Limited Represented by Mr Sun Yaoguo	PE1645315		Chinese	Company employee	Units 06-11, 23A/F KA WAH CTR 191 JAVA RD NORTH POINT, HONG KONG, CHINA	Nine hundred and ten thousand (910,000)	

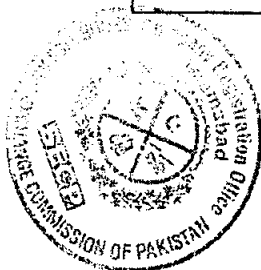


Khyber Pakhtunkhwa Economic Zones Development & Management Company Represented by Mr. Faisal Saleem Rahman	16101-4770592-5	Mr. Saleem ur Rahman	Pakistani	Company employee	AT 120. INDUSTRIAL ESTATE, HAYATABAD, PESHAWAR, KHYBER PAKHTUNKHWA, PAKISTAN	Ninety thousand (90,000)	<i>Faisal Saleem Rahman</i>
		Total number of shares taken (In figures and words)				One million (1,000,000) only	

Dated the 17th day of July, 2020

Witness to above signatures: (For the documents submitted in physical form)

Signature	<i>Mr. Muhammad Khurram Khan</i>
Full Name (in Block Letters)	MR MUHAMMAD KHURRAM KHAN
Father's/ Husband's name	MR AKHTAR ZEB KHAN
Nationality	PAKISTANI
Occupation	Senior Investment Adviser
NIC No.	13503-1941201-1
Usual residential address	HOUSE#312/2, ST#20, SEC-1, AIRPORT HOUSING SOCIETY, RAWALPINDI.



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Page 3 of 3

17/07/20
Per
Deputy Registrar
Company Registration Office Islamabad

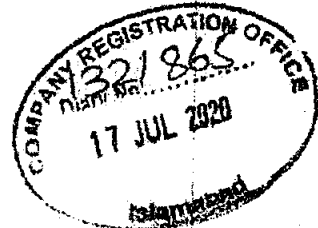
THE COMPANIES ACT, 2017 (XIX of 2017)

(Company Limited by Shares)

ARTICLES OF ASSOCIATION

OF

Rashakai Special Economic Zone Development & Operations Company
(Private) Limited.



PRELIMINARY

1. (1) In these regulations-

- (a) "section" means section of the Act;
- (b) "the Act" means the Companies Act, 2017; and
- (c) "the seal" means the common seal or official seal of the company as the case may be.

(2) Unless the context otherwise requires, words or expressions contained in these regulations shall have the same meaning as in this Act; and words importing the singular shall include the plural, and *vice versa*, and words importing the masculine gender shall include feminine, and words importing persons shall include bodies corporate.

BUSINESS

2. The directors shall have regard to the restrictions on the commencement of business imposed by section 19 if, and so far as, those restrictions are binding upon the company.

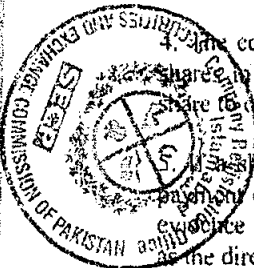
SHARES

3. In case of shares in the physical form, every person whose name is entered as a member in the register of members shall, without payment, be entitled to receive, within thirty days after allotment or within fifteen days of the application for registration of transfer, a certificate under the seal specifying the share or shares held by him and the amount paid up thereon:

Provided that if the shares are in book entry form or in case of conversion of physical shares and other transferable securities into book-entry form, the company shall, within ten days after an application is made for the registration of the transfer of any shares or other securities to a central depository, register such transfer in the name of the central depository.

4. The company shall not be bound to issue more than one certificate in respect of a share or shares in the physical form, held jointly by several persons and delivery of a certificate for a share to one of several joint holders shall be sufficient delivery to all.

5. If a share certificate in physical form is defaced, lost or destroyed, it may be renewed on payment of such fee, if any, not exceeding one hundred rupees, and on such terms, if any, as to evidence and indemnity and payment of expenses incurred by the company in investigating title as the directors think fit.



6. Except to the extent and in the manner allowed by section 86, no part of the funds of the company shall be employed in the purchase of, or in loans upon the security of, the company's shares.

TRANSFER AND TRANSMISSION OF SHARES

7. The instrument of transfer of any share in physical form in the company shall be executed both by the transferor and transferee, and the transferor shall be deemed to remain holder of the share until the name of the transferee is entered in the register of members in respect thereof.

8. Shares in physical form in the company shall be transferred in the following form, or in any usual or common form which the directors shall approve: -

Form for Transfer of Shares (First Schedule to the Companies Act, 2017)

I, ... s/o r/o (hereinafter called "the transferor") in consideration of the sum of rupees paid to me by s/o r/o (hereinafter called "the transferee"), do hereby transfer to the said transferee the share (or shares) with distinctive numbers from to inclusive, in the Limited, to hold unto the said transferee, his executors, administrators and assigns, subject to the several conditions on which I held the same at the time of the execution hereof, and I, the said transferee, do hereby agree to take the said share (or shares) subject to the conditions aforesaid.
As witness our hands this day of , 20.....

Signature
Transferor
Full Name, Father's / Husband's Name
CNIC Number (in case of foreigner,
Passport Number)
Nationality
Occupation and usual Residential Address

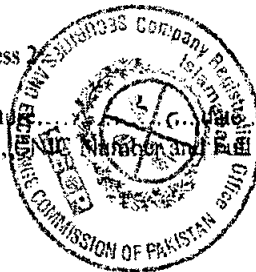
Signature
Transferee
Full Name, Father's / Husband's Name
CNIC Number (in case of foreigner,
Passport Number)
Nationality
Occupation and usual Residential Address
Cell number
Landline number, if any
Email address

Witness 1:

Signature date
Name, CNIC Number and Full Address

Witness 2:

Signature
Name, CNIC Number and Full Address



Bank Account Details of Transferee for Payment of Cash Dividend
(Mandatory in case of a listed company or optional for any other company)

It is requested that all my cash dividend amounts declared by the company, may be credited into the following bank account:

Title of Bank Account	
Bank Account Number	
Bank's Name	
Branch Name and Address	

It is stated that the above mentioned information is correct and that I will intimate the changes in the above-mentioned information to the company and the concerned Share Registrar as soon as these occur.

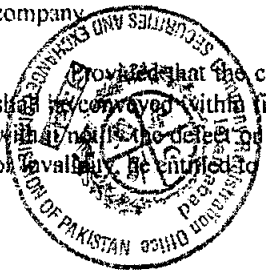
.....
Signature of the Transferee(s)

9. (1) Subject to the restrictions contained in regulation 10 and 11, the directors shall not refuse to transfer any share unless the transfer deed is defective or invalid. The directors may also suspend the registration of transfers during the ten days immediately preceding a general meeting or prior to the determination of entitlement or rights of the shareholders by giving seven days' previous notice in the manner provided in the Act. The directors may, in case of shares in physical form, decline to recognise any instrument of transfer unless—

- a) a fee not exceeding fifty rupees as may be determined by the directors is paid to the company in respect thereof; and
- b) the duly stamped instrument of transfer is accompanied by the certificate of the shares to which it relates, and such other evidence as the directors may reasonably require to show the right of the transferor to make the transfer.

(2) If the directors refuse to register a transfer of shares, they shall within fifteen days after the date on which the transfer deed was lodged with the company send to the transferee and the transferor notice of the refusal indicating the defect or invalidity to the transferee, who shall, after removal of such defect or invalidity be entitled to re-lodge the transfer deed with the company.

Provided that the company shall, where the transferee is a central depository the refusal shall be conveyed within five days from the date on which the instrument of transfer was lodged with it, notify the defect or invalidity to the transferee who shall, after the removal of such defect or invalidity, be entitled to re-lodge the transfer deed with the company.



TRANSMISSION OF SHARES

10. The executors, administrators, heirs, or nominees, as the case may be, of a deceased sole holder of a share shall be the only persons recognised by the company to deal with the share in accordance with the law. In the case of a share registered in the names of two or more holders, the survivors or survivor, or the executors or administrators of the deceased survivor, shall be the

only persons recognised by the company to deal with the share in accordance with the law.

11. The shares or other securities of a deceased member shall be transferred on application duly supported by succession certificate or by lawful award, as the case may be, in favour of the successors to the extent of their interests and their names shall be entered to the register of members.

12. A person may on acquiring interest in a company as member, represented by shares, at any time after acquisition of such interest deposit with the company a nomination conferring on a person, being the relatives of the member, namely, a spouse, father, mother, brother, sister and son or daughter, the right to protect the interest of the legal heirs in the shares of the deceased in the event of his death, as a trustee and to facilitate the transfer of shares to the legal heirs of the deceased subject to succession to be determined under the Islamic law of inheritance and in case of non-Muslim members, as per their respective law.

13. The person nominated under regulation 12 shall, after the death of the member, be deemed as a member of company till the shares are transferred to the legal heirs and if the deceased was a director of the company, not being a listed company, the nominee shall also act as director of the company to protect the interest of the legal heirs.

14. A person to be deemed as a member under regulation 11, 12 and 13 to a share by reason of the death or insolvency of the holder shall be entitled to the same dividends and other advantages to which he would be entitled if he were the registered holder of the share and exercise any right conferred by membership in relation to meetings of the company.

ALTERATION OF CAPITAL

15. The company may, by special resolution-

- (a) increase its authorised capital by such amount as it thinks expedient;
- (b) consolidate and divide the whole or any part of its share capital into shares of larger amount than its existing shares;
- (c) sub-divide its shares, or any of them, into shares of smaller amount than is fixed by the memorandum;
- (d) cancel shares which, at the date of the passing of the resolution in that behalf, have not been taken or agreed to be taken by any person, and diminish the amount of its share capital by the amount of the share so cancelled.

16. Subject to the provisions of the Act, all new shares shall at the first instance be offered to such persons as at the date of the offer are entitled to such issue in proportion as nearly as the circumstances admit, to the amount of the existing shares to which they are entitled. The offer shall be made by letter of offer specifying the number of shares offered and limited to a time within which the offer, if not accepted, will deem to be declined, and after the expiration of that time, or on the receipt of an intimation from the person to whom the offer is made that he declines to accept the shares offered, the directors may dispose of the same in such manner as they think most beneficial to the company. The directors may likewise so dispose of any new shares which (by reason of the ratio which the new shares bear to shares held by persons entitled to an offer of new shares) cannot, in the opinion of the directors, be conveniently offered under this regulation.

17. The new shares shall be subject to the same provisions with reference to transfer, transmission and otherwise as the shares in the original share capital.

18. The company may, by special resolution-

(a) consolidate and divide its share capital into shares of larger amount than its existing shares;

(b) sub-divide its existing shares or any of them into shares of smaller amount than is fixed by the memorandum of association, subject, nevertheless, to the provisions of section 85;

(c) cancel any shares which, at the date of the passing of the resolution, have not been taken or agreed to be taken by any person.

19. The company may, by special resolution, reduce its share capital in any manner and with, and subject to confirmation by the Court and any incident authorised and consent required, by law.

GENERAL MEETINGS

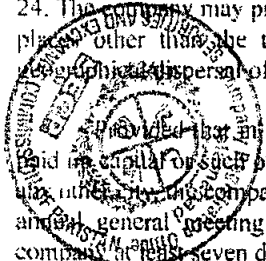
20. The statutory general meeting of the company shall be held within the period required by section 131.

21. A general meeting, to be called annual general meeting, shall be held, in accordance with the provisions of section 132, within sixteen months from the date of incorporation of the company and thereafter once at least in every year within a period of one hundred and twenty days following the close of its financial year.

22. All general meetings of a company other than the statutory meeting or an annual general meeting mentioned in sections 131 and 132 respectively shall be called extraordinary general meetings.

23. The directors may, whenever they think fit, call an extraordinary general meeting, and extraordinary general meetings shall also be called on such requisition, or in default, may be called by such requisitionists, as provided by section 133. If at any time there are not within Pakistan sufficient directors capable of acting to form a quorum, any director of the company may call an extraordinary general meeting in the same manner as nearly as possible as that in which meetings may be called by the directors.

24. The company may provide video-link facility to its members for attending general meeting at places other than the town in which general meeting is taking place after considering the geographical dispersal of its members:

 provided that in case of listed companies if the members holding ten percent of the total paid up capital or such other percentage of the paid up capital as may be specified, are resident in any other town, the company shall provide the facility of video-link to such members for attending annual general meeting of the company, if so required by such members in writing to the company at least seven days before the date of the meeting.

NOTICE AND PROCEEDINGS OF GENERAL MEETINGS

25. Twenty-one days' notice at the least (exclusive of the day on which the notice is served or deemed to be served, but inclusive of the day for which notice is given) specifying the place, the day and the hour of meeting and, in case of special business, the general nature of that business, shall be given in manner provided by the Act for the general meeting, to such persons as are, under the Act or the regulations of the company, entitled to receive such notice from the company; but the accidental omission to give notice to, or the non-receipt of notice by, any member shall not invalidate the proceedings at any general meeting.

26. All the business transacted at a general meeting shall be deemed special other than the business stated in sub-section (2) of section 134 namely: the consideration of financial

statements and the reports of the board and auditors, the declaration of any dividend, the election and appointment of directors in place of those retiring, and the appointment of the auditors and fixing of their remuneration.

27. No business shall be transacted at any general meeting unless a quorum of members is present at that time when the meeting proceeds to business. The quorum of the general meeting shall be-

(a) in the case of a public listed company, not less than ten members present personally, or through video-link who represent not less than twenty-five percent of the total voting power, either of their own account or as proxies;

(b) in the case of any other company having share capital, two members present personally, or through video-link who represent not less than twenty-five percent of the total voting power, either of their own account or as proxies.

28. If within half an hour from the time appointed for the meeting a quorum is not present, the meeting, if called upon the requisition of members, shall be dissolved; in any other case, it shall stand adjourned to the same day in the next week at the same time and place, and if at the adjourned meeting a quorum is not present within half an hour from the time appointed for the meeting, the members present, being not less than two, shall be a quorum.

29. The chairman of the board of directors, if any, shall preside as chairman at every general meeting of the company, but if there is no such chairman, or if at any meeting no chairman is present within fifteen minutes after the time appointed for the meeting, or is unwilling to act as chairman, any one of the directors present may be elected to be chairman, and if none of the directors is present, or willing to act as chairman, the members present shall choose one of their number to be chairman.

30. The chairman may, with the consent of any meeting at which a quorum is present (and shall if so directed by the meeting), adjourn the meeting from time to time but no business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place. When a meeting is adjourned for fifteen days or more, notice of the adjourned meeting shall be given as in the case of an original meeting. Save as aforesaid, it shall not be necessary to give any notice of an adjournment or of the business to be transacted at an adjourned meeting.

31. (1) At any general meeting a resolution put to the vote of the meeting shall be decided on a show of hands unless a poll is (before or on the declaration of the result of the show of hands) demanded. Unless a poll is so demanded, a declaration by the chairman that a resolution has, on a show of hands, been carried, or carried unanimously, or by a particular majority, or lost, and an entry to that effect in the book of the proceedings of the company shall be conclusive evidence of the fact, without proof of the number or proportion of the votes recorded in favour of, or against, that resolution.

(2) At any general meeting, the company shall transact such businesses as may be notified by the Commission, only through postal ballot.

32. A poll may be demanded only in accordance with the provisions of section 143.

33. If a poll is duly demanded, it shall be taken in accordance with the manner laid down in sections 144 and 145 and the result of the poll shall be deemed to be the resolution of the meeting at which the poll was demanded.

34. A poll demanded on the election of chairman or on a question of adjournment shall be taken at once.

35. In the case of an equality of votes, whether on a show of hands or on a poll, the chairman of the meeting at which the show of hands takes place, or at which the poll is demanded, shall have and exercise a second or casting vote.

36. Except for the businesses specified under sub-section (2) of section 134 to be conducted in the annual general meeting, the members of a private company or a public unlisted company (having not more than fifty members), may pass a resolution (ordinary or special) by circulation signed by all the members for the time being entitled to receive notice of a meeting. The resolution by circulation shall be deemed to be passed on the date of signing by the last of the signatory member to such resolution.

VOTES OF MEMBERS

37. Subject to any rights or restrictions for the time being attached to any class or classes of shares, on a show of hands every member present in person shall have one vote except for election of directors in which case the provisions of section 159 shall apply. On a poll every member shall have voting rights as laid down in section 134.

38. In case of joint holders, the vote of the senior who tenders a vote, whether in person or by proxy or through video-link shall be accepted to the exclusion of the votes of the other joint-holders; and for this purpose seniority shall be determined by the order in which the names stand in the register of members.

39. A member of unsound mind, or in respect of whom an order has been made by any court having jurisdiction in lunacy, may vote, whether on show of hands or on a poll or through video link, by his committee or other legal guardian, and any such committee or guardian may, on a poll, vote by proxy.

40. On a poll votes may be given either personally or through video-link, by proxy or through postal ballot;

Provided that nobody corporate shall vote by proxy as long as a resolution of its directors in accordance with the provisions of section 138 is in force.

41. (1) The instrument appointing a proxy shall be in writing under the hand of the appointer or of his attorney duly authorised in writing.

(2) The instrument appointing a proxy and the power-of-attorney or other authority (if any) under which it is signed, or a notarially certified copy of that power or authority, shall be deposited at the registered office of the company not less than forty-eight hours before the time for holding the meeting at which the person named in the instrument proposes to vote and in default the instrument of proxy shall not be treated as valid.

42. An instrument appointing a proxy may be in the following form, or a form as near thereto as may be:

INSTRUMENT OF PROXY

..... Limited

"I s/o t/o being a member of the Limited, hereby appoint s/o t/o as my proxy to attend and vote on my behalf at the (statutory, annual, extraordinary, as the case may be) general meeting of the company to be held on the day of 20..... and at any adjournment thereof."

43. A vote given in accordance with the terms of an instrument of proxy shall be valid notwithstanding the previous death or insanity of the principal or revocation of the proxy or of the authority under which the proxy was executed, or the transfer of the share in respect of which the proxy is given, provided that no intimation in writing of such death, insanity, revocation or transfer as aforesaid shall have been received by the company at the office before the commencement of the meeting or adjourned meeting at which the proxy is used.

DIRECTORS

44. The following subscribers of the memorandum of association shall be the first directors of the company, so, however, that the number of directors shall not in any case be less than that specified in section 154 and they shall hold office until the election of directors in the first annual general meeting:

- (1). Mr. Sun Yaoguo, son of Mr. Sun, Chinese Nationality, having CNIC/Passport No. PE1645315
- (2). Mr. Li Zhihui, son of Mr. Li Lihai, Chinese Nationality, having CNIC/Passport No. PE0659528
- (3). Mr. Guo Meng, son of Mr. Guo Quanyou, Chinese Nationality, having CNIC/Passport No. PE0641448
- (4). Mr. Lyu Yan, son of Mr. Lyu Ke, Chinese Nationality, having CNIC/Passport No. PE2016010
- (5). Mr. Faisal Saleem Rahman, son of Mr. Saleem ur Rahman, Pakistani Nationality, having CNIC No. 16101-4770592-5

45. The remuneration of the directors shall from time to time be determined by the company in general meeting subject to the provisions of the Act.

46. Save as provided in section 153, no person shall be appointed as a director unless he is a member of the company.

POWERS AND DUTIES OF DIRECTORS

47. The business of the company shall be managed by the directors, who may pay all expenses incurred in promoting and registering the company, and may exercise all such powers of the company as are not by the Act or any statutory modification thereof for the time being in force, or by these regulations, required to be exercised by the company in general meeting, subject nevertheless to the provisions of the Act or to any of these regulations, and such regulations being not inconsistent with the aforesaid provisions, as may be prescribed by the company in general meeting but no regulation made by the company in general meeting shall invalidate any prior act of the directors which would have been valid if that regulation had not been made.

48. The directors shall appoint a chief executive in accordance with the provisions of sections 186 and 187.

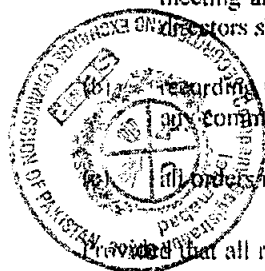
49. The amount for the time being remaining undischarged of moneys borrowed or raised by the directors for the purposes of the company (otherwise than by the issue of share capital) shall not at any time, without the sanction of the company in general meeting, exceed the issued share capital of the company.

50. The directors shall duly comply with the provisions of the Act, or any statutory modification thereof for the time being in force, and in particular with the provisions in regard to the registration of the particulars of mortgages, charges and pledge affecting the property of the company or created by it, to the keeping of a register of the directors, and to the sending to the registrar of an annual list of members, and a summary of particulars relating thereto and notice of any consolidation or increase of share capital, or sub-division of shares, and copies of special resolutions and a copy of the register of directors and notifications of any changes therein.

MINUTE BOOKS

51. The directors shall cause records to be kept and minutes to be made in book or books with regard to

- (a) all resolutions and proceedings of general meeting(s) and the meeting(s) of directors and Committee(s) of directors, and every member present at any general meeting and every director present at any meeting of directors or Committee of directors shall put his signature in a book to be kept for that purpose;



regarding the names of the persons present at each meeting of the directors and of any committee of the directors, and the general meeting; and

(b) orders made by the directors and Committee(s) of directors;

Provided that all records related to proceedings through video-link shall be maintained in accordance with the relevant regulations specified by the Commission which shall be appropriately rendered into writing as part of the minute books according to the said regulations.

THE SEAL.

52. The directors shall provide for the safe custody of the seal and the seal shall not be affixed to any instrument except by the authority of a resolution of the board of directors or by a committee of directors authorized in that behalf by the directors and in the presence of at least two directors and of the secretary or such other person as the directors may appoint for the purpose; and those two directors and secretary or other person as aforesaid shall sign every instrument to which the seal of the company is so affixed in their presence.

DISQUALIFICATION OF DIRECTORS

53. No person shall become the director of a company if he suffers from any of the disabilities or disqualifications mentioned in section 153 or disqualified or debarred from holding such office under any of the provisions of the Act as the case may be and, if already a director, shall cease to hold such office from the date he so becomes disqualified or disabled:

Provided, however, that no director shall vacate his office by reason only of his being a member of any company which has entered into contracts with, or done any work for, the company of which he is director, but such director shall not vote in respect of any such contract or work, and if he does so vote, his vote shall not be counted.

PROCEEDINGS OF DIRECTORS

54. The directors may meet together for the dispatch of business, adjourn and otherwise regulate their meetings, as they think fit. A director may, and the secretary on the requisition of a director shall, at any time, summon a meeting of directors. Notice sent to a director through email whether such director is in Pakistan or outside Pakistan shall be a valid notice.

55. The directors may elect a chairman of their meetings and determine the period for which he is to hold office; but, if no such chairman is elected, or if at any meeting the chairman is not present within ten minutes after the time appointed for holding the same or is unwilling to act as chairman, the directors present may choose one of their number to be chairman of the meeting.

56. At least one-third ($\frac{1}{3}^{th}$) of the total number of directors or two (2) directors whichever is higher, for the time being of the company, present personally or through video-link, shall constitute a quorum.

57. Save as otherwise expressly provided in the Act, the quorum at meetings of the board shall be determined by a majority of votes of the directors present, person or through video-link, each director having one vote. In case of an equality of votes, the chairman shall have a casting vote in addition to his original vote as a director.

58. The directors may delegate any of their powers not required to be exercised in their meeting to committees consisting of such member or members of their body as they think fit. Any committee so formed shall, in the exercise of the powers so delegated, conform to any restrictions that may be imposed on them by the directors.

59. (1) A committee may elect a chairman of its meetings; but, if no such chairman is elected, or

if at any meeting the chairman is not present within ten minutes after the time appointed for holding the same or is unwilling to act as chairman, the members present may choose one of their number to be chairman of the meeting.

(2) A committee may meet and adjourn as it thinks proper. Questions arising at any meeting shall be determined by a majority of votes of the members present. In case of an equality of votes, the chairman shall have and exercise a second or casting vote.

60. All acts done by any meeting of the directors or of a committee of directors, or by any person acting as a director, shall, notwithstanding that it be afterwards discovered that there was some defect in the appointment of any such directors or persons acting as aforesaid, or that they or any of them were disqualified, be as valid as if every such person had been duly appointed and was qualified to be a director.

61. A copy of the draft minutes of meeting of the board of directors shall be furnished to every director within seven working days of the date of meeting.

62. A resolution in writing signed by all the directors for the time being entitled to receive notice of a meeting of the directors shall be as valid and effectual as if it had been passed at a meeting of the directors duly convened and held.

FILLING OF VACANCIES

63. At the first annual general meeting of the company, all the directors shall stand retired from office, and directors shall be elected in their place in accordance with section 159 for a term of three years.

64. A retiring director shall be eligible for re-election.

65. The directors shall comply with the provisions of sections 154 to 159 and sections 161, 162 and 167 relating to the election of directors and matters ancillary thereto.

66. Any casual vacancy occurring on the board of directors may be filled up by the directors, but the person so chosen shall be subject to retirement at the same time as if he had become a director on the day on which the director in whose place he is chosen was last elected as director.

67. The company may remove a director but only in accordance with the provisions of the Act.

DIVIDENDS AND RESERVE

68. The company in general meeting may declare dividends but no dividend shall exceed the amount recommended by the directors.

69. The directors may from time to time pay to the members such interim dividends as appear to the directors to be justified by the profits of the company.

70. Any dividend may be paid by a company either in cash or in kind only out of its profits. The payment of dividend in kind shall only be in the shape of shares of listed company held by the distribution company.

71. Dividend shall not be paid out of unrealized gain on investment property credited to profit

and loss account.

72. Subject to the rights of persons (if any) entitled to shares with special rights as to dividends, all dividends shall be declared and paid according to the amounts paid on the shares.

73. (1) The directors may, before recommending any dividend, set aside out of the profits of the company such sums as they think proper as a reserve or reserves which shall, at the discretion of the directors, be applicable for meeting contingencies, or for equalizing dividends, or for any other purpose to which the profits of the company may be properly applied, and pending such application may, at the like discretion, either be employed in the business of company or be invested in such investments (other than shares of the company) as the directors may, subject to the provisions of the Act, from time to time think fit.

(2) The directors may carry forward any profits which they may think prudent not to distribute, without setting them aside as a reserve.

74. If several persons are registered as joint-holders of any share, any one of them may give effectual receipt for any dividend payable on the share.

75. (1) Notice of any dividend that may have been declared shall be given in manner hereinafter mentioned to the persons entitled to share therein but, in the case of a public company, the company may give such notice by advertisement in a newspaper circulating in the Province in which the registered office of the company is situate.

(2) Any dividend declared by the company shall be paid to its registered shareholders or to their order. The dividend payable in cash may be paid by cheque or warrant or in any electronic mode to the shareholders entitled to the payment of the dividend, as per their direction.

(3) In case of a listed company, any dividend payable in cash shall only be paid through electronic mode directly into the bank account designated by the entitled shareholders.

76. The dividend shall be paid within the period laid down under the Act.

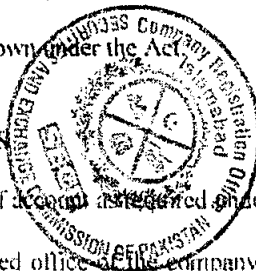
ACCOUNTS

77. The directors shall cause to be kept proper books of account as required under section 220.

78. The books of account shall be kept at the registered office of the company or at such other place as the directors shall think fit and shall be open to inspection by the directors during business hours.

79. The directors shall from time to time determine whether and to what extent and at what time and places and under what conditions or regulations the accounts and books or papers of the company or any of them shall be open to the inspection of members not being directors, and no member (not being a director) shall have any right of inspecting any account and book or papers of the company except as conferred by law or authorised by the directors or by the company in general meeting.

80. The directors shall as required by sections 223 and 226 cause to be prepared and to be laid before the company in general meeting the financial statements duly audited and reports as are referred to in those sections.



81. The financial statements and other reports referred to in regulation 80 shall be made out in every year and laid before the company in the annual general meeting in accordance with sections 132 and 223.

82. A copy of the financial statements and reports of directors and auditors shall, at least twenty-one days preceding the meeting, be sent to the persons entitled to receive notices of general meetings in the manner in which notices are to be given hereunder.

83. The directors shall in all respect comply with the provisions of sections 220 to 227.

84. Auditors shall be appointed and their duties regulated in accordance with sections 246 to 249.

NOTICES

85. (1) A notice may be given by the company to any member to his registered address or if he has no registered address in Pakistan to the address, if any, supplied by him to the company for the giving of notices to him against an acknowledgement or by post or courier service or through electronic means or in any other manner as may be specified by the Commission.

(2) Where a notice is sent by post, service of the notice shall be deemed to be effected by properly addressing, prepaying and posting a letter containing the notice and, unless the contrary is proved, to have been effected at the time at which the letter will be delivered in the ordinary course of post.

86. A notice may be given by the company to the joint-holders of a share by giving the notice to the joint-holder named first in the register in respect of the share.

87. A notice may be given by the company to the person entitled to a share in consequence of the death or insolvency of a member in the manner provided under regulation 85 addressed to them by name, or by the title or representatives of the deceased, or assignees of the insolvent, or by any like description, at the address, supplied for the purpose by the person claiming to be so entitled.

88. Notice of every general meeting shall be given in the manner hereinbefore authorised to (a) every member of the company and also to (b) every person entitled to a share in consequence of the death or insolvency of a member, who but for his death or insolvency would be entitled to receive notice of the meeting, and (c) to the auditors of the company for the time being and every person entitled to receive notice of general meetings.

WINDING UP

89. (1) In the case of members' voluntary winding up, with the sanction of a special resolution of the company, and, in the case of creditors' voluntary winding up, of a meeting of the creditors, the liquidator shall exercise any of the powers given by sub-section (1) of section 337 of the Act to a liquidator in a winding up by the Court including *inter-alia* divide amongst the members, in specie or kind, the whole or any part of the assets of the company, whether they consist of property of the same kind or not.

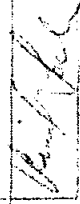
(2) For the purpose aforesaid, the liquidator may set such value as he deems fair upon any property to be divided as aforesaid and may determine how such division shall be carried out as between the members or different classes of members.

(3) The liquidator may, with the like sanction, vest the whole or any part of such assets in trustees upon such trusts for the benefit of the contributories as the liquidator, with the like sanction, thinks fit, but so that no member shall be compelled to accept any shares or other securities whereon there is any liability.

INDEMNITY

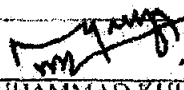
90. Every officer or agent for the time being of the company may be indemnified out of the assets of the company against any liability incurred by him in defending any proceedings, whether civil or criminal, arising out of his dealings in relation to the affairs of the company, except those brought by the company against him, in which judgment is given in his favour or in which he is acquitted, or in connection with any application under section 492 in which relief is granted to him by the Court.

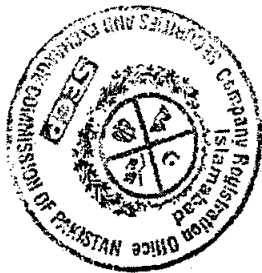
We, the several persons whose names and addresses are subscribed below, are desirous of being formed into a company, in pursuance of these articles of association, and we respectively agree to take the number of shares in the capital of the company set opposite our respective names:

Name and surname (present & former) in full (in Block Letters)	NIC No. (in case of foreigner, Passport No)	Father's/Husband's Name in full	Nationality(ies) with any former Nationality	Occupation	Usual residential address in full or the registered/ principal office address for a subscriber other than natural person	Number of shares taken by each subscriber (in figures and words)	Signatures
RB Industrial Park Investment & Development (Hong Kong) Limited Represented by Mr Sun Yaoguo	PE1645315	Sun	Chinese	Company employee	Units 06-11, 23A/F KA WAH CTR 191 JAVA RD NORTH POINT, HONG KONG	Nine Hundred and Ten Thousand (910,000)	
Khyber Pakhtunkhwa Economic Zone Development & Management Company Represented by Mr Faisal Saleem Rahaman	16101-4770592-5	Mr. Saleem ur Rahman	Pakistani	Company employee	AP 120, INDUSTRIAL ESTATE, WATABAD PESHAWAR, KHYBER PAKHTUNKHWA, PAKISTAN	Ninety Thousand (90,000)	
Total number of shares taken (in figures and words)						One Million (1,000,000) only	

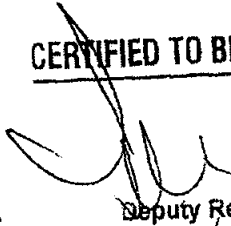
Dated the 17th day of July, 2020

Witness to above signatures: (For the documents submitted in physical form)

Signature	
Full Name (in Block Letters)	MR MUHAMMAD KHURRAM KHAN
Father's/ Husband's name	MR AKHTAR ZEB KHAN
Nationality	PAKISTANI
Occupation	Senior Investment Adviser
NIC No.	13503-1941201-1
Usual residential address	HOUSE#312/2, ST#29, SFC-I AIRPORT HOUSING SOCIETY, RAWALPINDI.



17/07/20
CERTIFIED TO BE TRUE COPY


Deputy Registrar
Company Registration Office Islamabad

ANNUAL REPORTS

RSEZDOC's audited statements are appended herein below.



Qasim Adeel & Co.
Chartered Accountants



The Institute of
Chartered Accountants
of Pakistan

**CHARTERED
ACCOUNTANTS**

**INDEPENDENT AUDITOR'S REPORT
TO THE MEMBERS OF
RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT & OPERATIONS COMPANY
(PRIVATE) LIMITED
REPORT ON THE AUDIT OF THE FINANCIAL STATEMENTS**

Opinion

We have audited the annexed financial statements of **RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT & OPERATIONS COMPANY (PRIVATE) LIMITED** which comprise the statement of financial position as at June 30, 2021, statement of comprehensive income, statement of cash flows and the statement of changes in equity for the period from July 17, 2020 to June 30, 2021 and notes to the financial statements, including a summary of significant accounting policies and other explanatory information, and we state that we have obtained all the information and explanations which, to the best of our knowledge and belief, were necessary for the purposes of the audit.

In our opinion and to the best of our information and according to the explanations given to us, the statement of financial position, statement of comprehensive income, statement of cash flows and the statement of changes in equity together with the notes forming part thereof conform with the accounting and reporting standards as applicable in Pakistan and give the information required by the Companies Act, 2017 (XIX of 2017), in the manner so required and respectively give a true and fair view of the state of the company's affairs as at June 30, 2021 and of financial performance for the period from July 17, 2020 to June 30, 2021.

Basis for Opinion

We conducted our audit in accordance with International Standards on Auditing (ISAs) as applicable in Pakistan. Our responsibilities under those standards are further described in the auditor's responsibilities for the audit of the financial statements section of our report. We are independent of the company in accordance with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants as adopted by the Institute of Chartered Accountants of Pakistan and we have fulfilled our other ethical responsibilities in accordance with the code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Board of Directors for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with the accounting and reporting standards as applicable in Pakistan and the requirements of Companies Act, 2017 (XIX of 2017) and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the company or to cease operations, or has no realistic alternative but to do so.

Board of directors are responsible for overseeing the company's financial reporting process.

Audit | Tax | Accounting | Advisory | Litigation

16th Floor, State Life Building # 5, Jinnah Avenue, F-6 Islamabad.

Info@qaco.com.pk | www.qaco.com.pk | 051-8357873 | 0341-5001000

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs as applicable in Pakistan will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statement

As part of an audit in accordance with ISAs as applicable in Pakistan, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the board of directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.



Qasim Adeel & Co.
Chartered Accountants

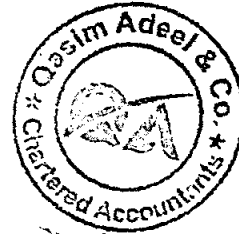
Based on our audit, we further report that in our opinion:

- a) Proper books of account have been kept by the company as required by the Companies Act, 2017 (XIX of 2017);
- b) The statement of financial position, statement of comprehensive income, statement of changes in equity and the statement of cash flows together with the notes thereon have been drawn up in conformity with the Companies Act, 2017 (XIX of 2017) and are in agreement with books of account and returns;
- c) Expenditure incurred and guarantees extended during the year were for the purpose of the company's business; and
- d) No zakat was deductible at source under the Zakat and Ushr Ordinance, 1980 (XVIII of 1980).

The engagement partner on the audit resulting in this independent auditor's report is Adeel Mirza, ACA.

Place: Islamabad

Dated: 14 OCT 2021

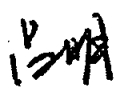


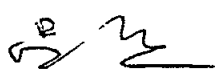
Qasim Adeel & Co.
QASIM ADEEL & CO.
(CHARTERED ACCOUNTANTS)

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT & OPERATIONS COMPANY (PRIVATE) LIMITED
STATEMENT OF FINANCIAL POSITION
AS AT JUNE 30, 2021

	Notes	2021 Rupees
ASSETS		
Current Assets		
Security deposit		-
Cash and bank balance	4	9,148,669
		9,148,669
Total Assets		9,148,669
CAPITAL AND LIABILITIES		
Authorized Capital		
1,000,000 Shares @ Rs. 10 each	5	10,000,000
Issued, subscribed and paid-up capital		10,000,000
Paid up capital		(22,193,791)
Unappropriated Profit		(12,193,791)
Non Current Liabilities		
Loan		21,342,460
Total Equity & Liabilities		9,148,669
Contingencies and Commitments	6	-

Annexed notes form an integral part of these financial statements.

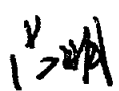

CHIEF EXECUTIVE

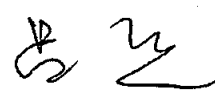

DIRECTOR


RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT & OPERATIONS COMPANY (PRIVATE) LIMITED
STATEMENT OF COMPREHENSIVE INCOME
FOR THE PERIOD FROM JULY 17, 2020 TO JUNE 30, 2021

	Notes	2021 Rupees
Revenue		-
Cost of sales		<u>-</u>
Gross Profit		-
Less: Administrative and General Expenses	7	<u>(22,193,791)</u> <u>(22,193,791)</u>
Less: Provision for Taxation		<u>-</u>
Net Profit After Taxation		<u><u>(22,193,791)</u></u>

Annexed notes form an integral part of these financial statements.


CHIEF EXECUTIVE

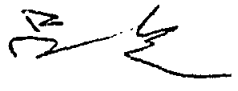

DIRECTOR 

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT & OPERATIONS COMPANY (PRIVATE) LIMITED
STATEMENT OF CASH FLOWS
FOR THE PERIOD FROM JULY 17, 2020 TO JUNE 30, 2021

	2021 Rupees
CASH FLOW FROM OPERATING ACTIVITIES	
Profit before tax	(22,193,791)
Adjustment for non-cash items	
Depreciation	-
Profit before working capital changes	(22,193,791)
Changes in working capital	
(Increase) / decrease in current assets	
Security deposit	-
Capital work in process	-
Increase / (Decrease) in accrued and other liabilities	
Creditor, accrued and other liabilities	-
Cash used in operations	-
Net cash flow from operating activities	(22,193,791)
CASH FLOW FROM INVESTING ACTIVITIES	-
CASH FLOW FROM FINANCING ACTIVITIES	
Introduction of Capital	10,000,000
Loan	21,342,460
Net cash flow from financing activities	31,342,460
NET CASH GENERATED DURING THE YEAR	9,148,669
CASH AND BANK BALANCE AS AT BEGINNING OF THE YEAR	-
CASH AND BANK BALANCE AS AT END OF THE YEAR	9,148,669

Annexed notes form an integral part of these financial statements.

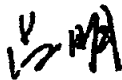

CHIEF EXECUTIVE

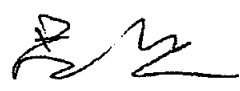

DIRECTOR


RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT & OPERATIONS COMPANY (PRIVATE) LIMITED
STATEMENT OF CHANGE IN EQUITY
FOR THE PERIOD FROM JULY 17, 2020 TO JUNE 30, 2021

	Share Capital	Unappropriated profit	Total
	Rupees.....		
Balance as at July 17, 2020	-	-	-
Capital Introduced during the period	10,000,000	-	10,000,000
Profit after taxation		(22,193,791)	(22,193,791)
	10,000,000	(22,193,791)	(12,193,791)
Balance as at June 30, 2021	10,000,000	(22,193,791)	(12,193,791)

Annexed notes form an integral part of these financial statements.


CHIEF EXECUTIVE


DIRECTOR


RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT & OPERATIONS COMPANY (PRIVATE) LIMITED
NOTES TO THE FINANCIAL STATEMENTS
FOR THE PERIOD FROM JULY 17, 2020 TO JUNE 30, 2021

1. STATUS AND NATURE OF BUSINESS

Rashakai Special Economic Zone Development & Operations Company (Private) Limited company incorporated in Islamabad under the Companies Act, 2017 with SECP on 17 July 2020. The Company is mainly engaged in the business of development, financing, construction, marketing, management and operation of Special Economic Zone in Rashakai, Tehsil, District Nowshera, Khyber Pakhtunkhwa along with any ancillary business thereto, under the provision of Special Economic Zones Act 2012, Special Economic Zones Rules 2013 and other allied laws. It can deal in all types of developed and non-developed land for various purposes of industrial, commercial, and residential properties mainly for industrial and commercial purposes and allied types of property as well as matters ancillary thereto with the applicable approvals and permissions from the concerned authorities and in compliance with applicable laws and regulations. with its registered office located at Plot No. 2, Street No. 33, Sector f-8/4 Islamabad.

2 SIGNIFICANT ACCOUNTING POLICIES

2.1 Statement of compliance

These financial statements have been prepared in accordance with the accounting and reporting standards as applicable in Pakistan. The accounting and reporting standards applicable in Pakistan comprise of:

- International Financial Reporting Standard for Small and Medium Sized Entities (IFRS for SMEs) issued by the International Accounting Standards Board (IASB) as notified under the Companies Act, 2017; and
- Provisions of and directives issued under the Companies Act, 2017.

Where provisions of and directives issued under the Companies Act, 2017 differ from the IFRS for SMEs, the provisions of and directives issued under the Companies Act, 2017 have been followed.

2.2 Accounting convention and basis of preparation

These financial statements have been prepared under the historical cost convention, without making any adjustment for the effects of inflation or current values.

2.3 Property, plant and equipment

Property, plant and equipment, are stated at cost less accumulated depreciation and any identified impairment loss. Cost includes direct cost, related overheads and mark up.

Depreciation on all property, plant and equipment is charged on reducing balance method so as to write off the depreciable amount of an asset over its useful estimated life at the rates mentioned in the schedule.

Full month depreciation is charged in the year of purchase and no depreciation is charged in the month of disposal. Any gain or loss on disposal is charged to income or expense for the year.

Maintenance and normal repairs are charged to income as and when incurred. Renewals and improvements are capitalized when it is probable that respective future economic benefits will flow to the Company and the cost of the item can be measured reliably, and the assets so replaced, if any, are retired.

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT & OPERATIONS COMPANY (PRIVATE) LIMITED
NOTES TO THE FINANCIAL STATEMENTS
FOR THE PERIOD FROM JULY 17, 2020 TO JUNE 30, 2021

2.4 Significant Accounting estimates and judgments

The preparation of financial statements is in conformity with the Accounting and Financial Reporting Standards for Small-Sized Entities issued by the Institute of Chartered Accountants of Pakistan which requires management to make judgments, estimates and assumptions that affect the application of policies and reported amounts of assets and liabilities, income and expenses. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances, the result of which form the basis of making the judgments about carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which estimates are revised.

Significant areas requiring the use of management estimates in these financial statements relate to useful life of depreciable assets. However, assumptions and judgments made by management in the application of accounting policies that have significant effect on the financial statements are not expected to result in material adjustment to the carrying amount of assets and liabilities in the next year.

2.5 Stock and stores

Stock and stores are valued at lower of net realizable value and average cost.

2.6 Trade and other payables

Trade and other payables are stated at their cost which is the fair value of the consideration to be paid in future for goods and services.

2.7 Provisions

Provisions are recorded when Company has a present obligation as a result of past event, and it is probable that an outflow of economic benefits will be required to settle the obligation and a reliable estimate can be made. Provision are reviewed at each balance sheet date and adjusted to reflect the current best estimate.

2.8 Financial assets

(a) At Amortized Cost

A financial asset is measured at amortized cost if both of the following conditions are met:

- i) The financial asset is held within a business model whose objective is to hold financial assets in order to collect contractual cash flows and;
- ii) The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on principal amount outstanding.

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT & OPERATIONS COMPANY (PRIVATE) LIMITED
NOTES TO THE FINANCIAL STATEMENTS
FOR THE PERIOD FROM JULY 17, 2020 TO JUNE 30, 2021

(b) At Fair Value through Other Comprehensive Income

A financial asset is measured at fair value through other comprehensive income if both the following conditions are met:

- i) The financial asset is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets and;
- ii) The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on principal amount outstanding.

(c) At Fair Value through Profit or Loss

A financial asset is measured at fair value through profit or loss unless it is measured at amortized cost or at fair value through other comprehensive income.

2.9 Taxation

The charge for current taxation is based on taxable income at the current rates of taxation after taking into account tax rebates and credits available, if any.

2.10 Revenue recognition

Revenue from sale of goods is recognized on the basis of IFRS 15. Revenue is measured at the fair value of the consideration received or receivable. Revenue is recognized when it is probable that any future economic benefit associated with the item of revenue will flow to the entity, and the amount of revenue can be measured with reliability.

2.11 Cash and cash equivalents

Cash and cash equivalents comprise cash in hand, bank balances and highly liquid short term investments with original maturity of three months or less, that are readily convertible to known amount of cash and which are subject to insignificant risk of change in value.

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT & OPERATIONS COMPANY (PRIVATE) LIMITED
NOTES TO FINANCIAL STATEMENTS
FOR THE PERIOD FROM JULY 17, 2020 TO JUNE 30, 2021

	2021 (Rupees)
4 CASH AND BANK BALANCE	
Cash in Hand	-
Cash at Bank	9,148,669
	<u>9,148,669</u>
5 Share Capital	
Authorized capital	
1,000,000 Shares @ Rs. 10 each	<u>10,000,000</u>
Issued, subscribed and paid-up capital	
1,000,000 Shares @ Rs. 10 each	<u>10,000,000</u>
6 CONTINGENCIES AND COMMITMENTS	
There were no contingencies & commitments at June 30, 2021	<u>-</u>
7 ADMINISTRATIVE AND GENERAL EXPENSES	
Advertising and Promotion	226,586
Bank Service Charges	26,048
Business Entertainment	126,359
Communication Expense	5,000
Consultation Fee	1,902,900
Daily Expenses	350,626
Design Fee	215,986
Forex Loss	75,964
Fuel Charge	61,400
Investigate & Contact Fees	117,416
Office Supplies	92,963
Other Charges	152,208
Payroll Expenses	18,463,042
Printing and stationary	19,100
Postage Fee	16,000
Professional Fees	298,126
Travel Expense	33,479
Vehicle Toll	10,588
	<u>22,193,791</u>
8 DIRECTORS REMUNERATIONS	
Chief Executive remunerarions	-
Directors Remunerations	<u>-</u>

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT & OPERATIONS COMPANY (PRIVATE) LIMITED
NOTES TO FINANCIAL STATEMENTS
FOR THE PERIOD FROM JULY 17, 2020 TO JUNE 30, 2021

9 TRANSACTIONS AND BALANCES WITH RELATED PARTIES
No any related party transaction occurred during the year.

10 SUBSEQUENT EVENTS

There are no such subsequent events adjusting or non-adjusting providing further evidence of relating to the period ended June 30, 2021.

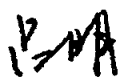
11 GENERAL

The figures have been rounded off to the nearest rupee, unless otherwise stated.

12 AUTHORIZATION

These financial statements were authorized for issue by the Board of Directors in their meeting held on

~~14 OCT 2021~~


CHIEF EXECUTIVE


DIRECTOR


LAST ANNUAL RETURN UNDER SECTION 130 OF THE COMPANIES ACT

RSEZDOC is in the process of making the requisite return before the SECP.

POWER OFF-TAKE

III.

PESCO'S COMMITMENT TO SELL POWER

PESCO's letter dated 19 January 2022 and technical sanction dated 3 March 2022 is appended herein below.

TECHNICAL SANCTION

**SUBJECT: - SANCTION FOR NEW CONNECTION FOR GS-1 (22MW),
RASHAKAI ECONOMIC ZONE**

Sanction for supply of power regarding 22 MW load in respect of above named consumer is hereby accorded under tariff (to be determined by NEPRA) with the following conditions.

1. The subject connection will be given only through an independent 132 KV consumer's own GSS near Rashakai Interchange Nowshera as single point supply under (to be determined by NEPRA). As the sponsor of the subject case has informed this office regarding resale of power by further 29 Nos feeders at the said scheme. The connection will be charged under tariff-C until the clear instructions are received to this office from NEPRA for actual tariff determination.
2. The proposed GS-1 132KV consumer's Grid Station shall be fed through In/Out arrangement under midterm condition from 132 KV D/C transmission line with rail conductor from 220/132 KV GSS Mardan Rashakai SEZ at the cost of the applicant.
3. The allied 25Km Transmission line will be constructed according to approved Design/Specification of WAPDA/PPMC/PESCO by P.D (GSC) PESCO Peshawar. The work should be taken in hand after confirmation of payment of capital cost by the consumer and receipt of amount in PESCO's account.
4. Design of proposed GSS is already approved from Chief Engineer (Design) NTDC Lahore. The consumer Grid Station will be operated and maintained by the consumer himself as per PESCO/WAPDA policy/ rules.
5. 3x50 MVA Power T/F (132/11 KV) with allied material will be purchased by the applicant from WAPDA/PESCO's approved firms and receipt of the same will be provided to this office. The said Power T/F will be inspected from Chief Engineer MI) NTDC Lahore. The Inspection Report of the same should be provided to this office before energization of the connection.
6. The consumer Grid Station will be provided with PLC communication and 11KV capacitor bank of adequate capacity by the consumer, as per approved design/ drawing of WAPDA/PPMC/PESCO so that Power factor of the consumer's load shall not fall below 90%.
7. The Capital Cost estimate is for a tentative amount of the material / work involved & the consumer shall pay to PESCO/PPMC any additional cost with respect to capital cost charges for any alteration in route or due to

(Cont'd on Page-2)

escalation of prices of material/equipment involved, at the time of execution of work or any other charges/amount due to any reason as such Right of Way problems etc, beyond the control of PESCO or due to instructions of PESCO/PPMC/WAPDA Authority issued time to time due to change in policy of PESCO/PPMC/WAPDA. Mentioned amount will be recoverable from the applicant/ consumer even after energization of the load

8. PESCO will not be held responsible for any delay due to shortage of material/ equipment to be installed for the proposed transmission line. The consumer will be responsible for damages to property, cost of land involved and crops compensation and claimed if any etc.
9. All requirements dictated by PESCO/ WAPDA commercial procedure, standard design instructions, electricity rules and tariff applicable should be strictly met with according to latest instructions issued by the competent Authority/PESCO/PPMC/WAPDA.
10. Grading/Protection time co-ordination in relays of the VCBs of the consumer shall be provided so that the consumer's VCBs are disconnected before PESCO's VCBs in the Consumer Grid Station as well as at the PESCO Mardan Grid Station.
11. It should be ensured that an independent metering room for PESCO / WAPDA, is constructed by the consumer according approved Desing/ drawing in the yard and the consumer should have no access to this room.
12. The consumer Grid Station shall be checked by the Energization Committee to confirm that technical requirement of 132KV supply / metering/ protection are according to instructions/ specifications of PESCO/WAPDA before energization of the connection.
13. Demand Note for capital cost estimate shall be issued by this office. The amount of capital cost is based on tentative rough cost estimate and may be revised according to variations based upon actual expenses at the time of execution of work, due to Right of Way problems or technical clearance etc: However, Demand Notice for Security Deposits, as per applied load, will be issued, at prevailing rates, on request of the applicant after completion of deposit works/ installation of machinery.
14. **The contractor's wiring Test report, prepared at least by a class-E Contractor of the provincial Govt. should be submitted by the applicant to C.E (P&E) PESCO H/Q for verification before requesting for constitution of energization committee .**

(Cont'd on Page-3)

15. **132KV 1200/1 Amps: metering as well as protection C.Ts** shall be provided if already not installed at the consumer's end metering panel. The CTs shall be purchased by the applicant from WAPDA/ PEPCO approved firms/suppliers and tested by Manager Technical Services (M&T) PESCO Peshawar on recovery of requisite fee from the applicant before installation in the panels. The metering CTs shall be adjusted to match with the sanctioned load..
16. The protection CTs setting / Relay Plug setting should not exceed 125% of the Sanctioned load. The protection as well as metering CTs and Relay setting should be sealed to ensure the above given limitations.
17. Meter testing and sealing job should be carried out by energization committee, comprising of S.E (Op) PESCO Mardan Circle, Regional Manager (M&T) PESCO Peshawar and XEN (Op) PESCO Mardan-1 Division Mardan, XEN (P&I) PESCO Peshawar Division and D.M (T&G) PESCO Peshawar along with his A.M (T&I), to be constituted by this office on completion of the work/job, receipt of documents mentioned in above clauses, payment of security deposits and clearance of any excess expenditure, incurred on the work/job, by the consumer.
18. All the equipments and installations for supply of electricity to applicant's premises and installations within applicant's premises are to be got checked by energization committee prior to energization of the connection. The committee should confirm and certify that these are according to WAPDA /PEPCO Standards and Specifications. Purchase orders and original receipt of purchase should be provided by the consumer. As built detail drawing of the distribution system should be submitted by applicant to committee which will be forwarded to this office for reference and record.
19. NOC/clearance from KPEZDMC administration, Distt:/Tehsil administration Railway department any PESCO's consumer and Highway etc, if needed, as detailed above, shall be arranged and provided by the applicant. Furthermore, the applicant shall make compensation for any damages to the properties of the mentioned departments/ consumer, which may happen during execution of above-mentioned constructional work of proposed job.
20. All electrical installations, H.T/L.T lines, cables, motors, capacitors and distribution system etc, at the applicant's premises shall be checked by the Electrical Inspector Govt. of KPK Peshawar to verify that these are according to Electricity Rules 1937 & Electricity Act 1910, including amendments made from time to time. The equipments may be preferably purchased from approved WAPDA firms/suppliers. NOC / Approval issued by Electrical Inspector Govt. of KPK Peshawar should be submitted by the applicant to this office.

(Cont'd on Page-4)

21. The Energization Committee should ensure before the energization of this connection that there is nothing outstanding dues/ arrears against the premises where connection is desired.
22. All other departmental formalities should be observed while allowing energization of this job/ connection.


CHIEF ENGINEER (P&E)
PESHAWAR ELECTRIC SUPPLY
COMPANY PESHAWAR

Endist: M (P&E)/Rashakai SEZ/ No. 1072-80 dated 3/3 /2022.

Copy to,

1. S.E (Op) PESCO Mardan Circle, Mardan.
2. Regional Manager (M&T) PESCO Peshawar.
3. P.D (GSC) PESCO Peshawar.
4. SE (GSO) PESCO Peshawar.
5. XEN (P&I) PESCO Division Peshawar.
6. XEN (T&I) PESCO Peshawar.
7. XEN (Op) PESCO Maradan-I Division.
- ✓ 8. Mr. Lyu Ming CEO Rashakai SEZ.



PESHAWAR ELECTRIC SUPPLY COMPANY

OFFICE OF THE
CHIEF EXECUTIVE
PESCO PESHAWAR

No. CE (P&E)/435-39

Dated 17/01/2022

✓ Chief Executive Officer
Rashakai Special Economic Zone
Islamabad.

**SUBJECT: DEMAND LOAD FOR PHASE-I OF GS-I AND GS-II (22+45=67 MW) OF
RESHAKAI SPECIAL ECONOMIC ZONE.**

Reference: CEO Rashakai Special Economic Zone Letter No. RSEZDOC/HO/2022/010
dated 17/01/2022

Referred to the letter cited above, Load of 22 MW for GS-I and 45 MW for GS-II
approved by the Competent Authority with following conditions,

- i) For 45 MW of GS-II, you will not exceed the load beyond 45 MW and in this connection you will have to provide an affidavit on non-judicial stamp paper worth PKR. 100/- to the effect that your load will not exceed beyond 45 MW without the approval of Competent Authority.
- ii) 22 MW of GS-I will not be energized until and unless NEPRA declares the Tariff and you will have to wait for the decision of NEPRA.


CHIEF ENGINEER
(PLANNING & ENGINEERING)
PESCO PESHAWAR

Copy to:

1. Chief Executive Office PESCO for information please.
2. Chief Executive Office KPEZDMC for information.
3. Chief Engineer (Development) PMU PESCO Peshawar
4. Chairman, CPEC Authority, Islamabad for information.

IV.

FINANCIAL AND TECHNICAL

CAPABILITIES

ANNEX – C-1

CASH BALANCES HELD IN RESERVE ALONG WITH THE BANK CERTIFICATES

Duly verified bank statement of RSEZDOC for the period starting from 1 January 2022 to 18 October 2022, which shows the cash balance held by the company as of 18 October 2022, is provided herein below.

YOUR ACCOUNT STATEMENT
FOR THE PERIOD ENDING: JAN01,2022 TO OCT18,2022

ACCOUNT NO : 0874-79011258-99 OF
ISLAMABAD-CORPORATE BRANCH

RASHAKAI SPECIAL ECONOMIC PVT LTD
HOUSE NO 2
STREET NO 33
F-8/1
PK

ACCOUNT TYPE : CURRENT ACCOUNT - CN
CURRENCY : Yuan Renminbi
PRINTING DATE : 20-10-22
FREQUENCY : INTERIM / DUPLICATE
PAGE NO : 1
USER : SS4701

DATE	VALUE	PARTICULARS	DEBIT	CREDIT	BALANCE
		BROUGHT FORWARD			1,482,266.33
27JAN22		Transfer Debit 08747901200203	800,000.00		682,266.33
		DEAL NO 1936706 @ 27.30			
11FEB22		Swift Transfer CN09442501A		31,067,000.00	31,749,266.33
		CN09442501A			
		RB INDUSTRIAL PARK INVESTMENT AND D			
		CNY 31,067,000.00			
		07509651			
15FEB22		Transfer Debit 08747901200203	403,000.00		31,346,266.33
		DEAL # 1942568 @ 27.50			
24FEB22		Transfer Debit 08747901200203	500,000.00		30,846,266.33
		DEAL NO 1945784 @ 27.40			
09MAR22		Transfer Debit 08747901200203	1,600,000.00		29,246,266.33
		DEAL NO 1950419 @ 27.65			
09MAR22		Swift Transfer CRDKA0874CN76010	1,334,045.60		27,912,220.73
09MAR22		SWIFT CHARGES CRDKA0874CN76010	17.78		27,912,202.95
09MAR22		Comm on F. Funds CRDKA0874CN76010	3,868.73		27,908,334.22
14MAR22		Transfer Debit CRDKA0874CN76010	315.00		27,908,019.22
		3RD BANK TT CHARGES AGAINST OUR			
18MAR22		Transfer Debit 08747901200203	3,500,000.00		24,408,019.22
		DEAL NO 1953833 @ 27.80			
25MAR22		Transfer Debit 08747901200203	2,000,000.00		22,408,019.22
		DEAL NO 1955974 @ 28.00			
28MAR22		Transfer Debit 08747901200203	800,000.00		21,608,019.22
		DEAL NO 1956606 @ 28.00			
27APR22		Transfer Debit 08747901200203	500,000.00		21,108,019.22
		DEAL # 1967851 @ 27.80			
29APR22		Swift Transfer 51COR22000270984		34,300,000.00	55,408,019.22
		51COR22000270984			
		CHINA CONSTRUCTION BANK CORPORATION			
		CNY 34,300,000.00			
		03409561			
29JUN22		Transfer Debit 08747901200203	2,100,000.00		53,308,019.22
		DEAL NO 1988485 @ 30.23			

-----Continue on next page-----

This is a system generated account statement and does not require a signature.

HBL CORPORATE BRANCH.
(0874) ISLAMABAD.

YOUR ACCOUNT STATEMENT
FOR THE PERIOD ENDING: JAN01,2022 TO OCT18,2022

ACCOUNT NO : 0874-79011258-99 OF
ISLAMABAD-CORPORATE BRANCH

RASHAKAI SPECIAL ECONOMIC PVT LTD
HOUSE NO 2
STREET NO 33
F-8/1
PK

ACCOUNT TYPE : CURRENT ACCOUNT - CN
CURRENCY : Yuan Renminbi
PRINTING DATE : 20-10-22
FREQUENCY : INTERIM / DUPLICATE
PAGE NO : 2
USER : SS4701

DATE	VALUE	PARTICULARS	DEBIT	CREDIT	BALANCE
		BROUGHT FORWARD			53,308,019.22
13JUL22		Swift Transfer CRDKA0874CN87509	308,414.17		52,999,605.05
13JUL22		SWIFT CHARGES CRDKA0874CN87509	16.29		52,999,588.76
13JUL22		Comm on F. Funds CRDKA0874CN87509	894.40		52,998,694.36
15JUL22	13JUL22	Swift Transfer CRDKA0874CN87509		308,414.17	53,307,108.53
15JUL22	13JUL22	SWIFT CHARGES CRDKA0874CN87509		16.29	53,307,124.82
15JUL22	13JUL22	Comm on F. Funds CRDKA0874CN87509		894.40	53,308,019.22
15JUL22		Swift Transfer CRDKA0874CN87769	308,414.17		52,999,605.05
15JUL22		SWIFT CHARGES CRDKA0874CN87769	16.27		52,999,588.78
15JUL22		Comm on F. Funds CRDKA0874CN87769	894.40		52,998,694.38
19JUL22		Transfer Debit CRDKA0874CN87509	315.00		52,998,379.38
		3RD BANK TT CHARGES AGAINST OUR			
19JUL22		Transfer Debit CRDKA0874CN87509	280.00		52,998,099.38
		FOREIGN BANK CHARGES			
29JUL22		Branch Settlement IDC08740747122PK	4,198,800.48		48,799,298.90
05AUG22		Swift Transfer 51COR22000294824		33,899,790.00	82,699,088.90
		51COR22000294824			
		CCB BEIJING ADD. CCB BEIJING			
		CNY 33,899,790.00			
		03409651			
15AUG22		Transfer Debit 08747901200203	2,900,000.00		79,799,088.90
		DEAL NO 2002878 @ 31.10			
17AUG22		Branch Settlement IDC08740787422PK	2,365,384.00		77,433,704.90
18AUG22		Transfer Debit 08747901200203	4,400,000.00		73,033,704.90
		DEAL NO 2004320 @ 31.27			
19SEP22		Transfer Debit 08747901200203	4,000,000.00		69,033,704.90
		DEAL NO 2014177 @ 33.28			

Opening balance	1,482,266.33
Total Debit Transactions	26
Total Amount Debited	32,024,676.29
Total Credit Transactions	6
Total Amount Credited	99,576,114.86
Closing Balance	69,033,704.90

-----End of statement-----

This is a system generated account statement and does not require a signature.

HBL CORPORATE BRANCH,
(0874) ISLAMABAD.

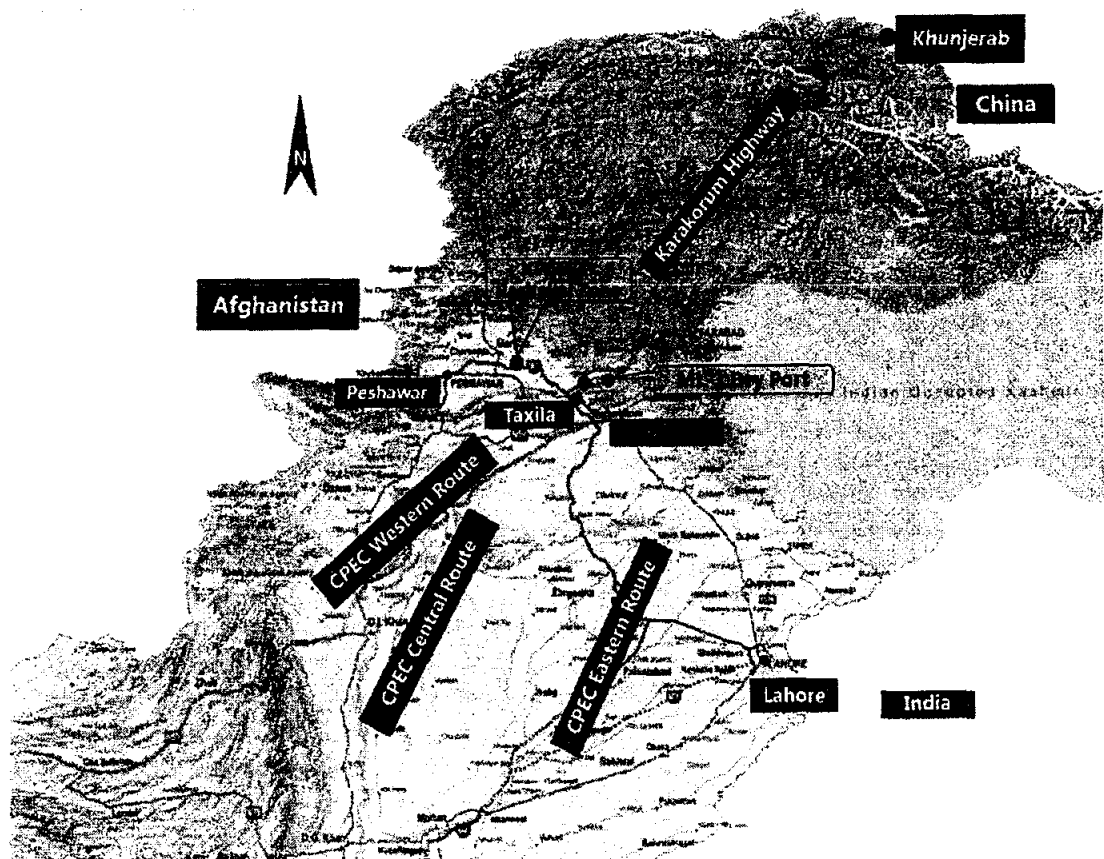
DETAILS OF ANY CHARGES OR ENCUMBRANCES

As of the date of this SL Petition, there are no charges or encumbrances on the assets of RSEZDOC, as also evidenced in its audited financial statement appended herewith as Annex A-3.

Feasibility Study Report

Rashakai Prioritized Special Economic Zone

Khyber Pakhtunkhwa



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Chapter I Industrial Orientation

1.1 Project orientation

1.1.1 Development orientation

The Project will integrate the advantages and featured resources of KP Province in a rational manner, sufficiently bring the strategic synergy effect of Rashakai pSEZ, and other projects into play, and place special emphasis on building differentiated sub-zones such as manufacturing, trading and exhibition center etc. to build a constantly upgrading and optimizing flagship complex of emerging industries led by modern comprehensive Industrial Parks and Economic Zones along China-Pakistan Economic Corridor (CPEC) covering deep processing of metal smelting and processing, automotive, mechanical equipment, household building materials, food processing, household appliances, consumer electronics, textile & garment, and leather etc. DEVELOPER will take the lead to offer substantial One-Window comprehensive services to enterprises in the Zone.

1.1.2 Main functions

Main functions of the Project include industrial and manufacturing activities leading to industrial and economic growth and providing the enterprises superior infrastructure facilities and a conducive environment to promote such economic activities, including but not restricted to product processing, manufacturing, warehousing and logistics, trading, and support services.

1.2 Industry selection principles and method analysis

1.2.1 Industry selection principles

Table 1-1 Four Principles of Industry Selection

	Industries no matter with self-advantage or introducing new technology must assimilate into the local environment. On the basis of giving full play to the advantages of local resources, the industrial chain shall be extended to be stronger and stronger. Otherwise, it is impossible to gather enough energy for internal work and external force.

Industrial chain supplement	In terms of industry selection, choose the key areas available for development, and with this as an axis, gather investment attraction and preferential measures on the whole industry chain to form industrial support or synergy, as well as industrial coupling, forming the cycle of energy and materials between industries.
Diversified industries	Cultivate leading industries to develop into featured industries with regional advantages, guide the development of various industries, promote industrial competition and enhance the industry's ability to resist risks.
Green cycle development	For industry selection, make rational use of advantageous resources to form a long-term perspective, take circular economy as a consideration, give priority to green industry, enhance industrial continuity and ensure sustainable development of the industry.

1.2.2 Industry analysis

Twenty two major ideas are applied to analyze the industry selection for the Rashakai pSEZ from the perspective of Pakistan, China and peripheral radiation countries of Pakistan.

Table 1-2 Thoughts of Industry Analysis of Rashakai pSEZ

Selection level	Ideas	Details
Level 1: Pakistan	Idea 1	Thoroughly study the industrial structure of Pakistan, upgrade and improve the specific industry
	Idea 2	Thoroughly study the industrial structure of Pakistan and fill the gaps to strengthen it.
	Idea 3	Comply with the demands by the government of Pakistan and capitalize on the specific industries supported by the government.
	Idea 4	Rely on the self-advantages of strength and availability of natural resources in Pakistan and choose the appropriate industry with greater protentional for development
	Idea 5	Make use of relatively low labor cost in Pakistan to develop low-cost labour intensive related industries
	Idea 6	Vigorously develop the import substitution industry for the Pakistan market
	Idea 7	Develop the industry with special advantage, guided by the industrial structure characteristics of the FDI distribution in Pakistan
	Idea 8	Follow the laws of Pakistan's industrial evolution and develop the leading industries that match the process of industrialization in Pakistan
	Idea 9	Adapt to the process of long-term heavy industrialization in Pakistan and actively guide the related industries

Level 2: China	Idea 10	Guide the industry with advantage and surplus capacity in China by virtue of "the Belt and Road" strategy and China-Pakistan international capacity cooperation policy.
	Idea 11	Further develop the suitable industries by taking advantage of the construction of China–Pakistan Economic Corridor
	Idea 12	Utilize the support policy of Chinese local government for "Go Global" to guide China's industry with local specific advantages
	Idea 13	Analyze the core products of China's export to Pakistan, focusing on domestic industries
	Idea 14	Guided by the industrial structure of the distribution of China's foreign direct investment to lead the relevant key industries
	Idea 15	Actively guide the key industries that can radiate Europe, America and other markets from the perspective of avoiding trade barriers for China's industry
	Idea 16	Deeply study the industrial association between Pakistan and five northwestern provinces in China to guide the related industries
	Idea 17	Develop the linkage industry between Pakistan and China
Level 3: Neighboring countries	Idea 18	Make full use of regional advantages of Rashakai transportation
	Idea 19	Conform to the trend of city-industry integration in Rashakai pSEZ in future
	Idea 20	Achieve industrial linkage with Hattar Industrial Park and Gwadar Port
	Idea 21	Develop specific industries with the aid of the related superior resources of Afghanistan and other surrounding countries
	Idea 22	Develop export-oriented industries with the direction of radiation in the Middle East, and the European and American markets

1.2.3 Synergy effect of Park linkage level

(1) In the short and mid-term, it will help promote industrial linkage with the Rashakai pSEZ

The construction of Rashakai Special Economic Zone will help promote Industrial linkages with similar Economic Zones and Special Economic Zones within the province, as well as in the vicinities along Belt Road Initiative (BRI), so as to develop strategic synergetic effects in both the depth and breadth of the industrial value chain.

(2) It can form a higher level of linkage with the Gwadar Free Trade Zone

The Gwadar Free trade Zone in Pakistan, which is under construction by CCCC, officially opened on January 29, 2018. And it held the first Gwadar International Commodity Fair,

attracting nearly a hundred enterprises to participate. Pakistani Prime Minister and Chinese Ambassador to Pakistan Yao Jing attended the day's related activities.

As the southern gate of the China–Pakistan Economic Corridor, Gwadar Port in Pakistan plans to build an area of about 2,280.73 acres of Gwadar Free Zone. The southern part of the free Trade zone is not only the first phase for project, it is also the starting area. It is mainly to build trade and logistics development zone relying on existing docks, with commodity exhibition, transit, trade, fishery products processing as the leading function.

In the near future, the Rashakai Prioritized Special Economic Zone, under the CPEC framework, will form a linkage with the Gwadar Free Zone.

Free Trade Zone at a higher level and will help to promote the optimal development of Pakistan's export-oriented industries and import-substitute industries.

1.3 Industrial Analysis Process

1.3.1 Automotive Industry

(1) Attract Investment in Pakistan, by the Automotive Sector from China

The existing automotive industry in Pakistan is small, with a poor industrial foundation of Pakistan, a small automotive scale, with a production value of the automotive industry of about USD 6.2 billion, is contributing only 2.3% to GDP. In the fiscal year 2016/17, production capacity of sedan in Pakistan was 186.9 thousand sets, 27.8 thousand sets of jeeps and pickups and 7712 sets of trucks.

The automotive market development potential in Pakistan is encouraging. According to statistics by the World Bank in 2009, the automotive inventory in Pakistan is 13 sets/1000 persons. According to deduction through sales of automotive from 2009 to 2016 (automotive rejection and population growth not taken into account), the automotive inventory in Pakistan is 19 sets/1000 persons. The automotive inventory in China is 140 sets/1000 persons. Comparatively, the automotive market of Pakistan has a great development potential.

The automotive of Chinese brands has development potential in Pakistan. The Japanese automotive occupies 100% of sedan market, 96% of light-duty vehicle market (LCV), 69% of truck market and 62% of passenger vehicle market in Pakistan. At present, the Chinese-funded enterprises in Pakistan include China FAW, Foton Motor, JAC and Dongfeng Motor, mainly engaging in truck and light-duty truck business, without involving sedan market.

The new automotive industry development policy in Pakistan attracts foreign enterprises to invest, and the *Automotive Development Policy 2016-2021* newly released by the Government of Pakistan regulates the automotive market and provides preferential policy for new automotive enterprises into the market of Pakistan to break up monopoly of the Japanese automotive. The policy includes lowering automotive part import tariff and providing tax discount to enterprises establishing automotive production lines.

(2) Analysis of Foreign Investment opportunities for the automotive industry of China

Table 1-3 Motive power, pressure and capacity for going-out of the automotive industry of China

	Chinese government boosts the international capacity cooperation of the automotive industry; Going-out is certainly the trend for the development of the automotive industry of China; Automotive enterprises of China have accelerated the trend of going out; Automotive enterprises of China have obtained sound achievements overseas.
Pressure	The sales growth of automotive of China is slowing; The exports of automotive of China is declining; The manufacturing cost of the automotive industry of China is increased; The competition of the automotive industry of China is increasingly drastic.
Capacity	The automotive output of China is ranking first all over the world; The self-owned brand automotive of China is rising; The potentiality of automotive enterprises of China is enormous; The automotive industry of China has established the relatively complete industry-chain supporting system.

(3) Selection and basis of key sub-sectors for the automotive industry

Type of Sub-sector	Basis for Selection
Loaders	The manufacturing capacity of loaders in China is relatively powerful; Loader enterprises of China have made investment and established plants in Pakistan;

	The production and marketing situation of loaders is excellent in Pakistan; The China-Pakistan Economic Corridor and other infrastructure construction will boost the market demand of loaders in Pakistan; Loaders of China are low in price, fine quality and suitable for Pakistan.
Pickups	The production and marketing situation of Pickup of China is well established; The gradual promotion of the ban-lifting policy for Pickup of China promotes the overseas sales of Pickup; The production and marketing situation of Pickup in Pakistan is sound in recent years.
Passenger vehicles	The manufacturing capacity of passenger vehicle in China is powerful; The typical representative of passenger vehicle enterprises of China has completed the going out. The production and marketing situation of passenger vehicle in Pakistan is sound in recent years.
Passenger cars	The production and sales volume situation of passenger cars of China is severe; The typical representative of passenger cars enterprises of China has developed the overseas market; The production and marketing situation of passenger cars in Pakistan is sound.
Special vehicles	The customization proportion of commercial vehicles in China is constantly rising; Automotive enterprises of China have possessed the experience of exports of special vehicles to Pakistan; The project of China-Pakistan Economic Corridor has driven the market demand for special vehicles in Pakistan.
Automotive parts	The scale of automotive parts manufacturing industry of China is constantly increasing; The import scale of automotive parts of China is larger; The production volume of part of automotive parts of China is taking lead all over the world; Automotive parts enterprises of China possess the strength of going out; Pakistan possesses certain production capacity of automotive Parts.

1.3.2 Metal Products Processing Industry

(1) Attractive Investment in Pakistan for the Metal Products Processing industry of China

Rapid development of construction industry of Pakistan has driven the demand for the metal products. In recent years, the construction industry of Pakistan has been developing rapidly. In the fiscal years 2016/17, output value of 682.828 billion rupees (about 6.516 billion U.S. dollars) has been achieved, with a real growth rate of 9.05%. Rapid development of the construction industry will greatly boost Pakistan's demand for metal products.

There are abundant raw materials of metal products in Pakistan, including 92,500 tons iron ore reserves, 135,200 tons copper reserves and 2.24 million ounces gold reserves. So far, there are about 58 kinds of metal and non-metallic minerals being mined in Pakistan.

The output of some metal products in Pakistan continue to grow. The metal products processing industry of Pakistan develops rapidly, and the output of some metal products enjoy a sustainable growth. Taking billet as an example, Pakistan's billet output was rapidly increased from 1,616,400 tons in the fiscal years 2011/12 to 4,099,000 tons in the fiscal years 2016/17. Pakistan's billet output was increased by 28.77% in the fiscal years 2016/17.

There is increasing demand for imports of metal products in Pakistan. Metal products imports of Pakistan continued to grow in the fiscal years 2013/14-2016/17. Metal products imports of Pakistan were 2.76 billion U.S. dollars in the fiscal years 2013/14 and increased to 4.229 billion U.S. dollars in the fiscal years 2016/17. Metal products imports of Pakistan were increased by 7.34% YoY in the fiscal years 2016/17. This shows that Pakistan has a growing demand for importing of metal products in recent years.

(2) Analysis of Foreign Investment opportunities for the Metal Products processing Industry of China

Table 1-4 Motive power, pressure and capacity of "going out" of the metal products processing industry of China

Motivation	The Government of China formulates policies to encourage the metal products processing enterprises to "GO OUT"; The Belt and Road Initiative provide new opportunities for the metal products processing industry; The China-Pakistan Economic Corridor encourages Chinese enterprises to invest in Pakistan.
Pressure	Pakistan initiates the anti-dumping and anti-subsidy investigations for part of China's metal products frequently; With the continuous implementation of environmental protection policies, the metal products processing enterprises will be under pressure without doubt; The metal products processing industry of China is confronted with the pressure of excess capacity; The industrial contribution of China's metal products processing industry is relatively low, with fierce competition.
Capacity	The market scale of China's metal products industry increases continuously; China's metal products processing industry has a batch of stronger listed companies; The main business of China's metal products industry rises continuously; China's metal products have been widely exported.

(3) Selection and basis of key sub-sectors for the Metal Products processing Industry

Type of Sub-sector	Basis for Selection
Steel structure	The output of China's steel structure industry is rapidly increasing; China has a group of stronger steel structure enterprises; The steel structure products of China have entered the Pakistan market; The import demand for steel structures of Pakistan is increasing continuously.
Reinforced bar	China is the largest country of output of reinforced bars in the world; The import demand for steel products of Pakistan increases continuously; Pakistan's anti-dumping investigation of steel products exported from China can be evaded.

Aluminum profile	China is the largest country of production of aluminum profiles in the world; The anti-dumping and anti-subsidy investigations can change the key overseas markets of China's aluminum profile enterprises to Asia; The overseas layout of China's aluminum profile enterprises has been started; The import demand for processed aluminum products of Pakistan is on the increase.
Bathroom hardware	The bathroom hardware products of China have the advantages of high quality and competitive price; The building industry of Pakistan is developing rapidly to stimulate the demand for bathroom hardware products; The construction of China-Pakistan Economic Corridor stimulates the demand for bathroom hardware products of Pakistan.

1.3.3 Textile & Garment Industry

(1) Attractive Investment Opportunities in Pakistan for the Textile and Garment Industry of China

Pakistan has obvious advantages in cotton resources. Cotton is the main economic crop and export resource for earning foreign exchange in Pakistan. Pakistan is also the main cotton producing area in the world, and its production ranks fourth in the world. In the first nine months of the fiscal years of 2016/17, the cotton production in Pakistan was 1,816,000 tons.

The textile industry of Pakistan boasts a solid foundation and a good industrial base, with a certain self-supply capacity. Pakistan is the world's second largest country for producing cloth, and the third largest cotton yarn producer as well as a large producer of towels and clothing. In the fiscal years of 2016/17, the cotton yarn production of Pakistan was 3,428,000 tons, and cotton cloth production was 1.043 billion square meters.

The government supports the development of the textile and garment industry. The Pakistani government has issued the *2014-2019 Policies for Textile* and hopes to realize the double of textile exports in five years by formulating a series of incentives which promote the development of the textile industry, that is, increasing from 13 billion U.S. dollars to 26 billion U.S. dollars and creating 3 million job opportunities.

The overseas market share is stable, and the textile and apparel products are the main export products of Pakistan. In the fiscal years of 2016/17, the exports of cotton fabrics were 2.134 billion U.S. dollars, cotton and yarn were 1.258 billion U.S. dollars, knitted goods were 2.359 billion U.S. dollars, and bedclothes were 2.136 billion U.S. dollars. Europe and America have been the largest export destinations for Pakistan textiles, accounting for over 60%.

In the years from 2012 to 2015, Pakistan applied to China for anti-dumping investigation on polyester staple fiber every year. Investing and building a factory in Pakistan can avoid trade barriers, and Chinese products can enter the Pakistan market more smoothly.

Pakistan has abundant domestic labor resources and 60.5 million working-age laborers.

The average monthly salary in fiscal years of 2014/15 was 14,970.70 rupees (147.79 U.S. dollars). The average monthly salary in manufacturing was 13,477.76 rupees (133.05 U.S. dollars).

Pakistan lies at the intersection of South Asia, Central Asia and the Middle East (Western Asia). It is highly active in participating in regional economic cooperation. So far, Pakistan has signed free trade agreements with Sri Lanka, China, Malaysia, SAARC and other countries and regional organizations. It has also signed preferential trade arrangements with Iran, Mauritius, Group of Eight Islamic Developing Countries and other countries and organizations. In addition, Pakistan is a favored country of EU tariff preferences. The market for the textile and garment industry of Pakistan has a wide range.

(2) Analysis of foreign investment opportunities for the Textile and Garment industry of China

Table 1-5 Motive power, pressure and capacity for going-out of the textile and garment industry of China

Motive Power	The growth rate of finished products of industrial enterprises above designated size in the textile and garment manufacturing industry keeps increasing; China's textile and garment exports have ranked first in the world for several consecutive years; The foreign investment of Chinese textile and garment enterprises is increasingly mature; China's textile industry has entered the stage of transnational layout.

Pressure	The internal demand of China's textile and garment market has declined in the last two years; The labor cost of China's textile and garment industry is rising, and the profit space is compressed; The profitability of textile and garment enterprises is slowing down; The other production cost of China's textile and garment industry is relatively high; China's textile and garment industry has a great pressure to upgrade and transform.
Capacity	The main business income of textile and garment industry keeps increasing; The fixed assets of the industrial enterprises above designated size in textile and garment manufacturing industry are increasing; The production of China's textile and garment industry is increasing rapidly; China's textile and garment enterprises have powerful strength, with more than 300 listed companies.

(3) Selection and basis of key sub-sectors for the Textile and Garment industry

Type of Sub-sector	Basis for Selection
Garment	In recent years, the overall garment production has been increasing in China; The retail volume of Chinese garment has increased year by year; The rising cost of China's garment industry provides opportunities for Pakistan; Pakistani garment radiates to Europe and America; Rashakai has natural advantages in developing the garment industry.
Home textiles	The market scale of the home textile industry in China is expanding continuously; The home textile industry of China is advanced in technology; The demand for the Pakistan market is increasing; The home textile industry of Pakistan requires upgrading and transformation of technologies.
Garment accessories	The overall export of China's zipper and button is on the rise; The effect of industrial linkage development is formed with the garment industry.

1.3.4 Leather Industry

(1) Attractive investment of Pakistan for the Leather Industry of China

KP Province where Rashakai is located can provide sufficient raw materials for the leather industry. In 2016, the breeding stock of cattle, buffalo, sheep and goat in KPK Province is expected to be respectively 6,060,000, 2,440,000, 1,930,000 and 8,410,000, increasing by 37%, 35%, 14% and 36% respectively compared with that in 2006 (the breeding stock of them was respectively 4,420,000, 1,800,000, 1,690,000 and 6180000). The leather industry is an industry for foreign exchange by means of export in Pakistan, with a perfect industrial basis. At present, there are a total of 720 leather enterprises, of which 30-50 are large-scale companies and more than 5 are listed companies. In the fiscal years of 2016/17, the exports of leather and leather products in Pakistan reached 944 million U.S. dollars, accounting for 4.63% of the total exports of Pakistan.

The European Union helps the development of the leather industry in Pakistan with financial support. In June 2017, the European Union agreed to provide funds for Pakistan's initiative of improving the competitiveness of leather industry for the prevention and treatment of cattle skin diseases in Pakistan.

The Pakistani government takes various measures to stimulate the leather industry. In recent years, the export of leather and leather products in Pakistan shows a downward trend. To address this issue, the government encourages the development of the leather industry with many measures, such as encouragement of technological upgrading, improvement of products quality, implementation of export tax rebates, abolition of import duty on raw materials, and simplification of export procedures.

KP provincial freight hub and railway terminal project will make the traffic in Rashakai more convenient. Rashakai pSEZ lies in the middle of China-Pakistan Economic Corridor, 70km east of the Capital Islamabad and 40km west of the KPK Province capital Peshawar, neighboring the middle section of Islamabad-Peshawar M1 Expressway. KPK province has put forward the freight hub and railway terminal project of the central special economic zone. The project will link to the railway main line ML-1, making the traffic in Rashakai more convenient.

(2) Analysis of foreign Investment Opportunities of the Leather industry of China

Table 1-6 Motive power, pressure and capacity for going out of the leather industry of China

Motive power	The global leather industry transfer to the developing countries; Going out is certainly the trend for the development of the leather industry of China; China's leather enterprises have the strength of going out; China's leather enterprises have some experience in overseas investment; China's leather enterprises have some influence overseas.
Pressure	The rising cost makes the profits of China's leather enterprises to decline; The constraint on the environment of resources is increasingly tighter; It becomes arduous to complete the task of eliminating backward production capacity of domestic leather enterprises; EU REACH regulations aggravate the export pressures of China's Leather industry.
Capacity	The main business income of China's leather and shoe-making industries grows steadily; The planning of the leather industry promotes the rapid development of the leather industry of China; The production of light leather of China grows rapidly; China's leather products are widely exported.

(3) Selection and basis of key sub-sectors for the leather industry

Type of Sub-sector	Basis for Selection
Shoe-making	China is the main production base of the world's leather shoes and boots; The exports of Chinese leather shoes show a downward trend; China's shoe-making industry has started the overseas layout; Pakistani leather shoe industry has a huge potential for development and a promising prospect.
Luggage	The global market demand for luggage is sharply increased; The production of Chinese luggage has accounted for more than 70% of the world's total production; The production value of the luggage industry of China grows rapidly;

	The export situation of the luggage industry of China is not optimistic; The imports of Pakistani luggage keep increasing, with large domestic demand.
Leather clothing	China is a big producer of leather clothing; The export situation of Chinese leather clothing is grim; Large number of export of Chinese raw leather increases the business cost of the leather clothing industry; Chinese enterprises can produce high value-added leather clothing products to boost the export competitiveness of Pakistan.

1.3.5 Food Processing Industry

(1) Attractive investment of Pakistan for the Food Processing industry of China

Agriculture is the traditional pillar industry in Pakistan, with a high production of agricultural products. In the fiscal years of 2016/17, the ratio of agricultural production value to GDP was 24.65%. The main crops in Pakistan involve wheat, rice, corn, cotton, and sugarcane, etc. Other important agricultural products involve fruits, vegetables, milk, beef and mutton, etc. In the fiscal years of 2016/17 of Pakistan, the output of crops increased by 3.02%, sugarcane increased by 7.59% and rice increased by 0.71%.

The agricultural products of Pakistan boast a large export volume and a certain market basis. As the main export commodities in Pakistan, the agricultural products and related products are mainly exported to China, the United States and European countries, where have more advanced product markets. It is expected in the fiscal year of 2016/17 that the export of rice would reach 1.607 billion U.S. dollar, the fruit, vegetables and their juices would reach 591 million U.S. dollar and the flour would reach 175 million U.S. dollar.

The Pakistani government encourages the development of the food processing industry. In order to attract foreign investment, the Pakistani government has introduced a series of preferential supporting policies, such as permission of 100% foreign ownership and no restriction on the minimum investment, etc. The Rashakai pSEZ will enjoy the incentives, if any, offered by China under CPEC Framework.

Pakistan uses conventional agricultural techniques and needs modernization, and improvement to enable vertical processing capacity of agricultural products. The process of agricultural modernization in Pakistan is relatively backward, which is greatly affected by

the natural weather. Due to insufficient agricultural industrialization level, the abundant fruit and grain crops due to lack of corresponding technology and deep processing capacity, results in a considerable waste of resources and thus urgent improvement of the deep processing capacity of agricultural products is required.

KP Province where Rashakai is located has rich agricultural product resources for processing. KP Province is suitable for planting various food crops, fruits and vegetables while Charsadda, Mardan and Swabi are suitable for planting high-quality sugarcanes. In the fiscal year of 2015/16, the production of sugarcane in Mardan close to Rashakai was 1,369,300 tons, accounting for 25.02% of the total production of the KP province; the total production of vegetables in KP province was 384,700 tons, with a year-on-year increase of 2.0%; the total production of fruit was 336,000 tons, which was down 2.1% from the same time last year.

(2) Analysis of foreign investment opportunities for the Food Processing Industry

Table 1-7 Motive power, pressure and capacity for going out of the Food Processing industry of China

Motive	China's food processing enterprises benefit much from overseas investment; Going out complies with the national policy and the corporate strategy; Solid foundation of overseas market of Chinas food processing products; The Belt and Road Initiative creates new opportunities for food processing enterprises.
Pressure	Rising of the raw material prices reverses the going out of the food processing enterprises; Environmental protection policy gives pressure to the food processing industry; Imported foods occupies the domestic market shares; Establishment of food processing plant in China by large-sized cross-country corporation gives pressure to enterprises in China.
Capacity	Sound development of Chinas food processing technology and system; Total profit of Chinas food processing industry more than 200 billion Yuan; Stable scale of enterprises of Chinas food processing industry; Relatively powerful production capacity of Chinas food processing industry; Many enterprises of Chinas food processing industry going out.

(3) Selection and basis for key sub-sectors of the Food Processing industry

Types of sub-sectors	Basis for selection
Sugar	Finished sugar production capacity in China lowered significantly; High sugar production costs in China, near half of the sugaring enterprises in 2016 with losses; Abundant sugarcane resources in Pakistan, large sugar production capacity; Solid sugar industrial foundation in Pakistan, great sugar requirements in China.
Dairy products	Production values of dairy products industry in China increased, and production capacity also increased; Well-developed dairy product enterprises in China, with the strength of Going out; Not high commercialization of dairy industry in Pakistan, and deep production capacity to be improved.
Juice and beverage	Well development of juice and beverage industry in China, with increasing sales income; Juice and beverage production capacity in China lowered in recent years, but famous enterprises with the strength of Going out; Abundant fruit varieties in Pakistan, relatively higher yield, providing sufficient raw materials.
Muslim meat products	The population of worldwide Muslim reaches about 2 billion, with great demands on Muslim requirements; The Muslim meat product industry of China develops rapidly; The animal husbandry industry develops well in Pakistan, with a high breeding stock; Production capacity of Muslim meat in Pakistan increases stably to guarantee supply of raw materials.

1.3.6 Household Appliance Industry

(1) Attractive Investment of Pakistan for the Household appliances Industry of China

With the rising living standards of the people in Pakistan, the household appliance market is promising. As of August, 2017, the total population of Pakistan is approximately 208 million, with annual average growth of 2.4%. The growth of GDP per capita in Pakistan is kept around 30%. The GDP per capita of Pakistan in 2016 is approximately 1443.6 US

dollars. As estimated by IMF, the quantity of the rich consumers in Pakistan will be increased by about 6% in each year.

The consumption potential of household in Pakistan is great, and the investment prosperity of the household industry is promising. Pakistan has a large requirement of household appliance, but the domestic manufacturing capacity is poor. In the fiscal years 2012/13-2016/17, the import of household appliance is increasing. In the fiscal years 2016/2017, imports of refrigerator and freezer, TV set and full-automatic washing machine are about 104.4 thousand US dollars, increasing by 21.82% compared with the last year. As for imported household appliance in Pakistan, 100% security shall be paid to boost local investment by Chinese enterprises. As of March 17, 2017, according to regulations by Pakistan Government, the importers of imported vehicles (complete vehicle or parts), mobile phones, cigarettes, jewelry, cosmetics, individual skin care products, electronic and household appliance, weapons and ammunition, shall pay 100% security when issuing letter of certificates.

In year 2016, Haier Group and Ruba Group cooperated and established Ruba Industrial Park. At present, the household appliance by Haier is leading in local market. Other household appliance manufacturers mirror Haier, with the opportunity of popularity of Chinas products, explore local markets and occupy market shares.

(2) Analysis of Foreign Investment opportunities for the Household Appliance

Industry of China

Table 1-8 Motive power, pressure and capacity for going out of the household appliance industry of China

Motive power	The Belt and Road Initiative creates new opportunities for household appliance manufacturers; Chinas household appliance manufacturers accelerates worldwide layout; Overseas market shares of Chinas household appliance industry increasing;
	Chinas household appliance industry mirrors various overseas investment modes.

Pressure	In recent years, the production capacity of Chinas household appliance grows slowly; Increasing costs of Chinas household appliance industry; Serious competition in domestic household appliance industry; Serious trade barriers for export of Chinas household appliance industry.
Capacity	Powerful manufacturing industries of Chinas household appliance industry; Well performance of listing companies of Chinas household appliance industry; Broad export of the Chinas household appliances; Enhanced R & D capacity of Chinas household appliance industry.

(3) Selection and basis for key sub-sectors of the household appliance industry

Types of sub-sectors	Basis for selection
TV sets	Powerful manufacturing capacity of color TV set in China; Limited growth of color TV growth in China, lowered sales; Narrow profit space of TV set enterprises in China; Typical representatives of TV set enterprises in China explored overseas market; Increasing import of TV set in Pakistan, great domestic requirements.
Fans	Powerful fan manufacturing capacity in China; The scale of fan market in China shrinking year by year; Increasing export market for fans made in China; Solid industrial foundation of the fan industry in Pakistan, well developed.
Refrigerators	Powerful manufacturing capacity of refrigerators in China; Export of refrigerators in China keeping stable growth; Typical representatives of refrigerators enterprises of China explored overseas market; Relieving Pakistani's dependence on import of refrigerators; Chinese enterprises mirroring successful experience from Haier, and continuing to explore local potential.

Air conditioners	Powerful manufacturing capacity of China; Increasing export of air-conditioners of China; Typical representatives of air-conditioner enterprises of China invested overseas; Pakistan levies supervision tariff and stimulates localization production by Chinese enterprises. Pakistan has certain manufacturing capacity of air-conditioners.
Washing machines	Powerful manufacturing capacity of washing machines in China; Export of washing machines of China facing pressurized production; Typical representatives of washing machines of China expanded in overseas market; Large-sized washing machines of China based on Pakistan to avoid anti-dumping by Europe and America; Increasing import of full-automatic washing machines of Pakistan, greater requirements.
Small household appliances	Powerful manufacturing capacity of small household appliance of China; Low profit rate of small household appliance of China; Broad export of small household appliance of China; Typical representatives of small household appliance of China explored overseas market; Small household appliance market of China of certain development potential.

1.3.7 Packaging / Printing Industry

(1) Attractive investment opportunities in Pakistan for the packaging/printing industry of China Pakistan can provide rich human resources for the packaging/printing industry; besides, it is the sixth-largest country in the world by population and its total population is always on the increase. In 2016, the total population of Pakistan is 195 million, with a year-on-year growth of 1.89%. In August of 2017, the preliminary report of the Sixth National Population

Census of Pakistan showed that the total population of Pakistan was about 208 million. The packaging/printing industry is a labor-intensive industry, and Pakistan can offer ample human resources for the packing/printing industry.

It can develop in coordination with the packaging/printing enterprises in Hattar Industrial Zone and Peshawar Industrial Zone. Both Hattar Industrial Zone and Peshawar Industrial Zone have a certain number of packaging/printing enterprises, and Rashakai pSEZ is located in Khyber Pakhtunkhwa province where Hattar Industrial Zone and Peshawar Industrial Zone are also located, so it can develop the packaging/printing industry so as to create the coordinated development effect of industrial cluster together with the packaging/printing enterprises in these two industrial zones.

The import demand for packaging/printing materials of Pakistan increases continuously, and paper and paperboards are the backbone of the printing industry and are the most important materials of the packaging industry, and in recent years, the import demand for paper and paperboards of Pakistan is on the increase. In the fiscal year of 2016/17, the import volume of paper and paperboards of Pakistan was 592,200 tons, with a year-on-year growth of 14.16%; the amount of imports is 528 million U.S. dollars, with a year-on-year growth of 4.56%.

The investment potential of the packaging/printing industry of Pakistan is huge and the printing industry of Pakistan is developing rapidly, and the current printing/packaging industry has become the second-largest industry in Pakistan, second only to the textile industry. Nearly all pieces of packaging and printing mechanical equipment are imported from foreign countries, and every year, Pakistan invests a huge amount of money to meet the increasing demand of packaging/printing products. With the economic development and an increase in per capita income of Pakistan, the packaging industry will face the increasing demand in Pakistan, while the printing industry will flourish with the prosperity of other industries.

(2) Analysis of foreign investment opportunities for the packaging/printing industry of China

Table 1-9 Motive power, pressure and capacity of "going out" of the packaging/printing industry of China

	The Belt and Road Initiative provides new opportunities for "going out" of China's packaging/printing industry; The "Going out" operation of China's packaging/printing enterprises are provided with policy supports; An adjustment in the layout of global manufacturing industry brings new development opportunities to the packaging/printing industry.

Pressure	With the continuous implementation of environmental protection policies, the packaging/printing enterprises will be under pressure; The export volume of China's printing products are on the decrease; Pakistan initiates the anti-dumping and anti-subsidy investigations for part of printing products of China; The industrial concentration of China's packaging industry is relatively low.
Capacity	China has become the second-largest country of packaging industry in the world; The total production value of China's printing industry is steadily increasing; The income in the main business of enterprises above the printing industry of China is steadily on the increase; China's packaging/printing industry has a batch of stronger enterprises.

1.3.8 Mechanical Equipment Industry

(1) Attractive investment opportunities in Pakistan for the mechanical equipment industry of China The import of mechanical equipment is the most and constantly increasing in Pakistan and the mechanical equipment is the most important imported product in Pakistan. The amount of imports of mechanical transportation equipment has been continuously increased since the fiscal year of 2012/2013, and the amount of imports in the fiscal year of 2016/17 were 14,999,000,000 US dollars with a year-on-year increase for 30.57%.

The market demand prospect of mechanical equipment is large in Pakistan. Pakistan is a great agricultural country but 85% of cultivated land still adopts the traditional artificial tillage method. The agricultural mechanization level should be improved urgently; Meanwhile, Pakistan is also a country with a large population of Muslim with large demand for food processing machinery. The demand of Pakistan for engineering machinery will be continuously increase with the construction of China-Pakistan Economic Corridor.

Pakistan carries out the tariff-free preference for the import of mechanical equipment and encourages the industrial development. Federal Board of Revenue is determined to carry out tariff reduction and exemption for part of imported mechanical equipment on June 2014 and the government supports the development of mechanical equipment industry.

China's mechanical equipment has been extensively exported to Pakistan. Currently, Chinas leading enterprises of mechanical enterprises such as Sany Heavy Industry, Zoomlion and

XCMG and so on have exported the mechanical equipment products to Pakistan via China engineering construction enterprise in Pakistan.

The traffic of KPK Province where the Rashakai pSEZ is located is convenient. Rashakai pSEZ is located at the central part of China-Pakistan Economic Corridor, which is 70KM from Islamabad, the Capital for 70km in the east, and 40 KM from Peshawar, the prefecture of KPK Province for 40km in the west, adjacent to the middle section of Islamabad Peshawar M1 expressway in the south and can radiate surrounding cities such as Afghan and Iran and so on.

(2) Analysis of foreign investment opportunities for the mechanical equipment industry of China

Table 1-10 Motive power, pressure and capacity for going out of the mechanical equipment industry of China

	The national policies encourage and support going out for mechanical equipment enterprises; International capacity cooperation is continuously boosted; The Belt and Road initiative creates new opportunity for mechanical equipment enterprises; Going-out of the mechanical equipment industry is the inevitable option for the industrial development.
Pressure	The export of the mechanical equipment of China is declining generally; The domestic mechanical equipment industry is faced with the transformation and upgrading; Trade barrier and other factors force enterprises of China to seek for emerging markets; The competition of the machinery industry of China is drastic and the corporate profit is relatively lower.
Capacity	The economic operation of the machinery manufacturing industry of China is in good condition; There is a batch of enterprises with international competitiveness in the mechanical equipment industry of China;
	The independent development capacity of the mechanical equipment industry of China is constantly strengthened; The mechanical equipment industry of China possesses the powerful manufacturing capacity; There are numerous listed companies with powerful enterprise strength in the mechanical equipment industry of China.

(3) Selection and basis of key sub-sectors for the mechanical equipment industry

Type of Sub-sector	Basis for Selection
Agricultural machinery	The state encourages the development of agricultural machinery industry; The development of the agricultural machinery industry of China is fast and the value of output is constantly improved; The agricultural machinery industry of China is faced with the pressure of exports; The supply of agricultural machinery is insufficient in Pakistan, which demands for the imports; The agricultural development is good in Rashakai is better and the market of agricultural machinery possesses large market potential.
Food machinery	The category of food machinery of China is various with superior quality; The development of the food machinery industry of China is faced with multiple pressure; Going-out of food machinery enterprises of China has been the inevitable trend; The agricultural development in KPK Province where Rashakai is located is better and the market prospect of food machinery is bright.
Construction machinery	The revenue of the construction machinery industry of China was recovered in 2016 and the industrial development is stable; The construction machinery industry of China is faced with the pressure of exports; The import of construction machinery in Pakistan is constantly increased and the market demand is large; The freight hub and railway terminal project in KPK Province will promote the demand for construction machinery products.
Packing machinery	The revenue of the packing machinery industry of China is constantly increased and the industrial development is better;

	The packing machinery of China has obtained certain overseas market; The development of the food processing industry will promote the demand of Pakistan for the packing machinery.
Printing machinery	The printing machinery industry of China is constantly developing stably. The printing machinery of China has been extensively exported overseas; The printing machinery of China has occupied certain market in Pakistan.

1.3.9 Toy Industry

(1) Attractive investment opportunities in Pakistan for the toy industry of China

The traditional textile industry of Pakistan provides sufficient textile clothes for the toy industry, and the textile industry is the most important pillar industry and the largest export industry of Pakistan. In the fiscal years 2016/17, the cotton cloth yield of Pakistan is 1.043 billion square meters, increasing by 0.38% compared with the last year.

The total import of toys in Pakistan is increasing, with great domestic demand. From July to March of the fiscal years 2016/17, the import of toys, gaming and sports supplies in Pakistan is 78 million US dollars, increasing by 11.43% compared with the whole fiscal years 2015/16.

The labor costs of Pakistan are very competitive and Labor availability in Pakistan is abundant. The population has been keeping growth since year 2006. The nationwide average month salary of the fiscal year 2014/15 is 14970.70 rupees, (about 147.79 US dollars). The monthly average salary of the manufacturing industry is 13477.76 rupees, about 133.05 US dollars. The industry involves Iran with promising market. In August, 2013, Iran abolished the *Law of Family Planning*, which was enforced for 20 years, and invested 190 billion Riyals (about RMB 100 billion) to encourage childbirth, and set the population grown to 150-200 million.

The domestic toy market potential in Iran is great.

(2) Analysis of foreign investment opportunities for the toy industry of China

Table 1-11 Motive power, pressure and capacity for going out of the toy industry of China

	Rapid expansion of overseas market scale of toy industry of China;

	Exporting market of toy products of China for developed countries; Rapid expansion of market scales of Asian and Oceanian market for toy of China; Rapid expansion of enterprises for developing export business of toys.
Pressure	Serious market competition of toy industry in China; Poor profits of toy industry of China; Increasing barriers of foreign trade.
Capacity	The toy enterprises seek transformation, and combine with the culture industry; The toy industry of China has cultivated many key enterprises.

1.3.10 Consumer Electronics Industry

(1) Attractive investment opportunities in Pakistan for the consumer electronics industry of China With the increasing youth population and a huge market potential of consumer electronics in Pakistan, most of the Pakistani population is young, under the age of 30, and the population of this age group is still growing. Taking mobile phone as an example, at present, the market share of smart phone in Pakistan has increased from 30% to 50% in the past two to three years, and there is a huge potential market for consumer electronics products.

There is abundant labor force in the area around Rashakai and the labor force of Pakistan is low-paid. In 2017, Mardan had a population of 2.37 million, accounting for 7.8% of KPK's population, which is the most populous area except for the capital of KPK province. In the fiscal years 2014/15, the monthly average wage of Pakistan was about 148 US dollars, of which manufacturing was about 133.05 U.S. dollars.

China's consumer electronics products enjoy a high popularity in Pakistan. The data show that the market share of OPPO took the second place in the first and second quarter of 2017, followed by MI-ONE. Most of the top 10 market sales in 2016 were almost entirely dominated by Chinese brands.

Pakistan charges 100% deposit against consumer electronics importers, stimulating the local production of Chinese enterprises. In February 2017, Pakistan announced that importers of products including mobile phones, electronics and household appliances, cigarettes and cosmetics should pay 100% deposit for Letter of Credit issued. The total value of imported mobile phones affected by the policy is about 10 million U.S. dollars.

There are also promising markets in the neighboring countries. There is great market potential in neighboring countries of Pakistan. For example, the penetration rate of mobile phone products in Afghanistan has increased from 4.8% in 2005 to 61.6% in 2015; the amount of Iranian consumer electronics products in 2014 has reached 10.8 billion U.S. dollars, and kept growing.

(2) Analysis of foreign investment opportunities for the consumer electronics industry of China

Table 1-12 Motive power, pressure and capacity for "going out" of the consumer electronics industry of China

	Global consumer electronics market is increasing rapidly; National policies boost the development of consumer electronics industry of China; Some consumer electronics companies of China have taken the lead in "Going Global"; China's consumer electronics products have been widely exported; Chinese consumer electronics companies benefit a lot from establishing overseas factories.
Pressure	The smart phone market of China has gradually reached saturation; There is fierce competition in the domestic market; Rising costs and configuration enhancements increase the production cost of companies; Saturated consumer electronics markets in developed countries force companies to explore new markets.
Capacity	The size of consumer electronics market is expanded in China; Consumer electronics industry of China plays an important role in the world; A number of leading enterprises emerged in this industry; Consumer electronics companies of China gradually improve their technological innovation capability.

(3) Selection and basis of key sub-sectors for the consumer electronics industry

Type of Sub-sector	Basis for Selection

Smart phones	China has a strong capability in manufacturing smart phones; 40% The shipment quantity of Chinese smart phone accounts for 40% of the world; Representatives of smart phone companies of China have invested overseas; Pakistan has become a major international market for smart phones with great future potential; Chinese branded mobile phones have occupied a significant market share in Pakistan.
Computers	China has a strong capability in manufacturing computers; There is high concentration of domestic computer brands and small development space for many companies in China. Representatives of computer companies of China have opened up overseas markets; There is a great potential for development of computer market in Pakistan; Pakistani government has taken steps to solve the network problems in remote areas.
Audio-visual equipment	Audio-visual equipment manufacturing industry of China is developing rapidly; The profits of audiovisual equipment industry of China are dropped and profitability is also declined; Some enterprises of China, who engage in audio-visual equipment industry products, have invested overseas; Audio-visual equipment of China has taken a certain market share in Pakistan.

1.3.11 Trade and Exhibition City

(1) Setting the Basis & Analysis

Level	N o.	Basis	Main Description
Pakistan	1	Pakistan's economy is expected to maintain its growth momentum. It is estimated that by 2028, the total GDP will increase substantially.	Pakistan's GDP increased steadily in the fiscal years 2011/12-2016/17, with a rising growth rate. In the fiscal years 2011/12, Pakistan's GDP was 20 trillion rupees (about 224.652 billion US dollars), a real increase of 3.84%,

			and in the fiscal year 2017, Pakistan's GDP rose to 31.86 trillion rupees (about 304.0515 billion US dollars), and the real growth rate rose to 5.70%. Pakistan's GDP is expected to reach 51.90 trillion rupees by 2027/28 fiscal year.
	2	The rapid increase of per capita GDP in Pakistan is conducive to substantially raising the purchasing power of the population.	Pakistan's GDP per capita increases continuously in the period from 2010 to 2016. In 2010, the per capita GDP in Pakistan was 87430.33 rupees, or about 1043.3 US dollars. In 2016, the per capita GDP in Pakistan rose to 150,632 rupees, or about 1,443.6 US dollars, which increases 3.4% year on year. It is estimated that by 2027, the per capita GDP in Pakistan will reach 208,411 Rupees.
	3	Pakistan's large population base and its continued growth provide the space to the consumer market.	Since 2007, Pakistan's population has maintained its growth trend. In 2016, Pakistan's total population was 195 million, which increases 1.89% year on year. In August 2017, the preliminary report of the sixth national census in Pakistan showed that the total population of Pakistan is about 208 million, an increase of 57% over the fifth national census in 1998, and the annual population growth rate is 2.4%.
	4	Pakistan's domestic consumption scale and investment size support its considerable market capacity.	In fiscal year 2016/17, the total nominal consumer spending in Pakistan is estimated at 26.08 trillion rupees (about 248.832 billion US dollars), which increases 11.98% year on year, and accounts 87.22% of nominal GDP. In fiscal year 2016/17, total domestic investment in Pakistan is estimated to be 4.74 trillion rupees (about 45.25 billion US dollars), which increases 11.1% year on year, and accounts 14.88% of the nominal GDP.
	5	Pakistan's wholesale and retail industry output continued to maintain rapid growth momentum to support the potential of business markets.	In the period from fiscal year 2012/13 to 2016/17, the output value of the wholesale and retail trade in Pakistan continued its rapid growth, and the actual annual growth rate was continuously increasing. By fiscal year 2016/17, the output value of wholesale and retail trade in
			Pakistan increased to 53.289 billion US dollars with a real growth rate of 6.4%, which accounts for 33.19% of service industry output value, and accounts for 18.68% of GDP.

	6	Pakistan's trade volume shows that Pakistan has considerable market capacity.	In the 2016/17 fiscal year, total trade in Pakistan was 73.314 billion US dollars, which increases 11.98% year on year. Among them, the amount of imports was 52.910 billion US dollars, which increases 18.41% year on year; the amount of exports was 20.404 billion US dollars, which decreases 1.84% year on year; the trade deficit was 32.506 billion US dollars.
	7	Pakistan's import and export commodity structure provides an important reference for business category of business projects.	Pakistan's major export commodities are textiles, foodstuffs, jewelery, chemical products (including pharmaceuticals), leather and its products, medical appliances, cement, sporting goods, engineering equipment, carpets and so on. The amount of export in Pakistan was 20.404 billion US dollars in 2016/17 fiscal year, of which, the export of knitwear was 2.359 billion US dollars, which accounts for 11.56% of the total. Pakistan's major import commodities are crude oil and petroleum products, foodstuffs, transportations, steel and plastic raw materials. The amount of import in Pakistan was 52.910 billion US dollars in 2016/17 fiscal year, of which, the import of mechanical transportation equipment was 14.999 billion US dollars, which accounts for 28.35% of the total.
	8	The development basis of Pakistan's transportation and warehousing logistics industry is good.	In 2016/17 fiscal year, the output value of Pakistan's transportation and warehousing logistics was 36.237 billion US dollars with a real growth rate of 3.94%, which accounts for 12.7% of proportion of GDP.
	9	The Pakistani government allows foreign investors to engage in wholesale, and the retail trade and the trading environment is relaxing.	Pakistan's policy on foreign investment is very liberal. Foreign investors are allowed to engage in wholesale and retail trade and Pakistan implements its trade liberalization policy. At present, the free trade agreements signed by Pakistan include: <i>The Pakistan-Iran Preferential Trade Arrangements, South Asia Free Trade</i>
			<i>Area Agreement, Pakistan-China Free Trade Agreement, and Pakistan-Malaysia Closer Economic Partnership Agreement; preferential trade arrangements include: The Pakistan-Iran Preferential Trade Arrangements, Preferential Trade Agreement of the Group of Eight Islamic Developing Countries (D-8), and Pakistan-Mauritius Preferential Trade Arrangements.</i>

China	1	The import and export trade volume between China and Pakistan is considerable and maintains a rapid growth.	The trade between China and Pakistan continued to increase. In 2016, the bilateral trade volume between China and Pakistan was 19.33 billion US dollars, of which, China's exports to Pakistan reached 17.23 billion US dollars, China's imports from Pakistan reached 1.91 billion US dollars, China's trade surplus with Pakistan reached 15.23 billion US dollars. The scale of import and export between China and Pakistan is considerable and the trend of rapid growth is maintained. China's trade surplus with Pakistan is constantly expanding, providing an imagination for the establishment and development of an integrated commerce and trade city.
	2	The goods export from China to Pakistan laid a good foundation for the further opening up of the Pakistani market for the goods of China.	China's major export commodities to Pakistan are mechanical equipment, steel and its products, chemicals, electrical and electronic appliances, computer and communications products, fertilizers and agricultural products, among them, the mechanical equipment account for nearly 40%. The structure of China's exports to Pakistan can be used as an important reference for the operation of the Trade City project. The scale of China's exports to Pakistan shows that Chinese commodities have gained a reputation in the Pakistani market and laid a good foundation for Chinese goods to further opening up the Pakistan's market.
	3	China is Pakistan's largest source country of imports, supporting the strong competitiveness of Chinese goods in Pakistan.	China is Pakistan's largest source of imports of goods. From July 2016 to May 2017, Pakistan imported the goods valued 13.884 billion US dollars from China, which accounts for 28.69% of the total imports, ranking the first place.
	4	Development opportunities brought by the in-depth promotion of Chinas The Belt and Road initiative.	Pakistan is an important country along the line of the Belt and Road initiative. The in-depth promotion of the Belt and Road initiative will help improve the living standards of Pakistani people and improve people's livelihood, resulting in good news to the development of Trade and Exhibition City Project in Rashakai pSEZ.
	5	Development opportunities brought about by the Construction of China-Pakistan Economic Corridor.	The radiation effects of the China-Pakistan Economic Corridor will closely collaborate with South Asia, Central Asia, North Africa, the Gulf Countries and etc. through cooperation in the field of economic and energy to forge economic resonance.

Rashakai	1	Rashakai has a good business foundation.	Prior to construction of the M1 Highway at Rashakai Intersection, this small town, Rashakai, was known for its ShireenKotay apparel market. ShireenKotay is recognized as one of the top apparel markets in the KPK province (and also in Pakistan). Although its size has been expanding, over the years there have been many other fabrics markets in Rashakai, showing that the business foundation of Rashakai is good.
	2	The traffic conditions of Rashakai is convenient, which provides an important transport guarantee for business logistics projects.	Rashakai is close to the Nowshera-Mardan Highway and the M1 Highway Rashakai Intersection. It is about 150 km from Islamabad and only 40 km from Peshawar. Ma-Rashakai intersection provides the convenient channel for Nowshera, Mardan, KPK Province and other regions.
	3	Rashakai can provide a certain hinterland market for the Trade and Exhibition City project.	Currently, the cities around Rashakai such as Mardan, Nowshera, Peshawar and other cities are all lacking in large-scale comprehensive trade projects. The large population of these cities can provide a hinterland market for the Rashakai Trade and Exhibition City project. KPK Province has a population of 30,523,400 people in 2017, accounting for 14.9% of the total population of the country. Among them, the population of Peshawar is about 4,269,100 people, accounting for 14% of the total population of KPK Province, the population of Nowshera is about 1,520,000 people, accounting for 5% of the total population of KPK Province, the population of Mardan is about 2,370,000 people, accounting for 7.8% of the total population of KPK Province.
Trade and Exhibition City	1	Business Logistics Park is one of the types of overseas parks encouraged by the Chinese government.	The Chinese government has promulgated policies to encourage and support the establishment of the comprehensive trade city outside China, encourage the development of cross-border e-commerce, encourage enterprises to build overseas warehouses, which enhance the motivation for the going out policy of trade and logistics-related enterprises of China.

	2	Good momentum of development of overseas business projects can increase the motivation for further layout of Chinese enterprises.	As of the end of 2016, China has established about 111 trade and commerce cities outside China, of which 40 are in Asia, accounting for 36%; 31 are in Europe, accounting for 28%; 29 are in Africa, accounting for 26%; 11 are in America, accounting for 10%. In the future, the number of China's overseas business and trade cities will continue to grow. The professional companies engaged with business platforms will become the main force of investment in the overseas business and trade cities, and the investment regions will focus on Europe, Africa and Asia.
	3	Taking the success of Dubai Dragon City as a model to stimulate Chinese enterprises continue to layout the business-type project all over the world.	Dragon City, the earliest known as the Chinese goods (Dubai) distribution center, is China's largest overseas trade center of goods collection and distribution. Dubai Dragon Mall lies in about 15 km southeast of Dila old town in UAE's second largest city, Dubai. There are currently more than 3,000 shops, and the commodities include diesel generators, auto parts, screws, buttons, batteries, the categories are various, and the goods shelves are set intensive and ordered, which attract about 65,000 visitors to shopping and business daily. The annual trading volume of commodities in Dragon City up to in the period from 80 billion to 90 billion US dollars.
	4	Chinas business projects have the layout space in South Asia.	So far, China has only one trade city project in the Gwadar Port of Pakistan throughout South Asia, and this project can form linkage and dislocation competition with Rashakai project. There are 15 China Trade Cities in Southeast Asia, including 5 in Vietnam, 4 in Laos, 3 in Thailand, 2 in Malaysia and 1 in Cambodia. At present, the competition intensity of China Trade City projects in South Asia is relatively low. There is a space for the development and construction of China Trade City in Pakistan.

According to the analysis of 25 bases carried out from the four levels, we think that the comprehensive trading city of Rashakai pSEZ has a good value for investment. Under the current background of constructing the China-Pakistan Economic Corridor and the sound development of China's overseas trade and logistics park project, we should take advantage of the opportunities brought by the rapid economic growth of Pakistan, carry out strategic cooperation with China's commerce and trade platform companies, and actively promote the launching of the business and trade projects of Rashakai, to further lay the foundation for the overall development of the projects.

(2) Study on the environment of competition

Competition Level	Main Aspects	Impact on Trade and Exhibition City in Rashakai pSEZ
Level 1	Overall situation of competition for trade cities outside China	As of the end of 2016, China had set up approximately 111 trade cities overseas. The number of out-of-border trade cities will continue to grow in the future. It is foreseeable that, on one hand, these out-of-border trade cities will compete more fiercely for Chinese merchants; on the other hand, commercial platform-based enterprises are seeking opportunities around the world thanks to their advantages in merchant resources, management experiences, etc. Therefore, there will be a growing number of investment projects related to commercial platforms.

Level 2	Competition from Chinas trade cities in Asia	From a geographical point of view, competitive threats for Trade and Exhibition City in Rashakai pSEZ mainly come from Chinas trade city projects in Southeast Asia and South Asia. For the moment, most Chinese trade cities in Southeast Asia and South Area are targeting local cities. There have not been any regional well-known brands established yet, and the environment of competition is merely adequate. Besides, there are very few Chinese trade cities set up in South Asia only 1 at Gwadar Port of Pakistan. There is still enough space for Chinese trade cities to set foot in.
Level 3	Competition from Pakistan local trade cities	At present, Pakistan commercial activities are mostly carried out in trade cities that are mostly located in Karachi, Lahore and Islamabad. There are some clothing wholesale cities in Rashakai as well, featured in clothing, cloth and daily necessities wholesales, long history and poor shopping experiences.
Level 4	Competition from Linyi Trade City at Gwadar Port	Linyi Trade City at Gwadar Port mainly operate advantageous goods, including building and decorative materials, engineering machinery, hardware and E&M equipment, labor protection articles, work-site living supplies, etc., which may impact the Project to a certain degree.

For Trade and Exhibition City in Rashakai pSEZ, it is suggested to take full advantage of the enormous growing space for commercial activities in Pakistan, and focus on strategic cooperation with Chinese commercial platform-based companies so as to import their

merchant resources and management experiences, introduce E-commerce platforms to guarantee rapid launching and healthy progress of the comprehensive trade city project, as well as to avoid homogenous competition with Linyi Trade City at Gwadar Port.

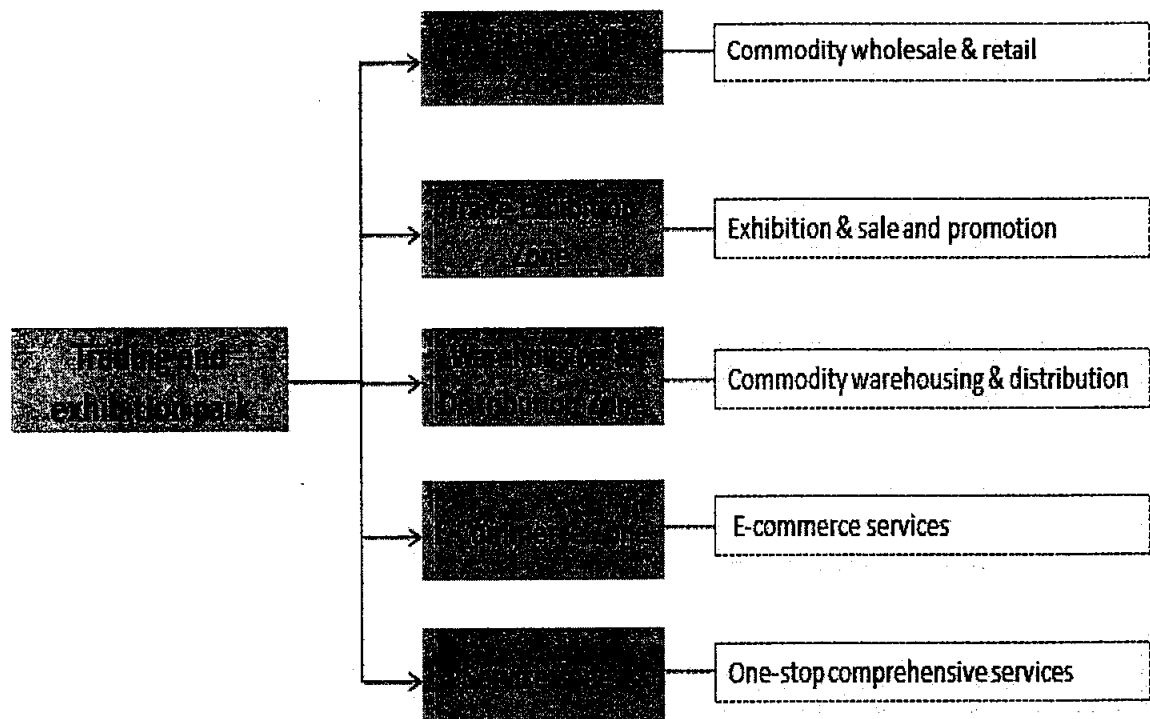
(3) Preliminary idea and strategic orientation

Trade and Exhibition City in Rashakai pSEZ will integrate the product exhibition & sale, warehousing & distribution and online/offline interaction, and become a large commercial complex providing services for product exhibition & trade, wholesale & retail, warehousing and transportation. Trade and Exhibition City in Rashakai pSEZ will rely on the existing achievements of Shireen Kotay and other clothing cities, take advantage of the geographical advantage of being in the proximity of Highway M1, seize the opportunities under The Belt and Road Initiative of China, the development of the China Pakistan Economic Corridor and economic growth of Pakistan to interconnect with three economic zones Hattar, Gilgit and Gwadar Port so as to grow into a nationally reputed commodity trading center of Pakistan.

Strategic orientation of Trade and Exhibition City in Rashakai pSEZ: rely on the existing good cloth trading market in Rashakai; integrate advantageous commercial resources of the region; produce radial effects on Islamabad, Peshawar and other neighboring regions; interconnect with all regions within the border of Pakistan, Afghanistan and the Xinjiang Uygur Autonomous Region of China; grow into a comprehensive trade city for product exhibition & sale, warehousing & distribution, and online/offline interaction; and reputé for the full range of commodities and high-class services.

(4) Functional division

Trade and Exhibition City in Rashakai pSEZ preliminarily involves five functional zones: the Merchandizing Zone, the Trade Exhibition Zone, the Warehousing & Distribution Zone, the E-Commerce Zone, and the Service Zone.



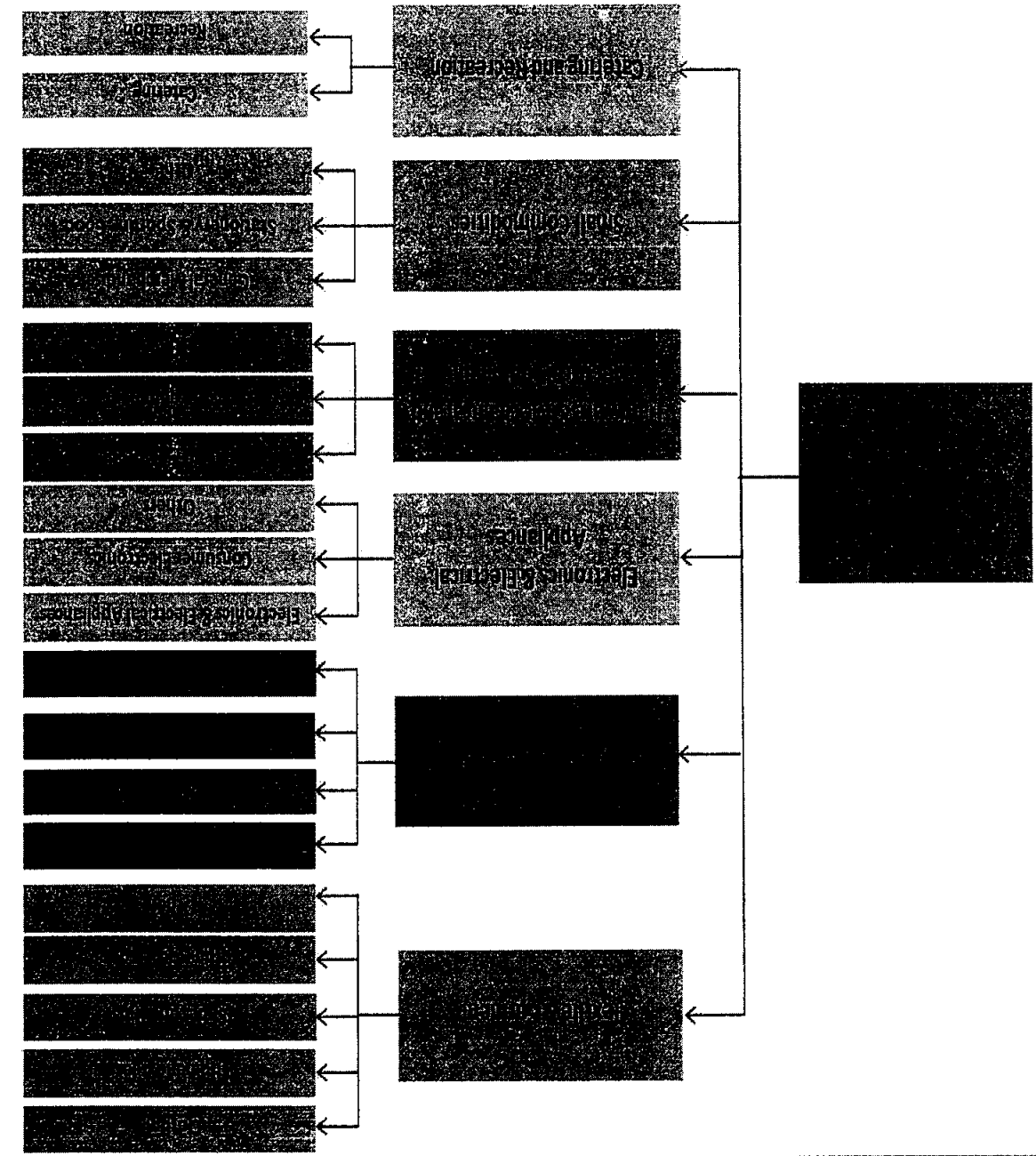
1) Merchandising Zone

The Merchandising Zone is a commercial complex for commodity wholesale and retail.

Commodities involved in the Merchandising Zone include clothes, home textiles, shoes and hats, clothing accessories, building materials, sanitary ware, furniture, home appliances, consumer electronics, hardware and tools, and other small commodities. In particular, clothes, shoes and hats are mostly locally sourced, while building materials, consumer electrical appliances, home appliances, and hardware, etc. are mainly from China.

Most commodities involved in this zone are of middle and low classes. High-end commodities are occasionally available. Commercial activities are mostly wholesale business with retail playing an aiding role.

Transit commodities are dominant in the Merchandising Zone. The objective is to integrate local advantageous commercial resources of Rashakai and build the area into a nationally well-known commodity trading center in Pakistan, so as to assist in economic and trading exchanges between China and Pakistan and explore the Pakistani and Afghan markets with superior Chinese products.



2) Trade Exhibition Zone

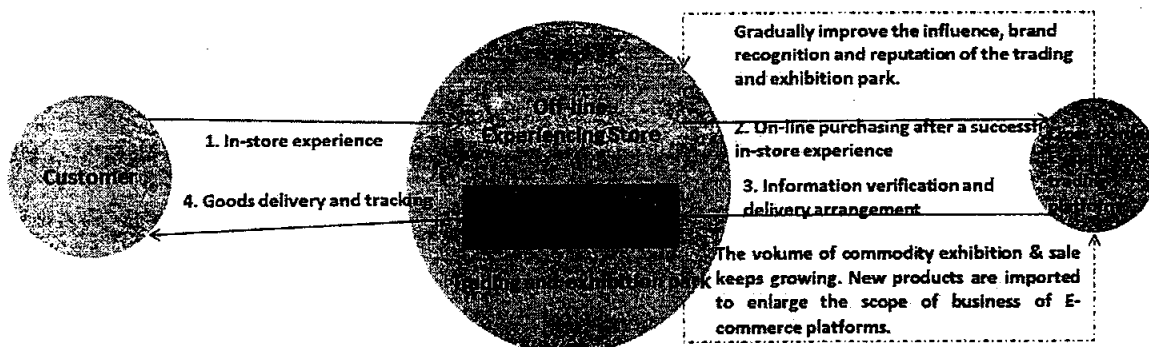
The Trade Exhibition Hall of the Trade and Exhibition City can be used for exhibition. In normal times, temporary merchants are invited to provide recreational services for and sell featured small commodities to customers. The hall can also be used to hold trade exhibitions and product promotion events, etc.

3) Warehousing & Distribution Zone

The Warehousing & Distribution Zone provides services involved in warehouses, sites, storage, keeping, loading, unloading and handling, and goods distribution, etc., mostly standard buildings.

4) E-Commerce Zone

E-commerce platforms are introduced into the zone. The City may cooperate with Chinas E-commerce giants and reputed E-commerce players in the Pakistani market or independently build cross-border E-commerce platforms to become a commodity gathering and distributing center based on close online-offline interaction. The development of E-commerce platforms and the concentration of massive orders can strengthen brand influences and improve actual sale volumes of trade exhibition events. During the positive interaction with E-commerce platforms, players of trade exhibition can continuously expand the scale and enrich the category of commodities based on E-commerce platforms, so as to enlarge the scope of business of E-commerce platforms.



5) Service Zone

The Service Zone is established to settle all matters in the City in a one-stop way, and it integrates the management center, finance, insurance, talent cultivation, supporting business services as well as living, recreational and entertaining activities.

1.3.12 ICT Sector

(1) Supports from internal environment

Level	No.	Basis
Macro-environment in Pakistan	1	The rapid development of macro economy in Pakistan provides good condition for the development of the ICT industry.
	2	The Pakistani government issued the <i>2017 Digital Pakistan</i> , which encourages the development of the ICT industry.
	3	The Pakistani government proposes to boost the development of the ICT industry by incubators.
	4	The Pakistani government promotes the development and planning of high-tech parks to boost the development of ICT Sector.
Development of the ICT industry in Pakistan	1	The information and communication industries develop quickly in Pakistan.
	2	The export value of the IT industry in Pakistan in the

		2016/17 fiscal year hit a record high.
	3	The home market of the IT industry develops fast in Pakistan.
	4	The development of the ICT industry in Pakistan helps reduce the dependence on export of information & communication products.
	5	There are a large number of ICT engineers and technicians in Pakistan.
	6	With a considerable quantity of undergraduates, Pakistan has solid talent foundation for developing the ICT industry.

To sum up, the internal environment for building ICT Sector in Rashakai pSEZ is favorable. The positive factors mainly involve that: the Pakistani government supports the development of the information & communication industry, and issues preferential investment policies; Pakistan has good foundation for exporting software and service, and the market prospect stays promising in future; and Pakistan has a solid talent foundation for developing the ICT industry.

(2) Supports from external environment

Level	No.	Basis
Environment of the world	1	The ICT industry is under development across the world, with a large market size.
	2	The offshore outsourcing of software and service from Europe and America has a large market size.
	3	Extensive experience in the software industry and software park can be learnt from neighboring countries, especially India.
Environment of China	1	The development index of the ICT industry in China ranks top 10 in Asia-Pacific Region, and the ICT industry sees a stable development in China.
	2	China has many powerful enterprises engaged in the ICT industry.
	3	China has many typical enterprises engaged in the ICT industry and business in foreign countries.
	4	With rich experience in building hi-tech zone, China is positively expanding its share overseas.

	5	Chinese government starts paying attention to the export of soft power through the Belt and Road Initiative.

To sum up, the external environment for building ICT Sector in Rashakai pSEZ is favorable. The positive factors mainly involve that: the software and information technology service has a large market size worldwide, and the momentum for growth in future is good; the offshore outsourcing from such countries and regions as Europe, America and Japan is large; Chinese government encourages the development of technology-oriented R&D park overseas; many enterprises are engaged in hi-tech park development in China, and they are positively expanding overseas.

(2) Supports from investment

Level	No.	Basis
ICT Investment in ICT Technology City	1	The ICT Sector is beneficial to obtaining preferential policies from Pakistani government.
	2	The ICT Sector helps the developer negotiate policies with Pakistani government.
	3	The ICT Sector is beneficial to obtaining support and subsidy from Chinese government in future.
	4	The ICT Sector is beneficial to improving the overall image of the Zone.
	5	The ICT Sector is beneficial to promoting the development of supporting sectors in the Zone.

To sum up, the investment for ICT Sector in Rashakai pSEZ is favorable, mainly in favor of obtaining relevant preferential policies from Pakistani government, helping the developer negotiate policies with Pakistani government, obtaining supports and subsidies from Chinese government, improving the overall image of the Zone, and promoting the development of supporting sectors in the Zone. **(4) Judgment if the competition environment**

No.	Competitor	Description	Impact on ICT Technology Cluster in Rashakai pSEZ
1	Technology-oriented R&D Parks invested by China overseas	(1) By the end of 2016, China has invested in about 23 technology-oriented R&D parks overseas, including 7 in USA, 4 in Russia, 2 in UK, 2 in Australia, and 1 in UK, France, Germany, Austria, Belgium, Singapore, Thailand and Pakistan,	Most China-invested overseas technology-oriented R&D parks are located in developed countries, and there are just a few ICT parks. Therefore, the impact there from on

		respectively. (2)The technology-oriented R&D parks invested by China overseas are mainly located in developed countries, and most of them are jointly operated by local high-tech enterprises, scientific research institutions, and universities. The main purpose is to conduct technology-oriented R&D, transformation of research results and talent cultivation. (3)At present, Chinese government encourages and supports the development of technology-oriented R&D parks overseas. The number of China-invested overseas technology-oriented R&D parks will continue to grow in future.	the ICT Sector in Rashakai pSEZ is minimal.

2	High-tech industrial parks of Indonesia	The Indonesian government attaches great importance to the development of high technologies, and intends to deepen the cooperation with China in the high-tech sector.	Among the neighboring countries, Indonesia is one of the countries to fight for the ICT Technology City against Pakistan, so the impact due to the competition from Indonesian high-tech industrial parks is minimal.
3	High-tech industrial parks of Malaysia	The Malaysian government attaches great importance to the development of high technology sector, and mainly focuses on such sectors as information communication, bio-technology and aerospace.	Among the neighboring countries, Malaysia is one of the countries to fight for the ICT Technology City against Pakistan, so the impact due to the competition from Malaysian high-tech industrial parks is minimal.
4	High-tech industrial parks of Bangladesh	The Bangladeshi government has accelerated the pace of constructing IT industrial park after proposing the <i>Digital Bangladesh 2021</i> . The Bangladeshi government is planned to build 28 high-tech, software and IT industrial parks across the country. So far, 12 high-tech parks have been approved, and 7 are under construction and in planning.	Among the neighboring countries, Bangladesh is a major competitor of ICT Sector of Pakistan, so it has certain impact on the ICT Sector in Pakistan.

5	High-tech industrial parks of India	International Tech Park Bangalore is a well-known technology park in India. India has stronger ICT industry base than Pakistan and the number of technology park continues to grow in India.	Among the neighboring countries, India is a core competitor to Pakistan for developing ICT park. India has good foundation for ICT industry development. The International Tech Park Bangalore has gained certain reputation in the world. So the competition from Indian ICT Sector is fierce.
6	High-tech industrial parks of Pakistan	At of 2016, 14 ICT technology cities have been built in Pakistan, and the most typical ones are Aiwan Iqbal Software Technology Park, Sand River Complex Software Technology Park and Evacuee Trust Software Park. Pakistani government plans to build at least one state-of-the-art software technology park in major cities (federal and provincial capital cities) in Pakistan in future, to promote the innovation and coordination in the ICT industry in Pakistan.	The construction of the software and IT industrial park in Pakistan is at the starting stage, and will turn into a rapid development with policy support from Pakistani government. The number of software and IT industrial parks will continue to grow, and the IT industrial parks in Pakistan will face increasingly fierce competition.

To sum up, the ICT Sector in Rashakai pSEZ will face great pressure of

competition. For one part, there is fierce competition from the core competitive country India, and for another part, there is competition from increasing software and IT industrial parks in Pakistan. However, the good thing is that the information and communication industry in Pakistan has noticeable advantages in salary level, the software and IT industrial park in Pakistan is still at the starting stage, and the involvement from Chinese counterpart will speed up the establishment and development of ICT Sector Project in Rashakai pSEZ.

(5) Strategic orientation

Strategically, the ICT Sector aims to achieve the win-win cooperation between China and Pakistan in the ICT industry and focuses on the outsourcing of software and information services. Centering on the R&D and manufacturing of ICT-related products and equipment, the ICT Sector will fully integrate the resources from the market both in and outside Pakistan, and mainly attract ICT scientific research institutes, software and service outsourcers as well as relevant products manufacturers, and also attract IT business groups and Pakistani universities and colleges to set up R&D base in the Zone. Its major market covers such countries and regions as Europe and America, Middle East, South Africa and China that outsource software and IT services. The ICT-related products and equipment produced will mainly be sold in the domestic market of Pakistan. Efforts will be made to build the ICT Sector in Rashakai pSEZ into a flag project of the ICT Industry International Cooperation between China and Pakistan under the China-Pakistan Economic Corridor.

(6) Type of services

The ICT Sector in Rashakai pSEZ is mainly involved with these services: software and information service, production and processing of ICT-related products and equipment, ICT technology R&D, ICT entrepreneurship incubator, and teaching-research training base, etc.

1.4 Development phase and scale prediction

(1) Development phase

Through the specific analysis of each proposed subsector to be settled in the project, considering the present situation and demand of adjacent industrial facilities in the KP Comprehensive Special Economic Zone, and development and construction status of the surrounding areas, this project is proposed to be developed in three phases with introduction of corresponding sectors at the appropriate time. Meanwhile considering the

long-term elasticity development and according to the future development of the whole region, recovery and functional conversion for preliminary used land can be conducted.

(2) Scale prediction

It is estimated preliminarily that the land demand for the industrial park in the Project is about 1,002.76 acres.

It is estimated that the total land for the Phase I development and construction of the Project will be about 247.21 acres.

It is estimated that the total land for the Phase II development and construction of the Project will be about 355.74 acres.

It is estimated that the total land for the Phase III development and construction of the Project will be about 399.86 acres.

In summary, the total land demand for this project is 1,002.76 acres.

Chapter II Overall Layout Planning

2.1 Project location and construction conditions

2.1.1 Project location

Rashakai pSEZ is adjacent to Kernal Sher Khan interchange on M1, which is the main motorway linking Peshawar with Islamabad and CPEC alignments. Rashakai pSEZ is 30 km from Mardan in the north, 35 km from Nowshera in the south, 40 km from Peshawar in the west, and 150 km to Islamabad in the east, which enjoys a unique location advantage. Rashakai pSEZ is located in the northwest of Hattar SEZ, where the linear distance is about 73 km.

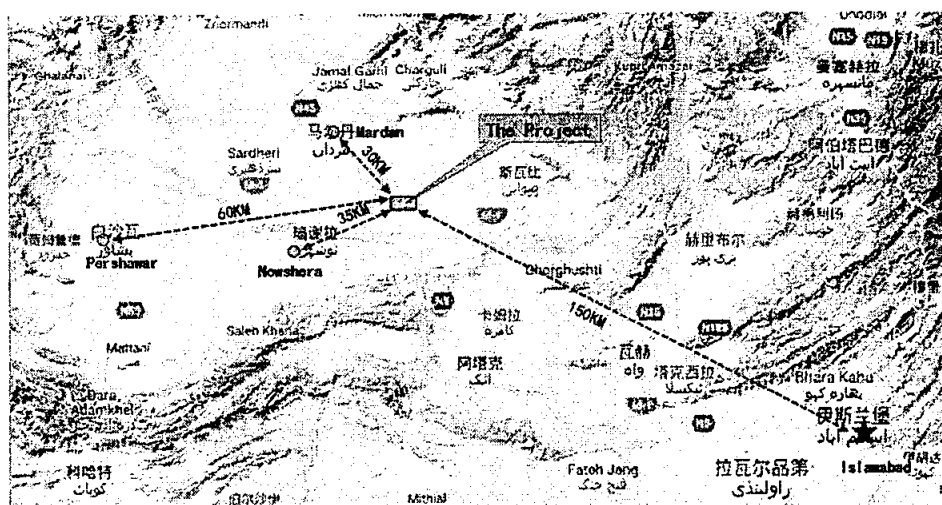


Fig.2-1 Project location map (Macro)

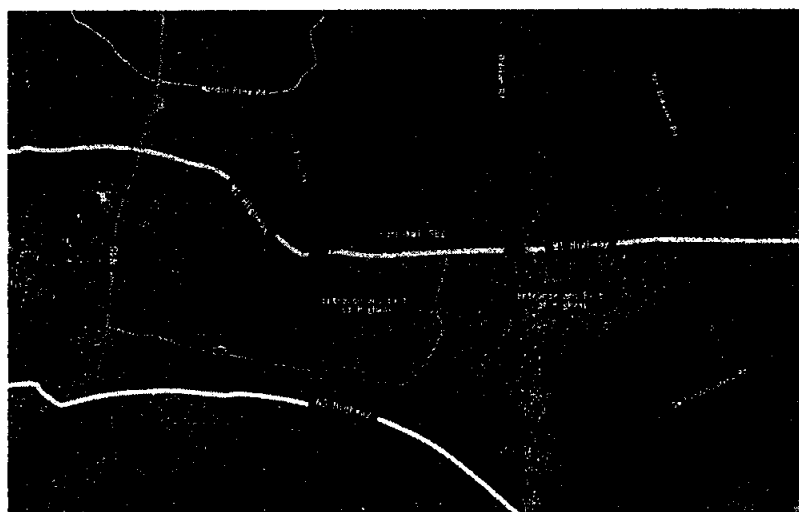


Fig.2-2 Project location map (Micro)

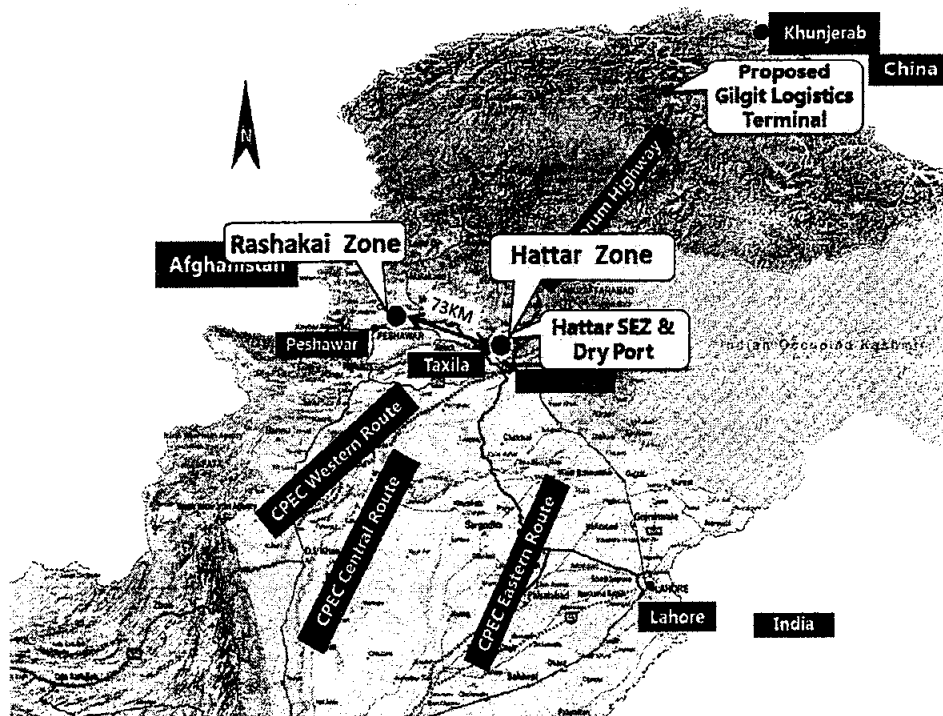


Fig.2-3 Rashakai pSEZ versus Hattar SEZ relative position

The project site adjoins to M1 motorway to the south, it is 3.1 kilometers away from highway interchange to the east outlet, 2.3 kilometers away from highway entrance to the west outlet, and auxiliary road on the west side connected to the M1 is closed. The land used in the plot is relatively flat, and there is river passing through the central area vertically. The total planned area is around 1000 acres (about 4 km²).

2.1.2 Site Status introduction

(1) Climate

The project site has mild climate. May, June, July and August are the hottest months. The temperature in summer from May to September is high, but the nights are relatively cool. The highest temperatures throughout the year are in May and June. December and January are the coldest months. The highest and lowest average temperatures in summer are 41.5°C and 36.6°C, respectively, and 19.3°C and 17.9 °C in winter, respectively. The rainfall is mainly in July and August. The average annual rainfall is about 597.6 mm, and the annual relative humidity is 60.1%. The highest rainfall record is in August, with an average of 112 mm. At the end of cold weather, there are occasional thunderstorms and hailstorms. The relative humidity throughout the year is high. The driest month is October, and precipitation difference between the wet and dry seasons is 99 mm.

(2) Soil and geology

The surrounding area of the site is sandy soil, and water can penetrate quickly. This type of soil has a high permeability and helps prevent flooding. Most of the land on the north side of the site is fertile plain. There are some gravel sandstones and some gravels below the estimated water level inside the site. These are good materials for building tube wells.

(3) Natural environment

The terrain of the Project area is relatively smooth and is comprised of cultivated land, forest land, construction land for towns and villages and water area. More than 80% of Project land is cultivated land. In the northwest and southeast of the Project area, there is forest land and a small built up area. Kabul River is located at the west of the project.

There are three seasonal streams. The natural ecological environment is relatively good. There is no municipal infrastructure available around the site, and the nearest municipal pipe network is Mardan which is 10 Km away. As there are rare residences in the Project area, thus it will be easy to remove and relocate the structures on the project area. The current status of project area is divided into four major categories, including village and town construction land, cultivated land, woodland and water area.

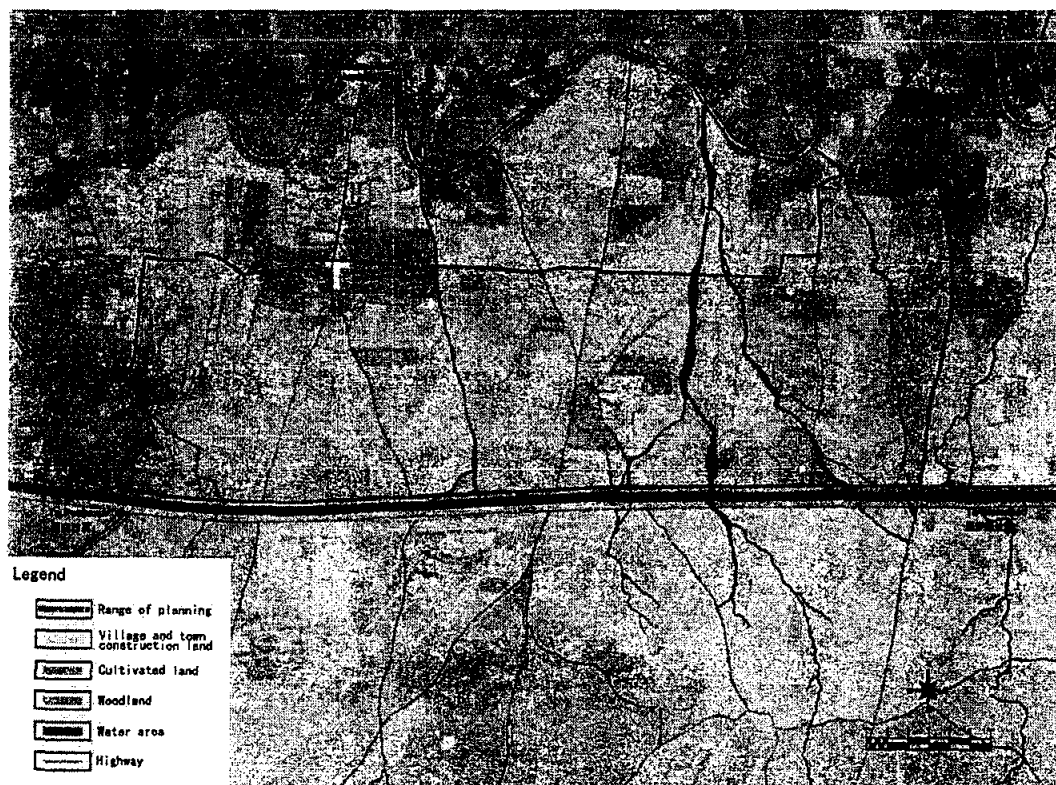


Fig.2-4 Land Use Status Map

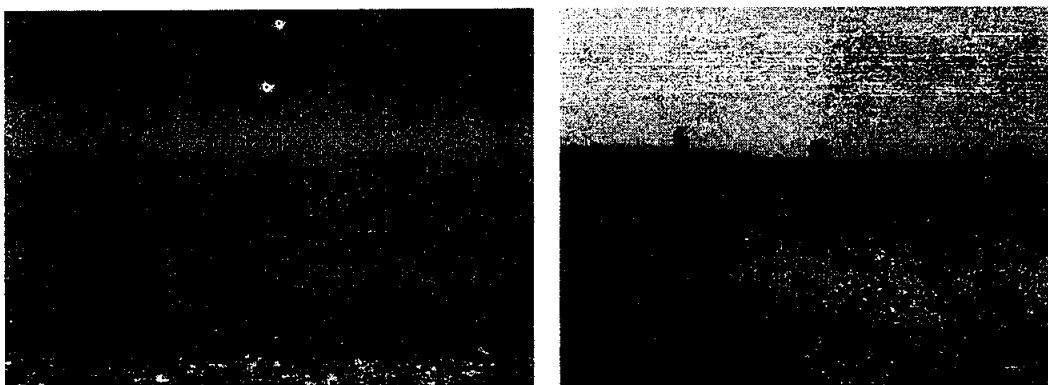


Fig. 2-5 Site picture

2.2 Overall planning

2.2.1 Planning concept

Through analysis of regional macro environment and internal resource advantages, the general orientation of the project has been developed.

According to the regional industrial orientation and other planning research guidelines, it selects the concerned industries and spatial layouts, implement the planning and design, take advantage of each industry, maximize to use the space resources, promote coordination and sustainable development of the industries, to rationally allocate and guide the industry development.

After completing the industry position analysis and spatial layout, the supporting facilities and service system are properly developed to achieve the overall sustainable development.

2.2.2 Planning principle

(1) Ecological and environmental protection, economical and reasonable

Kabul River is at west side of this project where there are also three seasonal streams in the project area. Over 80% area is cultivated land with woodland scattered inside. The current natural resource and conditions are very superior. Thus, this planning scheme will give first priority to environment protection, and take ecological concept to plan the project. It will fully take into consideration the current landform and river system. The project may also consider the aesthetics and fully utilize the beautiful scenery of the area through protection and utilization of water system and neighboring ecological resource and environment. While adhering to environmental protection and resource conservation, it

shall also emphasize the compact layout, reasonable utilization of land, efficient utilization of existing resources to realize the optimization of investment economic benefits.

(2) High congruence in policies between China and Pakistan

China Pakistan Economic Corridor plans "1+4" cooperation layout focusing on the cooperation Gwadar port, energy, transportation infrastructures and industrial parks. It encourages both countries to cooperate in infrastructure, energy, telecommunication, manufacturing, agriculture, textile, etc. On one hand, this project will introduce China's advanced manufacturing and telecommunication sectors and establish power plant and other infrastructures; on the other hand, it would establish the commercial and trading logistic center by taking advantage of geographic location on CPEC, which is in compliance with the national policy and will ensure the smooth implementation of the project.

(3) Integrity of standardization and customization

At the initial stage, it plans to establish a series of large, medium and small sized standard workshops, which is in favor of attracting various small sized enterprises at first. In the later stage, in order to attract international famous enterprises of certain sectors, professional and customized services will be provided to these enterprises, which would meet the special requirements of leading enterprises. With combination of standardization at initial stage and customization in the middle and later stage, it can not only be conducive to promptly initiate project at the initial stage, also promote the project to transform and upgrade to high value added and high tech sectors in the middle and later stage.

(4) Combination of guiding control and flexible development

On one hand, based on the analysis of national and local policies, environment, industrial development status, space advantage, conditions and development vision, decide the industry development orientation and priority in the future, and then guide and control the industry development. On the other hand, it may reserve some flexible development space through constructing standard workshops at initial stage, which can facilitate investment attraction and initiate the project at early stage. Through combination of guiding & control and flexible development, it would ensure to promptly launch the project at early stage and ensure the sustainable development.

(5) Combination of viability and perspective sight

Fully integrate with local social economy, human resource and space conditions, etc. to guarantee the viability and maneuverability; meanwhile, introduce China's advanced

design and construction concept to guarantee its progressiveness and perspective sight, build a first-class modern high-tech industrial zone of international standard.

2.2.3 Design concept

(1) General orientation

The Project will integrate the advantages and featured resources of KPK Province in a rational manner, sufficiently bring the strategic synergy effect and other projects into play, and place special emphasis on building differentiated sub-zones such as ICT industrial park, trading and exhibition park, etc. to build a constantly upgrading and optimizing flagship complex of emerging industries led by modern comprehensive industrial parks along China-Pakistan Economic Corridor covering deep processing of metal smelting and processing, automotive, mechanical equipment, household building materials, food processing, household appliances, consumer electronics, textile & garment, and leather etc. DEVELOPER will take the lead to offer substantial one-stop comprehensive services to enterprises in the Zone.

(2) Core concept: industrial priority, creating excellent investment environment to be demonstrative regional industrial park

To fully utilize all the existing resources, lead and explore the future regional development and properly plan the industrial layout, the advantageous industry and key industry are developed in a collective way to promote population gathering, create good environment in terms of industrial development, transportation, ecological environment. It shall also attract settlement or visit of enterprises, clients and businessmen, greatly increase regional GDP, create more job opportunities so as to lead the future development of industrial park and the region at large.

2.2.4 Spatial layout

(1) Structure planned: One axis, three areas, three belts, three cores and multiple corridors.

The overall function of the Zone is composite commercial and trading, processing, manufacturing, warehousing logistics with corresponding production and living support facilities, and according to the current land use conditions and the corresponding industrial orientation, it is planned with the functional structure of 'One axis, three areas, three belts, three cores and multiple corridors.

One axis: Main axis of industrial and space development in east-west direction which connects all areas and guides the expansion of industrial space in east-west direction;

Three areas: they are three functional clusters divided by the current water system along the east to west. The central cluster is to develop heavy industry, eastern and western clusters focus on the development of light industry.

Three belts: industrial and space development belts in north and south direction along the main road which guides expansion of industrial development space in north -south direction longitudinally.

Three cores: three industrial and space development cores created at junction of east-west development axis and north-south development belt to guide the inner space development of the zone;

Multiple corridors: natural landscape corridors along water system through the base which beautifies park environment on the basis of reserving the current status to establish a working and residential friendly multifunctional complex industrial zone.

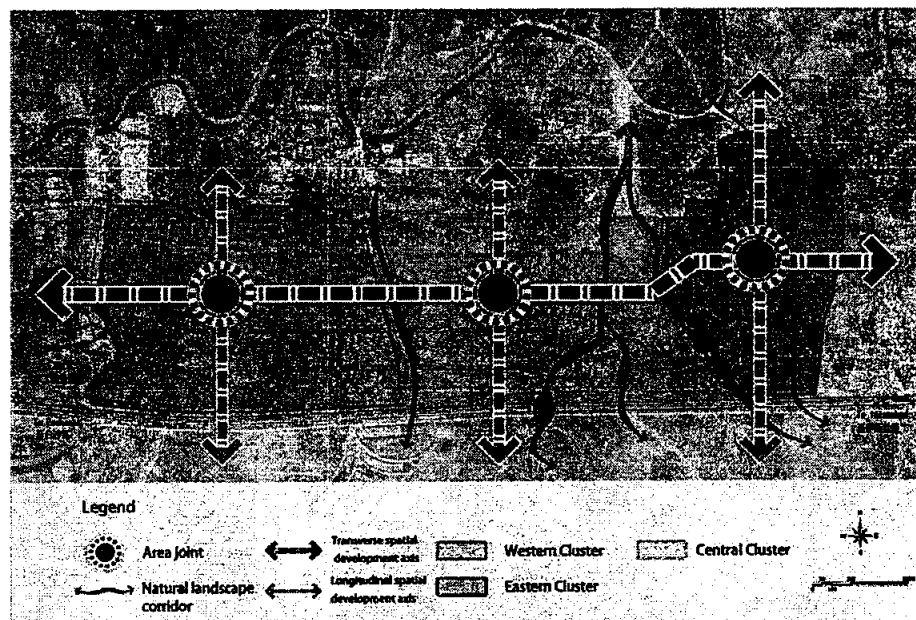


Fig. 2-6 Space structure planning diagram

(2) Land planning

The total planned area of the Zone is 1,002.76 acres.

Following is the land use;

Land Use Plan Composition

Land code	Land Use	Land Area (Acra)	Land Area (%)
M1	Class I industrial land	581.41	57.98
M2	Class II industrial land	120.51	12.02
R1	Class I residential land	0.49	0.05
A1	Administrative land	0.74	0.07
A4	Sports facility	0.52	0.05
A9	Religious land	0.62	0.06
B1	Commercial land	76.48	7.63
B41	Refueling station land	2.15	0.21
S1	Road	122.54	12.22
S4	Traffic station land	2.27	0.23
U12	132/11 kV Grid Station	6.18	0.62
U21	Effluent Treatment Plant	12.47	1.24
U22	Solid Waste Station	2.11	0.21
U31	Firefighting Station	0.72	0.07
G1	Green land of park	57.24	5.71
E1	Water area	16.29	1.62
The Total Land		1002.76	100.00

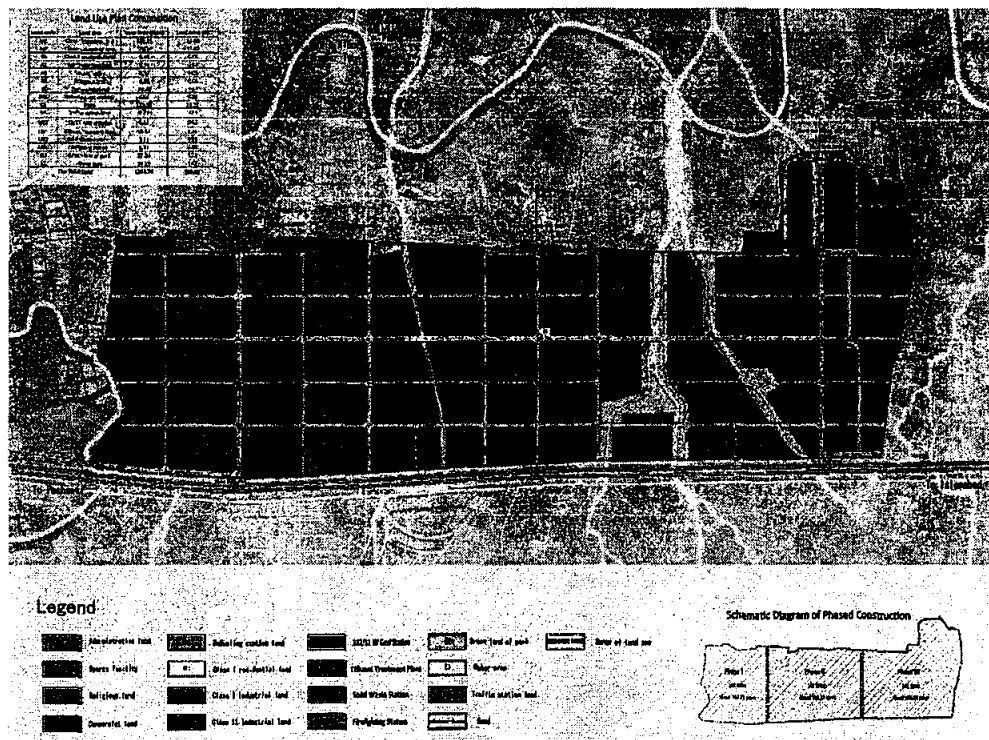


Fig. 2-7 Land Use Planning Map

(3) Industrial layout

The land scales are predicated and development sequence is proposed as per industrial report so as to conduct spatial layout of each sector.

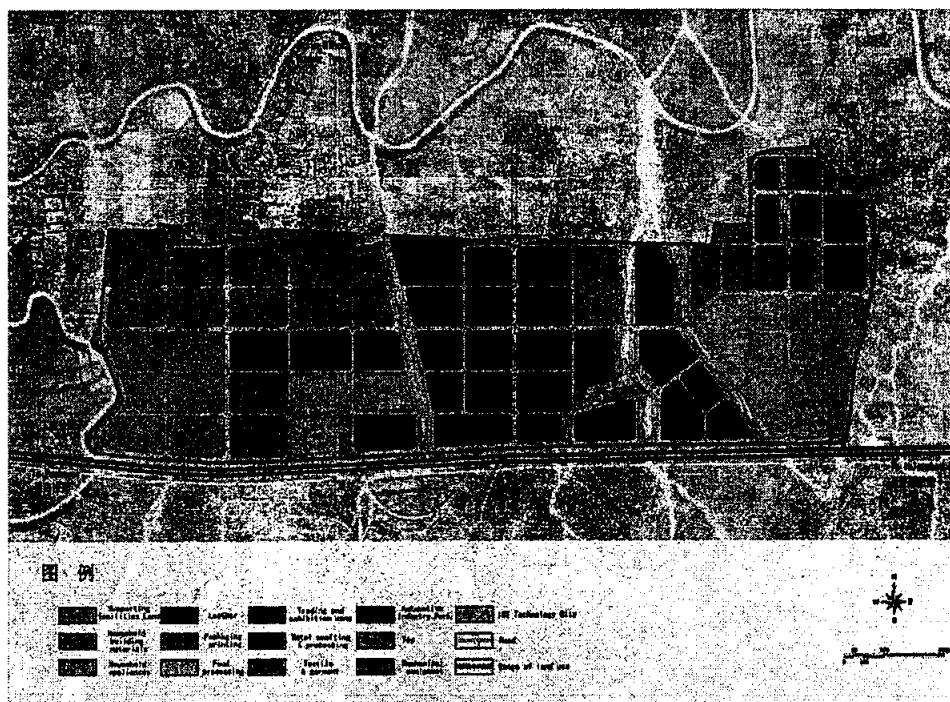


Fig. 2-8 Industrial layout

2.2.5 Road system planning

(1) Planning objectives:

Establishing a sustainable integrated transport system ;

Building a highly-effective and convenient external transportation system to ensure the successful development of the Park;

Building road network systems with reasonable structure and improved functions.

(2) External traffic planning

Firstly, it is planned to connect and transform the highway auxiliary road which is connected with the entrance and exit of the M1 Highway on the eastern and western sides, and to connect with the auxiliary road along the western side of the highway. It is recommended to improve the ramp at the entrance and exit of the highway, so as to ensure the successful passage of mass freight traffic in the future. The auxiliary road and ramp along the highway on the east side is proposed to be upgraded to serve as the main external communication channel for the project at early stage.

Secondly, it should be considered to introduce highway entrances and exits during the construction of phase II work of the Park. A highway entrance which is directly connected to the M1 Highway will be built in the middle of the Park, so as to guide external vehicles driving into the park for passenger and freight diversion, but also serves an important guarantee for the development of logistics transportation in the future.

(3) Internal road planning

1) Road structure

The arterial road on the southern side is the main outgoing road, and the arterial road system of "one horizontal and three vertical" is formed within the Park. An M1 Highway auxiliary road will be constructed in the south to the project land and serves as the arterial road in the Zone. It is convenient for external traffic connection and favorable for full use of roads. Efforts shall be done to build a ring arterial road system, so as to form an arterial road network of "one horizontal three vertical" within the Zone and serve internal divisions. Import road traffic facilities along the collector road in important blocks should be improved.

A branch network of reasonable density should be established.

2) Road classification

The roads in the planning area are divided into three grades: arterial road, collector road and branch road.

The arterial road is the traffic arterial road where bears the connection between functional areas and the Park and the outside area, with restriction line 24m wide, including 16m-wide two-way four lanes.

The collector road is secondary road within and between functional areas and also used to connect branch roads to arterial roads. Such road can partially relieve the traffic pressure from arterial road, with restriction line 17m wide, including 9m-wide two-way two-lane. Branch roads mainly undertake internal traffic connection within functional area with a 15m-wide restriction line.

The total length of the planned road is about 35.9 km, of which the main road is 13.8 km, the secondary road is 7.1 km, and the branch road is 15.0 km.

(4) Road vertical planning

As per the road design specifications, it should be ensured the longitudinal gradient of roads is greater than 0.3 ‰, less than 5%.

This plan makes full use of the current terrain to set up the road longitudinal slope.

Longitudinal slope of roads is planned between 0.5% ~ 3%, which meets the drainage requirements and vehicle driving comfort.

(5) Parking lot

According to this plan, no centralized parking lot is established in the Park. Separated parking lots will be constructed in the development stage according to respective demands.

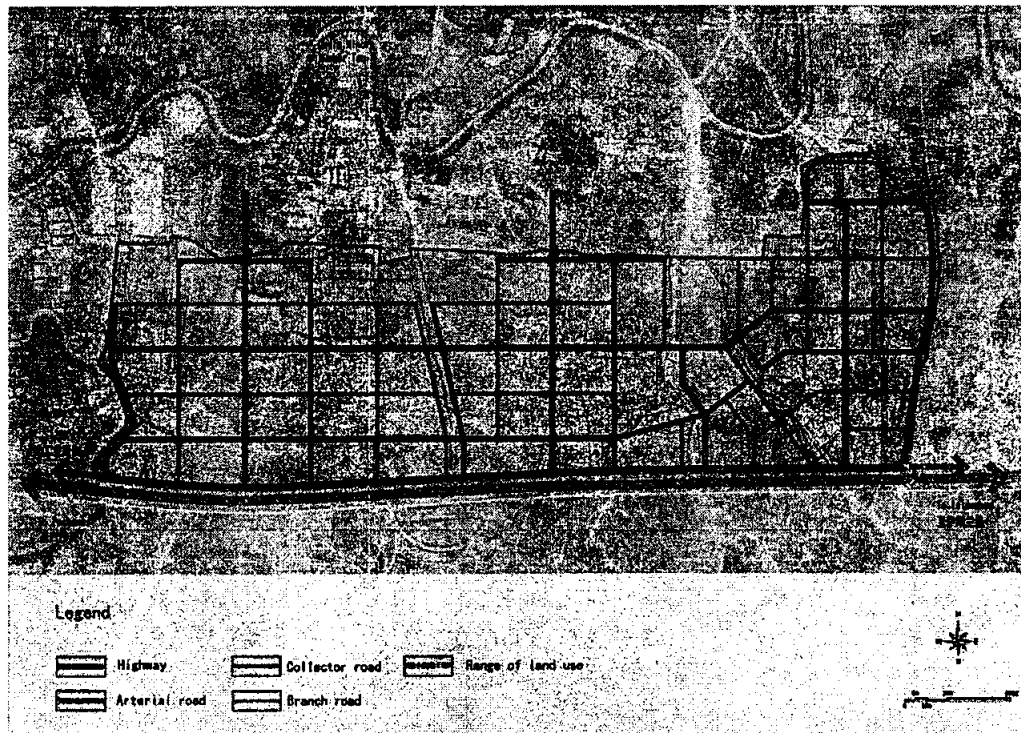


Fig. 2-9 Road system planning diagram

2.2.6 Project planning sequence

According to the recommendations in the Project Industry Report, the site will be divided into three phases for development. Combining with the existing development conditions of the land and the leading role of the Phase I of the Project, it is proposed to adopt the strategy of developing in phases from the middle to the two sides.

The Phase I covers approximately 247.21 acres, focusing on the development of metal smelting and processing, automobile industrial parks, textile and apparel and integrated trade center, with the construction of necessary facilities and surrounding roads to offer the basic operating conditions. The Phase II covers approximately 355.74 acres, focusing on home building materials, household appliances, food processing, leather and packaging/printing, aiming at the improvement in the manufacturing industry. The Phase III

coves approximately 399.86 acres, focusing on the development of machinery and equipment, toys and ICT Sector, promoting the industrial park to a higher industrial level.

Main basis for development sequence

Priority shall be given to the development of land with convenient transportation facilities and sound site conditions according to the land conditions. Compared with the eastern part of the Base, the western part has gentle slope and contains no water system, therefore, site leveling involves less excavation, bringing about less difficult in the preliminary development phase but conducive to saving investment, thus obtaining greater profits for KPEZDMC.

Successful operation of the phase I works will lay sound foundation for the full use of the land. Subsequently, appropriate measures will be taken to explore the land with unsound site conditions and the park will be developed as a whole.

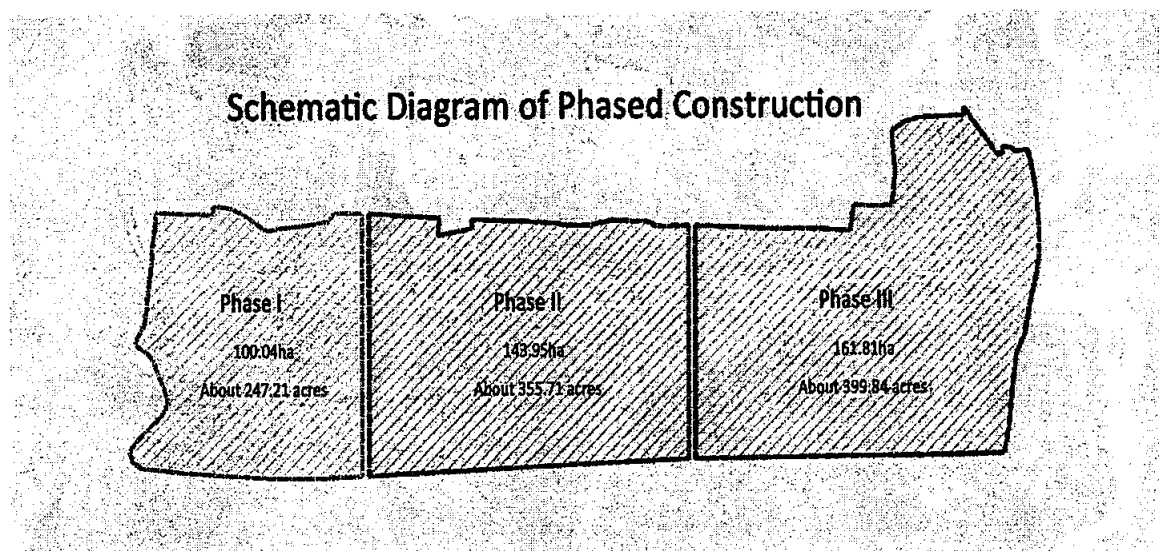


Fig.2-10 Phased construction plan

(1) Phase I project

The Phase I project will focus on the development of metal smelting and processing, textile and apparel, automobile industrial park and Trading and exhibition zone.

The total area of Phase I will be 247.21 acres.

(2) Phase II project

The Phase II project focuses on the development of home building materials, household appliances, leather, food processing and packaging/printing industries. The total area of Phase II will be 355.74 acres.

(3) Phase III project

The Phase III project focuses on the development of toys, machinery and equipment and ICT science & technology park. The total area of Phase III will be 399.86 acres.

Table 2-2 Rashakai Zone Stage Development Indicators

Phase	Sector	Total Area ('0,000 m ²)	Percentage in Area of Each Phase (%)	Percentage in Total Area (%)	Total Area of Each Phase (hm ²)
Phase I	Metal smelting and processing	48.03	30.75	11.81	156.20
	Textile and apparel	12.82	8.21	3.15	
	Automotive industry park	34.30	21.96	8.43	
	Trading and exhibition zone	4.93	3.16	1.21	
	Land for power supply facilities	8.06	5.16	1.98	
	Firefighting	0.28	0.18	0.07	
	Medical facility	0.28	0.18	0.07	
	Administrative land	0.25	0.16	0.06	
	Masjid	0.25	0.16	0.06	
	The training center	0.25	0.16	0.06	
	Sports facility	0.21	0.13	0.05	
	Water area	4.75	3.04	1.17	
	Green space	15.63	10.01	3.84	
	Road	26.16	16.75	6.43	

Phase	Home building materials	49.49	32.78	12.17	148.94
II	Household appliances	29.41	19.48	7.23	
	Leather	14.87	9.85	3.66	
	Food processing	15.43	10.22	3.79	
	Packaging/Printing	10.68	7.08	2.63	
	Truck terminal	1.10	0.73	0.27	
	Refueling station	0.87	0.58	0.21	
	Drainage land	2.79	1.85	0.69	
	Green space	3.10	2.05	0.76	
	Road	23.25	15.40	5.72	
Phase III	Toys	3.72	3.74	0.91	99.55
	Machinery and equipment	28.00	28.12	6.88	
	ICT Technology City	33.04	33.18	8.12	
	Disposal Station	1.69	1.70	0.42	
	Water area	2.35	2.36	0.58	
	Green space	12.05	12.10	2.96	
	Road	18.70	18.78	4.60	
Total		404.65		100.00	404.69

Chapter III Construction Scheme

3.1 Construction contents

(1) Construction contents

Construction contents of this Project consist of two parts:

- 1) Public facilities: including municipal supporting facilities and roads in the Park;
- 2) Park development: including the management building (built by the developer) and factory buildings/warehouses (built by enterprise), supporting offices and supporting businesses.

3.2 Technical proposal

3.2.1 General layout

The general layout of the park fully embodies the status quo of the landform and surrounding traffic conditions. The trading and exhibition park is arranged in the south of the base, close to Peshawar and Mardan. ICT Sector is adjacent to the M1 Expressway. The supporting service zone stays in the center to ease the surrounding industrial population. The processing and manufacturing industry is arranged in a relatively separate place in the north and west of the site to avoid interferences to other functional zones. The whole site falls into three functional clusters by the current conditions and industrial types.

In terms of the overall functional zoning, all industrial clusters follow the principle of "centralized arrangement for related industries, and proper isolation for special industries". In the park, the functional zones for light industries are appropriately separated from those for heavy industries. Moreover, light and heavy industries are properly separated from other industries.

For each cluster, the land is divided and arranged by the type of industry and the scale for construction.

Western Cluster: focus on the development of industries involved in household building materials, household appliances, food processing, leather, and packaging / printing, etc.; plan and arrange the industrial land of classes I and II.

Central Cluster: focus on the development of the metal smelting & processing, automotive industry park, textile and garment industry, Trade and Exhibition City; plan and arrange the industrial land of classes I and II. This cluster also considers a reservation of about 19.76

acres of land for constructing a power plant. To avoid interferences from construction of the power plant to the surrounding land, the power plant will be arranged in a relatively separate place in the northeast, close to the water system of the garden.

Eastern Cluster: focus on the development of mechanical equipment, toy industry and ICT Sector; plan and arrange the land for commerce, business, education and scientific research, and type-I and II industries.

3.2.2 Construction program

(1) Construction scale

The Project covers 4,067,000m² in total, and the management building to be built by the developer covers 700 m². The Project is divided into three phases. The Phases I, II and III cover 1,562,000 m², 1,510,000 m² and 995,000 m², respectively.

(2) Design concept

This Project will follow the following architectural design concepts:

All buildings shall be designed according to the geological location of the Project. Buildings should be designed in the principles of "practical, economic, beautiful and people-oriented", and to ensure each functional area is set up reasonably to avoid mutual interference.□

Subject to functional requirements, the design scheme is required to be technologically-reasonable, cost-effective, safe and reliable.□

Building design scheme shall meet the requirements of fire safety, ventilation, lighting, energy saving, environmental protection.□

(3) Architectural style

Pakistan is one of the coldest and hottest countries in the world and has a long and uninterrupted architecture history, with mountains, green valleys, boundless desert and long coastlines. Such country's modern architecture falls into two main trends: one is established based on local materials and design language; the other comes from international style using modern technology, concrete, glass and aluminum cladding. Modern architecture occupies a dominant position.

This Project will be designed by following the mainstream direction of modern style, highlighting the architectural form of trading and exhibition park and ICT Industrial Park to show the Project's personality. The processing manufacturing park and Warehousing and Logistics Base will be designed of modular form to improve the unity and rhythm of the building, and highlight the personality display of the trading and exhibition park and ICT Industrial Park.



Fig. 3-1 Architectural schematic diagram of trading and exhibition park

The trading and exhibition park is mainly composed of multi-layer commodity wholesale market, cultural facilities construction, business office buildings, hotels, convenience stores. It is the main place where external business is conducted and symbolizes the image of the Project.

The ICT Industrial Park and supporting service area are mainly composed of ICT R & D innovation center, Expo center, supporting office, staff dormitory, industrial workshop and school buildings, which are mutually echoed with the trading and exhibition park and lay the main tone of the Project.

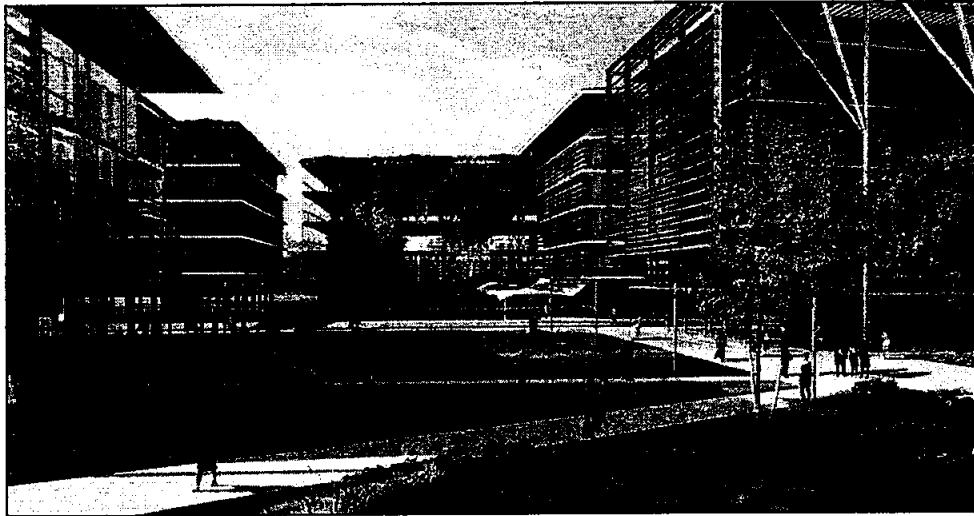


Fig. 3- 2 Schematic diagram of ICT Industrial Park

The processing and manufacturing park and warehousing/logistics base comprise single-layer and double-layer workshops, warehouses, enterprise office buildings and supporting buildings. It occupies the most of the project construction land and the buildings should be designed in a cost-effective manner in consideration of its functional characteristics. The park sets off and integrates with the international trading and exhibition park and the high-tech park.



Fig. 3- 3 Architectural schematic diagram of Warehousing Logistics Base

The supporting service area buildings are mainly to meet the needs of the entire park staff training, business services, accommodation, and office needs. It is planned to build a

management building of 700 square meters. Satisfy the needs of Midway employees' daily work, meetings, and reception.

(4) building structure

Multi-story and single-story buildings are proposed to adopt reinforced concrete structure, economic and practical masonry walls are used. Pile foundation or strip foundation will be used as foundation form, subject to the final geological report. Considering the cost savings and the rationality of building structure form, is light steel structure is proposed to be used for single-layer and double-layer workshops, warehouses. Color steel plates are used for walls and pile foundation or independent foundation as foundation form.

(5) Main buildings

According to the previous market research and analysis, and under the principle of satisfying functions of each area, the main buildings in the Project are arranged under the preliminary planning, as shown in Table 3-1.

Table 3-1 Schedule of main buildings and structures

Phase I									
	S/ N	Project name	Floor area(m ²)	Axis size	Numb er of floors	Floor heigh t	Struct ure type	Foundati on type	Notes
Self-built	1	Adminis tration building	700	14X2 5	2	3.6x2	Frame work	Pile foundatio n	Provide office space for the park administration staff of this project.

(6) Green building design

Green buildings can reduce the load on the environment, save energy and resources, provide safe, healthy and comfortable living spaces and be compatible with the natural environment to achieve harmonious coexistence and sustainable development of people and buildings and the environment. Green building design will be considered in the Project, which will be embodied in the following aspects:

1) Make a reasonable space design to save land resources while providing a healthy and comfortable use space.

2) Use local environmentally friendly building materials to reduce the destruction of natural resources and environmental pollution;

3) Make energy-saving design of buildings to save energy, including thermal insulation, solar energy, etc.;

4) Improve the self-disposal capacity of the Project with respect to the discharges to reduce the pressure on the municipal facilities.

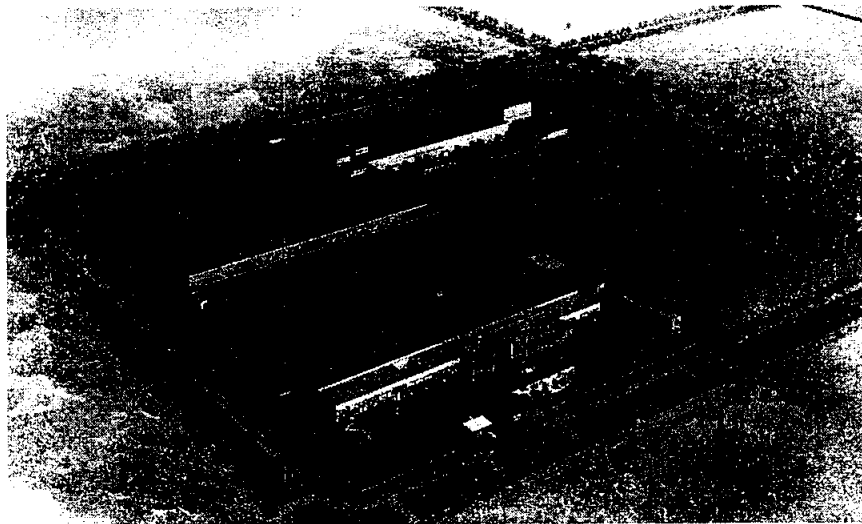


Figure 3-4 Diagram of Buildings in the Park

3.2.3 Foundation treatment, road yard and bridge.

(1) Project overview

The total land use of this project is 1,002.76 acres, which is divided into three phases. The total land use of phase I is 247.21 acres, of which the road lengths are 2023 meters of arterial roads and 6307 meters of secondary & branch road; the total land use of phase II is 355.74 acres, of which the road lengths are 1420 meters of arterial roads and 8814 meters of secondary & branch road; and the total land use of phase III is 399.86 acres, of which the road lengths are 2739 meters of arterial roads and 6954 meters of secondary & branch road.

The main content of this chapter is the design description of land formation, foundation treatment and road site and so on.

(2) Design conditions

1) Design standard

Allowable bearing capacity of shallow foundation (mainly refers to the bearing capacity of backfill layer of 3m depth)

$$[R] \geq 120 \text{kPa}$$

2) Design load

Road and warehouse location:

The uniform load of the site is 50KN/m².

Mobile devices:

400KN flat-bed trailer;

Tr-60 container trailer.

3) Geological conditions

At present, there is no detailed geological and topographic data within the range of this project site.

(3) Land formation

The current vertical elevation changes in the project planning range are relatively high, and the current elevation is at +336~+369m. There are forest lands, gully and agricultural land distributed within the project land area.

According to the current situation of the site, the site clearance is required for the topsoil, and the existing pond area shall be dredged before backfilling of earthwork. In principle, the site shall be backfilled with its own excavated earthwork within the site for balance. If there is any shortage, the backfill material will be purchased.

(4) Foundation treatment

For different geological conditions and application requirements, the foundation treatment method is mainly divided into shallow treatment and deep treatment.

1) Shallow treatment method: mainly used for shallow reinforcement of foundation soil. Currently, several common methods used include replacement method, dynamic compaction, vibration compaction and impact compaction and so on.

2) Deep treatment method: mainly used for the deep and thick soft clay treatment of high water content, high compressibility, low strength, and poor permeability. The methods used include mainly preloading method, sand pile method, cement mixing pile method and so on. According to the field survey of this project, the site has a good geological condition and is suitable for the shallow foundation treatment.

The dynamic compaction method is proposed for the foundation treatment of public facilities site such as supporting management facilities, water and electricity facilities of the park to reinforce the shallow filling layer and silt layer. Then the vibration compaction will be taken for site leveling.

The dynamic compaction adopts twice tamping method and one common compaction, with capacity of 1800KN.m and tamping spacing of 4.0m. The plum-shaped arrangement uses the tamper for compaction. The capacity of common compacting is 1000KN.m and the overlap compaction is taken.

The foundation of the road within the park area is to be treated with overcut and mixed ash layer compaction.

(5) Site and road surface

Asphalt concrete or cement concrete and other materials are usually used in road and site pavement, considering the main road of the park is mainly subjected to the flow of machinery and the load is frequent. There are certain requirements on the flatness and wearability of the surface layer.

Comparison of advantages and disadvantages of asphalt pavement and cement pavement
Comparison of pavement quality: asphalt pavement is smooth and driving is comfort; the formation of cement pavement is relatively poor, but the adoption of modern cement paving equipment can ensure the high level of cement pavement and high quality of the highway.
Comparison of pavement life: asphalt pavement has the disadvantages of aging and poor water resistance, and the design life is 15 years while the design life of cement pavement is 30 years. For heavy traffic areas with large load, the design life of both types of current pavement is difficult to achieve. It is very common that pavement requires to be repaired

within a year or two, which is generally related to the poor construction quality and overweight. For the road with heavy traffic and large slope, cement road pavement is better. Comparison of road maintenance: the asphalt pavement is easy to maintain, and the traffic will be open immediately after the maintenance is completed; while concrete pavement is hard to maintain and the traffic cannot be open immediately.

Comparison of cost: Currently the oil price is high; for high-grade highway (grade II and above), cost difference between the two kinds of pavement is not large. But from the cost/life ratio (the cost of life), the cement pavement is dominant.

To sum up, considering the site and road of the park is mainly loaded with the flow of machinery. There is a certain requirement for the flatness and wear ability of the surface layer. And combining with the design characteristics of the nearby industrial parks, the asphalt pavement is recommended.

According to the local economic conditions and design characteristics, the proposed road surface structure of the park is as follows:

3.5cm asphalt surface treatment layer, 20cm cement stabilized gravel base, and 25cm gravel fill. The bedding of the surface layer is laminated and compacted with cement stabilized soil.

The hydropower/sanitation facilities provided in the park area are mainly used for small vehicles, and concrete slab surface is also recommended for the structural surface. The recommended surface structure is: concrete slab of 25 cm thick with bending strength of 4.5MPa, consists of 25 cm thick, with 15cm thick stabilized cement gravel base and 15cm thick graded gravel cushion underneath.

(6) Bridge structure

According to the site condition, some rivers or gullies exist within this project. For rivers and gullies with small span ($\leq 5\text{m}$), it is recommended to adopt buried bypass culverts for the drainage from both side of the road. For the rivers and gullies with span of 5m to 10m, it is recommended to adopt permanent structures such as box culvert to drain both sides of the water channel or gully. For rivers or gully with span over 10m, it's recommended to build

bridges for the traffic of both sides of the road. For bridge structure, the superstructure of precast reinforced concrete or pre-stressed concrete slab beam is adopted and the abutment foundation on both sides can use light abutments of gravity type or the column type according to specific condition. The interior of river channel or gully adopts pile foundation beam structure, the pile foundation is recommended to use the drilling or punching pile. In the wider gully or river channel, the porous simple-support plate girder is adopted, and the bridge surface adopts continuous structure.

3.2.4 Supporting works

In this Project, construction of water, electricity and other supporting works shall be considered, and corresponding facilities shall be made available to the park accordingly.

(1) Water supply

1) Water supply source

On the south of the project site is the urban arterial road. Two parallel main water supply and transmission pipes are arranged on the arterial road and isolating valves are provided at each main intersection.

The Project is divided into three plots by taking the river channel as the boundary. Each plot takes water from the municipal water transmission main through 2 access points. The pipe diameter at each access point is DN500.

2) Forecast of water consumption

The total area of construction land of the Project is 404.69 ha. The water consumption is calculated with land usage index method according to the land usage and area. Therefore, the total water consumption of the Project is predicted to be about 18,200 m³/d. Specifically, the water consumption for Phases I, II and III is 6,500 m³/d, 7,500 m³/d and 4,100 m³/d, respectively. (As detailed in the table below):

Table 3-2 Estimation of Water Consumption of the Project

S/N	Sector	Water Indicator (m ³ /ha.d)	Water Consumption (m ³ /d)	Phase

1	Metal smelting and processing	60	2781	Phase I
2	Textile and apparel	60	769.2	
3	Automotive industry park	60	2012.4	
4	Land for power	20	161.2	

	supply facilities			
5	Integrated trade center	80	394.4	
6	Waters	0	0	
7	Green space	10	167.4	
8	Road	10	291.4	
Subtotal			6577	
1	Home building materials	60	2619	Phase II
2	Household appliances	60	1764.6	
3	Leather	80	1189.6	
4	Food processing	60	925.8	
5	Packaging/Printing	60	641.4	
6	Sanitation sites	20	9.4	
7	Drainage sites	20	48.4	
8	Green space	10	79.4	
9	Road	10	261.1	
Subtotal			7538.7	
1	Toys	60	219.6	Phase III
2	Machinery and equipment	60	1594.8	
3	ICT science & technology park	60	1970.4	
4	Sanitation sites	20	13.8	
5	Waters	0	0	
6	Green space	10	145	
7	Road	10	189.8	
Subtotal			4133.4	
Grand total	-		18249.1	

3) Water supply pipe diameter calculation

The hourly variation coefficient of water consumption is 1.5. The pipe shall be of nodular cast iron pipe with a flow velocity of 0.8m/s - 1.2m/s.

The Project is divided into three plots according to the terrain. The diameters of service pipes from the municipal water supply network will be determined based on the water consumption of each plot.

The water consumption of Phase I is 6,600 m³/d and the maximum hourly water consumption on the day with the maximum water consumption is 411m³/h, so the diameter of the service pipe is set as DN500. The water consumption of north plot of Phase II is 7,500m³/d and the maximum hourly water consumption on the day with the maximum water consumption is 471m³/h, so the diameter of the service pipe is set as DN500. The water consumption of Phase III is 4,100m³/d and the maximum hourly water consumption on the day with the maximum water consumption is 258m³/h, so the diameter of the service pipe is set as DN500.

4) Water supply network planning

Each plot of the Project takes water from the municipal water transmission main to form a loop water supply pipe network together with the water supply system within the plots. The water supply pipes shall be arranged along the planned roads within the plot. The water supply pipes shall satisfy the domestic, production and fire water demands. The water supply pipe network is arranged in a loop.

No independent fire water supply system is provided in the plots. Fire water shares the pipes with the domestic water. During the construction of pipe network, fire hydrant and fire-fighting equipment will be arranged according to the requirements for fire protection.

(2) Sewage

1) Drainage system

Diversion of rain and sewage is adopted for the drainage system, with a complete sewage collection and treatment system established.

2) Forecast of sewage quantity

The composite sewage coefficient is set as 0.60. The total amount of sewage in the Project is about 11,500 m³/d, including 4,200 m³/d for Phase I, 4,800 m³/d for Phase II and 2,500 m³/d for Phase III.

3) Sewage pipe diameter calculation

In consideration of local living conditions, the peak variation factor of the domestic sewage takes 1.6.

The maximum design fullness of the sewage pipe: DN300, 0.55; DN400, 0.65; DN500, 0.70. In the Project, the sewage pipes are also arranged in three separate areas. The maximum hourly sewage quantity of Phase I is 78L/s and the sewage pipe diameter is DN500; the maximum hourly sewage quantity of Phase II is 89L/s and the maximum diameter of sewage pipe is DN500; the maximum hourly sewage quantity of Phase III is 46L/s and the maximum diameter of sewage pipe is DN400.

4) Sewage pipe network planning

The sewage pipes are in low side arrangements, parallel with the road center line. The sewage pipe transports the sewage by the gravity flow mode.

The minimum diameter of the sewage pipe is DN300, and the pipe should be buried deeper than 2.5m at the starting point.

5) Facility planning

In the near term of the Project, the sewage from the plots will be disposed by the sewage treatment facility built by the settled enterprises and then discharged to the water body through rainwater pipe network; in the future term, sewage pipe network will be built to collect the sewage to the sewage treatment plant for disposal.

(3) Rainwater

1) Drainage principle and drainage system

Separate the rain and sewage in the drainage system. Build rainwater drainage facility according to the city standard. Adjust measures to local conditions and combine the gullies and pipes. Take the natural gullies in the plots as the recipient body of rainwater. Make full use of the collection capacity of the watercourse.

2) Pipe network planning

The rainwater in the pipe flows from high to low and then flows into the rainwater pipe after being collected by the gutter inlets along the line. Multiple water outlets are arranged, and the water is discharged into the near waters in a distributed manner.

The calculation is made with the rainwater pipe in a full state. The minimum design discharge velocity is 0.75m/s. Pipes are laid along the planned road in the form of gravity flow. In order to avoid that the pipe diameter is too large, multiple water outlets are provided.

The minimum and maximum diameters are DN400 and DN1800, respectively.

(4) Fire protection

The total number of employees planned for the park is 15,000 to 20,000. The fire at the same time is calculated once. The design water flow for a fire is set as 20L/s.

1) Planning of fire water supply facilities

The fire-fighting water is sourced from the urban water supply system. Fire hydrants are set close to the intersection; if the street is wider than 60m, fire hydrants shall be set along the two sides. If the fire hydrant protection radius is not greater than 150m and the spacing is not greater than 120m, it is advisable to arrange the fire hydrants on the ground. If the fire hydrants are arranged underground, obvious signs shall be set up.

2) Planning of passages for fire trucks

The passages for fire trucks rely on the road network system and are composed of roads of all levels, internal roads of enterprises and public institutions, passage for building fire trucks and the passage for fire trucks taking water from natural or artificial water source.

The width and free height of the passages for fire trucks shall comply with relevant specifications.

3) Planning of fire communication

The urban fire communication commanding system is composed of subsystems including fire alarm, fire alarm acceptance, commanding at fire field, comprehensive management of fire information and simulation training. The planning and construction of the urban fire communication commanding system shall conform to relevant local regulations.

(5) Power supply

1) Forecast of power consumption

According to the planned land purposes and the planned load index of unit construction land, the electrical loads for Phases I, II and III of the park are predicted to be 81.31MW, 77.76MW and 50.01MW, respectively. The predicted total electrical load for the three phases is up to 200.09MW, and taking the simultaneous factor as 0.7, the calculated capacity is 146.36 MW.

Table 3-3 Electrical Load Forecast of Construction Land

Phase	Sector	Planned Load Index of Unit Construction Land (kW/'0,000 m ²)	Electrical Load (MW)	Electrical Load of Each Phase (MW)
Phase I	Metal smelting and processing	800	38.42	81.31
	Textile and apparel	600	7.69	
	Automotive industry park	800	27.44	
	Integrated trade center	800	3.94	
	Power plant	250	2.02	
	Fire house	600	0.17	
	Medical station	600	0.17	
	Administration center	600	0.15	
	Mosque	600	0.15	
	Training center	600	0.15	
	Sports site	600	0.13	

	Waters	10	0.05	
	Green space	20	0.31	
	Road	20	0.52	
Phase II	Home building materials	600	29.69	77.76
	Household appliances	700	20.59	
	Leather	500	7.44	
	Food processing	800	12.34	
	Packaging/Printing	600	6.41	
	Truck terminal	30	0.03	
	Filling station	200	0.17	
	Drainage sites	200	0.56	
	Green space	20	0.06	
	Road	20	0.46	
Phase III	Toys	500	1.86	50.01
	Machinery and equipment	800	22.40	
	ICT science & technology park	750	24.78	
	Treatment station	200	0.34	
	Waters	10	0.02	
	Green space	20	0.24	
	Road	20	0.37	
Total	-		209.09	209.09
Simultaneous factor: 0.7				146.36

2) Facility planning

The 132kV/11kV step-down station in the park will be fed by the power plant established in the park, and the power plant is not part of the Project. One step-down station will be set up in the plots of Phases I, II and III, respectively, three in total. The voltage level of the step-down station is 132/11kV. Three sets of 132/11kv 40MVA main transformers are set in the step-down station of Phase I; three sets of 132/11kV 40MVA main transformers are set in the step-down station of Phase II; and two sets of 132/11kV 40MVA main transformers are

set in the step-down station of Phase III. The three step-down stations serve respectively as the 11kV power supply for the switching station in their respective range and for the substation within the plot. In the park, the corresponding 11kV switching station and substations will be arranged according to the phased load center.

The three 132/11kv step-down stations and the 11kV switching station are not in the scope of the Project. The 11kV substation in each plot will be built by the enterprises settled in the plot.

(6) Communication and information technology

Communication infrastructure will be built in the Park, mainly including telephone and data communication system, public video monitoring system and information channel.

Table 3-4 Forecasting of Communication Facilities for the Park

Rashakai		Weak-current Pipeline for Public Roads		Public Monitoring System	Administrative Telephone	
Description	Floor area (ha)	Index	Subtotal (km)	Subtotal (Nr.)	Index (20/ha)	Subtotal (Nr.)
Phase I	156.20	Arterial road (8 holes/km): 5km*8	40	98	20/ha	3124
		Collector road (4 holes/km): 4.3km*4	17.2			
		Branch road (4 holes/km): 2.3km*4	9.2			
Total						
Phase II	148.94	Arterial road (8 holes/km): 4.8km*8	38.4	104	20/ha	3020
		Collector road (4 holes/km): 2.8km*4	11.2			
		Branch road (4 holes/km): 5.0km*4	20			
Total						
Phase III	99.55	Arterial road (8 holes/km): 4.3km*8	34.4	88	20/ha	1991

		Collector road (4 holes/km): 0.8km*4	3.2			
		Branch road (4 holes/km): 4.9km*4	19.6			
Total						
Grand			193.2	290		8135
total						

1) Telephone and data communication system

It is expected to install about 8,100 phones in the Park. In addition, demand for various data communication business needs to be considered. Modular office of local telecommunications system with the end capacity no smaller than 12,000 lines is planned to be set in the public service area of the Park to provide phone and data communication services for the administrative department of the Park and the settled enterprises.

2) Public road monitoring system

It is proposed to set video monitoring system in the public area of the Park to satisfy the demand of traffic management and security. Surveillance cameras will be installed at the squares and road intersections. The monitoring system shall be digital, and the images shall be stored for at least one month.

3) Information pipeline

Information pipeline is arranged on the arterial road and collector road of the Park for laying of cables in the weak current systems. UPVC grille pipeline is adopted, with the buried depth no smaller than 0.8m.

(7) Heating, ventilation and air conditioning

1) Heating source the natural gas from the municipal network will be supplied to the park through the pipeline. The central heating may be used for the public and civil buildings on the lands for the commercial services, public services and residential purposes. The design, arrangement and charging of the heating station shall be carried out by the related municipal departments according to the requirement of block planning requirements. For premises in the industrial area that require the heating, but the requirements are greatly different, the

relevant enterprises shall, according to their own process requirements, apply for municipal heating or construct their own heating plant.

2) Air conditioning

according to the usage of buildings, and considering meteorological conditions, working conditions and other factors, air conditioning in the civil buildings shall be designed in accordance with the comfort requirements, and the air conditioning for industrial purposes shall be designed in accordance with the required temperature and humidity in the process and other requirements. The split air conditioner or central air conditioner may be selected, supplemented by appropriate energy-saving measures to meet the air-conditioning needs in the park.

3) Ventilation the natural ventilation shall first be used to meet the ventilation needs of various buildings. Where the natural ventilation cannot meet the need, appropriate mechanical air supply and ventilation system will be set up to meet the labor and health needs. The energy-saving products or ventilation systems shall be preferred in the design of mechanical ventilation.

4) Smoke prevention and extraction design

According to the local fire-fighting regulations, the natural smoke extraction is given priority and the natural smoke vents to the fire-fighting regulations are set up in the industrial land, commercial and service facilities and public administration and service facilities and other industry and civil building monomers in the park. Where the natural smoke extraction cannot meet the requirements of fire regulations, the mechanical smoke extraction equipment will be set up and subject to the review by the fire authority.

5) Thermal power

The thermal power demand in the park is mainly the demand on the natural gas, heating and industrial gas. Natural gas and heat supply by municipal pipelines. The park use galvanized steel pipe as the access pipe. In Phase I, the municipal natural gas pipeline will be extended to the external wall of the office building, with an expected pipe length of 250m

(including valves and pressure reducing devices), a pipe diameter of DN50 and a buried depth of 0.9m.

There will be 15,000 - 20,000 people in the park. Assuming the natural gas for each person is $0.5\text{Nm}^3/\text{s}$, the total natural gas is 7,500 - 10,000 Nm^3/d . The park provides the main pipes and the settled enterprises may apply for pipe connection as required. Industrial gas shall be arranged by the settled enterprises according to the production or process demand.

3.3 Safety protection

3.3.1 Security standards

Pakistan has established mature policies and procedures on safety issues. The related safety measures of CPEC are very strict. All projects related to CPEC will have security assurance from the Army. Also, Cape Province has developed sop according to federal government directives. As a result, KPEZDMC will prepare the safety plan for Rashakai pSEZ based on the minimum standard.

3.3.2 Security plan

Rashakai pSEZ will develop a three-level response plan based on the concept of a safe city. The Level 2 and Level 3 response is the responsibility of the government; therefore no cost will be involved. Coordination and safety exercise will be the responsibility of the KPEZDMC safety department. The preparation and implementation of Level 1 response is the responsibility of the Rashakai pSEZ developer. The subsequent responsibility for maintaining the safety settings during the operation phase will be treated as service replenishment. **(1) Level 1 response**

The internal safety response from the Rashakai pSEZ is the first level, which will respond to any unexpected incident and strive for 20-30 minutes for Level 2 response.

The investment and construction contents of the developer include:

- 1) Built-in boundary wall of barbed wire and watchtower.
- 2) CCTV cameras around the control room.
- 3) Control entry/exit system/door.
- 4) Fast anti-power vehicles.
- 5) Peripheral search lights.

Operation/operating costs are about 3.5 million per month, including:

- 1) Manpower required for safety and security costs (KPEZDMC and Security Company)
- 2) Maintenance cost of CCTV system.
- 3) Maintenance cost of fast anti-power vehicles.

- 4) Maintenance cost of the searchlight.
- 5) Maintenance cost of communication system.

(2) Level 2 response

The police form part of Level 2 response, which will expel terrorist activities from areas outside the economic zone and strive for 45-60 minutes for Level 3 response. KPEZDMC safety department is responsible for the coordination of Level 2 safety response.

(3) Level 3 response

The Army, as part of Level 3 response, will be activated only when the terrorist activity is beyond the control of the police or hostage is held. The safety management of KPEZDMC will coordinate safety response and level 3.

Chapter IV Environmental Protection

4.1 Design basis

According to the requirements of Pakistan Environmental Impact Assessment (EIA) Procedures, the specific EIA methods for the planned industries of the project, and the detailed overall practice have been made. When the project is required to be checked and approved, the related EIA is mandatory.

The EIA work is carried out by the Environmental Protection Bureau and the provincial environment department under Pakistan Ministry of Environment.

The application shall be submitted to the executive department by the company settled in this park in accordance with the requirements of different industries with the EIA expense paid.

4.2 Major sources of pollution and pollutants

4.2.1 Construction period

The major environmental impact factors of this project are piling operation, surface leveling, monomer construction, equipment installation and other activities. The main pollution factors are construction dust, construction noise, waste oil produced by construction machinery, construction waste, and domestic wastewater of construction workers and so on.

4.2.2 Operation period

(1) Air pollution

There is no productive dust produced from the planning areas such as warehousing and logistics, complex commerce and trade, technology research and development, and production and living service facilities, and a small amount of air pollution sources are the exhaust gas of the vehicles and dust from ground.

In the product processing and manufacturing industry, there are different greenhouse gas emissions during the production process of metallurgy and processing, automobiles, machinery and equipment, home furnishing and building materials, food processing, household appliances, consumer electronics, textile and apparel, leather and other industries.

(2) Water pollution source

The main wastewater produced is domestic wastewater and production wastewater.

(3) Noise pollution sources

The main noise pollution sources in the planning areas such as complex commerce and trade, technology research and development, and production and living service facilities are traffic noise generated by the working vehicles.

The noise sources of industrial park are mainly noises of equipment operation, loading and unloading of warehouse and logistics, and traffic noise.

(4) Solid waste

The main sources of solid waste in the planning areas such as complex commerce and trade, technology research and development, production and life service facilities and so on are the daily garbage and office waste generated during the working and living process of personnel.

The main solid waste in the industrial park is the waste of various industries in the production process, and some of the waste products may be poisonous and harmful.

4.3 Measures for environmental protection

4.3.1 Construction period

The construction site shall be hardened and flat and unblocked to prevent leakage of materials and supplies due to jolt of transport vehicles at the construction site. Any parts of the construction site that cannot be hardened

shall be compacted, watered and cleaned on a regular basis to prevent dust pollution. When stacking sand, stones and other construction materials that are likely to cause dust, dust suppression measures such as covering, and watering shall be taken.

The construction schedule and time shall be reasonably arranged and operation with high noise equipment shall be done within the fixed time to avoid the impact of construction noise on surrounding environment. Construction machinery and transport vehicles with low noise and low vibration shall be selected. Routine maintenance and protection of construction machinery and transport vehicles shall be strengthened to maintain them in good service conditions. The construction machinery and transport vehicles entering the construction site shall be properly dispatched and controlled to reduce horn noise.

The domestic garbage of the construction team shall be cleared and transported by the contractor to the qualified garbage disposal plant in time for treatment. The construction wastes shall be uniformly collected, classified and treated as far as possible for the purpose of comprehensive utilization, and shall not be discarded or disposed of at will. The construction wastes which are classified as Pakistani hazardous wastes shall be entrusted to the qualified hazardous waste treatment enterprises for harmless treatment.

4.3.2 Operation period

(1) Atmospheric environmental protection measures

Traffic in the general trade service zone, technical research and development zone and production and life service facilities zone shall be well controlled to reduce vehicles at idle speed and thus to reduce emissions of pollutants. Cleaning vehicles shall be equipped to sweep the road to reduce the dust. The

oil fumes from the commercial kitchens shall not be discharged unless treated by the oil fume purifier and up to the standard.

The different types of waste gases from the industrial area shall be purified and treated according to the specific contents of the environmental impact assessment (EIA) procedures to meet the emission requirements of the special EIA.

(2) Water pollution source control measures

1) Production wastewater

Some production wastewater generated by the power plant will be recycled after treatment, and the remaining will be discharged into the river after satisfactory treatment. The production wastewater of other plant areas will be discharged into the municipal drainage pipelines or rivers after satisfactory treatment. 2) Domestic wastewater

The domestic wastewater is mainly generated by the staff. The domestic wastewater will be treated with the septic tank and then discharged into the municipal wastewater pipelines.

The oily wastewater will be discharged into the sanitary sewers after oil-water separation.

(3) Noise control measures

Equipment with low noise and high efficiency shall be used. Maintenance and service of machinery and equipment shall be strengthened to maintain normal operation and reduce the noise.

Reasonable greening will not only reduce noise, but also beautify the environment.

(4) Solid waste disposal measures

The domestic garbage and office wastes shall be classified and collected by the garbage stations and shall be regularly cleaned up and transported by the local environmental sanitation department.

The construction wastes shall be uniformly collected, classified and treated as far as possible for the purpose of comprehensive utilization, and shall not be discarded or disposed of at will. The construction wastes which are classified as Pakistani hazardous wastes shall be entrusted to the qualified hazardous waste treatment enterprises for harmless treatment.

4.4 Control measures against ecological changes

In order to minimize the impact of the project on the surrounding ecological environment, full consideration shall be given to protection of surrounding ecosystems and corresponding mitigation measures shall be taken so as to reduce and avoid adverse impacts on the species and the ecology caused by various behaviors during development and construction of the project and maintain the diversity and sustainable utilization and development of the ecosystems.

Ecological changes due to construction of the project shall be restored as much as possible. Destruction of vegetation should be minimized in the project. The abandoned sand, stone and soil shall be transported to the specialized storage site and shall not be dumped into other ditches. After completion of the project, the excavation surface and the open land for storage of abandoned sand, stone and soil must be planted with trees and grass to prevent water and soil loss.

4.5 Greening

Greening supplemented by beautification is one of the important principles in this design. The green land shall be built into lawns, and on both sides of the road shall be planted with arboreal and shrubs with good adaptability to purify the air and reduce the noise.

4.6 Environmental monitoring and management

Environmental monitoring is an important part of environmental protection work and will be implemented by qualified organizations to provide basis and services for environmental management and pollution control.

After completion of the project, attention should be paid to the control of the amount of wastes generated and reuse or recycle of the wastes to ensure that the total discharge of pollutants will meet the requirements of the EIA.



ENVIRONMENTAL IMPACT ASSESSMENT RASHAKAI PRIORITIZED SPECIAL ECONOMIC ZONE

- I. NOC FROM ENVIRONMENTAL PROTECTION AGENCY (EPA)-03.04.2019**
- II. RESPONSES SUBMITTED BY KPEZDMC TO EPA-28.03.2019**
- III. RESPONSES SUBMITTED BY KPEZDMC TO EPA-15.03.2019**
- IV. PUBLIC HEARING AS PART OF THE REVIEW PROCESS OF THE EIA REPORT
ON 12-02-2019**
- V. ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT DATED 14.12.2018
(ANNEXURE A)**



Environmental Protection Agency
Forestry, Environment & Wildlife Department
Govt. of Khyber Pakhtunkhwa



No. EPA/EIA/KPEZDMC/Rashakai/19/155

Date: 3/4/2019

To

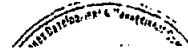
Mr. Ali Muazzam Syed,
(General Manager - Infrastructure),
Khyber Pakhtunkhwa Economic Zone Development and
Management Company,
120-Industrial Estate Hayatabad,
Jamrud Road, Peshawar.

Subject: **ENVIRONMENTAL IMPACT ASSESSMENT REPORT OF RASHAKAI
ECONOMIC ZONE (1000 ACRE)**

I am directed to refer to the subject cited above and to enclose herewith Environmental Approval/Decision Note on EIA Report of "Rashikai Economic Zone, District Nowshera" for your information and further implementation.

Moreover, Schedule VII must be submitted to this Agency within a month on Stamp Paper as an undertaking for the compliance of terms and conditions as mentioned in the Environmental Approval as well as mitigation measures proposed in the EIA Report. (Copy enclosed).

Yaqub
Deputy Director (EIA)



SCHEDULE-VI

Decision on EIA

1. **Name, address of proponent:** Mr. Ali Muazzam Syed,
(General Manager – Infrastructure),
Khyber Pakhtunkhwa Economic
Zone Development and
Management Company,
120-Industrial Estate Hayatabad,
Jamrud Road, Peshawar
2. **Description of Project:** Rashakai Special Economic Zone is
located near Kernal Sher Khan
Interchange on Motorway-1, District
Nowshera, Khyber Pakhtunkhwa
over an area of 404.69 ha (1000
acres). The estimated cost of the
project is \$ 116.567 million. The
project consist of construction of
main roads, link roads, truck
terminals, Sewerage System, Water
Supply System, Parking Terminal,
Administrative Block, Fire Station
and Other Allied facilities. Combined
Effluent Treatment Plant will be
constructed for the treatment of all
effluents of proposed Special
Economic Zone.
3. **Location of project:** Kernal Sher Khan Interchange on
Motorway-1, District Nowshera.
4. **Date of filing of EIA:** 14/12/2018 (Ref: EPA/Diary No.720)
5. After a careful review, the Environmental Protection Agency, Govt. of
Khyber Pakhtunkhwa has decided to accord conditional approval of the
Environmental Impact Assessment (EIA) Report of "Rashakai Special
Economic Zone is located near Kernal Sher Khan Interchange on
Motorway-1, District Nowshera, Khyber Pakhtunkhwa" in line with the
guidelines issued by Khyber Pakhtunkhwa Environmental Protection Act,
2014 and IEE/EIA Regulations, 2000 subject to the following terms &
conditions:

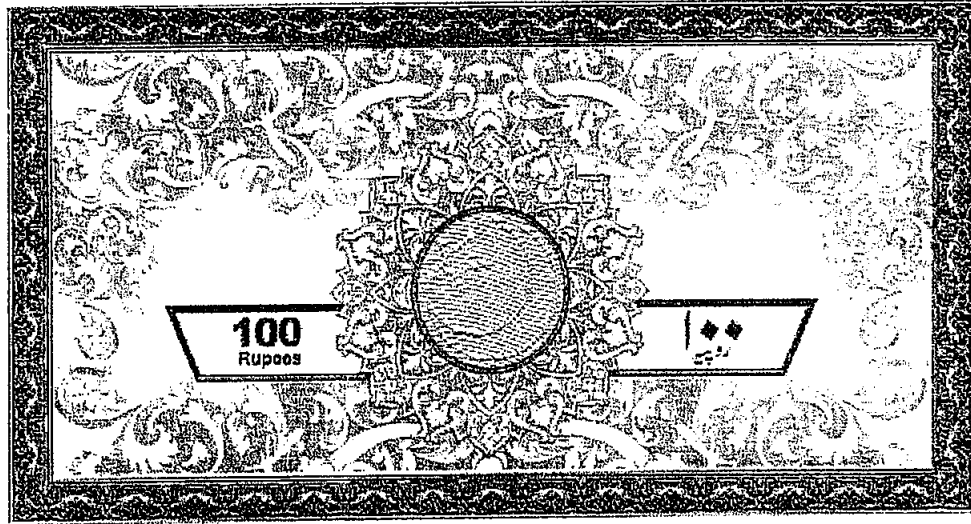
- a) The Proponent shall adopt all precautionary and mitigation measures identified in EIA Report as well as any unanticipated impacts during the construction and operation phase of Project.
- b) All effluents/emissions shall be kept within the permissible limits of National Environmental Quality Standards (NEQS).
- c) The Proponent shall construct Combine Effluent Treatment Plant (CETP) as proposed for Rashakai Special Economic Zone, keeping in view the whole Industrial Estate waste water discharge.
- d) The Proponent shall ensure proper zonation of industries in the Economic Zone.
- e) Khyber Pakhtunkhwa EZDMC shall bound all the industries to obtain Environmental Approvals from EPA at planning stage.
- f) The Khyber Pakhtunkhwa Economic Zone Development and Management Company (KP-EZDMC) shall strictly follow Disaster Management Plan.
- g) A nursery shall be developed inside the zone and annually block plantation of at least 50,000 shall be planted inside the Economic Zone which will act as a barrier/buffer zone between Industrial Estate and adjacent community.
- h) A Health, Safety & Environment (HSE) Unit shall be established in the Economic Zone. An Environmental Science graduate and two Foresters shall be employed to look after the environmental issues.
- i) Traffic Management Plan shall be implemented.
- j) Internships/apprenticeships program shall be encouraged for technical graduates belong to surrounding villages.
- k) Social welfare program shall be carried out for the local people and shall be communicated to EPA.
- l) All the compensation (Agriculture, civil structures, etc.) shall be paid before the commencement of activity.
- m) A grievance redressal committee shall be constituted to recommend steps/actions particularly for the effectees whom land has been acquired, the same shall be submitted to this Agency before initiation of construction activities.
- n) A comprehensive plantation plan shall be implemented in the Economic Zone.
- o) A Flood Protection Plan shall be prepared and shared with EPA.

- q) Employment shall be provided to the local people of the nearest Union Councils in technical/non technical jobs. Detail of the same shall be provided to EPA.
6. The Proponent shall be liable for correctness and validity of the information supplied by the Environmental Consultant.
 7. The Proponent shall be liable for compliance of Regulations 11,13,14,17 and 18 of IEE/EIA Regulations, 2000, regarding approval, confirmation of compliance, entry, inspections and monitoring.
 8. This approval is accorded only for the installation/ construction phase of the project. The proponent will obtain approval for operation of the project in accordance with the Regulations 13 (2) (b) and 18 of the IEE/EIA Regulations, 2000.
 9. Any change in the approved Project shall be communicated to EPA, Khyber Pakhtunkhwa and shall be commenced after obtaining the approval.
 10. This approval shall be treated as null and void if all or any of the conditions mentioned above is/are not complied with.
 11. This approval does not absolve the proponent of the duty to obtain any other approval or clearance that may be required under any law in force.
 12. There shall be no legal case pending in the courts against the project.
 13. In exercise of the power under Section-13 of the Khyber Pakhtunkhwa Environmental Protection Act, 2014, the Undersigned is pleased to approve the EIA Report for construction phase of the said Project with above mentioned terms and conditions.

Dated: Peshawar 3/4/2019.

Tracking/File. No. EPA/EIA/KPEZDMC/Rashakai/19/155


DIRECTOR GENERAL,
EPA, Khyber Pakhtunkhwa.
3rd Floor, SDU Building,
Khyber Road Peshawar, Cantt.



SCHEDULE VII

UNDERTAKING

I ALI MUHAMMAD SYED, GENERAL MANAGER-INFRASTRUCTURE, KPEZDMC

as proponent for EIA, RSEZ 1000-ACRES (KPEZDMC)

do, hereby, solemnly affirm and declare that I fully understand and accept the conditions contained in the approval attached by Khyber Pakhtunkhwa Environmental Protection Agency, Peshawar bearing tracking No. EPA/EIA/KPEZDMC/Rashakai/19/155 dated 3/4/2019 and undertake to design construction and operate the project strictly in accordance with the said condition and the IEE/EIA.

Signature: _____

Proprietor: General Manager- Infrastructure
KPEZDMC, Peshawar.

Witnesses:

(1) ASIF ZAHEDI

12101-8951639-1

(2) MUDASSAR ZEB KHAN

16101-7347532-1

16101-7347532-1



SOCIO-ECONOMIC IMPACT ASSESMENT OF

**RASHAKAI SPECIAL
ECONOMIC ZONE**

December, 2018

im | sciences



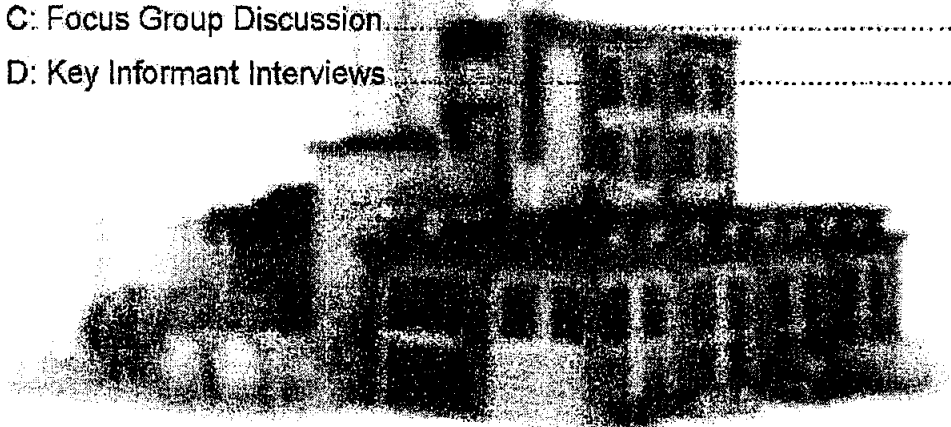
**Institute of Management Sciences
Peshawar**

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Foreword

Rashakai Special Economic Zone is one of the recently approved prioritized Special Economic Zones under CPEC. RSEZ has the potential to modernize the industrial and socioeconomic landscape of Khyber Pakhtunkhwa. Its unique positioning and the availability of raw material will usher an era of prosperity in the province by bringing in both local and foreign investment in high valued industries to cater the need of regional, national and international markets.

The socioeconomic study of RSEZ was conducted by the Institute of Management Sciences to provide the macroeconomic impact of the establishment of RSEZ. The study was conducted in December, 2018. Key areas covered by the study include demand forecast of the industrial mixes, expected number of units, income generation by RSEZ, contribution in the provincial GDP, Employment opportunities, investment potential, expected amount of indirect taxes, social impacts and recommendations regarding successful implementation of this great economic initiative.

I am really thankful to Institute of Management Sciences for providing relentless support to complete the study. I express my gratitude to Asim Mushtaq, Dr. Amir Taj, Miss Shabana and Dr. Muhammad Rafiq, and rest of the team who worked day and night to accomplish the basic objectives of the study.

I look forward to participation of all the stakeholders in realizing the dream of ushering the industrial revolution in KP and making RSEZ as a next success story of Pakistan.

Azam Farooq

Coordinator HRDC-IM Sciences, Peshawar

List of Acronyms and Abbreviations

APTMA	All Pakistan textile mills association
ASEAN	Association of Southeast Asian Nations
BOA	Board of Approval
BOS	Bureau of statistics
CPEC	China Pakistan Economic Corridor
CMI	Census of Manufacturing Industries
CRBC	China Road and Bridge Corporation
DAI	Degree Awarding Institutes
EZ	Economic Zone
FDI	Foreign Direct Investment
FBS	Federal Bureau of Statistics
FGDs	Focus Group Discussions
GDP	Gross Domestic Product
GRP	Gross Regional Product
GNP	Gross National Product
HEC	Higher education commission of Pakistan
HRDC	Human Resource Development Center (IM Sciences)
IM Sciences	Institute of Management Sciences, Peshawar
KIIs	Key Informative Interviews
KM	Kilometer
KPBOIT	Khyber Pakhtunkhwa Board of Information Technology
KPEZDMC Company	Khyber Pakhtunkhwa Economic Zones Development and Management
KP	Khyber Pakhtunkhwa
KPOGCL	Khyber Pakhtunkhwa Oil & Gas Company Limited
MMC	Mardan Medical Complex
NARC	National Agriculture Research Center
NUST	National University of Science and Technology
PBS	Pakistan Bureau of Statistics
PKR	Pakistani Rupees
RSEZ	Rashakai Special Economic Zones
SEZ	Special Economic Zones
SMEDA	Small Medium Enterprise Development Authority
TEVTA	Technical Education & Vocational Training Authority

Executive Summary

Khyber Pakhtunkhwa Economic Zones Development and Management Company (KPEZDMC) entrusted the job of carrying out Socioeconomic Study of Rashakai Special Economic Zone (RSEZ), to the Institute of Management Sciences (IMSciences). The purpose of the detailed assessment of the project's socio-economic assessment was to ensure the best use of the resources of Khyber Pakhtunkhwa and calculate the socio-economic impact of the RSEZ in terms of income generation, increase in living standard, economic growth rate, skills and technology transfer, increase in exports etc. The socio-economic analysis of a RSEZ also examined the socioeconomic sustainability, direct and indirect effects on the area.

Data and information were gathered through review of secondary data, Key Informant Interviews (KIIs) and Focus Group Discussion-FGD.

Strategic Significance of RSEZ

Special Economic Zones-SEZs are meant for technological and industrial development. The Rashakai Special Economic Zones (RSEZ) is one of the SEZ and it is a project of KPEDMC spread over 1,000 acres. Because of its strategic location and factors given below, it has the potential to contribute to the economic development of the country by attracting Foreign Direct Investment (FDI) and Domestic Investment (DI).

- **Location of SEZs:** This Special Economic Zone is in close proximity to the CPEC routes like – E-35, N-5, M1, CPEC Western Route and Swat Expressway. There are five Economic Hubs in the vicinity of this area besides six passages. Additionally, the proposed site is nearby three crossroads, four gateways including Central Asia, Afghanistan, Iran and China.
- **Natural Resource:** The economic base of this entire region includes substantial reserve of minerals, hydrocarbon, agricultural produce and educated large middle class, a very considerable size of Horticulture and Agriculture beside proximate power.
- **Availability of Infrastructure:** RSEZ is connected to all major districts of Pakistan through Peshawar International Airport which is 58 KM from the location site. Islamabad International airport is 138 km away. Dry port is at a distance of 65KM from RSEZ, whereas, Railway Station is in 25 km proximate area. RSEZ is also adjacent to Islamabad-Peshawar Motor way (M-1)
- **Availability of Utilities:** Two major Hydel project Tarbela/Ghazi Barotha on the river Indus also located very close to RSEZ.

Social Impact

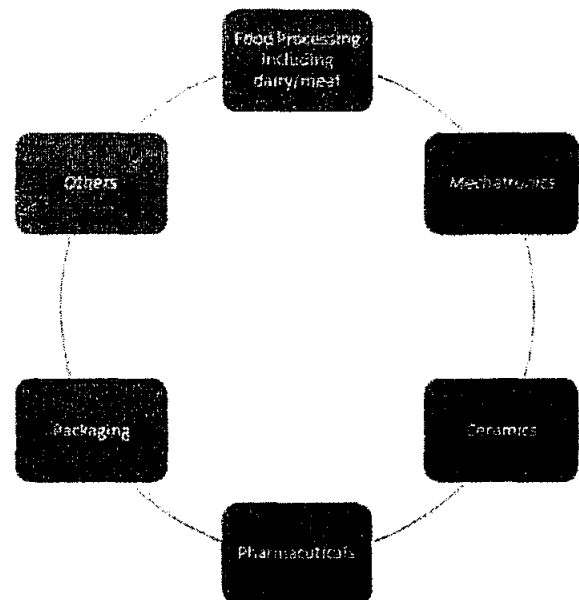
Socio-political assessment based on perceptions of representatives of local community in Rashakai about the prospective RSEZ depicts a favorable picture by and large. RSEZ's impact on local business development is anticipated to be positive primarily because it is going to serve as an economic and business hub that would connect Rashakai and KP and other provinces of Pakistan as well as countries engaged in CPEC route. RSEZ's establishment and subsequent development is quite likely to boost the private sector because of the influx of capital investment. The piece of land allocated for RSEZ is mostly barren, uncultivated and uninhabited and that is why RSEZ's potential negative impact on agriculture and agriculture related businesses is almost non-existent. RSEZ's probable impact on transforming local social institutions doesn't have a high probability. Social norms and institutions in the region are embedded and as such major components of the area's culture such as social values, ceremonies, language, food, and apparel are not likely to change significantly.

The existing social infrastructure i.e. roads, rail network, other means of public transport, gas, electricity, water supply and associated amenities do not meet requirements of burgeoning population of the area. Plan for RSEZ, history of similar development interventions and perceptions of local population suggest that development of RSEZ will contribute to development of social infrastructure in the outskirts of Rashakai and in some cases (roads and railway tracks) in the whole region as well. RSEZ's potential to generate employment opportunities of all sorts seems very probable. The type of job opportunities that RSEZ is likely to generate ranges from unskilled to advanced level skills. Women and men from low income groups would be the prime beneficiaries of industrialization process in RSEZ. Workers of the area won't have to migrate to other large cities of Pakistan and Middle East when offered a decent source of livelihood in or near their home towns. RSEZ's industries would not only create job opportunities for women, it will also empower women economically – a social change much needed in the region. Broader impact of women's engagement in RSEZ include enhancement of their personal disposal income, better access to health facilities and better income for children education.

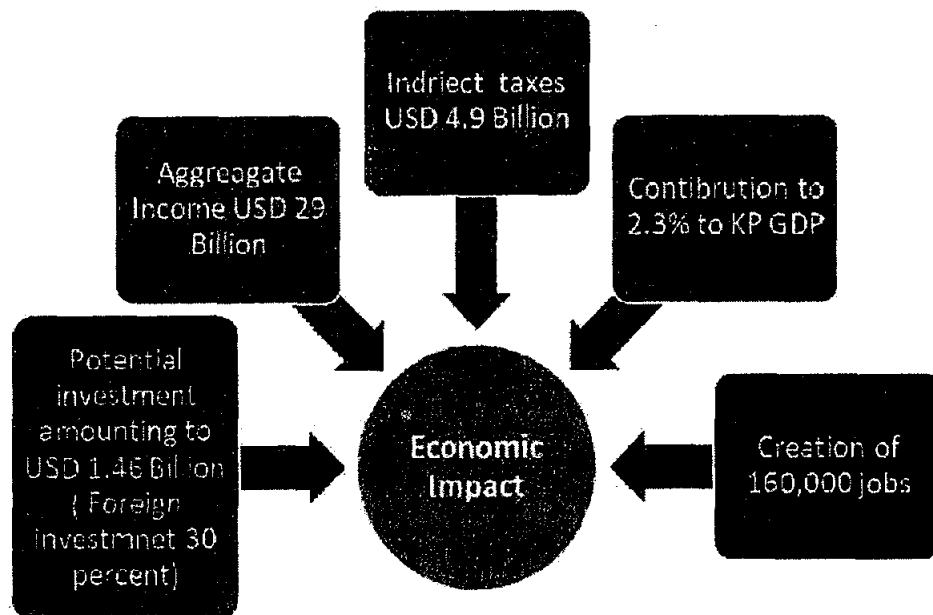
With RSEZ's establishment in the area, technical colleges would need up scaling, expansion, and up-gradation. Like women, youth of the region would be one of the prime beneficiaries of RSEZ because they will have a multitude of career pathways to choose and benefit from. Finally, one of the key political developments which is anticipated with the prospective establishment of RSEZ is that the resentment of citizens of this province triggered by alienation and deprivation will be pacified to a great extent. RSEZ will hopefully be instrumental in peace-building process here in KP. RSEZ is a critical factor in terms of image building for the region, province and country. Establishing RSEZ and its connectivity via CPEC route is also expected to promote tourism in the mainstream and northern areas of KP.

Economic Impact

Economic Impact analysis commences with the Demand forecast, which is based on the applicant database of KPEZDMC. This was further validated by assessing the historical industrial base in the province and also through secondary data and KIs. We estimate that average size of plot will be 1.8 acres and total number of units will be 440. Ceramics, Pharmaceuticals, Food processing including meat and dairy are the main sectors. Industrial mix need to be prioritized by the KPEZDMC based on the locational advantages and value addition product. For Economic analysis



of RSEZ, Investment, employment, income generation, foreign investment potential, and tax revenue, are the key indicators as a part of our study. In order to determine the economic impact, different national and provincial proxies have been used to calculate the various Economic indicators of the study area. We had identified three techniques to estimate the Economic benefits of RSEZ. Firstly, the projected sales' data of the applicants; which we could have aggregated to find the aggregated benefit of RSEZ. But given the nature of data and other limitation, the reliability of the data was questionable. Secondly, surveying similar firms in other SEZs or industrial estates anywhere in the country, however, this required a lot of time, and given the study completion timeline, this was not possible. Thirdly, a forecast of benefits based on the national and provincial statistics and proxying it for R SEZ. This was plausible, seeing all the limitations which we have explained in the above mentioned paragraphs. There are several advantages of using national level data as proxy. a) This is widely acclaimed by all the users throughout the world as a source of information, hence highly reliable, b) This shows the overall industrial trend in the province. The forecasted values are based on the pace and nature of industrialization in the province historically, therefore, a slight change in the composition of industrial mix will not affect the forecasted values by greater extent. According to the study estimates, macroeconomic impacts of RSEZ include the followings:



Non-availability of the latest data, limited/inadequate secondary information, lack of industry wise master plan and dependency on planned industrial mix are the main limitation of the study.

Nevertheless, based on our analysis, we conclude that RSEZ, is a viable investment project and it contains economy wide effects. This is bound to revolutionize the economic landscape of the province. This will foster the economic growth and development in the province having multiplier effects. This will also provide a helping hand to the incumbent government in achieving the objective of 'million jobs to the youth'. The economic endeavor has the potential of attracting huge investment into the province, which is vital for the economic uplift of the area. Additionally, the share of province in the national exports can be substantially increased.

Planned industrial mix need to be reviewed and based on the RSEZ locational benefits, sectoral competitive advantages, Incentive for SMEs and comparative advantages for Chinese companies, prioritization of industrial sector should be done and master plan should be finalized in the light of these prioritized sectors.

Chapter 1: Introduction and Background

1.1. Background of the Study

Rashakai Special Economic Zone (RSEZ), the first prioritized SEZ of Pakistan and the flagship project of the province of Khyber Pakhtunkhwa and Khyber Pakhtunkhwa Economic Zones Development and Management Company (KPEZDMC) is spread over an area of 1000 acres. This project is conceptualized from its initial stages by KPEZDMC; RSEZ will therefore have a natural benefit of being an exceptionally pre-planned special economic zone that is expected to meet international standards. Rashakai Special Economic Zone is strategically located on M1 Motorway at the intersection of M1 and Swat Expressway, and is linked to both China Pakistan Economic Corridor (CPEC) routes through Swat Expressway and Burhan interchange. RSEZ also serves as a bridging post to Northern Areas of Khyber Pakhtunkhwa and has close proximity to the Afghan border. Due to this central position of the economic zone in the province, it is envisaged as the imminent trade hub of Khyber Pakhtunkhwa.

1.2 Purpose and Objective of the Study

The purpose of the detailed assessment of the project's socio-economic assessment is to ensure the best use of the natural and human resources of Khyber Pakhtunkhwa province. This means that the assessment is made from the perspective of the Province rather than that of the private investors who are more concerned about the immediate returns on their investment. The Consultant organization - (HRDC-IM|Sciences) - on behalf of KPEZDMC has assessed the socio-economic impact of the RSEZ in terms of income generation, increase in living standard, economic growth rate, skills and technology transfer etc. The socio-economic analysis of a RSEZ examines the socioeconomic sustainability as well as other associated effects in Rashakai and adjoining areas. One of the social considerations requires that all infrastructure projects should, in principle, be designed and executed in such a manner that would 'do no harm' to citizens and communities and be in tandem with socio-cultural institutions of concerned society.

1.3 Scope of the Assignment

The proposed study is based on comprehensive assessment of socio-economic scenario or factors of RSEZ. The scope of study is limited to the following socio-economic dimensions:

- Economic Benefits of RSEZ
- Employment Opportunity
- Cultural and Community
- Health & Well-Being
- Fears & Aspirations

1.4 Orientation to the Concept of SEZs in Pakistan

A comprehensive and legal framework for the regulation of the SEZs in Pakistan is provided in the SEZs Act 2012. This is reckoned to be a useful initiative keeping in view that in the past only a set of limited incentives were provided for promotion of economic zones. This is one of the main reasons cited for the failure of most of the Industrial Estates despite the fact that they were given lucrative incentives. Legislation includes well-defined mechanisms of accountability for concerned agencies such as developers of SEZ and government agencies; guaranteed under the Act these agencies are responsible and accountable for provision of support services to SEZs. It is anticipated that a conducive infrastructure will be provided to the enterprises/businesses through the establishment of SEZs. These facilities cannot, however, be withdrawn prematurely. Previously, it was possible for the incentives to be withdrawn at any moment under the Statutory Regulatory Ordinance.

So far seven SEZ's have been proposed and notified by the government of Pakistan. The details can be seen in the following table.

Source: Website of Board of Investment

Special Economic Zones	Acres
Khairpur Economic Zone, Khairpur, Sindh	136
Korangi Creek Industrial Park, Karachi	230
Bin Qasim Industrial Park, Karachi	940
M3 Industrial Zone, Faisalabad	4356
Quaid-e-Azam Apparel Park, Sheikhpura	1563
Value Addition City, Faisalabad	225
Hattar Industrial estate, KP	424

<http://boi.gov.pk/InvestmentGuide/SEZ.aspx>

It is possible for an SEZ to avail incentives that go beyond those that were initially stated in the Act. This aims at promoting technology intensive industries in particular regions of Pakistan. This is where the Board of Approvals (BOA) may extend more benefits and incentives to a particular category of these special economic zones, zone enterprises, regions or sectors. The following conditions apply though.

- These benefits, in addition, are justified based on an assessment of the economic impact.
- These benefits, if granted, are liable to be forfeited if it is proved that the developer of any zone or enterprise has not been able to comply with these conditions. The BOA also has the authority to make the economic impact assessment of the SEZ within the first five years of the commencement. Additionally, anything mentioned in this act does not in any way limit the power of the provincial, federal, or local authority. They can still grant additional benefits if and when they please.

Other facilities that the SEZs can have are electricity, gas, and other utilities. These will be given at the zero-point. Security and power generation is also allowed within the SEZ.

In today's competitive business environment, Pakistan, through its flagship CPEC initiative, has embarked on another journey of industrialization. Although industrialization initiatives in the past haven't been massively successful, Pakistan does have several clusters of the industry that are operating substantially. Some leading industrial clusters in Pakistan include:

- Faisalabad, ready-made garments.
- Sialkot, surgical goods and sports industry
- Gujarat, pottery and ceramic industry
- Khyber Pakhtunkhwa, marble clusters
- Hattar, Industrial Estate
- Gujranwala, tannery and leather cluster

With CPEC agreement, Pakistan is in a better position to rely on China, with a renewed conviction, to establish SEZs. China has around 1,800 SEZs and its success in the domain of manufacturing needs no elaboration. Since 1980s, China has been focusing on skill and knowledge development that is required for setting up special economic zones. Pakistan thus can and should capitalize on Chinese experience in order to make sure that Pakistan's proposed economic zones become successful too.

In order for these SEZs to become successful, it is critically important to attract and secure foreign investments. For this reason, reliable and sustainable provision of economic incentives as well as critical such as electricity, gas, water etc. are provided. In this regard, the federal government of Pakistan has agreed to ensure provisions to these SEZs. Besides, for better working environment of the SEZs, security risk is a factor which requires special focus. Federal government of Pakistan has shown firm commitments to ensure security of these SEZs. The success of these SEZs will mostly depend on the socioeconomic conditions of the adjacent areas. Looking at the case of Pakistan, the employment opportunities of the locals and their capacity building is a primary concern.

In light of the rapid transformation trending on a global scale, it is important for Pakistan to capitalize its strengths and pay special consideration to repositioning itself in the world market. The country has a lot of essential advantages and potential for growth which can be used to prepare its economy in order to secure a huge share in the competition of global production and exports. In the last four decades, the manufacturing sector of Pakistan has shown growth potential at an average rate

despite a slowdown in recent years, this shows resilience of the Pakistani industries and entrepreneurs,

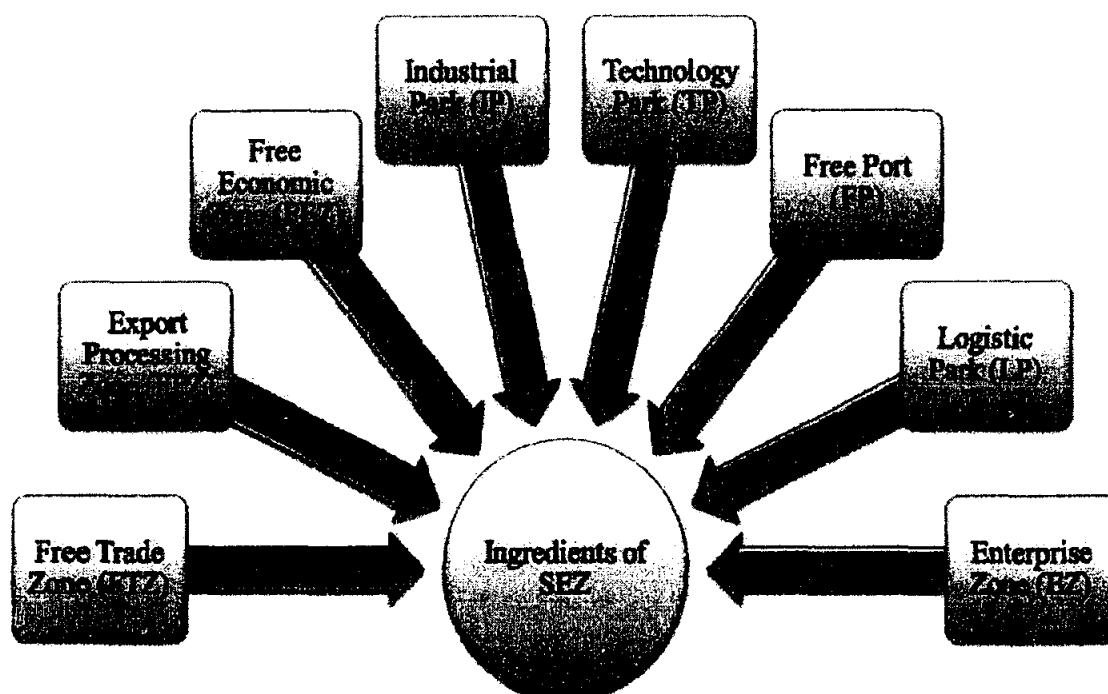
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Chapter 2: Conceptualizing SEZs in Global and Regional Perspectives

Special Economic Zones are reckoned to be an important source of economic growth and development for a number of reasons. This includes the diversification of the economy, developing skills of the local labor force, reducing disparities that are regional in nature, grouping economic activities together with the local industries. Other characteristics of RSEZs include transference of technology, spreading of know how, promoting additional industry-related activities, entrepreneurship development, creating more competition, the attraction of both local as well as a foreign direct investment especially for regions that are not as privileged. It increases employment, promotes exports and facilitates management and administration. SEZ can be single or composite and it can house one or many of the facilities indicated in the following figure.



Source: "Imminent Prosperity at the Doorsteps of Households: Evidence from Socio-Kinetics of Rashakai Economic Zone Using Dynamic Two Point Model" by Dr. Ejaz Gul and Prof. Dr. Imran Sharif Chaudhry

SEZs are usually described as self-contained when it comes to the procurement of raw materials. This can be both from their local or international market. They are also self-contained in generating power, pollution mitigation, the treatment of sewage, and other support services. Facilities such as transportation, cultural, and education institutes are developed concurrently with the SEZ. Hence SEZs provide important insulation from both the uncertain external and internal environment.

SEZs have the privilege of having relaxation in customs and tax laws and regulations in comparison to the rest of the country. These special economic zones are usually duty-free territories for trade and manufacturing. Many fiscal, as well as regulatory incentives are provided to investors, all within the zones by the local, provincial, and national governments. Still, as indicated by global experience, the decision to invest in an SEZ is hardly ever based on the financial incentive alone, since these are not the key components to its success. The success factors that contribute are; cost-effectiveness as well as efficient infrastructure, good governance (one that will differentiate it from the rest of the country). The success of an SEZ stimulates the economy, encourages provisions to public services even more effectively.

Successful SEZs are expected to introduce interventions relatively quickly throughout the country, through a mix of demonstrations and linkages with the local industries. They are able to create economic spaces for their entries into ordinary and intermediate manufacturing. SEZs are basically summarized as being strategic locations that help in addressing bottlenecks arising from structural and institutional issues. These can be complexities in procedures, deficiencies in infrastructure, and hassles with bureaucracy, among other restrictive practices. These SEZs are there to offer a climate of investment that aims to attract offshoring activities and outsourcing ones as well.

Globally, the explanation offered for the failures of the SEZs are 'rent-seeking' by the interest groups; taking undue advantage of the incentives such as tax holidays; other fringe benefits offered; weak governance; issues with regulation; and unresolved disputes. In order to avoid such problems and to make sure that management is efficient, countries need to assign decision-making roles that are decentralized in nature. Public-private partnership arrangements also needs to be in place and conducive. This increases the inclusiveness with the institution and the local community as well. Special Economic Zones are geographical locations with economic laws different from the rest of the country and are more flexible.

The main objectives of SEZs are to enhance foreign direct investments and also to become a nurturing ground for the increasingly competitive international environment for exports. This idea came from the fact that exports needed to be promoted more and that a level playing field is deserved by the domestic manufacturer and enterprises in order to be competitive.

Special Economic Zones have grown dramatically, especially in the last 20 years. ILO's database from 1996 reveals that 176 SEZs are operating in about 40 countries. Then in 2006, 3500 zones were operating in 130 countries.

. This growth in results is evident despite the fact that a plethora of SEZs have not met their intended objectives. However, there are still several examples that show a prominent contribution to exports, employment, and increase in FDI. They have also played a role in global trade integration, structural transformation, and industrialization.

Surprisingly, SEZs have been very successful in countries with adverse economic conditions. These countries with their imperfect structures and a complete refusal to adapt to change can be used as experimental grounds in order to test and re-tune economic reforms before their application to the wider economy. The People's Republic of China is said to be a classic example of this phenomenon. SEZs are very helpful in reducing regional inequalities even in economies that are well-functioning or advancing (economically) to higher levels. This is evident in Thailand as well as in Vietnam. These SEZs are a tool that helps in the concentration of population and the economic activities in big cities like Bangkok and Ho Chi Minh City.

SEZs also provide an improved business environment because they come with efficient legal and regulatory framework. SEZs become the reasons for enhanced infrastructure, trade facilitation, infrastructure development and cutting unnecessary red tape. SEZs aim at logistical, legal, and tax arrangements that are intended to facilitate developing countries in increasing exports of manufacturing concerns. This investment is otherwise very hard to attract. Factors such as weak infrastructure, security threats for investors, higher regulatory duties, and restrictions in trade undermine the progress of industries. The rationale provided for the existence of an SEZ is to decrease the costs that are associated with aforementioned deterrents. This economic zone will create an environment that is both favorable and also within a geographic area. This is why they are called investment enclaves as well. The following table summarizes direct and indirect socio-economic benefits.

Static Benefits	Dynamic Benefits	Social benefits
Foreign Exchange Earnings	Skills Upgrading	Quality of Employment
Foreign Direct Investment	Testing Field For Wider Economic Reform	Wages
	Technology transfer	
Employment Generation	Demonstration Effect	Gender Differentiated Impacts
Government Revenue	Export Diversification	
Export Growth	Enhancing Trade	
	Enhancing Domestic	
	Linkage Formation with	
	Indigenous Sectors	
	Integration into Global Value Chains	

Source: 'SEZs in India: Concept, Objectives and Strategies' by Dr. R. Shashi Kumar

2.1 Goals of SEZs

Objectives underlined by the United Nations Publication (1985) pertaining to the special economic zones are the following:

- Generating foreign exchange earnings
- Creating employment
- Attracting foreign capital and advanced technology
- Acquiring labor management skills
- Creating linkages between EPZ industries and the domestic economy

In similar vein, the Indian government passed the SEZ Act in 2005. According to the Act, the core objectives of an SEZ are to attract foreign investment, increased exports, creating jobs and promoting regional development. In the government's own words, the main objectives are:

1. Generation of additional economic activity;
2. Promotion of exports of goods and services;
3. Promotion of investment from domestic and foreign sources;
4. Creation of employment opportunities;
5. Development of infrastructure facilities.

2.2 Global and Regional Development

The available literature on SEZs on a global context, all point to the respective growth nodes and how they have served as incubators of good practices. Besides, SEZs located on borders have added benefits of improving the integration of international supply chains, even if such an increase would require more cooperation and collaboration of authorities that are present on both sides of the border. In the end, it is important to note that SEZs' positive and negative impacts should be fixated; nevertheless, these evolve over a course of many years. It is accepted that their outcome will change with evolution and that their measure of success would be to turn their good practices into standard practices. The Asian Development Bank observed that SEZs are basically a very good policy, but it is damaged only by poor implementation.

SEZs back from the 1960s have been known as free trade zones and depending on their regulations in various regions around the world, have usually rapidly grown specifically in Latin America, Asia, and Africa. One universal feature that these zones possess is the duty-free importation of goods. This, however, is a condition to outputs that are exported fully.

Keeping in mind the international experience, one can conclude that physical and non-physical factors have been highlighted. These are factors that are contributing to the likelihood of success. Priorities wise, some of the physical factors are the geographic location of the economic zone, whether there is the availability of airports and other ports, personnel, infrastructure, and other support services. Non-physical factors are then related to the reliability of the investment environment, this includes both political and economic stability. Efficient governance is also required so that operation of the economic zones is followed through with the minimum amount of bureaucracy.

The main goal of attracting both local and foreign investment is that these economic zones can, directly and indirectly, influence employment. With a lot of location-based models, these economic zones are a hub of economies of agglomeration. This is done through the promotion of interaction amongst companies, thereby raising their productivity through the edifice of conglomerates or by attracting facilities that are technologically advanced. In the end, gaining static and dynamic outcomes in these economic zones helps in achieving the desired socioeconomic outcomes. This is of course with respect to increasing the quality of employment and simultaneously making sure that decent wages are offered to the local population.

Factors associated with the success or failures of these economic zones are very wide in range. These are the drivers among which wages and productivity (in the region), preference of trade, the outlook of the market, policies of the government and the macroeconomic environment, incentives that are offered to investors, and execution of the program are all included. Still, a lot of important international studies will identify investment climate in these special economic zones and also the access to a large amount of local and regional markets as the variables that are most closely connected with the outcomes of these SEZs.

Referring to the Association of Southeast Asian Nations (ASEAN), the competitive strategies, of course, depend on the country's stage of current economic development. It is known that Industrial Parks and Special Economic Zones are there to foster catch-up strategies in developed countries. At the same time, the innovation districts are there to accelerate innovation in the already developed economies. All the countries of ASEAN have comprehensively made use of these special economic zones. More than 1,000 economic zones are currently operating there.

Chapter 3 Approach and Methodology

3.1 Background of Study

Khyber Pakhtunkhwa Economic Zones Development and Management Company (KPEZDMC) entrusted the job of carrying out Economic Feasibility Study for Rashakai Special Economic Zone (RSEZ), to Institute of Management Sciences (IM|Sciences). As a first step, a meeting was held with KPEZDMC for clearly understanding the project's objectives. KPEZDMC team members explained the background and objective of the study to the team members and identified the key areas which needed to be focused.

The purpose of the detailed assessment of the project's socio-economic assessment was to ensure the best use of the resources of Khyber Pakhtunkhwa and calculate the socio-economic impact of the RSEZ in terms of income generation, increase in living standard, economic growth rate, skills and technology transfer, increase in exports etc. The socio-economic analysis of a RSEZ also examined the socioeconomic sustainability, direct and indirect effects on the area.

3.2 Study Tools

Prior to commencement of work, several meetings were held with the concerned officials of KPEZDMC to understand and discuss methodology, work and field plan. Following the series of meetings, a framework envisaging project methodology was developed and subsequently was approved by a team from KPEZDMC. This included carrying out a review of secondary data and getting hand on information through primary research i.e. Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs). Additionally, other measures included:

- Getting further insights or information necessary for planning the successful completion of the assignment.
- Finalization of the communication protocols necessary to communicate with client and its stakeholders.
- List of documents, data and information required from KPEZDMC.

3.3 Key Informants Interviews (KIIs)

Consulting team identified the relevant sectors stakeholders' list for guiding strategies to assess the relevant and important information pertaining to the study. Key informants in this study include:

- Program staff of KPEZDMC
- Government officials
- Key Private Sector individuals

- Community members

List of Key Informants is given in annexure A of this report. During these meetings, team members discussed features of RSEZ with the participants and sought their opinion for socio-economic benefits. In this regard, a structured questionnaire as given in annexure B, has been used to document the responses given by the interviewee. 3.4 Desk review
The secondary data was reviewed to find out the key data and information required. The secondary data provide us the following information:

- Statistics and Other important information related to RSEZ
- Industrial Statistics (output, production, employment)
- GDP
- Sector specific reports
- Industry specific feasibility Study reports
- Industrial Estate data
- Socio-economic indicators of neighbouring districts

3.5 Economic Impact Analysis

During the inception meeting with KPEZDMC, following economic indicators were confirmed for assessing the Economic Impact of RSEZ. These include:

- Investment
- Employment
- Income generation
- Foreign Investment potential
- Tax revenue
- Export potential

3.6 Data Analysis

All the data and information gathered through KIIs and secondary data reviews; were organized for their meaningful interpretation and analysis to achieve the set objectives. Gathered data were organized according to the theme of the study. Our experts have analyzed the data in following two main areas:

a) Social Context

- Community profiling to understand the demographic characteristics of Rashakai and connected areas.
- Identify and analyze the social institutional structures, roles, and implication pertaining to social inclusion of marginalized segments of community.
- Identify the various fears and aspirations of the local community with respect to social and economic acceptance/internalization of RSEZ.
- Assess the health and wellbeing probable impact on local community.

Dimensions	Themes	Mode of Assessment	Data Collection Instruments
Macroeconomic Benefits	- Income and Employment opportunity for Community - Taxes - Potential Investment - Foreign Investment - Export potential	Quantitative + Qualitative	- Documentary Data Analysis - Expert Opinion (KII)
Cultural and Community	- Community Profiling - Skilled and unskilled labor Utilization - Social institutions structure - Gender Roles - Academic and Technical & Vocational Education opportunities - Skilled and unskilled labor	Qualitative	- Secondary Sources - Key Informant Interviews
Fears and Aspirations	- Loss of local business/Agricultural Extensions - Integration of outsiders with local community - Safety and security	Qualitative	- Key Informant Interviews - Focus Group Discussion
Health and wellbeing	- Health facilities - Labor and working conditions	Qualitative	- Secondary sources - Key Informant Interviews

3.8 Methodology for Prospective Social Assessment of RSEZ

For examining socio-political dimensions, the fears/apprehensions as well as aspirations and hopes were explored with the help of focus group discussions and key informant interviews. Keeping in view the nature of information that was required with regards to social impact of RSEZ, relevant stakeholders were identified and a sample was drawn from the population based on purposive sampling methods. Due to a shortage of time, 3 FGDs and 3 KII were conducted with various individuals and groups. The idea was to factor in as much diversity of opinions as possible so that the assessment is devoid of any personal bias. Following is the detail of individuals and groups identified for primary data collection in Rashakai and adjoining areas.

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a) FGD Groups

1. Local shop/business owners/Proprietors
2. Local farmers/landlords/agriculture related business owners
3. Women (Household)

b) Key Informant Interviewees

1. Technical College Principal
2. Local community/Religious leader
3. Local Political Leader

Some of the themes (for details please refer to the tools in annexure C and D) discussed in primary data collection and analysis process are recognition and location; local business development; employment opportunity generation; increase in health facilities; increase in education facilities; improved infrastructure; improvement in utility provisions; farm land acquisition; loss of local business. It is pertinent to note that since gender is a cross cutting theme in most of the socio-economic development initiatives, one FGD was categorically conducted with women (household) residing in the area. An attempt was made to have a glimpse of their perceptions about any probable changes that they envisage with regards to RSEZ. The research team discussed issues related to employment opportunity; increase (or decrease) in health facilities, and increase (or decrease) in education facilities with FGD group of women.

Chapter 4: About Rashakai Special Economic Zone (RSEZ)

4.1 About Rashakai Special Economic Zone (RSEZ)

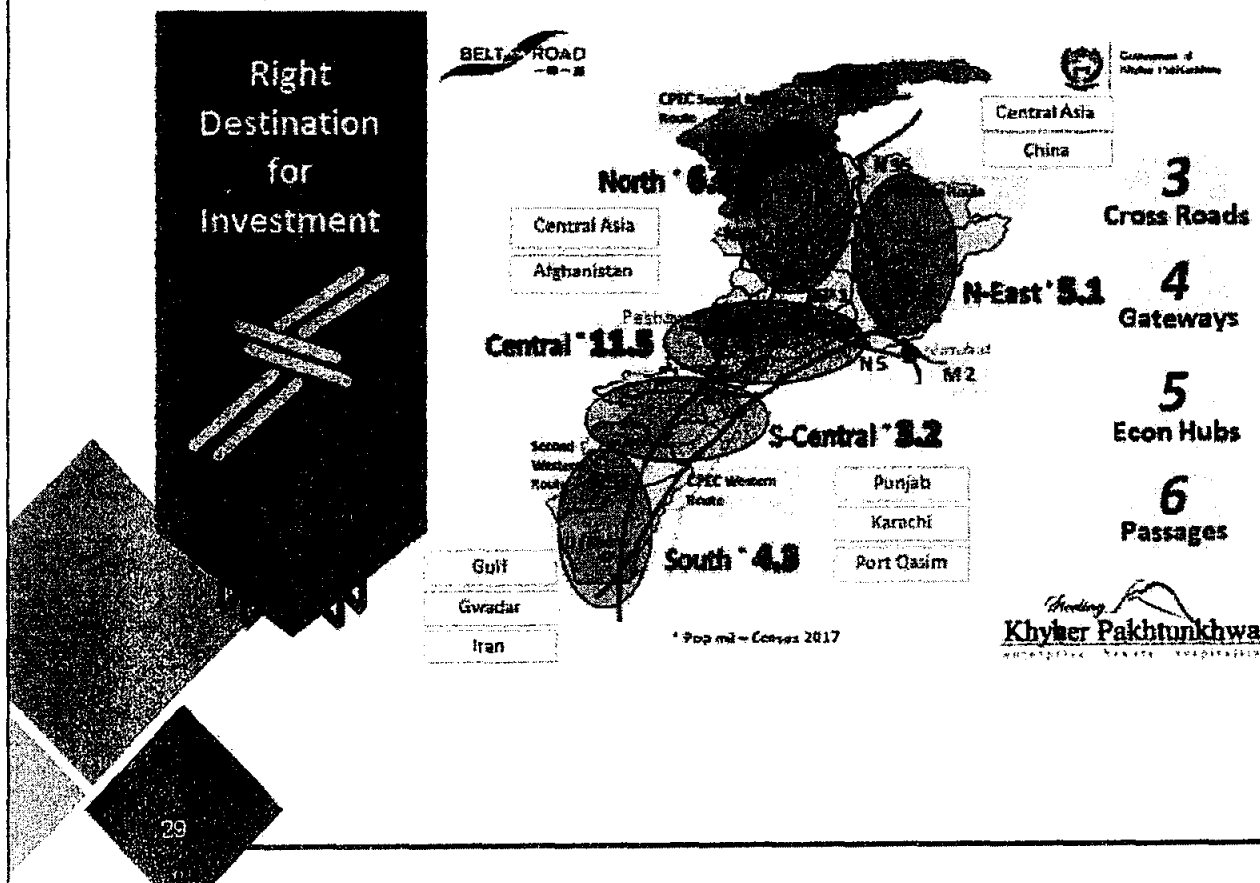
Generally, SEZs are meant for technological and industrial development. In addition to economic benefits in terms of investment and trade, SEZs also improve the socioeconomic life of households owing to enhanced employment, improved education and health facilities. Generally speaking, SEZs are considered as catalyst for increasing the socioeconomic prosperity of households in the surroundings. Rashakai Special Economic Zone-RSEZ is one of the SEZ and it is a project of KPEDMC spread over 1,000 acres.

Followings factors are deemed important as the key success factors of any SEZs. The same factors have also been endorsed by the Study titled 'Nine Proposed Priority SEZs under CPEC & SEZ Act; An Approach to Industrial Development'.

- Location of SEZs
- Natural resources which will be used as raw material or input resources
- Availability of infrastructure
- Availability of Human Resource (available skills, literacy rate, employment rate, human capital index)
- Availability of utilities

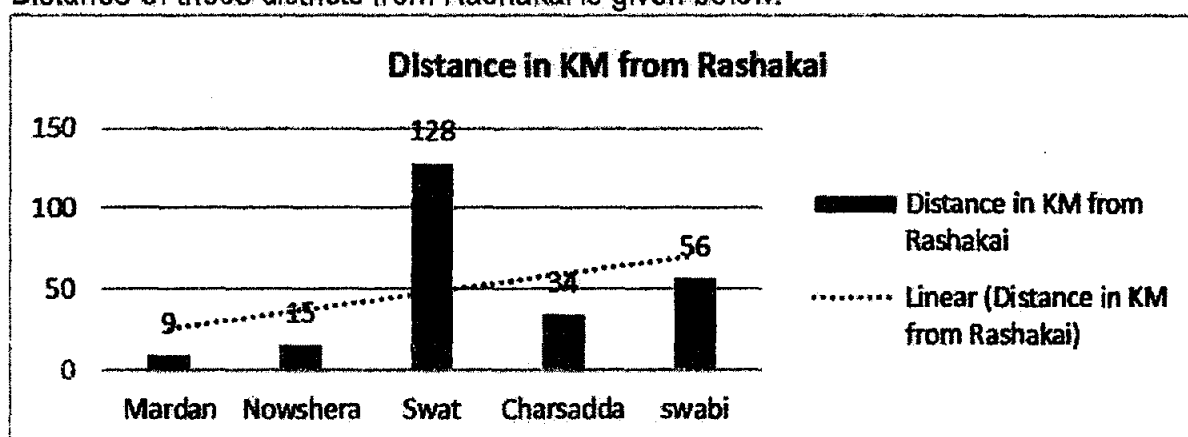
RSEZs are predominantly feasible investment projects owing to the strengths mentioned above. These factors are deliberated further in ensuing paragraphs.

4.2 Location of SEZ



Geographically, this area is located in the central part of KP, and it is in the heart of Population Centers of the province. It is surrounded by five districts i.e. Mardan, Swabi, Charsadda, Swat and Nowshera. According to the 2017 census, the accumulated population of these districts is 9,441,985 (23% of KP total population). It is adjacent to the Northern-Central Punjab. This Special Economic Zone is in Close proximity to the CPEC Routes like – E-35, N-5, M1, CPEC Western Route and Swat Expressway. Additionally, the proposed site is nearby three crossroads, four gateways including Central Asia, Afghanistan, Iran and China. There are five Economic Hubs plus six passages in the neighborhood of the Rashakai Special Economic Zone.

Distance of these districts from Rashakai is given below.



4.3 Availability of Mineral Reserves

District Nowshera, where RSEZ is located, is rich with many types of minerals. Lime stone, marble and granite, shale clay, dolomite, laterite, slate stone in particular, are produced in enough quantity not only to meet the domestic demands but also regional demands. As per KP Bureau of Statistics report on mineral deposits (Year 2012-13), production of lime stone is 2,596,531 tons, marble 6,661 tons, laterite 17,576 tons, fire clay 5,098 tons, dolomite 14,155 tons, coal 9,344 tons, shale clay 516,263 tons, slate stone 55,549 tons and soap stone 1,830 tons. Cherat coalfield which is located in Nowshera district has coal reserves of 7.4 Million tons. KPOGCL has identified hydrocarbon deposit in Nowshera block which consists of Mardan, Charsadda, Swabi and Buner districts presenting joint venture opportunity for national and international firms for exploration and production.

4.4 Agriculture and Livestock

These clusters of five districts are very rich resource in agriculture significantly contributing to provincial and national economy. Key statistics of crops (other than wheat) is given in following table.

Major crops	Production in ton	% in KP Economy	% in national Economy
Tobacco	60,384	84%	60%
Maize	354,447	41%	6.2%
Potatoes	26,006	22.3%	0.65%
Onion	113,680	56.4%	6.5%
Peach	25,550	74.1%	54.6%

In addition to that, vegetables are regularly exported to Middle East from this region. Therefore, this area is very lucrative for agro based industry and RSEZ play an important role for the economic development of this area.

Livestock is another important sector and have huge potential for value addition for local and international market.

Types	Number of Animals	% in KP Economy	% in National Economy
Cow	1,134,879	25.6%	3.83%
Buffaloes	544,097	30.7%	2.02%
Goat	971,915	15.7%	1.8%
Sheep	264,249	15.6%	0.99%

4.5 Availability of Infrastructure

RSEZ is connected to all associated districts of Pakistan through:

- Peshawar International Airport that is 58 KM away from RSEZ and Islamabad International airport that is 90 Km away from RSEZ
- Dry port is 65 Km away from RSEZ
- Railway Station is 25 Km away from RSEZ
- RSEZ is located along Islamabad-Peshawar Motor way (M-1)

Besides, all allied districts have very good network of well-constructed roads. Previously accessible infrastructure network and natural regional clustering offers additional competitive advantages to RSEZ. RSEZs are also considered as main enablers in developing backward and forward linkages to associated industries.

4.6 Comparative Advantage with Other Economic Zones in KP

A detailed analysis of RSEZ with other economic zones in KP is specified below. Based on the study analysis, following are the key comparative advantages:

- It will generate more than 160,000 employment while all other zones produce 69,732[†] employment
- All significant economic sector has potential in KP will be located in the RSEZ
- RSEZ will fetch investment amounting to USD 1.6 billion

4.7 Trade with China

China is a big market and CPEC provide an opportunity for Pakistan to increase the exports. According to the SMEDA publication (SME Observer, Jan-June 2017), in order to reap benefits of the opportunity at hand, review of the current export basket of Pakistan can serve as a starting point for exploring options. Pakistan, a developing country, has an interest in exploring new export based products, whereas China may want to concentrate on discovering new markets for their existing export products. This publication also made critical analyses with reference to a) identification of High Value Export-HVE; Medium Value Export-MVE; and Low Value Export-LVE and b) Price comparison of Pakistani exports and Chinese import. Following table highlights the trade potential with China.

Table: Few Products Identified under HVE, MVE, LVE

Major High Potential Export Products Under HIGH Value Export-HVE	Major High Potential Export Products Under Mid Value Export-MVE	Major High Potential Export Products Under Low Value Export-LVE
• Meat • Fish • Mangoes • Chromium Ores and Concentrates • Medical Instruments • Marble • Foot ware • Rice • Milk and Cream • Granulated Sugar • Denim • Ethyl Alcohol • Foot Balls	• Maize • Milk and Cream Solids • Bananas • Leather Handbags • Plastic/Textile material Handbags • Polyethylene Terephthalate • Sweet Biscuits • Modified Polystyrene • Safety Razor Blades • Frozen orange Juice • Natural Honey • Frozen Fish • Frozen Edible Bovine Offal • Butter Milk Butcher knives and Hunting Knives	• Bran • Articles of Leather • Paints and Varnishes • Articles of Stone • Folding Cartons and Boxes • Coats and Jackets • Hydrochloric Acid • Tools for Masons/watchmakers/Miners • Crates and Similar Articles of Plastic • Ball Point Pens • Vegetable Products • Fruit Seeds for Sowing • Articles of Wood • Clover Seeds for Sowing • Shelled Almonds • Hide and Skins of Goats • Graps

Table: Price Comparison of Exports and Import

HS Code	Product	Unit	Pakistan Export Price per Unit. (\$)	Pakistan Total Export Value of Products	Pakistan Major Export Countries	China Import Price Per Unit (\$)	China Major Import Countries	China's Total Import Value of the Product (\$)
03033900	Fish frozen, excluding fish fillets	Kilogram (Kg)	2.23	124 Million	Vietnam, Thailand, China	1.39	USA, Russia, Canada	177 Million
04012000	Milk and cream of a fat content by weight >1% but ≤6%	Kilogram (Kg)	1.18	34 Million	Afghanistan, UAE, Mozambique	0.85	Germany, New Zealand, Australia	308 Million
22071000	Under natures ethyl alcohol of an alcoholic strength by volume of 80% Volume or higher	liter	0.56	231 Million	China, Korea, Netherlands	0.57	Pakistan, Vietnam	122 Million
08045020	Mangoes	Tons	726	40 Million	UAE, UK, Oman	2980	Australia, Peru, Thailand	30 Million
19053100	Sweet Biscuits	Kilogram (Kg)	2	17 Million	Afghanistan, UAE, Mauritius	4.6	Indonesia, Denmark, Malaysia	305 Million
17019910	White Crystalline Cane sugar (Granulated Sugar)	Kilogram (Kg)	0.44	230 Million	Afghanistan, Djibouti, Saudi Arabia	0.44	Korea, Thailand, Guatemala	301 Million
02023000	Frozen boneless bovine meat	Kilogram (Kg)	3.48	26 Million	Vietnam, UAE, Saudi Arabia	5.42	Australia, Uruguay, Brazil	1.99 Billion

4.8 Opportunities for SMEs

SMEs have a significant role in employment generation and contribution in national economy. According to the SMEDA publication, in Pakistan 90% businesses are classified as SMEs and they contribute 40% to the GDP. However, SMEs lack technological advancement and skills. Chinese imported products pose a great threat to SME and at the same time provide an opportunity for Pakistani businesses to capitalize on its human resource and geographical location. This provides opportunities for Joint Ventures between Pakistani SMEs and Chinese business entities. With such arrangements, Chinese technological expertise and skills can be transferred to Pakistan that will eventually enable SMEs (with limited productive resources or market information) to explore international avenues. RSEZ provide an opportunity to SMEs to benefit from the resources and marketing opportunities available in the Zone. According to the SMEDA, following are the pre-requisites for capitalizing on CPEC opportunities; it also relates to RSEZ.

- Local procurement for infrastructure development
- Promoting and attracting Joint Ventures in manufacturing sector
- Develop mechanism of support for local manufacturers for setting up industrial units based on Chinese technology
- Conducive policy framework for local and foreign investment – reducing the regulatory interface
- Ensuring Technology transfer
- Creating balance between trading and Manufacturing

4.9 Comparison of RSEZ with Other SEZs

Based on the progress regarding the development of these SEZs, the following SEZs have been shortlisted for comparison with RSEZ:

1. Sundar Industrial Estate, Punjab
2. Allama Iqbal Industrial City (M3), Faisalabad, Punjab
3. Quaid-e-Azam Apparel Park, Sheikhpura, Punjab

The following comparison tables are prepared for the purpose:

1. Utilities,
2. Amenities, Services and Facilities.
3. Commercial or Residential.

Table: Comparison of RSEZ with Other SEZs (Selected) – Pricing & Incentives

Comparison Factor	Rashakai SEZ	M3 Industrial City - Faisalabad	Sundar Industrial Estate	Quaid-e Azam Apparel Park - Sheikhupura
UTILITIES				
Electricity	YES (210 MW) To be provided by PESCO and NTDC at Zero Point (underground electricity distribution network inside the zone by developer)	YES Facility provided through 132 KV/ VAC Grid Station	Wapda	YES Dedicated Power Plant, Grid Station 132 KV
Gas Connection	YES (30 mmcf/d) to be provided by SNGPL at Zero Point (full transmission and distribution lines in the zone by developer)	YES Connections of utility services shall be obtained by allottee by paying usual fees/charges.	SNGPL	YES Gas Supply and underground electricity cabling
Water Charges	Monthly But Rate Not Decided YET	FIEDMC will provide water connections but the water charges will be the usual government charges for water supply and will be paid to the government of Punjab and NOT FIEDMC		NOT Determined
Telephone Lines with Broadband wireless internet connectivity	YES	YES	YES	YES
Drainage System / Storm Water Drainage System / Landscapes	YES	NO	YES	YES

Potable Water Supply System	YES	YES	Tube Well System	YES

Comparison Factor	Rashakai SEZ	M3 Industrial City - Faisalabad	Sundar Industrial Estate	Quaid-e Azam Apparel Park - Sheikhpura
Waste Water Management	(YES)	NO	YES	YES
Weigh Bridge	NO	YES	NO	NO
AMENITIES/SERVICES				
Combined Effluent Treatment Plant	YES	YES	YES	YES
Effluent Charges	NO	NO		NOT Determined
Laboratory/ Food Certification Center	NO	NO	NO	NO
Expo-Center / Trade & Exhibition Center	YES	YES (Expo-Center)	NO	NO
ICT & Industrial Park	YES	YES	NO	NO
Estate Management	YES	NO	YES	NO
Bank	YES	YES	YES	YES
Mosque	YES	YES	YES	YES
Post Office	YES	YES	YES	NO
Refueling Station / Petrol Pump / CNG	YES	YES	YES	NO
Fire Fighting Services	YES	NO	YES	NO
Hospitals / Medical Clinic / Dispensary	YES (Dispensary & Medical clinic)	YES (Hospital)	YES	NO
One Window Operation / Service	YES	YES	YES	NO
Technical Training Center	YES	NO	YES	NO
Truck Terminal	YES	NO		YES
Cargo & Cold Storage	YES	NO	YES	NO
Ware House	YES	YES	NO	NO
Fire Brigade	YES	YES	YES	NO
Centralized Security System	YES	YES	Security boundary wall with internal patrolling	YES

Comparison Factor	Rashakai SEZ	M3 Industrial City - Faisalabad	Sundar Industrial Estate	Quaid-e Azam Apparel Park - Sheikhupura
Disaster Management Help Desk			YES	
COMMERCIAL/RESIDENTIAL				
Hotels	YES	YES (5-Star Hotel)	YES	YES
Restaurants / Coffee Shops	YES	YES	YES	NO
Amenity Area / Food Courts	YES	NO	NO	YES
Commercial Center	YES	YES	YES	NO
Country Club	NO	YES	NO	NO
Community Centre	NO	NO	NO	YES
Residential Plots	YES	NO	NO	NO
Sports facilities	YES	NO	NO	NO
Labor Colony	YES	YES	NO	YES

4.10. Community Profiling

Nevertheless, the socioeconomic condition of the five villages of Rashakai is a dimension which necessitates an economic stimulus package for boosting the local economy. Following table indicates the socioeconomic profile of Rashakai area.

Content	Rashakai Profile
Number of Villages	1. Bara Banda 2. Raj Muhammad Kalli 3. Rashakai 4. Risalpur 5. Sowkai
Demographics	• Population: 523,300 individuals • Household Size: 9 to 10 individuals per house • Females: 272,116 (52%) • Males: 251184 (48%)
Household Income	• Major Source of Income: Cloth Trading and Domestic Agriculture Activities • Per Capita Income: 110,000
Education	• Primary Schools: 02 (one each for males and females) • Higher Secondary School: 02 (one each for male and females) • Literacy rate: 35%. • 52% of the male and female population is of school and college
Health	Only one rural health center
Overall Impression of the locality	• Limited electricity availability with frequent power breakdowns. • Usage of various energy alternatives are used e.g. generators and solar panels • No proper arrangement of sanitation except for 2 to 3 lavatories per house and unlined muddy drains.

Source: 'Imminent Prosperity at the Doorsteps of Households: Evidence from Socio-kinetics of Rashakai Economic Zone Using Dynamic Two Point Model' by Dr. Ejaz Gul and Prof. Dr. Imran Sharif Chaudhry, School of Economics Bahauddin Zakariya University, Multan, Pakistan

From the table, this is quite evident that socioeconomic condition in and around the RSEZ, is very ordinary. Nevertheless, the economic stimulus in the form of RSEZ with its component such as modern sewerage system, commercial areas, educational facilities, residential plots, trade exhibition center, and ICT and training centers will certainly improve the socioeconomic condition.

Chapter 5:**Description and Analysis of Data on Social Impact Assessment**

As elaborated earlier, the socio-political aspect of prospective impact of RSEZ is explored with the help of FGDs and KII conducted with the most relevant stakeholders in Rashakai. Semi-structured questions based on identified thematic areas were asked from respondents. This chapter narrates and analyses views and perception of those respondents on the basis of data generated from FDGs and KIIs.

5.1 Local Business Development

Views pertaining to the prospects of business development in Rashakai and adjoining areas were positive by and large. None of the respondents showed any substantial concerns about RSEZ's detrimental impact on existing business entities. In fact, almost all the respondents anticipated that RSEZ will serve as an economic and business hub that would connect Rashakai to the rest of the KP and other provinces of Pakistan. The current location is optimal for RSEZ due to close proximity with motorway. Local businessmen were of the opinion that textile, lights, locks, food, construction, and footwear industry will flourish because of RSEZ; local businesses will improve because of influx of capital investment in the area. With this, manufacturing units, employment generation, and skill development is also likely to improve. Representatives from business community seemed positive about industrialization's trickle down impact on local retailers. According to them, RSEZ will help improve local retail markets; currently local retailers bring most of the household commodities from Lahore and farmers procure fertilizers from Sindh. If such products are manufactured in local industries of SEZs, the local retailers and consumers would benefit from it.

5.2 Agricultural Farm Land Acquisition

The review of literature for this study unraveled certain apprehensions of local communities around the globe related to SEZ's potential effect on agriculture and agriculture-related businesses. Because of its significance, questions were included in

FGD and KII instruments in order to examine farmers and agriculture related business owners' fears, if any. Almost all respondents thought that agriculture sector of the region would not be affected primarily because the land allocated for RSEZ is largely barren and currently uninhabited. They opined that the possibility of any loss of land due to establishment of RSEZ is very minute; the land selected for RSEZ couldn't be used for agriculture anyway because it did not belong to any individual.

Likewise no negative impact on non- agriculture business was reported for the same reason. There was a serious concern shown by some farmers however, Selling land that Pashtuns have inherited from their forefathers is considered contrary to Pashtun code of conduct. They said that they won't consider selling their ancestral land in case the government wants to purchase it. A couple of respondents said that they will be willing to sell their land if they are offered a good price for it.

5.3 Local Social Institutions

'Do No Harm' principle is one of the foremost considerations in the process of any development initiative's planning and implementation. It refers to socially considerate nature of development policy whereby the implementing agency needs to be considerate about the existing social values of the relevant society. Instead of disintegrating the social fabric, the development initiative must be cognizant of associated complexities and should design the intervention such a manner that would contribute to the social uplift of local communities. When asked to share their views about probable impact of RSEZ on local customs and social values and rituals, respondents came up with a diverse range of response. Some thought that ceremonies and rituals such as weddings, Eid, engagements and funerals won't change as it has no connection with RSEZ. On the contrary, there will be a positive impact on youth's education; people (of this region) will learn (social values) from outsiders. They believed that men and women of the different parts of the country will come over to this region for jobs and they are likely to assimilate into local culture. Male respondents were not too optimistic about increase in the number of working women mainly because of the

embedded and static social norms. They however said that it is quite likely that women that belong to low income groups will find opportunities for work in industries set up under RSEZ project.

Views of opinion leaders such as political representative and religious leader were riddled with fears and doubts. A local imam believed that Non-Muslims will be not allowed (by them and local people) to work here because of their potential threats to our religious beliefs; observance of 'Parda' will also be affected negatively because of anticipated influx of Chinese and Punjabi women. Threats to religio-cultural ethos were anticipated in the long run; such challenges were not mentioned as immediate impact.

5.4 Social Infrastructure

The understanding and vision of community representatives with reference to social infrastructure was quite clear i.e. the existing social infrastructure is absolutely insufficient and barely up to the mark while the social infrastructure that RSEZ is expected to develop will benefit the local citizens a great deal. Roads, railways, public transport, and water supply facilities are existent but they need a lot of improvement. Provision of electricity has been and continues to be one of the major issues in social infrastructure. One respondent referred to the problem of increasing population as one of the reasons for shrinking and deteriorating level of public utilities and amenities. With RSEZ, they thought provision of electricity will be improved. Banks and financial services will improve including ATM machines. Natural gas and drinking water supply is also likely to enhance with the development of RSEZ.

At the moment there are a few basic health units and hospitals functional in the area however their services are not satisfactory mainly due to insufficient medical staff and associated facilities. Besides, there's no emergency hospital in Rashakai; the nearest one is in Mardan (MMC). With RSEZ, it is anticipated that mega scale multipurpose hospitals with advanced technology and machinery will be built. Similarly, at the moment there are only two schools (primary and secondary); one each for boys and girls. There is no degree college in the area; provision of education is certainly not satisfactory. Another major issue is irregular supply of drinking water that is unhygienic. The punch line of discussion with communities about social infrastructure tells us that

people are optimistic about RSEZ's by product in form improvement in existing social infrastructure that includes roads, rail network, water supply, electricity, gas, health and education facilities.

5.5 Employment Generation

Perceptions about employment generation due to RSEZ were also positive at large. Respondents thought that the economic zone would create opportunities for mechanical, electrical, computer engineering services. They believed that natives will get jobs in local industries. In addition, locally produced crops will be processed in these factories that are being set up in RSEZ. Factories would also accommodate unskilled labor as well as skilled labor such as motor mechanics, welders (blacksmiths), electricians, drivers, masons, farmers and mechanics. They will have the advantage of working in their home towns and they won't have to migrate to other parts of the country and abroad for their livelihood. In fact RSEZ would mostly benefit people belonging to low income groups because they will have opportunities to work even if they are unskilled or semi-skilled such as masons, security guards, cook, drivers and daily wagers.

5.6 Implications for Women: the Gender Perspective

A group of household women was consulted in one of the FGDs. Their aspirations are summarized in this section. They were eager to work in a paid job because they wanted to contribute to their family's income. When told about the prospective RSEZ plan, they showed an overwhelming amount of hope about their economic future and thanked the current government for initiating RSEZ. They said that benefits of RSEZ would not only be reaped by them, it will also bring blessings for their children. Stitching, cooking, and supervising tasks are some of the areas where respondents thought women can participate. They also linked establishment of RSEZ with improvement of their healthcare and general wellbeing because currently there is no general hospital, or any healthcare unit in Rashakai. Some of them however revealed their fear of increasing pollution levels that will be one of the spillover effects of RSEZ. They suggested that the government should come up with a mitigation strategy for it.

5.7 Skill Development and Technical Education

In an interview with the principal of technical college in Rashakai, it was learnt that three levels of technical and vocational training is currently being imparted. Vocational, Poly-technical and Technical education includes training in various courses for skills development in plumbing, electrical services, computers, civil engineering, electrical engineering, mechanical engineering, and food technology. Their graduates are self-employed or work in different workshops as machine operators, plumbers, electricians, and civil works surveyors. Conditioned upon the availability of equipment, trained faculty and financial resources, the head of technical college explained that they can impart specialized demand driven technical training at their college. He said that given the opportunity, they are also capable of designing tailor made course for multiple technologies and skills required for RSEZ.

5.8 Political Development and Peace-building Process in KP

One of the key political developments that is anticipated with the prospective establishment of RSEZ is that the resentment of citizens of this province triggered by alienation and deprivation will be pacified and addressed to a greater extent. A local political representative was interviewed in this regard. He believed that RSEZ will hopefully be instrumental in peace-building process here in KP; it was also critical, according to him, in terms of image building for the region, province and country. Another related significant aspect was also identified by him. Relation with other provinces (particularly Punjab) will begin to improve because of SEZ's connectively via CPEC route. Besides, he envisaged that job opportunities and promotion of tourism will naturally improve with RSEZ. Such positive trend will contribute significantly to reduction of natives' migration to other parts of the country and reversal of brain drain from abroad. All the factors are inter-dependent which means that collectively they have an immense potential to provide impetus to peace building process in the region.

5.9 Conclusions

Socio-economic assessment based on perceptions of representatives of local community in Rashakai about the prospective RSEZ depicts a favorable picture by and large.

RSEZ impact on local business development is anticipated to be positive primarily because it is going to serve as an economic and business hub that would connect

Rashakai and KP and other provinces of Pakistan as well as countries engaged in CPEC route. RSEZ's establishment and subsequent development is quite likely to boost the private sector because of the influx of capital investment. Industrialization's trickle down impact on local retailers and small business is also going to be one of the positive externalities of RSEZ. The piece of land allocated for RSEZ is mostly barren, uncultivated and uninhabited and that is why RSEZ's potential impact (negative) on agriculture and agriculture related businesses is almost non-existent. The research team was told that no individual owns most of the territory that is earmarked for RSEZ, that is why, it was quite unlikely that this land would have been used for cultivation.

RSEZ's probable impact on transforming social institutions doesn't loom large either. Social norms and institutions in the region are embedded and as such major components of the area's culture such as social values, ceremonies, language, food, and apparel are not likely to change significantly. Social transformation of minor magnitude is expected though. Natives consulted in this regard even expressed that due to RSEZ's spurred influx of people from other parts of Pakistan and China would contribute to youth's education and that people of this region would learn social values from outsiders. Religion – an integral component of local culture however is viewed relatively differently. Clergy and opinion leaders have explicit concerns about Chinese citizens' settlement in the area for employment. Rituals and practices associated with religion such as observance of 'purdah' is infused in local culture for centuries. It is worth noting down here that such apprehensions are anticipated in the long run and local communities did not reckon them threatening in the near future.

It goes without saying that existing social infrastructure i.e. roads, rail network, other means of public transport, gas, electricity, water supply and associated amenities do not meet requirements of burgeoning population of the area. Plan for RSEZ, history of similar development interventions and perceptions of local population suggest that development of RSEZ will contribute to development of social infrastructure in the outskirts of Rashakai and in some cases (roads and railway tracks) in the whole region as well.

RSEZ's potential to generate employment opportunities of all sorts is an idea that is uncontested. The type of job opportunities that RSEZ is likely to generate ranges from unskilled to advanced level skills. In addition to all other intended and unintended benefits of RSEZ, employment generation is the most significant one. To be precise, it has a great potential to accommodate thousands of people in jobs that require no skills at all or skills that can be developed with little efforts. Women and men from low income groups would be the prime beneficiaries of industrialization process in RSEZ. Needless to say, because of the development of industries in the region, employment opportunities in associated industry and businesses would also increase. It's a win-win situation for all stakeholders. The availability of decent earnings for the workers in the area can also ease the urban migration to the big cities of Pakistan.

The gender perspective is too important and critical to be overlooked. Demographic studies show that a significant half of local population consists of women. They work extremely hard in their households however their efforts are not monetized and therefore they are somehow unable to contribute to their family's disposable income. RSEZ's industries would not only create job opportunities for women, it will also empower women economically – social change much needed in the region. Broader impact of women's engagement in RSEZ include enhancement of personal disposal income, better access to health facilities and better income for children education.

Vocational and technical training facility – technical college - in Rashakai is doing a satisfactory job at the moment however with RSEZ's establishment in the area, technical colleges would need up scaling, expansion, and up-gradation. There's a positive correlation between industrialization, skills development and technical education. Like women, youth of the region would be one of the prime beneficiaries of RSEZ because they will have a multitude of career pathways to choose and benefit

Finally, one of the key political developments that is anticipated with the prospective establishment of RSEZ is that the resentment of citizens of this province triggered by alienation and deprivation will be pacified to a greater extent. RSEZ will hopefully be instrumental in peace-building process here in KP; RSEZ is a critical factor in terms of image building for the region, province and country. Establishing RSEZ and its connectively via CPEC route is expected to promote tourism in the mainstream and northern areas of KP.

5.10 Recommendations

In the light of abovementioned concluding thoughts the following recommendations are made for optimum capitalization of RSEZ.

a) The supply and quality of human resource in Pakistan is not commensurate with what is required in a SEZ. By and large, human resource in Pakistan is not trained and capable enough to operate China's technological machinery. This is one of the major challenges that the government of Pakistan and KPEZDMC needs to address in order to benefit from the employment opportunities presented by the RSEZ. Establishment of new technical and vocational training institutions and up gradation / up scaling of existing institutes is a critical pre-requisite in order to meet the requirements of technically trained human resource for industries being set up in RSEZ as well as associated businesses in the region.

b) Provision of utilities and spatial connectivity of Rashakai at the moment is a major challenge. For RSEZ to be successful, provision of cost-effectiveness uninterrupted supply of utilities such as gas, water, and electricity are critically important. RSEZ is quite likely to be connected with the rest of Pakistan via CPEC route however, the network for freight and passenger transportation in the whole region needs to be improved on priority basis.

c) RSEZ has the potential to transform positively the lives of women in the region. As mentioned, a significant half of local population comprises of women that are currently unable to contribute to national economy because of cultural constraints and lack of income generating opportunities. Government of KP via KPEZDMC can categorically focus on engagement of women in businesses that directly and indirectly generated by RSEZ. Tax reliefs for firms/industries that employ women, schools for children of employees working RSEZ, housing facilities in the vicinity, and healthcare insurance are some of facilities that would encourage native women to engage in income generating activities. In addition, the Government of KP could also consider allocation of reserved seats and incentives such as fully funded scholarship for women in technical and vocation institutes.

Chapter 6 Macroeconomic Analysis of RSEZ

This chapter delineates the key economic statistics related to the provincial economy. This chapter commences with the overview of the Khyber Pakhtunkhwa's Economy, followed by the demand forecast of Rashakai Special Economic Zone (RSEZ). The fine points regarding the economic impact estimates and the proxies used in this study are presented in a tabular form in the subsequent section. The overview of the economic impacts is discussed in the ensuing segment. But the detailed assessment is annexed at the end of the report.

6.1 Economic Overview of KP

Khyber Pakhtunkhwa's economy is the 3rd largest economy of Pakistan in terms of its share in Pakistan's Gross Domestic Product (GDP), which is 10.5%¹. Moreover, in terms of Population share, province is also ranked third nationally². Khyber Pakhtunkhwa has been bestowed with enormous amount of minerals and other types of natural resources. KP Marble reserves according to conservative estimates are around 4 billion tons, found in 30 different varieties. Hence, there is abundant potential of exporting furnished marble and related products to Afghanistan, India, and China. The province is hub of industrial mineral and dimensional stones, for example dolomite, marble, granite and limestone³. Additionally, KP has a comparative advantage in term of Fruits and vegetable production over Punjab, though the area under Horticulture is 6% as compared to 9% in Punjab (IGC, 2014). Similarly, other agricultural advantages include the tobacco farming and processing in the area.

Given the Terrain, history, culture, natural and scenic beauty, KP has a competitive advantage over other area in term of Tourism. According to some rough estimates, last year 8.8 million domestic tourists flocked into the province which is almost 19% of the total domestic tourism. The manufacturing sector of the province comprises of cigarettes, cement, ceramics, cotton textiles, woolen textiles (e.g. blankets and fabrics),

Economic Performance of Khyber Pakhtunkhwa 2016-17.

56 percent of population excluding the newly merged districts.

electric bulbs, fertilizers, pharmaceuticals, jute textiles, matches, paper and paper board, beverages, sugar, and starch. The food processing subsectors, including vegetable ghee and cooking oil, have a considerable presence in KP, contributing more than 30% of the nationwide ghee production. Furthermore, in 2007/08, KP produced almost 100% of the tobacco and maize, 30% of the cigarettes and vegetable ghee, and 27% of the country wide cement production.¹ Other Key economic highlights of the economy are presented in the following table.

Table: Key highlights of KP's Economy (excluding newly merged districts of FATA²)

Population	30.50 million	GDP In USD	49,654 billion Dollars
Labor force	6.09 million	GDP growth	5 percent
Unemployment	7.2 percent	GDP per capita	1628 Dollars
Population below poverty line	49.2 percent	Contribution to national export	
Major Economic Sector	• Leather • Dairy and meat • Pharmaceuticals • Marble and Granite • Engineering • Plastic • Food processing	Major Industries	• Tobacco • Marble and Granite • Pharmaceuticals
Number of industrial units	1,888	Major Agriculture produce	• Maize • Tobacco • Peach • Apple • Persimmon • Potatoes • Vegetables

¹ Reclaiming the Prosperity in Khyber Pakhtunkhwa : A Medium Term Strategy for Inclusive Growth (2014)

² Socioeconomic Indicators of KP 2018

The vibrant statistics of the province are presented here as highlights; successively, we have used these important information for the macroeconomic analysis of Rashakai Special Economic Zone (RSEZ). The succeeding sections of the chapters also include limitations of the study and study conclusion in addition to the demand forecast, key substances of the study, and an overview of the macroeconomic impact.

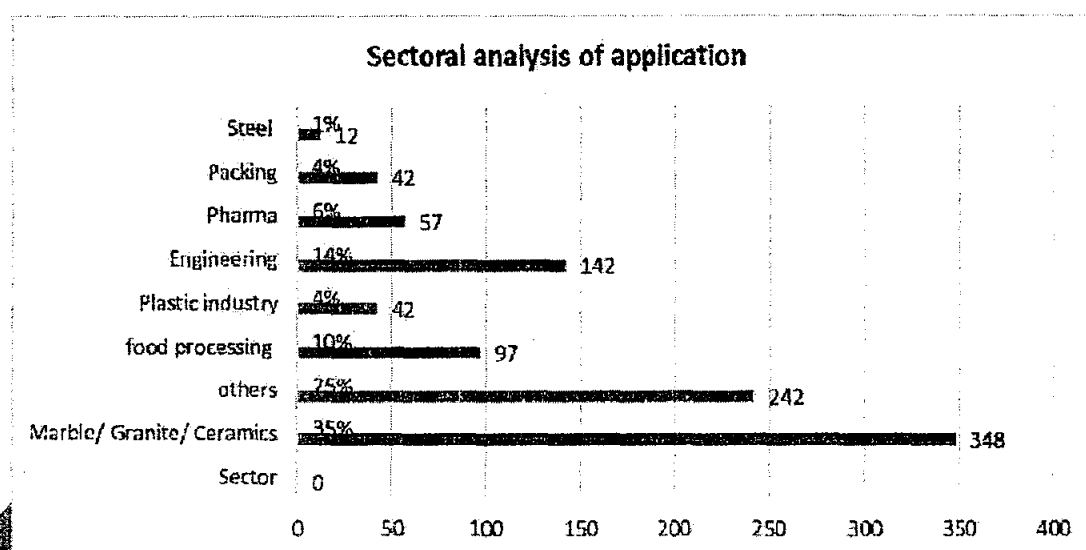
6.2. Demand Forecast

Demand forecast is based on the following information:

- Applicant database
- Secondary data related to major economic sector
- Secondary economic data related to connected districts of RSEZ
- Key Informant's Interviews (Kilis)

Based on informal advertisement on its website, KPEDZMC had received application for "plot booking" of RSEZ. In response to this informal advertisement, 769 applications were received, though no formal invitation has been advertised till date. These applications are further analyzed for our study. The key highlights of the data are presented in the subsequent Table.

Table: Applicants' Data



Marble and related sectors have realized highest numbers, followed by Engineering, food processing, Pharma, Plastic, Pharma, and Packaging. 'Others' is the runner up; these include all other industrial applicants. Therefore, the most probable industrial mix is apparent in the applicants' data.

Nevertheless, industrial mix identified through the applicants' information has been compared with the historical industrial mix of the Province. Additionally, in order to better inform our self and assess the future beneficial ventures, we have conducted Key Informants Interview of the leading industrialists, and field experts. As a result, we are able to present the three scenarios of possible industrial mix in the future 'Rashakai Special Economic Zone' (RSEZ). These three scenarios are presented in the following tables. Scenario 1 and 2 are strongly correlated. In other words, applicants' preferential industrial mix is in accordance with the traditional industrial mix of the province. Scenario 3 is based on the aspirations of the local experts and emerging trends plus growing requirement of the local population. We, as experts also endorses scenario 3, and we anticipate that the most likely industrial mix will be Scenario 3.

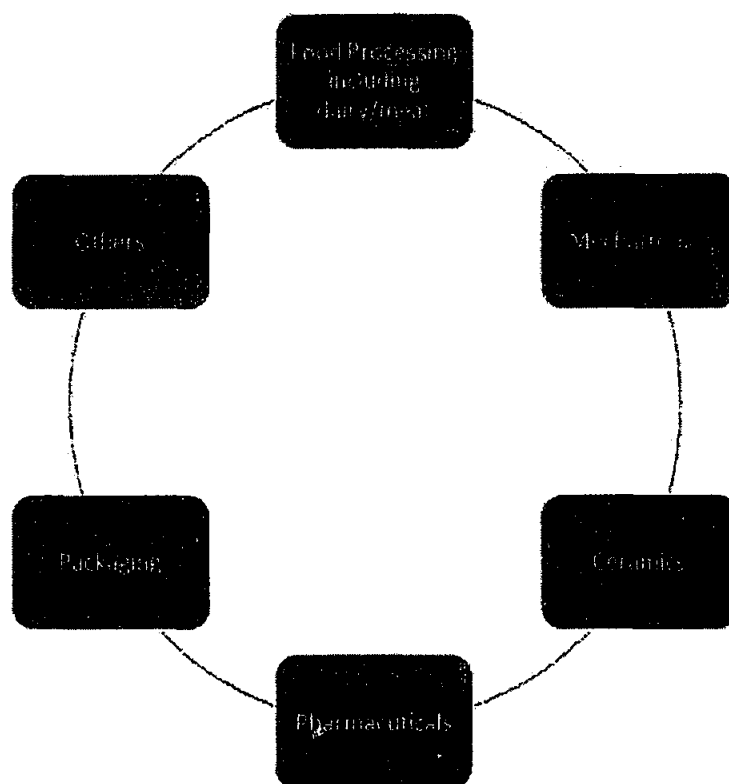


Table: Three Scenarios of Industrial Mix

Scenario 1: Industrial Mix based on Applicant's Data	Scenario 2: Historically Industrial Mix in KP	Scenario 3: Industrial Mix based on Expert's Vision
Engineering	Engineering	Automobile and Engineering
Food processing	Food and beverages	Food and Beverages including dairy / meat
Marble/ Granite/ Ceramics	Marble and chips	Mechatronics/Medical equipment
Others	Others	Marble, Granite and Ceramics
Packaging	Packaging	Pharmaceuticals
Pharmaceuticals	Pharmaceuticals	Plastic
Plastic	Plastic and Rubber	Others
Steel		

Given the three scenarios, we forecast that the number of units in RSEZ will be 440 with a $\pm 3\%$ variation. So the total units can be in the range of 428 to 452, where 428 is an optimistic estimate, with more big industrial units (Scenario 3). But 440 units are realistic number because this is based on the applicant's data (Scenario 1). Moreover, 452 units are more of a conventional number based on the historical mix of manufacturing units in KP. The variation in the number of units is due to the three scenarios. Nevertheless, the average size of the plot is calculated as 1.8 acres with a minimum value of 1 acre and a maximum of 50 acres, depending upon the nature of industry. It is pertinent to mention here that the industrial mix predicted by this study in three different scenarios is consistent with the priority sectors documented by Khyber Pakhtunkhwa's Industrial Policy 2016. The following table illustrates the details of the applications regarding the demand for plot and sizes by different prospective buyers. The cluster wise demand can also be observed.

Table: Cross-tabulation of Applicant Data

Sex	Total								
	Engin eering	Food Processi ng	Marble/ Granite / Cerami cs	Other s	Packag ing	Phar ma	Plasti c Indus try	Steel Industry	Total
Male	30	59	363	68	32	35	48	3	638
Female	7	12	28	20	6	5	6	1	85
Male	1	0	1	0	0	0	0	1	3
Female	2	5	1	4	0	2	0	1	15
Male	3	0	1	3	1	0	0	0	8
Female	0	1	0	0	0	0	0	0	1
Male	0	1	0	0	0	0	0	0	1
Female	1	0	0	0	1	0	0	0	2
Male	6	0	3	1	0	0	0	0	10
Female	0	0	1	0	0	1	0	0	2
Male	0	0	0	1	0	0	0	0	1
Female	1	0	0	1	0	0	0	0	2
Male	0		0	1	0	0	0	0	1

6.3 Economic Impact

An economic impact analysis observes the outcome of an event on the economy in a specified area. This can fluctuate between impacts on a single neighborhood to the entire world. This usually deals with changes in business or regional revenue, profits, personal wages, jobs, and other economic impacts etc. The economic impact assessment can include implementation of a new policy, project, or an economic intervention in an area. An economic impact analysis is commonly conducted when there is public concern about the potential impacts of a proposed project or policy intervention.

Economic impact analyses frequently estimate multiple types of impacts. An output impact is the total increase in business sales revenue. An alternative and more conservative measure of economic activity is the value added impact, which estimates the increase in the study region's gross regional product. The gross regional product (GRP) is very similar to the nation's gross domestic product (GDP), and represents the

total size of the local economy. This impact estimates the increase in local employee wages plus local business profits, job, investment and taxes to the government¹.

During the inception meeting with the KPEZDMC, following economic indicators were confirmed for the present economic impact analyses of RSEZ.

- Potential Investment in RSEZ
- Employment Potential of RSEZ
- Income generation potential and contribution to the Provincial GDP
- Foreign Investment potential
- Tax revenue (indirect taxes)

In order to determine the economic impact, various proxies have been used to calculate the various indicators. Income generated by the RSEZ: Generally accepted rule of evaluating a project from economic or financial rule is to estimate the income that can be generated by the proposed idea. A noteworthy point here is that since this study is not the project cost benefit analysis; therefore, we have looked at the aggregate income that can be generated by the functionalization of RSEZ.

We identified three techniques to estimate the Economic benefits of RSEZ. Firstly, the projected sales' data of the applicants to compute the accumulated benefits of RSEZ but given the nature of data and other discrepancies, the reliability of the data was questionable. Secondly, surveying similar firms; either in other SEZs or industrial estates in the country. However, this is very time consuming, and given the timeline; merely two weeks, this was not possible. Finally, a forecast of the benefit of RSEZ based on national and provincial statistics was also a possibility.

We as a team brainstormed and we decided that there are several advantages of using national data as proxy. These include; a) this is widely acclaimed by all the users throughout the world as a source of information, hence highly reliable. b) This shows the overall industrial trend in the province, and the forecasted values are based on the pace and nature of industrialization in the province, and hence a slight change in the composition of industrial mix by the planners will not affect the forecasted values to a greater extent. List of the remaining indicators, proxies used and rationale of using proxies is given below

Table: Indicators, Proxies and Rationale

Indicators	Proxies used	Rational used for proxies
Income generated by RSEZ	• Average Value of industrial output • Potential industrial Units in RSEZ	The proxy for income effect is the manufacturing sector contribution towards GDP by the total number of running units in the province. The ratio obtained is then multiplied with the expected number of units in RSEZ. Hence a projection for 25 years is straightforward. We have used 2016-17 price level for projections. The forecasted benefits don't include any growth momentum and therefore no discounting of the potential incomes has been carried out. This doesn't exhaust the possibility of incorporating those changes however, we have tried to keep the forecasted values straight, in real terms, and free from some major flaws.
Employment	• Average Number of Labors per industrial unit • Potential industrial Units in RSEZ	The employment figures have been computed from the total labor force employed in the manufacturing sector of KP. Thus the ratio of total labor force employed in the manufacturing sector plus total running units in KP were used to forecast the employment figures for RSEZ. An important is that the employment figures depend upon complete operationalization of RSEZ, additionally; these figures are based on the 2016 -17 data, which we extracted from Economic Review of KP 2016 - 17.
Potential Investment	• Capital cost • Working Capital • Land Prices	The potential investment of this major economic intervention has been carried out by making use of CMI 05-06 data. We acquired the values of assets and cost of production from the data set. These values were inflated to forecast the values for the year 2018. The 40 years average of inflation in Pakistan has been around 8 percent. These values have been used as proxy for the potential investment in RSEZ. In doing so, we have used literature to justify our method. Additionally, the explanatory notes mentioned that land prices were not added. The land prices of RSEZ were added additionally, after confirming it with KPEZDMC. Note: The investment value is at current price and it is assumed that this will be realized soon after the commencement of RSEZ.
Foreign component	• % of potential investment of RSEZ	For estimating the foreign component of potential investment, we have relied on Key informant interviews in addition to the desk review. Therefore, one can say that the basis of this projection is expert's opinion, which is also widely used technique for forecasting.
Indirect taxes	• Potential sales of RSEZ	Indirect taxes include GST; this is 17 percent of the forecasted income.

6.4 An Overview of Economic Impact

Table: Overview of Economic Impact

Indicators	Economic Impact
Income Impact of RSEZ (1 years impact, \$)	USD 1.157 Billion
Aggregate Income Impact (25 years impact, \$)	USD 28.929 Billion
Potential Investment	USD 1.63 Billion
Foreign Investment	USD 493.823 Million
Indirect Taxes	USD 4.9 Billion
Employment	160,000
Contribution to the Provincial GDP	2.30%

The Economic Impact of RSEZ is exhibited in the above table. The method of calculations is explained in the preceding paragraphs. These values are based on Scenario 1, which is applicants' database. However, values for other scenarios can be generated with $\pm 3\%$ variations. Besides, all the computed values are proportional endings of the Provincial and National Economic Statistics. These values are based on the Market Price Method. However, for the forecasting of the aggregate income of RSEZ, the price level used by the Federal Bureau of Statistics (FBS) for the year (2016 - 17) has been used. Therefore, 2016 -17 is our base year for the forecast. All the calculated values are assumed to transpire soon after the operationalization of RSEZ with 100 percent occupancy and operations. The foreign component of total investment has been based on Key informant interviews and experts' opinion.

These results are grounded on the realistic scenario, which in turn are based on the average demand of plots. The results are very promising, and the aggregate income impact is almost \$ 29.1Billion. The contribution of the first year income of RSEZ has been calculated as 2.33 percent of Provincial GDP. RSEZ, once completed and operational shall provide employment opportunity to 160, 000 labors. At present values, this SEZ has the potential of attracting investment worth 1.63 billion dollars. This has been calculated using value of the fixed assets, land prices, and working capital requirements of RSEZ centered manufacturing units. This great industrial initiative under OREC,

will also contribute to the national exchequer in the form of direct and indirect taxes. However, we have only calculated the indirect taxes for twenty five years at the current price level. The detailed calculations are given in following tables.

i) Investment Calculations

Industrial Sector	Total Investment	Number of units as per socioeconomic indicators KP	Average Investment per unit	Number of Unit estimated in RSEZ	Expected value of Investment in RSEZ
• Marble/ceramic/granite • Food processing • Pharma • Plastic • Engineering, Electronics • Packaging • Steel • Others	4,287,918,029	1,888	3724674.559 ¹	440 ± 3%	1,638,856,806

ii) Income Generation by RSEZ

Industrial Sector	Total sale	Number of units as per socioeconomic indicators of KP	Average sale per unit	Number of Unit estimated in RSEZ	Expected sale in RSEZ ²
• Marble/ceramic/granite • Food processing • Pharma • Plastic • Engineering, Electronics • Packaging • Steel • Others	4,965,400,000	1,888	2,629,978	440 ± 3%	1,157,190,677 ²

i) Employment Generation by RSEZ

Industrial Sector	Total employment	Industrial Sector share in total employment	Average employment in sector	Number of Unit estimated in RSEZ	Expected sale in RSEZ
• Marble/ceramic/granite • Food processing • Pharma • Plastic • Engineering, Electronics • Packaging • Steel • Others	6,090,000	11.25%	363	440±3%	160,000 ¹

6.5 Limitations of the Study

Every study has several limitations. The main limitations of our study include;

- Non-availability of the updated figures of CMI
- Non-availability of the latest data,
- Limited/inadequate secondary information,
- Lack of industry wise master plan and planned industrial mix are the main limitation of the study.

6.6 Conclusion of the Study

We conclude that RSEZ, is a viable investment project and it contains economy wide effects. This is bound to revolutionize the economic landscape of the province. This will foster the economic growth and development in the province having multiplier effects. This will also serve as a basis for the fulfillment of the aspiration of the incumbent government of providing million jobs to the youth. The economic endeavor has the potential of attracting huge investment into the province, which is vital for the economic uplift of the area. Additionally, the share of province in the national exports can be substantially increased.

Non-availability of the latest data, limited/inadequate secondary information, lack of industry wise master plan and planned industrial mix are the main limitation of the study.

List of Secondary Sources

Descriptive statistics from the following sources were cited in this report.

Sr. #	Title of publication	Date of publication	Publishing organization or author(s)	Relevance
1	NWFP Directory of Industrial Establishments	2007	Sarhad Development Authority, Government of NWFP	All sectors within NWFP
2	Development statistics 2017-18	2017-18	Bureau of Statistics, Govt. of Khyber Pakhtunkhwa.	All districts information about, employment data, no. of colleges, vocational centers, crime rates, number of hospitals, land crops area production etc.
3	District Economic Profile	2016-17		Introduction, Population etc.
4	Dairy industry in Pakistan a scenario	2016-17	Research paper by Muhammad Asjad khuram, Preston University Lahore. (2016-17)	Dairy sector statistics.
5	pharmaceutical industry report 2017	2017	Pakistan pharmaceutical Manufacturer's Association	Pharmaceutical sector
6	Meat study report for public consultant	2016-17	By competition commission of Pakistan. email advocacy@cc.gov.pk	Meat sector
7	Year book 2016-17	2016-17	Ministry of National Food security and research Pakistan.	Meat, dairy sector
8	Crop statistics, Govt. of Khyber Pakhtunkhwa	2015-16	Govt. of Khyber Pakhtunkhwa	Crops data in 5 districts
9	Fruit Statistics, Govt. of Khyber Pakhtunkhwa	2013-14	Govt. of Khyber Pakhtunkhwa	Fruits production data.
10	Socio-Economic Indicators	2013-14	Bureau of Statistics, Govt. of Khyber Pakhtunkhwa	Literacy rate data
11	Livestock statistics of KP and Pakistan	2005, 2015	Govt. of Khyber Pakhtunkhwa	Livestock data

References

1. 'Opportunities and Challenges of Special Economic Zones under CPEC for Pakistan' by Professor Zafar Mahmood, NUST Islamabad
2. 'What is Special Economic Zone? By Avishek Topno, INDIATIMES NEWS NETWORK, July 08, 2005
3. 'Special Economic Zones Performance, policy and practice- with a focus on Sub-Saharan Africa' by Thomas Farole, International Trade Department, World Bank.
4. 'The Role of Special Economic Zones in Improving Effectiveness of GMS Economic Corridors' November 2016, 21st Ministerial Conference.
5. 'Cambodia's Special Economic Zones' by Peter Warr and Jayant Menon
6. 'SEZs in India: Concept, Objectives and strategies' by Dr. R. Shashi Kumar
7. 'Special Economic Zones and their Impact on Regional Economic Development' by Fernando Gómez Zaldívar and Edmundo Molina
8. Website of KP Board of Investment <http://boi.gov.pk/InvestmentGuide/SEZ.aspx>
9. 'Special Economic Zones under CPEC' by Hassnain Javed, February 19, 2018, available at <https://nation.com.pk/19-Feb-2018/special-economic-zones-under-cpec>
10. 'Imminent Prosperity at the Doorsteps of Households: Evidence from Socio-kinetics of Rashakai Economic Zone Using Dynamic Two Point Model' by Dr. Ejaz Gul and Prof. Dr. Imran Sharif Chaudhry, School of Economics, Bahauddin Zakariya University, Multan, Pakistan

Annexure A: List of Key Informants

	Category	Stakeholder Name	Location
1	KP/Provincial	KP Planning & Development Department	Peshawar
2	KP/Provincial	KP Economic Zones Development & Management Company	Peshawar
3	KP/Provincial	KP Board of Investment	Peshawar
4	KP/Provincial	KP Industries Department	Peshawar
7	KP/Provincial	Sarhad Chambers of Commerce & Industry	Peshawar
8	KP/Provincial	Mardan Chambers of Commerce & Industry	Peshawar
9	KP/Provincial	Excise & Taxation Department	Peshawar
10	KP/Provincial	All Pakistan Fruits & Vegetables Association	Peshawar
11	KP/Provincial	Department of Agriculture	Peshawar
12	Punjab Provincial	Punjab Economic Zones Development & Management Company	Lahore
13	Punjab Provincial	Punjab Board of Investment	Lahore
14	Punjab Provincial	Sundar Industrial Estate	Lahore
15	Punjab Provincial	Faisalabad Industrial Estate	Faisalabad
16	Federal	Federal Board of Investment	Islamabad
17	Federal	Overseas Commission	Islamabad
18	Federal	Ministry of Industries & Production	Islamabad
19	Federal	Ministry of Commerce	Islamabad
20	Federal	Planning Commission of Pakistan	Islamabad
21	Federal	CPEC Center of Excellence	Islamabad
22	Federal	Higher Education Commission (including CPEC Cell)	Islamabad
23	Federal	Trade & Development Authority Pakistan	Islamabad
24	Industrial/SEZ	Korangi Creek Industrial Park	Hattar
25	Industrial/SEZ	Hattar Economic Zone	Hattar
26	Industrial/SEZ	(CPEC) Chine Special Economic Zone Dhabeji	Dhabeji

Annexure B: Cost and Benefit Analysis of RSEZ**Key Informant Interviews**

Thank you for agreeing to talk to me. This is an unstructured questionnaire and it is one of the requirements of our research study on RSEZ. Our Institute, IM Sciences, Peshawar confirms that any information you divulge in this questionnaire will be held on an anonymous basis and treated in strictest confidence. The purpose of the research is to quantify the effect of Rashakai Special Economic Zones (RSEZ) on the Regional and National level economies.

1. In your opinion, what kind of companies will succeed in RSEZ?

2. Can you express your opinion about the foreign investment fetch by the RSEZ?

3. What do you say about the type of ownership in terms of partnership, public limited companies etc.?

4. In case of foreign and local business partnership what can be the most likely proportion of local ownerships?

5. How easy it is to establish a company in RSEZ? Also explain the bottlenecks

6. What is your opinion regarding the number of jobs which will be created by RSEZ?

7. Do we have enough qualified Pakistani labors and professional to work in RSEZ? Why?

8. What proportion of high paying jobs KP based or Pakistani workers can secure in RSEZ?

9. Do you expect the female workers to work in RSEZ?

10. Any guesses about the Percentage of female workers in RSEZ?

11. On average, how many daily hours of work labors are supposed to work in RSEZ?

12. What do you think the wages of workers in RSEZ will be at par with the national wage rates, lower or higher?

13. Do you expect the ease of entry and exit to and from the labor market in RSEZ? Why?

14. Do you support vocational training for your employees?

15. What are the fields of vocational training?

16. What are the expected impacts of RSEZ on the national economy?

17. From which of the following did you obtain tax incentives?

18. What are the incentives to be provided at the beginning of projects?

19. Can you please Reasons that may help to attract investment to RSEZ?

20. Do you think that the RSEZs scheme in Khyber Pakhtunkhwa have advantages over other Special Economic zones and SEZs in the Country ?

21. In your view, are there any disadvantages? (Please explain)

22. In your view, what are the key challenges for RSEZ? (Please explain)

Annexure C: Focus Group Discussion

Overview:

Moderator Name			
FGD Serial Code			
Date and Time			
Duration of FGD			
Venue			
Mode of Recording			
Formal Transcription			
Total Number of Participants			
Total Number of Youth (15-30)			
Do participants represent all different groups	Yes	No	Partially
Participation grid (put a tick using judgment)	All group participated	Half group contributed	Only 2-3 persons contributed

FGD Groups

1. Local shop/business owners/Proprietors
2. Local farmers/landlords/agriculture related business owners
3. Women (Household)

Theme	Sub-Themes	Discussion pointers / Questions
Awareness about RSEZ	Recognition and location	1. Are you aware of RSEZ? If No? interviewer should explain 2. Where is it located? 3. Do you think its appropriately located? If not Why? 4. Which location in your opinion is ideal for RSEZ? Why? 5. Any idea of the expected (type of) industry in RSEZ?
	Boost local Business	1. What is your opinion about RSEZ in terms of boosting (or otherwise) the local businesses? 2. What type of industry in your opinion will be established here? If yes? Why and No? Why? 3. Do you think it will boost the local industry? Yes? Ask Reasons, No? Ask Reasons 4. How will it affect local business?
Potential Benefits	Employment Opportunity	1. Will the economic zone accommodate local people? Yes? Find out reasons, No? Find out reason 2. What are the various jobs (skilled and unskilled) that people are currently involved in? 3. What are the various job opportunities that RSEZ will create? Skilled and unskilled
	Increase in Health Facilities	1. What kind of health facilities are available at the moment? a. Basic Health Care Units b. General Hospital c. Maternal and Child Health Hospitals/ Care Units 2. Do you expect any improvement in the current facilities after the construction of RSEZ? Yes? Get details as How? NO? Get details and record apprehensions

Theme	Sub-Themes	Discussion pointers / Questions
Potential Benefits	Increase in Education Facilities	1. What sort of school, college (intermediate and graduate) are available in the locality? 2. What sort of education is given in the technical college? 3. On average how many young men (and women) go to technical college?
	Improved Infrastructure	1. What sort of infrastructure facilities are available in the locality? a. Road? Railway? Shopping malls? Water supply? Public transport 2. What is the condition of these facilities? 3. Do you expect that these facilities will improve with RSEZ?
	Utility Provisions	Probable improvement
Apprehensions	Farm land acquisition	1. Possible drawbacks of RSEZ in terms of farm land acquisition for business purpose? 2. Loss of agriculture land 3. Loss of agriculture related income?
	Loss of local business	Probable impact on non-agricultural business

Female Perspective

Employment Opportunity	1. Is it ok for women to work in an industry? Yes? Reasons, No? reasons 2. Will the economic zone accommodate local women as employees? Yes? Find out reasons, No? Find out reason 3. What are the various jobs (skilled and unskilled) that women are currently involved in? 4. What are the various job opportunities that RSEZ will create for women? Skilled and unskilled
Increase in Health Facilities	1. What sort of health facilities are available? a. Health care units b. General Hospital c. Maternal and child health hospitals/ care units 2. Do you expect any improvement in the current facilities after the construction of RSEZ? Yes? Get details as How? NO? Get details and record apprehensions
Increase in Education Facilities	1. Available education facilities for women 2. Possible improvement

Annexure D: Key Informant Interviews

Interviewees

1. Technical College Principal
2. Local community/Religious leader
3. Local Political Leader

Representative	Questions
Local Community/Religious Leader	1. Knowledge about RSEZ? 2. Influx of outsiders' probable impact on local culture 3. Gender specific issues with ref. to RSEZ outsiders' influx 4. Probable benefits to locals' social uplift? 5. What do you think of women employment in the RSEZ? 6. How do you foresee outsiders' influx in the area? 7. Are there any fears related to outsiders? In terms of • Parda • Religion • Drugs • Effect on local social institutions

Representative	Questions
Technical College Principal	1. What are the different skills taught in the college? 2. Number of registered students? 3. Average no. of graduates? 4. Benefit of skills taught from employment perspective? 5. Skills requirement in RSEZ? (give examples of the industry profile of RSEZ) 6. Can the technical colleges adapt/provide the skill requirements of RSEZ? 7. Probable impact (positive and negative)?

Representative	Questions
Political leader	1. Perceptions about RSEZ/CPEC being launched in KP – previously marginalized and underdeveloped 2. How do you think, the proposed RSEZ will affect peace building process in the region, province, and country 3. How will the RSEZ be instrumental in improving the social infrastructure such as road network, electricity, gas and other public utilities in the region and adjoining areas? 4. Do you think RSEZ will connect KP with the rest of Pakistan and other countries? 5. How do you see RSEZ's impact on promotion (or otherwise) of tourism in the region? 6. In the long run, do you think RSEZ will reduce indigenous population's migration for employment to Middle East?

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This report has been prepared by
Institute of Management Sciences, Peshawar

Chapter VIII Business Mode

8.1 Development mode

In accordance with the Special Economic Zones Act of Pakistan, the government of Pakistan is responsible for the construction of such auxiliary facilities as the roads outside the project area, water and electric power supply facilities, heating facilities and communication facilities. Developer plans to set up a project company which will be responsible for secondary development of some land in the park, industry introduction and operation and development of the park.

The above mode and the details of the auxiliary facilities to be undertaken by the government will be discussed and finally determined through consultation.

8.2 Management mode

According to the development mode of the industrial park and the actual situation of the project, it is recommended that the management mode of "regarding the enterprises as the leader and the government as the coordinator" be adopted for the Rashakai pSEZ. The Operation & Management Company as the carrier will be responsible for market-oriented operation of the park. The government will assist in the operation and management of the industrial park.

The organizational structure of the Operation & Management Company is as shown below:

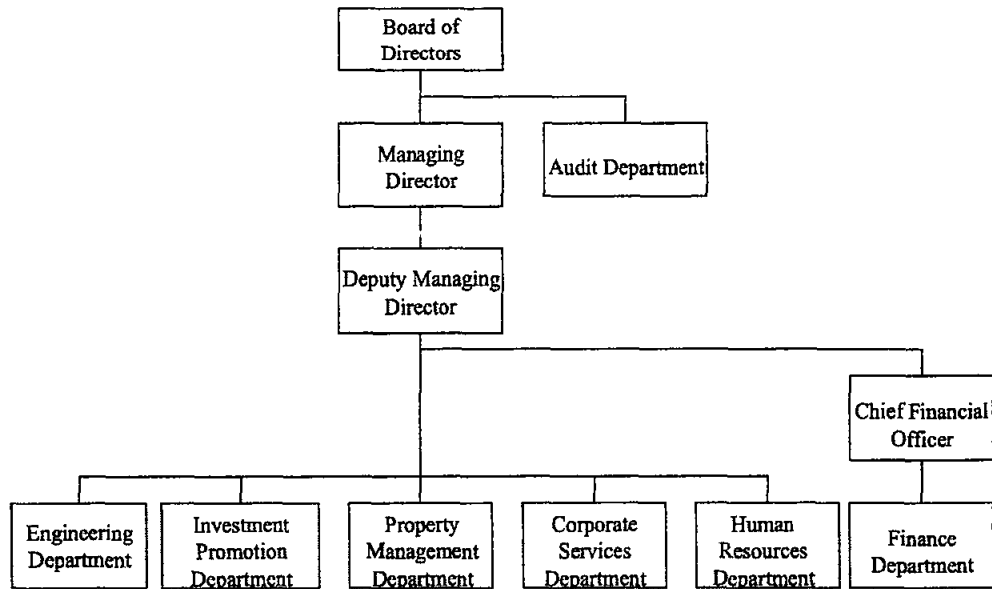


Fig. 8-1 Schematic Diagram of the Organizational Structure of the Operation & Management Company of Rashakai pSEZ

The main functions of each department are as follows:

- (1) Engineering Department: Mainly responsible for the construction of the infrastructure, the administration building and other auxiliary facilities in the park;
- (2) Investment Promotion Department: Mainly responsible for the investment promotion of the project;
- (3) Property Management Department: Mainly responsible for the property management and security in the park;
- (4) Enterprise service center: Provide the one-stop service for the enterprises: • Handle all relevant procedures for the enterprises in the park, including overseas registration, applications for approval of workshop planning and construction, customs clearance and declaring dutiable goods, physical distribution, visa and safety and commercial services.

- Establish logistics support facilities, including necessary accommodation facilities. The specific services will be subject to adjustment depending on development in the later period.
- Reserve the land for logistical and commercial facilities to provide the warehousing, business negotiation and product exhibition services for the enterprises in the park.
- Contact with the government on behalf of the enterprises in the park to gain support from the government.
- Assist the enterprises in the park to expand the market and establish the marketing network.

(5) Financial Department: Mainly responsible for the financial affairs of the entire industrial park;

(6) Department of Administration and Human Resources: Mainly responsible for daily operation and management of the company and related personnel recruitment and staff management.

8.3 Profit pattern

The revenue of the project mainly comes from the sold land and operation incomes of the park, mainly including:

- (1) Sold land and rents;
- (2) Rents of the auxiliary facilities in the park;
- (3) Property management and platform service charges.

Chapter IX Policy Requirement and Support

To create a favorable environment for investment to increase the attraction of the industrial park for foreign businesses and investment, preferential policies which are proposed to be applied to the government for Rashakai pSEZ Project based on the analysis of current preferential policies in Pakistan are summarized as follows:

Table 9-1 Necessary Policies for the Project

Category		Current Policy	Preferential Policy for Economic Zone	Policy to Apply to Government of Pakistan
Preferential tax policy	Corporate income tax	The rate of corporate income tax for financial, state-owned and private enterprises is 35% and that for small enterprises is 25%. The enterprises may choose to pay the tax based on the profit or contract amount.	The developers and enterprises in the special economic zone will be exempted from the income tax within 10 years.	The enterprises settled in the park will be exempted from the income tax within 10 years.
	Sales tax	The added-value tax was abolished, and the sales tax imposed by the federal government of Pakistan in the 1990s. The rate of sales tax has been 16%-21% since July 2008. The commodities imported and produced in Pakistan is required to be subject to the sales tax and some commodities are exempted from the sales tax, including the		Exemption from the sales tax or offer of the preferential policy

Category		Current Policy	Preferential Policy for Economic Zone	Policy to Apply to Government of Pakistan
		computer software, drugs, raw agricultural commodities, etc. The rate of tax for most commodities is 16%, known as the general sales tax (GST).		
	Customs duty	The rate of customs duty for some commodities is 5%-35%, and it has been decreased to zero during the fulfillment of the commitment to WTO and implementation of multilateral and bilateral free trade agreement and preferential trade arrangement in recent years. The free trade agreement (FTA) between China and Pakistan was implemented as of July 1, 2007 and the customs duties for all goods were cut by two phases. The first phase was the five years after the agreement came into effect, during which the two parties thereto cut the customs duties of 85% taxable items to different extents and even cut the customs duties of 36% of such items to zero. The preferential duty for the import of mechanical equipment required for foreign investment projects is as follows:	The developers and enterprises in the special economic zone will be exempted from the customs duty for the import of equipment and machinery.	Application of all regulation concerning exemption from the export duty to the Project

Category		Current Policy	Preferential Policy for Economic Zone	Policy to Apply to Government of Pakistan
		(1) Zero duty for the import of raw materials used for the production of export products; (2) 5% duty for the import of mechanical equipment (which cannot be manufactured in the locality) required for Category a and b projects (i.e., high value-added and export-oriented industry and high-technology industry); (3) 10% duty for the import of mechanical equipment (which cannot be manufactured in the locality) required for Category c and d projects (i.e., key industry and agriculture-based industry); (4) 10% duty for the import of mechanical equipment required for other fields (non-manufacturing industry); (5) Zero duty for the import of agricultural machinery as prescribed in the announcement made by the Central Tax Commission on June 18, 2001		
	Withholding tax	For the import of any goods, the Employer is required to prepay the income tax equivalent to 5% of the customs duty of the goods. For the import of any equipment or machine, the aforesaid income		Application for exemption from the withholding tax

Category		Current Policy	Preferential Policy for Economic Zone	Policy to Apply to Government of Pakistan
		tax may be deducted from the the final tax payable. If no income tax is required, an application may be filed for the refund of the aforesaid income tax. As the power plant project is generally exempted from the income tax as prescribed in the law of Pakistan, the Employer may file an application for the exemption from the income tax for the import of any goods. Currently, investment protection agreements have been reached between Pakistan and 46 countries in the world (including China) and agreements on avoidance of double taxation have also been reached between Pakistan and 52 countries in the world (including China).		
	Personal income tax	The tax rate is 0.75%-20% at the threshold of 25,000 rupee per month.		Application for exemption from the personal income tax (with the period specified); • Application for exemption of the income obtained by the enterprise and employee in the park from the

Category		Current Policy	Preferential Policy for Economic Zone	Policy to Apply to Government of Pakistan
				overseas from the income tax; • Application for exemption of the income obtained by the enterprise and employee in the park from any real estate transaction from the income tax
	Social welfare insurance, etc.	Current situation of social security fund: 1. The reserve fund will be paid by the employer and employee, amounting to 8.33% of the wage of the employee per month; 2. The welfare fund will be 2% of the income of the employee (who earns more than 10,000 rupee) per month; 3. The profit fund will be 5% of the pretax profit; 4. The relief fund for the old will be paid by the employer for 6% of the minimum wage of the employee and by the employee for 1% of his/her minimum wage.		Application for the payment of the social welfare insurance by the government for the new enterprise

Category	Current Policy	Preferential Policy for Economic Zone	Policy to Apply to Government of Pakistan
	machinery transported from Karachi to Peshawar will be exempted from tax and certain tax credit will also be given to the industrial land. Besides, the natural gas will be used for power generation in order to supply power for the industrial park.		coordination with the negotiation between the project company and the local government and for the favorable preferential policy
Labor employment policy	No requirement is raised by the government of Pakistan for the restriction on the entry of expatriate labor into Pakistan. A visa exemption agreement has been reached between Pakistan and China, based on which visa-free entry is allowed for the person with a service passport or ordinary passport for public affairs, with an application required to be filed to the Passport and Immigration Office subordinate to Ministry of Interior of Pakistan for the residence or visitor visa within three months after the entry. Besides, only work visa is required for the foreign who goes into Pakistan for work. The longest period of validity of work visa newly specified by the government of Pakistan is 2 years (The period of validity of any work visa which is less than 2 years will also prevail).		• Deregulation of the visa for the technician and manager; • Enlargement of the right of self-management of the enterprise in the zone; • Simplification of the process for the procedures for the employment of any expatriate staff by the enterprise in the zone (work visa)

Category	Current Policy	Preferential Policy for Economic Zone	Policy to Apply to Government of Pakistan
Foreign exchange control policy	According to the Foreign Exchange Account (Protection) Act 2001, no control over the foreign exchange is in place in Pakistan. Any foreigner living in Pakistan, company incorporated in Pakistan with foreign capital and foreign corporation which is incorporated in any foreign country and conducts business in Pakistan are allowed to open and use a foreign exchange account at any bank qualified for foreign exchange operation. Free foreign exchange ingoing and outgoing remittance and cash deposit and withdrawal are allowed through the foreign exchange account. Outgoing remittance of all capitals, capital incomes, dividends and profits of foreign investors is allowed in Pakistan. The withholding tax of 10% is imposed on the aforesaid outgoing remittance. There is no limit on the exit and entry of any foreigner with cash in foreign exchange and traveler's cheque.		• Application for the application of the current policy to the developer, operator and enterprise in the park; • Application for a more preferential withholding tax rate.
Government service		1. The federal	Application for enjoying the

Category	Current Policy	Preferential Policy for Economic Zone	Policy to Apply to Government of Pakistan
support		government/agency of Pakistan will provide the gas, power and other service facilities in the new economic zone. House generator is allowed for the developer in the economic zone. 2. The provincial government of Pakistan will be responsible for the construction of the road to the new economic zone. 3. Pakistan Board of Investment will provide the one-stop service in the economic zone. 4. The door-to-door service will be provided for the	preferential policy for the economic zone by the Project Application for the establishment of the management committee within the park by Pakistan to provide the "one-stop" administrative approval service for the enterprises, including registration, license approval and issuance, labor permit, customs clearance, approval and issuance of the certificate of origin and building permit. • Promotion of the mode of "one-off declaration, examination and release"; • Simplification of

Category	Current Policy	Preferential Policy for Economic Zone	Policy to Apply to Government of Pakistan
		investors in the economic zone in order to complete all necessary procedures/formalities. 5. Pakistan Board of Investment will provide free facilitating services and guidance for the investors. 6. A training center will be established in the economic zone. 7. A dry port will be established in the economic zone to facilitate the import and export of the enterprise therein. 8. The provincial government of Pakistan	procedures for the circulation of goods in the park; • Simplification of approval procedures for the registration, construction and investment of enterprises to reduce the fees for such procedures; • Simplification of approval procedures for the import, export and re-export business and all transactions in which any customs duty and commercial profit are involved; • No surprise inspection of the enterprises in the park by relevant tax department of Pakistan except for

Category	Current Policy	Preferential Policy for Economic Zone	Policy to Apply to Government of Pakistan
		will facilitate the purchase of land for the economic zone. In the economic zone, only the project or joint venture with more than 40% Chinese capital will be allowed to enjoy the preferential policy package.	necessary routine inspection unless in emergencies

Chapter X Risk Analysis

In this chapter, the construction risk, operation risk, market risk, financial risk, policy risk, environmental risk, force majeure risk and exchange rate risk are analyzed based on the analysis of the development environment, market forecasting, layout planning, business model and relevant policies of the Project.

Table 10-1 Risk Analysis

Content	Risk Description	Evasion Measures	Risk Level	Main Responsible Organization	
				Developer	Government of Pakistan
Construction risk					
Precondition risk	The government of Pakistan will be responsible for the construction of such ancillary facilities as the external roads, water and power utilities, heating facility and communication facility for the Project, which will be a precondition for the	1. Provide relevant provisions and response mechanisms in the investment agreement; 2. Purchase insurances from such insurers as Sinasure; 3. Invest no capital before the completion of the establishment of ancillary facilities by the government.	Medium risk		

Content	Risk Description	Elusion Measures	Risk Level	Main Responsible Organization	
				Developer	Government of Pakistan
	development and operation of Rashakai pSEZ. Any failure of the government of Pakistan to fulfil relevant commitment will greatly affect the construction period and benefit of the Project.				
Demolition and resettlement risk	Failure of the demolition and resettlement of part of the shanty towns existing in the project site (which will be undertaken by the government of Pakistan) on schedule will result in the failure of commencement of the Project on time.	In the Outline Agreements for Project, the time for demolition and resettlement to be undertaken by the government of Pakistan shall be clearly scheduled and the compensation for damage, or other compensating mechanisms and fund compensations due to any delay of the Project/operation period shall be prescribed.	Medium risk		
Project implementation	Any failure to implement the	From the perspectives of engineering and	Low risk		

Content	Risk Description	Mitigation Measures	Risk Level	Main Responsible Organization	
				Developer	Government of Pakistan
and construction cost overrun risk	Project as planned, delay of project construction or overrun of construction cost will cause a great risk for the Project.	technology, the Project is a general primary and secondary land development project in the park. All technologies and equipment applied for the design and construction are mature. With rich experience in a number of similar projects, developer will be able to provide a strong guarantee for the successful implementation of the Project. The corporation will designate an experienced management team and a professional construction team to the site to lead the local labors to implement the Project so as to ensure the completion of the Project on time with the current investment. If, during the project implementation, the government of Pakistan proposes to change the scope or content of the Project, or fails to provide various approvals and permits for the Project on			

Content	Risk Description	Evasion Measure	Risk Level	Main Responsible Organization	
				Developer	Government of Pakistan
		time, resulting in the delay of the project construction or overrun of the current investment, the government of Pakistan shall provide the project company with the compensation for damage, or other compensating mechanisms and fund compensations due to any delay of the Project/operation period, and this shall be prescribed in the Outline Agreements for Project.			
Operation risk					
Operation management risk	Any immature operation mode or poor operation management of the Project will cause a risk for the Project.	The project company shall make a rational and economic operation and maintenance management plan. In the later operation management period, the project company shall introduce operation management talents with experience in the international operation of Rashakai pSEZ in a	Medium risk		

Content	Risk Description	Evasion Measures	Risk Level	Main Responsible Organization	
				Developer	Government of Pakistan
		planned way to form a skilled and experienced project management team, employee the local senior managers to facilitate corporate communication and information transmission, clearly define the scope of work of every staff, enhance the forecasting of the current and future market and adjust the operation strategy promptly according to the development trend of the current and future market. If the project company is required to bear any extra expenditures during the operation due to any change of relevant laws and preferential policies by the government of Pakistan, the government shall take the corresponding operation management risk together with the project company, and this shall be prescribed in the Outline Agreements for Project.			
Market risks	Revenues of the Project mainly	DEVELOPER shall cooperate with the local governments,	High risk		

Content	Risk Description	Evasion Measures	Risk Level	Main Responsible Organization	
				Developer	Government of Pakistan
	comprise the incomes from land selling and renting, the rental of support facilities in the Zone and the charges for property management and platform services, which are important parts of operation revenue of the Project, and the main factor affecting the above incomes is the number of enterprises entering the Zone, i.e. the enterprise occupancy rate. Failure to reach the enterprise occupancy indicator would greatly affect the revenue of the Project.	international trade promotion councils and industrial associations both in China and Pakistan at the earliest time possible and strengthen the publicity to attract Chinese and Pakistani enterprises to enter the Zone; also learn from the successful development experiences of industrial parks both at home and abroad and prepare scientific mechanisms, regulations and systems for land selling, leasing plant building and support facilities in the Zone, management and service to attract more investors of Pakistan, China and other countries to invest in the Zone, so as to ensure the smooth operation of the Project and reduce the investment risks. The role of the government of Pakistan in mitigating the market and business risks is critical. To establish confidence and determine the advantages			

Content	Risk Description	Emission Measures	Risk Level	Main Responsible Organization	
				Developer	Government of Pakistan
		of the Zone for development, the government shall set up a special governmental organization to regulate and manage the Project, ensure the precedence of the Project at the state level and its exclusiveness at the regional level, and offer preferential policies to attract more international and local enterprises to enter the Zone and reduce the market risks, and these contents shall be reflected in the framework agreement of the Project.			
Financing risks					
Financing risks	On the one hand, if the Project is lack of financing sources, inadequate funds will delay the project construction. On the other hand, the Project may be adversely affected by fluctuation of interest rate,	As the economy and infrastructures of Pakistan are still at the developing stage, the commercial feasibility and profitability of the Project are subject to a high degree of uncertainty. In this case, government shall consider providing necessary supports to assist the Employer to organize financing from the Bank of China or International	Medium risk		

Content	Risk Description	Elusion Measures	Risk Level	Main Responsible Organization	
				Developer	Government of Pakistan
	which would increase the interest liability of the Employer.	Finance Corporation. The Employer shall make a preliminary research on the financing market, prepare a reasonable and viable financing plan and negotiate with potential financing parties to determine the most competitive financing conditions in the market. The Employer shall guarantee to get the financing required by the Project in time and determine the hedging/swap strategy before signing the financing agreement, to mitigate the interest rate risk.			
Political, regulatory and legal risks					
Governmental permission risk	Failure of the government of Pakistan to issue the required governmental permit, approval and official documents at the scheduled time nodes mutually agreed will influence the	It shall be stipulated in the investment agreement of the Project that the government of Pakistan shall actively assist the Employer to obtain all the required governmental permits, approvals and official documents at the scheduled time nodes mutually agreed.	Low risk		

Content	Risk Description	Evasion Measures	Risk Level	Main Responsible Organization	
				Developer	Government of Pakistan
	project implementation.				
Risk of default by government	Impacts of government default on the Project	Issues regarding default by government and relevant compensation terms will be clearly specified in the framework agreement. The Project will also be covered by the corresponding overseas political insurance of Sinasure to mitigate the risk.	Medium risk		
Environmental risk					
Issues regarding control and management of environmental protection	The local government of Pakistan has certain requirements on environmental protection of the Project, and failure to reasonably and effectively control the environmental protection issues would greatly affect the project investment.	The Employer shall engage an independent environment consultant to prepare an effective environmental protection plan to control and manage relevant environmental protection problems of the Project and submit an environmental impact assessment report according to the requirements of relevant local governmental department.	Medium risk		
Risk of	Failure to obtain relevant	The Employer shall make reasonable plans and	Medium risk		

Content	Risk Description	Elusion Measures	Risk Level	Main Responsible Organization	
				Developer	Government of Pakistan
environmental protection permit/approval	environmental protection approvals and permits required by construction of the Project will greatly affect the project development.	arrangements to obtain all environmental protection related approvals and permits before the construction stage. The government of Pakistan shall positively perform its obligations and agree to issue relevant approvals and permits at the scheduled time nodes of the Project.			
Risks of force majeure					
Risks of force majeure	Risks of force majeure, such as natural disaster, etc.	We suggest the Employer to insure, i.e. to transfer the risks to an insurance company or export credit agency with risk bearing capacity by paying the premium, to ensure the Project can be compensated in the case of force majeure and reduce the loss.	Low risk		
Financial risks					
Interest rate risk	The Project may be adversely affected by fluctuation of	The Employer shall make a preliminary research on the financing market, prepare a reasonable and	High risk		

Content	Risk Description	Mitigation Measures	Risk Level	Main Responsible Organization	
				Developer	Government of Pakistan
	interest rate, which would increase the interest liability of the Employ Pakistan also needs to face the inflation issue, and the project investment will also be affected by currency devaluation, higher economic risk, etc. er.	viable financing plan and negotiate with potential financing parties to determine the most competitive financing conditions in the market, to mitigate the interest rate risk.			
Exchange rate risk	Unstable exchange rates can increase the construction and operation costs.	1. At the construction stage of the Project, check the proportion of payments to be paid in various currencies, and reasonably allocate the proportion of loans in different currencies; 2. At the operation stage of the Project, check the proportion of incomes and expenses in various currencies, where the currency of sales income shall match the loan currency as long as possible.	High risk		
Inflation risk	The global economic		Low risk		

Content	Risk Description	Evasion Measures	Risk Level	Main Responsible Organization	
				Developer	Government of Pakistan
	situation is not optimistic,	We hope the Pakistani government can maximally reduce the inflation degree and its impact through macro-economic control, and prepare the corresponding policies to reduce the local price level, stimulate the savings and investment, thus to increase commodities and services and eliminate the gap between total demand and supply.			
Social risks					
Social risks	Social violent confrontations caused by poverty, political factor, social conflict, etc. reasons are social risks that shall be taken seriously. Any protest and objection of local people or any violent confrontation and kidnapping incident during implementation	1) Initiatively strengthen the security protection measures and improve the awareness for protection against sudden incident of violence; 2) Strengthen the employee management to prevent them from having any conflict with local residents; respect the customs and culture of people living around, and handle the relationship with local people in a reasonable way; 3) Actively perform the social responsibilities of	Low risk		

Content	Risk Description	Emission Measure	Risk Level	Main Responsible Organization	
				Developer	Government of Pakistan
	of the Project will adversely affect the Project. Pakistan is an Islamic country, the Pakistani people are enthusiastic, straightforward and generally friendly, and local people can get along with Chinese tourists and local Chinese but different in life style, customs and religious faith from Chinese people.	enterprise integrate with local communities and attach importance on the continuous input to programs for public goods.			

Chapter XI Problems and Suggestions

11.1 Preconditions to be solved for operation

The existing water, electric power and gas supply, communication, wastewater treatment and other municipal facilities in the area where Rashakai pSEZ Project is located cannot meet the requirements of the future scale of the Zone. If the preconditions for operation of the Zone cannot be solved, neither can relevant facility in the Zone be put into operation nor introduction of industries be realized, even though the policy environment is good. Therefore, the government of Pakistan should solve the external water, electric power and gas supply, communication, fire protection and wastewater treatment facilities required by development and operation of the Zone, as well as tie-in of pipelines of the facilities. The above preconditions are necessary for the development and operation of Pak-Sino Industrial Zone and should be solved by the Pakistani government.

DEVELOPER is more than willing to provide supports and discuss solutions for the preconditions with the Pakistani government in the next stage.

11.2 Further deepening the planning design and operation management mode

In the next stage, pertinent field engineering surveys and measurements will be carried out for detailed design of planning and engineering technical proposal. The operation management mode of Rashakai pSEZ Project in Pakistan will be further discussed with relevant governmental departments. The operation management mode of Rashakai pSEZ Project in Pakistan will be further discussed with relevant governmental departments.

**THE TYPE, TECHNOLOGY, MODEL, TECHNICAL DETAILS, OPERATIONAL
CHARACTERISTICS, SYSTEM INTERCONNECTION AND DESIGN OF THE FACILITIES
OR SYSTEM PROPOSED TO BE ACQUIRED, CONSTRUCTED DEVELOPED OR
INSTALLED**

The feasibility study for the electrical system (distribution and supply) specifying the Type, Technology, Model, Technical Details, Operational Characteristics, System Interconnection and Design consists of the following documents (appended below):

1. Grid Interconnection Studies, as approved by NTDC vide its letter dated 20 June 2022;
2. External Electrification Design Book of the 11kv distribution network;
3. General Layout Plan and Single Line Diagram of GS-I substation, as approved by NTDC vide its letter dated 25 November 2021.



NATIONAL TRANSMISSION & DESPATCH CO. LTD (NTDC)

General Manager (Power System Planning)

No. GMPSP/TRP-300/ 2202- 2208

Dated: 20-06-2022

Mr. Lyu Ming

Chief Executive Officer

Rashakai Special Economic Zone Development & Operations

Company (Private) Limited (RSEZDOC)

House No. 2, Street 33, Sector F- 8/1, Islamabad.

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**Sub: Rashakai Special Economic Zone
Approval of Final System Analysis Study Report of 202.6 MW Rashakai Special
Economic Zone**

Ref: (i) RSEZDOC Letter No. RSEZDOC/HO/2021/69 dated 09-07-2021.
(ii) This office email dated 21-05-2022.
(iii) RSEZDOC Letter No. RSEZDOC/HO/2022/051 dated 13-06-2022.

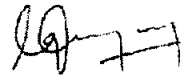
With reference to above subject, it is intimated that this office received the system analysis study report of 202.6 MW Rashakai Special Economic Zone vide letter at Ref.(i). After review of the subject report, the corrections needed in the report and in the PSS/E bases cases were communicated to the study consultant, M/s POWER-tek (Pvt.) Ltd., accordingly via emails.

M/s RSEZDOC resubmitted the final system analysis study report of 202.6 MW Rashakai Special Economic Zone vide letter at Ref.(iii) after incorporating the comments communicated by this office. After review by this office, the final report is hereby approved as per assumptions, study results and recommendations presented in the final report.

It is pertinent to mention that according to the submitted study reports vide Ref.(i) & Ref.(iii), Rashakai SEZ GS-I has 3x50MVA, 132/11kV transformers, and Rashakai SEZ GS-II has 2x60MVA, 132/33kV transformers. However, M/s RSEZDOC has got Design approval from the office of Chief Engineer (Substation) Design NTDC with 3x40MVA, 132/11kV transformers at Rashakai SEZ GS-I and 2x60MVA, 132/35kV transformers at Rashakai SEZ GS-II. These discrepancies were pointed out through this office email at Ref.(ii), wherein, M/s RSEZDOC was asked to remove these discrepancies by either incorporating the Chief Engineer (Substation) Design approved configurations in the subject study report or by obtaining new Design approvals from the office of Chief Engineer (Substation) Design in line with the configurations in the final subject system analysis study report. In response, M/s RSEZDOC has certified vide Ref.(iii) that approval of all primary and secondary design equipment from Substation Design department of NTDC shall be taken in line with the approved system study report. Therefore, M/s RSEZDOC is required to obtain new Design approval from the office of Chief Engineer (Substation) Design NTDC as per the final approved system analysis study report, and M/s RSEZDOC shall also be responsible for any time delay or any additional fee incurred subsequently during the process.

Moreover, M/s RSEZDOC shall comply with the following recommendations as per the subject final study report:

- Install appropriate reactive compensation at Rashakai SEZ at its end to maintain at least 0.95 (lagging) power factor at the point of interconnection. Additionally, separate system studies shall be conducted for the installation of reactive power compensation equipment (static/dynamic where necessary) within both Rashakai SEZ GS-I and Rashakai SEZ GS-II for reactive power compensation/voltage control and power quality mitigation based on size, location, and type of industrial loads.
- Substantial attention shall be given to the design of 11 kV and 33 kV distribution network by M/s RSEZDOC to optimize feeder lengths and voltage profile as well to increase supply reliability for customers.

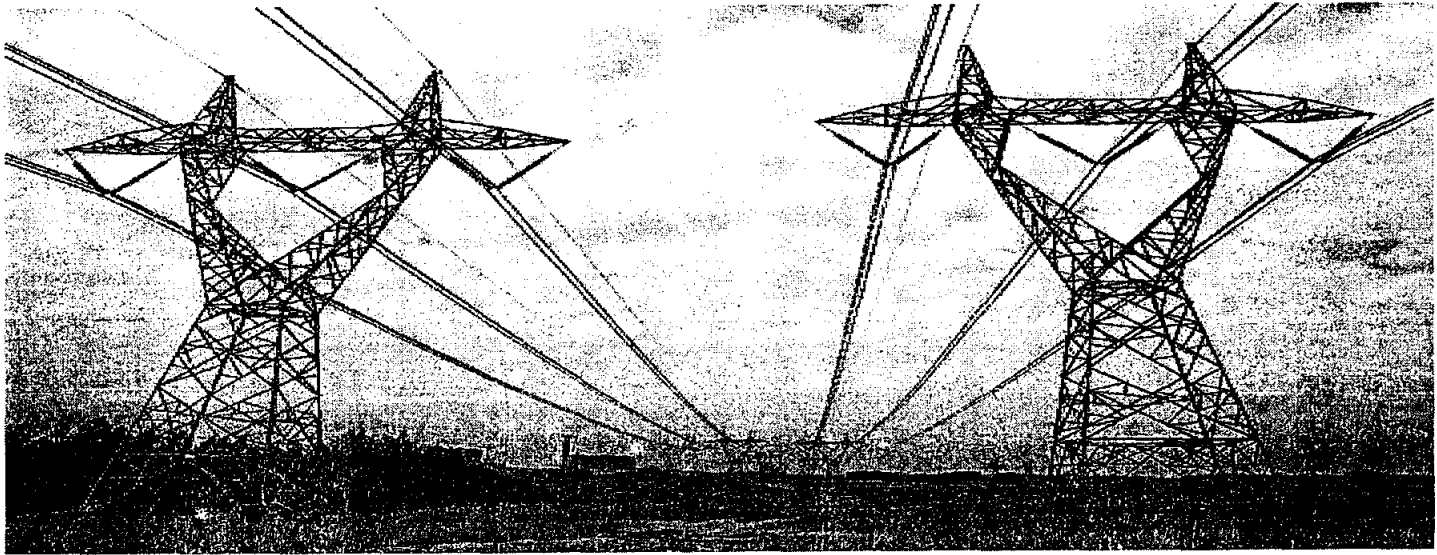
 20/06/2012

General Manager (Power System Planning)

Copy to:

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 - ii) Chief Executive Officer PESCO
 - iii) Chief Engineer (Substation Design) NTDC
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- Master File

Final Report
Grid Interconnection Study for
202.6 MW Rashakai Special Economic Zone



Grid Interconnection Studies of
202.6 MW Rashakai Special Economic Zone

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The direct customer of this report work will review and check information; data and studies contained in this report fully and will then decide on its responsibility of consequence(s) for further investigation or implementation.

The data, information, simulation work, and its results in this report are subject to confirmation and updating by field measurements by the direct customer or its contractors.

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Executive Summary

The Rashakai Special Economic Zone (RSEZ) is located between the 220/132 kV Mardan and proposed 220/132 kV Swabi grid stations of PESCO. The Rashakai SEZ comprises of proposed RSEZ GS-I and GS-II, the interconnection scheme consists of 24.32 km from 220/132 kV Grid Station Mardan to RSEZ GS-II using S/C rail conductor, whereas 24.37 km Mardan to RSEZ GS-I using S/C rail conductor, As a second source 30 km from proposed 220/132 kV Grid Station Swabi to RSEZ GS-I using D/C rail conductor, whereas 0.05km GS-I to GS-II using S/C rail conductor. RSEZ has total proposed load demand of 202.6 MW which is divided into following phases.

Sl. No.	Phase	Load (MW)	Completion Date
1	Phase-I RSEZ Grid Station (GS-II)	45	30-Aug-2022
2	Phase-I RSEZ Grid Station (GS-I)	22.09	30-Aug-2022
3	Phase-II RSEZ Grid Station (GS-I)	45.9	31-Dec-2023
4	Phase-II RSEZ Grid Station (GS-II)	45	31 st December 2023
5	Phase-III RSEZ Grid Station (GS-I)	44.61	31-Dec-2025
	Total demand load	202.6MW	

PESCO grid system, after addition of the RSEZ has been analysed for load flow, short circuit, and transient stability studies to determine whether the plant connection with the PESCO grid meets the NEPRA Grid Code Planning Criteria requirements.

The latest and up-to-date NTDC/PESCO network model base cases have been used. The steady-state, sequence, and dynamic data for the Rashakai Special Economic Zone is processed to build the steady-state, short circuit, and dynamic models in PSSE software format.

A detailed power system analysis study on the peak load demand of the Rashakai Special Economic Zone is prepared and results of the study are listed below.

1. Load flow analysis

The analysis has been performed for the year 2022, the year 2023, and the year 2025. The power flow analysis shows that the bus voltages and line loadings in all the cases, with and without the addition of the RSEZ are within the acceptable limit as per the NEPRA Grid Code Planning Criteria.

2. Contingency analysis

N-1 contingency analysis also has been performed for the year 2022, the year 2023, and the year 2025 and the results were also validated as per the thermal and voltage limits in associated N-1 post contingency conditions. The results of the contingency analysis shows that there is no thermal and voltage violations under N-1 conditions in the NTDC and PESCO network due to RSEZ addition.

3. Short circuit analysis

Maximum short circuit levels have been conducted in the year 2025. Moreover, to see the short circuit current contribution of 'Rashakai Special Economic Zone', maximum short circuit levels at the substations located in the vicinity of the project were also computed. The 3-phase and 1-phase short circuit currents at both 132kV RSEZ GS-I & RSEZ GS-II grid stations are 16.3 kA and 11.1 kA respectively. This shows that the short circuit levels of 'Rashakai Special Economic Zone' are well below the ratings of standard 40kA switchgear; hence it is suggested to use 40kA Circuit breaker at 'Rashakai Special Economic Zone'.

Therefore, it is concluded that the proposed interconnection scheme holds good based on short circuit analysis as well.

4. Transient stability analysis

The transient stability studies were carried out to check the dynamic impact due to potential faults in the PESCO grid system and, in turn, the impact of disturbances in the proposed RSEZ grid stations on the PESCO grid system. The RSEZ is found to meet all the transient stability requirements under Normal clearing 5 cycle opening time and stuck breaker conditions of delayed breaker opening after 9 cycles and tripping of the associated circuit.

The results of transient stability analysis show that the power system is stable for the suggested interconnection scheme of the 'Rashakai Special Economic Zone '.

5. Reactive power compensation

To meet the reactive power demand and power factor of RSEZ for 202.6MW load in year 2025, 20 MVAR switched shunt capacitors are proposed at each 33 kV bus bars of RSEZ GS-II and 24 MVAR switched shunts are proposed at each 11 kV bus bar of RSEZ GS-I.

6. Recommendations

RSEZ is required to install appropriate reactive compensation at its end to maintain a 0.95 (lag) power factor at the point of interconnection. Also, it is noted that substantial attention needs to be given to the design of 11kV and 33 kV distribution network, to optimize feeder lengths and voltage profile as well to increase supply reliability for customers. Also, RSEZ shall conduct separate system studies for the installation of reactive power compensation equipment (static/dynamic where necessary) within both RSEZ GS-I and RSEZ GS-II for reactive power/voltage control and power quality mitigation based on size, location, and type of industrial loads.

Based on the study results overall, it is concluded that the proposed interconnection scheme for 'Rashakai Special Economic Zone' meets all the NEPRA Grid Code and Planning Criteria.

7. Compliance by PESCO

PESCO will make sure that its transmission network is upgraded as modelled in the base cases. Particularly the following circuits will be completed before the commission of the Rashakai SEZ Load:

- Construction of 132kV Single Circuit (S/C) on Rail conductor from 220kV Nowshera to Pabbi
- Construction of 132kV S/C transmission line on Rail conductor from 220kV Chakdara-Salarzai-Daggar Buner
- Reconductoring of remaining portion of 132kV transmission line from 220/132kV Nowshera-132kV Nowshera Industrial on Lynx conductor to Rail Conductor
- 132kV Circuit S/C Mardan-ZRK-Marble City-Nowshera City will be made in/out at Dobian"

1. Introduction

1.1 Project Background

The total land areas of Rashakai Special Zone Project is 1000 acres approximately. Two grid stations GS-I and GS-II would be constructed/installed with total demand of 202.6 MW. The total expected demand is divided into the following five stages.

- First stage, 45 MW demand is proposed on 30-Aug-2022 at phase-I of RSEZ GS-II.
- Second stage, 22.09 MW demand is proposed on 30-Aug-2022 at phase-I of RSEZ GS-I.
- Third stage, 45.9 MW demand is proposed on 31-Dec-2023 at phase-II of RSEZ GS-I.
- Fourth stage, 45 MW demand is proposed on 31-Dec-2023 at phase-III of RSEZ GS-II.
- Fifth stage, 44.61 MW demand is proposed on 31-Dec-2025 at phase-III of RSEZ GS-I.

The indicative timelines for the provision of electric power are as under:

Sl. No.	Phase	Demand (MW)	Timeline
1	Phase-I RSEZ Grid Station (GS-II)	45	30-Aug-2022
2	Phase-I RSEZ Grid Station (GS-I)	22.09	30-Aug-2022
3	Phase-II RSEZ Grid Station (GS-I)	45.9	31-Dec-2023
4	Phase-II RSEZ Grid Station (GS-II)	45	31 st December 2023
5	Phase-III RSEZ Grid Station (GS-I)	44.61	31-Dec-2025
Total Demand Load		202.6MW	

Table 1.1.1 Demand phases

1.2 Plant data

Total Load Demand of RSEZ	= 202.6 MW
Proposed Demand of GS-I	= 112.6 MW
Proposed Demand of GS-II	= 90 MW
Transformers of GS-II in phase I	= 60 MVA, 2 numbers
Transformers of GS-I	= 50 MVA, 3 numbers
% Impedance of transformer at RSEZ GS-I & GS-II	= 12.5%
Voltage Ratio of Transformers at GS-II	= 132/33 kV
Voltage Ratio of Transformers at GS-I	= 132/11 kV
Proposed MVAR at 33 kV of GS-II	= 20MVAR
Proposed MVAR at 11 kV of GS-I	= 24 MVAR

1.3 The Objective of the Study

The principal objective of this study "Connection assessment of Rashakai Special Economic Zone to the PESCO grid system" is to assess the impact of the proposed interconnection for the RSEZ on the PESCO transmission system and vice versa and ensure the interconnection meets the NEPRA/NTDC grid code planning criteria requirements. In this study, a most appropriate interconnection with the PESCO network is presented for the project.

A detailed power system analysis study of the complete load demand of the Rashakai Special Economic Zone is to be prepared. The scope of work including but not limited to system analysis studies for both grid stations, and any other essential data, securing of necessary approval from PESCO for early commissioning of the Grid Stations.

The detailed contents of the work of scope as under:

- a. Load flow studies and contingency analysis
- b. Grid interconnection and short-circuit studies
- c. Reactive power compensation studies
- d. Transient stability analysis
- e. Interconnection diagram for both sub-stations

2. Methodology and Assumptions

2.1 Mobilization, information/data collection, inputs

- Prepare preliminary (initial) data requirement list
- Kick-off meeting with project team
- Collection of data from PESCO and NTDC systems necessary to carry out the above analysis/studies
- Gather, organize, review, and analyze readily available data/inputs
- Review available past planning and operation report(s)
- Build, gather, databases and review available data and base-cases
- Organize databases in desired formats of original and compiled data files
- Verify, validate, check, the databases
- Prepare and deliver a list of additional data required, if needed

2.2 Develop connection alternatives, review/update base cases

- Review base case for data errors/checks using PSSE built-in functions and engineering judgment
- Confirm or assume any missing/incorrect data
- Modeling of the plant in PSS/E based on the developer/vendor-provided data
- Modify PESCO/NTDC network PSS/E model to integrate the plant model
- Verify plant model based on vendor data and model confirmations
- Build base case model confidence and get PESCO review/confirmation

2.3 Power flow simulations and reactive power compensation studies, meeting the planning criteria

- Carry out load flow simulations for all components in service for peak cases
- Carry out detailed load flow analysis and reactive power compensation studies, under normal as well as N-1 contingency conditions
- Prepare overall simulations list and related automation files for selected N-1 contingencies in consultation with NTDC
- Carry out contingencies runs and monitor violation (s)
- Identify critical contingencies for violation(s)
- Identify and confirm reinforcement/addition in the grid to overcome limiting constraints in case of non-confirmation
- Carry out contingencies runs in reinforced network and monitor violation(s)
- Prepare a list of additional reinforcement and security required for overcoming violation(s)

2.4 Short circuit study

- Review data and perform short circuit analyses for peak/off-peak cases for present and future years
- Evaluate the impact of planned plants on fault level
- Carry out detailed short circuit study to calculate the maximum fault current at selected stations
- Suggest remedial measures if it has adverse impact

2.5 Transient stability simulations and analysis

- Review all planned commissioning/selected year case for dynamic data
- Prepare overall simulations list and fault condition to simulate as per planning criteria
- Carry out detailed dynamic stability analysis on the existing transmission system under different system disturbances
- Carry out transient stability simulation for selected/agreed contingencies
- List violations as per planning criteria requirements
- Identify and confirm reinforcement/addition in the grid to meet stability and security criteria and identify any needs or to update remedial action schemes

- Carry out dynamic simulation and assessment to ensure system stability and security after reinforcement
- List all the reinforcement required

3. Interconnection Scope

The particular objective of this study is to develop and simulate an Interconnection plan for the subject Rashakai SEZ with a nearby transmission line/substations such that it meets the NEPRA/NTDC grid code planning criteria, and there is no physical limitation regarding the Right Of Way (ROW). POWER-tek analyzed multiple options for the power Interconnection scheme of 'Rashakai Special Economic Zone ' and based on system studies the most feasible interconnection proposal is suggested.

The grid interconnection scope of 'Rashakai Special Economic Zone' to the PESCO power system network is as follows;

- 24.32 km from 220/132 kV Grid Station Mardan to RSEZ GS-II using S/C rail conductor, whereas 24.37 km Mardan to RSEZ GS-I using S/C rail conductor
- As a second source 30 km from proposed 220/132 kV Grid Station Swabi to RSEZ GS-I using D/C rail conductor, whereas 0.05km GS-I to GS-II using S/C rail conductor.
- To meet the reactive power demand and power factor of RSEZ for 202.6MW load in year 2025, 20 MVAR switched shunt capacitors are proposed at 33 kV bus bars of RSEZ GS-II and 24 MVAR switched shunts are proposed at 11 kV bus bar of RSEZ GS-I.

The geographical location of the RSEZ is shown in the figure below and also provided in Appendix-1, whereas the PESCO overall network geo-single line diagram is provided in Appendix-1.

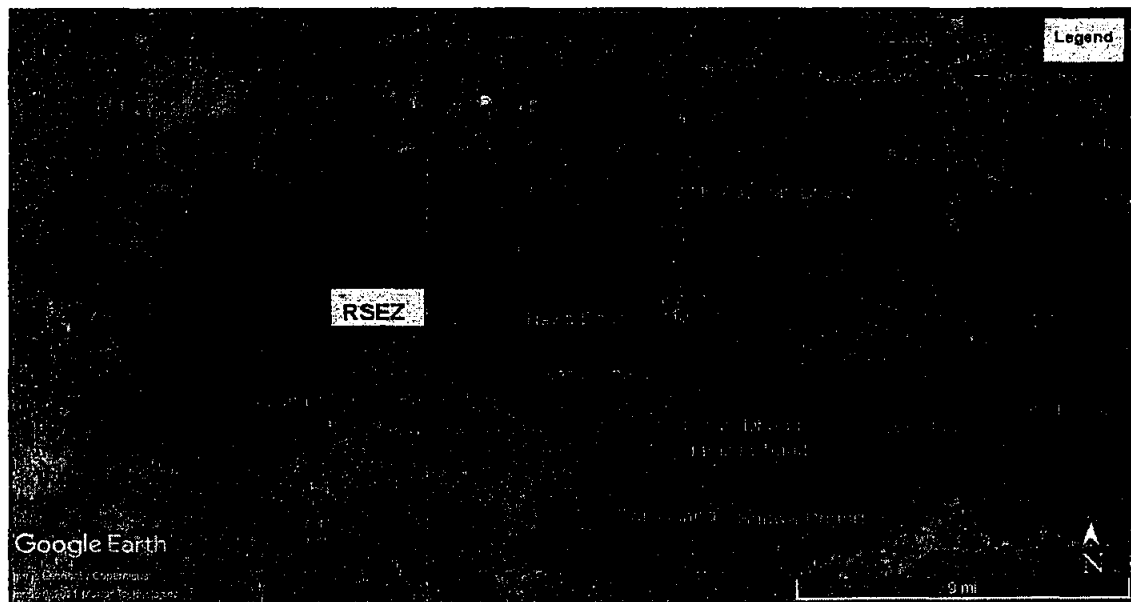


Figure 3.1 Geographical location of the RSEZ

The bubble diagrams and proposed interconnection scheme development for RSEZ are provided below and also provided in Appendix-3 with more details.

Sl. No.	Phase	Load (MW)	Year
1	Phase-I RSEZ Grid Station (GS-II)	45	30-Aug-2022
2	Phase-I RSEZ Grid Station (GS-I)	22.09	30-Aug-2022
3	Phase-II RSEZ Grid Station (GS-I)	45.9	31-Dec-2023
4	Phase-II RSEZ Grid Station (GS-II)	45	31 st December 2023
5	Phase-III RSEZ Grid Station (GS-I)	44.61	31-Dec-2025
Total demand Load		202.6MW	

Table 3.1.1 Demand phases

This load demand is to be met via the nearest available grid facility of PESCO. The RSEZ GS-I is located at about 30 km from proposed 220/132 kV Swabi grid station of PESCO and RSEZ GS-II is located at about 24.32 km from 220/132 KV Mardan GS.

This study was carried out to check the strength of the existing network and to verify if this meets planning criteria and that this addition of load can be accommodated, or some extra reinforcement is required.

3.2 Approach to the system modelling and simulation

Following approach was adopted for modeling and load flow, short circuit, and dynamic analysis:

3.2.1 Load flow cases

Sl. No.	Phase	Load (MW)	Year	Year	Year
1	Phase-I RSEZ Grid Station (GS-I)/(GS-II)	22.09/45	30-Aug-2022	2022	3.2.1.2
2	Phase-II RSEZ Grid Station (GS-I)	45.9	31-Dec-2023	2023	3.2.1.3
3	Phase-II RSEZ Grid Station (GS-II)	45	31 st Dec 2023		3.2.1.3
4	Phase-III RSEZ Grid Station (GS-I)	44.61	31-Dec-2025	2025	3.2.1.4
Total demand Load		202.6MW			

Table 3.2.1.1 Year-wise Demand phases

Bubble diagrams of PESCO existing network and year wise phases of RSEZ are provided below and also provided in Appendix-3.

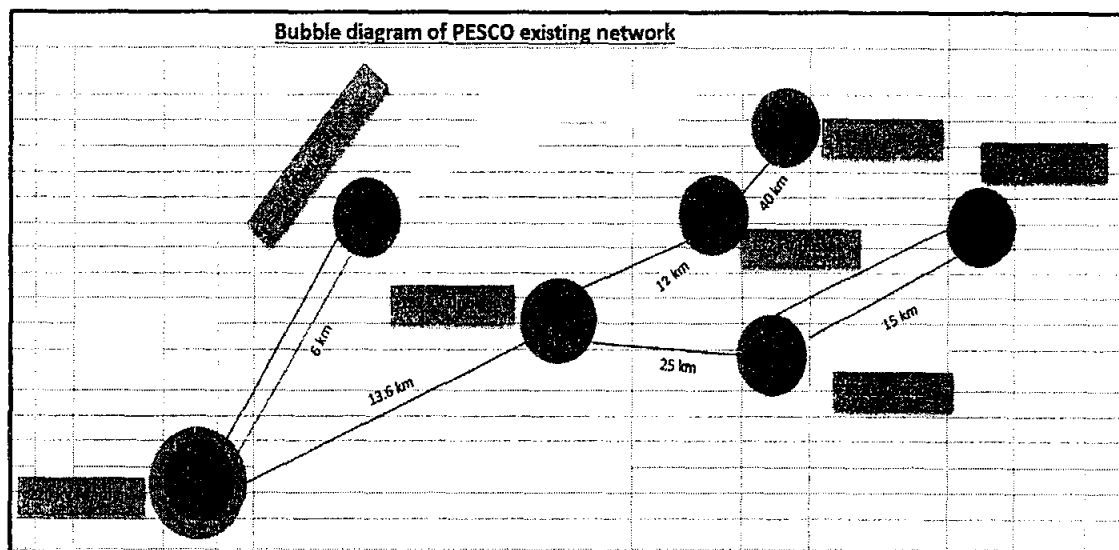


Figure 3.2.1.1 Bubble diagram PESCO existing network

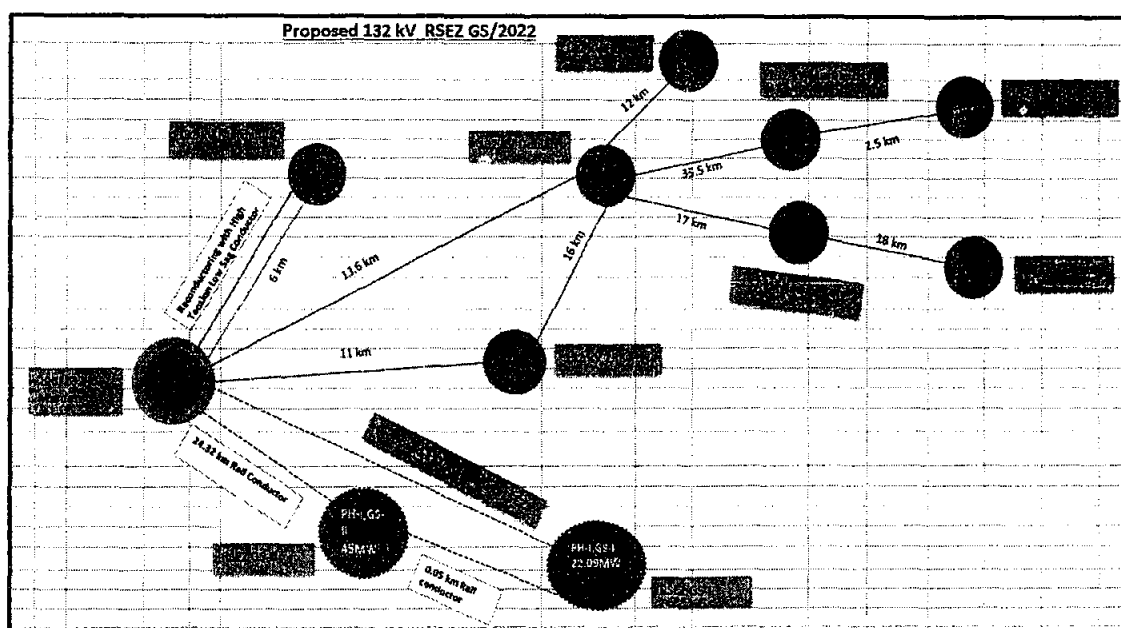
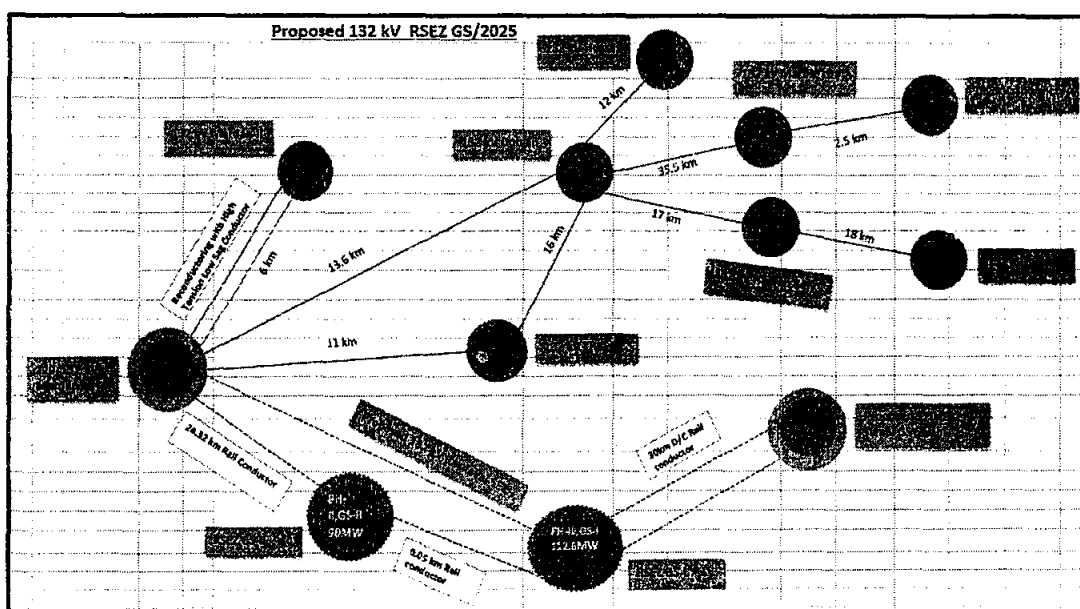
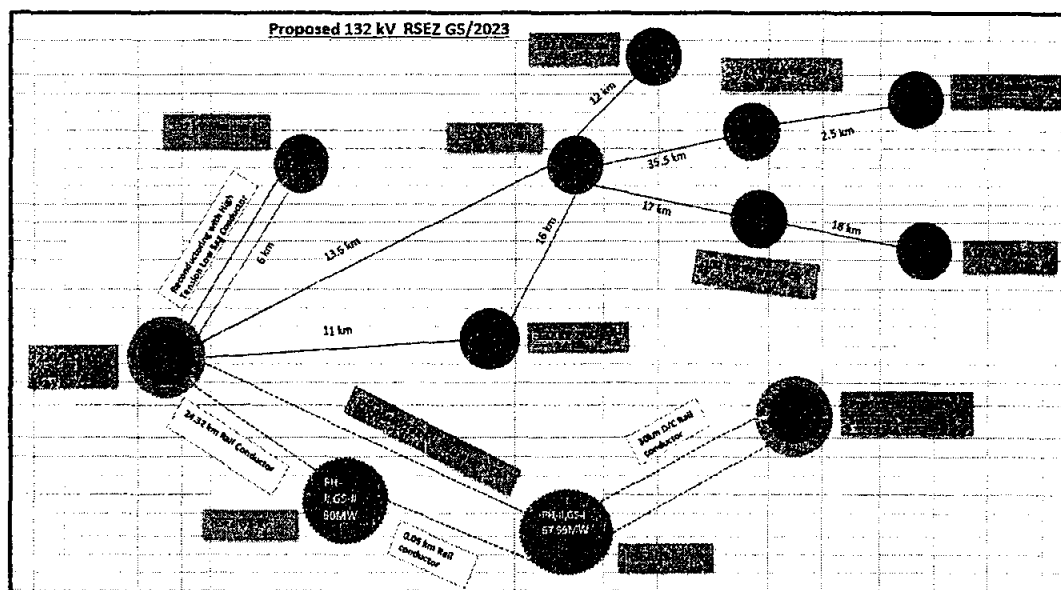


Figure 3.2.1.2 Proposed 132 kV Phase-I RSEZ GS-I and phase I of RSEZ GS-II -2022



4. Data Processing

4.1 Site Surveys and Related Meetings

Rashakai Special Economic Zone (RSEZ), located near M-1 Nowshera, is set to be established in Khyber Pakhtunkhwa (KP). The 1000 acres of land of REZ will be developed in three phases. The total area designated for Industrial use is 702 acres and as per Federal SEZA Regulations, of which 159 acres will be developed in Phase I, 279 acres in phase II, and subsequently 264 acres in Phase III. For commercial use, an area of 76 acres has been allocated.

4.1.1 Collection of Data

The following data is collected and used for this study:

- The latest up-to-date generation plan has been used for the subject study as incorporated in the provided base cases.
- The optimal transmission expansion plans of NTDC and PESCO have been used considering the load demand and generation requirements as incorporated in the provided base cases.
- That the augmentation of the transmission lines of NTDC and PESCO shall take place in accordance with the transmission expansion plan, especially in the vicinity of the subject RSEZ.
- The load demand forecast is most recent and revised as incorporated in the provided base cases.
- Appropriate study years for the subject system study are taken, which are the base case of the year 2022, the year 2023, and the base case of the year 2025.

4.2 Processing of RSEZ Data

The received data from RSEZ, PESCO and NTDC was processed into the PSSE software format to perform the simulation studies.

This processed plant data is modeled in the overall PESCO network model as per the proposed connection scheme. Updated PESCO network base case is then simulated by considering the N-1 contingency analysis for each case using standard checks like convergence, mismatch, number of iterations, voltage and thermal limits, and 15 seconds drift-run tests for dynamics run.

Above mentioned data is processed to build the following basic models in PSSE software format:

- Steady-state data for load flow analysis
- Sequence data for short circuit analysis
- Dynamic data for transient stability analysis

4.2.1 Steady-State System Modeling

The 202.6 MW of power is evacuated to the Rashakai Special Economic Zone, which is evacuated in five different stages as below.

Sl. No.	Phase	Load (MW)	Year
1	Phase-I RSEZ Grid Station (GS-II)	45	30-Aug-2022
2	Phase-I RSEZ Grid Station (GS-I)	22.09	30-Aug-2022
3	Phase-II RSEZ Grid Station (GS-I)	45.9	31-Dec-2023
4	Phase-II RSEZ Grid Station (GS-II)	45	31 st December 2023
5	Phase-III RSEZ Grid Station (GS-I)	44.61	31-Dec-2025
	Total demand Load	202.6MW	

Table 4.2.1.1 Demand phases

Steady-state models of transmission lines and transformers in RSEZ and its vicinity in the PSSE software are as under:

- Transmission conductor suggested for interconnection of the proposed grid stations are modelled having it's per unit (p.u) resistance, reactance, and susceptance according to line length and MVA rating.
- Positive sequence parameters are employed in the steady-state model of the under-system study.

4.2.2 Sequence Data Modeling

Short circuit analysis for RSEZ and the network of PESCO has been conducted by using the following parameters of the transmission lines;

- Positive sequence data
- Negative sequence data
- Zero sequence data

4.2.3 Dynamic Data Modeling

The dynamic simulation model of the entire network has been developed in PSSE software.

The two severe types of disturbances simulated to assess the stability of the Subject and the power system a study as per the NEPRA grid code criteria are given as under:

- 3-phase fault at bus bar cleared in 5-cycles (100 ms) and tripping of the associated circuit.
- 1-phase to ground fault at bus bar cleared in 9 cycles (180 ms) (delayed clearing or stuck breaker condition) and tripping of the associated circuit

5. Load Flow Analysis

5.1 Load Flow Study Objectives

A power flow study (or load flow study) is an analysis of the magnitude of bus voltages, line loadings, phase angles of the bus voltages and power flows in a power system under steady-state conditions.

The main goal of load flow analysis is to develop a reliable connection arrangement between the 'Rashakai

conditions are studied on the system study cases that include up-to-date generation, transmission facilities, and load forecast representing the queue position applicable to this project. The load flow studies Exhibits as covered in this chapter are provided in Appendix-4.

For RSEZ GS-I overall results for three transformers with each capacity 50 MVA and for RSEZ GS-II overall results for two transformers with each capacity 60 MVA were tested and it was observed that all results and conclusion remain same.

Following are the important objectives of load flow analysis:

- Confirmation that no voltage and thermal loading limits are exceeded as per NERPA Grid Code Planning criteria.
- Voltage profile of PESCO system.
- Transmission line loadings in terms of Active (MW) and Reactive Power (MVAR) flows.
- Active Power (MW) loss in the network.
- Transmission network and transformation reactive losses (MVAR).
- Proposal of remedial solutions to any identified limitations or issues.

A relative approach has been used in the power flow analysis to determine the impact of the Rashakai Special Economic Zone project on the performance of the PESCO power system network.

5.2 Load Flow Study Criteria

Load flow analysis is performed under the following conditions;

- Steady-state normal (N-0) operating conditions
- N-1 contingency operating conditions around the plan

The grid interconnection studies are carried out by considering the operational data defined by NEPRA Grid Code, which is listed as under:

5.2.2 Voltage Limit

For system planning, the following voltage limits are defined for steady-state load flow analysis;

- i. Under normal operating conditions (N-0 condition) all bus voltages shall be within the bandwidth of ± 5 % of Nominal System Voltage.
- ii. Under N-1 contingency conditions, all bus voltages shall be within the bandwidth of ± 10 % of Nominal System Voltage.

5.2.2 Component loading limits

Loading criteria for current-carrying components (transmission circuits, transformers, substation bus bars, circuit breakers, disconnect switches, and auxiliary equipment) to evaluate steady-state load flow studies is as follows;

- i. Under normal operating conditions (N-0 conditions), all components shall be loaded below their Normal Continuous Maximum Ratings.

- ii. Under contingency conditions (N-1 conditions), all components shall be loaded below their Emergency Ratings.

5.3 Load Flow Analysis for the Year 2022 without Addition of Rashakai Special Economic Zone

The power flow analysis without the RSEZ to the base year 2022 in the power network of the PESCO system was simulated first. This section summarizes the pre-contingent steady-state analysis for the PESCO system load flow study.

Load flow analysis for the year 2022 without the addition of RSEZ has been conducted for the condition under normal system conditions as provided in Exhibit # 1.0. The power flow through the transmission lines, the transformer the RSEZ, and the surrounding network are presented in this simulation and the results are summarized below.

The load flow analysis during the year 2022 has been conducted for N-1 contingency conditions. Whereas the summarized results of contingency simulations are provided as Exhibit# 1.1 to 1.2 below:

1.0	Normal Case
1.1	Mardan-MardanII line out
1.2	Mardan- charsada Line out

Table 5.3.1 Contingency Conditions without RSEZ base case 2022

It is observed that before connecting the RSEZ to the PESCO electrical network, all the current-carrying component capacities are within the range. No limitation is seen in any of the MW and MVAR flows.

5.4 Load Flow Analysis for the Year 2022 with total demand 67.2 MW (45 MW demand at RSEZ GS-II and 22.09 MW demand of RSEZ GS-I

Load flow analysis for the year 2022 with the addition of RSEZ has been conducted for the condition under normal system conditions as provided in Exhibit # 2.0. The power flow through the transmission lines, the transformer the RSEZ, and the surrounding network are presented in this simulation and the result is summarized below.

The load flow analysis during the year 2022 has been conducted for N-1 contingency conditions. Whereas the summarized results of contingency simulations are provided as Exhibit# 2.1 to 2.5 below:

2.0	Normal Case
2.1	RSEZ GS-I – RSEZ GS-II line out
2.2	RSEZ GS-II-Mardan Line out
2.3	Mardan- charsada Line out
2.4	Mardan- RSEZ GS-I Line out
2.5	Mardan- Mardan-III Line out

Table 5.4.1 Contingency Conditions With total demand 67.2 MW (45 MW demand at RSEZ GS-II and 22.09 MW demand of RSEZ GS-I base case 2022

5.5 Load Flow Analysis for the Year 2023 (without 220KV Swabi grid station) and with total demand 157.09 MW (90 MW demand of RSEZ GS-II GS and 67.09 MW demand of RSEZ GSI)

Load flow analysis for the year 2023 with the addition of RSEZ and without 220KV Swabi grid station has been conducted for the condition under normal system conditions as provided in Exhibit # 3.0. The power flow through the transmission lines, the transformers, and the surrounding network are presented in this simulation and the result is summarized below.

The load flow analysis during the year 2023 has been conducted for N-1 contingency conditions. Whereas the summarized results of contingency simulations are provided as Exhibit# 3.1 to 3.6 below:

3.0(a)	Normal Case
3.1(a)	RSEZ GS-I – RSEZ GS-II line out
3.2(a)	RSEZ GS-II-Mardan Line out
3.3(a)	Mardan- charsada Line out
3.4(a)	Mardan- RSEZ GS-I Line out
3.5(a)	Mardan- Mardan-III Line out

Table 5.5.1 Contingency Conditions without 220KV Swabi GS and With total demand 157.09 MW (90 MW demand of RSEZGS-II GS and 67.09 MW demand of RSEZ GSI base case 2023)

5.6 Load Flow Analysis for the Year 2023 with (with 220KV Swabi grid station) and with total demand 157.09 MW (90 MW demand of RSEZ GS-II GS and 67.09 MW demand of RSEZ GSI)

Load flow analysis for the year 2023 with the addition of RSEZ has been conducted for the condition under normal system conditions as provided in Exhibit # 3.0. The power flow through the transmission lines, the transformers, and the surrounding network are presented in this simulation and the result is summarized below.

The load flow analysis during the year 2023 has been conducted for N-1 contingency conditions. Whereas the summarized results of contingency simulations are provided as Exhibit# 3.1 to 3.6 below:

3.0	Normal Case
3.1	RSEZ GS-I – RSEZ GS-II line out
3.2	RSEZ GS-II-Mardan Line out
3.3	Mardan- charsada Line out
3.4	Mardan- RSEZ GS-I Line out
3.5	Swabi new- RSEZ GS-I Line out
3.6	Mardan- Mardan-III Line out

Table 5.6.1 Contingency Conditions with 220KV Swabi GS and With total demand 157.09 MW (90 MW demand of RSEZGS-II GS and 67.09 MW demand of RSEZ GSI base case 2023)

5.7 Load Flow Analysis for the Year 2025 with total demand 202.6 MW (90 MW demand of RSEZ GS-II and 112.6 MW demand of RSEZ GS-I)

Load flow analysis for the year 2025 with the addition of RSEZ has been conducted for the condition under normal system conditions as provided in Exhibit # 4.0. The power flow through the transmission lines, the transformer the RSEZ, and the surrounding network are presented in this simulation and the result is summarized below.

The load flow analysis during the year 2025 has been conducted for N-1 contingency conditions. Whereas the summarized results of contingency simulations are provided as Exhibit# 4.1 to 4.6 below:

Exhibit#	
4.0	Normal Case
4.1	RSEZ GS-I – RSEZ GS-II line out
4.2	RSEZ GS-II-Mardan Line out
4.3	Mardan- charsada Line out
4.4	Mardan- RSEZ GS-I Line out
4.5	Mardan- Mardan-III Line out
4.6	Swabi new- RSEZ GS-I Line out

Table 5.7.1 Contingency Conditions with total demand 202.6 MW (90 MW demand of RSEZ GS-II and 112.6 MW demand of RSEZ GS-I)

5.8 Conclusions of Load Flow Analysis

The results obtained after conducting load flow analysis of above mentioned years with normal and N-1 contingency conditions show that the proposed interconnection scheme of RSEZ has been found reliable in various operating scenarios and fulfills the requirements of the NEPRA Grid Code and other applicable Planning Criteria.

To meet the reactive power demand and power factor of RSEZ for 202.6MW load in year 2025, 20 MVAR switched shunt capacitors are proposed at 33 kV bus bars of RSEZ GS-II and 24 MVAR switched shunts are proposed at 11 kV bus bar of RSEZ GS-I.

Apart from the list of n-1 contingencies mentioned in the above table we analyzed some other n-1 contingencies in the vicinity of RSEZ and results show that the power flow on all the circuits are within defined limits and the voltages and loadings are in acceptable range of defined study criteria.

6. Short Circuit Analysis

6.1 Short Circuit Study Objectives

This section covers the short circuit analysis performed for the “Rashakai Special Economic Zone”. When Rashakai Special Economic Zone is added to a system, the available fault current of that system increases. Therefore, a short circuit study has been performed to determine if the circuit breakers of existing substations near the Rashakai Special Economic Zone have adequate short circuit interruption duties.

Short circuit analysis includes the three-phase and single phase-to-ground fault simulations.

Short circuit studies would determine the following;

- Maximum fault current levels the Rashakai Special Economic Zone Grid stations.
- Total fault currents and contribution from the associated network.
- Adequacy of short circuit capacity of switch gears at neighboring existing substations.

6.2 Short Circuit Study Assumptions and Criteria

Short circuit studies were carried out for evaluating the following short circuit levels of RSEZ at 132kV bus bar and contiguous network;

- Balanced 3-phase fault
- Un-balanced L-G fault

Analysis was performed for the year 2025, as the case would have all the planned generation and transmission systems components in service, which would produce the worst scenario with extreme fault level calculations.

Short circuit currents were calculated for maximum fault levels according to International Electro technical Commission (IEC) standard IEC-909, with the following assumptions;

- For calculations of maximum fault levels;
- Bus voltage has been assumed as 1.10 per unit (p.u) i.e. 10 % above the nominal.
- Maximum dispatch of all the generation in the system has been taken.
- Taps ratios of all the transformers to be assumed at unity.
- Charging of all the transmission lines to be assumed at zero.
- All the shunt compensations to be assumed at zero in a positive sequence.

6.3 Short Circuit Study with Rashakai Special Economic Zone GS-I and RSEZ GS-II in the year 2025

To analyze the impact of the RSEZ on the system, Short circuit analysis is performed after connecting the RSEZ GS-I and GS-II. The base case year 2025 is simulated for the subject study.

The total maximum short circuit levels at the substations located in the electrical vicinity of the area of interest have been calculated and are tabulated below;

Short circuit levels with the addition of Rashakai Special Economic Zone in the year 2025 are below and results are in Appendix-5.

Short Circuit Levels at Substations				
No.	Substation	Voltage (kV)	Three Phase Fault (kA)	Single Line to Ground Fault (kA)
1.	RSEZ GS-I	132kV	16.3	11.1
2.	RSEZ GS-II	132kV	16.3	11.1
3.	RSEZ GS-I	11 KV	20.6	22.0
4.	RSEZ GS-II	33 KV	8.1	8.6
5.	Mardan	220kV	21.3	15.7

6.	Swabi new	132kV	22.9	16.9
7.	Mardan	132kV	30.9	23.9
8.	Swabi	220 kV	15.5	10.5

Table 6.3.1 Maximum Short Circuit level with RSEZ GS-I and RSEZ GS-II in the year 2025

6.4 Conclusions of Short Circuit Analysis

Maximum short circuit levels in the 2025 year are computed with the Rashakai Special Economic Zone GS-I and GS-II for selection of circuit breaker ratings and relay coordination respectively.

Moreover, to see the short circuit current contribution of the "Rashakai Special Economic Zone", short circuit levels at the substations located in the electrical vicinity of the RSEZ are also calculated. The findings show that with the addition of this RSEZ, fault levels do not exceed the standard circuit breaker ratings of existing installed equipment at the neighboring substations.

The short circuit levels of 'Rashakai Special Economic Zone' are well below the ratings of standard 40kA switchgear; hence it is suggested to use 40kA Circuit breaker at 'Rashakai Special Economic Zone'.

Therefore, it is concluded that the proposed interconnection scheme holds good based on short circuit analysis as well.

7. Transient Stability Analysis

7.1 Transient Stability Study Objectives

The transient phase is the passage from the initial to the final conditions emanating from the disturbances in its operating conditions either on RSEZ or on the network in its vicinity. To analyze these conditions, detailed transient stability studies were carried out for the RSEZ.

The stability studies are carried out to check the dynamic impact on the RSEZ due to faults or disturbance in proposed grid stations and, in turn, the impact of disturbances in the nearby grid stations.

The studies involved the choice of equipment and optimum regulation through control strategies which allow the system to remain in stable conditions under potential risks. Transient stability studies provide the basis of the power system for the subject economic zone as it determines the following;

- Transient stability of the RSEZ after any fault occurs in the system by the damping of fluctuations in frequency, MW and MVAR, etc.
- The capability of the system to damp the oscillations timely.
- Operating limits of frequency, MW, and MVAR for RSEZ as imposed by the NEPRA Grid Code standards.
- Proposal of remedial solutions in the event of a problem.

7.2 Transient Stability Study Criteria

The benchmark criteria for transient stability analysis are;

- Three-phase short circuit fault application at important and selected buses (for N-1 fault contingencies locations) is evaluated as per standards of NEPRA stability criteria.
- Transient stability analysis is simulated for the two following circuit breaker fault clearing time durations;
- Normal 5 cycle opening time, with the opening of the faulted system component.
- Stuck breaker conditions of delayed breaker opening after 9 cycles. (without opening adjacent breakers and as per PESCO/NTDC requirements and practices of simulations)
- Transient stability of proposed RSEZ Grid stations after tripping a nearby transmission line.

7.3 Transient Stability Performance of Rashakai SEZ

To study the transient behavior of RSEZ and system towards the disturbances, the following faults are subjected:

- 3-Phase balanced fault at Rashakai Special Economic Zone cleared in 5 cycles.
- 3-Phase balanced fault at adjacent ends cleared in 5 cycles.
- 1-Phase to ground fault at Rashakai Special Economic Zone cleared in 9 cycles
- 1-Phase to ground fault at adjacent ends cleared in 9 cycles.

To obtain the results, every simulation is carried for the steady-state condition for one second, to ensure that the system is completely stable and steady before the fault is applied in the system (pre-fault conditions/drift run test). Then the fault is applied and the system is simulated for the fault clearance time. After the clearance of the fault from the system (post-fault conditions) followed by a certain contingency, the system is observed for 10 seconds to ensure that oscillations in various quantities are damped and the system has re-instated the stability conditions, dynamic analysis plots are attached in Appendix-6.

Furthermore the peak load case year 2022 has been selected for the stability analysis, the stability has not been analyzed for year 2025 because at this project stage there is no additional information about the nature of load is available therefore it is recommended that in future RSEZ shall conduct separate dynamic system studies to

maintain the system stability and reliability within both RSEZ GS-I and RSEZ GS-II for reactive power/voltage control and power quality mitigation based on size, location, and type of industrial loads.

7.3.1 3-Phase fault at Rashakai Special Economic Zone cleared in 5 cycles – August 2022 year base case

The three phase fault is applied at the proposed Rashakai Special Economic Zone bus then each fault is removed in 5 cycles (100 msec) accompanied by a particular N-1 contingency and transient stability response of the system is monitored, which is summarized in the table below

RSEC GS-I 132 kV	RSEZ GS-I 132kV – RSEZ GS-II 132kV One Circuit Out.	5.0	Bus voltage
		5.1	Bus Frequency
		5.2	Power and VARS
		5.3	Rotor Angle

Table 7.3.1.1 Dynamic stability analysis for 5 cycles

7.3.2 3- phase fault at adjacent end cleared in 5 cycles– August 2022 year base case

The three phase fault is applied on the adjacent end location of the line and the fault is removed in 5 cycles (100 msec) accompanied by a range of possible outages. The transient stability response of the system is monitored for these conditions, which is summarized in the table below:

Mardan 132 kV	RSEZ GS-II 132kV – Mardan 132kV One Circuit Out.1066-1070	5.4	Bus voltage
		5.5	Bus Frequency
		5.6	Power and VARS
		5.7	Rotor Angle
RSEZ GS-I 132kV	RSEZ GS-I 132kV – Mardan132kV One Circuit Out.1068- 1070	5.8	Bus voltage
		5.9	Bus Frequency
		5.10	Power and VARS
		5.11	Rotor Angle
Mardan 132kV	Mardan III 132kV – Marda132kV One Circuit Out.1070-1071	5.12	Bus voltage
		5.13	Bus Frequency
		5.14	Power and VARS
		5.15	Rotor Angle
Mardan 220 kV	Mardan 220/132kV transformer out	5.16	Bus voltage
		5.17	Bus Frequency

Fault Location		Fault Clearance Time	
Mardan 220 kV	Tarbela 220kV- Mardan 220kV one circuit out.200-150	5.18	Power and VARS
		5.19	Rotor Angle
		5.20	Bus voltage
		5.21	Bus Frequency
		5.22	Power and VARS
		5.23	Rotor Angle

Table 7.3.2.1 Dynamic stability analysis for 5 cycles

7.3.3 SLG fault at Rashakai Special Economic Zone cleared in 9 cycles – August 2022 year base case

The LG fault is applied at the "Rashakai Special Economic Zone" and the fault is cleared in 9 cycles (180 msec) to simulate delayed fault clearing situation, followed by a trip of a single circuit. If a system can overcome this fault after time of 9 cycles then it is assumed to be stable in any of the possible delayed breaker opening conditions up to 180 msec.

Transient stability response of the system under these special conditions is monitored, which is summarized in the table below:

Fault Location		Fault Clearance Time	
RSEC GS-I 132 kV	RSEC GS-I 132kV – RSEC GS-II 132kV One Circuit Out.	6.0	Bus voltage
		6.1	Bus Frequency
		6.2	Power and VARS
		6.3	Rotor Angle

Table 7.3.3.1 Dynamic stability analysis for 9 cycles

7.3.4 SLG fault at adjacent end cleared in 9 cycles – August 2022 year base case

The LG fault is applied on certain adjacent end locations, the fault is cleared in 9 cycles (180 msec) accompanied by a range of possible trips. The transient stability response of the system is monitored for these conditions, which is summarized in the table below:

Fault Location		Fault Clearance Time	
Mardan 132 kV	RSEC GS-II 132kV – Mardan 132kV One Circuit Out.1066-1070	6.4	Bus voltage
		6.5	Bus Frequency
		6.6	Power and VARS
		6.7	Rotor Angle

Location	From	To	Parameter
RSEZ GS-I 132kV	RSEZ GS-I 132kV – Mardan132kV One Circuit Out.1068- 1070	6.8	Bus voltage
		6.9	Bus Frequency
		6.10	Power and VARS
		6.11	Rotor Angle
Mardan132kV	Mardan.III 132kV – Marda132kV One Circuit Out.1070-1071	6.12	Bus voltage
		6.13	Bus Frequency
		6.14	Power and VARS
		6.15	Rotor Angle
Mardan 220 kV	Mardan 220/132kV transformer out	6.16	Bus voltage
		6.17	Bus Frequency
		6.18	Power and VARS
		6.19	Rotor Angle
Mardan 220 kV	Tarbela 220kV- Mardan 220kV one circuit out.200-150	6.20	Bus voltage
		6.21	Bus Frequency
		6.22	Power and VARS
		6.23	Rotor Angle

Table 7.3.4.1 Dynamic stability analysis for 9 cycles

7.4 Conclusions of Transient Stability Analysis

The transient stability studies are carried out to check the dynamic impact on RSEZ due to faults or disturbance in the national grid system for August 2022 year base cases and, in turn, the impact of disturbances in the adjacent network on the grid system. The results of transient stability analysis show that the power system is stable for the suggested interconnection scheme of the "Rashakai Special Economic Zone" for the faults on the substations that might be near to or distant from the RSEZ. It is therefore concluded that, with the addition of the RSEZ, there are no stability issues seen and it fulfills all the criteria for the generation connected with the power system.

8. Overall Conclusions and Recommendations

The Rashakai Special Economic Zone (RSEZ) is located between the 220/132 kV Mardan and proposed 220/132 kV Swabi grid stations of PESCO. The Rashakai SEZ comprises of proposed RSEZ GS-I and GS-II, the interconnection scheme consists of 24.32 km from 220/132 kV Grid Station Mardan to RSEZ GS-II using S/C rail conductor, whereas 24.37 km Mardan to RSEZ GS-I using S/C rail conductor, As a second source 30 km from proposed 220/132 kV Grid Station Swabi to RSEZ GS-I using D/C rail conductor, whereas 0.05km GS-I to GS-II using S/C rail conductor.

There is the strong network of PESCO comprises of 220/132 kV Mardan GS –Mardan-II 132 kV GS, 6 KM double circuit transmission line, 25 KM Mardan-II – Jalala S/C 132 kV transmission line, 11 km 220/132 kV Mardan GS – 132 kV ZRK GS, single circuit transmission line, 15km 132 kV ZRK GS – 132 kV Dobian GS single circuit transmission line and 35.5 KM Dobian GS – Marbel city 132kV GS single circuit transmission line.

RSEZ has total proposed load demand of 202.6 MW which is divided into following phases.

Sl. No.	Phase	Load (MW)	Completion Date
1	Phase-I RSEZ Grid Station (GS-II)	45	30-Aug-2022
2	Phase-I RSEZ Grid Station (GS-I)	22.09	30-Aug-2022
3	Phase-II RSEZ Grid Station (GS-I)	45.9	31-Dec-2023
4	Phase-II RSEZ Grid Station (GS-II)	45	31 st December 2023
5	Phase-III RSEZ Grid Station (GS-I)	44.61	31-Dec-2025
	Total demand load	202.6MW	

PESCO grid system, after addition of the RSEZ has been analysed for load flow, short circuit, and transient stability studies to determine whether the plant connection with the PESCO grid meets the NEPRA Grid Code Planning Criteria requirements.

The latest and up-to-date NTDC/PESCO network model base cases have been used. The steady-state, sequence, and dynamic data for the Rashakai Special Economic Zone is processed to build the steady-state, short circuit, and dynamic models in PSSE software format.

A detailed power system analysis study on the peak load demand of the Rashakai Special Economic Zone is prepared and results of the study are listed below.

1. Load flow analysis

The analysis has been performed for the year 2022, the year 2023, and the year 2025. The power flow analysis shows that the bus voltages and line loadings in all the cases, with and without the addition of the RSEZ are within the acceptable limit as per the NEPRA Grid Code Planning Criteria.

2. Contingency analysis

N-1 contingency analysis also has been performed for the year 2022, the year 2023, and the year 2025 and the results were also validated as per the thermal and voltage limits in associated N-1 post contingency conditions. The results of the contingency analysis shows that there are no thermal and voltage violations under N-1 conditions in the NTDC and PESCO network due to RSEZ addition.

3. Short circuit analysis

Maximum short circuit levels have been conducted in the year 2025. Moreover, to see the short circuit current contribution of 'Rashakai Special Economic Zone', maximum short circuit levels at the substations located in the vicinity of the project were also computed. The 3-phase and 1-phase short circuit currents at both 132kV RSEZ GS-I & RSEZ GS-II grid stations are 16.3 KA and 11.1 kA respectively. This shows that the short circuit levels of 'Rashakai Special Economic Zone' are well below the ratings of standard 40kA switchgear; hence it is suggested to use 40kA Circuit breaker at 'Rashakai Special Economic Zone'.

Therefore, it is concluded that the proposed interconnection scheme holds good based on short circuit analysis as well.

4. Transient stability analysis

The transient stability studies were carried out to check the dynamic impact due to potential faults in the PESCO grid system and, in turn, the impact of disturbances in the proposed RSEZ grid stations on the PESCO grid system. The RSEZ is found to meet all the transient stability requirements under Normal clearing 5 cycle opening time and stuck breaker conditions of delayed breaker opening after 9 cycles and tripping of the associated circuit.

The results of transient stability analysis show that the power system is stable for the suggested interconnection scheme of the 'Rashakai Special Economic Zone'.

5. Reactive power compensation

To meet the reactive power demand and power factor of RSEZ for 202.6MW load in year 2025, 20 MVAR switched shunt capacitors are proposed at each 33 kV bus bars of RSEZ GS-II and 24 MVAR switched shunts are proposed at each 11 kV bus bar of RSEZ GS-I.

6. Recommendations

RSEZ is required to install appropriate reactive compensation at its end to maintain a 0.95 (lag) power factor at the point of interconnection. Also, it is noted that substantial attention needs to be given to the design of 11kV and 33 kV distribution network, to optimize feeder lengths and voltage profile as well to increase supply reliability for customers. Also, RSEZ shall conduct separate system studies for the installation of reactive power compensation equipment (static/dynamic where necessary) within both RSEZ GS-I and RSEZ GS-II for reactive power/voltage control and power quality mitigation based on size, location, and type of industrial loads.

Based on the study results, overall it is concluded that the proposed interconnection scheme for 'Rashakai Special Economic Zone' meets all the NEPRA Grid Code and Planning Criteria

7. Compliance by PESCO

PESCO will make sure that its transmission network is upgraded as modelled in the base cases. Particularly the following circuits will be completed before the commission of the Rashakai SEZ Load:

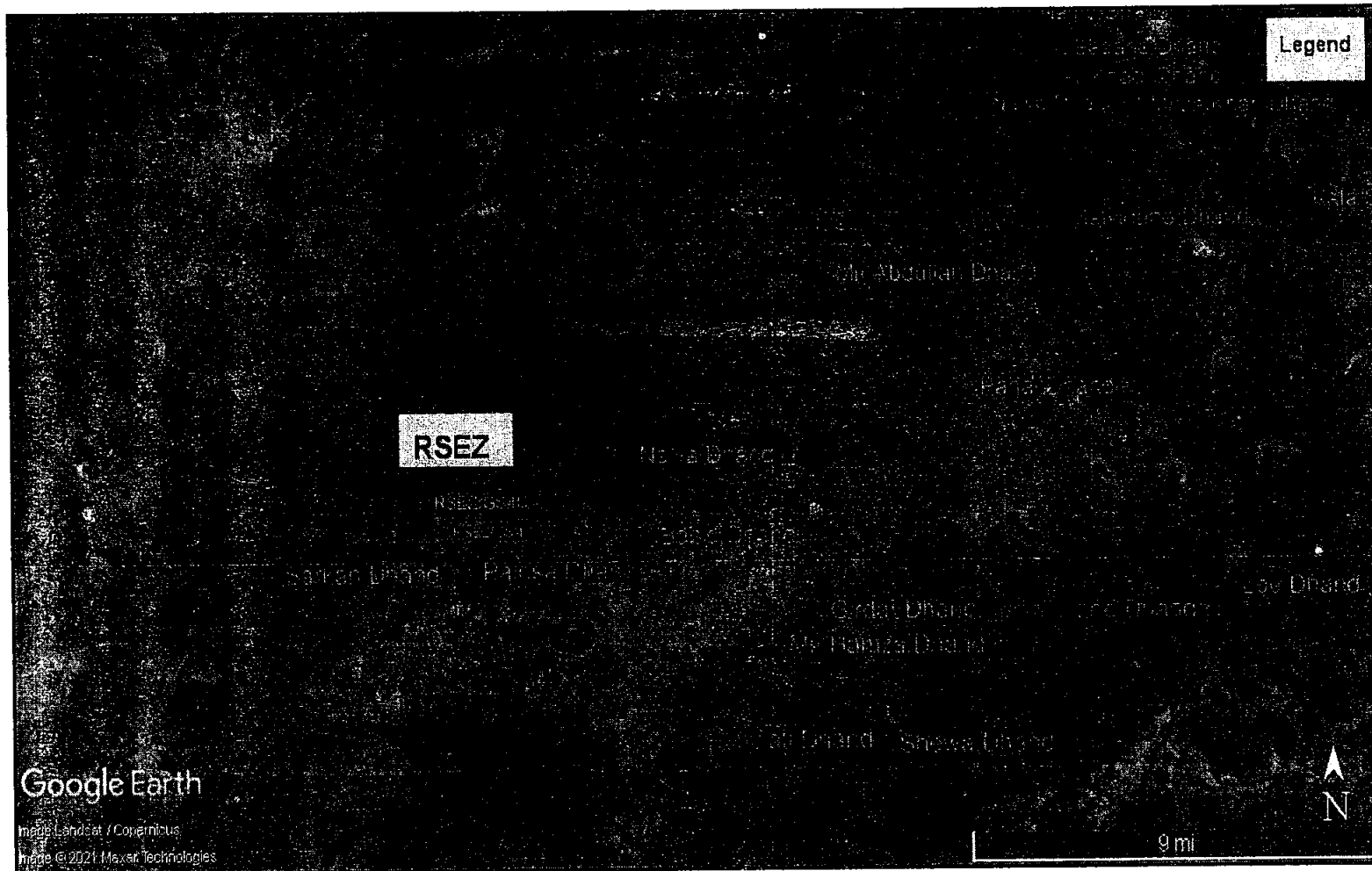
- Construction of 132kV Single Circuit (S/C) on Rail conductor from 220kV Nowshera to Pabbi
- Construction of 132kV S/C transmission line on Rail conductor from 220kV Chakdara-Salarzai-Daggar Buner
- Reconductoring of remaining portion of 132kV transmission line from 220/132kV Nowshera-132kV Nowshera Industrial on Lynx conductor to Rail Conductor
- 132kV Circuit S/C Mardan-ZRK-Marble City-Nowshera City will be made in/out at Dobian"

Appendices

Appendix-1	Geographical location
Appendix-2	Bubble diagram & Proposed interconnection scheme
Appendix-3	Load Flow Analysis Sketches
Appendix-4	Short Circuit Analysis Results
Appendix-5	Dynamic Analysis

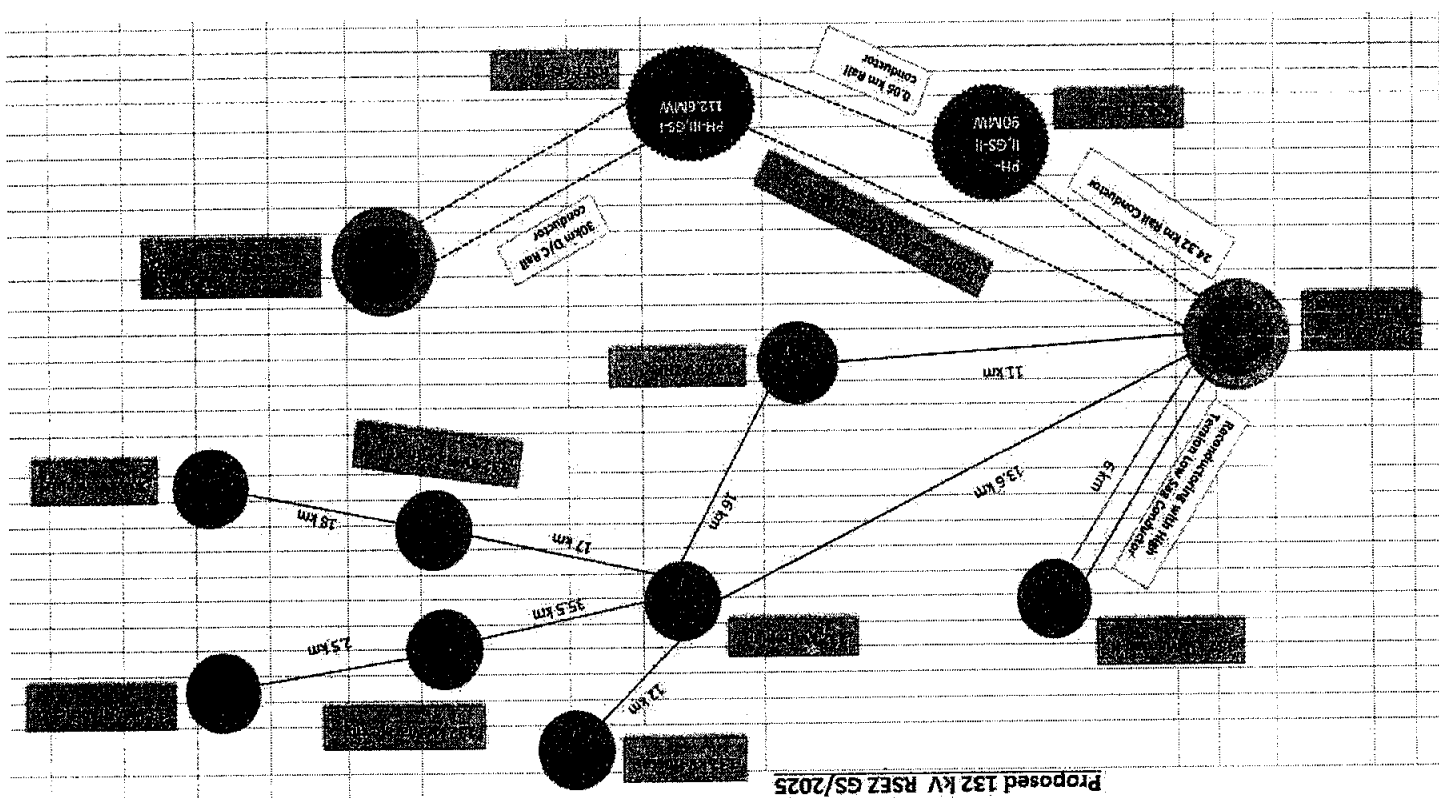
APPENDIX-1
Geographical location

Geographical location of the RSEZ



APPENDIX-2

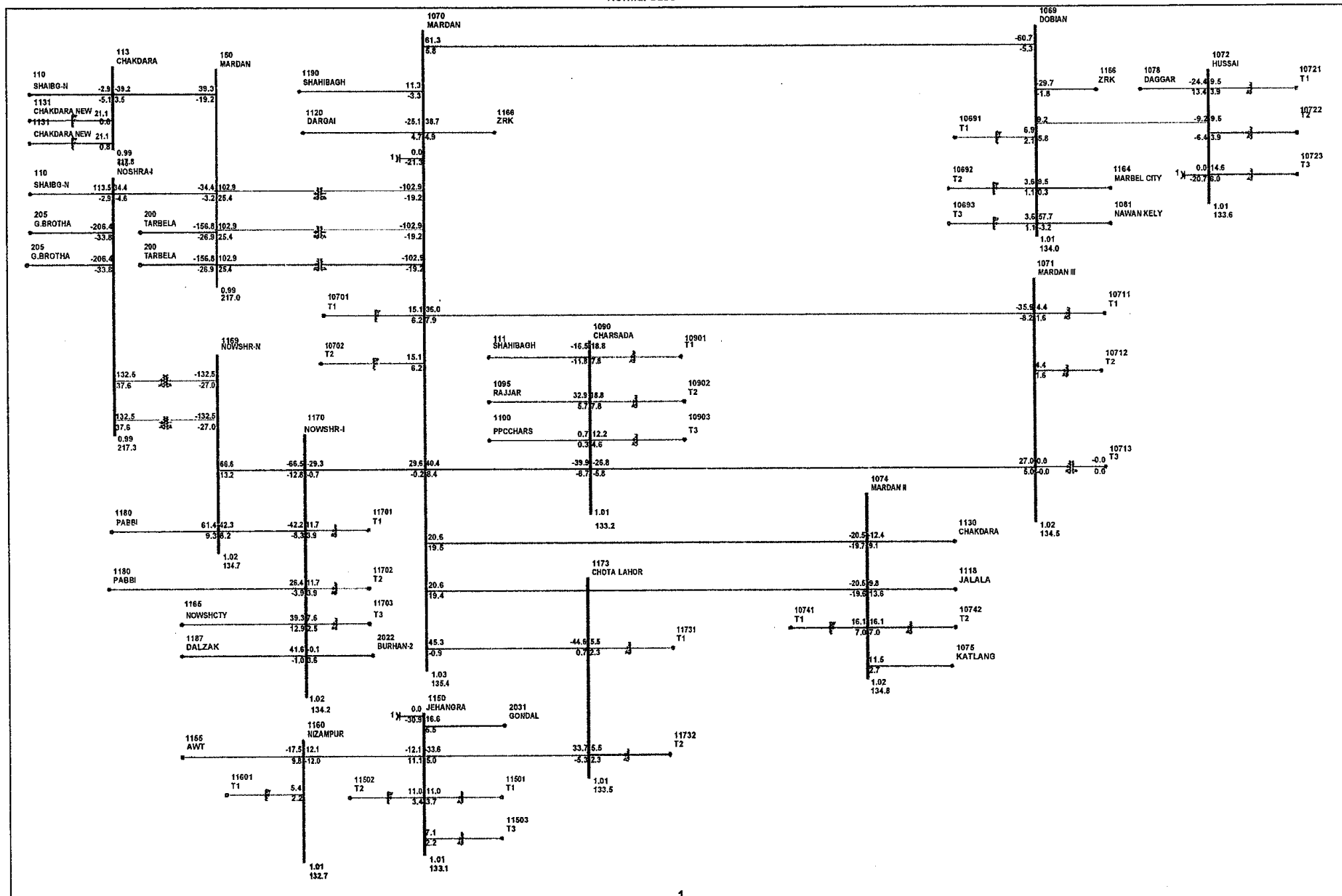
Bubble diagram



APPENDIX-3
Load Flow Analysis Sketches

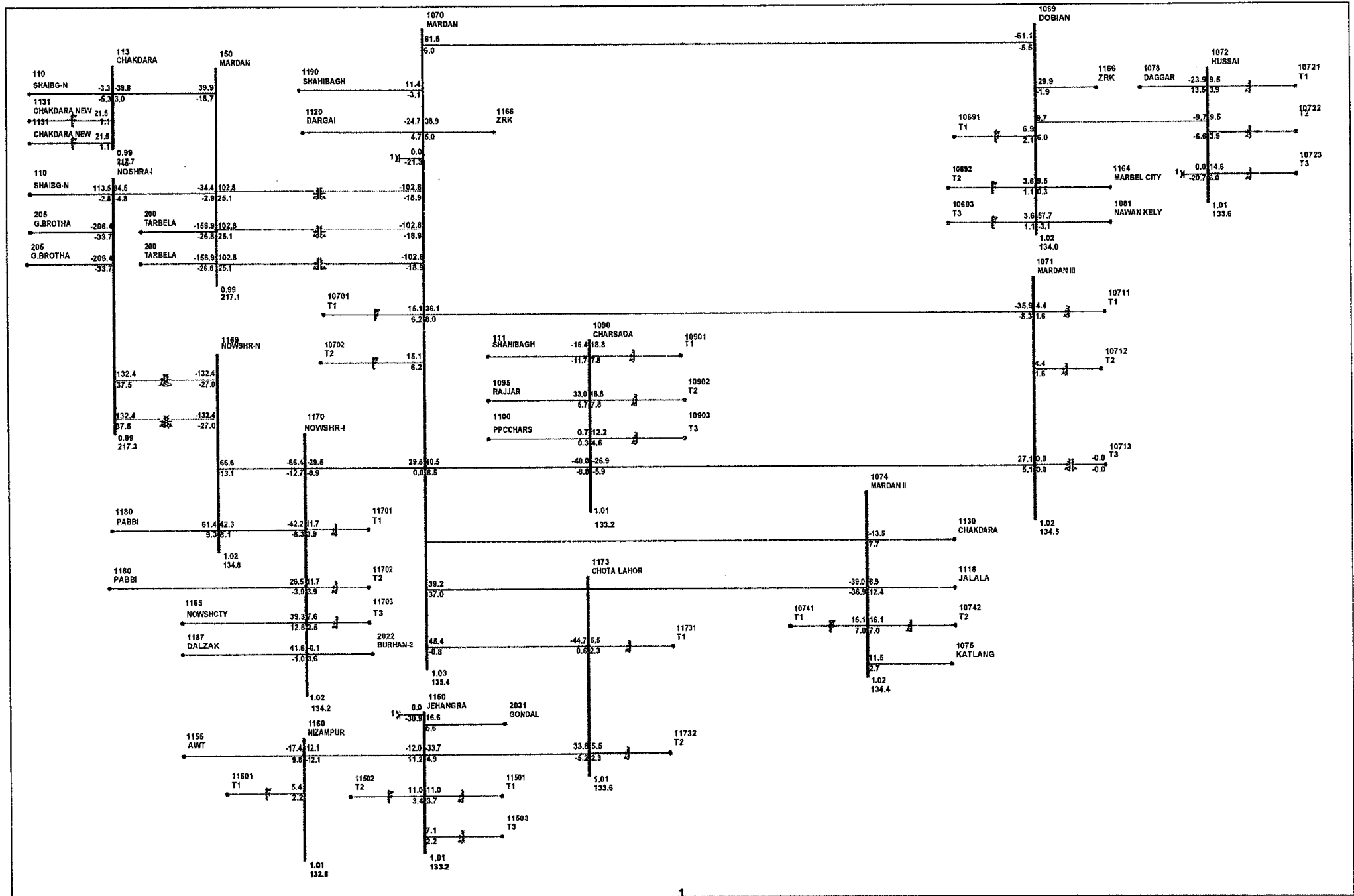
Normal Case

1



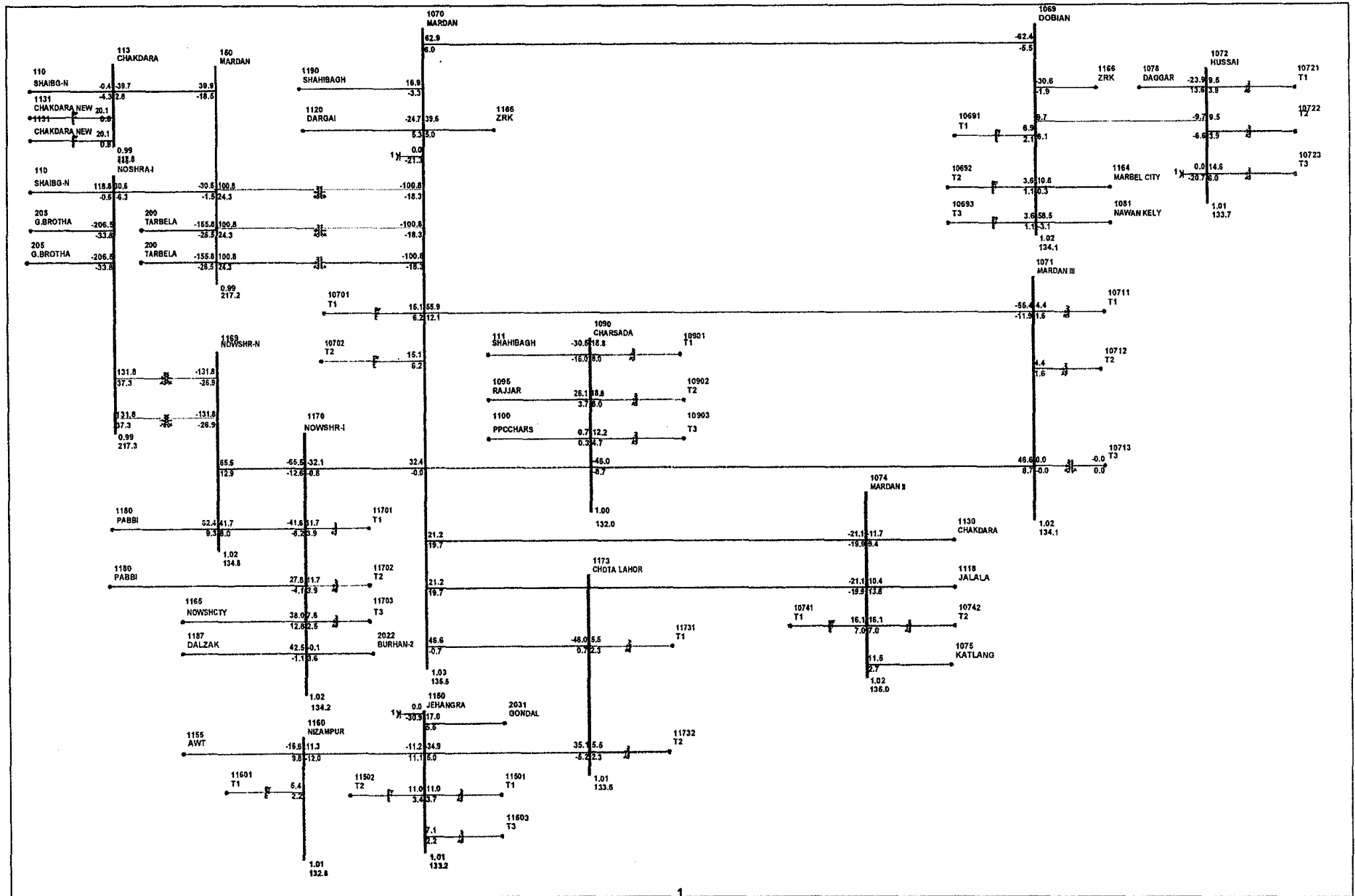
Mardan-Mardanli line out

4



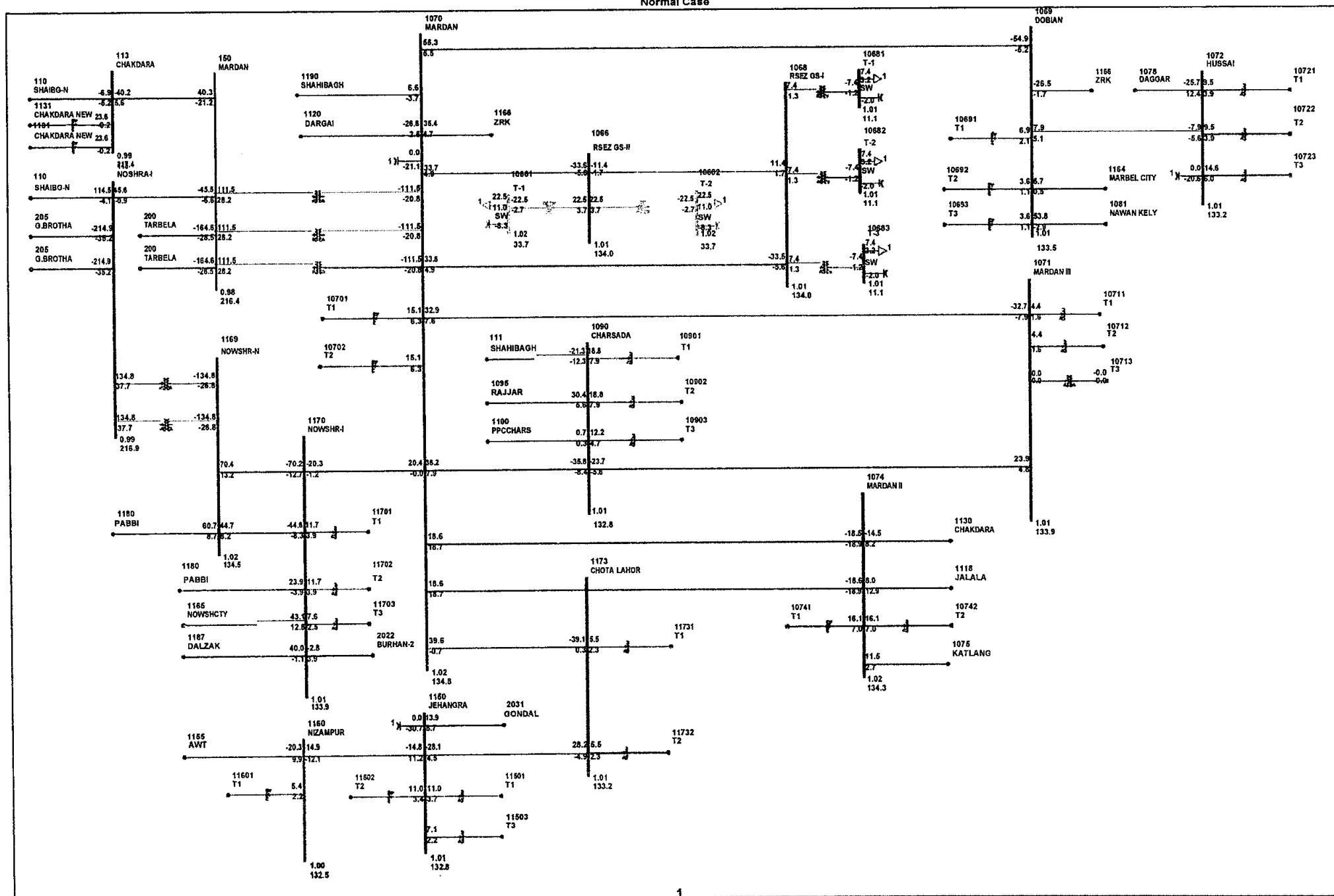
Mardan- charsada Line out

•



Normal Case

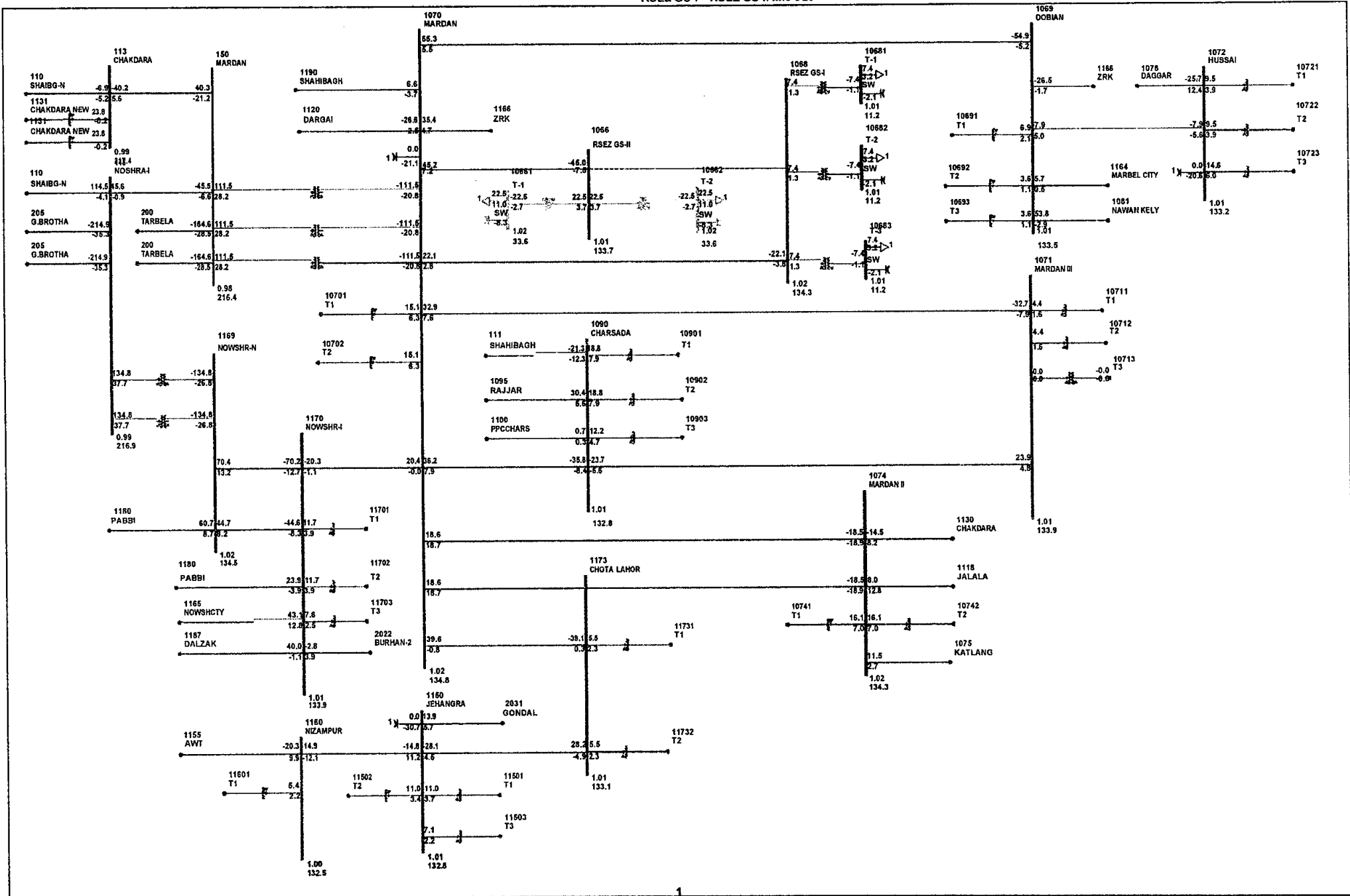
2



Grid Interconnection Study of 202.6 MW Rashalkai
Base Case 2022 with total demand 67.2 MW (45 MW at RSEZ GS-II and 22.09 MW at RSEZ GS-I)

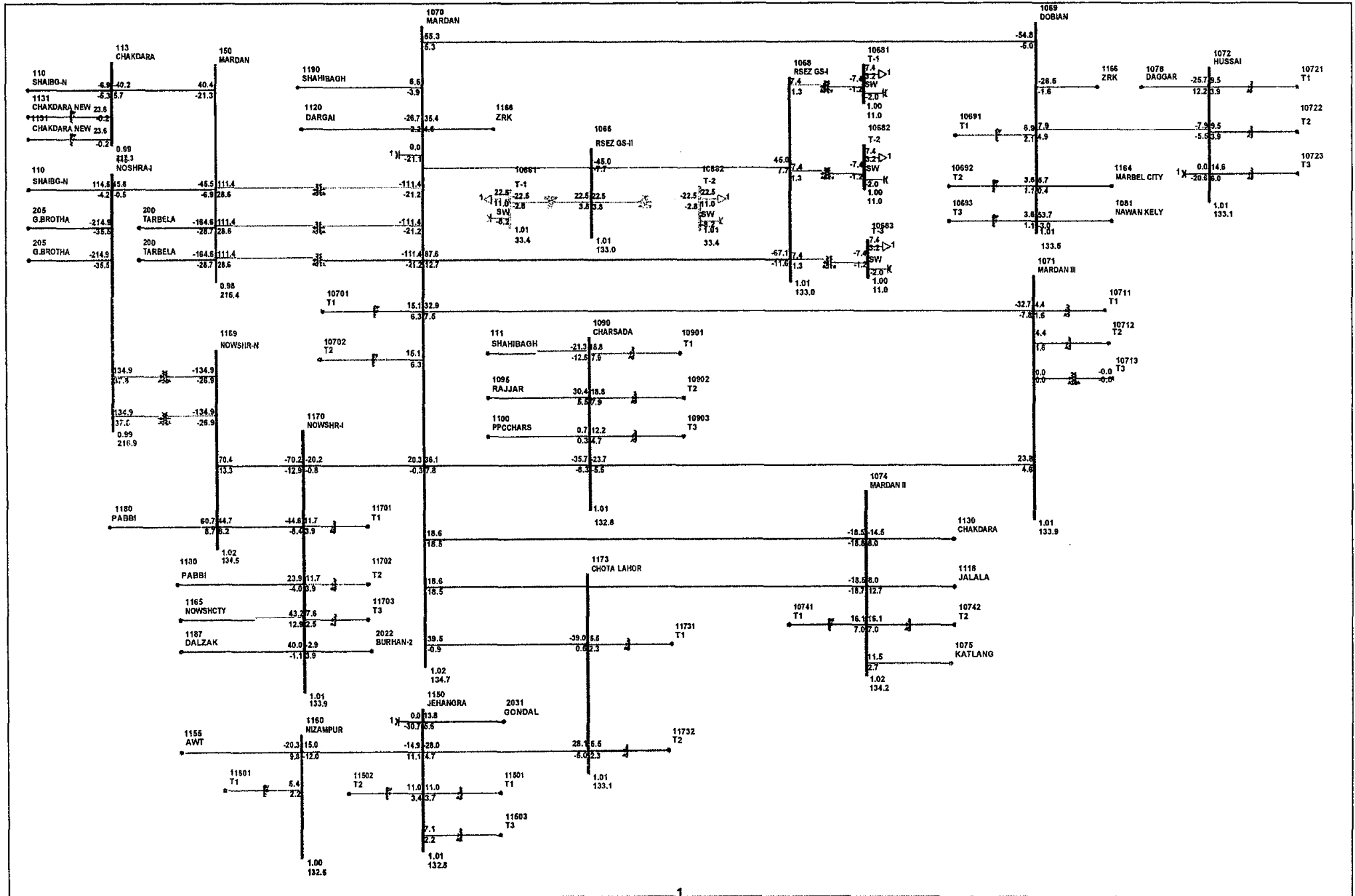
RSEZ GS-I – RSEZ GS-II line out

Exhibit 2.1



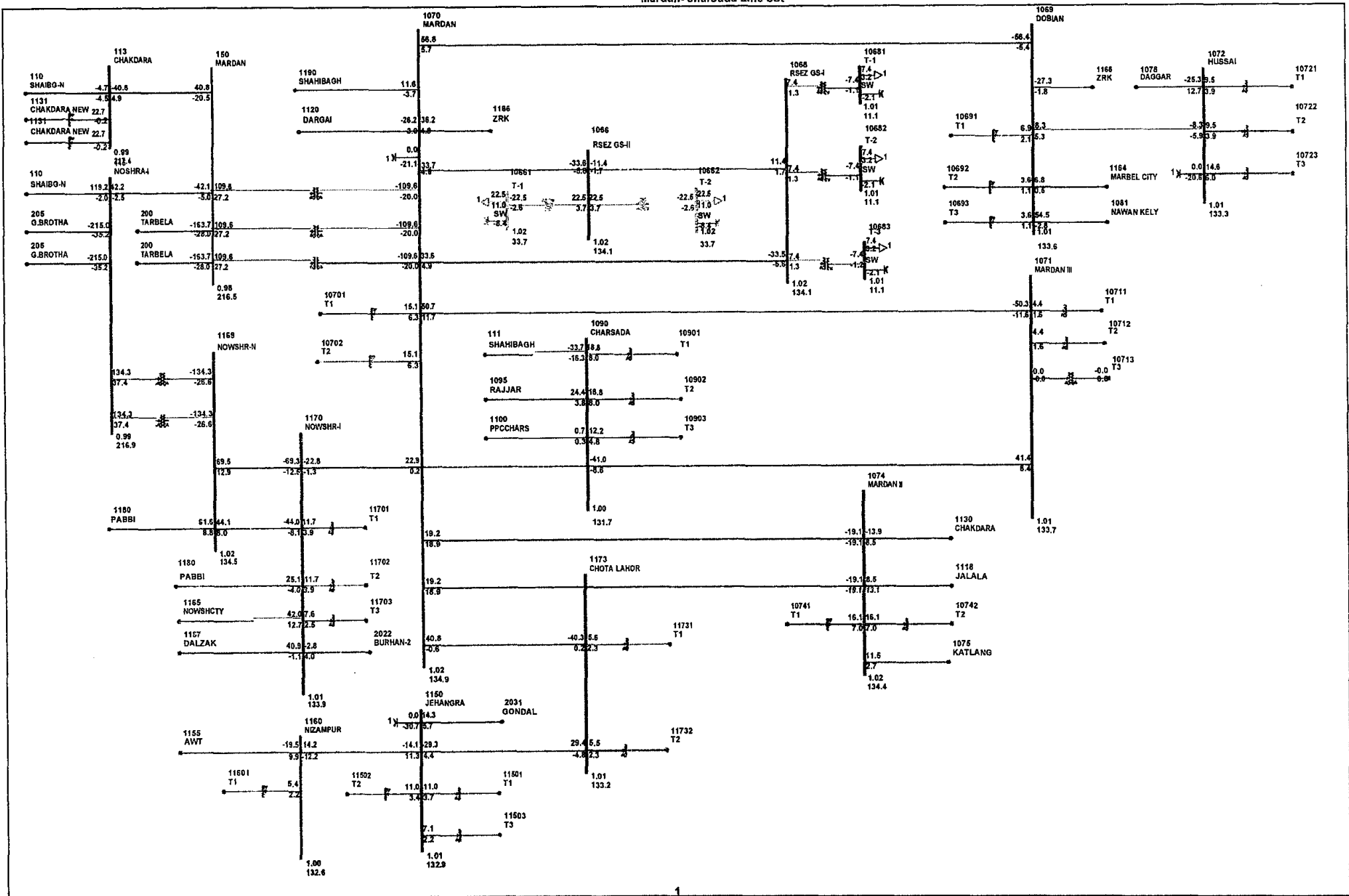
Grid Interconnection Study of 202.6 MW Rashalkai
Base Case 2022 with total demand 67.2 MW (45 MW at RSEZ GS-II and 22.09 MW at RSEZ GS-I)
RSEZ GS-II-Mardan Line out

Exhibit 2.2



Mardan- charsada Line out

1

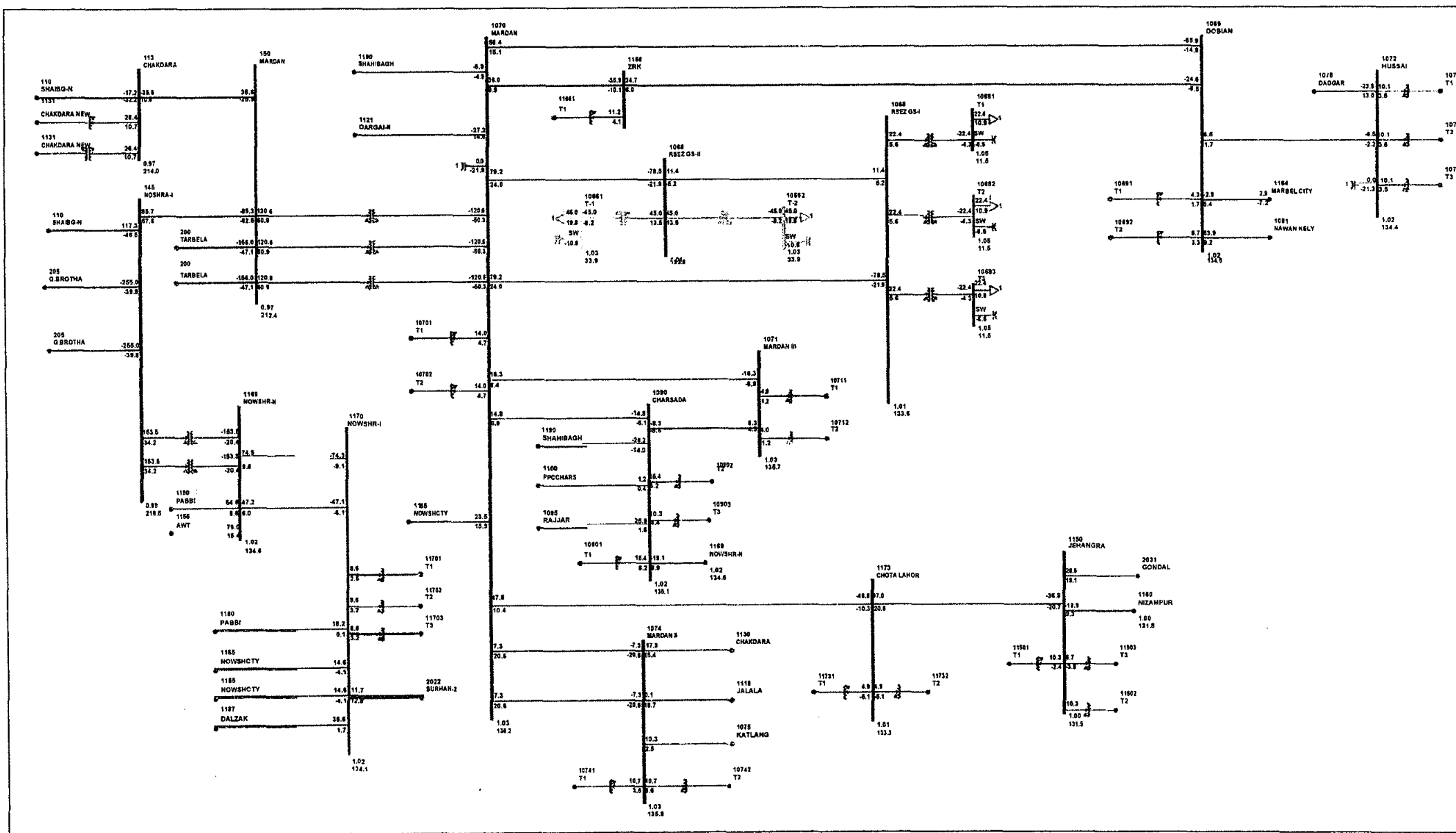


Mardan- RSEZ GS-I Line out

•

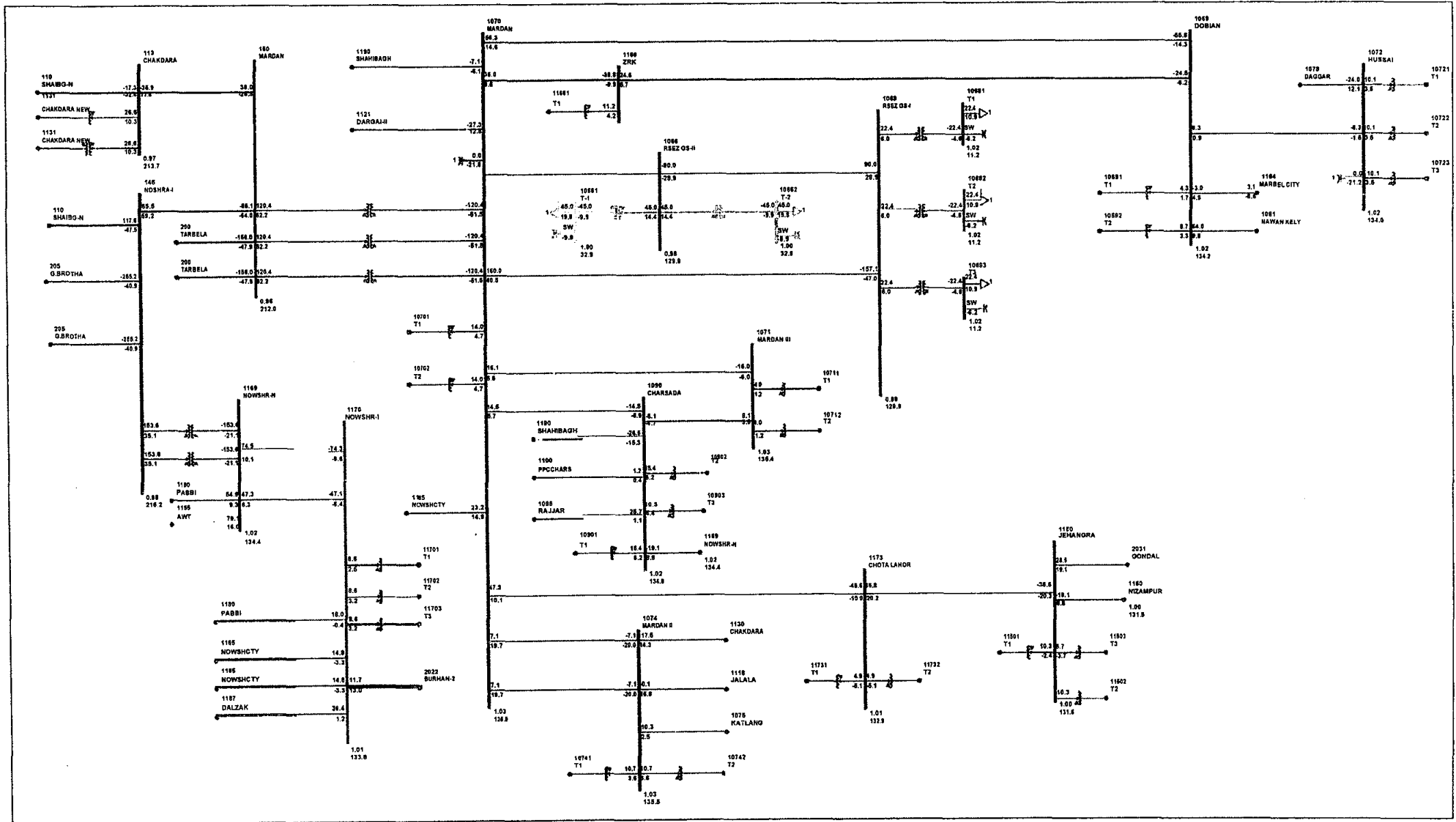
Mardan-mardan-III line out

1

Exhibit 3.0(a)

Grid Interconnection Study of 202.6 MW Rashakai SEZ
Base Case 2023 (Without 220kV Swabi) with total demand 157.98 MW (90 MW at RSEZ GS-II and 67.98 MW at RSEZ GS-I)
RSEZ GS-II-Mardan Line out

Exhibit 3.2(a)



Grid Interconnection Study of 202.6 MW Rashakai SEZ
Base Case 2023 (Without 220kV Swabi) with total demand 157.98 MW (90 MW at RSEZ GS-II and 67.98 MW at RSEZ GS-I)
Mardan- charsada Line out

Exhibit 3.3(a)

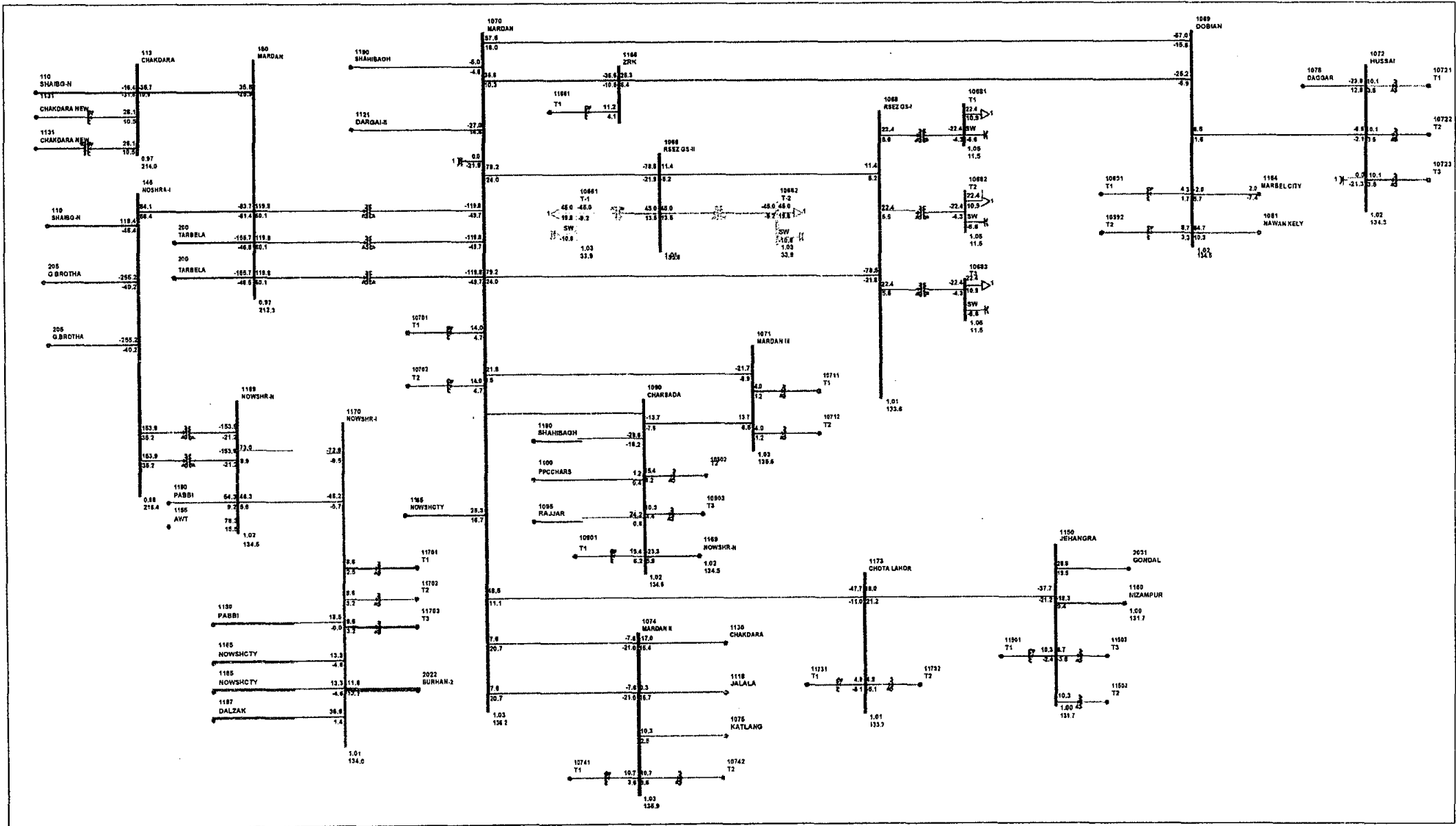
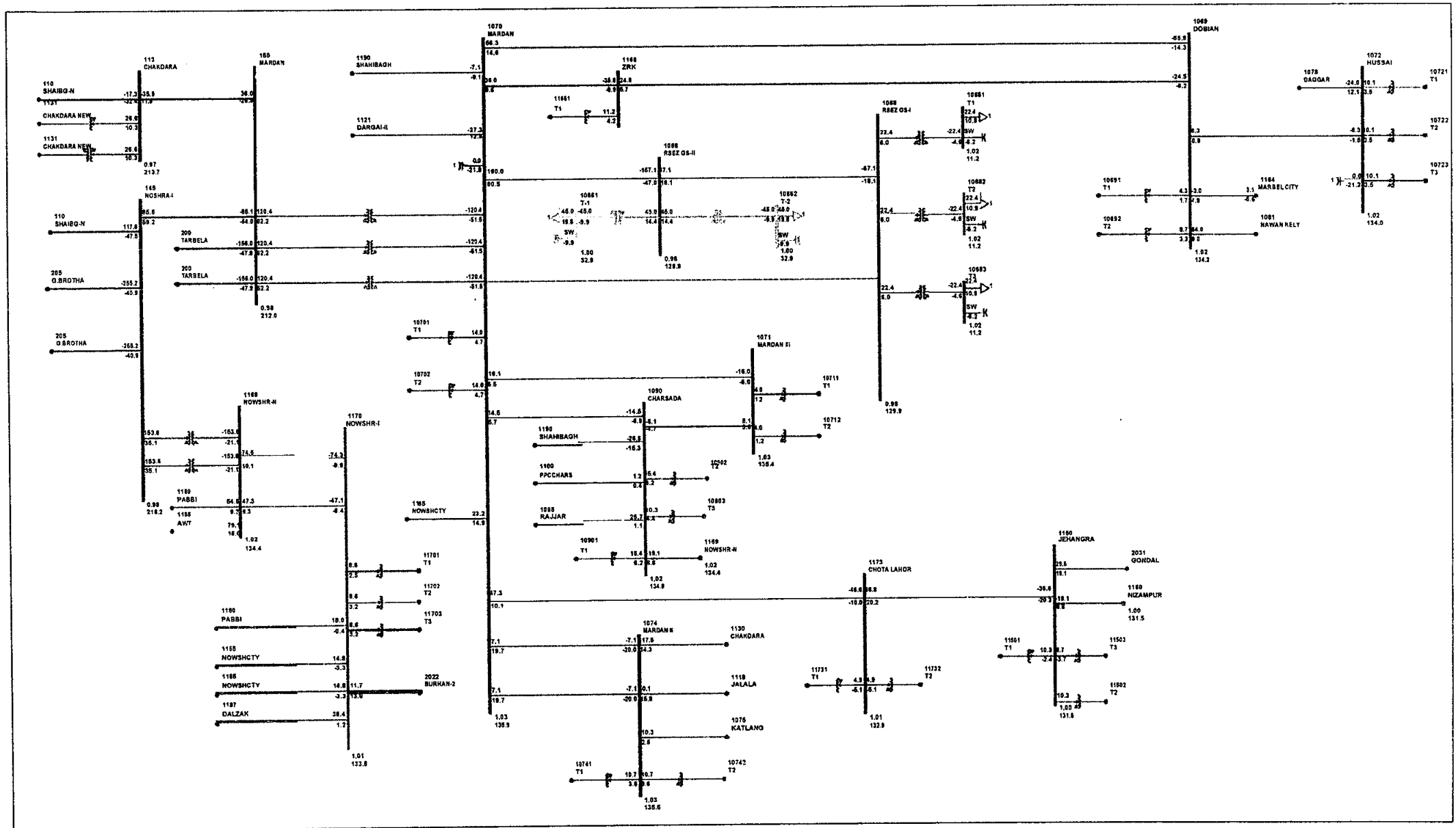


Exhibit 3.4(a)



Grid Interconnection Study of 202.6 MW Rashakai SEZ
Base Case 2023 (Without 220kV Swabi) with total demand 157.98 MW (90 MW at RSEZ GS-II and 67.98 MW at RSEZ GS-I)
Mardan-Mardan-III Line out

Exhibit 3.5(a)

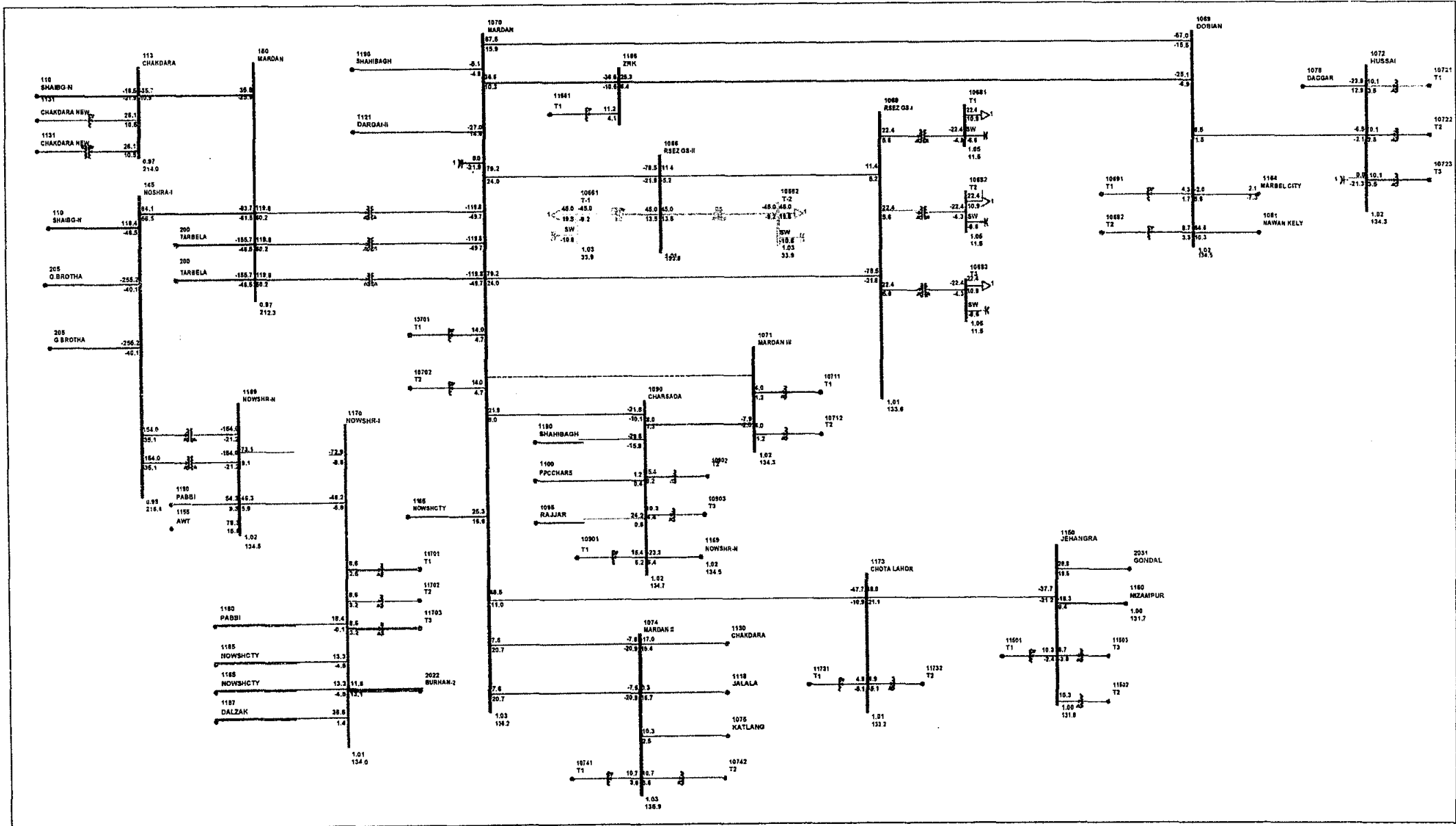
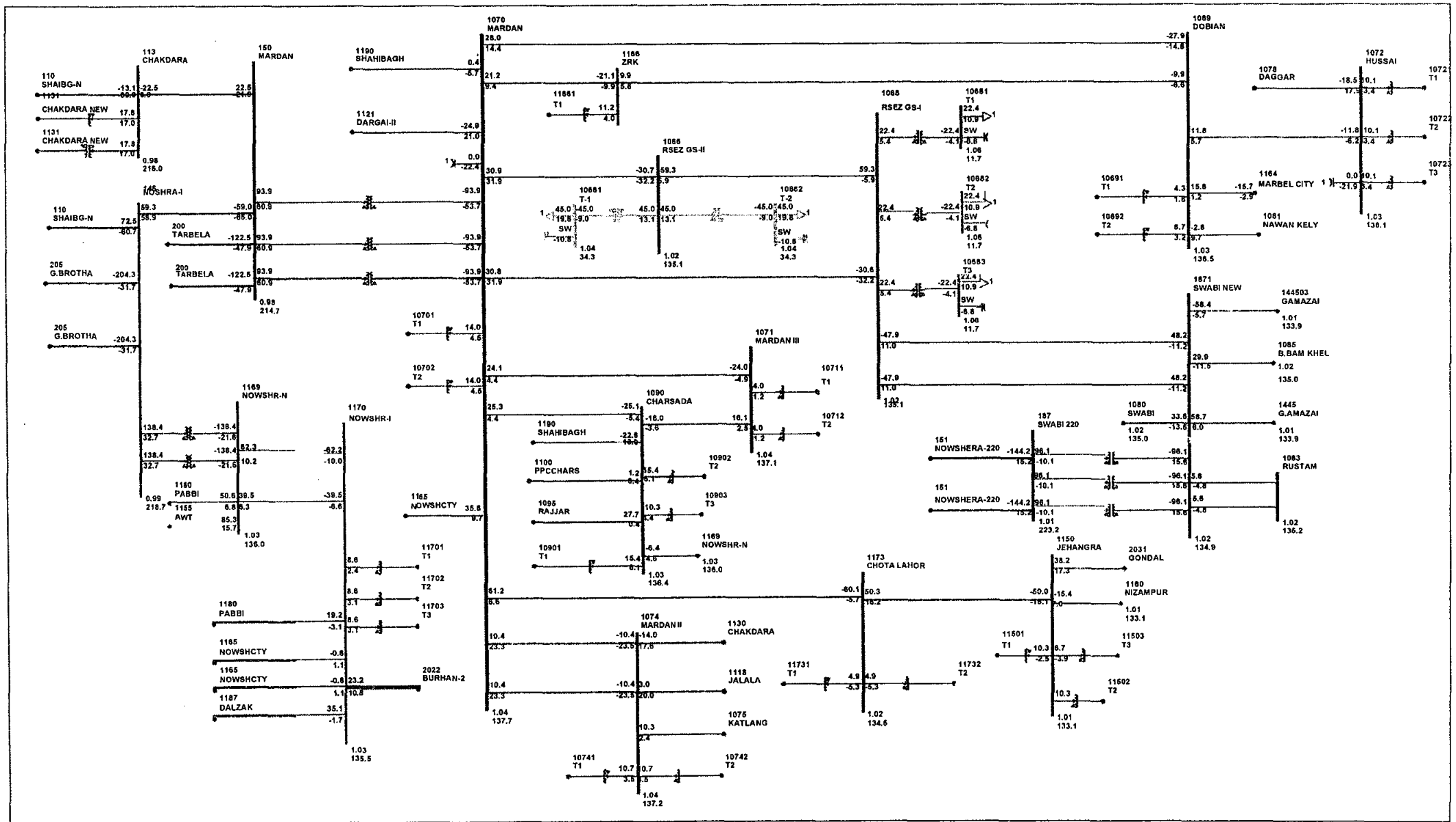


Exhibit 3.0



Grid Interconnection Study of 202.6 MW Rashakai SEZ
Base Case 2023 (with 220KV Swabi) with total demand 157.98 MW (90 MW at RSEZ GS-II and
RSEZ GS-I – RSEZ GS-II line out

Exhibit 3.1

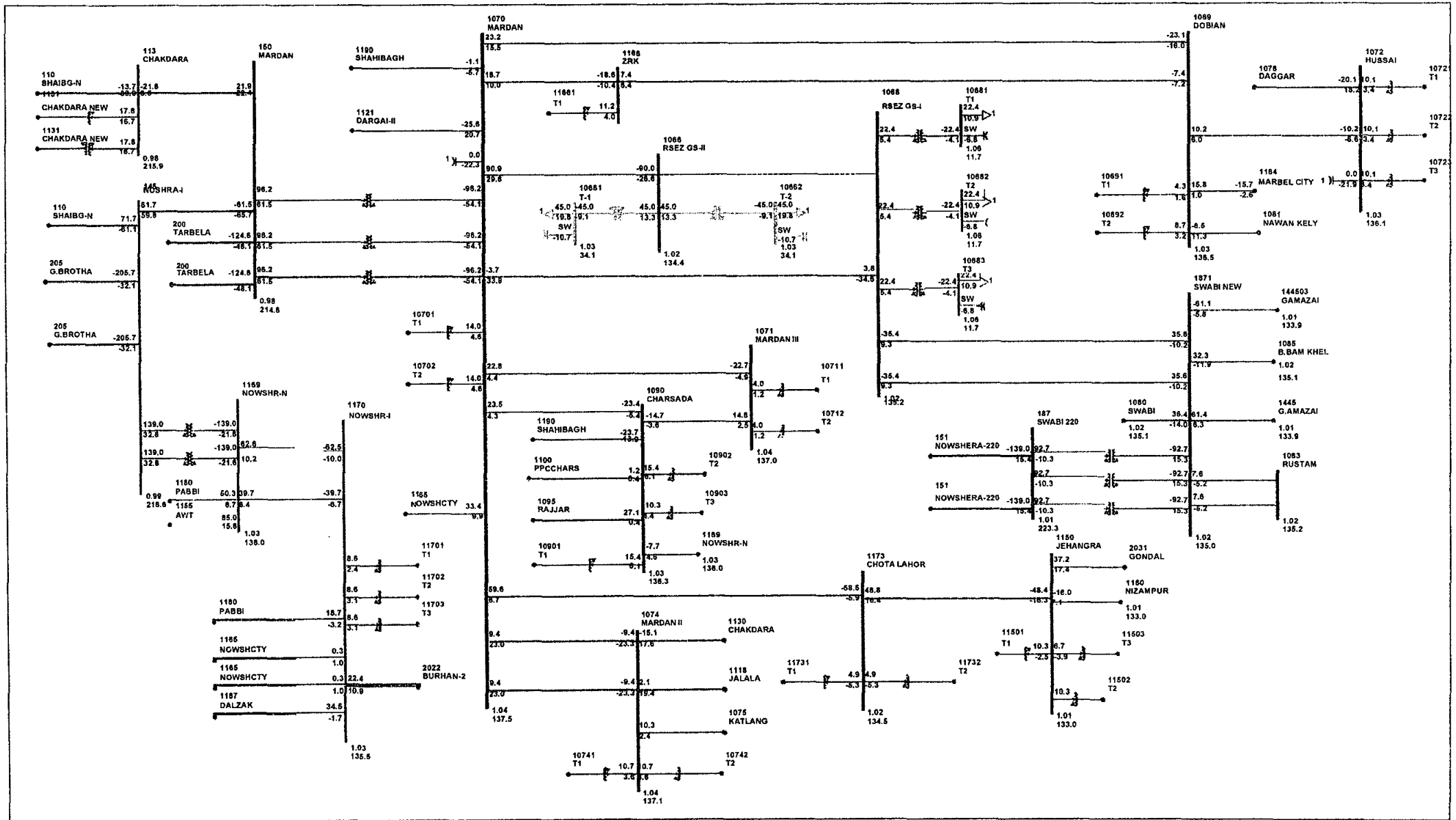
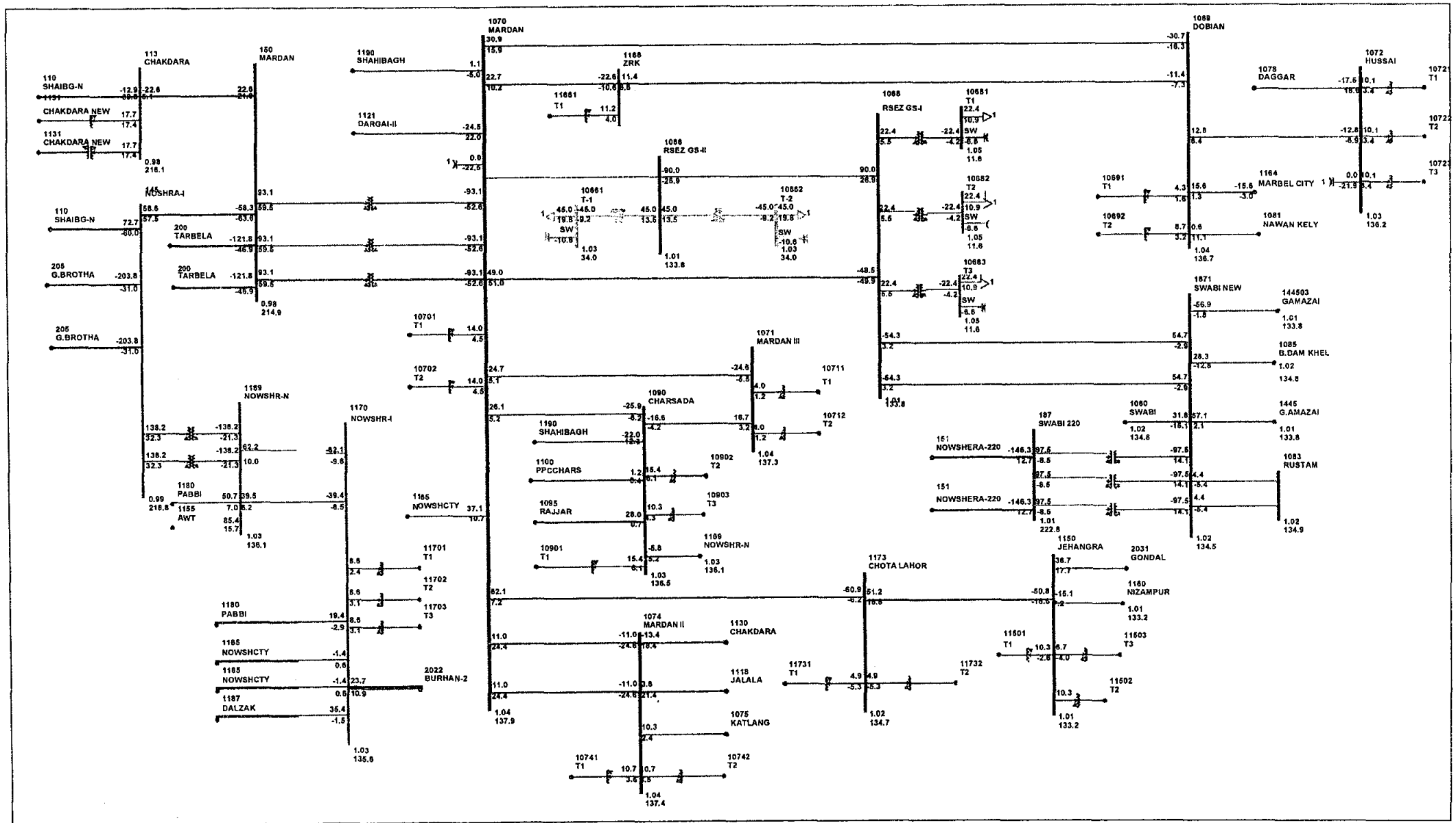


Exhibit 3.2



Grid Interconnection Study of 202.6 MW Rashakai SEZ
Base Case 2023 (with 220KV Swabi) with total demand 157.98 MW (90 MW at RSEZ GS-II and
Mardan- charsada Line out

Exhibit 3.3

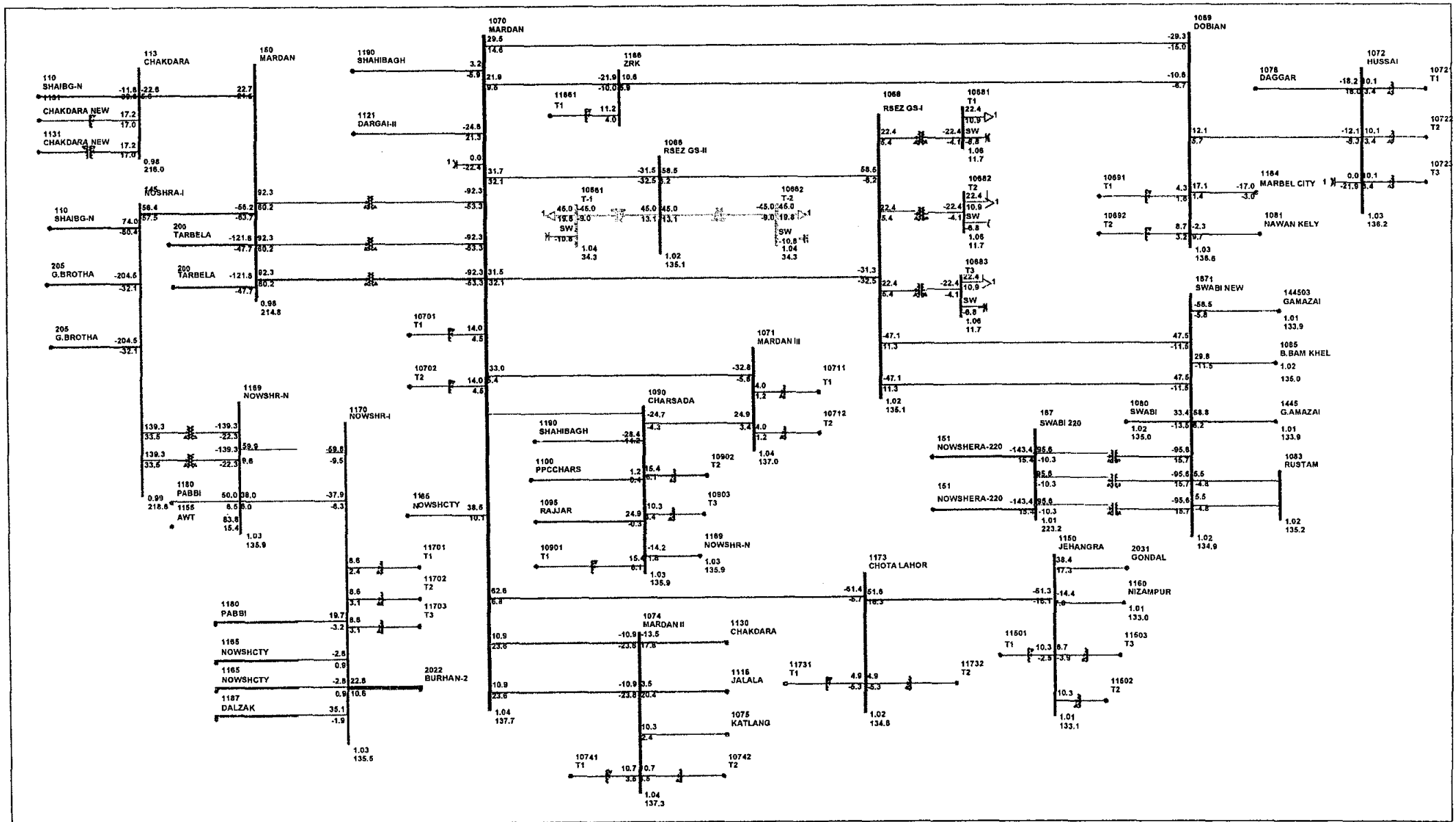
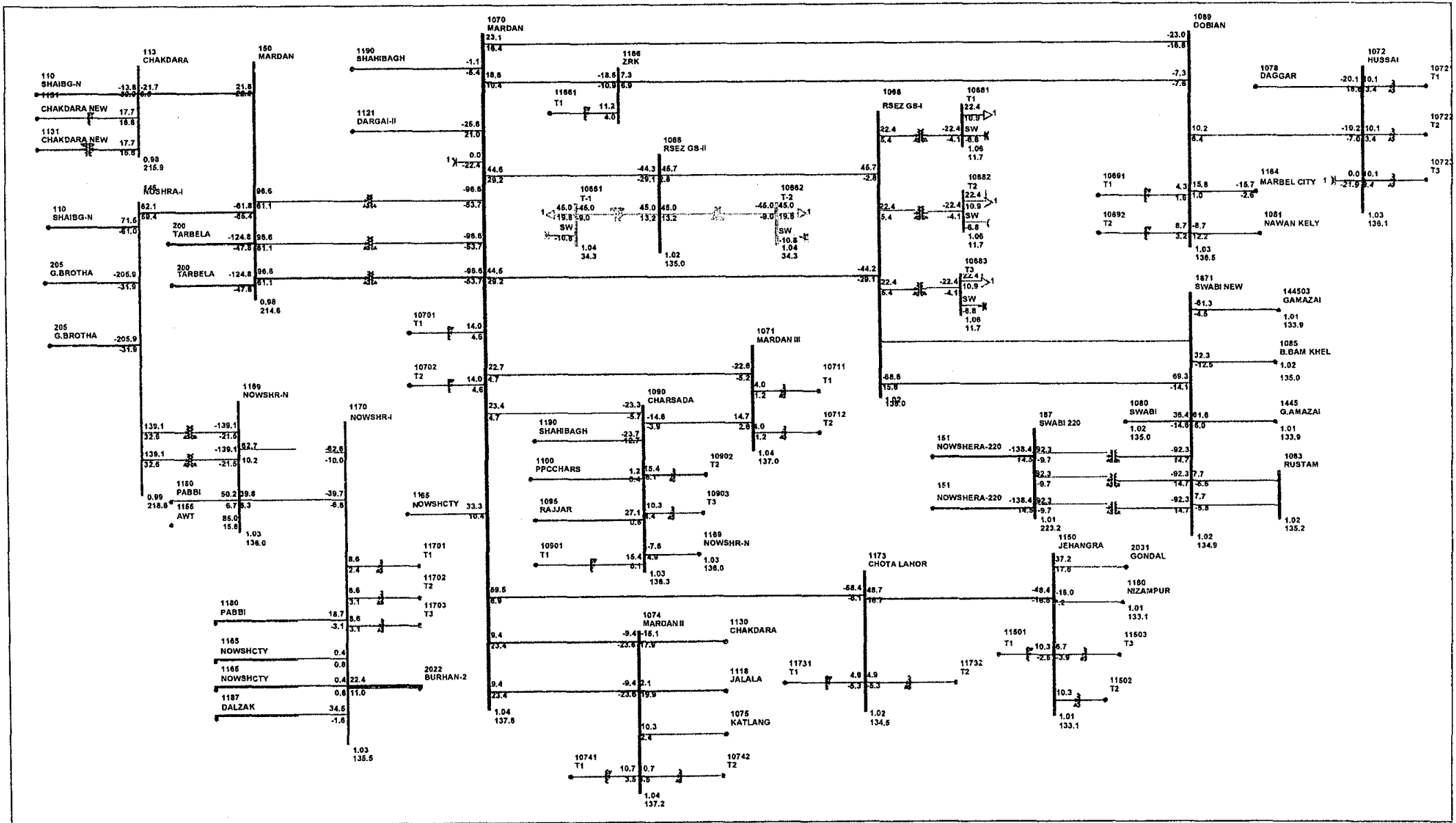


Exhibit 3.4



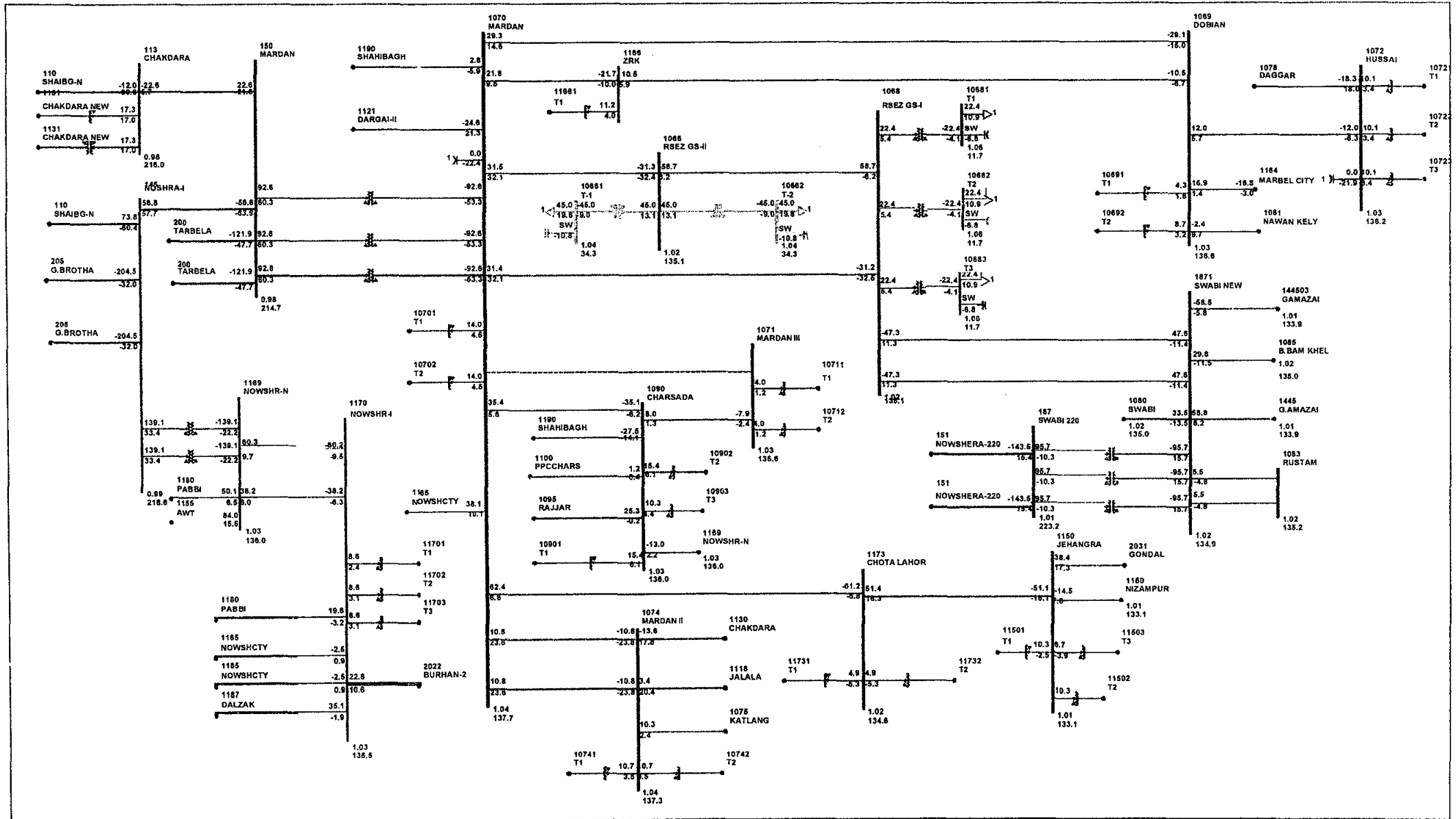
Grid Interconnection Study of 202.6 MW Rashakai SEZ
Base Case 2023 (with 220KV Swabi) with total demand 157.98 MW (90 MW at RSEZ GS-II and
Swabi new- RSEZ GS-I Line out

Exhibit 3.5



Grid Interconnection Study of 202.6 MW Rashakai SEZ
Base Case 2023 (with 220KV Swabi) with total demand 157.98 MW (90 MW at RSEZ GS-II and
Mardan- Mardan-III Line out

Exhibit 3.6

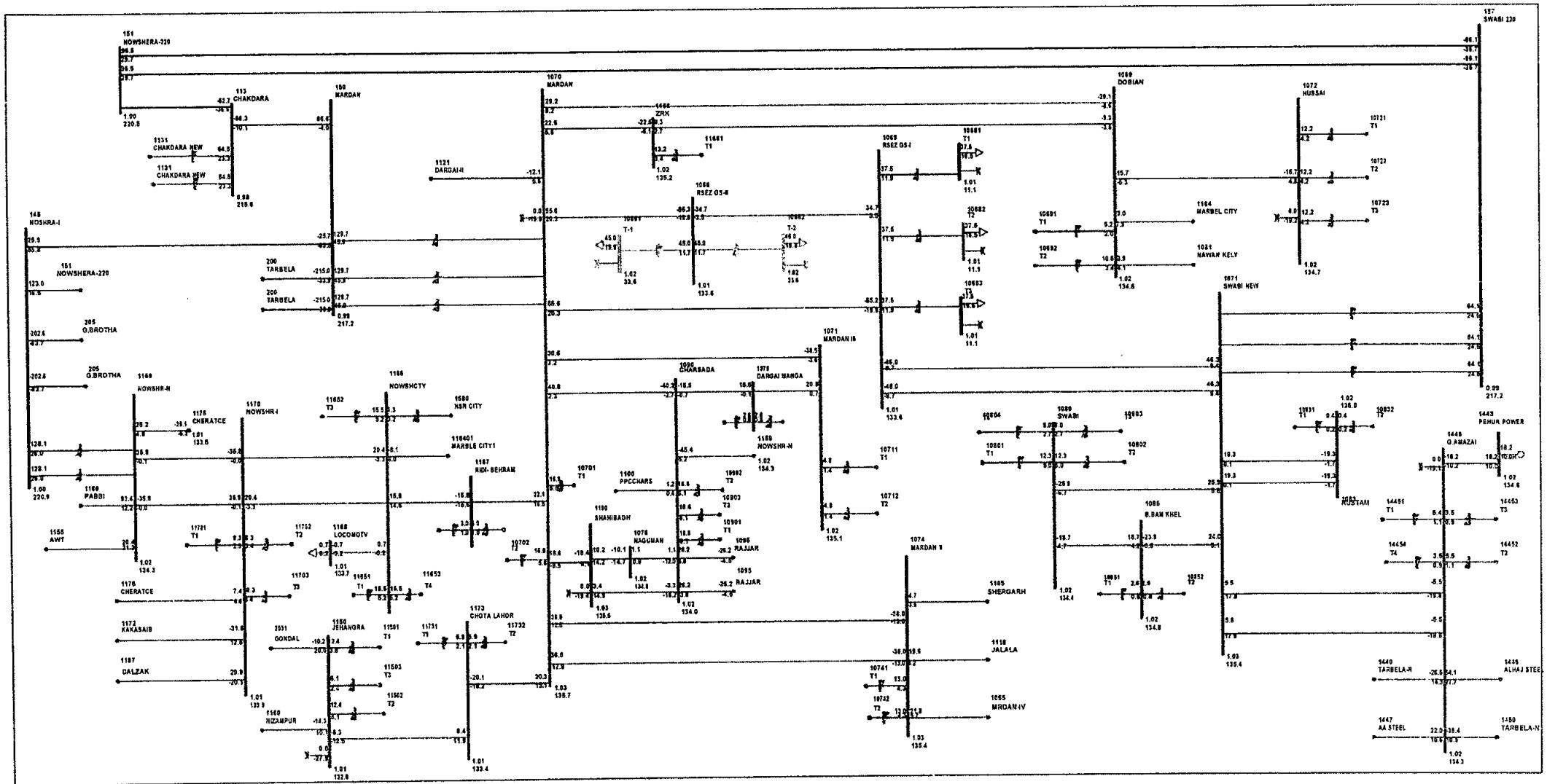


Grid Interconnection Study of 202.6 MW Rashakai SEZ

Base Case 2025 with total demand 202.5 MW (90 MW at RSEZ GS-II and 112.5 MW at RSEZ GS-I)

Normal Case

Exhibit 4.0

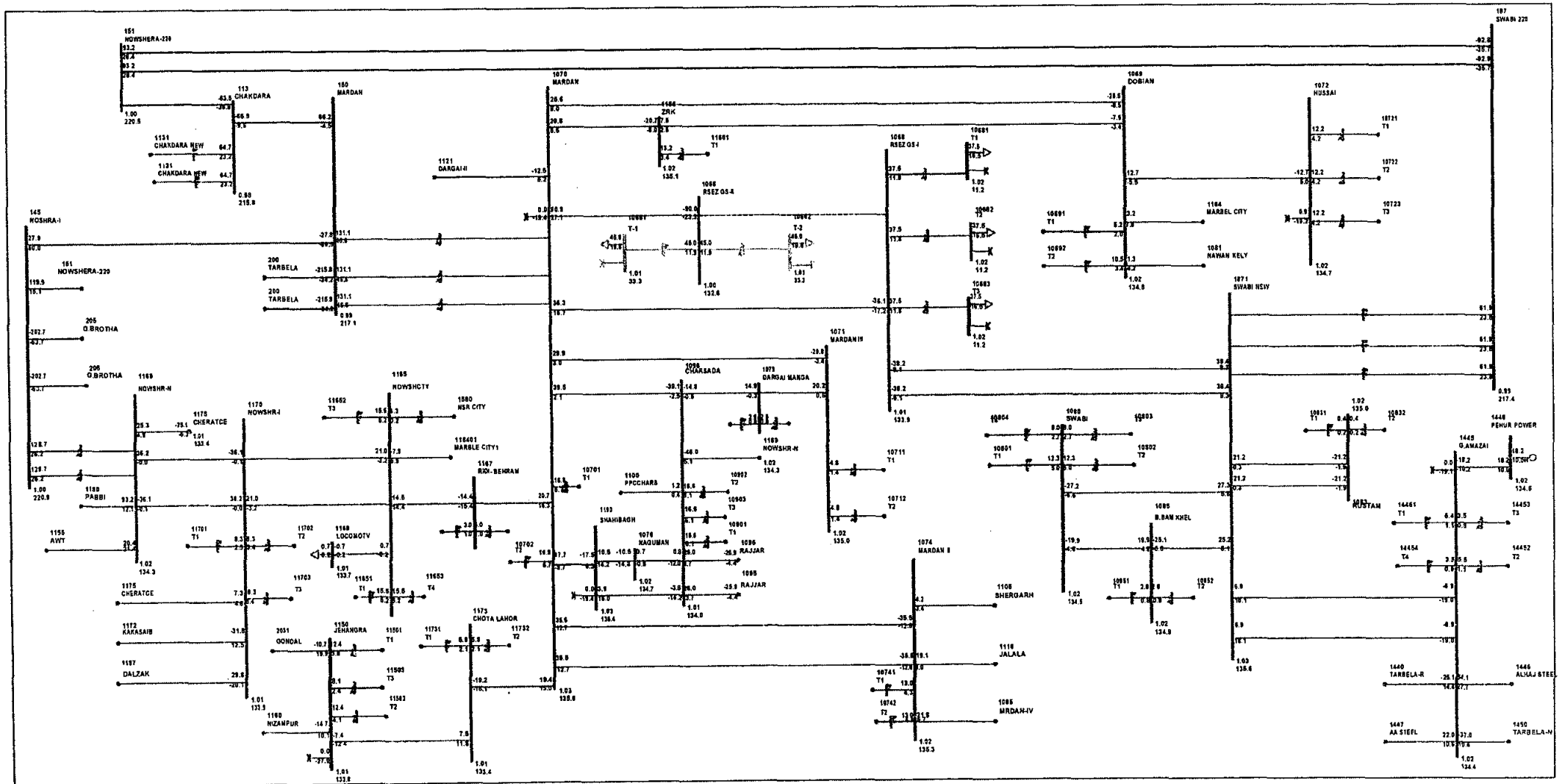


Grid Interconnection Study of 202.6 MW Rashakai SEZ

Base Case 2025 with total demand 202.5 MW (90 MW at RSEZ GS-II and 112.5 MW at RSEZ GS-I)

RSEZ GS-I – RSEZ GS-II line out

Exhibit 4.1

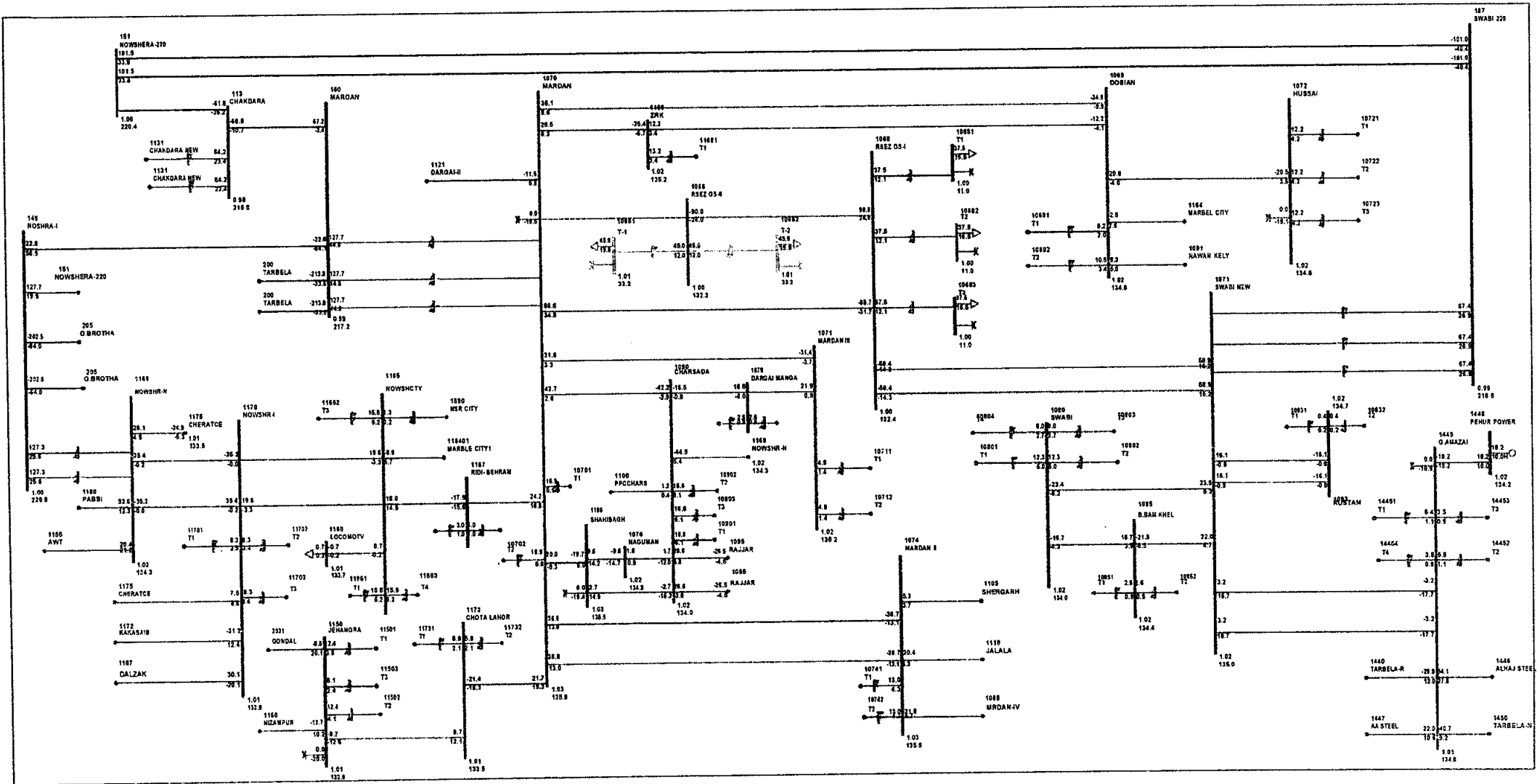


Grid Interconnection Study of 202.6 MW Rashakai SEZ

Base Case 2025 with total demand 202.5 MW (90 MW at RSEZ GS-II and 112.5 MW at RSEZ GS-I)

RSEZ GS-II-Mardan Line out

Exhibit 4.2



Mardan- charsada Line out

Base Case 2025 with total demand 202.5 MW (90 MW at RSEZ GS-II and 112.5 MW at RSEZ GS-I)

Mardan- RSEZ GS-I Line out

Exhibit 4.4

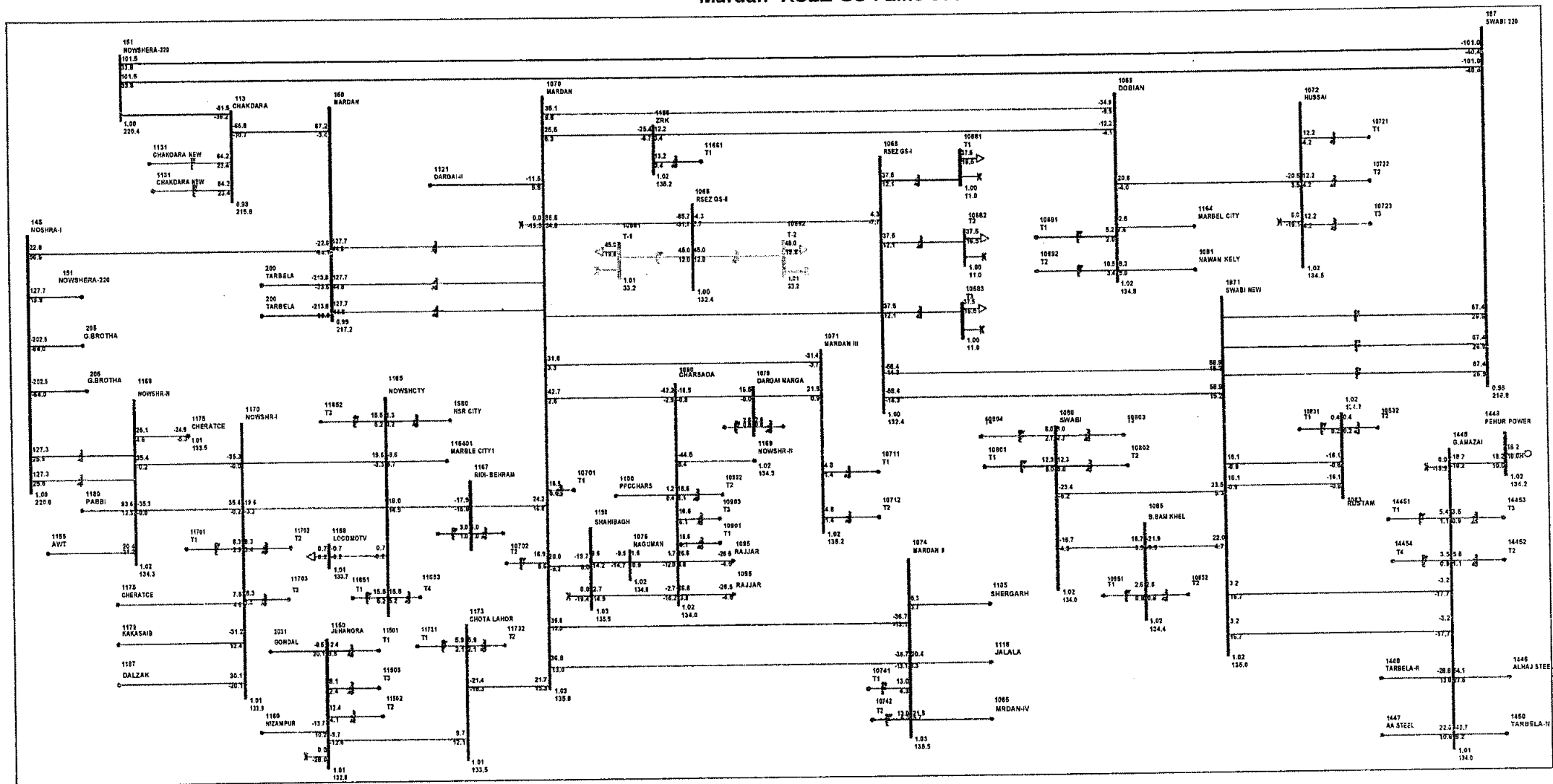
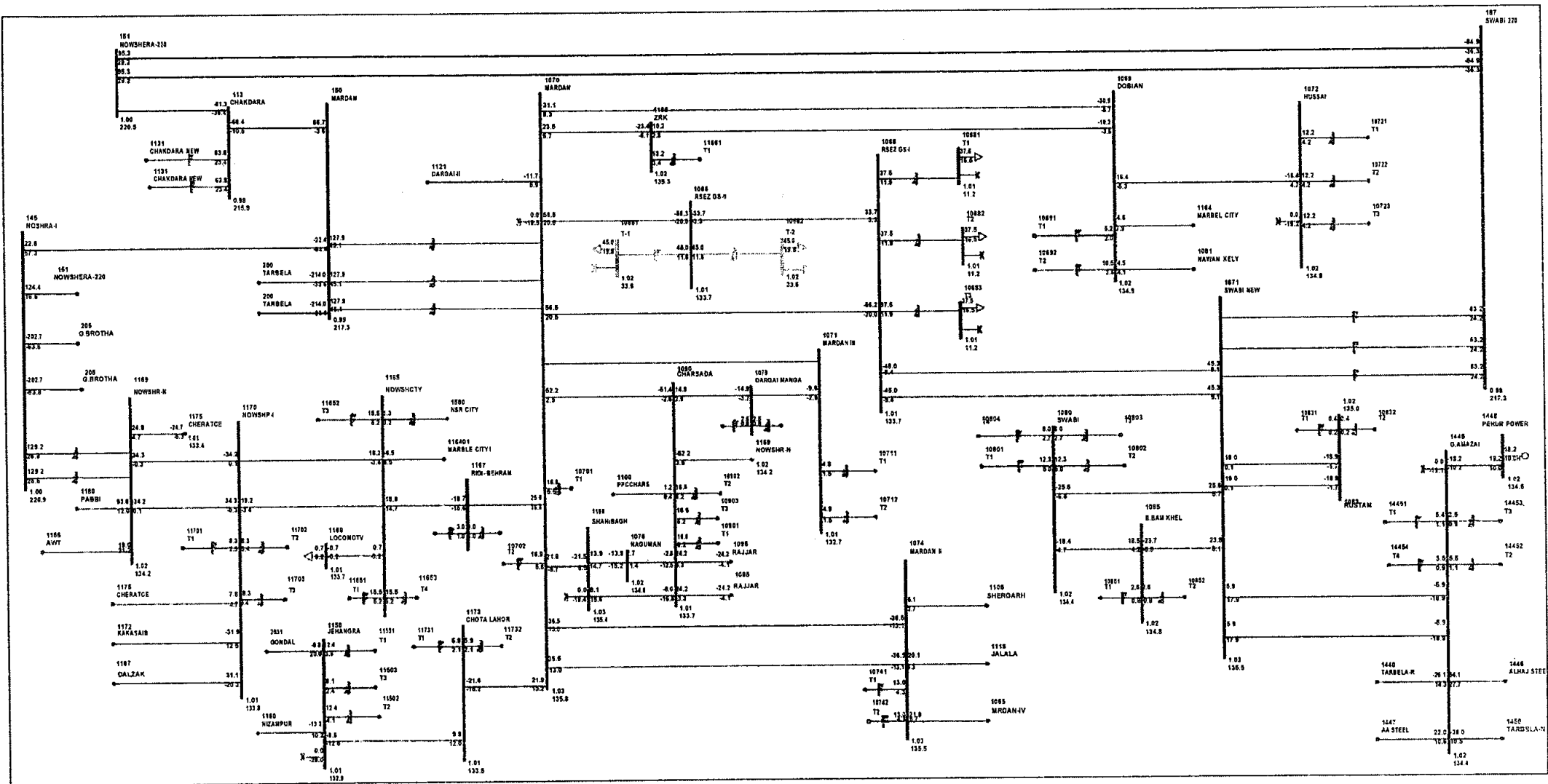


Exhibit 4.5

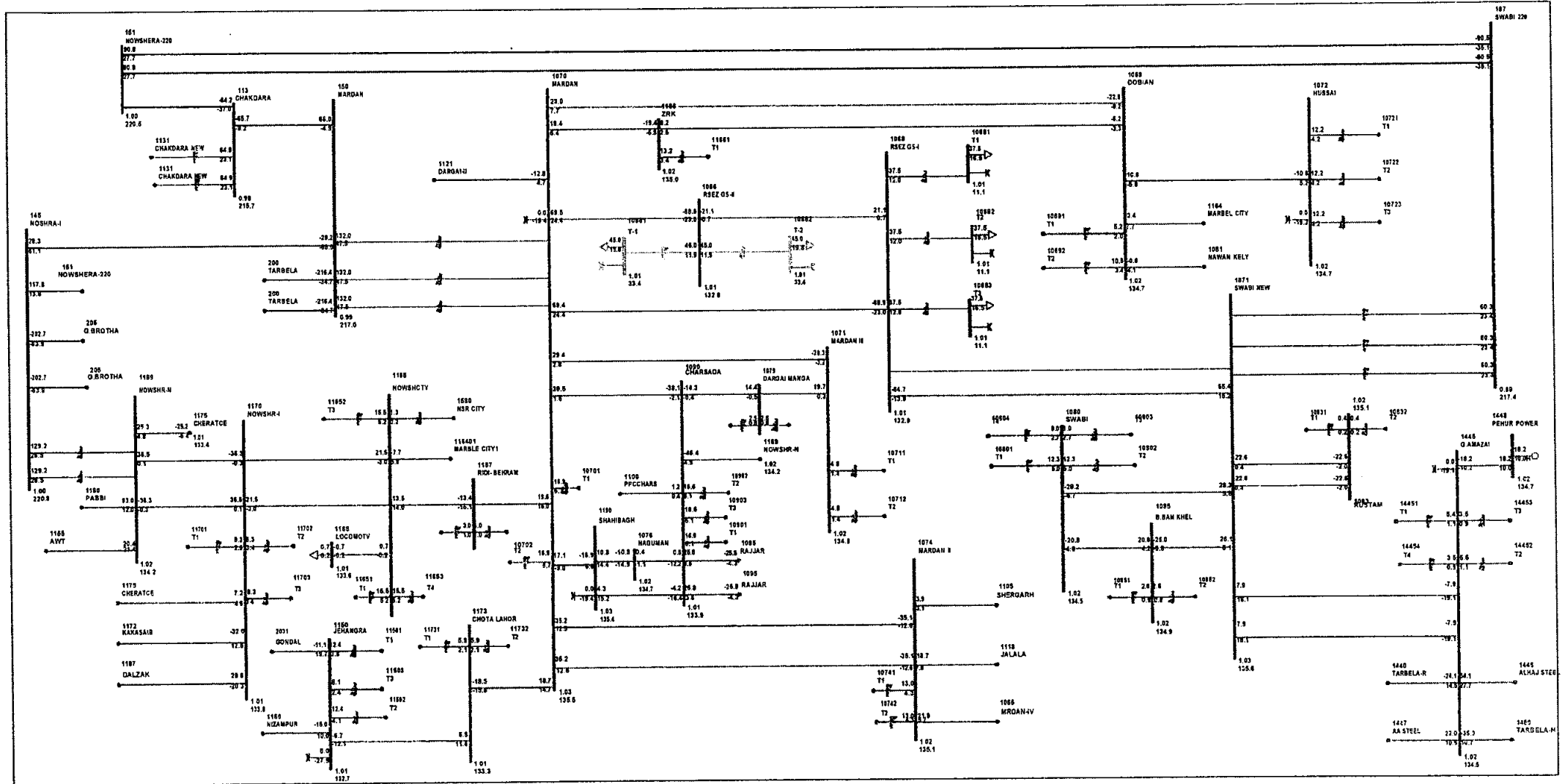


Grid Interconnection Study of 202.6 MW Rashakai SEZ

Base Case 2025 with total demand 202.5 MW (90 MW at RSEZ GS-II and 112.5 MW at RSEZ GS-I)

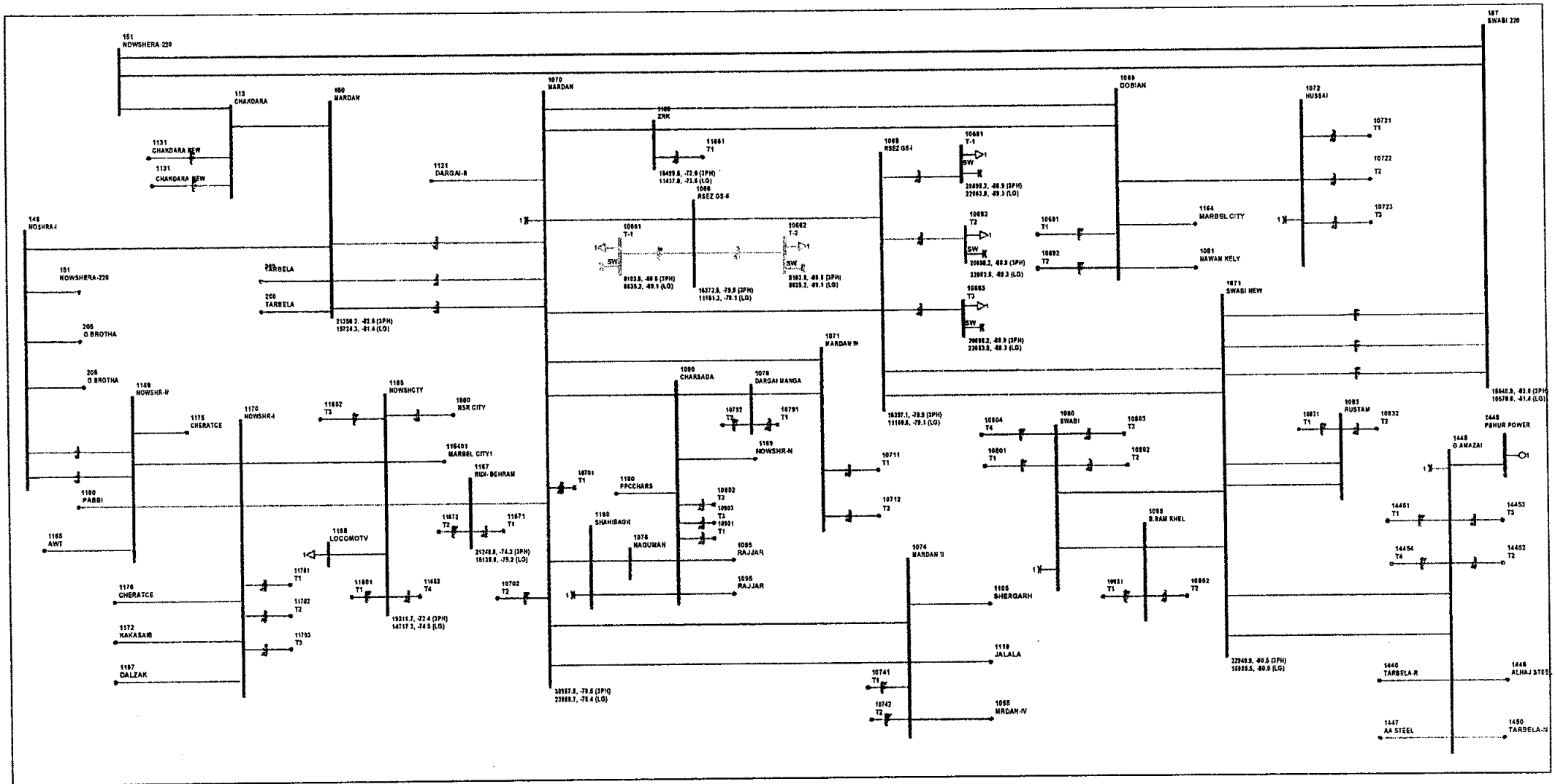
Swabi new- RSEZ GS-I Line out

Exhibit 4.6



APPENDIX-4
Short Circuit Analysis Results

Short circuit case 2025 with total demand 202.5 MW (90 MW at RSEZ GS-II and 112.5 MW at RSEZ GS-I)



		<-SCMVA-> <-Sym I''k rms-->		<-ip(B)->	<-ip(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
		MVA	AMP	DEG	AMP	AMP	AMP	AMP
X-----	BUS----- X							
150	[MARDAN 220.00]	8135.57	21350.3	-82.82	51073.4	51804.2	23100.7	21350.3
	LG	5991.75	15724.3	-81.37	36504.5	36912.4	15745.1	15724.3
THEVENIN IMPEDANCE, X/R (OHM)		Z+:/6.544/82.818, 7.93603 Z-:/6.544/82.818, 7.93602 Z0:/13.577/79.975, 5.65664						

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 Hz, BREAKING CURRENT at TIME= 0.008 seconds

		<-SCMVA-> <-Sym I''k rms-->		<-ip(B)->	<-ip(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
		MVA	AMP	DEG	AMP	AMP	AMP	AMP
X-----	BUS----- X							
1066	[RSEZ GS-II 132.00]	3743.25	16372.5	-79.92	36932.6	37222.1	15417.8	16372.5
	LG	2549.52	11151.3	-79.07	24746.1	24904.8	9959.1	11151.3
THEVENIN IMPEDANCE, X/R (OHM)		Z+:/5.120/79.925, 5.62793 Z-:/5.120/79.925, 5.62793 Z0:/12.314/78.365, 4.85666						

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 Hz, BREAKING CURRENT at TIME= 0.008 seconds

		<-SCMVA-> <-Sym I''k rms-->		<-ip(B)->	<-ip(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
		MVA	AMP	DEG	AMP	AMP	AMP	AMP
X-----	BUS----- X							
1068	[RSEZ GS-I 132.00]	3748.87	16397.1	-79.93	36989.5	37279.7	15443.0	16397.1
	LG	2551.65	11160.6	-79.09	24772.8	24931.4	9973.0	11160.6
THEVENIN IMPEDANCE, X/R (OHM)		Z+:/5.113/79.927, 5.62905 Z-:/5.113/79.927, 5.62904 Z0:/12.311/78.388, 4.86642						

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 Hz, BREAKING CURRENT at TIME= 0.008 seconds

		<-SCMVA-> <-Sym I''k rms-->		<-ip(B)->	<-ip(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
		MVA	AMP	DEG	AMP	AMP	AMP	AMP
X-----	BUS----- X							
1070	[MARDAN 132.00]	7077.85	30957.6	-79.54	79715.5	70201.7	29532.0	30957.6
	LG	5479.98	23968.7	-79.37	61510.3	54109.1	22371.7	23968.7
THEVENIN IMPEDANCE, X/R (OHM)		Z+:/2.708/79.542, 5.41770 Z-:/2.708/79.542, 5.41769 Z0:/5.077/79.177, 5.23099						

Note - ip(B) currents include safety factor multiplier (1.15).

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 Hz, BREAKING CURRENT at TIME= 0.008 seconds

		<-SCMVA-> <-Sym I''k rms-->		<-ip(B)->	<-ip(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
		MVA	AMP	DEG	AMP	AMP	AMP	AMP
X-----	BUS----- X							
1165	[NOWSHCTY 132.00]	4415.25	19311.7	-72.38	43902.9	39173.1	13901.3	19311.7
	LG	3364.82	14717.3	-74.52	34633.8	30544.7	11038.5	14717.3
THEVENIN IMPEDANCE, X/R (OHM)		Z+:/4.341/72.376, 3.14773 Z-:/4.341/72.376, 3.14773 Z0:/8.419/76.732, 4.24086						

Note - ip(B) currents include safety factor multiplier (1.15).

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 Hz, BREAKING CURRENT at TIME= 0.008 seconds

		<-SCMVA-> <-Sym I''k rms-->		<-ip(B)->		<-ip(C)->		<DC Ib(C)>		<Sym Ib->		<Asym Ib>	
		/I/ AN(I)		/I/		/I/		/I/		/I/		/I/	
		MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP	AMP	AMP	AMP
X-----	BUS----- X												
1166 [ZRK	132.00] 3PH	3772.06	16498.5	-71.96	37268.1	33238.6	11652.5	16498.5	20198.5				
	LG	2615.03	11437.8	-73.65	26533.6	23364.7	8172.7	11437.8	14057.6				

Note - ip(B) currents include safety factor multiplier (1.15).

THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.081/71.962, 3.07079 Z-:/5.081/71.962, 3.07079 Z0:/11.834/75.096, 3.75715

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 Hz, BREAKING CURRENT at TIME= 0.008 seconds

		<-SCMVA-> <-Sym I''k rms-->		<-ip(B)->		<-ip(C)->		<DC Ib(C)>		<Sym Ib->		<Asym Ib>	
		/I/ AN(I)		/I/		/I/		/I/		/I/		/I/	
		MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP	AMP	AMP	AMP
X-----	BUS----- X												
1167 [RIDI- BEHRAM132.00]	3PH	4858.14	21248.8	-74.21	49749.0	44419.3	16703.1	21248.8	27027.9				
	LG	3461.14	15138.6	-75.21	36039.1	31799.7	11762.2	15138.6	19171.0				

Note - ip(B) currents include safety factor multiplier (1.15).

THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.945/74.211, 3.53652 Z-:/3.945/74.211, 3.53652 Z0:/8.725/76.109, 4.04338

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 Hz, BREAKING CURRENT at TIME= 0.008 seconds

		<-SCMVA-> <-Sym I''k rms-->		<-ip(B)->		<-ip(C)->		<DC Ib(C)>		<Sym Ib->		<Asym Ib>	
		/I/ AN(I)		/I/		/I/		/I/		/I/		/I/	
		MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP	AMP	AMP	AMP
X-----	BUS----- X												
1871 [SWABI NEW 132.00]	3PH	5247.04	22949.9	-80.48	52334.7	52838.0	22438.2	22949.9	32096.2				
	LG	3865.34	16906.5	-80.04	38219.9	38583.5	16052.0	16772.5	23216.0				

THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.653/80.478, 5.96149 Z-:/3.653/80.478, 5.96148 Z0:/7.570/79.609, 5.45332

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 Hz, BREAKING CURRENT at TIME= 0.008 seconds

		<-SCMVA-> <-Sym I''k rms-->		<-ip(B)->		<-ip(C)->		<DC Ib(C)>		<Sym Ib->		<Asym Ib>	
		/I/ AN(I)		/I/		/I/		/I/		/I/		/I/	
		MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP	AMP	AMP	AMP
X-----	BUS----- X												
10661 [T-1 33.000]	3PH	463.18	8103.5	-88.76	22214.0	22569.7	11241.4	8103.5	13857.7				
	LG	493.57	8635.2	-89.12	23884.4	24105.1	12003.6	8635.2	14786.9				

THEVENIN IMPEDANCE, X/R (OHM) Z+:/2.586/88.760, 46.18446 Z-:/2.586/88.760, 46.18443 Z0:/2.109/90.000, 9999.999

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 Hz, BREAKING CURRENT at TIME= 0.008 seconds

		<-SCMVA-> <-Sym I''k rms-->		<-ip(B)->		<-ip(C)->		<DC Ib(C)>		<Sym Ib->		<Asym Ib>	
		/I/ AN(I)		/I/		/I/		/I/		/I/		/I/	
		MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP	AMP	AMP	AMP
X-----	BUS----- X												
10662 [T-2 33.000]	3PH	463.18	8103.5	-88.76	22214.0	22569.7	11241.4	8103.5	13857.7				
	LG	493.57	8635.2	-89.12	23884.4	24105.1	12003.6	8635.2	14786.9				

THEVENIN IMPEDANCE, X/R (OHM) Z+:/2.586/88.760, 46.18446 Z-:/2.586/88.760, 46.18443 Z0:/2.109/90.000, 9999.999

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 Hz, BREAKING CURRENT at TIME= 0.008 seconds

		<-SCMVA->	<-Sym I''k rms-->	<-ip(B)->	<-ip(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
		/I/	AN(I)	/I/	/I/	/I/	/I/	/I/
		AMP	DEG	AMP	AMP	AMP	AMP	AMP
X-----	BUS----- X	MVA						
10681 [T-1	11.000] 3PH	394.35	20698.2	-88.95	57002.7	57787.9	28801.9	20698.2
	LG	420.37	22063.8	-89.25	61229.4	61717.4	30754.5	22063.8
THEVENIN IMPEDANCE, X/R (OHM)		Z+:/0.338/88.946, 54.34040 Z-:/0.338/88.946, 54.34036 Z0:/0.275/90.000, 9999.999						

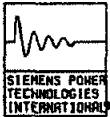
VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 Hz, BREAKING CURRENT at TIME= 0.008 seconds

		<-SCMVA->	<-Sym I''k rms-->	<-ip(B)->	<-ip(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
		/I/	AN(I)	/I/	/I/	/I/	/I/	/I/
		AMP	DEG	AMP	AMP	AMP	AMP	AMP
X-----	BUS----- X	MVA						
10682 [T2	11.000] 3PH	394.35	20698.2	-88.95	57002.7	57787.9	28801.9	20698.2
	LG	420.37	22063.8	-89.25	61229.4	61717.4	30754.5	22063.8
THEVENIN IMPEDANCE, X/R (OHM)		Z+:/0.338/88.946, 54.34040 Z-:/0.338/88.946, 54.34036 Z0:/0.275/90.000, 9999.999						

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 Hz, BREAKING CURRENT at TIME= 0.008 seconds

		<-SCMVA->	<-Sym I''k rms-->	<-ip(B)->	<-ip(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
		/I/	AN(I)	/I/	/I/	/I/	/I/	/I/
		AMP	DEG	AMP	AMP	AMP	AMP	AMP
X-----	BUS----- X	MVA						
10683 [T3	11.000] 3PH	394.35	20698.2	-88.95	57002.7	57787.9	28801.9	20698.2
	LG	420.37	22063.8	-89.25	61229.4	61717.4	30754.5	22063.8
THEVENIN IMPEDANCE, X/R (OHM)		Z+:/0.338/88.946, 54.34040 Z-:/0.338/88.946, 54.34036 Z0:/0.275/90.000, 9999.999						

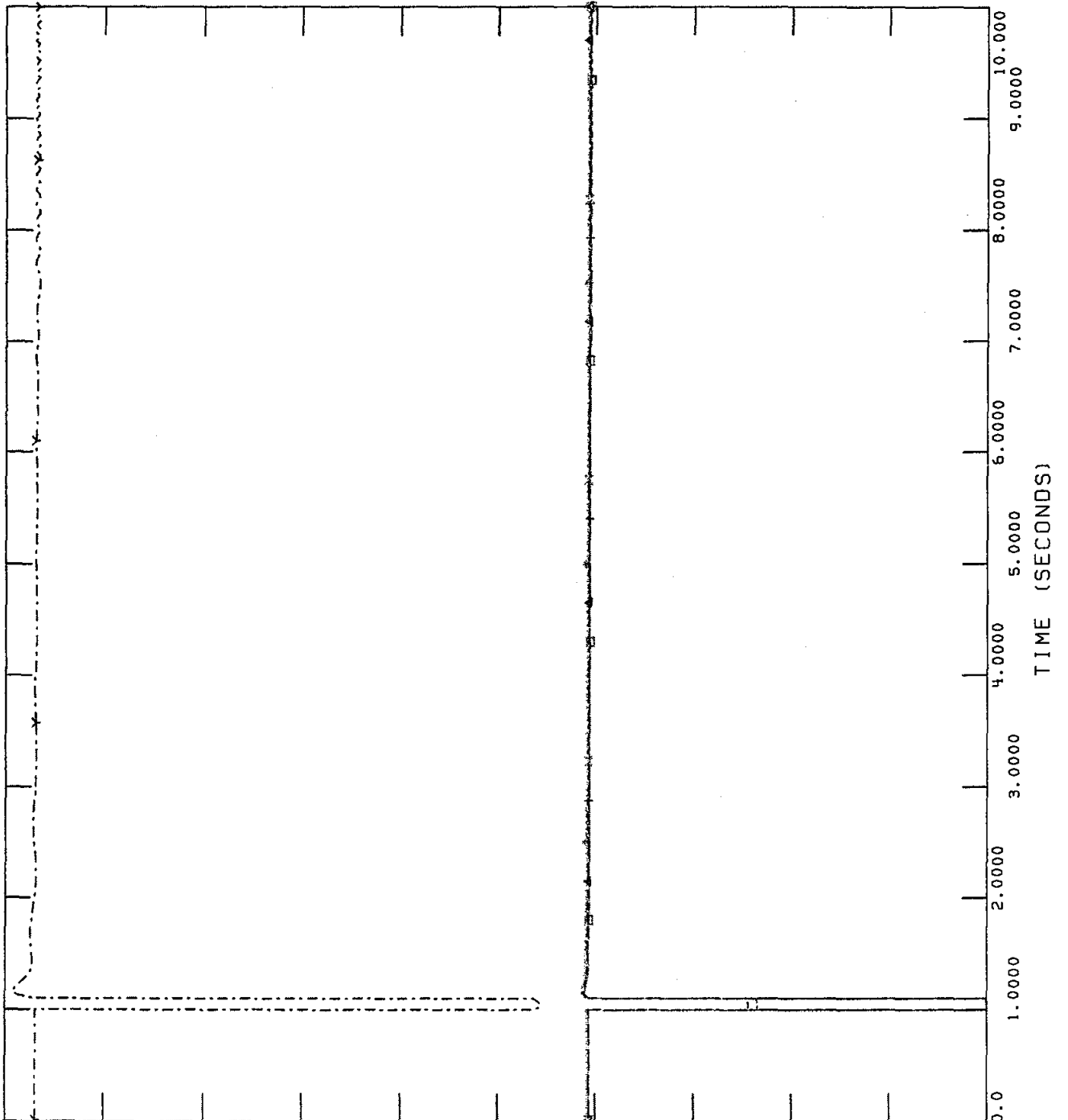
APPENDIX-5
Transient stability Analysis
Results



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-I 132kV to RSEZ GS-II 132kV One Circuit.out

1.0000	CHNL# 11: EVOLT	150 CMARDAN	220.0000	0.50000
2.5000	CHNL# 12: EVOLT	1074 CMARDAN III	132.0000	0.0
2.5000	CHNL# 10: EVOLT	1071 CMARDAN III	132.0000	0.0
2.5000	CHNL# 9: EVOLT	1070 CMARDAN	132.0000	0.0
2.5000	CHNL# 8: EVOLT	1068 RSEZ GS-I	132.0000	0.0
2.5000	CHNL# 7: EVOLT	1066 RSEZ GS-II	132.0000	0.0

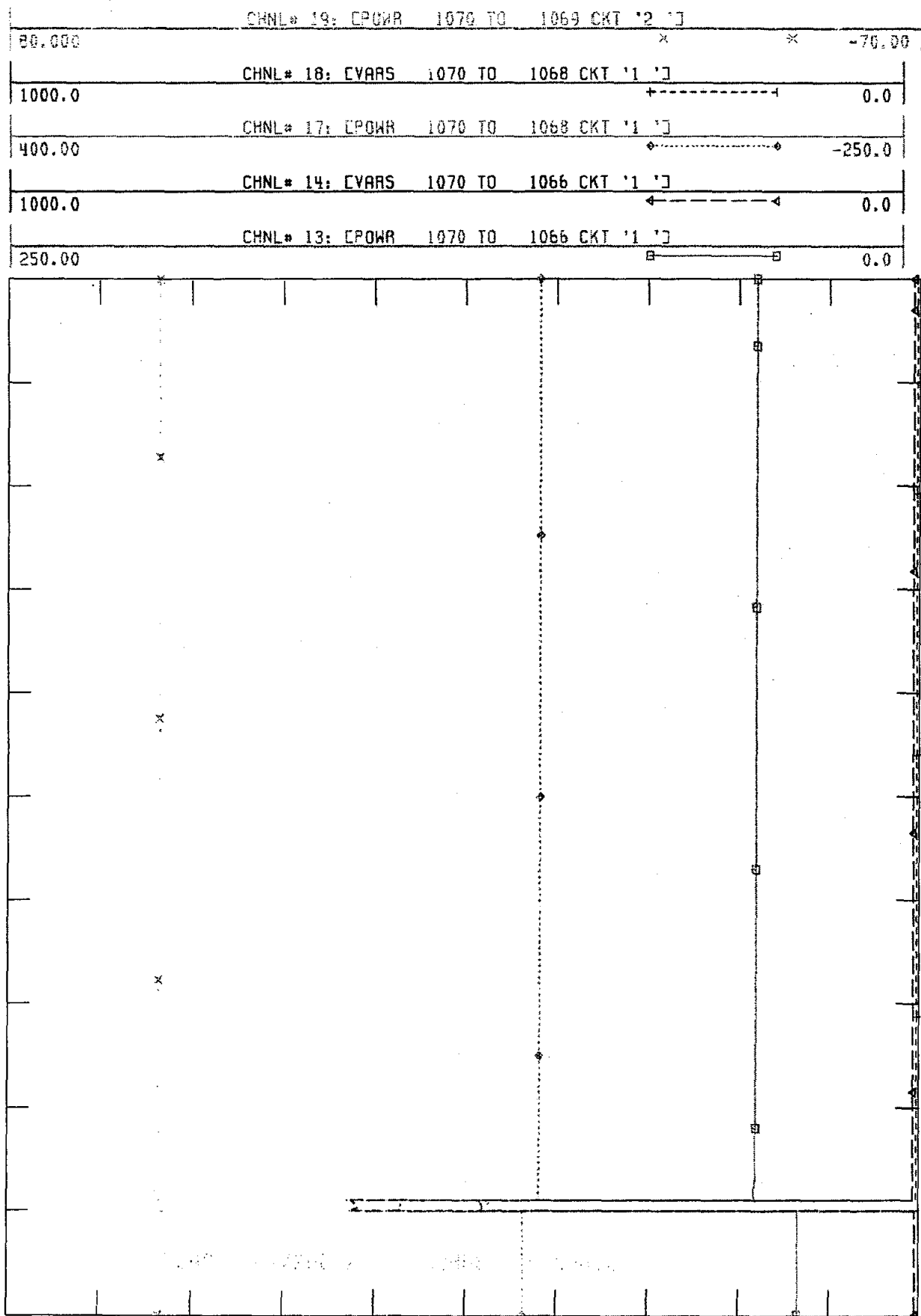


WED, JUN 01 2022 20:42
BIT 5.0



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-I 132kV to RSEZ GS-II 132kV One Circuit.out

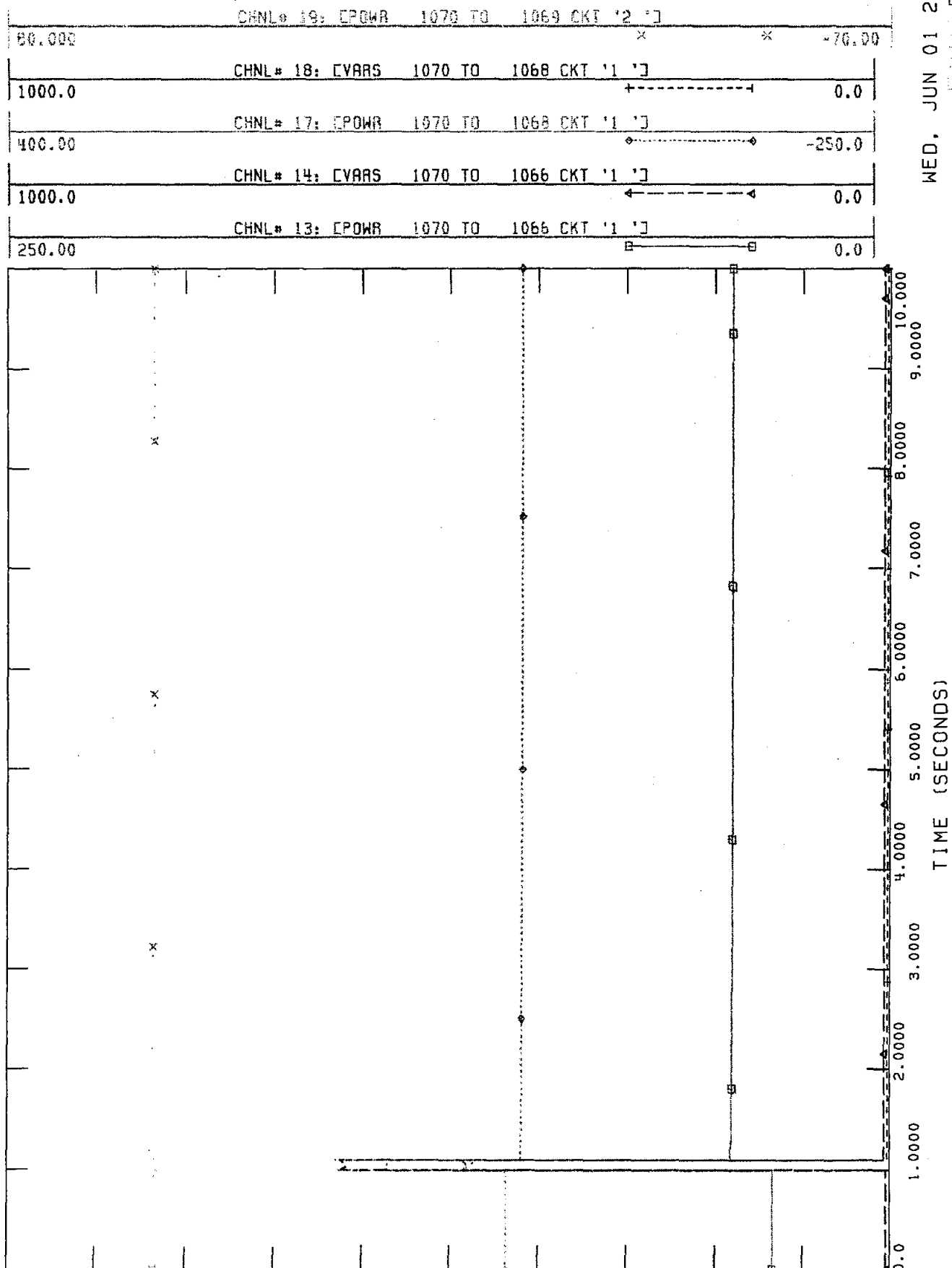


WED, JUN 01 2022 20:46
LAB BIT 5.1



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-I 132kV to RSEZ GS-II 132kV One Circuit.out

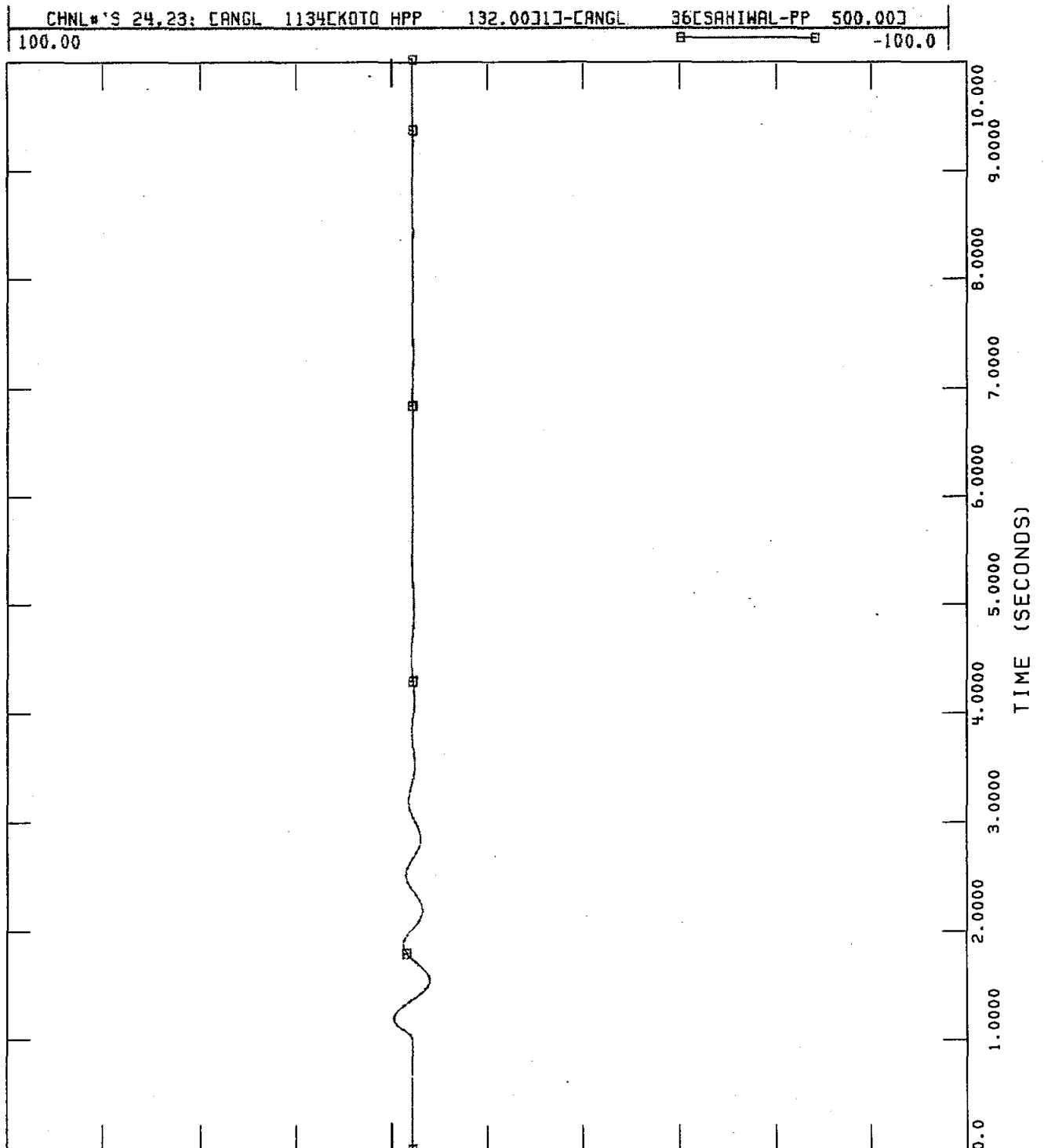


WED, JUN 01 2022 20:44
EXHIBIT 5.2

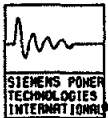


PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-I 132kV to RSEZ GS-II 132kV One Circuit out



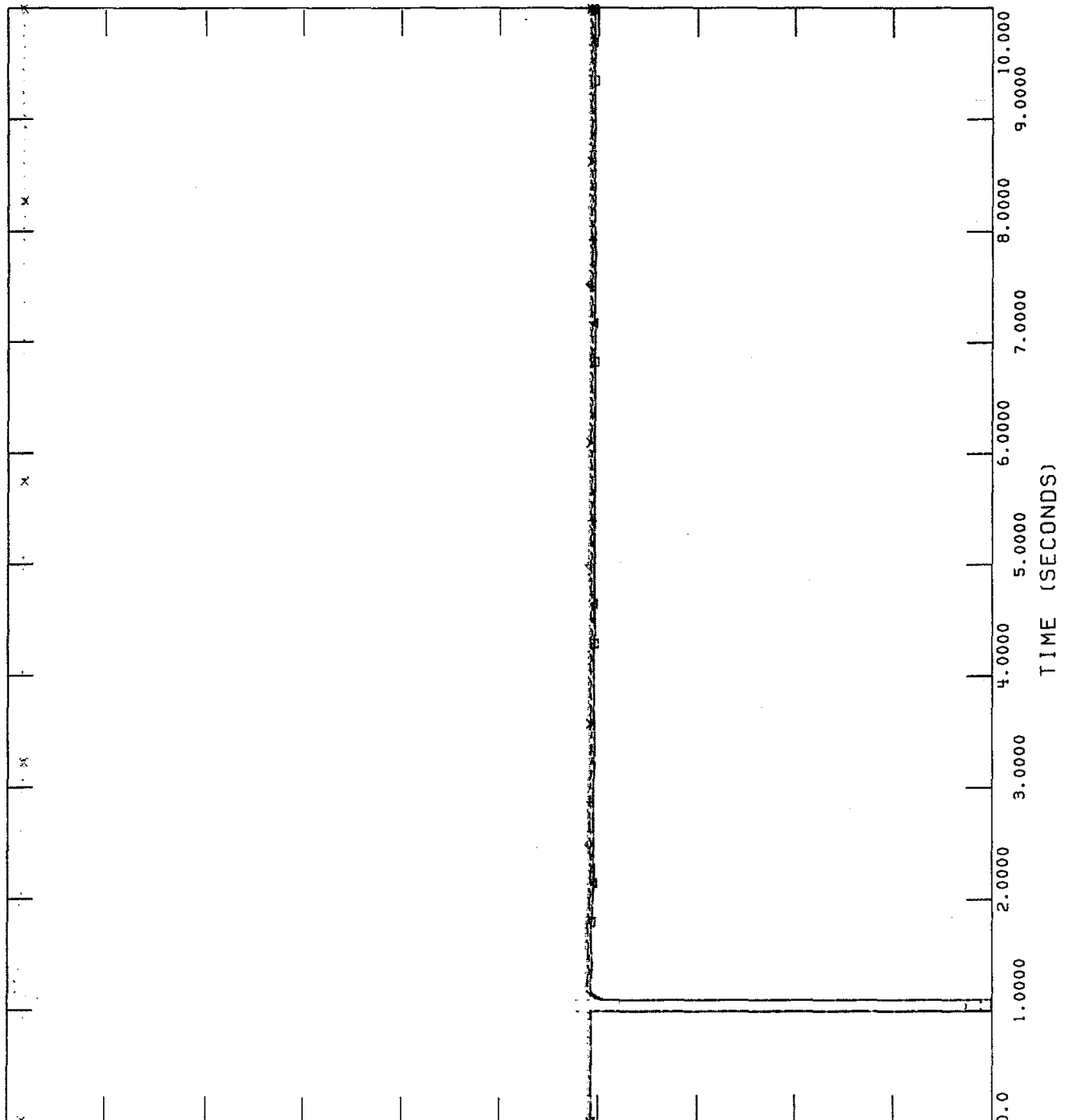
WED, JUN 01 2022 20:46
EXHIBIT 5.3



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-II 132kV to Mardan 132kV One Circuit Out.out

2.5000	CHNL# 12: EVOLT 1074 CMARDAN II 132.0000	0.0
1.0000	CHNL# 11: EVOLT 1050 CMARDAN 220.0000	0.0
2.5000	CHNL# 10: EVOLT 1071 CMARDAN III 132.0000	0.0
2.5000	CHNL# 9: EVOLT 1070 CMARDAN 132.0000	0.0
2.5000	CHNL# 8: EVOLT 1068 RSEZ GS-I 132.0000	0.0
2.5000	CHNL# 7: EVOLT 1066 RSEZ GS-II 132.0000	0.0



WED, JUN 01 2022 20:34

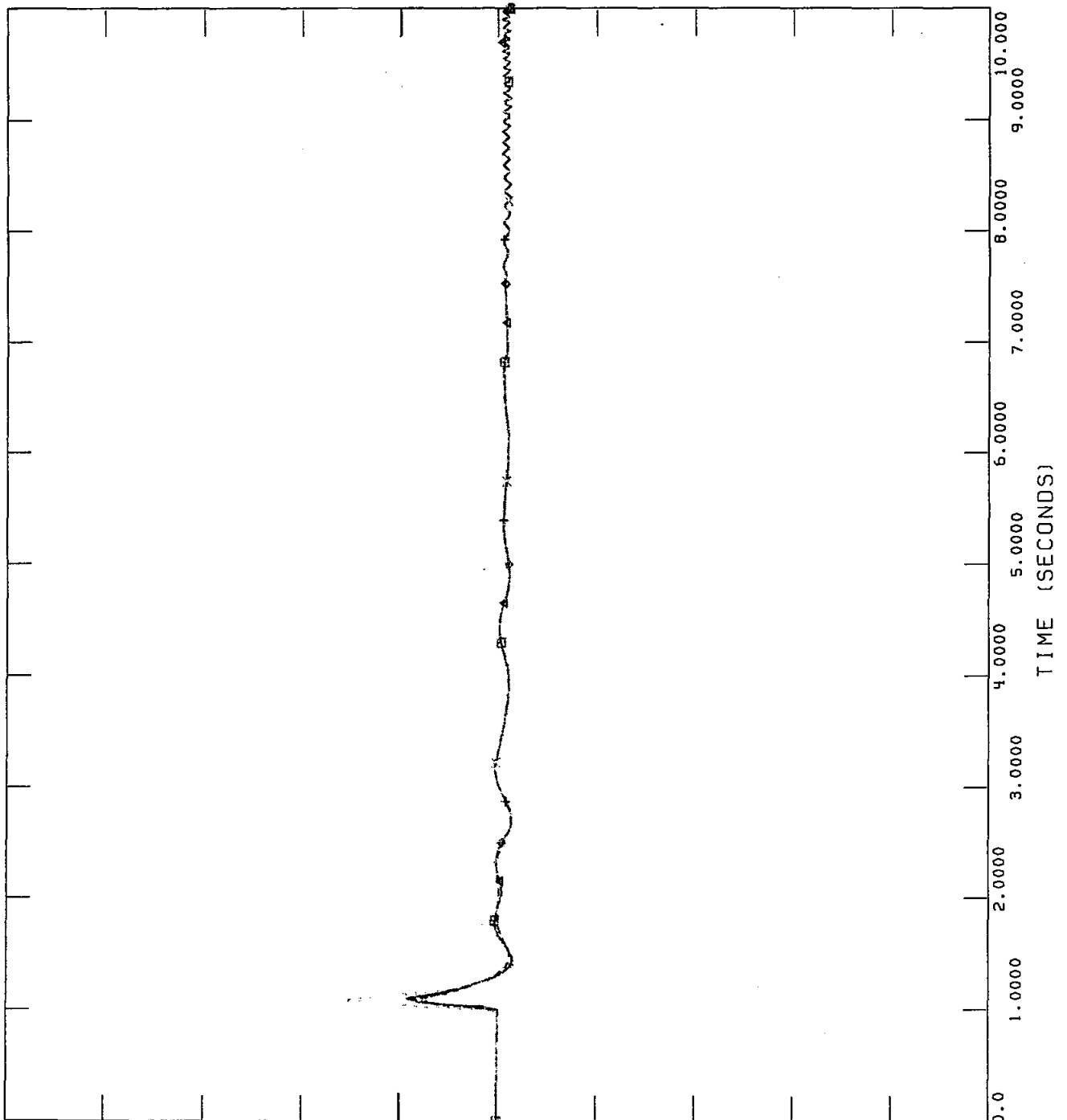
BIT 5



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-II 132kV to Mardan 132kV One Circuit Out out

50.500	CHNL# 6: 50*(1+CFREQ	1074 CMARDAN II	132.00JJJ	49.500
50.500	CHNL# 5: 50*(1+CFREQ	150 CMARDAN	220.00JJJ	49.500
50.500	CHNL# 4: 50*(1+CFREQ	1071 CMARDAN (II	132.00JJJ	49.500
50.500	CHNL# 2: 50*(1+CFREQ	1068 RSEZ GS-I	132.00JJJ	49.500
50.500	CHNL# 1: 50*(1+CFREQ	1066 RSEZ GS-II	132.00JJJ	49.500



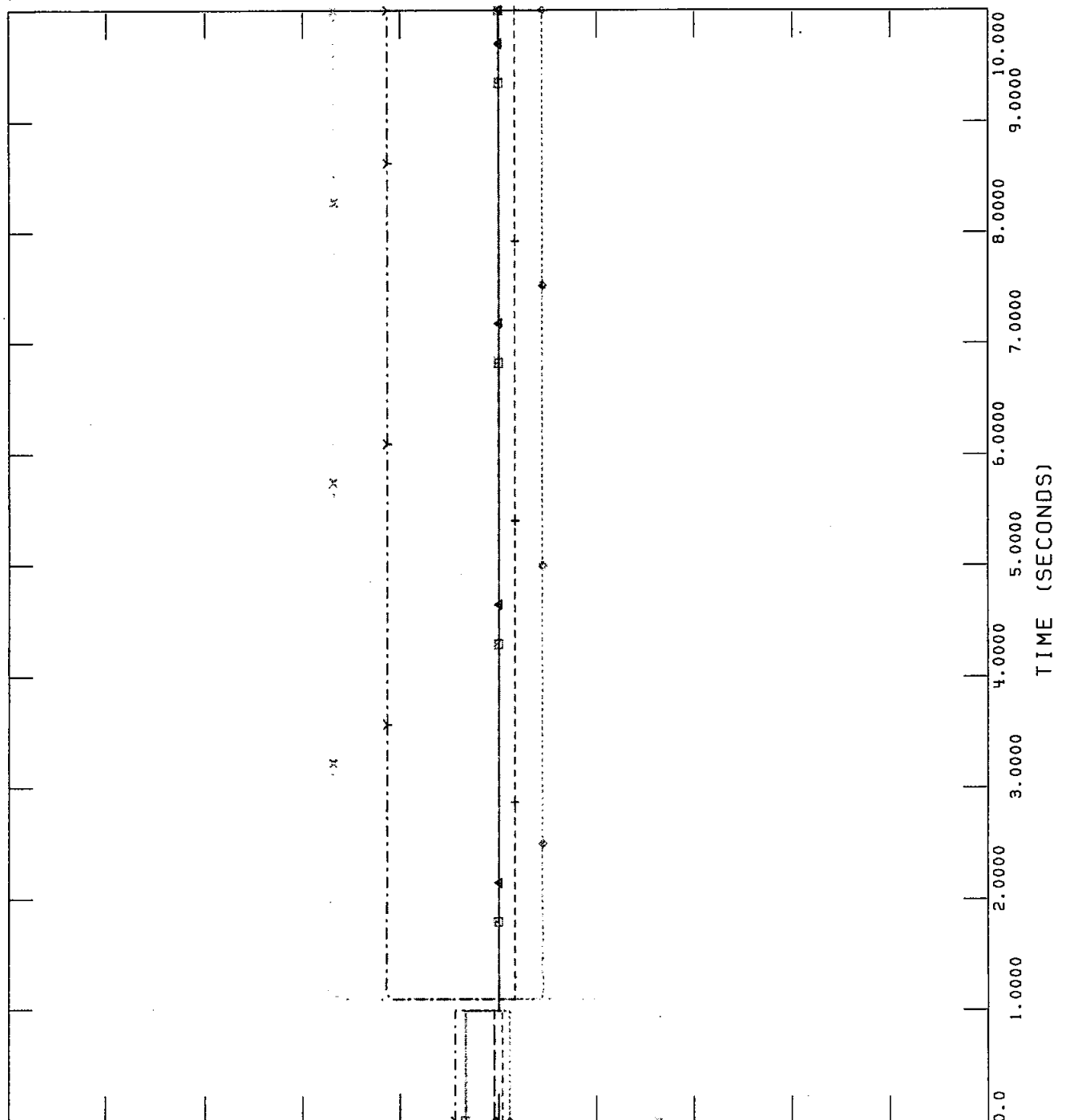
WED, JUN 01 2022 20:40
BIT 5.5



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-II 132kV to Mardan 132kV One Circuit Out.out

CHNL# 18: EVARS 1070 TO 1068 CKT '1 '3		
50.000		-50.00
CHNL# 17: EPOWR 1070 TO 1068 CKT '1 '3		
100.00		0.0
CHNL# 16: EVARS 1066 TO 1068 CKT '1 '3		
200.00		-200.0
CHNL# 15: EPOWR 1066 TO 1068 CKT '1 '3		
500.00		-500.0
CHNL# 14: EVARS 1070 TO 1066 CKT '1 '3		
500.00		-500.0
CHNL# 13: EPOWR 1070 TO 1066 CKT '1 '3		
500.00		-500.0



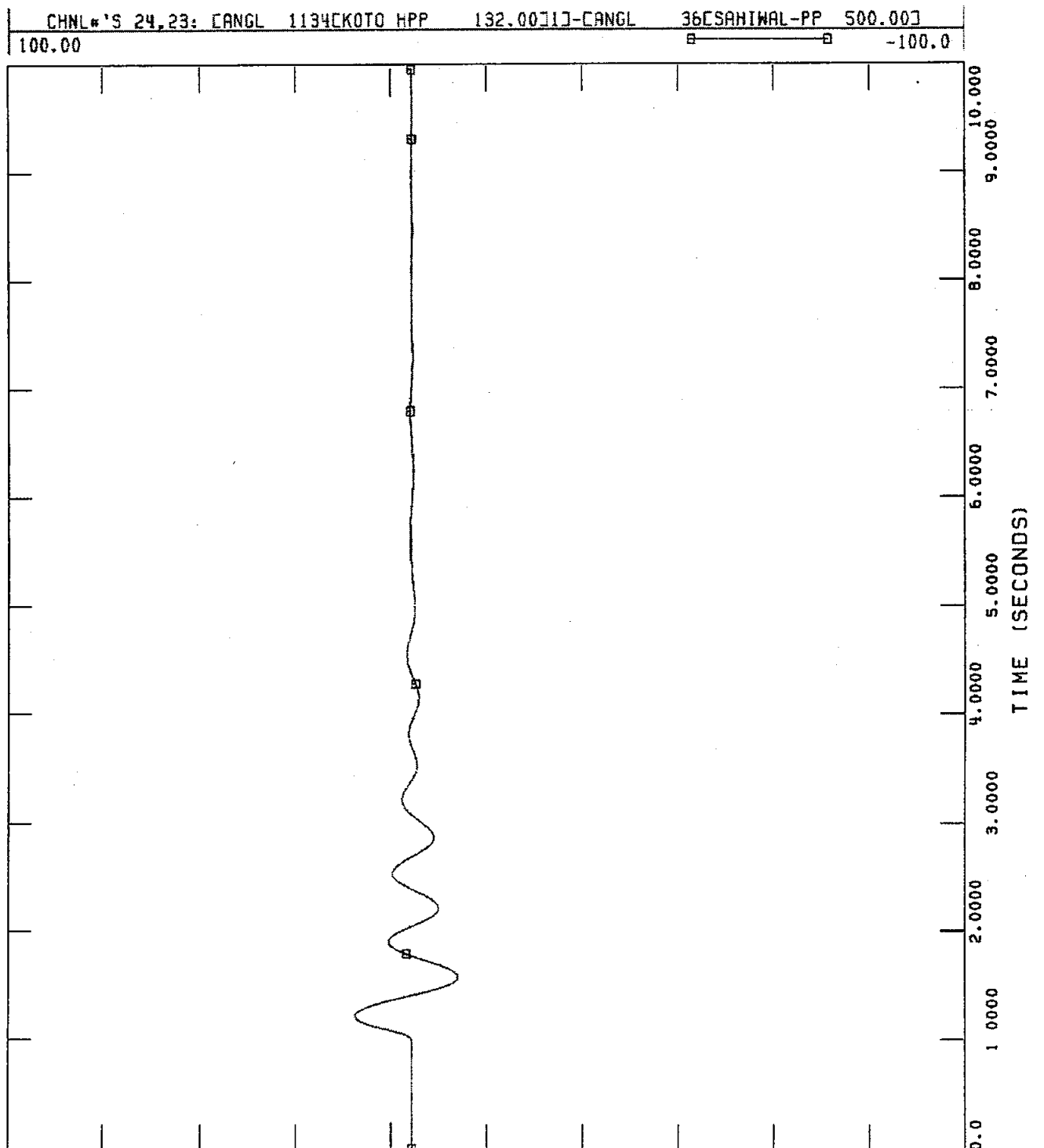
WED, JUN 01 2022 20:38
BIT 5.6

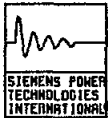


PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ-GS-II 132kV to Mardan 132kV One Circuit Out out

WED, JUN 01 2022 20:41
EXHIBIT 5.7

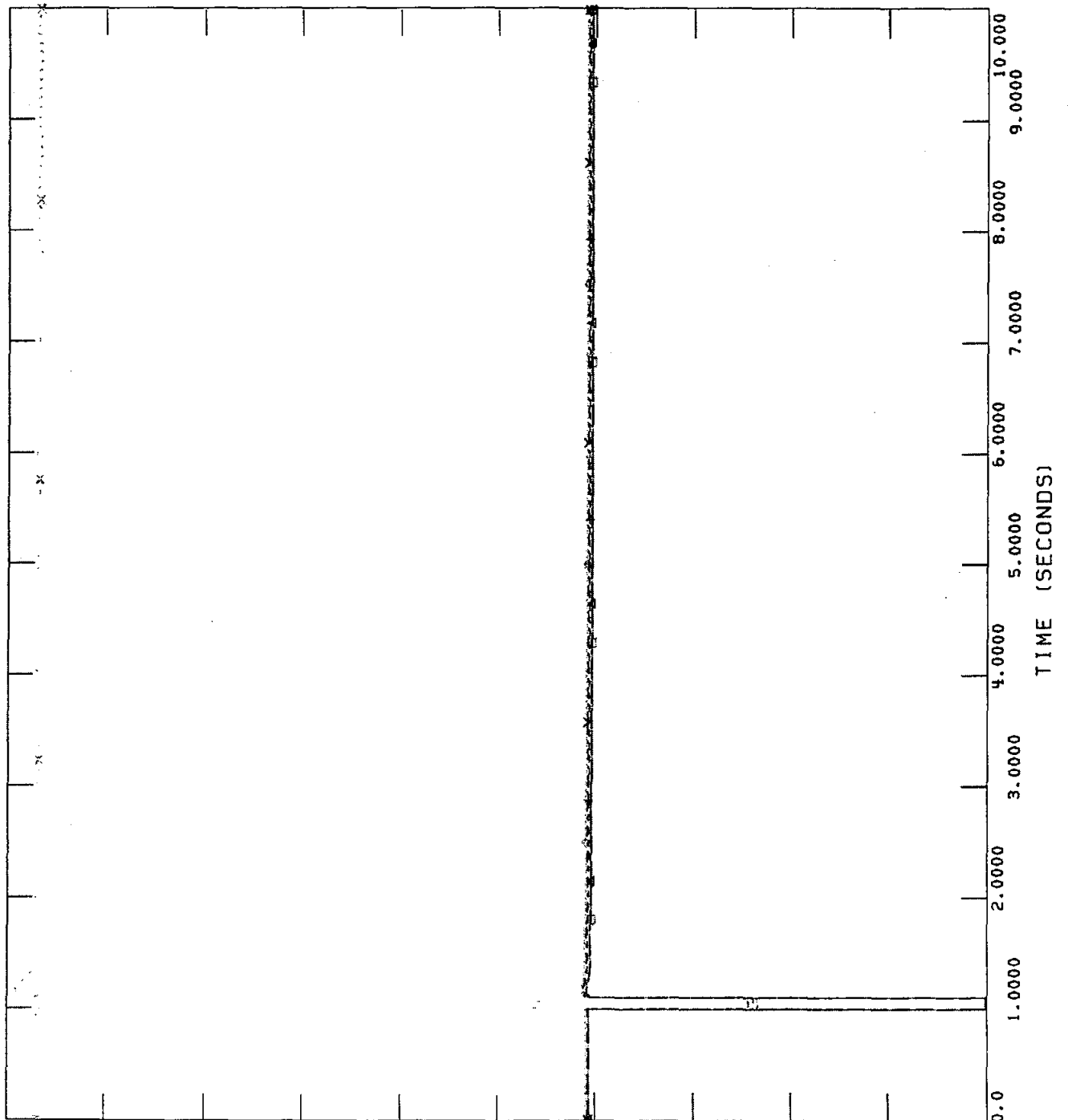




PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\3Ph fault 5C\\RSEZ GS-I 132kV to Mardan132kV One Circuit Ou.out

CHNL# 12: CVOLT	1074 CMARDAN II	132.00JJ	2.5000	0.0
CHNL# 11: CVOLT	150 CMARDAN	220.00JJ	1.0000	0.50000
CHNL# 10: CVOLT	1071 CMARDAN III	132.00JJ	2.5000	0.0
CHNL# 9: CVOLT	1070 CMARDAN	132.00JJ	2.5000	0.0
CHNL# 8: CVOLT	1068 CRSEZ GS-I	132.00JJ	2.5000	0.0
CHNL# 7: CVOLT	1066 CRSEZ GS-II	132.00JJ	2.5000	0.0

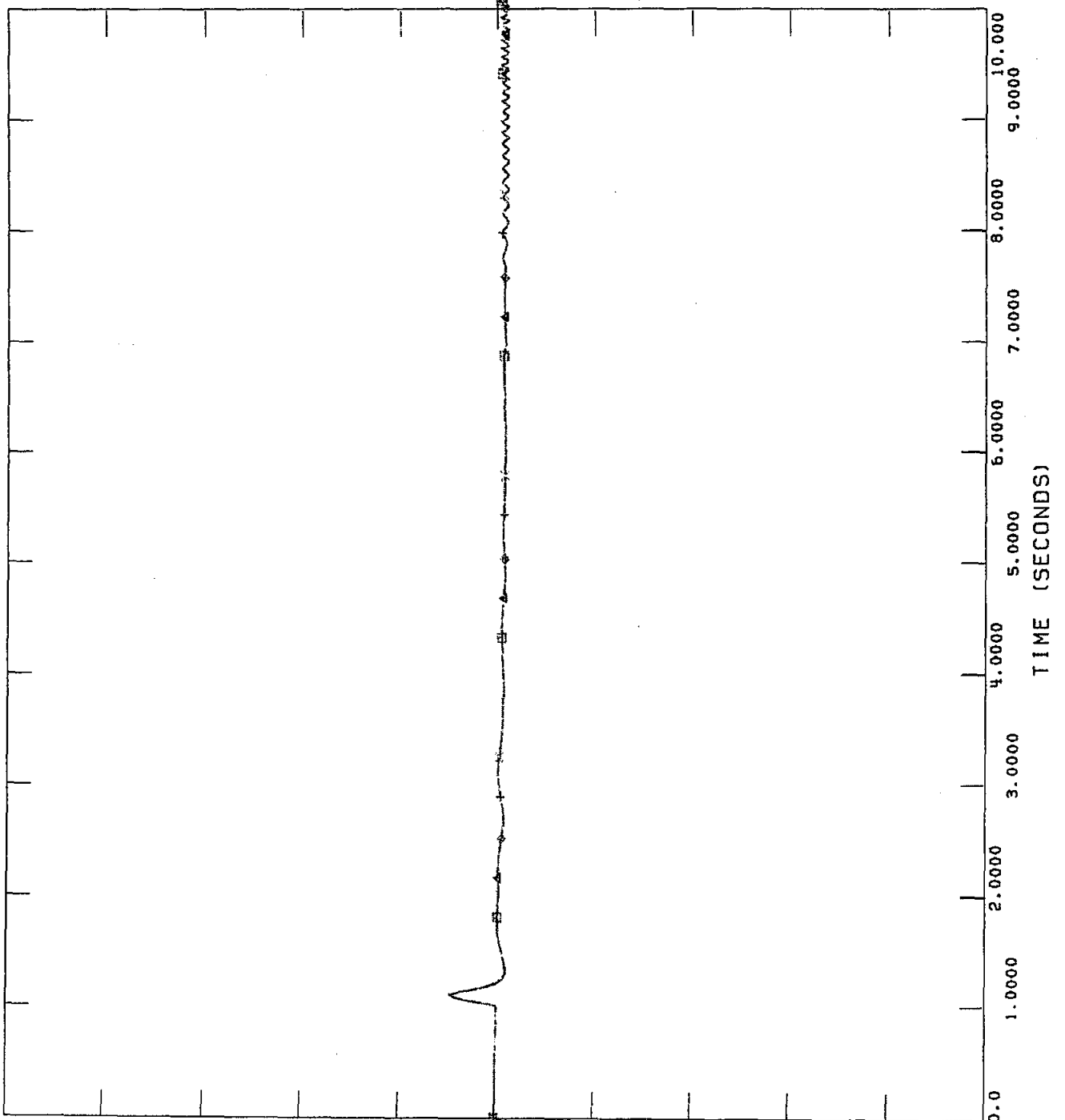




PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\3Ph fault 5C\\RSEZ GS-I 132kV to Mardan132kV One Circuit Out.out

50.500	CHNL# 5: 50*(1+CFREQ	150 CMARDAN	220.0000	x	x	49.500
50.500	CHNL# 4: 50*(1+CFREQ	1071 CMARDAN III	132.0000	+-----+		49.500
50.500	CHNL# 3: 50*(1+CFREQ	1070 CMARDAN	132.0000	-----		49.500
50.500	CHNL# 2: 50*(1+CFREQ	1068 RSEZ GS-I	132.0000	-----		49.500
50.500	CHNL# 1: 50*(1+CFREQ	1066 RSEZ GS-II	132.0000	-----		49.500



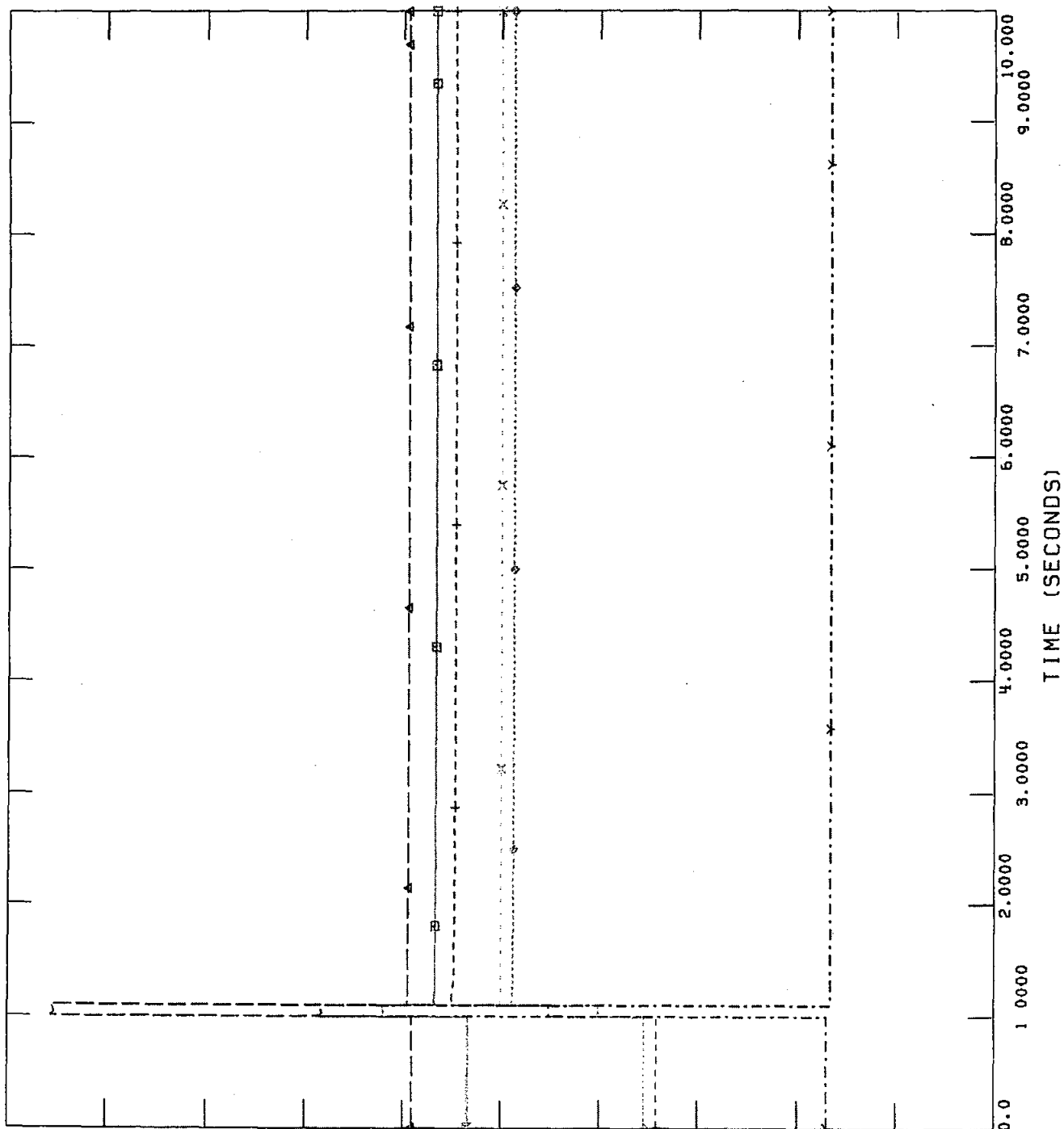
WED, JUN 01 2022 20:32
EXHIBIT 5.9



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\3Ph fault 5C\\RSEZ GS-I 132kV to Mardan132kV One Circuit Out

1000.0	CHNL# 18: CVARS	1070 TO	1068 CKT '1 ']	-200.0
500.00	CHNL# 17: EPOWR	1070 TO	1068 CKT '1 ']	-500.0
15.000	CHNL# 16: CVARS	1066 TO	1068 CKT '1 ']	-10.00
150.00	CHNL# 15: EPOWR	1066 TO	1068 CKT '1 ']	-100.0
700.00	CHNL# 14: CVARS	1070 TO	1066 CKT '1 ']	-1000.
500.00	CHNL# 13: EPOWR	1070 TO	1066 CKT '1 ']	-500.0



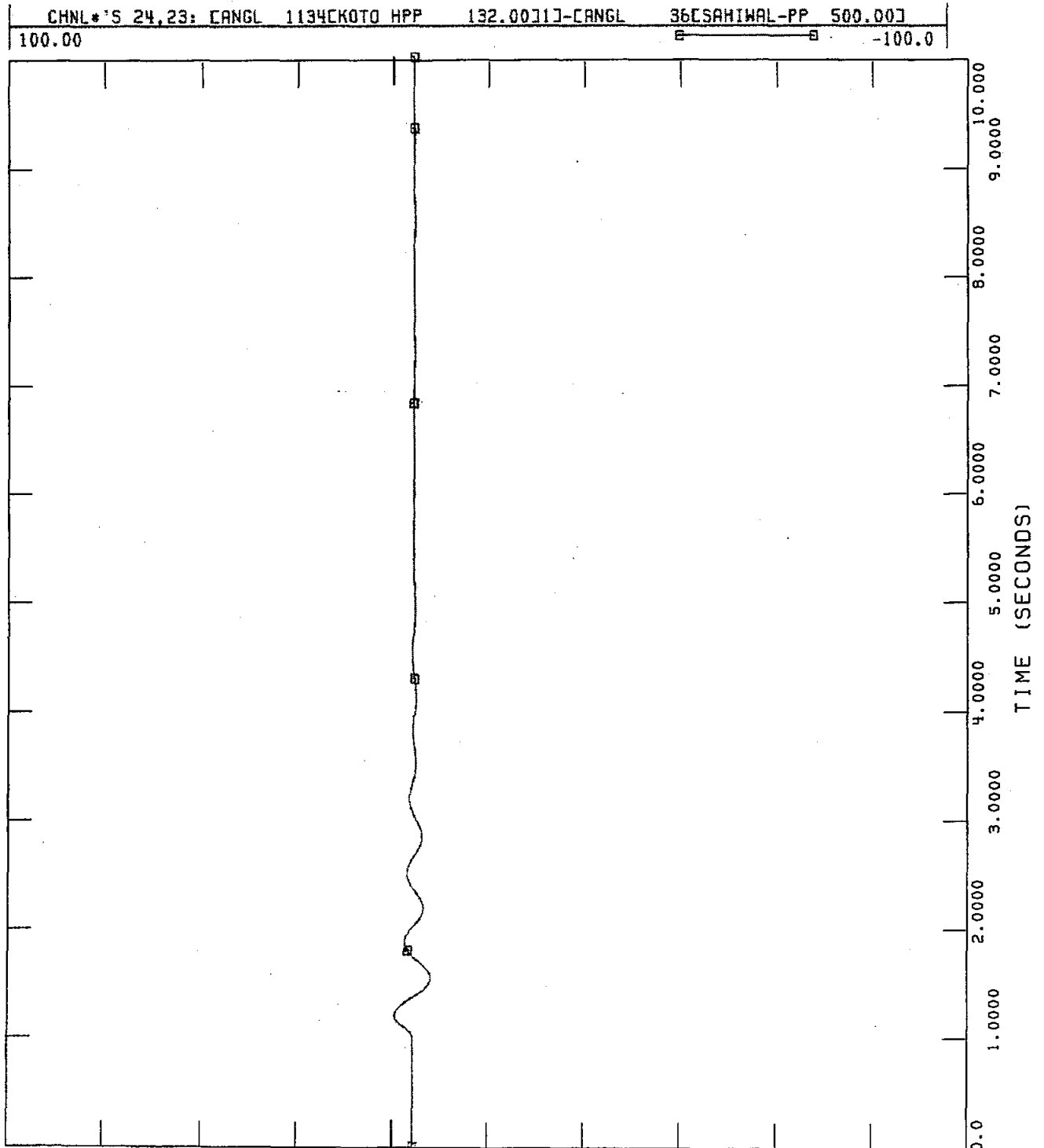
WED, JUN 01 2022 20:28
EXHIBIT 5.10

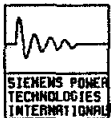


PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\3Ph fault 5C\\RSEZ GS-I 132kV to Mardan132kV One Circuit Ou.out

WED, JUN 01 2022 20:33
EXHIBIT 5.11

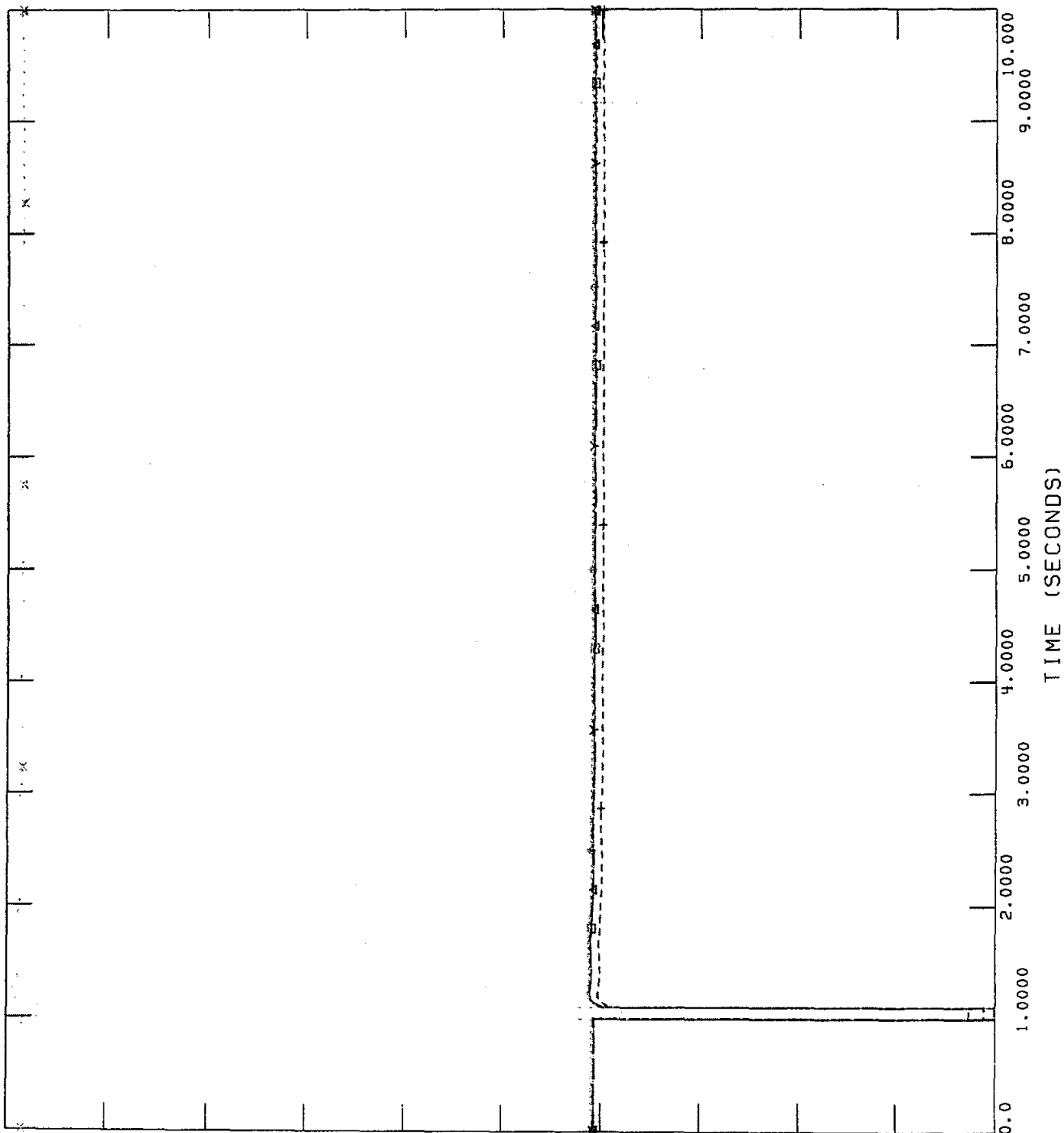




PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\3Ph fault 5C\\Mardan III 132kV to Marda132kV\\OneCircuit Out.out

2.5000	CHNL# 12: CVOLT	1074 CMARDAN II	132.00]]	0.0
1.0000	CHNL# 11: CVOLT	150 CMARDAN	220.00]]	0.0
2.5000	CHNL# 10: CVOLT	1071 CMARDAN III	132.00]]	0.0
2.5000	CHNL# 9: CVOLT	1070 CMARDAN	132.00]]	0.0
2.5000	CHNL# 8: CVOLT	1068 CRSEZ GS-I	132.00]]	0.0
2.5000	CHNL# 7: CVOLT	1066 CRSEZ GS-II	132.00]]	0.0



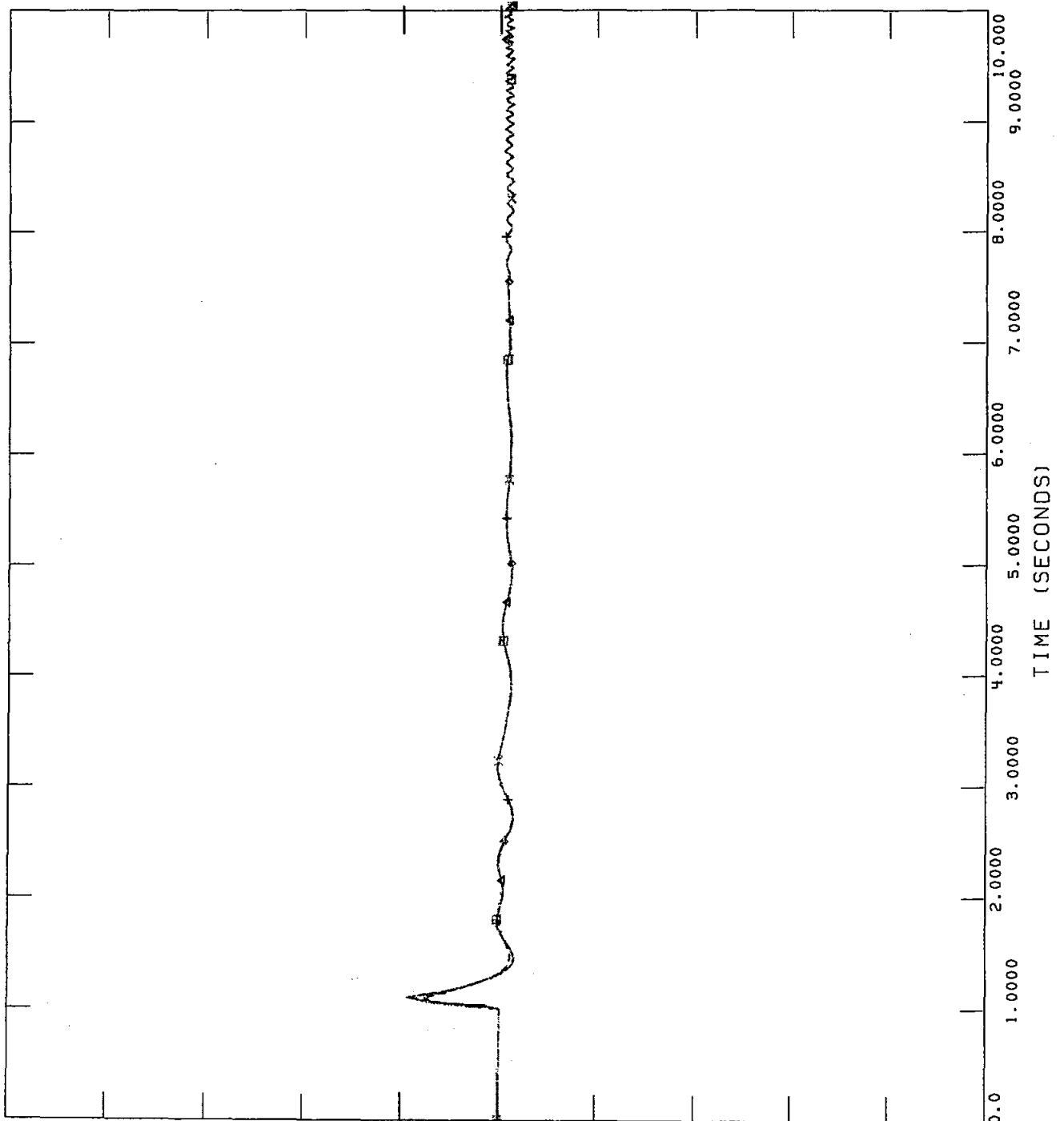
WED, JUN 01 2022 20:21
SUBMIT 5.12



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\3Ph fault 5C\\Mardan III 132kV to Marda132kVOneCircuit Out.out

50.500	CHNL# 5: 50*(1+CFREQ	150 CMARDAN	220.00]]]	x	x	49.500
50.500	CHNL# 4: 50*(1+CFREQ	1071 CMARDAN III	132.00]]]	+-----+		49.500
50.500	CHNL# 3: 50*(1+CFREQ	1070 CMARDAN	132.00]]]	o-----o		49.500
50.500	CHNL# 2: 50*(1+CFREQ	1068 CRSEZ GS-I	132.00]]]	←-----→		49.500
50.500	CHNL# 1: 50*(1+CFREQ	1066 CRSEZ GS-II	132.00]]]	□-----□		49.500

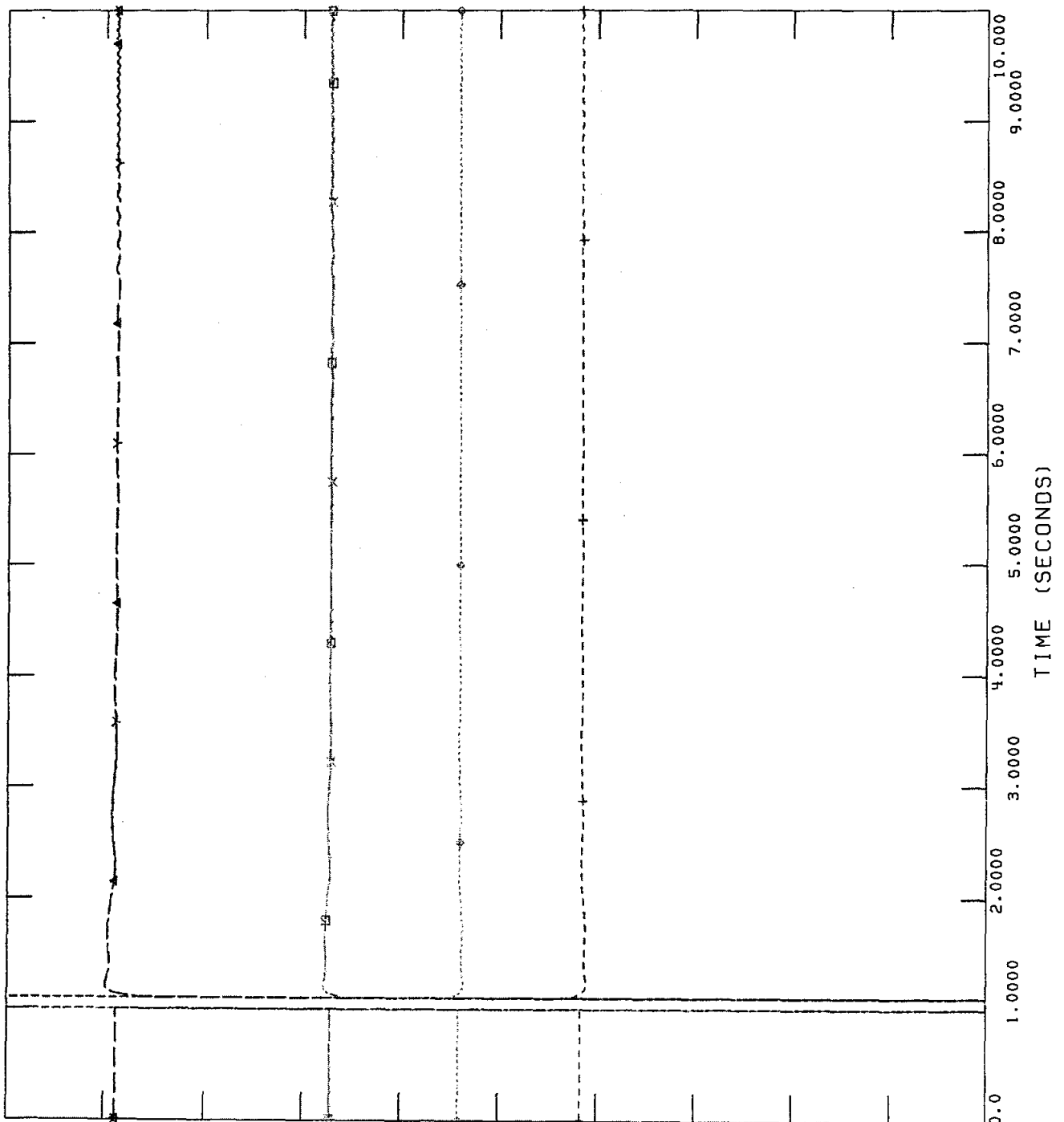
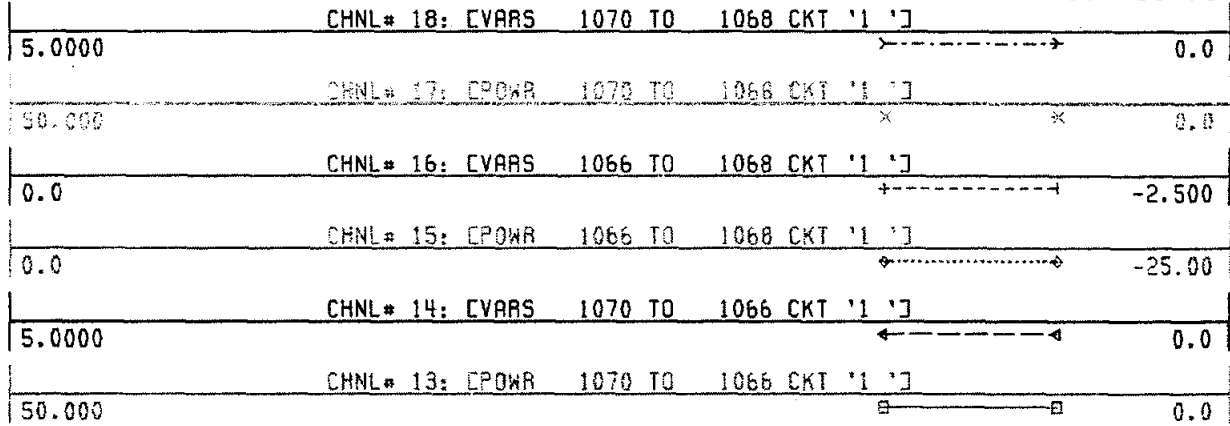


WED, JUN 01 2022 20:25
EXHIBIT 5.13



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\3Ph fault 5C\\Mardan III 132kV to Marda132kVOneCircuit Out.out

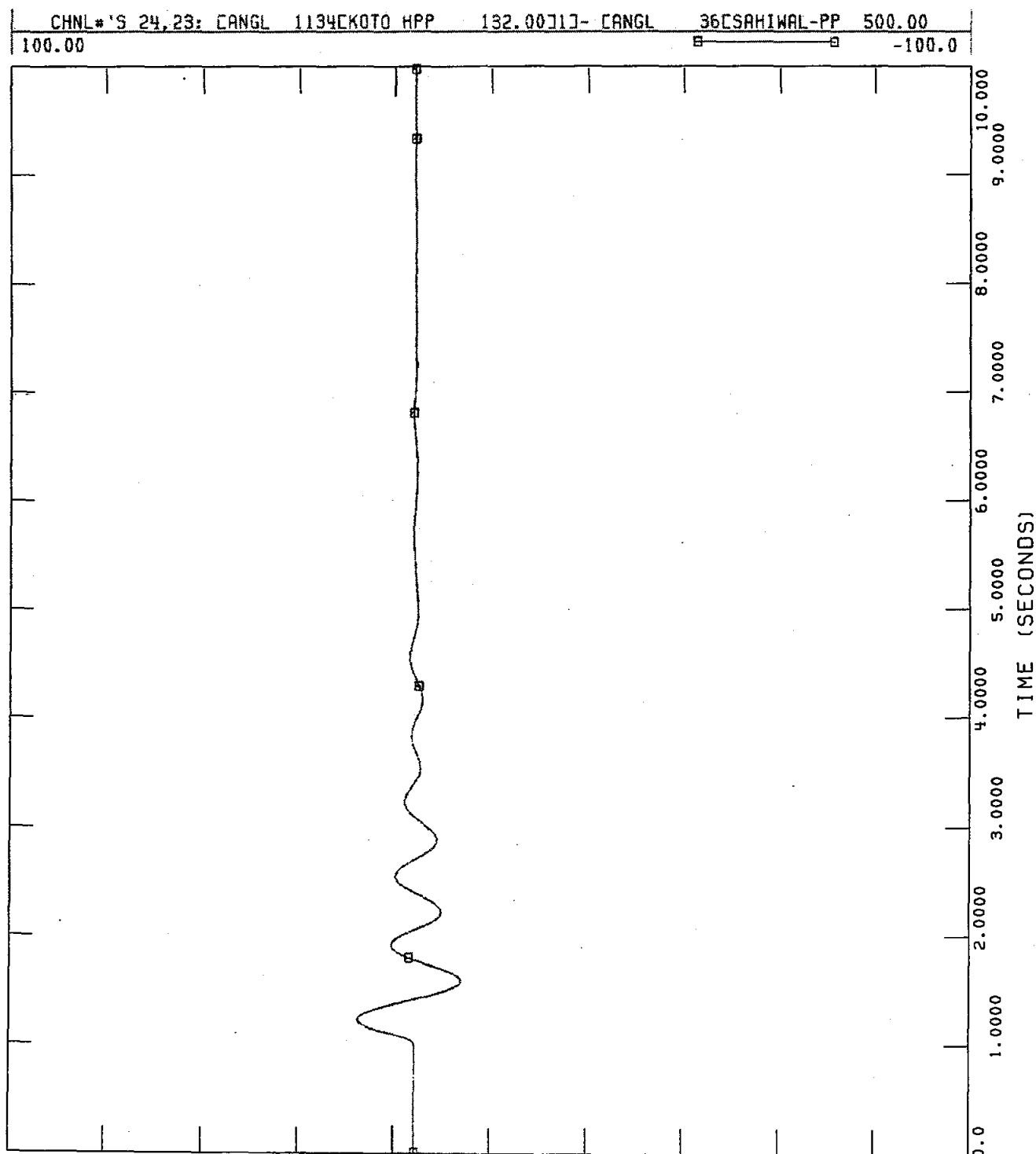


WED. JUN 01 2022 20:22
CHN BIT 5



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\3Ph fault 5C\\Mardan III 132kV to Marda132kVOneCircuit Out.out



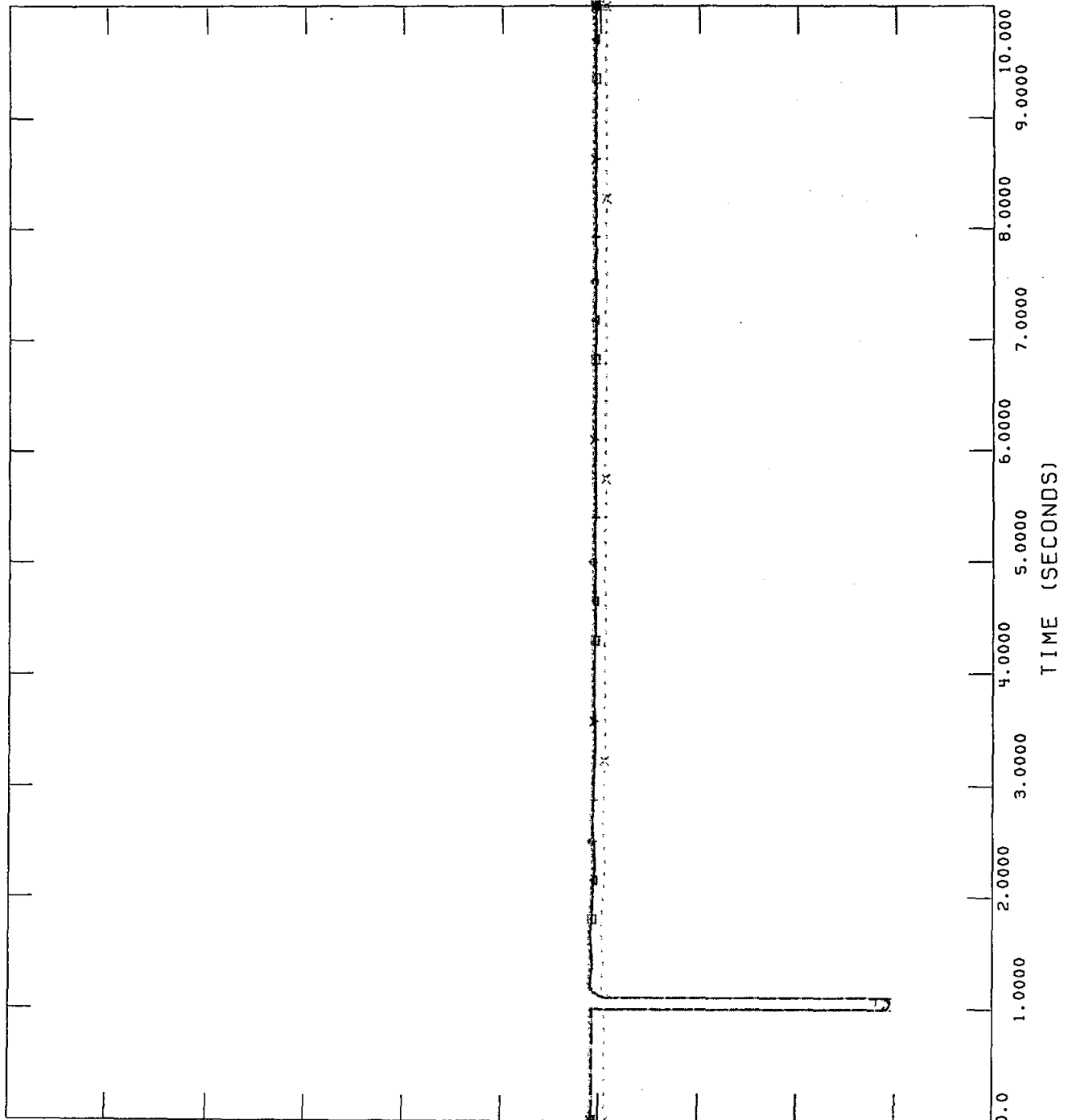
WED, JUN 01 2022 20:26
EXHIBIT 5.15



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\3Ph fault 5C\\Mardan 220to132kV transformer out.out

2.5000	CHNL# 12: EVOLT 1074 CMARDAN II 132.0000	0.0
2.5000	CHNL# 11: EVOLT 106 CMARDAN 220.0000	0.0
2.5000	CHNL# 10: EVOLT 1071 CMARDAN III 132.0000	0.0
2.5000	CHNL# 9: EVOLT 1070 CMARDAN 132.0000	0.0
2.5000	CHNL# 8: EVOLT 1068 CRSEZ GS-I 132.0000	0.0
2.5000	CHNL# 7: EVOLT 1066 CRSEZ GS-II 132.0000	0.0



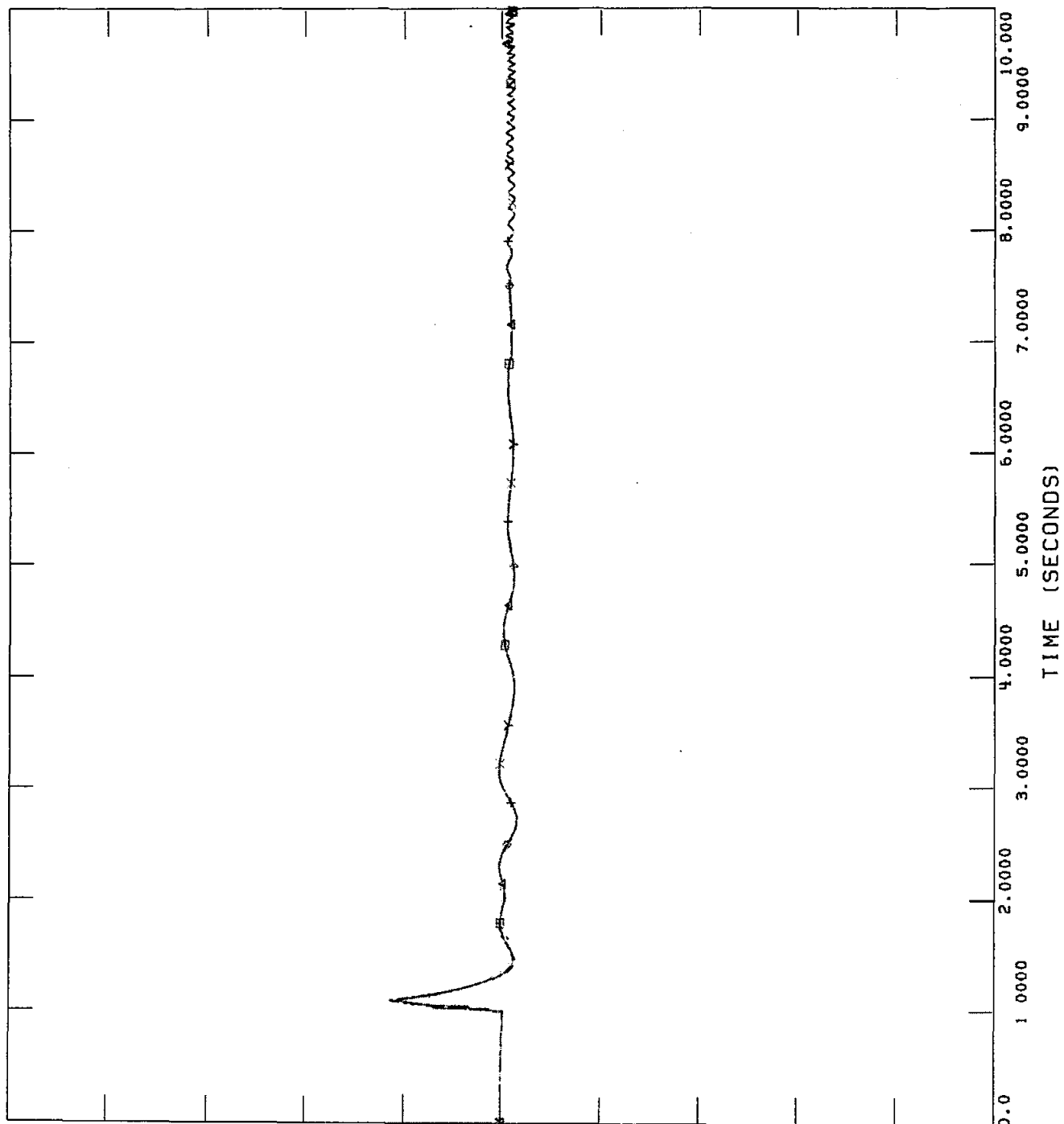
WED, JUN 01 2022 19:48
EXHIBIT 5.16



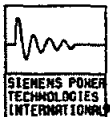
PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\3Ph fault 5C\\Mardan 220to132kV transformer out.out

CHNL* 6: 50*(1+CFREQ 1074 CMARDAN II 132.00JJ)			
50.500		----->	49.500
CHNL* 5: 50*(1+CFREQ 1050 CMARDAN 220.00JJ)			
50.500		x x	49.500
CHNL* 4: 50*(1+CFREQ 1071 CMARDAN III 132.00JJ)			
50.500		+-----+	49.500
CHNL* 3: 50*(1+CFREQ 1070 CMARDAN 132.00JJ)			
50.500		----->	49.500
CHNL* 2: 50*(1+CFREQ 1068 CRSEZ GS-I 132.00JJ)			
50.500		----->	49.500
CHNL* 1: 50*(1+CFREQ 1066 CRSEZ GS-II 132.00JJ)			
50.500		----->	49.500

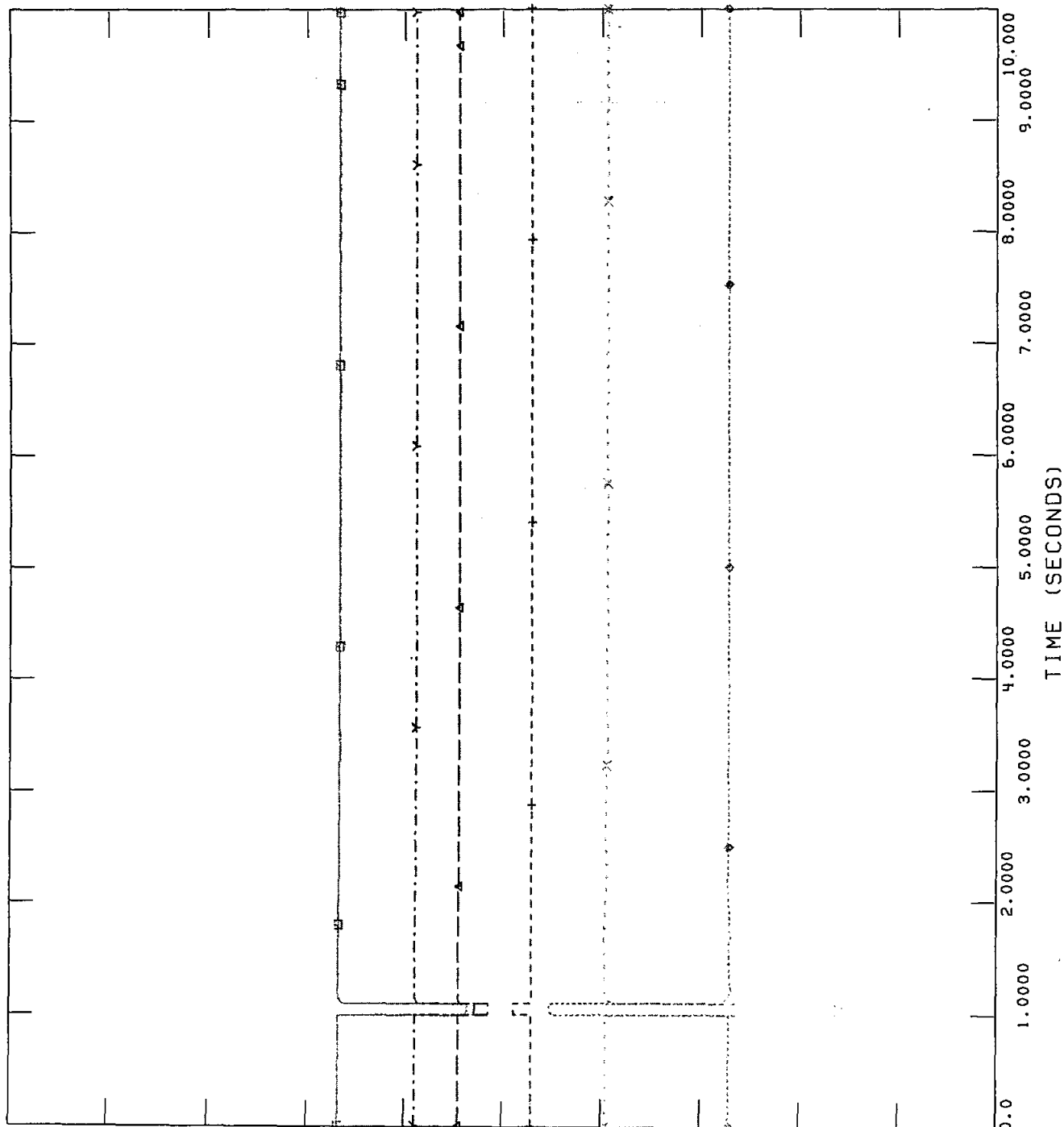
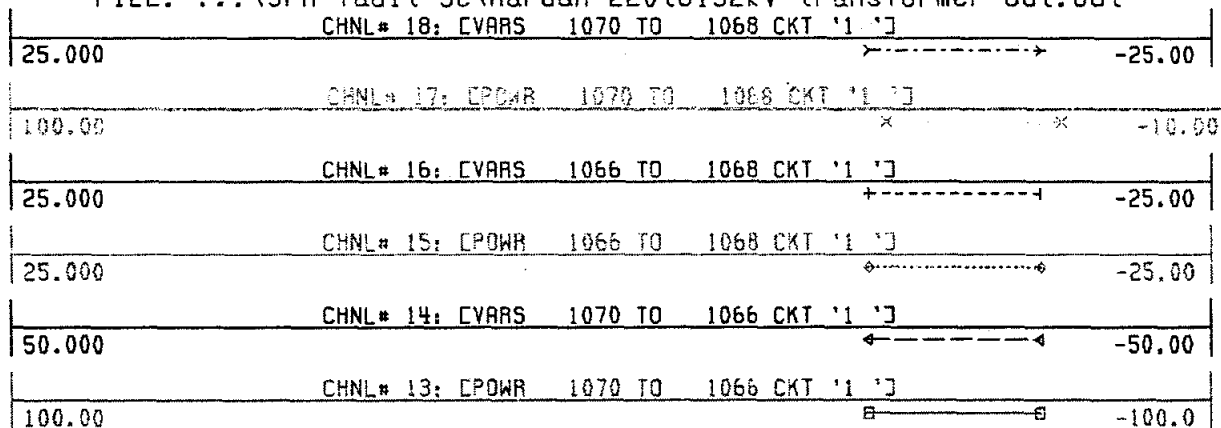


WED, JUN 01 2022 20:03
EXHIBIT 5.17

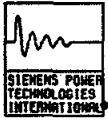


PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\3Ph fault 5C\\Mardan 220to132kV transformer out.out

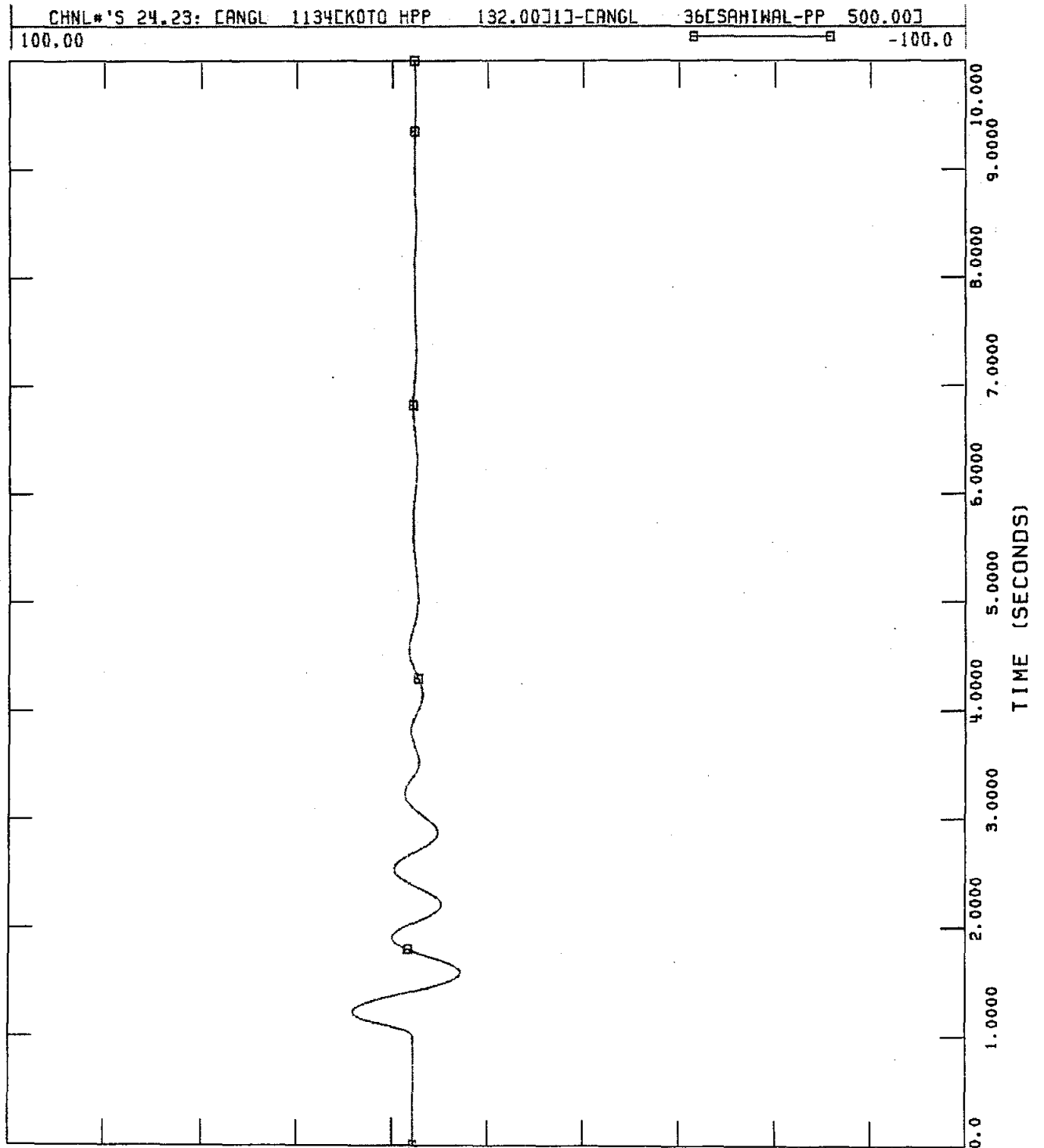


WED, JUN 01 2022 19:55
EXHIBIT 5.18



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE:\3Ph fault 5C\Mardan 220to132kV transformer out.out



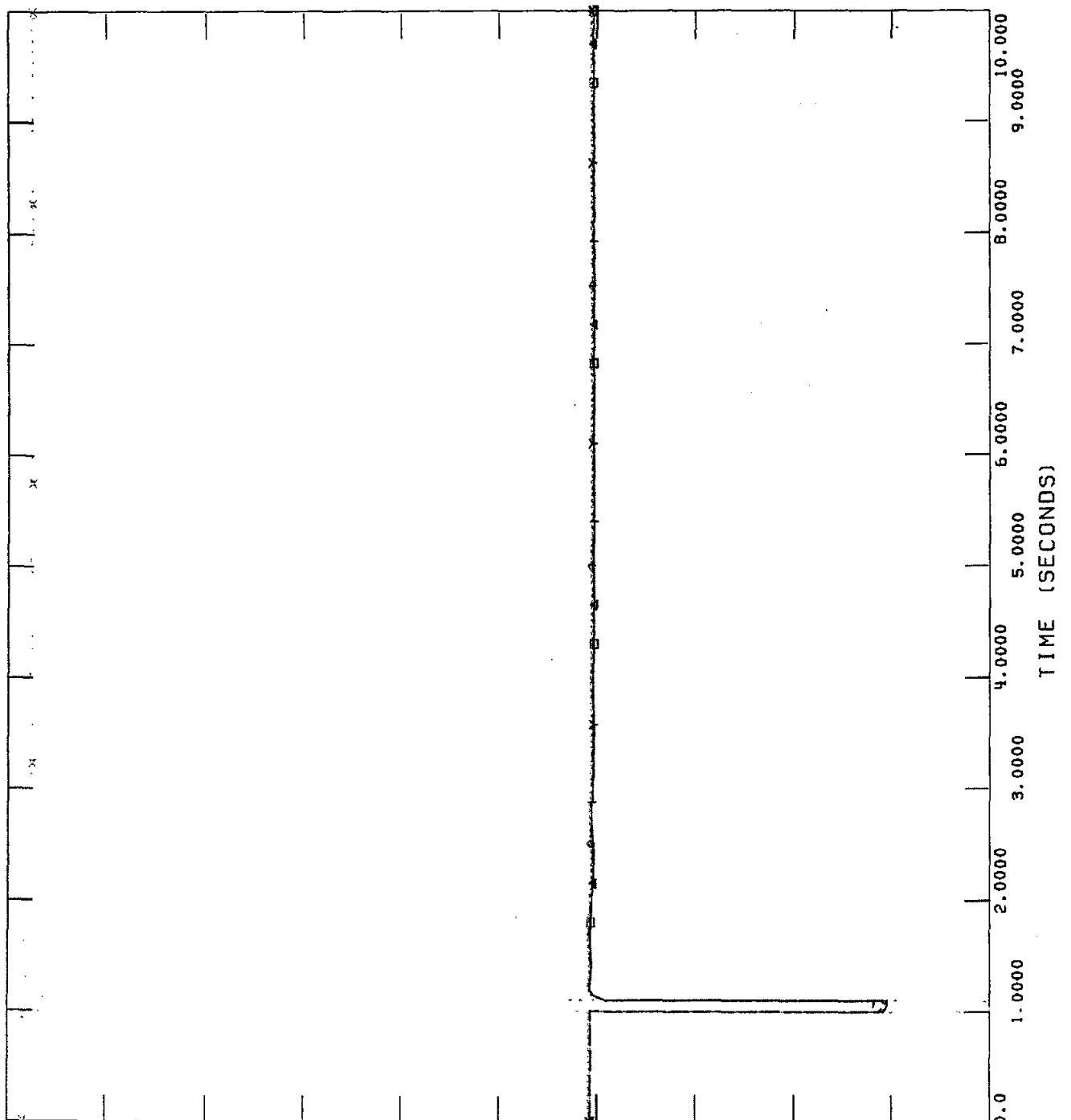
WED, JUN 01 2022 20:04
EXHIBIT 5.19



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\3Ph fault 5C\\Tarbela 220kV to Mardan 220kV one circuit out.out

2.5000	CHNL* 12: EVOLT 1074 [MARDAN II 132.00]]	0.0
1.0000	CHNL* 11: EVOLT 1070 [MARDAN II 220.00]]	0.0
2.5000	CHNL* 10: EVOLT 1071 [MARDAN III 132.00]]	0.0
2.5000	CHNL* 9: EVOLT 1070 [MARDAN 132.00]]	0.0
2.5000	CHNL* 8: EVOLT 1068 [RSEZ GS-I 132.00]]	0.0
2.5000	CHNL* 7: EVOLT 1066 [RSEZ GS-II 132.00]]	0.0



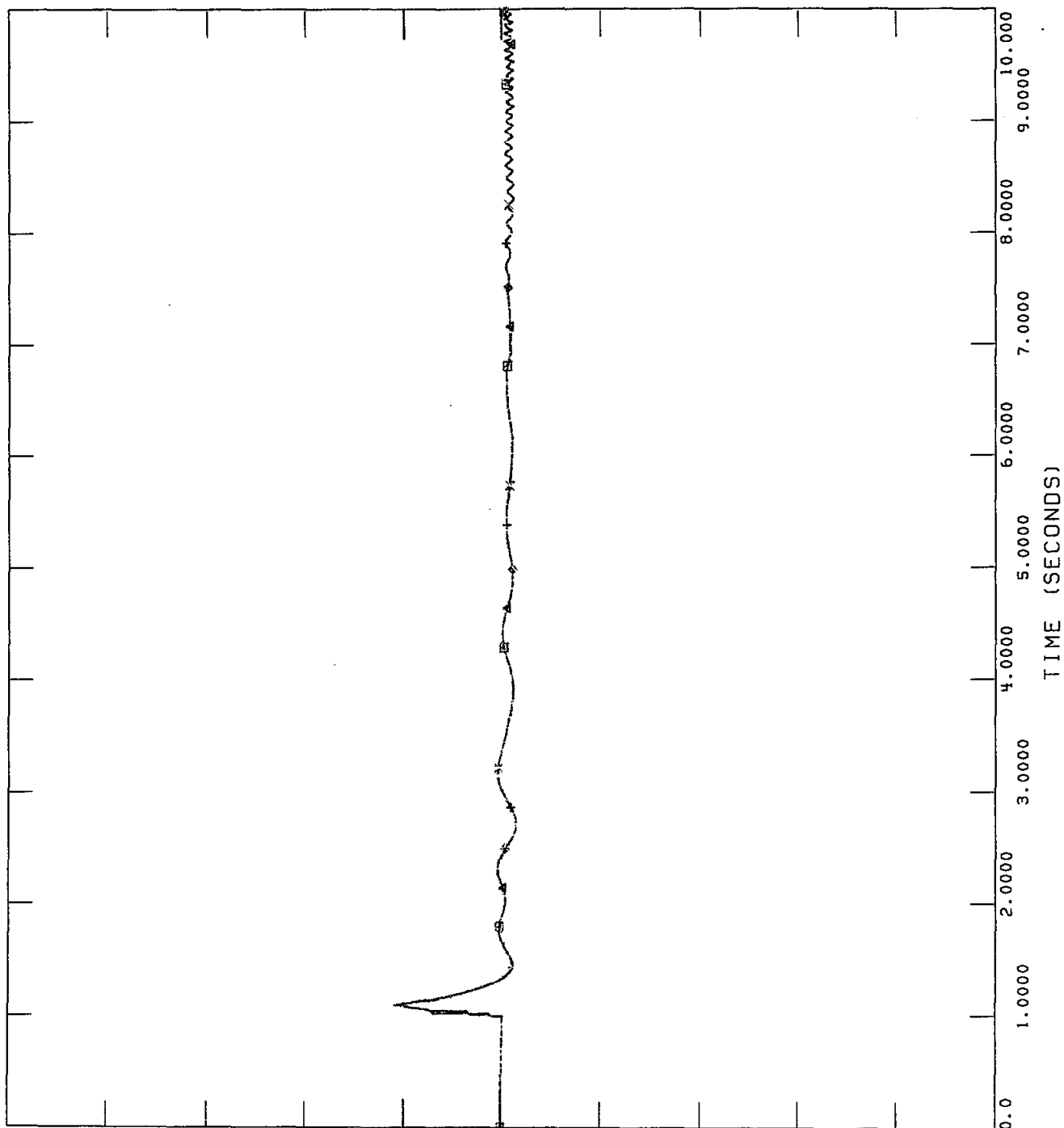
WED, JUN 01 2022 20:17
EXHIBIT 5.20



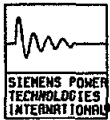
PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\3Ph fault 5C\\Tarbela 220kV to Mardan 220kV one circuit out.out

CHNL# 5: 50*(1+CFREQ	150 CMARDAN	220.0000)	x	x	49.500
50.500					
CHNL# 4: 50*(1+CFREQ	1071 CMARDAN III	132.0000)	+-----+		49.500
50.500					
CHNL# 3: 50*(1+CFREQ	1070 CMARDAN	132.0000)	+-----+		49.500
50.500					
CHNL# 2: 50*(1+CFREQ	1068 CRSEZ GS-I	132.0000)	+-----+		49.500
50.500					
CHNL# 1: 50*(1+CFREQ	1066 CRSEZ GS-II	132.0000)	+-----+		49.500
50.500					

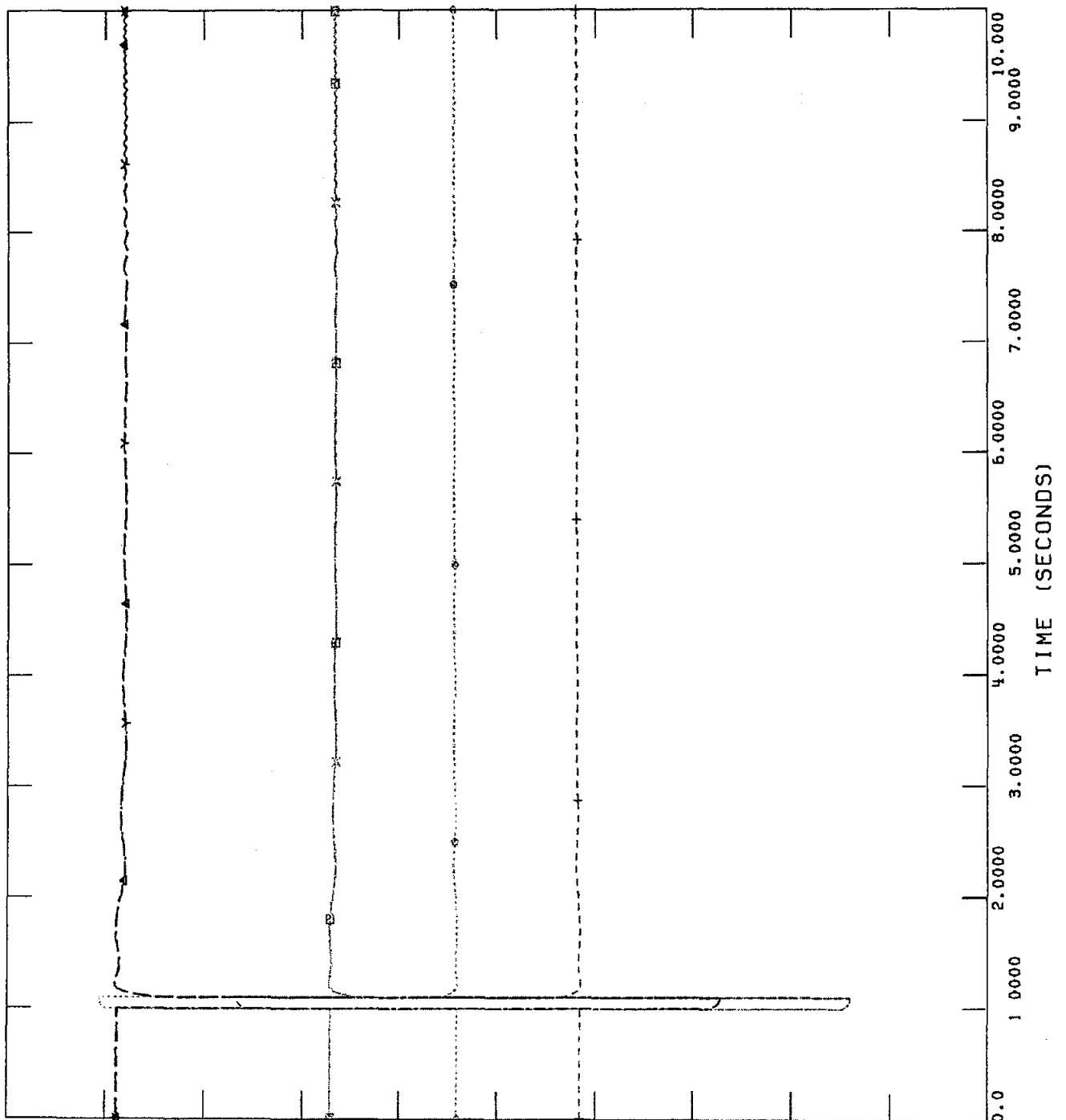
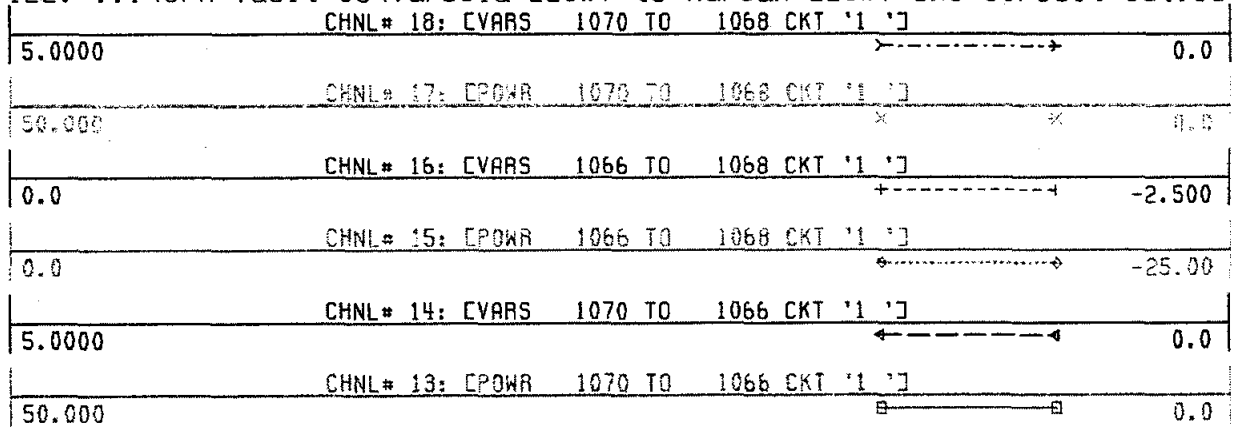


WED, JUN 01 2022 20:19
SUBMIT 5.2



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

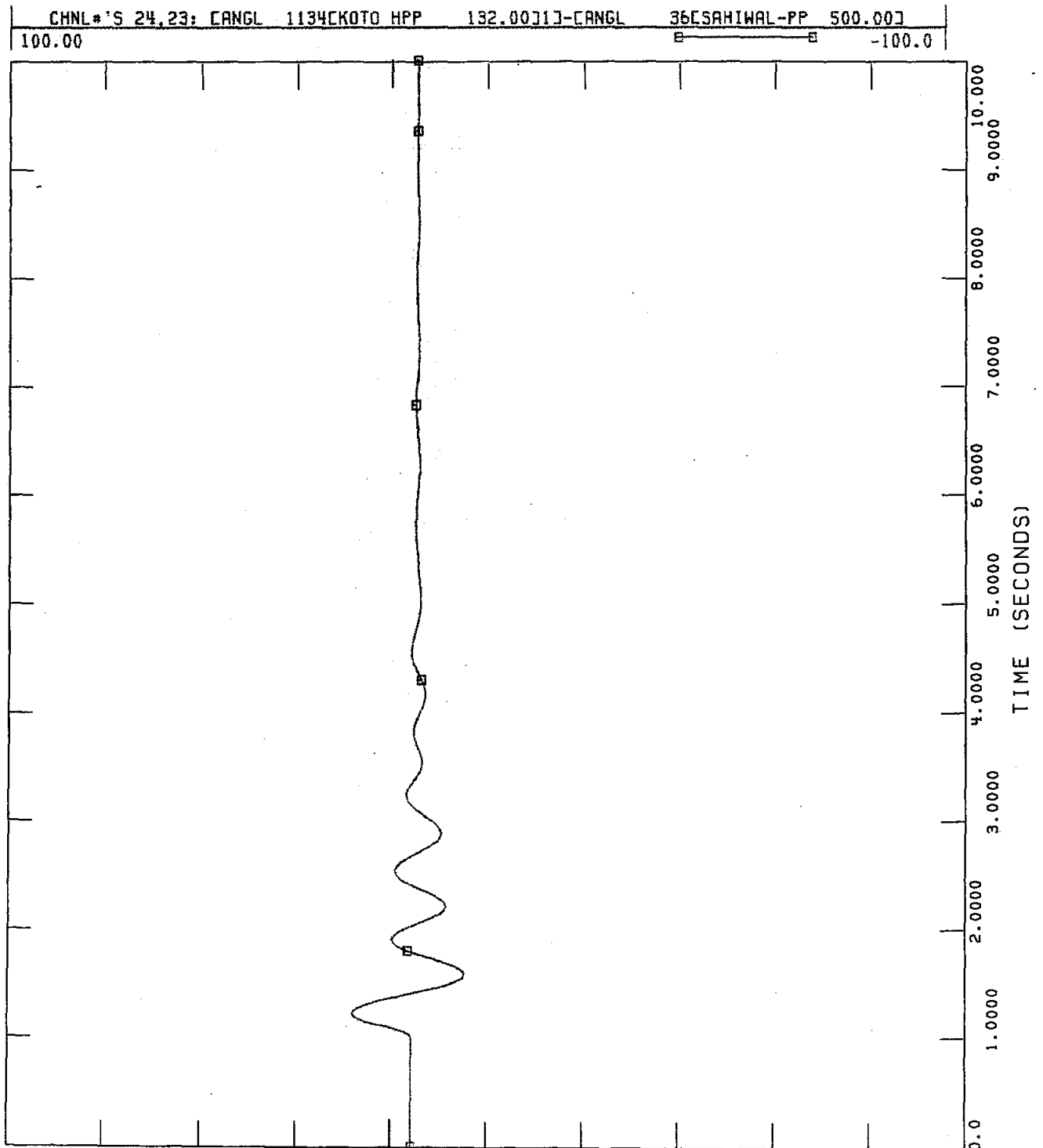
FILE: ...\\3Ph fault 5C\\Tarbela 220kV to Mardan 220kV one circuit out.out



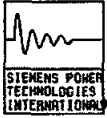


PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\3Ph fault 5C\\Tarbela 220kV to Mardan 220kV one circuit out.out



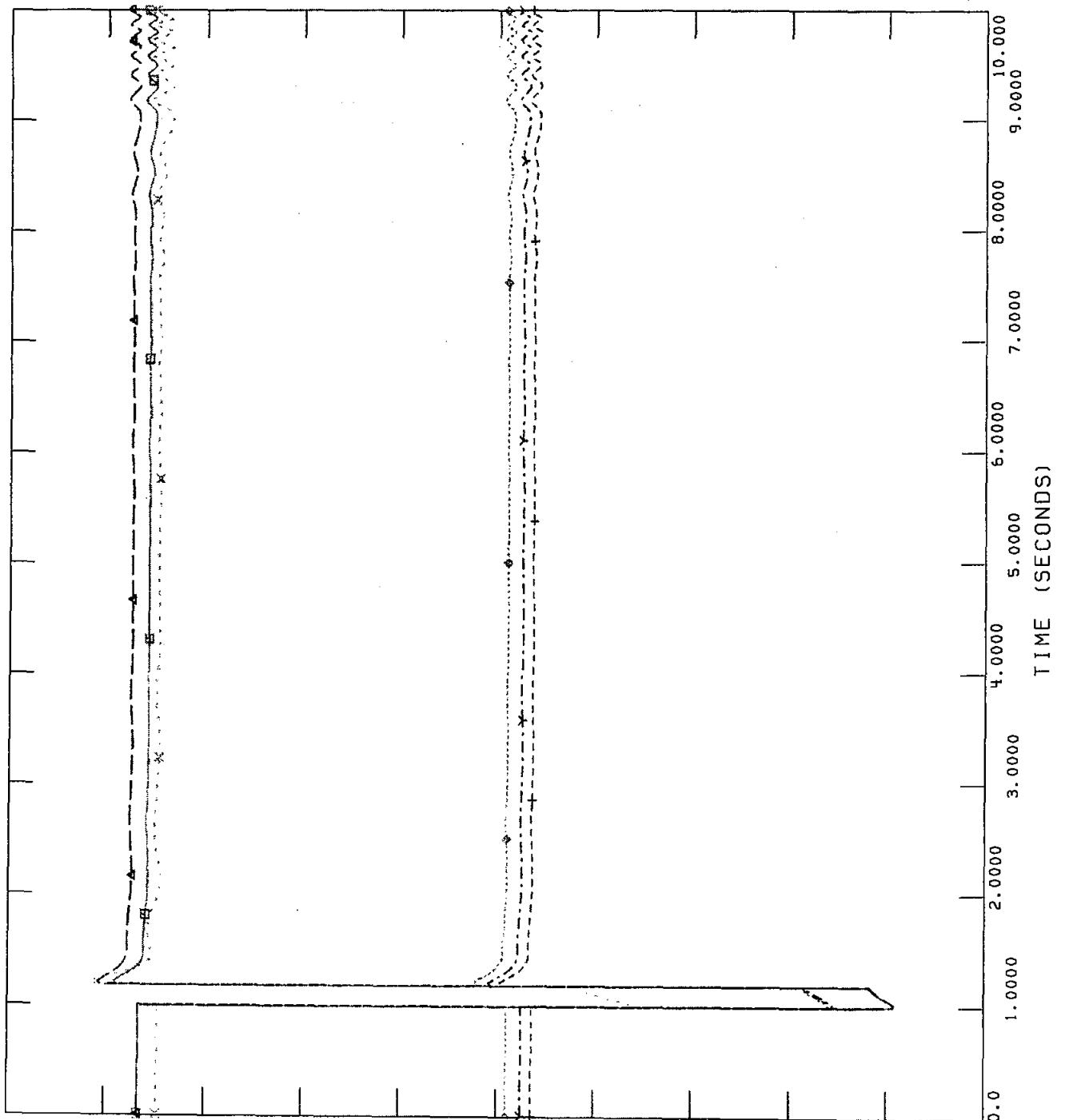
WED, JUN 01 2022 20:20
EXHIBIT 5.23



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-I 132kV to RSEZ GS-II 132kV One Circuit Out.out

1.1500	CHNL# 12: EVOLT 1074 CMARDAN II 132.0000	0.90000
1.0000	CHNL# 11: EVOLT 150 CMARDAN 220.0000	0.90000
1.1500	CHNL# 10: EVOLT 1071 CMARDAN III 132.0000	0.90000
1.1500	CHNL# 9: EVOLT 1070 CMARDAN 132.0000	0.90000
1.0500	CHNL# 8: EVOLT 1068 RSEZ GS-I 132.0000	0.80000
1.0500	CHNL# 7: EVOLT 1066 RSEZ GS-II 132.0000	0.80000



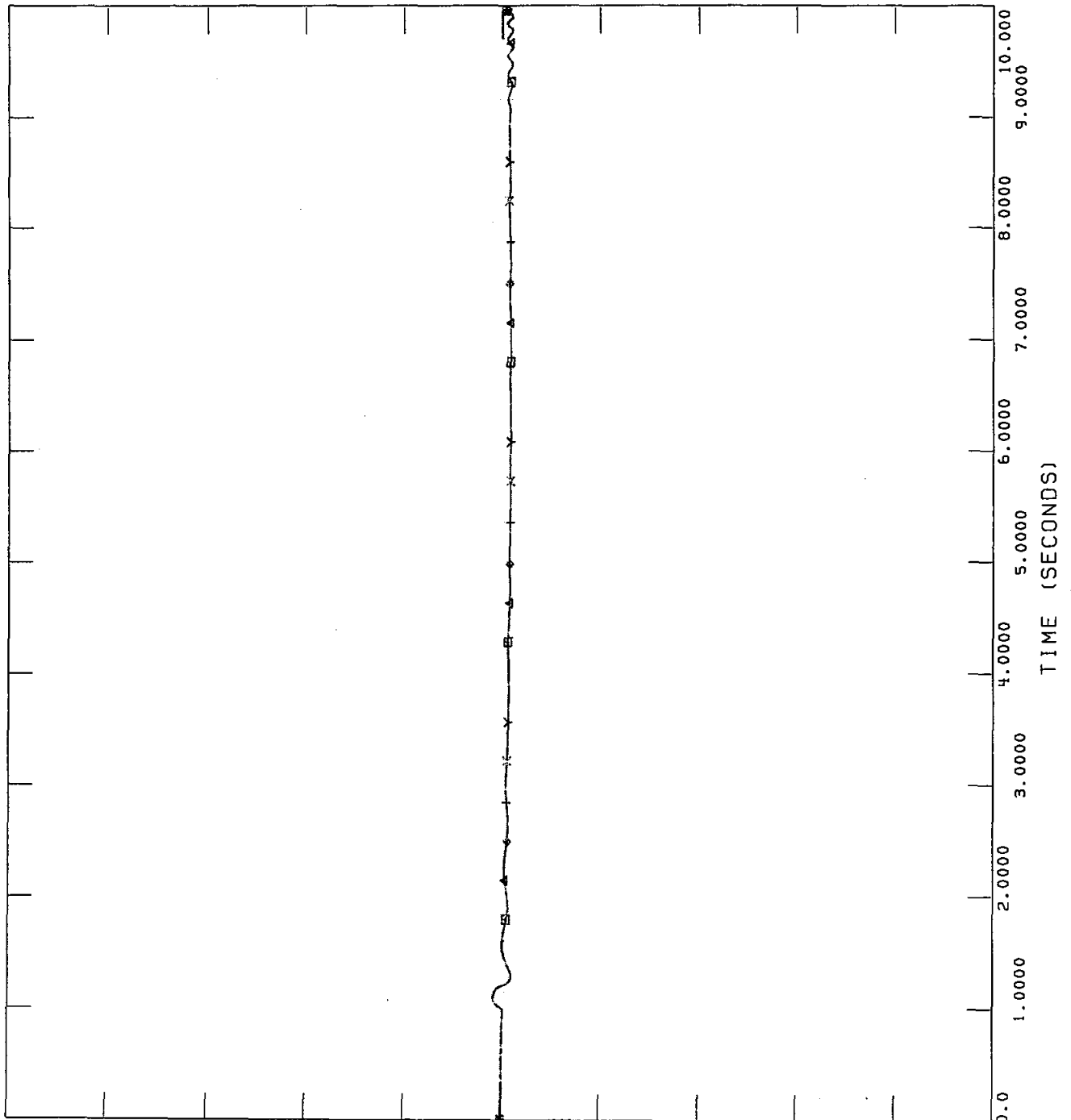
WED, JUN 01 2022 20:50
BII 6.0



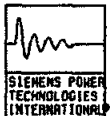
PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-I 132kV to RSEZ GS-II 132kV One Circuit Out.out

CHNL# 6: 50*(1+CFREQ 1074 CMARDAN II 132.00JJ)			
50.500		----->	49.500
CHNL# 5: 50*(1+CFREQ 150 CMARDAN 220.00JJ)			
50.500		* * *	49.500
CHNL# 4: 50*(1+CFREQ 1071 CMARDAN III 132.00JJ)			
50.500		+-----+	49.500
CHNL# 3: 50*(1+CFREQ 1070 CMARDAN 132.00JJ)			
50.500		o-----o	49.500
CHNL# 2: 50*(1+CFREQ 1068 RSEZ GS-I 132.00JJ)			
50.500		←-----→	49.500
CHNL# 1: 50*(1+CFREQ 1066 RSEZ GS-II 132.00JJ)			
50.500		□-----□	49.500



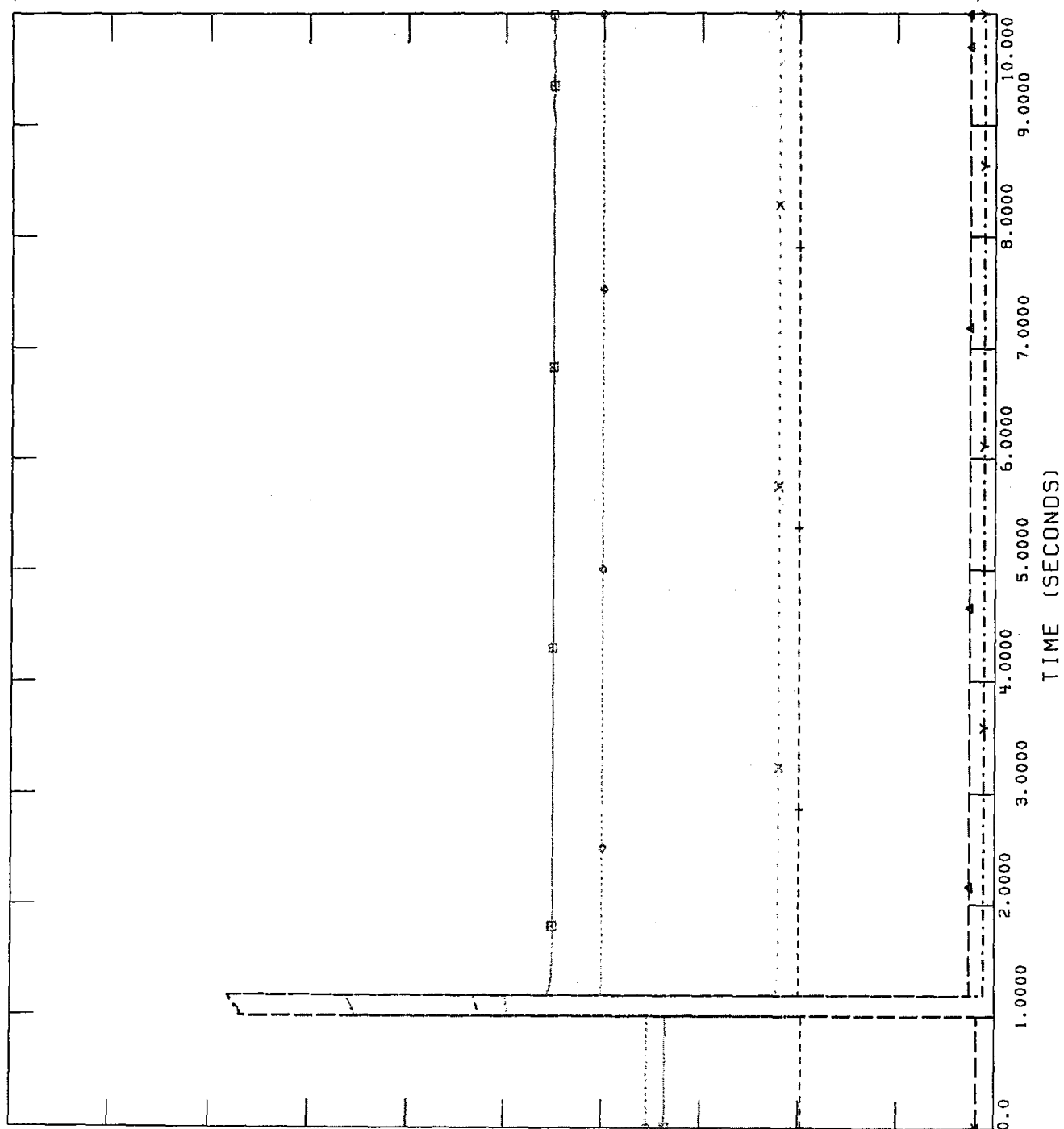
WED, JUN 01 2022 21:03
BIT 6



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-I 132kV to RSEZ GS-II 132kV One Circuit Out.out

250.00	CHNL# 18: EVARS 1070 TO 1068 CKT '1 'J	0.0
100.00	CHNL# 17: EPOWR 1070 TO 1068 CKT '1 'J	0.0
400.00	CHNL# 16: EVARS 1066 TO 1068 CKT '1 'J	-100.0
150.00	CHNL# 15: EPOWR 1066 TO 1068 CKT '1 'J	-100.0
250.00	CHNL# 14: EVARS 1070 TO 1066 CKT '1 'J	0.0
100.00	CHNL# 13: EPOWR 1070 TO 1066 CKT '1 'J	0.0

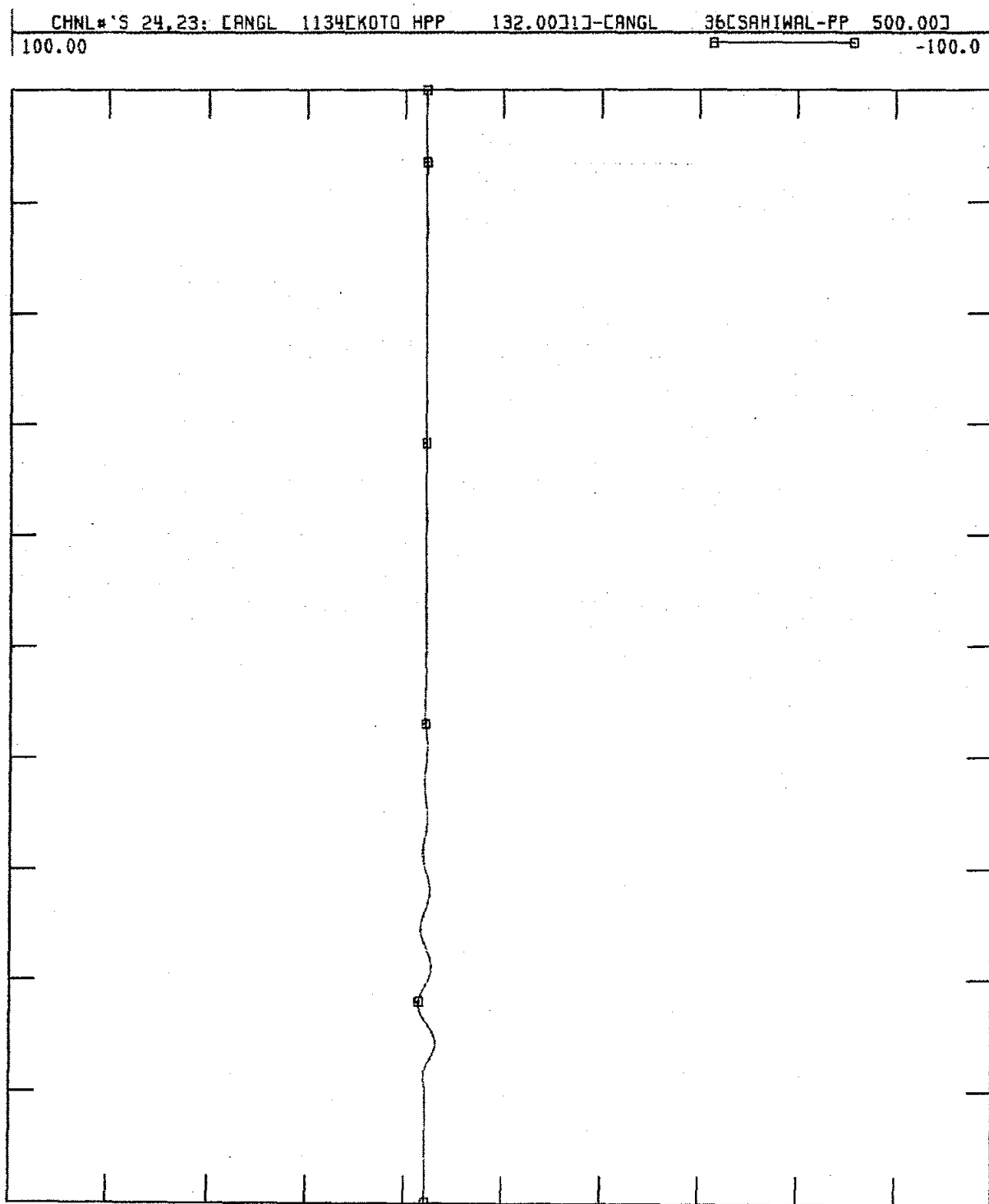


WED, JUN 01 2022 21:00
BI 6.2

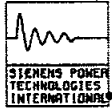


PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-I 132kV to RSEZ GS-II 132kV One Circuit Out out



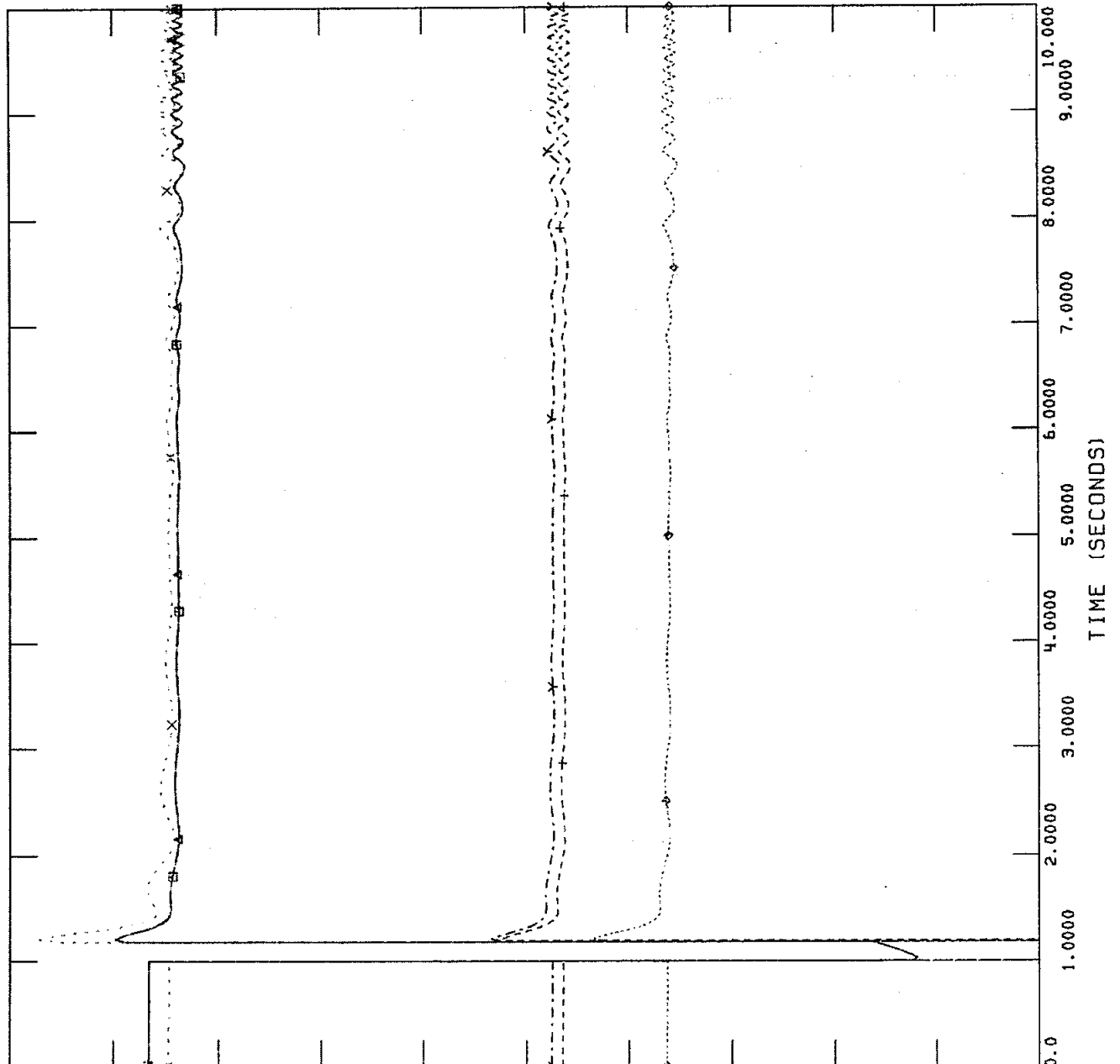
WED, JUN 01 2022 21:06
EXHIBIT 6.3



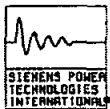
PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-II 132kV to Mardan 132kV One Circuit Out.out

1.1500	CHNL# 12: EVOLT	1074 CMARDAN II	132.0033	0.90000
1.0000	CHNL# 11: EVOLT	150 CMARDAN	220.0033	0.90000
1.1500	CHNL# 10: EVOLT	1071 CMARDAN III	132.0033	0.90000
1.1500	CHNL# 9: EVOLT	1070 CMARDAN	132.0033	0.95000
1.0500	CHNL# 8: EVOLT	1068 CRSEZ GS-I	132.0033	0.80000
1.0500	CHNL# 7: EVOLT	1066 CRSEZ GS-II	132.0033	0.80000



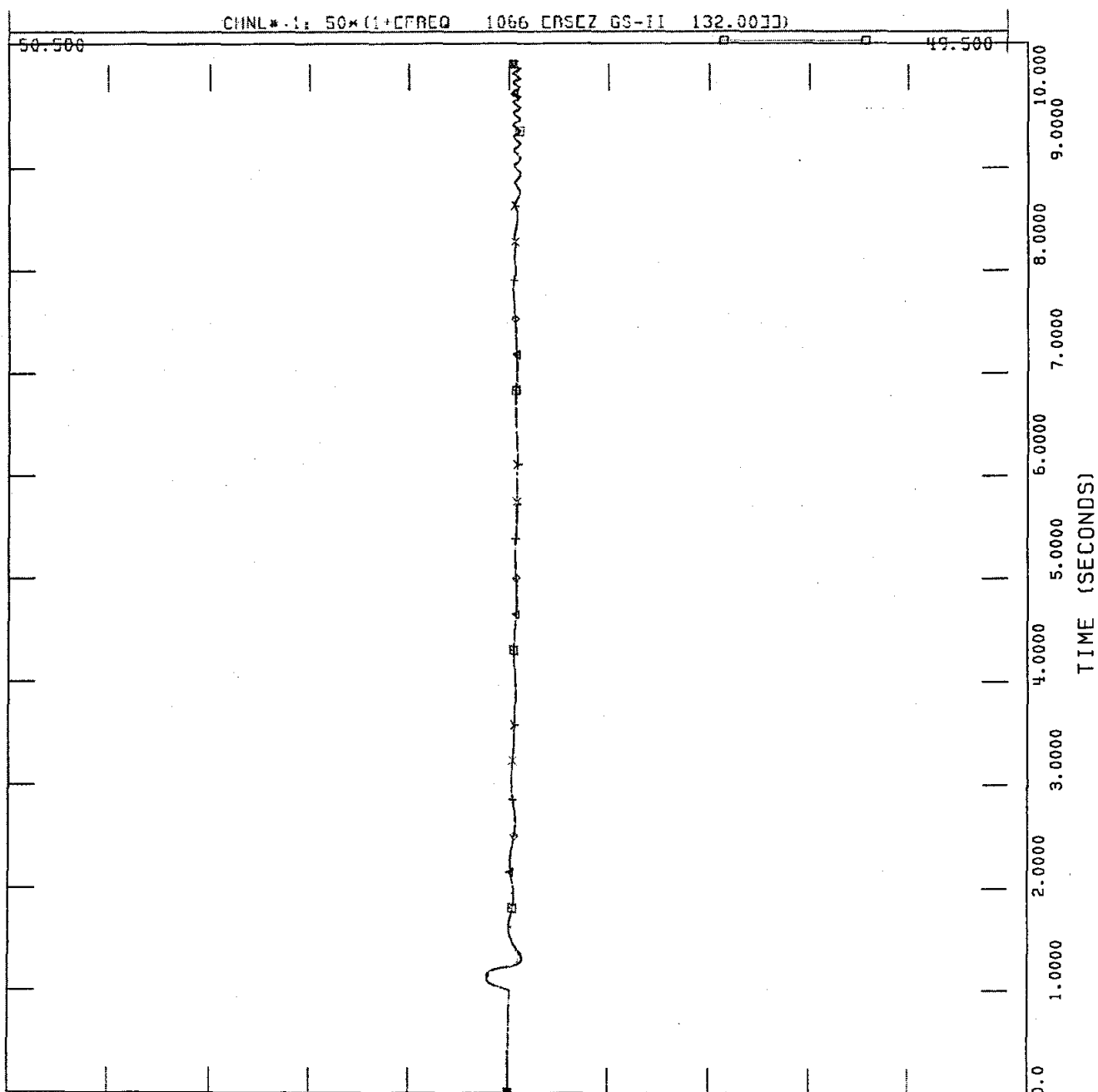
WED, JUN 01 2022 20:53
EXHIBIT 6.4



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-II 132kV to Mardan 132kV One Circuit Out.out

CHNL# 6: 50*(1+CFREQ 1074 CMARDAN II 132.00JJ)	
50.500	49.500
CHNL# 5: 50*(1+CFREQ 150 CMARDAN 220.00JJ)	
50.500	49.500
CHNL# 4: 50*(1+CFREQ 1071 CMARDAN III 132.00JJ)	
50.500	49.500
CHNL# 3: 50*(1+CFREQ 1070 CMARDAN 132.00JJ)	
50.500	49.500
CHNL# 2: 50*(1+CFREQ 1068 CRSEZ GS-I 132.00JJ)	
50.500	49.500



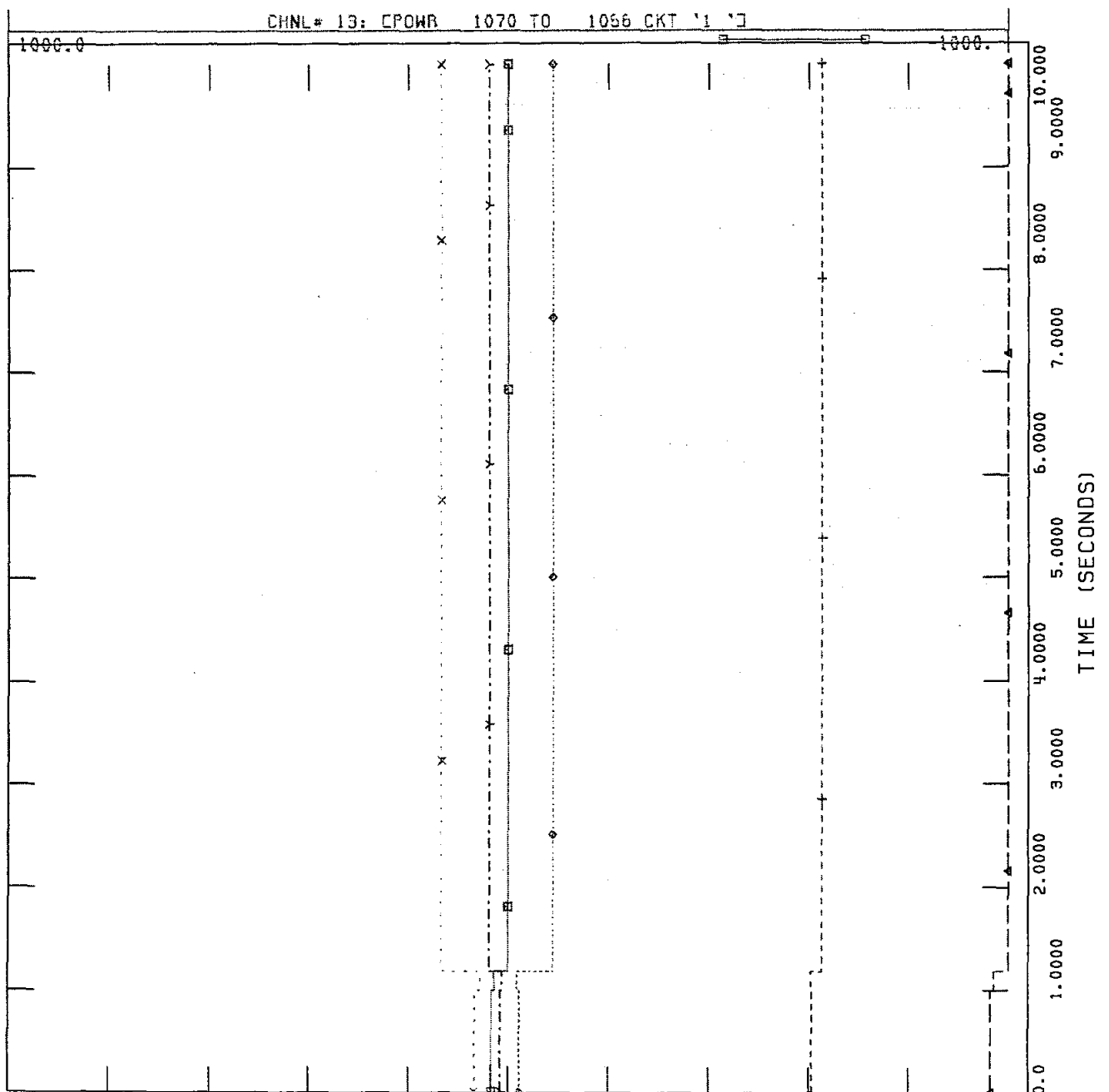
WED, JUN 01 2022 21:11
EXHIBIT 6.5



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-II 132kV to Mardan 132kV One Circuit Out.out

300.00	CHNL# 18: EVARS	1070 TO	1068 CKT '1 'J	-300.0
500.00	CHNL# 17: CPDWR	1070 TO	1068 CKT '1 'J	-500.0
400.00	CHNL# 16: EVARS	1066 TO	1068 CKT '1 'J	-100.0
500.00	CHNL# 15: CPDWR	1066 TO	1068 CKT '1 'J	-500.0
250.00	CHNL# 14: EVARS	1070 TO	1066 CKT '1 'J	0.0

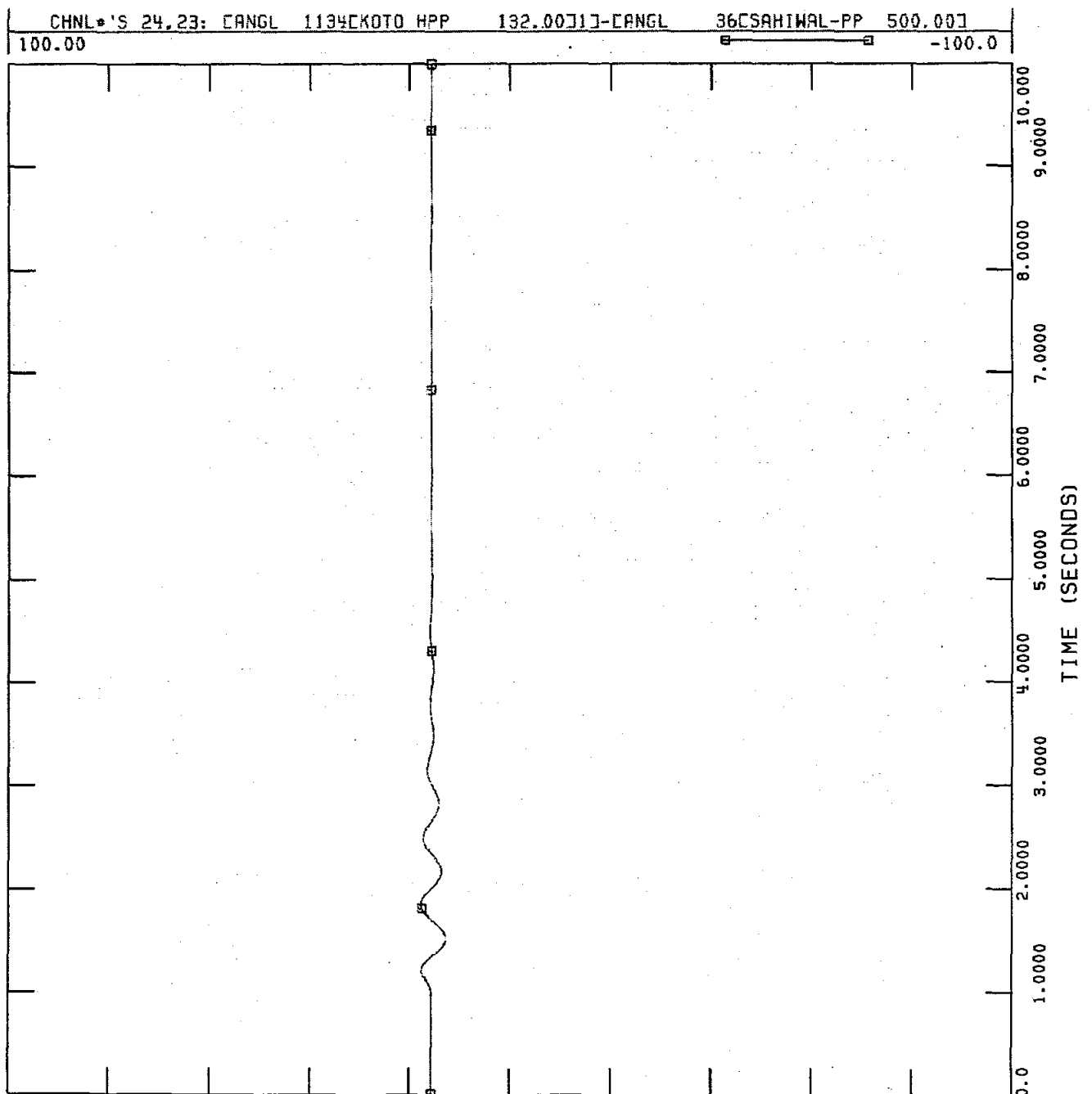


WED, JUN 01 2022 21:12
EXHIBIT 6.6



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-II 132kV to Mandan 132kV One Circuit Out out



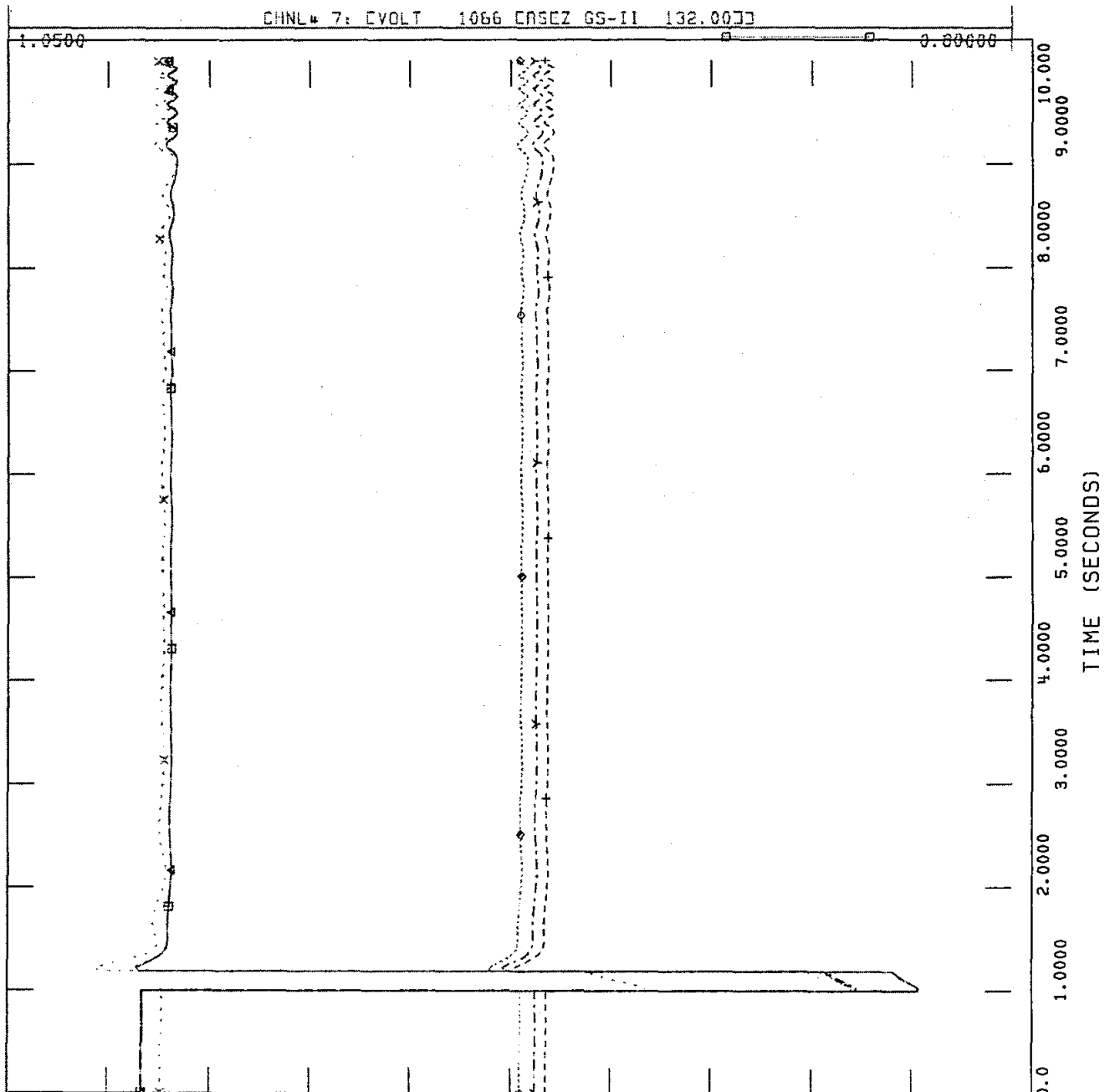
WED, JUN 01 2022 21:14
EXHIBIT 6.7



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-I 132kV to Mardan132kV One Circuit Out.out

1.1500	CHNL# 12: EVOLT	1074 CMARDAN II	132.0033	0.90000
1.0000	CHNL# 11: EVOLT	1070 CMARDAN	132.0033	0.90000
1.1500	CHNL# 10: EVOLT	1071 CMARDAN III	132.0033	0.90000
1.1500	CHNL# 9: EVOLT	1070 CMARDAN	132.0033	0.90000
1.0500	CHNL# 8: EVOLT	1068 CASEZ GS-I	132.0033	0.80000



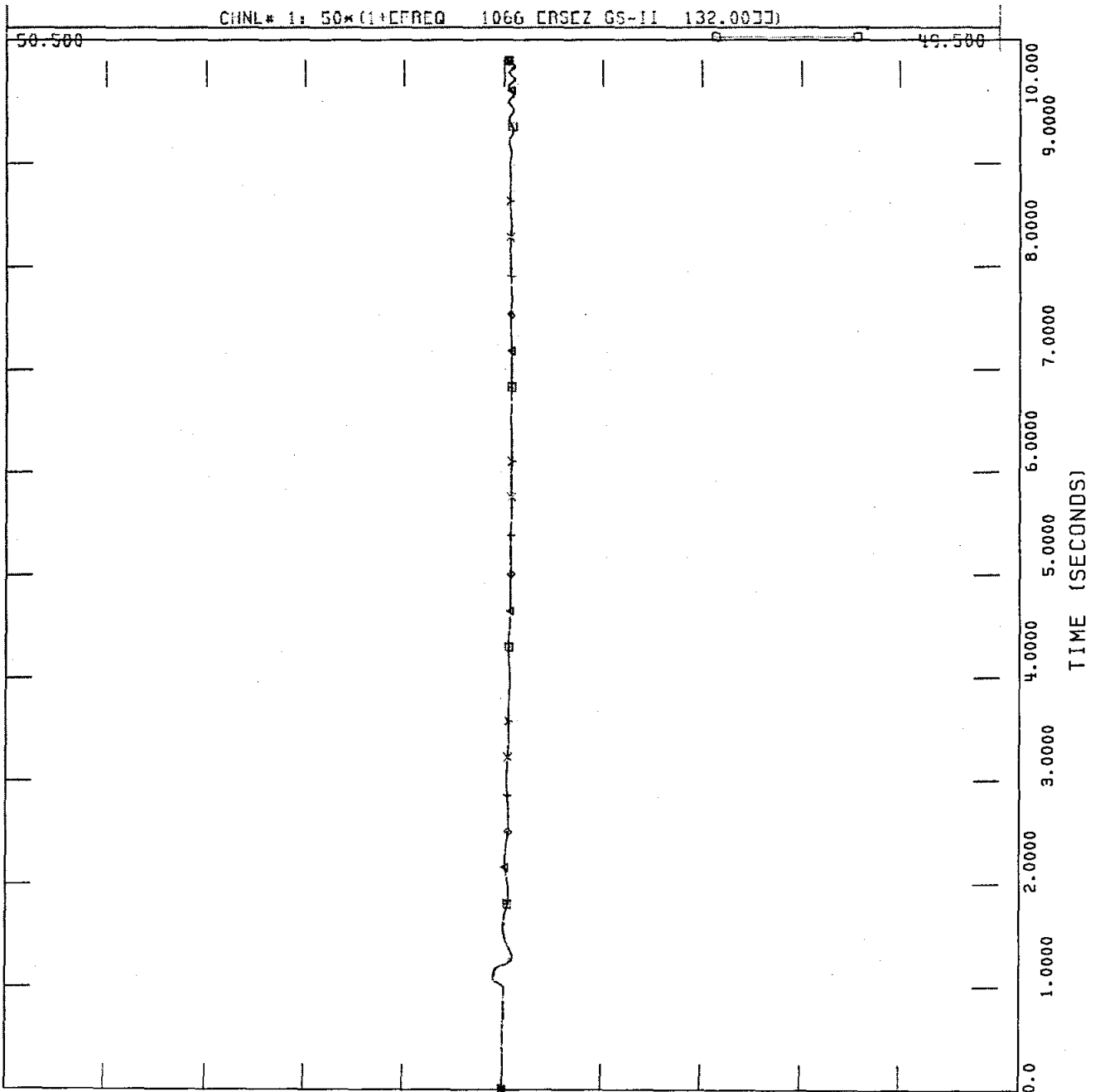
WED, JUN 01 2022 21:17
EXHIBIT 6.8



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-I 132kV to Mardan132kV One Circuit Out.out

50.500	CHNL# 6: 50*(1+CFREQ 1074 CMARDAN II 132.00JJ)	49.500
50.500	CHNL# 5: 50*(1+CFREQ 150 CMARDAN 220.00JJ)	49.500
50.500	CHNL# 4: 50*(1+CFREQ 1071 CMARDAN III 132.00JJ)	49.500
50.500	CHNL# 3: 50*(1+CFREQ 1070 CMARDAN 132.00JJ)	49.500
50.500	CHNL# 2: 50*(1+CFREQ 1068 CRSEZ GS-I 132.00JJ)	49.500



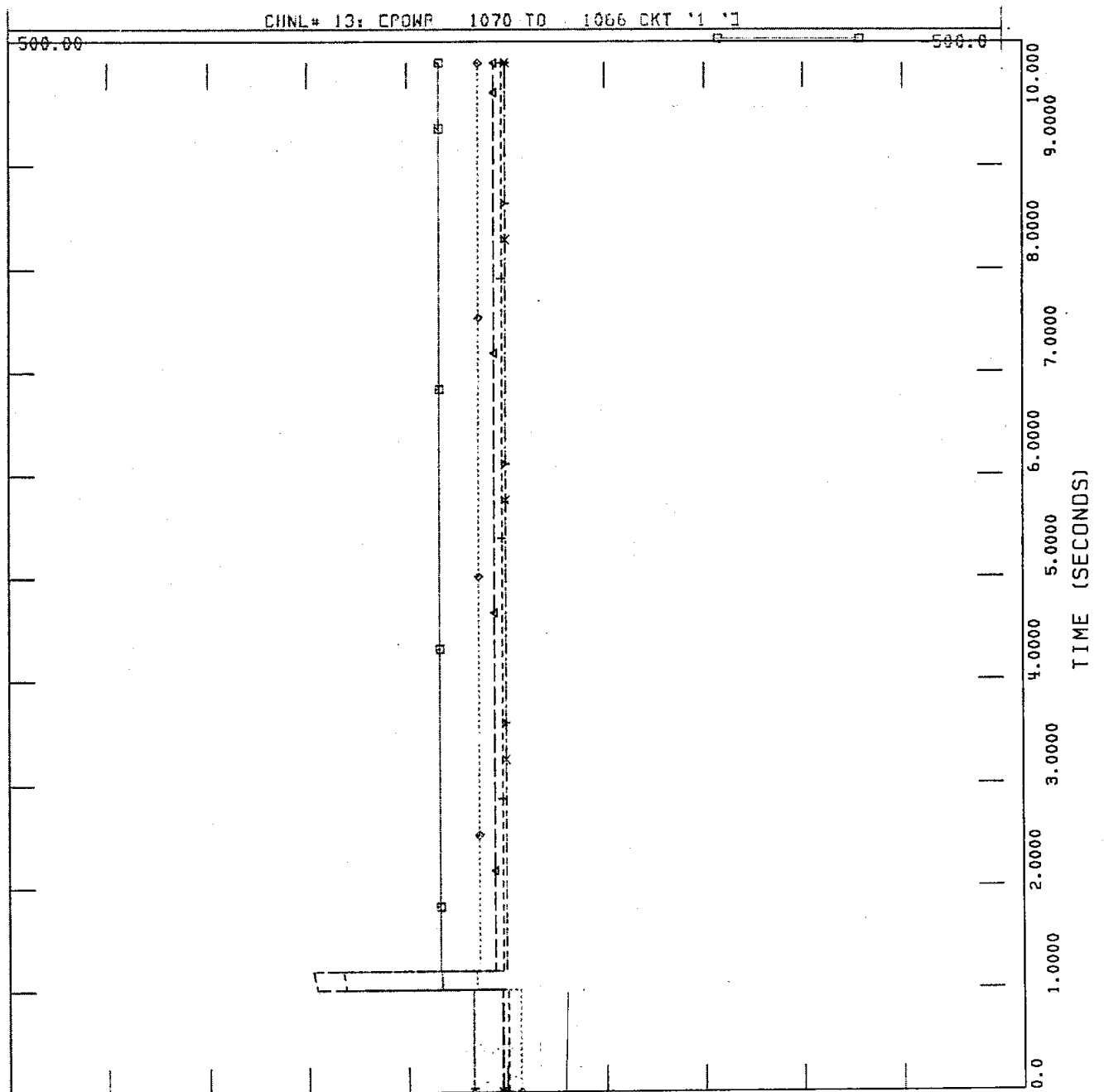
WED, JUN 01 2022 21:18
EXHIBIT 6.9



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-I 132kV to Mardan132kV One Circuit Out.out

500.00	CHNL# 18: EVARS	1070 TO	1068 CKT '1 '3	-500.0
500.00	CHNL# 17: CPQW	1070 TO	1068 CKT '1 '3	-500.0
500.00	CHNL# 16: EVARS	1066 TO	1068 CKT '1 '3	-500.0
500.00	CHNL# 15: CPQW	1066 TO	1068 CKT '1 '3	-500.0
400.00	CHNL# 14: EVARS	1070 TO	1066 CKT '1 '3	-400.0
500.00	CHNL# 13: CPQW	1070 TO	1066 CKT '1 '3	-500.0

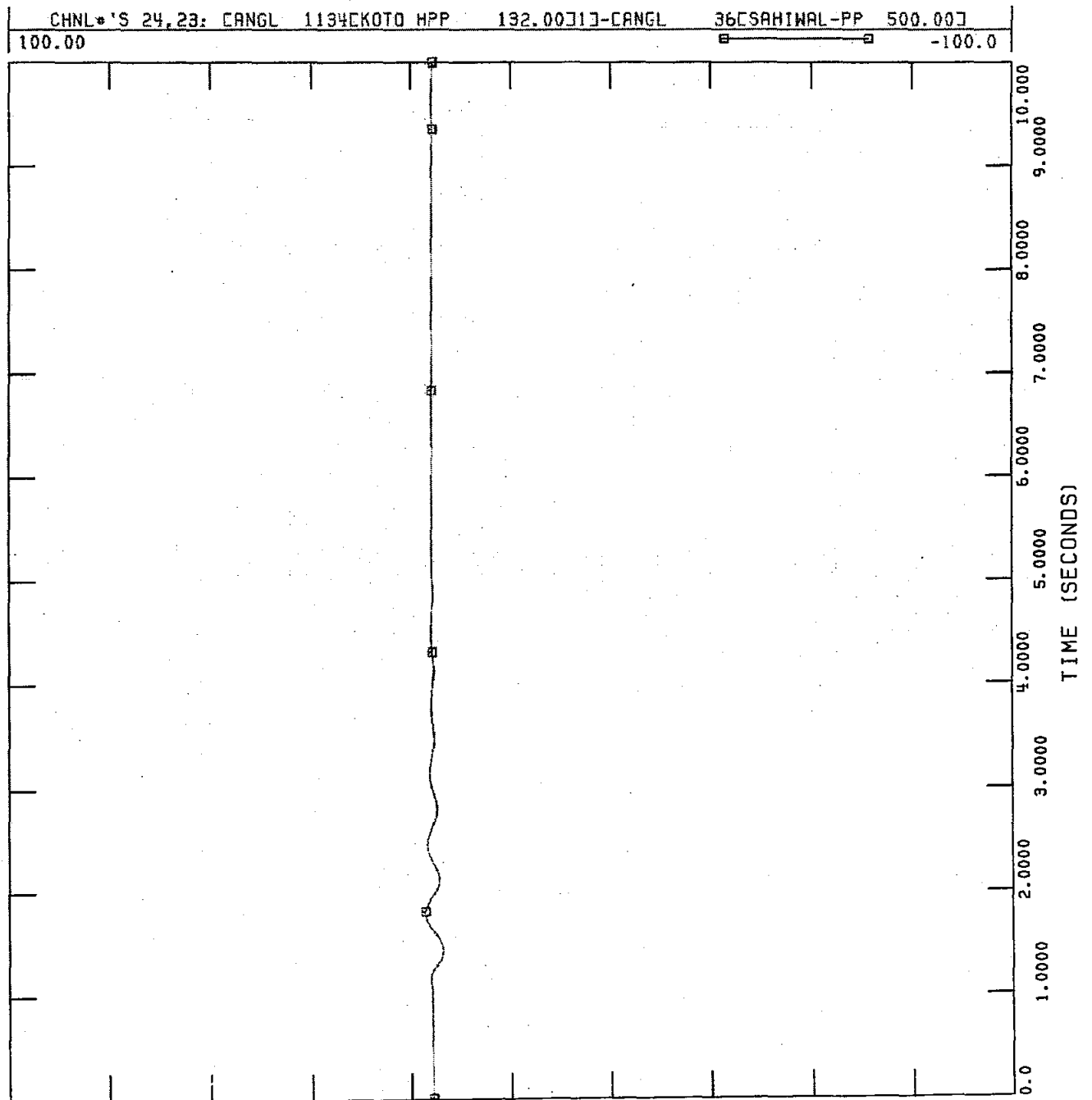


WED, JUN 01 2022 21:18
XIB11 6.10

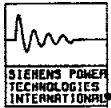


PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: RSEZ GS-I 132kV to Mardan132kV One Circuit Out out



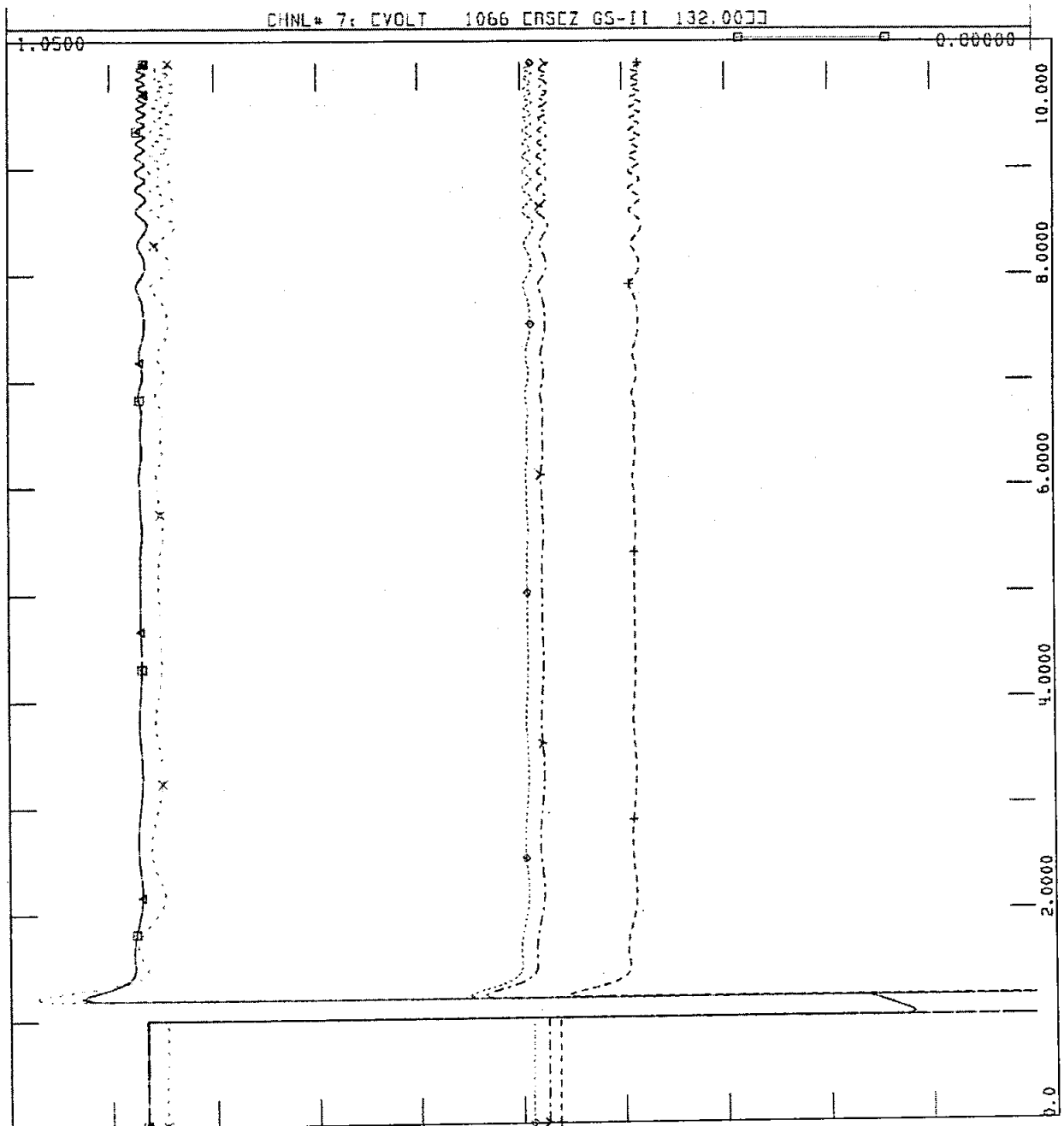
WED, JUN 01 2022 21:21
XHBIBIT 6.11



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\SLG fault 9 C\\Mardan III 132kV to Marda132kV OneCircuit Out.out

1.1500	CHNL# 12: EVOLT 1074 CMARDAN II 132.0000	0.90000
1.0000	CHNL# 11: EVOLT 1050 CMARDAN 220.0000	0.90000
1.1500	CHNL# 10: EVOLT 1071 CMARDAN III 132.0000	0.90000
1.1500	CHNL# 9: EVOLT 1070 CMARDAN 132.0000	0.90000
1.0500	CHNL# 8: EVOLT 1068 CRSEZ GS-I 132.0000	0.80000



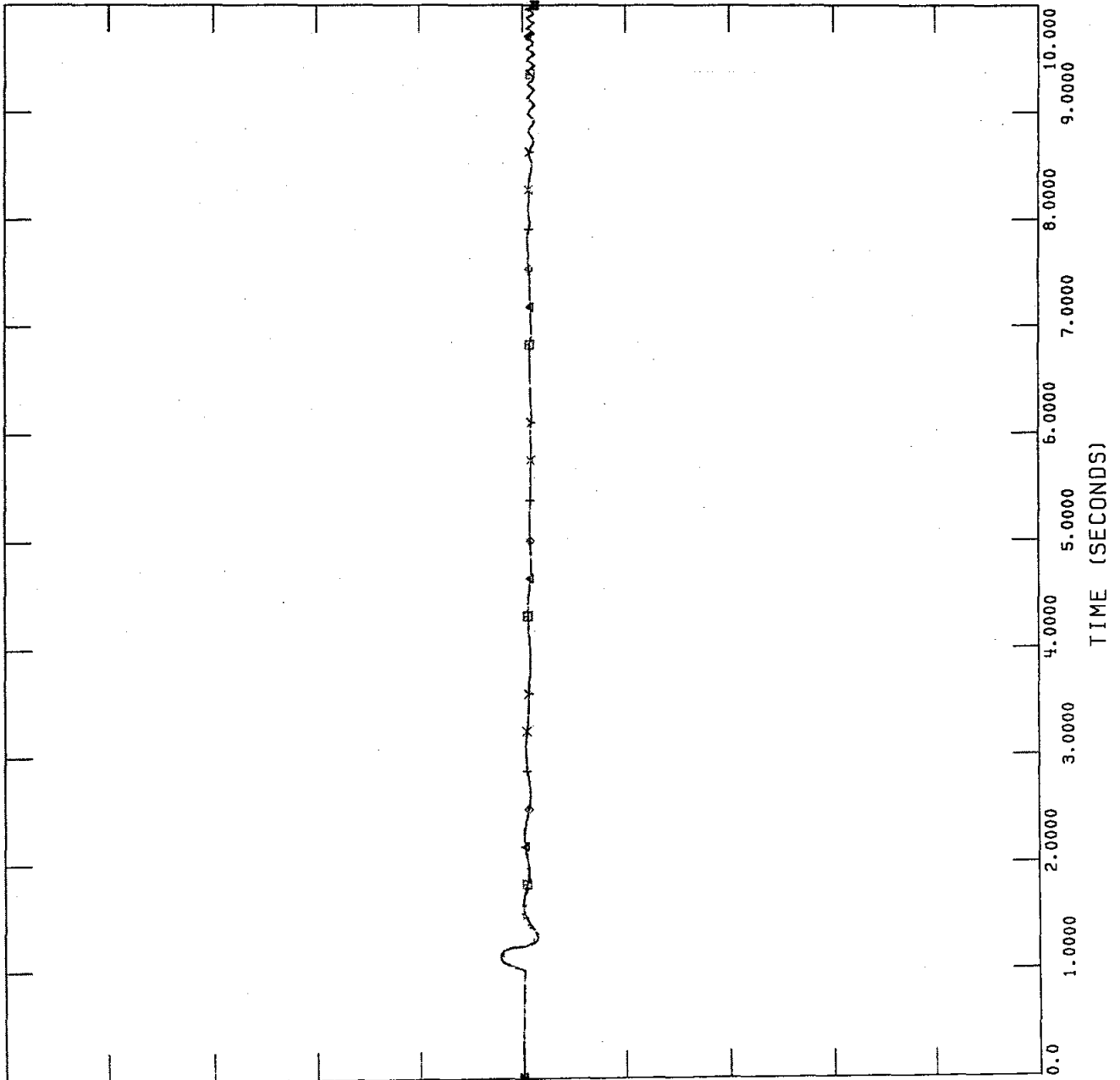
WED, JUN 01 2022 21:25
XHB 6.12



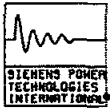
PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\SLG fault 9 C\\Mardan III 132kV to Marda132kV OneCircuit Out.out

50.500	CHNL# 6: 50*(1+CFREQ 1074 CMARDAN II 132.00JJ)	49.500
50.500	CHNL# 5: 50*(1+CFREQ 150 CMARDAN 220.00JJ)	49.500
50.500	CHNL# 4: 50*(1+CFREQ 1071 CMARDAN III 132.00JJ)	49.500
50.500	CHNL# 3: 50*(1+CFREQ 1070 CMARDAN 132.00JJ)	49.500
50.500	CHNL# 2: 50*(1+CFREQ 1068 CASEZ GS-I 132.00JJ)	49.500
50.500	CHNL# 1: 50*(1+CFREQ 1066 CASEZ GS-II 132.00JJ)	49.500



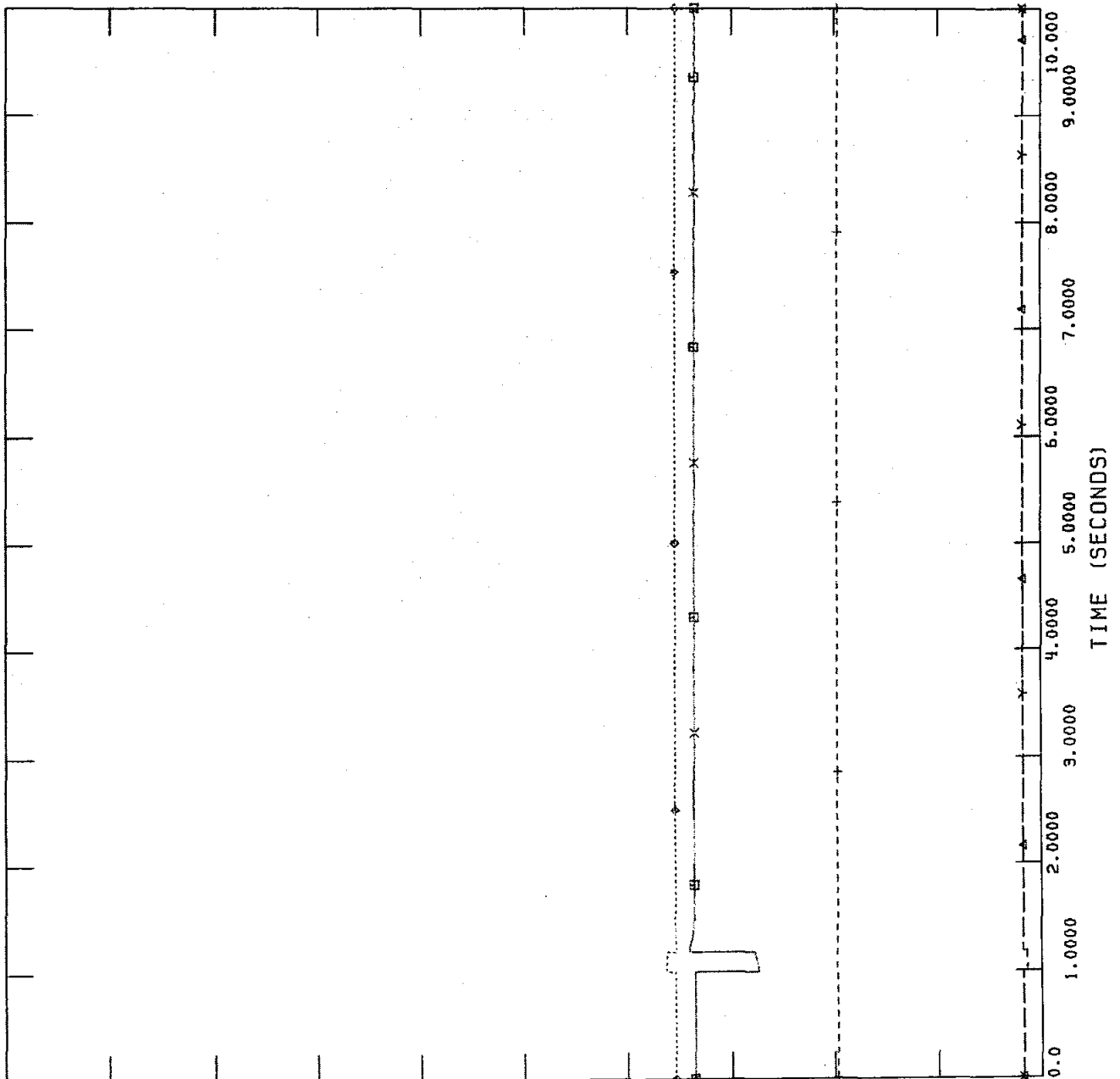
WED, JUN 01 2022 21:26
XHBIB 6.13



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\SLG fault 9 C\\Mardan III 132kV to Marda132kV OneCircuit Out.out

250.00	CHNL* 18: EVARS	1070 TO	1068 CKT '1 'J	0.0
100.00	CHNL* 17: EPOWER	1070 TO	1068 CKT '1 'J	0.0
400.00	CHNL* 16: EVARS	1066 TO	1068 CKT '1 'J	-100.0
150.00	CHNL* 15: EPOWER	1066 TO	1068 CKT '1 'J	-100.0
250.00	CHNL* 14: EVARS	1070 TO	1066 CKT '1 'J	0.0
100.00	CHNL* 13: EPOWER	1070 TO	1066 CKT '1 'J	0.0



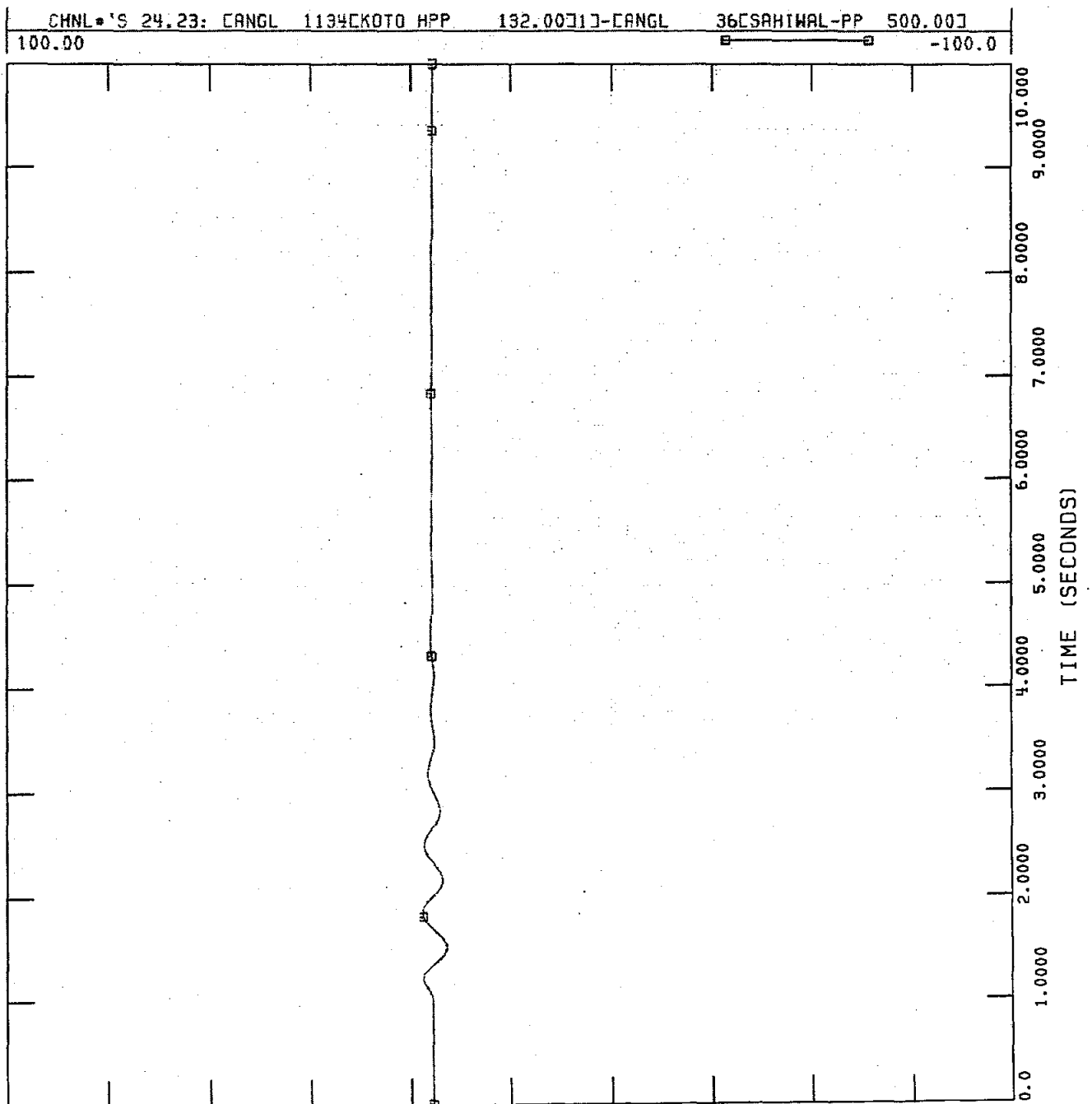
WED. JUN 01 2022 21:26
EXHIBIT 6.14



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\SLG fault 9 C\\Mardan III 132kV to Mardal32kV OneCircuit Out.out

WED, JUN 01 2022 21:27
EXHIBIT 6.15

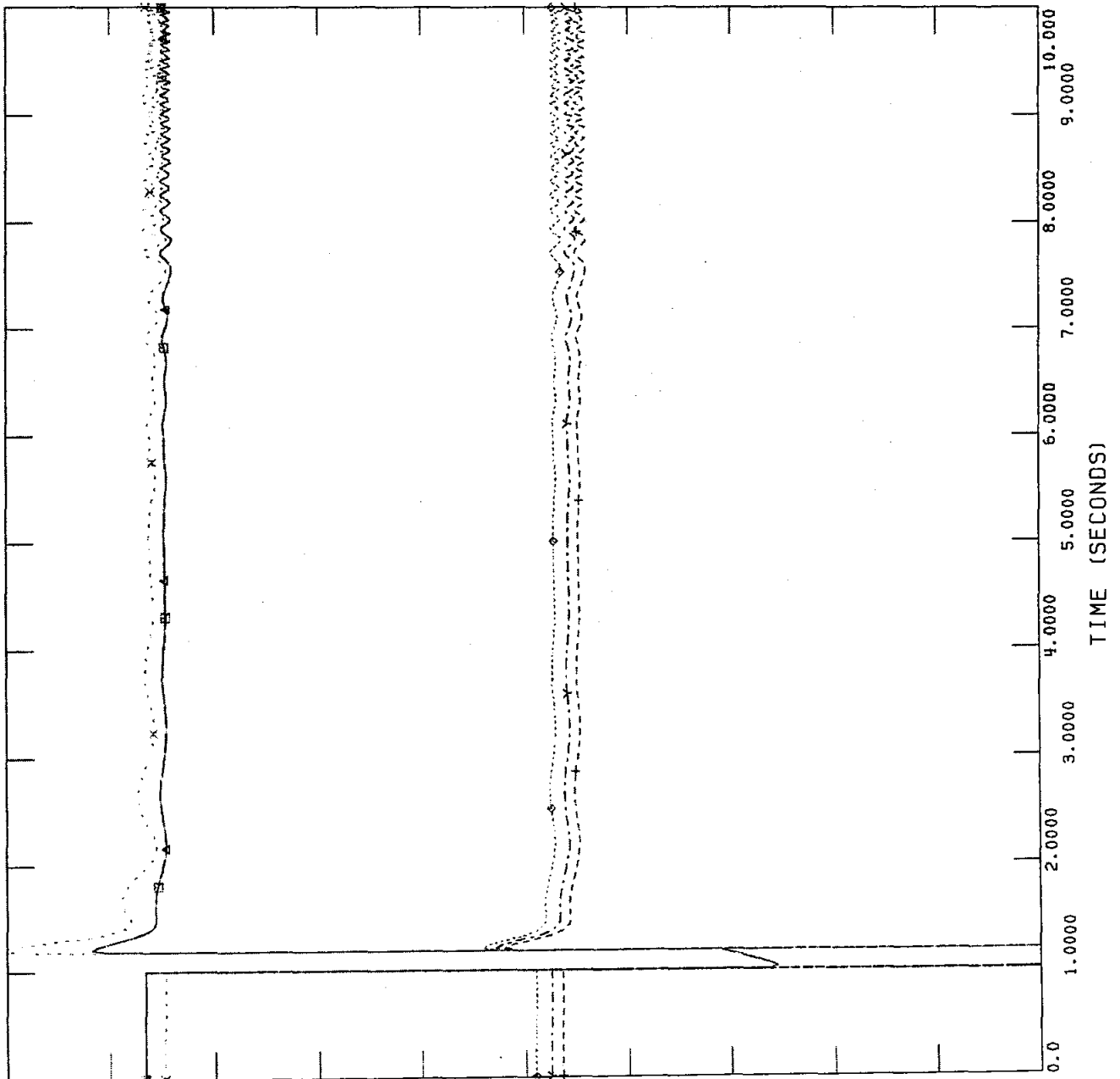




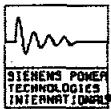
PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: C:\Users\...\SLG fault 9 C\Mardan 220 to 132kV transformer out.out

1.1500	CHNL# 12: EVOLT	1074 CMARDAN II	132.0000	0.90000
1.0000	CHNL# 11: EVOLT	1050 CMARDAN	220.0000	0.90000
1.1500	CHNL# 10: EVOLT	1071 CMARDAN III	132.0000	0.90000
1.1500	CHNL# 9: EVOLT	1070 CMARDAN	132.0000	0.90000
1.0500	CHNL# 8: EVOLT	1068 ERSEZ GS-I	132.0000	0.80000
1.0500	CHNL# 7: EVOLT	1066 ERSEZ GS-II	132.0000	0.80000



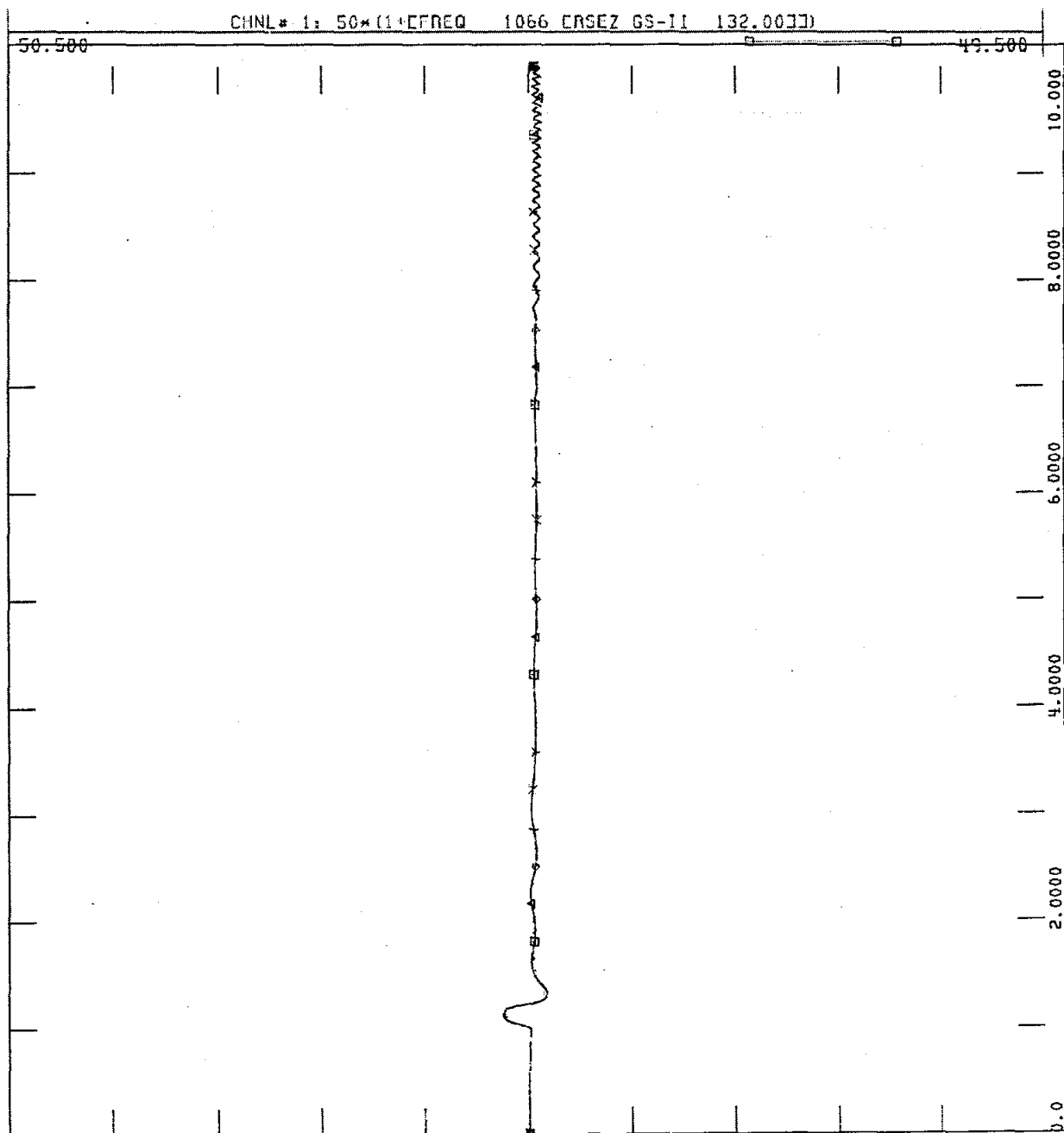
WED, JUN 01 2022 21:30
XHB11 6.16



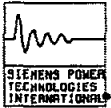
PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: C:\Users\...\SLG fault 9 C\Mardan 220 to 132kV transformer out.out

50.500	CHNL# 6: 50*(1+CFREQ 1074 CMARDAN II 132.00JJ)	49.500
50.500	CHNL# 5: 50*(1+CFREQ 150 CMARDAN 220.00JJ)	49.500
50.500	CHNL# 4: 50*(1+CFREQ 1071 CMARDAN III 132.00JJ)	49.500
50.500	CHNL# 3: 50*(1+CFREQ 1070 CMARDAN 132.00JJ)	49.500
50.500	CHNL# 2: 50*(1+CFREQ 1068 ERSEZ GS-I 132.00JJ)	49.500



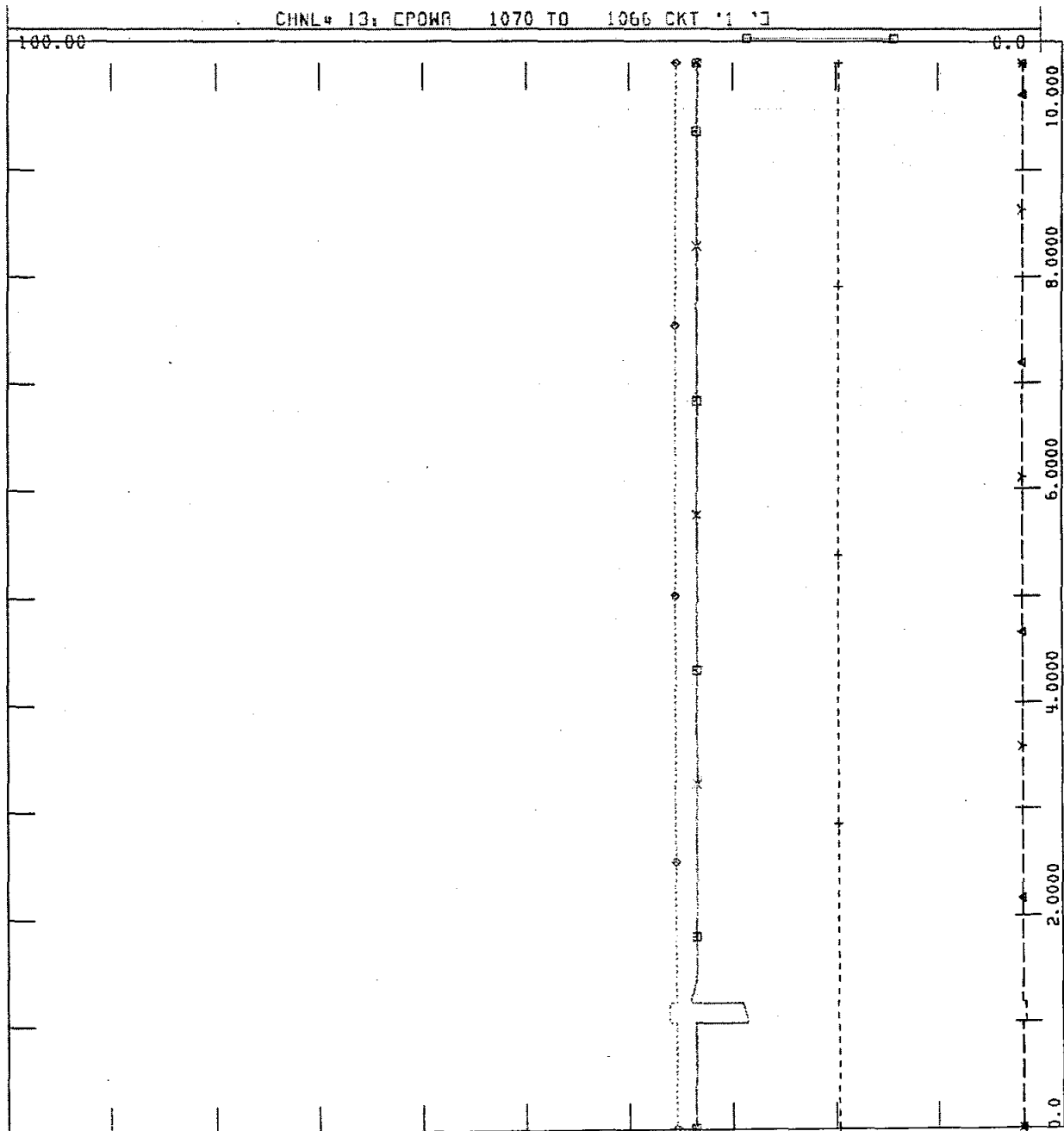
WED, JUN 01 2022 21:30
-XHB11 6.17



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: C:\Users\...\SLG fault 9 C\Mardan 220 to 132kV transformer out.out

250.00	CHNL# 18: EVARS	1070 TO	1068 CKT '1 '3	0.0
100.00	CHNL# 17: CPQWR	1070 TO	1068 CKT '1 '3	0.0
400.00	CHNL# 16: EVARS	1066 TO	1068 CKT '1 '3	-100.0
150.00	CHNL# 15: CPQWR	1066 TO	1068 CKT '1 '3	-100.0
250.00	CHNL# 14: EVARS	1070 TO	1066 CKT '1 '3	0.0



WED, JUN 01 2022 21:31

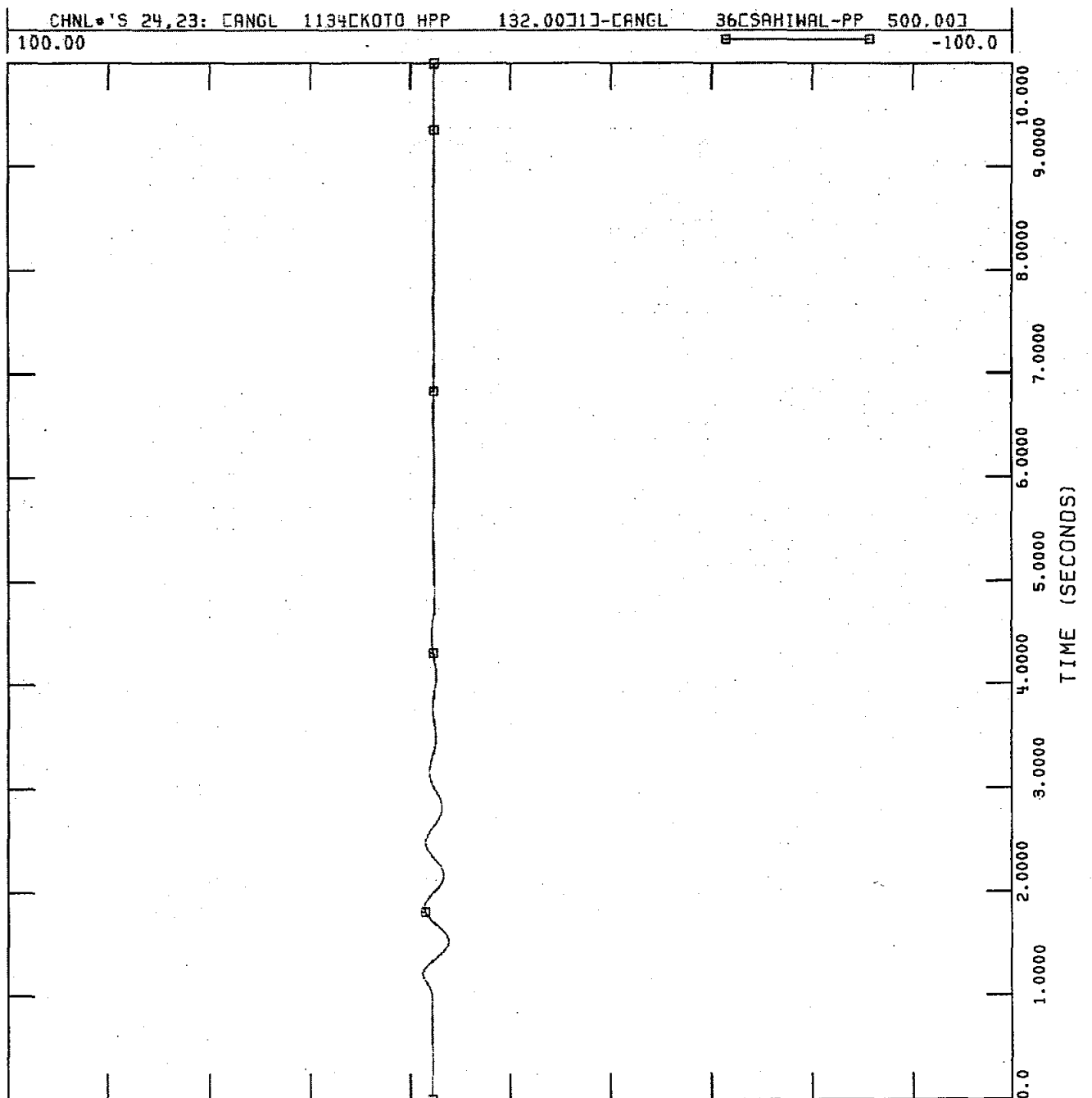
XHIBIT 6.18

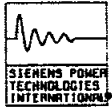


PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: C:\Users\...\SLG fault 9 C\Mardan 220 to 132kV transformer out.out

WED, JUN 01 2022 21:31
EXHIBIT 6.19

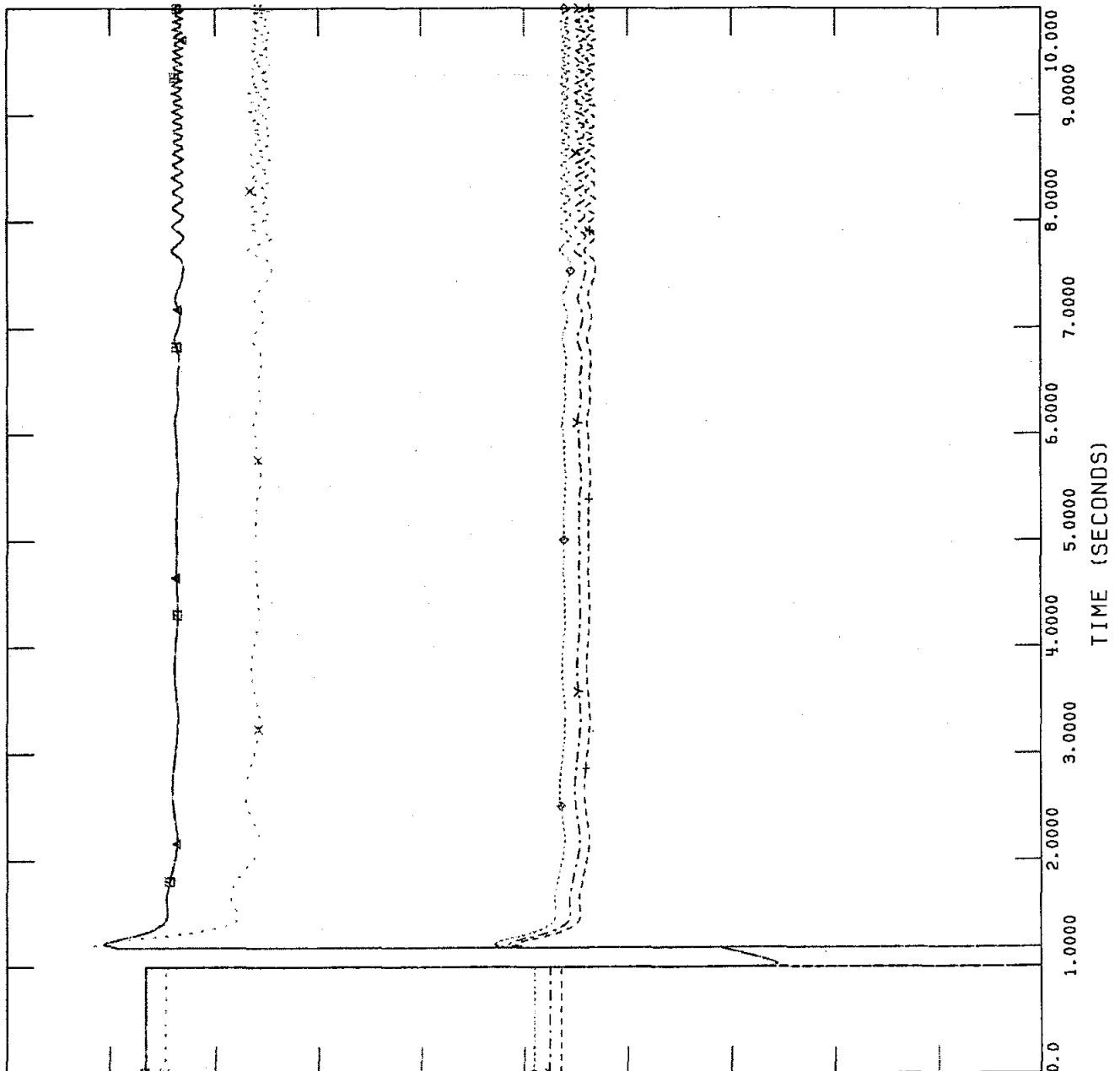




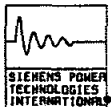
PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\SLG fault 9 C\\Tarbela 220kV to Mardan 220kV one circuit out.out

1.1500	CHNL# 12: EVOLT	1074 EMARDAN II	132.0000	0.90000
1.0000	CHNL# 11: EVOLT	1050 EMARDAN	220.0000	0.90000
1.1500	CHNL# 10: EVOLT	1071 EMARDAN III	132.0000	0.90000
1.1500	CHNL# 9: EVOLT	1070 EMARDAN	132.0000	0.90000
1.0500	CHNL# 8: EVOLT	1068 ERSEZ GS-I	132.0000	0.80000
1.0500	CHNL# 7: EVOLT	1066 ERSEZ GS-II	132.0000	0.80000



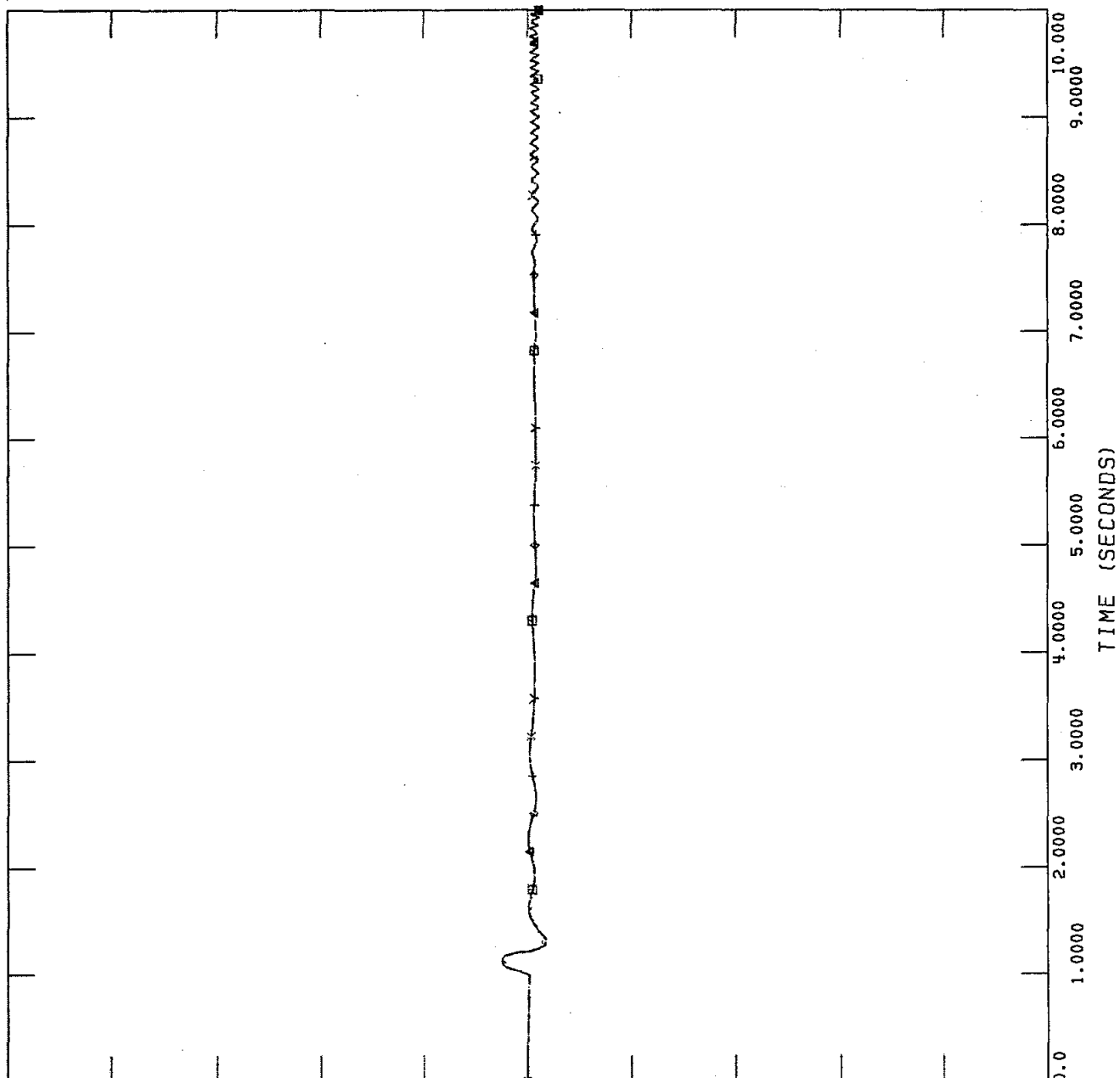
WED, JUN 01 2022 21:34
EXHIBIT 6.20



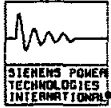
PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\SLG fault 9 C\\Tarbela 220kv to Mardan 220kv one circuit out.out

50.500	CHNL# 6: 50*(1+CFREQ 1074 CMARDAN II 132.00JJ)	49.500
50.500	CHNL# 5: 50*(1+CFREQ 150 CMARDAN 220.00JJ)	49.500
50.500	CHNL# 4: 50*(1+CFREQ 1071 CMARDAN III 132.00JJ)	49.500
50.500	CHNL# 3: 50*(1+CFREQ 1070 CMARDAN 132.00JJ)	49.500
50.500	CHNL# 2: 50*(1+CFREQ 1068 CRSEZ GS-I 132.00JJ)	49.500
50.500	CHNL# 1: 50*(1+CFREQ 1066 CRSEZ GS-II 132.00JJ)	49.500



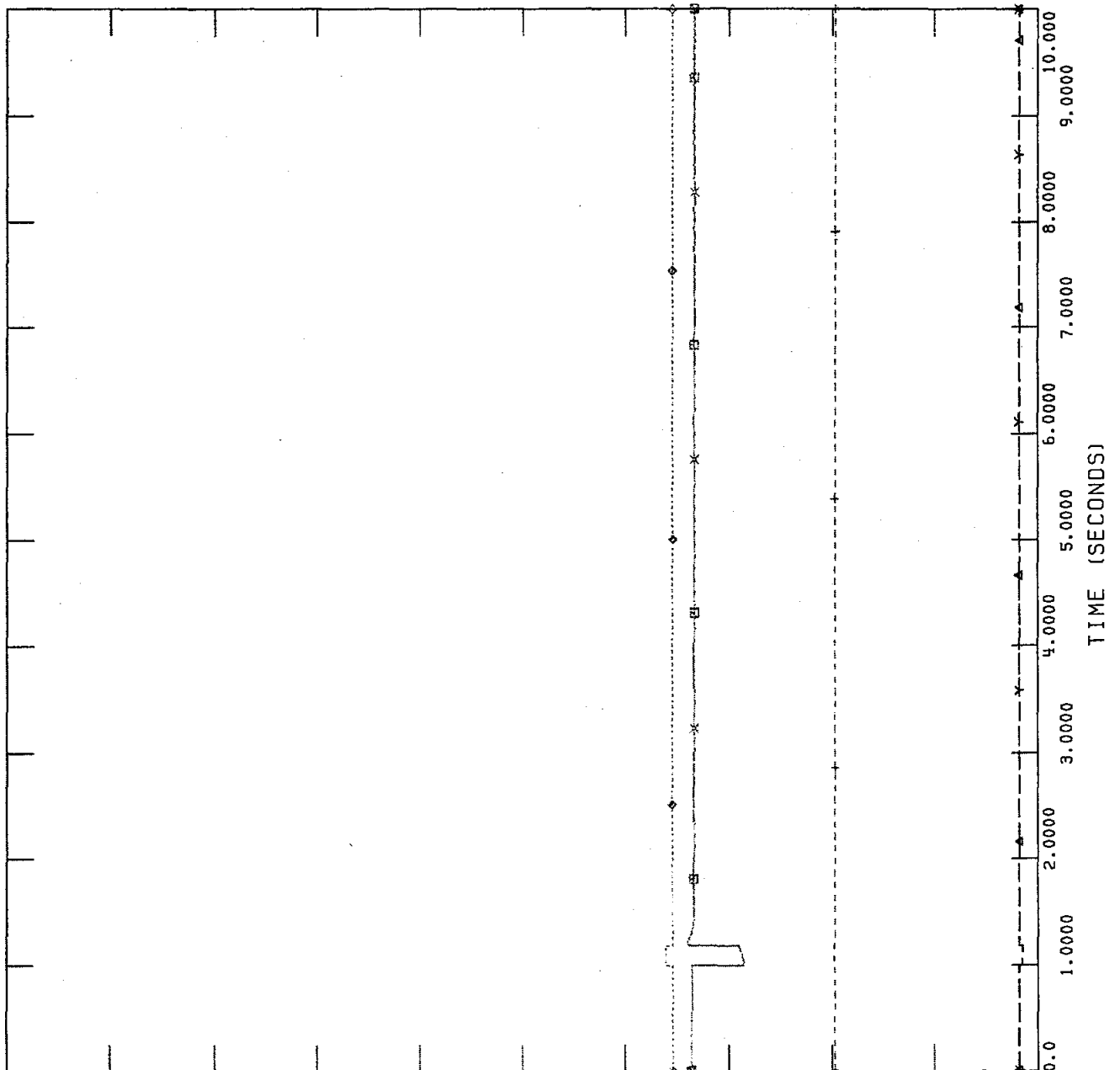
WED, JUN 01 2022 21:34
EXHIBIT 6.2



PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

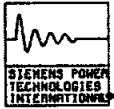
FILE: ...\\SLG fault 9 C\\Tarbela 220kV to Mardan 220kV one circuit out.out

250.00	CHNL# 18: EVARS	1070 TO	1068 CKT '1 '3	0.0
100.00	CHNL# 17: EPOWER	1070 TO	1068 CKT '1 '3	0.0
400.00	CHNL# 16: EVARS	1066 TO	1068 CKT '1 '3	-100.0
150.00	CHNL# 15: EPOWER	1066 TO	1068 CKT '1 '3	-100.0
250.00	CHNL# 14: EVARS	1070 TO	1066 CKT '1 '3	0.0
100.00	CHNL# 13: EPOWER	1070 TO	1066 CKT '1 '3	0.0



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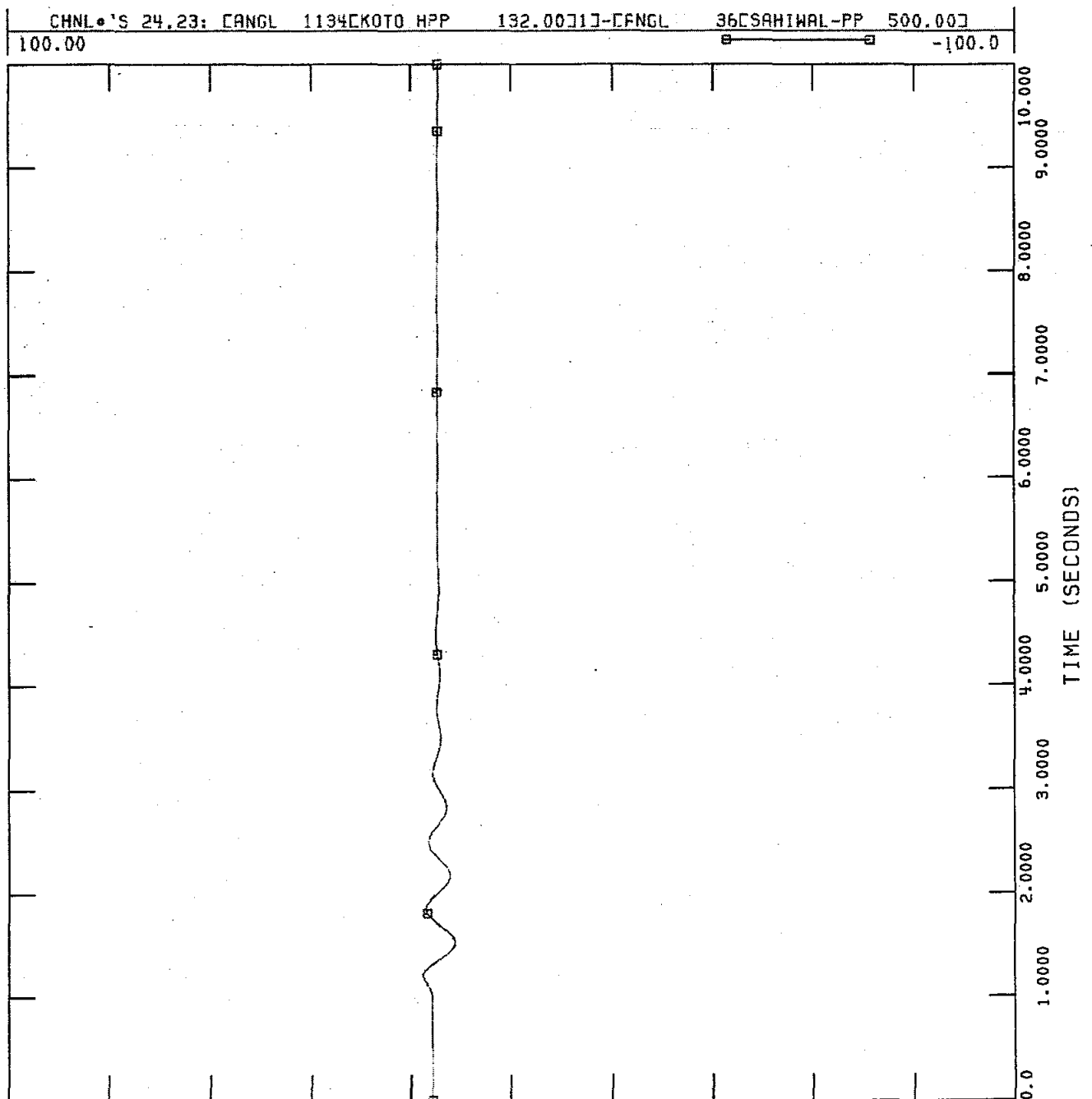
XHIBIT 6.22



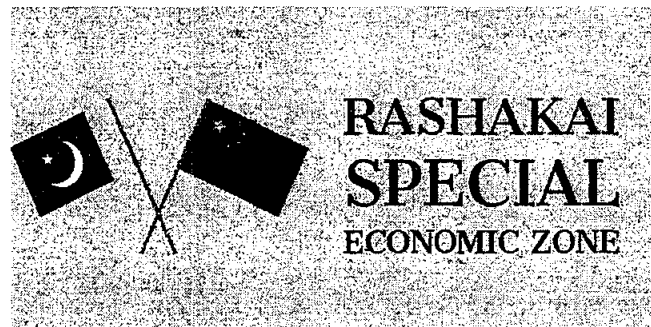
PEAK LOAD JULY/AUG 2022 (SUMMER SCENARIO)
BASE CASE

FILE: ...\\SLG_fault 9 C\\Tarbela 220kV to Mardan 220kV one circuit out.out

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EXHIBIT 6.22



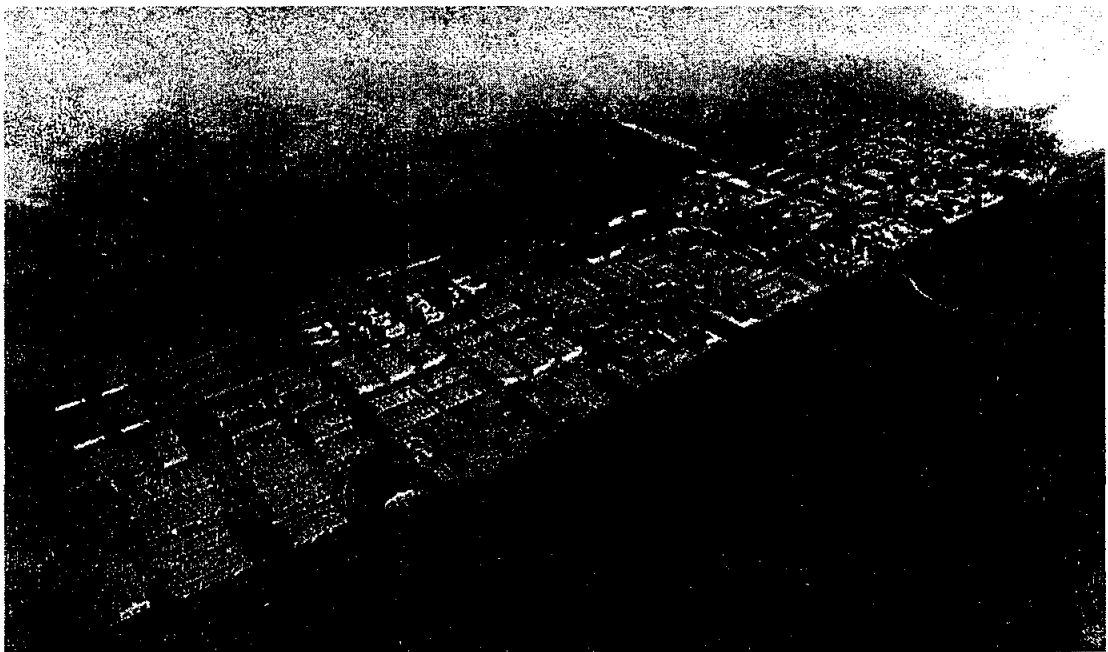
RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD



EXTERNAL ELECTRIFICATION DESIGN

RASHAKAI SPECIAL ECONOMIC ZONE

KHYBER PAKHTUNKHWA



11 KV DISTRIBUTION NETWORK

PREPARED BY: M/S ULTIMATE ENGINEERING CONSULTANTS

PAKISTAN ENGINEERING COUNCIL LICENCE NO: CONSULT/1689

DESIGN BOOK FOR 11KV EXTERNAL NETWORK-RASHAKAI SPECIAL ECONOMIC ZONE

CONSULTANT INTRODUCTION		
1.	Name of consultant	Ultimate Engineering Consultants (Pvt) Ltd
2.	PEC Registration No	Consult-1689
	Date of Registration	December 2014.
3.	Office Location	Peshawar, Lahore
4.	Postal Address	House # 27A, Syed Jamal ud Din Afghani Road, University Town, Peshawar
5.	Telephone No	091-5702019 0300-5888896
6.	Email Address	<u>junaidekhan@ultimate-engg.com</u> <u>ultimate.engineering@yahoo.com</u>

PAKISTAN ENGINEERING COUNCIL

Registration No. **CONSULT/1689**
Date of Registration: **01-12-2014**

Serial No **13811**
FEC-4A



**CERTIFICATE OF REGISTRATION OF PAKISTANI
CONSULTING ENGINEER**
(UNDER PAKISTAN ENGINEERING COUNCIL ACT 1976)

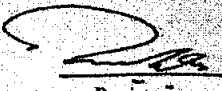
This is to certify that M/s ULTIMATE ENGINEERING CONSULTANTS Address 27-A, SYED JAMALUDDIN AFGHANI ROAD, UNIVERSITY TOWN, PESHAWAR have been registered as Consulting Engineers at Serial No CONSULT/1689 of the Register of Pakistan Engineering Council with following particulars:-

Type of Ownership (021,022,023,024)

Field of Specialization

(Project-profile Code Nos.) 1201,1203,1204(i)(iii)(iv),1205(i)(IRRIGATION SYSTEM),(v),1208(ii),1210,1219(ii),1220,1235(NINE ONLY)
(FOR ELECT, CIVIL & ELECTRONICS ENGG WORKS ONLY)

Date of Issue: **01/04/2021**


Registrar
Pakistan Engineering Council,
Islamabad.

Note:

1. This Certificate of Registration shall expire on 30th June 2021 and will be renewed on payment of the required fee before 31st July, 2021.
2. Description of project profile codes is shown on reverse.

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

“PROJECT REPORT”

DESIGN BOOK FOR 11KV EXTERNAL NETWORK-RASHAKAI SPECIAL ECONOMIC ZONE

Page 4

“EXTERNAL ELECTRIFICATION OF RASHAKAI SPECIAL ECONOMIC ZONE”

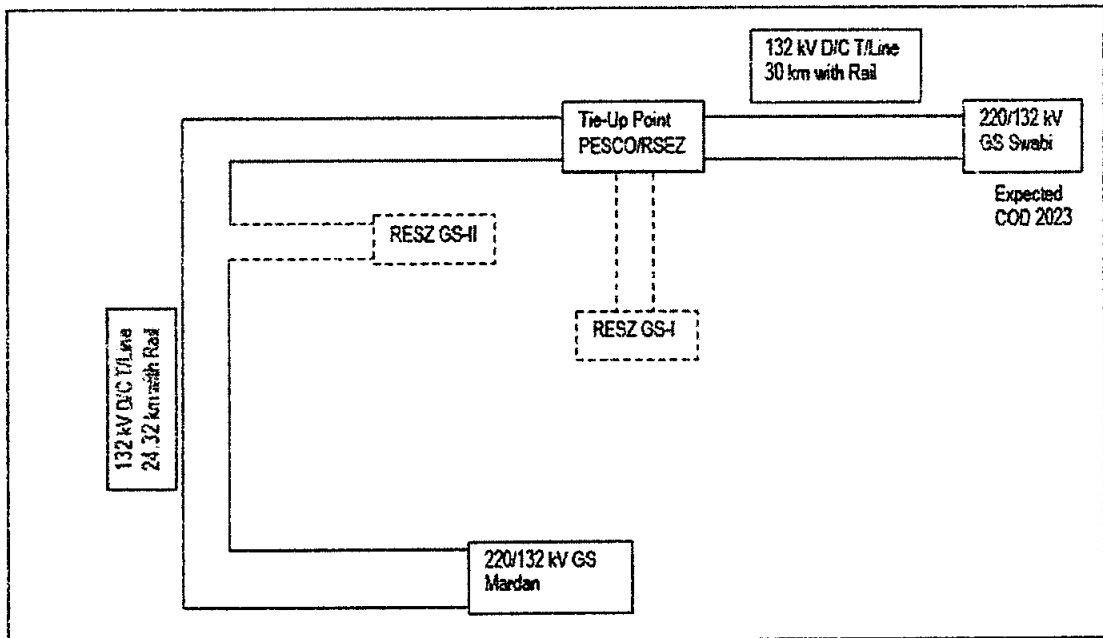
PROJECT REPORT

1. Location	: RASHAKAI
2. Number Of Phases	: 03 Nos
3. Total Area	: 1002 Acres
4. Area Phase-I	: 247 Acres
5. Area Phase-II	: 355 Acres
6. Area Phase-III	: 400 Acres
7. 132 KV Grid Stations	: 02 Nos
8. 132 KV Transmission Lines	: Mardan & Swabi
9. Total Load (MW)	: 210(90 (GS2) +120 (GS1)) MW
10. Total Load (Amps)	: 12,978 Amps
11. Type of Distribution Network	: Overhead / Under-Ground
12. Load of Phase-I (11KV)	: 17.85 MW
13. Load of Phase-II (11KV)	: 39.01 MW
14. Load of Phase-III (11KV)	: 37.45 MW
15. Total 11KV feeders	: 29 Nos (Existing 27 + 2 Future Extension)

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

**INTERCONNECTION SCHEME BETWEEN TWO GRID STATIONS
WITH EXTERNAL 132KV TRANSMISSION LINES OF RASHAKAI
SPECIAL ECONOMIC ZONE**

INTERCONNECTION SCHEME BETWEEN TWO GRID STATIONS WITH EXTERNAL 132KV TRANSMISSION LINES OF RASHAKAI SPECIAL ECONOMIC ZONE



Explanation:

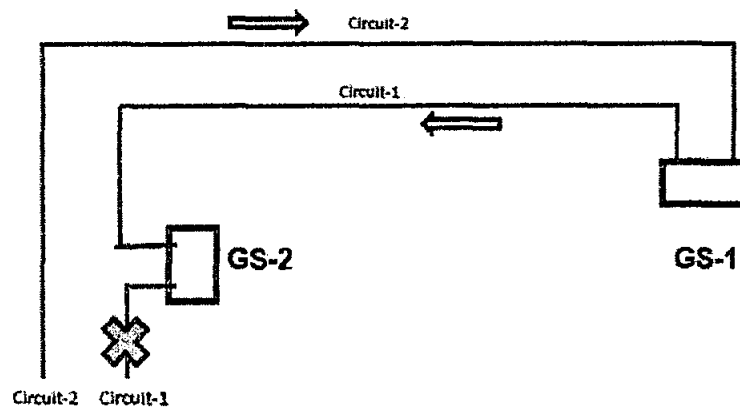
220/132kV MARDAN substation will provide 160MW double Circuit Transmission line and 220/132KV Sawabi Substation will provide 50MW to 132KV Rashakai Substation (GS-1 132/11KV substation and GS-2 132/33KV substation), this double circuit transmission line will be ended in Substation like In/out arrangement.

GS-2 substation will get connection on one circuit from Mardan like in/out arrangement as shown in above picture, GS-1 Substation will get direct connection on one circuit from Mardan which will be connected to GS-2 through in / out arrangement and double circuit from Swabi Grid Station connected to GS-1.

Contingency Plan

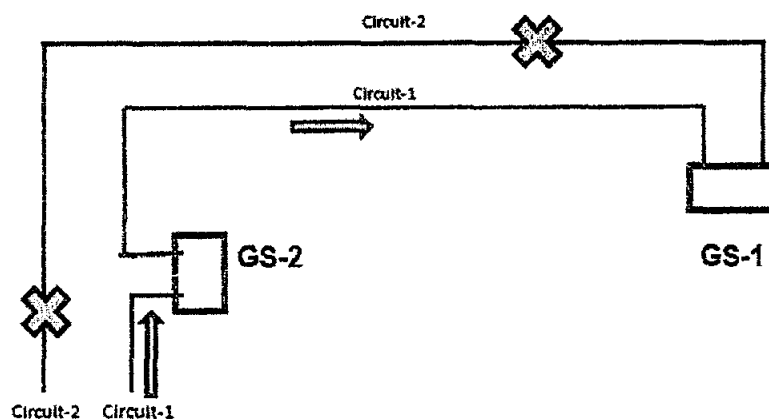
Case-1:

GS-2 substation will be get connection on one circuit like in/out arrangement as shown in picture, If in case there is some problem in circuit-1 then GS-2 will get supply from GS-1 substation from Circuit 2.



Case-2:

GS-2 substation will be get connection on one circuit like in/out arrangement as shown in picture, If in case there is some problem in circuit-2 then GS-2 will get continuous supply from Circuit-1 and GS-2 substation will feed supply to GS-1 substation on Circuit-1.



**11KV SOURCE OF POWER SUPPLY, VOLTAGE DROP AND
TECHNICAL LOSSES**

11KV INTERNAL DISTRIBUTION NETWORK FOR RASHAKAI SPECIAL ECONOMIC ZONE

SOURCE OF POWER SUPPLY

The 11KV Independent feeders supply to the above mentioned Rashakai Special Economic Zone to be Constructed by the Rashakai Special Economic zone Development and Operation Company (Pvt) Ltd (RSEZDOC). All the Single Circuit feeders comprising of ACSR Ospray conductor and will be emanating from Proposed 132KV Grid Station No : 1. There are total 29 No's of 11KV Feeders.

PEMISSIBLE LIMIT OF VOLATGE DROP AND TECHNICAL LOSSES

The Voltage drop shall be calculated shall be made from node to node as per WAPDA/PESCO/NTDC Instructions. M/S RSEZDOC (PVT) LTD certified that the tail end voltage drop and power losses from the proposed feeder shall not exceed the permissible limits of 5% and 3.5% respectively.

“LAND AREA CALCULATIONS”

**EXTERNAL ELECTRIFICATION DESIGN FOR THE 11KV DISTRIBUTION NETWORK
RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)
(A PROJECT OF CPEC)**

LAND DETAIL OF RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-I

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m2)
1	M1	(M1 Industrial land)	7.36
2	M1	(M1 Industrial land)	6.24
3	M1	(M1 Industrial land)	5.23
4	M1	(M1 Industrial land)	3.32
5	M1	(M1 Industrial land)	5.85
6	M1	(M1 Industrial land)	5.03
7	M1	(M1 Industrial land)	4.77
8	M1	(M1 Industrial land)	3.2
9	M2	(M2 Industrial land)	4.62
10	M2	(M2 Industrial land)	3.43
11	M2	(M2 Industrial land)	2.63
12	W1	Logistics and Warehousing	2.77
13	A1	Administrative office land	0.25
14	A1	Administrative office land	0.47
15	B1	Commercial land	4.98
16	D41	Gas station	0.8
17	S4	Land for traffic station (Transport Depot)	1.06
18	U11	Water supply land	0.12
19	U11	Water supply	0.12
20	U11	Water supply	1.15
21	U21	Sewage treatment plant	5.04
TOTAL LAND AREA PER 10,000 M2			67.44

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

LAND DETAIL OF RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-II

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m2)
1	M1	(M1 Industrial land)	7.61
2	M1	(M1 Industrial land)	5.46
3	M1	(M1 Industrial land)	7.29
4	M1	(M1 Industrial land)	2.10
5	M1	(M1 Industrial land)	5.41
6	M1	(M1 Industrial land)	4.88
7	M1	(M1 Industrial land)	4.17
8	M1	(M1 Industrial land)	4.28
9	M1	(M1 Industrial land)	4.98
10	M1	(M1 Industrial land)	5.20
11	M1	(M1 Industrial land)	5.47
12	M1	(M1 Industrial land)	3.31
13	M1	(M1 Industrial land)	4.08
14	M1	(M1 Industrial land)	4.79
15	M1	(M1 Industrial land)	5.33
16	M1	(M1 Industrial land)	5.21
17	M2	(M2 Industrial land)	7.69
18	M2	(M2 Industrial land)	3.07
19	M2	(M2 Industrial land)	10.61
20	M2	(M2 Industrial land)	5.11
21	M2	(M2 Industrial land)	4.71
22	B1	Commercial land	6.82
23	B1	Commercial land	5.19
24	B1	Commercial land	2.66
25	W1	(M1 Logistics and Warehousing)	3.94
26	U11	Water supply	0.03
27	U22	Environmental sanitation	0.30
28	U31	(Fire Fighting)	0.29
29	R1	M1 Residential land)	0.20
30	U11	Water supply	0.14
31	S1	Land for roads	16.07
32	G1	Park	4.61
33	E1	Rivers	1.78
TOTAL LAND AREA PER 10,000 M2			152.79

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

LAND DETAIL OF RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-III

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m2)
1	M1	(M1 Industrial land)	33.61
2	M2	(M2 Industrial land)	68.59
3	A1	Administrative office land	0.02
4	A4	Sports land	0.21
5	A9	Religious land	0.25
6	B1	Commercial land	12.14
7	S1	Land for roads	11.12
8	U11	Water supply	0.49
9	U12	Power supply	2.46
10	U22	Environmental sanitation	0.25
11	G1	Park	18.65
12	E1	Rivers	6.25
TOTAL LAND AREA PER 10,000 M2			154.05

“LOAD CALCULATIONS”

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m2)	Power load per unit area (kW/10,000m2)	Assessed Load (MW)	Ultimate Load (MW)
1	M1	(M1 Industrial land)	7.36	480	3.53	2.40
2	M1	(M1 Industrial land)	6.24	400	2.50	1.70
3	M1	(M1 Industrial land)	5.23	400	2.09	1.42
4	M1	(M1 Industrial land)	3.32	400	1.33	0.90
5	M1	(M1 Industrial land)	5.85	400	2.34	1.59
6	M1	(M1 Industrial land)	5.03	400	2.01	1.37
7	M1	(M1 Industrial land)	4.77	400	1.91	1.30
8	M1	(M1 Industrial land)	3.2	480	1.54	1.04
9	M2	(M2 Industrial land)	4.62	480	2.22	1.51
10	M2	(M2 Industrial land)	3.43	20	0.07	0.05
11	M2	(M2 Industrial land)	2.63	480	1.26	0.86
12	W1	Logistics and Warehousing	2.77	300	0.83	0.57
13	A1	Administrative office land	0.25	500	0.13	0.09
14	A1	Administrative office land	0.47	500	0.24	0.16
15	B1	Commercial land	4.98	600	2.99	2.03
16	B41	Gas station	0.8	200	0.16	0.11
17	S4	Land for traffic station (Transport Depot)	1.06	30	0.03	0.02
18	U11	Water supply land	0.12	200	0.02	0.02
19	U11	Water supply	0.12	200	0.02	0.02
20	U11	Water supply	0.15	200	0.03	0.02
21	U21	Sewage treatment plant	5.04	200	1.01	0.69
Ultimate Demand of Phase-I					26.25	17.85

DESIGN PARAMETERS :-

1. Development Factor : 0.85
2. Diversity Factor: 1.25
3. Power Factor : 0.83

$$\text{Ultimate Load (MW)} = (\text{Assessed Load} * \text{Development Factor}) / \text{Diversity Factor}$$

$$\text{Ultimate Load (MVA)} = \text{Ultimate Load (MW)} / \text{Power Factor}$$

DESIGN BOOK FOR 11KV EXTERNAL NETWORK-RASHAKAI SPECIAL ECONOMIC ZONE

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m2)	Power load per unit area (kW/10,000m2)	Assessed Load (MW)	Ultimate Load (MW)
1	M1	(M1 Industrial land)	7.61	400.00	3.04	2.07
2	M1	(M1 Industrial land)	5.46	400.00	2.18	1.49
3	M1	(M1 Industrial land)	7.29	400.00	2.92	1.98
4	M1	(M1 Industrial land)	2.10	400.00	0.84	0.57
5	M1	(M1 Industrial land)	5.41	400.00	2.16	1.47
6	M1	(M1 Industrial land)	4.88	400.00	1.95	1.33
7	M1	(M1 Industrial land)	4.17	400.00	1.67	1.13
8	M1	(M1 Industrial land)	4.29	400.00	1.71	1.16
9	M1	(M1 Industrial land)	4.95	400.00	1.99	1.35
10	M1	(M1 Industrial land)	5.20	400.00	2.08	1.41
11	M1	(M1 Industrial land)	5.47	400.00	2.19	1.49
12	M1	(M1 Industrial land)	3.31	400.00	1.32	0.90
13	M1	(M1 Industrial land)	4.12	400.00	1.63	1.11
14	M1	(M1 Industrial land)	4.79	400.00	1.92	1.30
15	M1	(M1 Industrial land)	5.33	400.00	2.13	1.45
16	M1	(M1 Industrial land)	5.21	400.00	2.08	1.42
17	M2	(M2 Industrial land)	7.69	480.00	3.69	2.51
18	M2	(M2 Industrial land)	3.07	480.00	1.47	1.00
19	M2	(M2 Industrial land)	10.61	480.00	5.09	3.46
20	M2	(M2 Industrial land)	5.11	480.00	2.45	1.67
21	M2	(M2 Industrial land)	4.71	480.00	2.26	1.54
22	B1	Commercial land	6.82	600.00	4.09	2.78
23	B1	Commercial land	5.19	600.00	3.11	2.12
24	B1	Commercial land	2.65	600.00	1.60	1.09
25	W1	(M1 Logistics and Warehousing)	3.94	300.00	1.18	0.80
26	U11	Water supply	0.03	200.00	0.01	0.00
27	U22	Environmental sanitation	0.30	20.00	0.01	0.00

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m2)	Power load per unit area (kW/10,000m2)	Assessed Load (MW)	Ultimate Load (MW)
28	U31	(Fire Fighting)	0.29	200.00	0.06	0.04
29	R1	M1 Residential land)	0.20	200.00	0.04	0.03
30	U11	Water supply	0.14	200.00	0.03	0.02
31	S1	Land for roads	16.07	20.00	0.32	0.22
32	G1	Park	4.61	20.00	0.09	0.06
33	E1	Rivers	1.78	20.00	0.04	0.02
Total Ultimate Demand of Phase-II					57.37	39.01

DESIGN PARAMETERS :-

1. Development Factor : 0.85

2. Diversity Factor: 1.25

3. Power Factor : 0.85

Ultimate Load (MW) = (Assessed Load * Development Factor)/ Diversity Factor

Ultimate Load (MVA) = Ultimate Load (MW) / Power Factor

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) (A PROJECT OF CPEC)

LOAD DETAIL OF RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-III

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m2)	Power load per unit area (kW/10,000m2)	Assessed Load (MW)	Ultimate Load (MW)
1	M1	(M1 Industrial land)	33.61	400.00	13.45	9.14
2	M2	(M2 Industrial land)	68.59	480.00	32.92	22.39
3	A1	Administrative office land	0.02	500.00	0.01	0.01
4	A4	Sports land	0.21	150.00	0.03	0.02
5	A9	Religious land	0.25	250.00	0.06	0.04
6	B1	Commercial land	12.14	600.00	7.29	4.95
7	S1	Land for roads	11.12	20.00	0.22	0.15
8	U11	Water supply	0.49	200.00	0.10	0.07
9	U12	Power supply	2.46	200.00	0.49	0.34
10	U22	Environmental sanitation	0.25	20.00	0.00	0.00
11	G1	Park	18.65	20.00	0.37	0.25
12	E1	Rivers	6.25	20.00	0.12	0.08
Total Ultimate Demand of Phase-III					55.08	37.45

DESIGN PARAMETERS:-

1. Development Factor : 0.85
2. Diversity Factor: 1.25
3. Power Factor : 0.85

$$\text{Ultimate Load (MW)} = (\text{Assessed Load} * \text{Development Factor}) / \text{Diversity Factor}$$

$$\text{Ultimate Load (MVA)} = \text{Ultimate Load (MW)} / \text{Power Factor}$$

“GRID STATION DETAILS”

“GRID STATION # 1”

"EXTERNAL ELECTRIFICATION OF RASHAKAI SPECIAL ECONOMIC ZONE"

132 KV GRID STATION # 1

DETAILS

1. Location	: RSEZ Phase-III
2. Transmission Line	: Mardan & Swabi
3. Total Sanctioned Load	: 120MW
4. Power Transformer Capacity	: 150 MVA
5. Power Transformers Ratings	: 3 x 50 MVA
6. Provisioning of Each Power Transformer	: 1 Incoming & 9 Outgoing
7. 11 KV Outgoing Panels	: 27 No
8. Reserved 11KV Outgoing Panels for Future	: 02 Nos
9. Total Ultimate Load	: 94MW
10. Load Available for Future Extension	: 26MW
11. Control House Building	: Yes
12. Residential Colony	: Yes
13. Minimum Land Requirement	: 10117 SqMtr

“GRID STATION # 2”

"EXTERNAL ELECTRIFICATION OF RASHAKAI SPECIAL ECONOMIC ZONE"

132 KV GRID STATION # 2

(Steel Mill)

DETAILS

1. Location	: RSEZ Phase-I
2. Transmission Line	: 132KV Mardan
3. Total Sanctioned Load	: 90MW
4. Power Transformer Capacity	: 120 MVA
5. Power Transformers Ratings	: 2 x 60 MVA
6. Control House Building	: Yes
7. Residential Colony	: Yes
8. Minimum Land Requirement	: 4845 SqMtr

"11 KV FEEDER CALCULATIONS"

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD
EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK
RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)
(A PROJECT OF CPEC)

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-I

LOAD DETAIL OF 11 KV FEEDERS

MAIN ABSTRACT

(Sr. No.)	DESCRIPTION	Ultimate Load (MW)
1	11KV Feeder No. 1	4.70
2	11KV Feeder No. 2	3.57
3	11KV Feeder No. 3	3.95
4	11KV Feeder No. 4	3.99
5	11KV Feeder No. 5	1.64
A. Ultimate Demand of 11 KV Feeders (1 to 5) (MW)		17.85
B. Total Load In Amperes (Amps)		1103.21

Formula

Amperes (MW) = (Load in MW) x $[1/(1.73 \times 0.85 \times 11)] \times 1000$

Amperes (MW) = Load in MW x 61.82

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) (A PROJECT OF CPEC)

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-I

LOAD DETAIL OF 11 KV FEEDER No. 1

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m ²)	Power load per unit area (kW/10,000m ²)	Ultimate Load (MW)
1	M1	(M1 Industrial land)	5.85	400	1.59
2	M1	(M1 Industrial land)	5.03	400	1.37
3	M2	(M2 Industrial land)	4.62	480	1.51
4	M2	(M2 Industrial land)	3.43	20	0.05
5	B41	Gas station	0.8	200	0.11
6	U11	Water supply land	0.12	200	0.02
7	U11	Water supply	0.12	200	0.02
8	U11	Water supply	0.15	200	0.02
9	S4	Land for traffic station (Transport Depot)	1.06	30	0.02
A. Ultimate Demand of 11 KV Feeder No. 1					4.70
B. Total Load In Amperes (Amps)					290.40

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

**EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK
RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)
(A PROJECT OF CPEC)**

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-I

LOAD DETAIL OF 11 KV FEEDER No. 2

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m ²)	Power load per unit area (kW/10,000m ²)	Ultimate Load (MW)
1	A1	Administrative office land	0.25	500	0.09
2	A1	Administrative office land	0.47	500	0.16
3	B1	Commercial land	4.98	600	2.03
4	M1	(M1 Industrial land)	4.77	400	1.30
A. Ultimate Demand of 11 KV Feeder No. 2					3.57
B. Total Load In Amperes (Amps)					220.95

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

**EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK
RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)
(A PROJECT OF CPEC)**

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-I

LOAD DETAIL OF 11 KV FEEDER No. 3

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m2)	Power load per unit area (kW/10,000m2)	Ultimate Load (MW)
1	M1	(M1 Industrial land)	7.36	460	2.40
2	M2	(M2 Industrial land)	2.63	460	0.86
3	U21	Sewage treatment plant	5.04	200	0.69
A. Ultimate Demand of 11 KV Feeder No. 3					3.95
B. Total Load In Amperes (Amps)					243.95

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

**EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK
RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)
(A PROJECT OF CPEC)**

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-I

LOAD DETAIL OF 11 KV FEEDER No. 4

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m ²)	Power load per unit area (kW/10,000m ²)	Ultimate Load (MW)
1	M1	(M1 Industrial land)	6.24	400	1.70
2	M1	(M1 Industrial land)	5.23	400	1.42
3	M1	(M1 Industrial land)	3.2	400	0.87
A. Ultimate Demand of 11 KV Feeder No. 4					3.99
B. Total Load In Amperes (Amps)					246.68

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

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(A PROJECT OF CPEC)**

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-I

LOAD DETAIL OF 11 KV FEEDER No. 5

Sr. No.	Plot Type	Industry Type	Plot Size Per (10,000 m2)	Power load per unit area (kW/10,000m2)	Ultimate Load (MW)
1	M1	(M1 Industrial land)	3.32	400	0.90
2	W1	Logistics and Warehousing	2.77	390	0.73
A. Ultimate Demand of 11 KV Feeder No. 5					1.64
B. Total Load in Amperes (Amps)					101.24

**EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION
NETWORK**

**RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)
(A PROJECT OF CPEC)**

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-II

LOAD DETAIL OF 11 KV FEEDERS

MAIN ABSTRACT

(Sr. No.)	DESCRIPTION	Ultimate Load (MW)
1	11KV Feeder No. 1	4.70
2	11KV Feeder No. 2	4.15
3	11KV Feeder No. 3	4.69
4	11KV Feeder No. 4	4.47
5	11KV Feeder No. 5	4.05
6	11KV Feeder No. 6	3.77
7	11KV Feeder No. 7	3.90
8	11KV Feeder No. 8	4.67
9	11KV Feeder No. 9	4.62
A. Ultimate Demand of 11 KV Feeders (1 to 9) (MW)		39.01
B. Total Load In Amperes (Amps)		2411.71

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) (A PROJECT OF CPEC)

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-II

LOAD DETAIL OF 11 KV FEEDER No. 1

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m2)	Power load per unit area (kW/10,000m2)	Ultimate Load (MW)
1	B1	Commercial land	7	600	3
2	W1	(M1 Logistics and Warehousing)	3.94	300.00	1
3	U11	Water supply	0.03	200.00	0.0041
4	U22	Environmental sanitation	0.30	20.00	0.0041
5	E1	Rivers	1.78	20.00	0.02
6	B1	Commercial land	2.66	600.00	1.09
A. Ultimate Demand of 11 KV Feeder No. 1					4.70
B. Total Load In Amperes (Amps)					290.80

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) (A PROJECT OF CPEC)

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-II

LOAD DETAIL OF 11 KV FEEDER No. 2

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m2)	Power load per unit area (kW/10,000m2)	Ultimate Load (MW)
1	B1	Commercial land	5.19	600.00	2.12
2	M2	(M2 Industrial land)	5.11	480.00	1.67
3	U31	(Fire Fighting)	0.29	200.00	0.04
4	R1	M1 Residential land)	0.20	200.00	0.03
5	U11	Water supply	0.14	200.00	0.02
6	S1	Land for roads	16.07	20.00	0.22
7	G1	Park	4.61	20.00	0.06
A. Ultimate Demand of 11 KV Feeder No. 2					4.15
B. Total Load In Amperes (Amps)					256.70

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

**EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK
RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)
(A PROJECT OF CPEC)**

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-II

LOAD DETAIL OF 11 KV FEEDER No. 3

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m ²)	Power load per unit area (kW/10,000m ²)	Ultimate Load (MW)
1	M1	(M1 Industrial land)	7.61	400.00	2.07
2	M1	(M1 Industrial land)	5.46	400.00	1.49
3	M1	(M1 Industrial land)	4.17	400.00	1.13
A. Ultimate Demand of 11 KV Feeder No. 3					4.69
B. Total Load In Amperes (Amps)					289.89

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

**EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK
RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)
(A PROJECT OF CPEC)**

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-II

LOAD DETAIL OF 11 KV FEEDER No. 4

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m ²)	Power load per unit area (kW/10,000m ²)	Ultimate Load (MW)
1	M2	(M2 Industrial land)	10.61	480.00	3.46
2	M2	(M2 Industrial land)	3.07	480.00	1.00
A. Ultimate Demand of 11 KV Feeder No. 4					4.47
B. Total Load In Amperes (Amps)					276.04

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

**EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK
RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)
(A PROJECT OF CPEC)**

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-II

LOAD DETAIL OF 11 KV FEEDER No. 5

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m ²)	Power load per uplt area (kW/10,000m ²)	Ultimate Load (MW)
1	M2	(M2 Industrial land)	7.69	480.00	2.51
2	M2	(M2 Industrial land)	4.71	480.00	1.54
A. Ultimate Demand of 11 KV Feeder No. 5					4.05
B. Total Load in Amperes (Amps)					250.21

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

**EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK
RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)
(A PROJECT OF CPEC)**

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-II

LOAD DETAIL OF 11 KV FEEDER No. 6

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m ²)	Power load per unit area (kW/10,000m ²)	Ultimate Load (MW)
1	M1	(M1 Industrial land)	3.31	400.00	0.90
2	M1	(M1 Industrial land)	5.33	400.00	1.45
3	M1	(M1 Industrial land)	5.21	400.00	1.42
A. Ultimate Demand of 11 KV Feeder No. 6					3.77
B. Total Load In Amperes (Amps)					232.89

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

**EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK
RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)
(A PROJECT OF CPEC)**

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-II

LOAD DETAIL OF 11 KV FEEDER No. 7

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m ²)	Power load per unit area (kW/10,000m ²)	Ultimate Load (MW)
1	M1	(M1 Industrial land)	5.47	400.00	1.49
2	M1	(M1 Industrial land)	4.08	400.00	1.11
3	M1	(M1 Industrial land)	4.79	400.00	1.30
A. Ultimate Demand of 11 KV Feeder No. 7					3.90
B. Total Load In Amperes (Amps)					241.13

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

**EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK
RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)
(A PROJECT OF CPEC)**

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-II

LOAD DETAIL OF 11 KV FEEDER No. 8

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m2)	Power load per unit area (kW/10,000m2)	Ultimate Load (MW)
1	M1	(M1 Industrial land)	4.98	400.00	1.35
2	M1	(M1 Industrial land)	2	400	0.57
3	M1	(M1 Industrial land)	5.20	400.00	1.41
4	M1	(M1 Industrial land)	4.88	400.00	1.33
A. Ultimate Demand of 11 KV Feeder No. 8					4.67
B. Total Load In Amperes (Amps)					288.55

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

**EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK
RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)
(A PROJECT OF CPEC)**

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-II

LOAD DETAIL OF 11 KV FEEDER No. 09

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m2)	Power load per unit area (kW/10,000m2)	Ultimate Load (MW)
1	M1	(M1 Industrial land)	7.29	400.00	1.98
2	M1	(M1 Industrial land)	5.41	400.00	1.47
3	M1	(M1 Industrial land)	4.28	400.00	1.16
A. Ultimate Demand of 11 KV Feeder No. 09					4.62
B. Total Load in Amperes (Amps)					285.52

**EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION
NETWORK**

**RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)
(A PROJECT OF CPEC)**

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-III

LOAD DETAIL OF 11 KV FEEDERS

MAIN ABSTRACT

(Sr. No.)	DESCRIPTION	Ultimate Load (MW)
1	11KV Feeder No. 1 & 2	9.14
2	11KV Feeder No.3 TO 7	22.39
3	11KV Feeder No. 8 & 9	5.92
A. Ultimate Demand of 11 KV Feeders (1 to 9) (MW)		37.45
B. Total Load In Amperes (Amps)		2315.22

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) (A PROJECT OF CPEC)

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-III

LOAD DETAIL OF 11 KV FEEDER No. 1 & 2

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m ²)	Power load per unit area (kW/10,000m ²)	Ultimate Load (MW)
1	M1	(M1 Industrial land)	33.61	400.00	9.14
A. Ultimate Demand of 11 KV Feeder No. 1 & 2					9.14
B. Total Load in Amperes (Amps)					565.20

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

**EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK
RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)
(A PROJECT OF CPEC)**

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-III

LOAD DETAIL OF 11 KV FEEDER No. 3 TO 7

(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m2)	Power load per unit area (kW/10,000m2)	Ultimate Load (MW)
1	M2	(M2 Industrial land)	68.59	480.00	22.39
A. Ultimate Demand of 11 KV Feeder No. 3 TO 7					22.39
B. Total Load in Amperes (Amps)					1384.07

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

EXTERNAL ELECTRIFICATION DESIGN FOR THE 11 KV DISTRIBUTION NETWORK RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) (A PROJECT OF CPEC)

RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ) PHASE-III

LOAD DETAIL OF 11 KV FEEDER No. 8 & 9

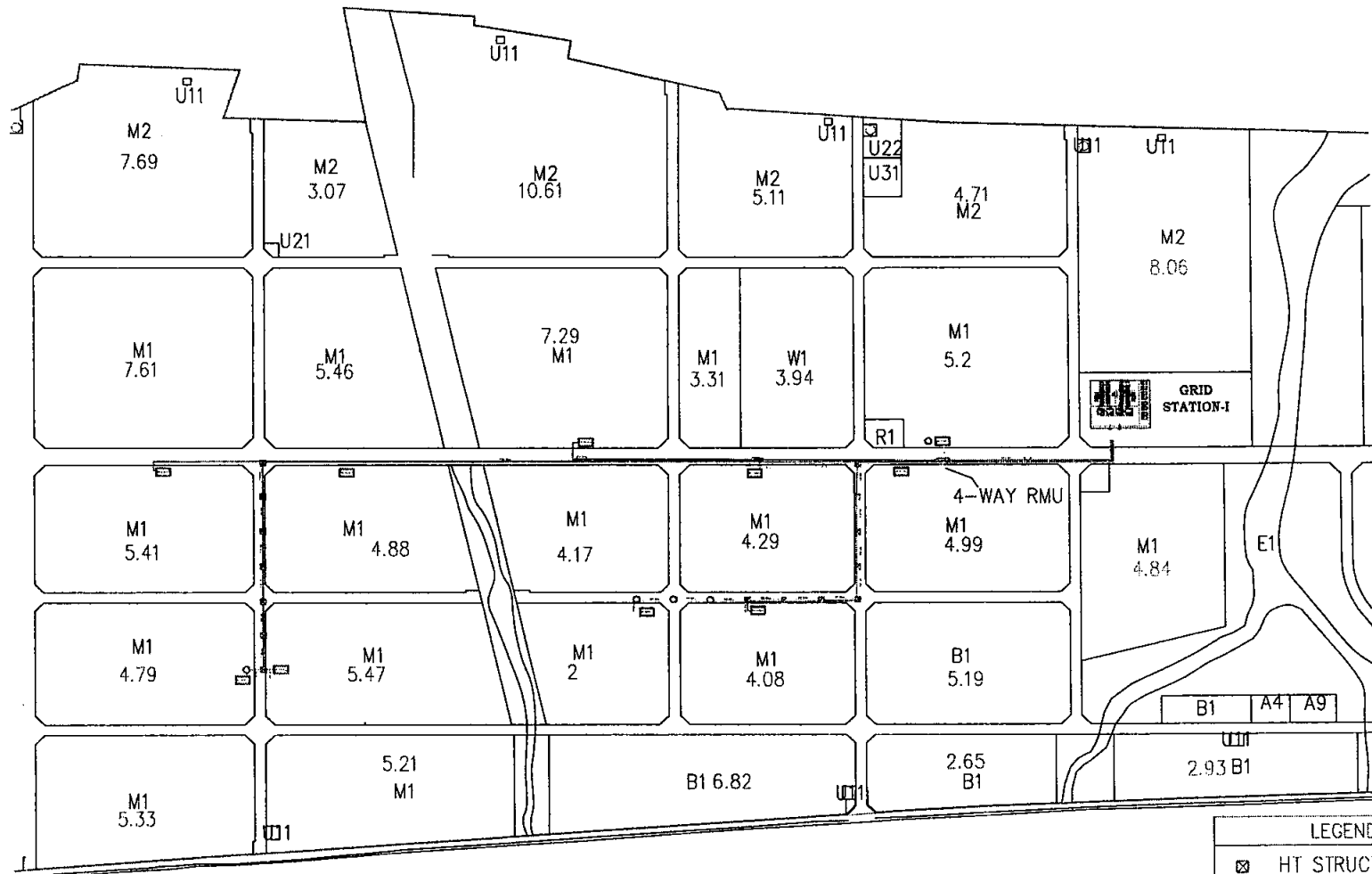
(Sr. No.)	Plot Type	Industry Type	Plot Size Per (10,000 m ²)	Power load per unit area (kW/10,000m ²)	Ultimate Load (MW)
1	B1	Commercial land	12.14	600.00	4.96
2	A1	Administrative office land	0.02	500.00	0.01
3	A4	Sports land	0.21	150.00	0.02
4	A9	Religious land	0.25	250.00	0.04
5	S1	Land for roads	11.12	20.00	0.16
6	U11	Water supply	0.49	200.00	0.07
7	U12	Power supply	2.46	200.00	0.34
8	U22	Environmental sanitation	0.25	20.00	0.0034
9	G1	Park	18.65	20.00	0.25
10	E1	Rivers	6.25	20.00	0.08
A. Ultimate Demand of 11 KV Feeder No. 8 & 9					5.92
B. Total Load In Amperes (Amps)					365.95

"11KV DISTRIBUTION LAYOUT



HT DISTRIBUTION NETWORK RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)

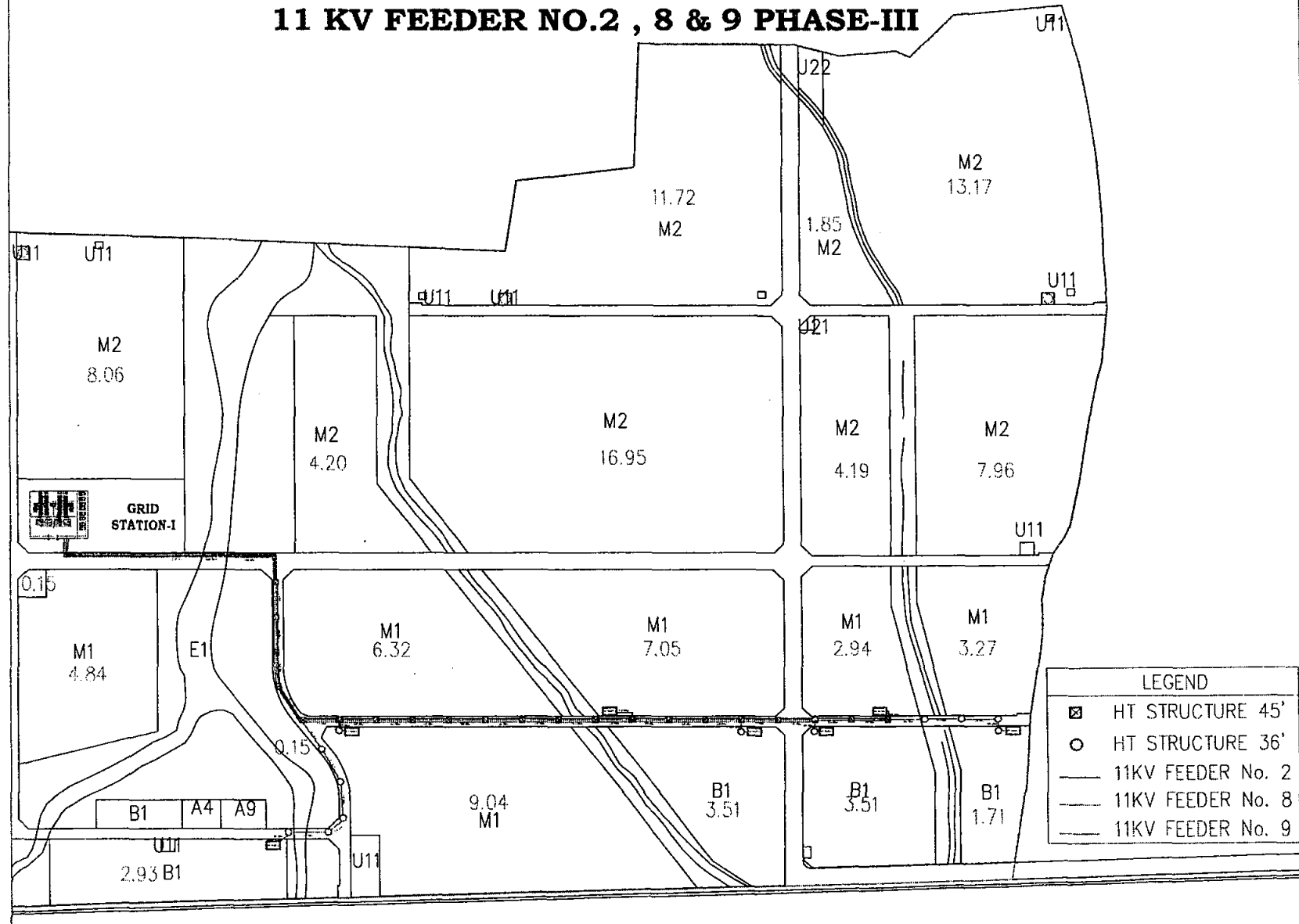
11 KV FEEDER NO. 7, 8 & 9 PHASE-II



LEGEND	
☒	HT STRUCTURE 45'
○	HT STRUCTURE 36'
—	11KV FEEDER No. 7
- - -	11KV FEEDER No. 8
...	11KV FEEDER No. 9

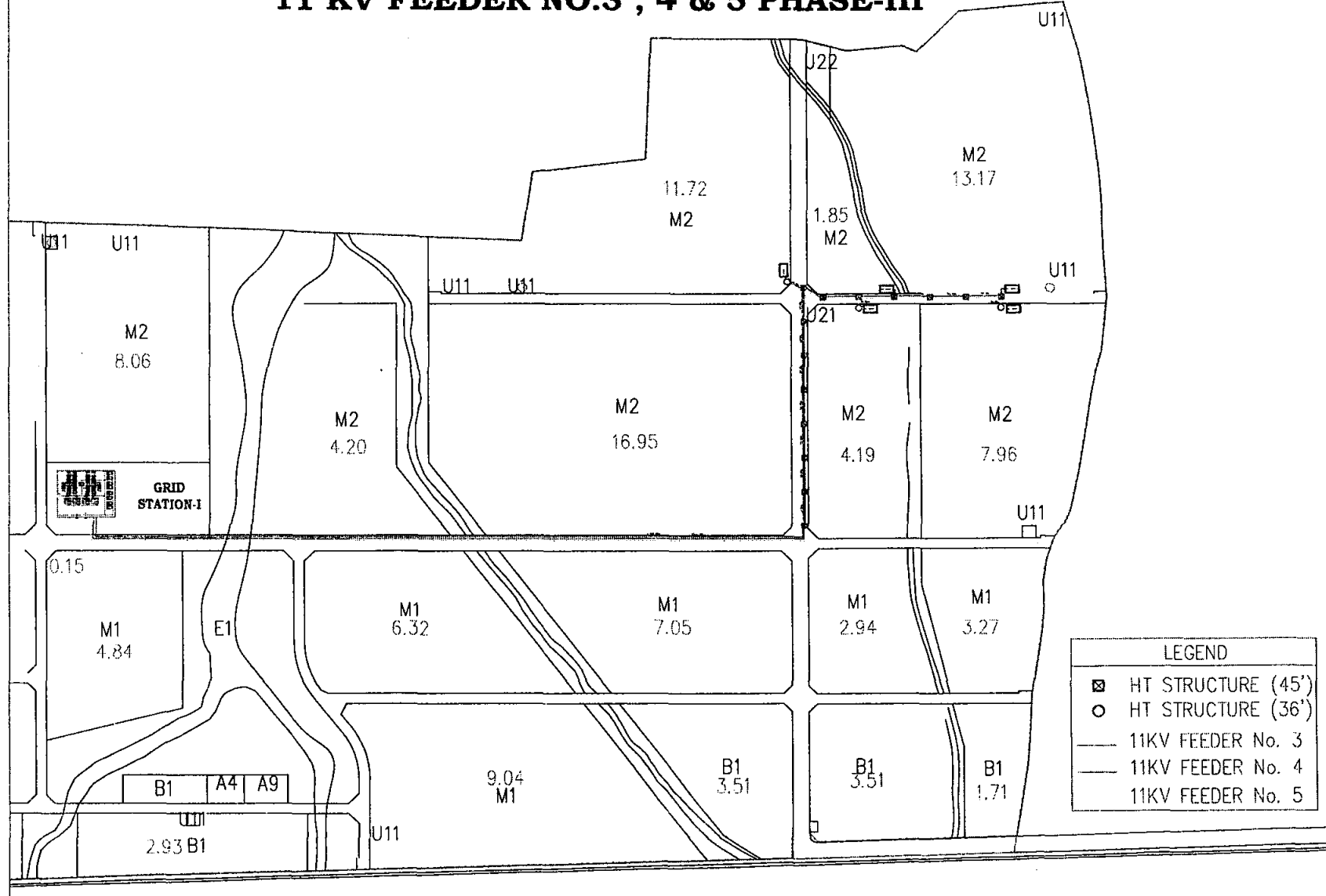
HT DISTRIBUTION NETWORK RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)

11 KV FEEDER NO.2 , 8 & 9 PHASE-III



HT DISTRIBUTION NETWORK RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)

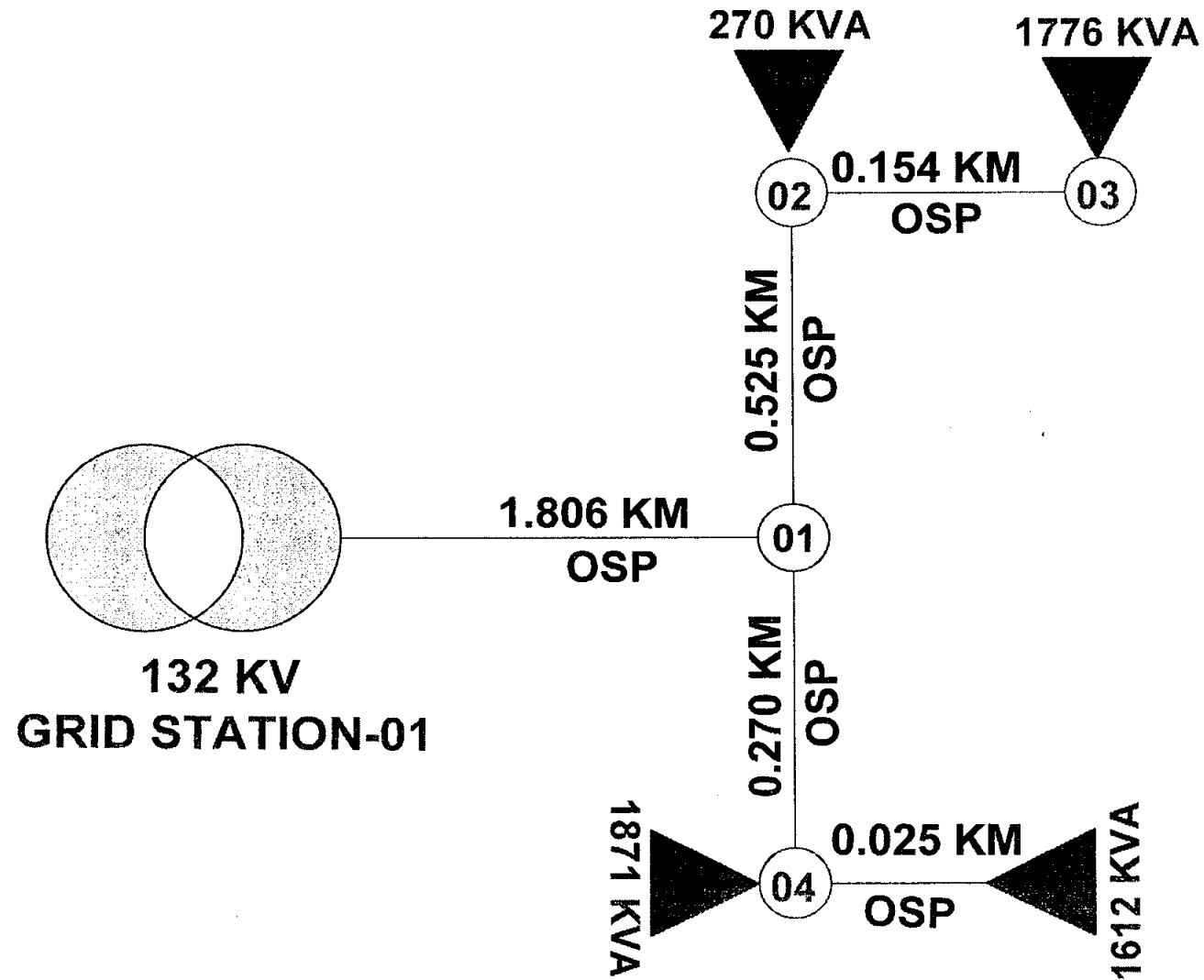
11 KV FEEDER NO.3 , 4 & 5 PHASE-III



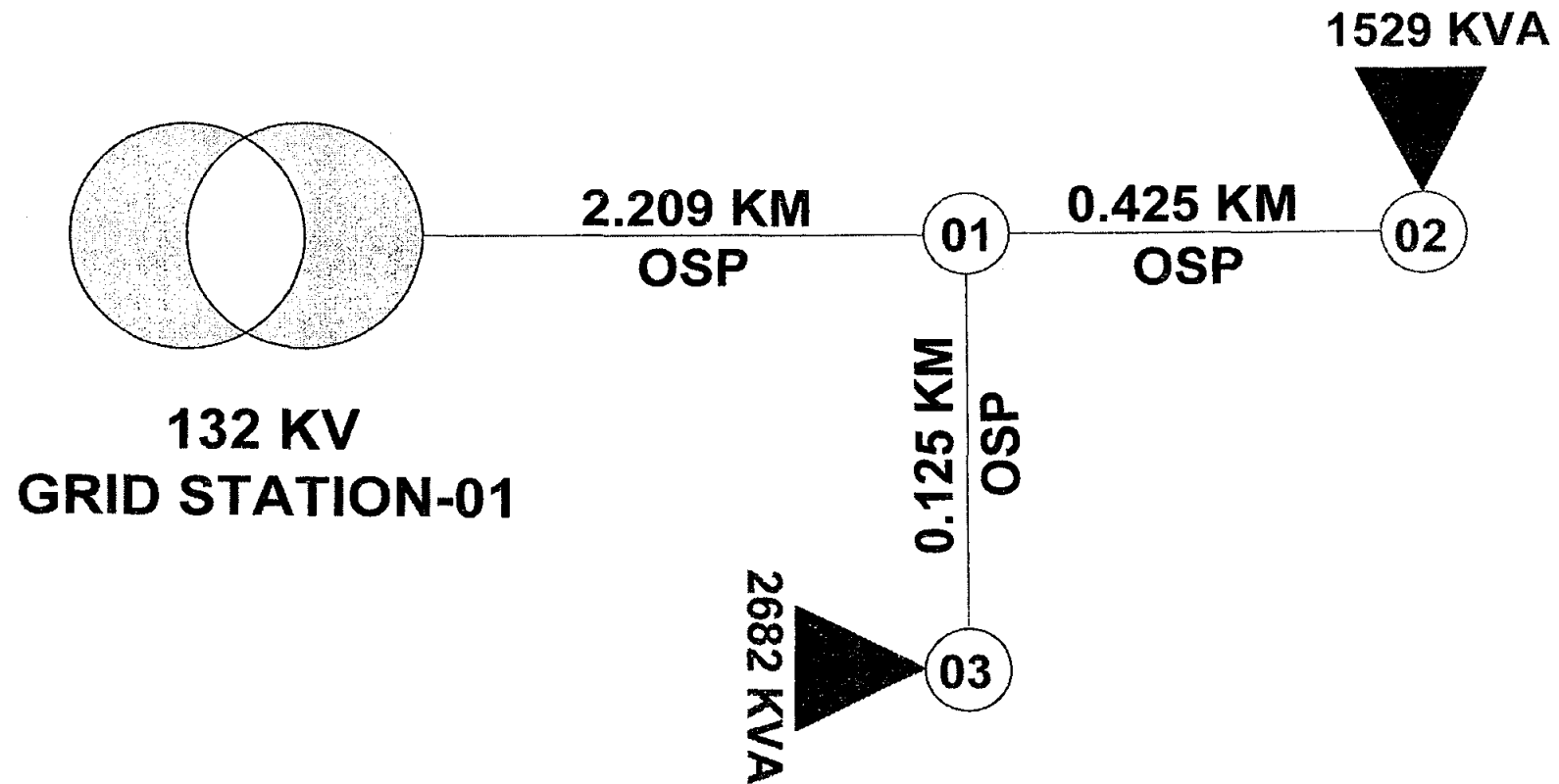
“SINGLE LINE DIAGRAM”

11KV NETWORK

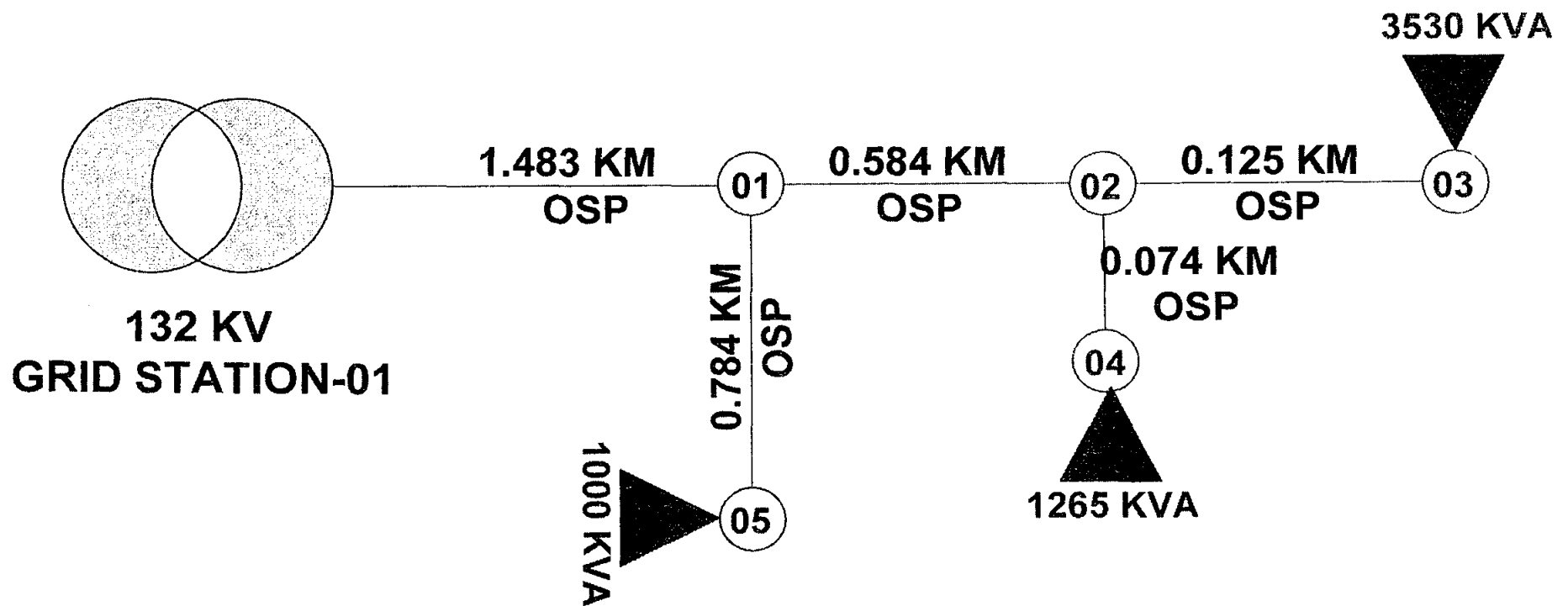
Single Line Diagram of 11 KV RSEZ PHASE-01 Feeder 01



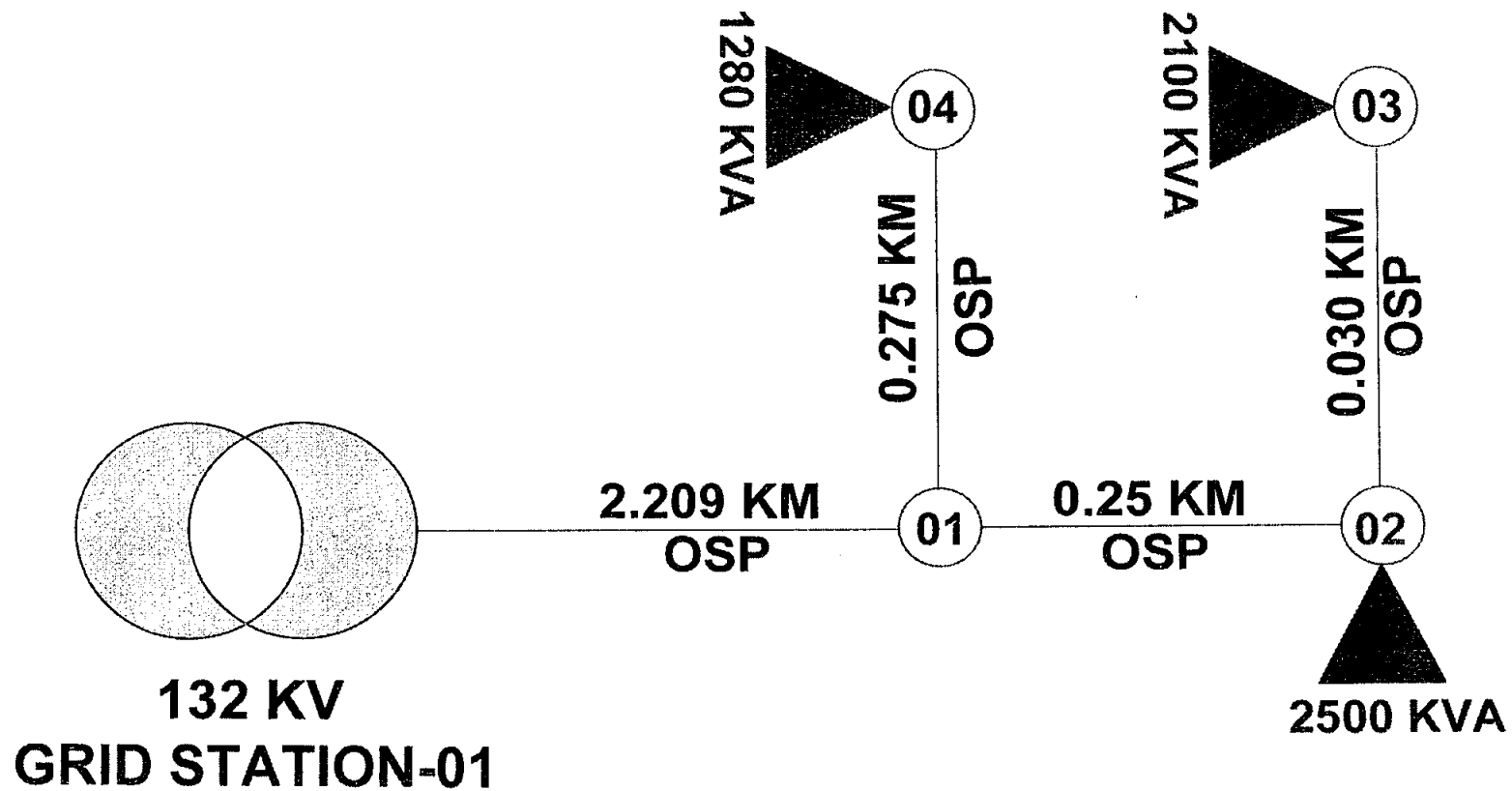
Single Line Diagram of 11 KV RSEZ PHASE-01 Feeder 02



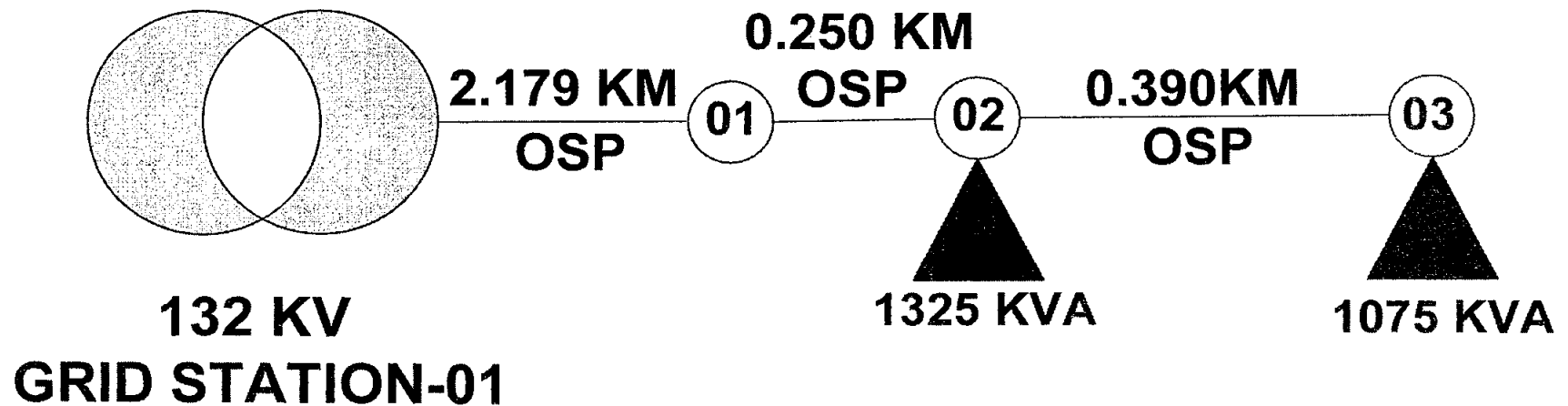
Single Line Diagram of 11 KV RSEZ PHASE-01 Feeder 03



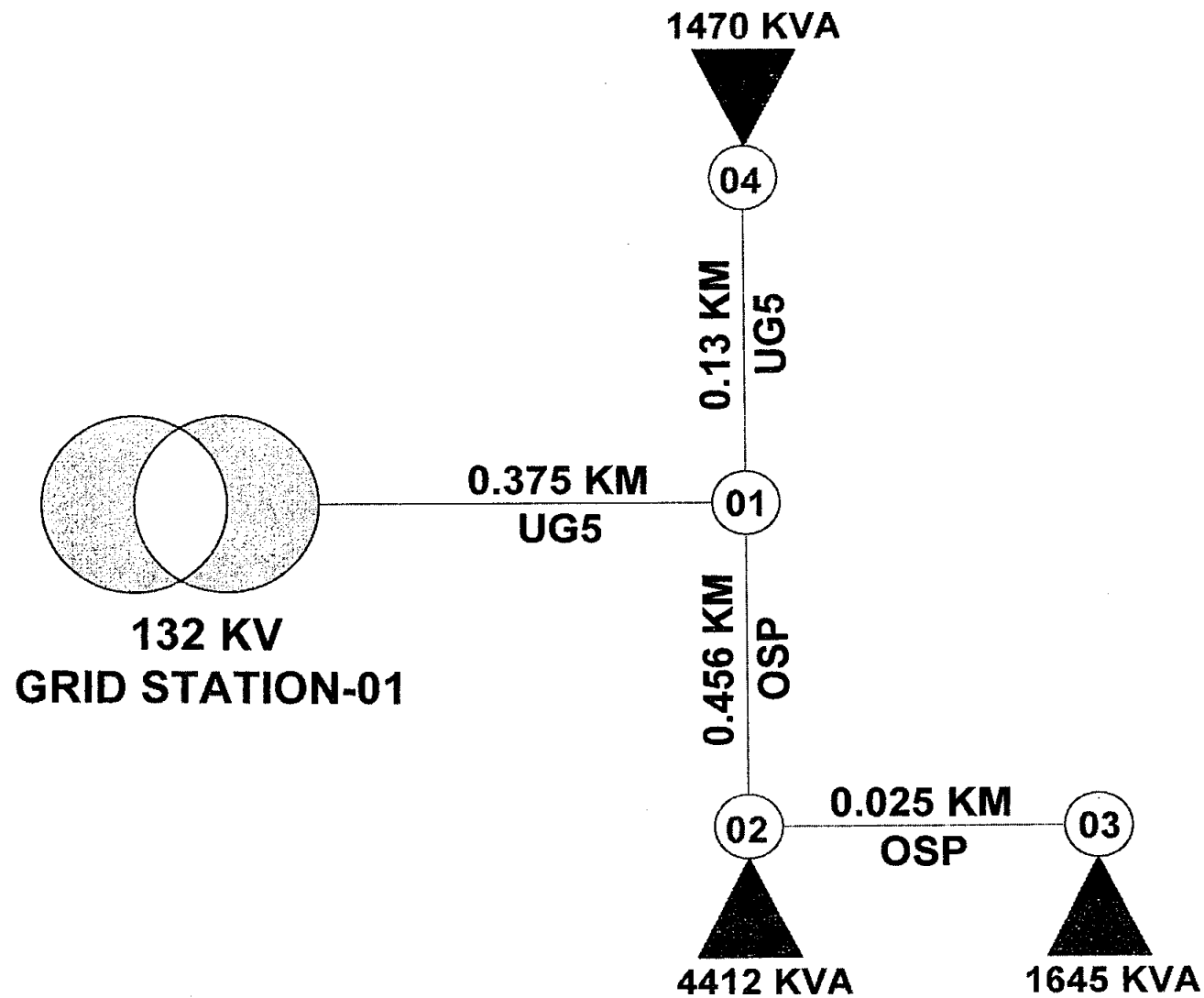
Single Line Diagram of 11 KV RSEZ PHASE-01 Feeder 04



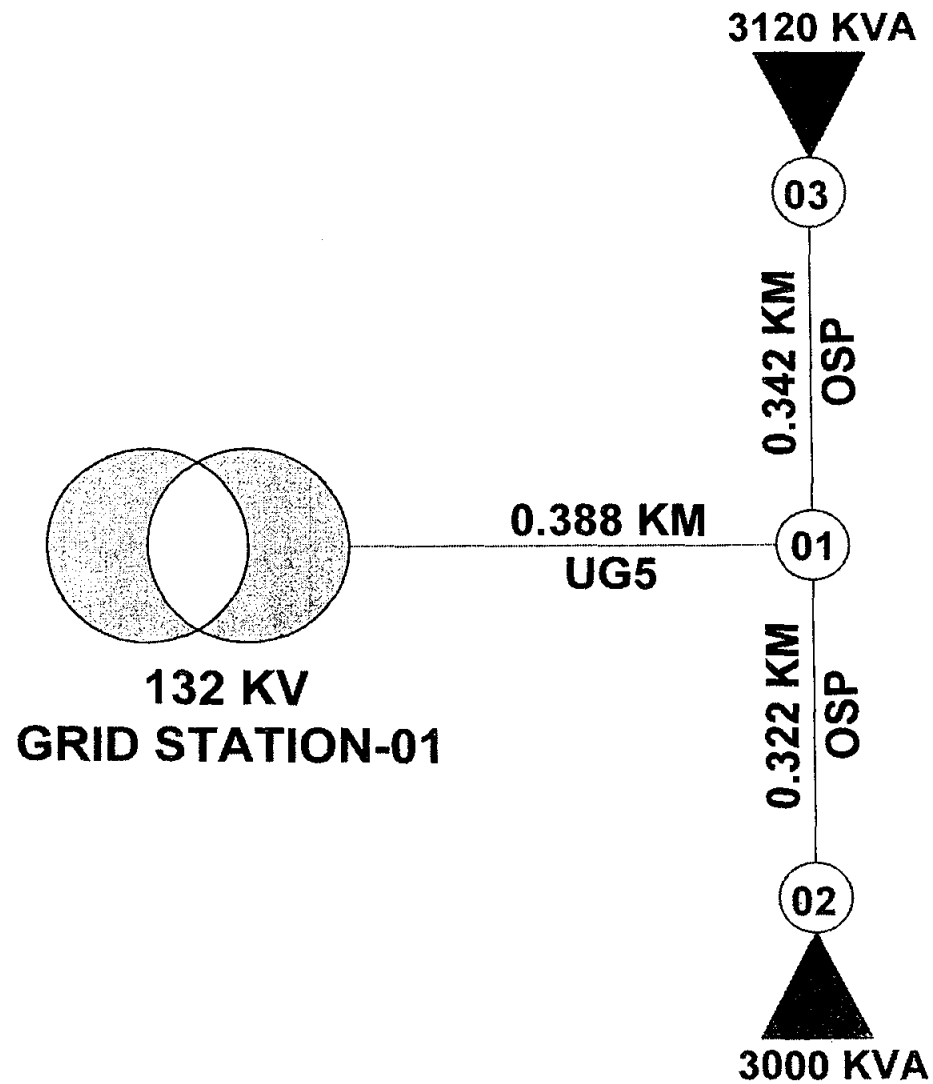
Single Line Diagram of 11 KV RSEZ PHASE-01 Feeder 05



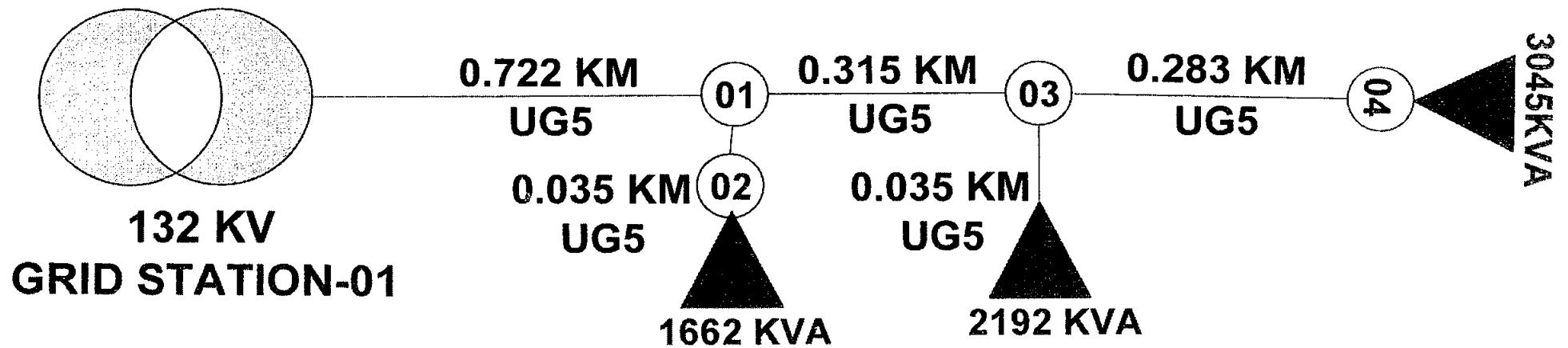
Single Line Diagram of 11 KV RSEZ PHASE-02 Feeder 01



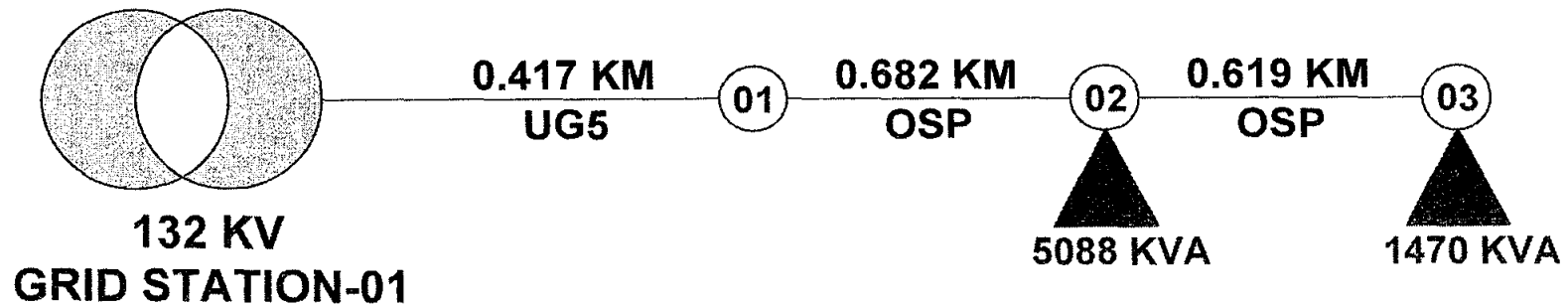
Single Line Diagram of 11 KV RSEZ PHASE-02 Feeder 02



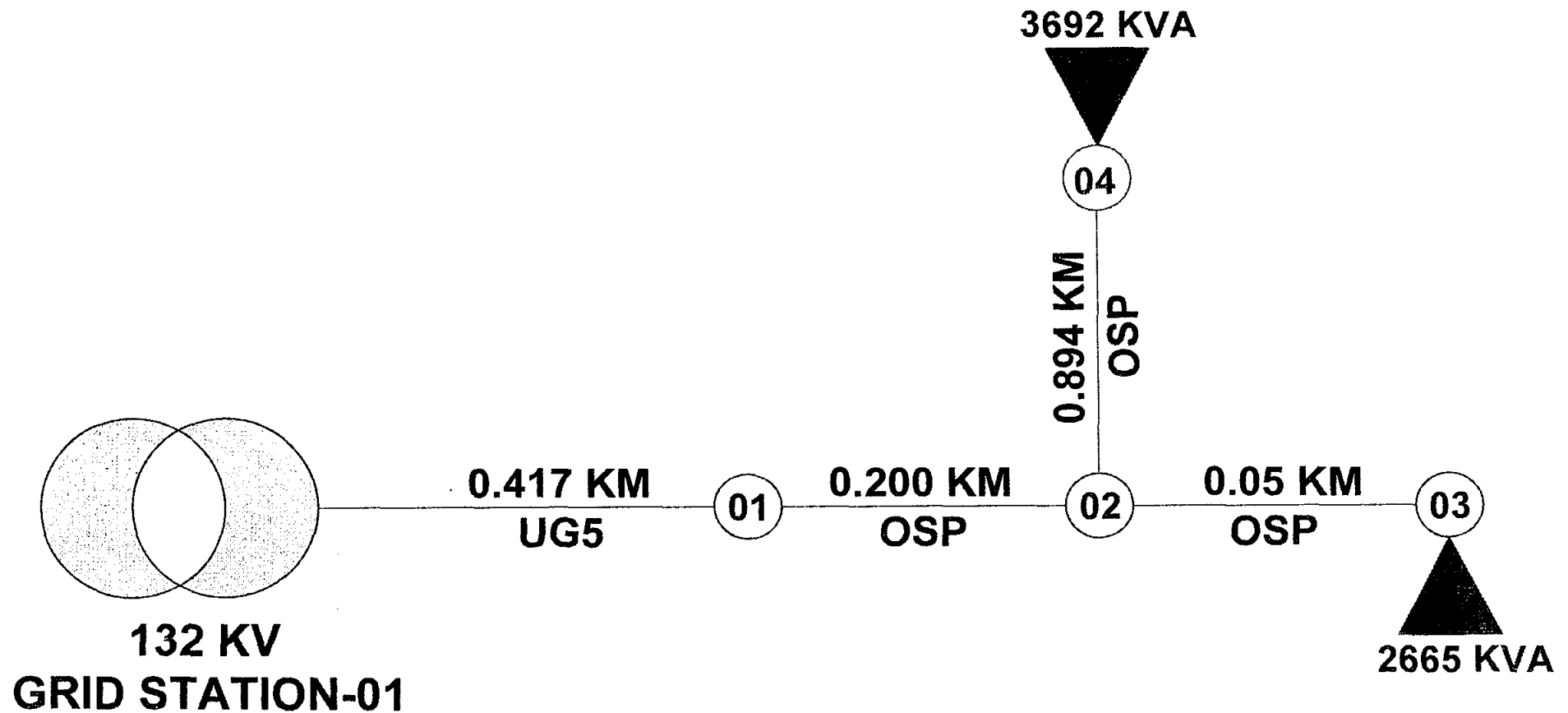
Single Line Diagram of 11 KV RSEZ PHASE-02 Feeder 03



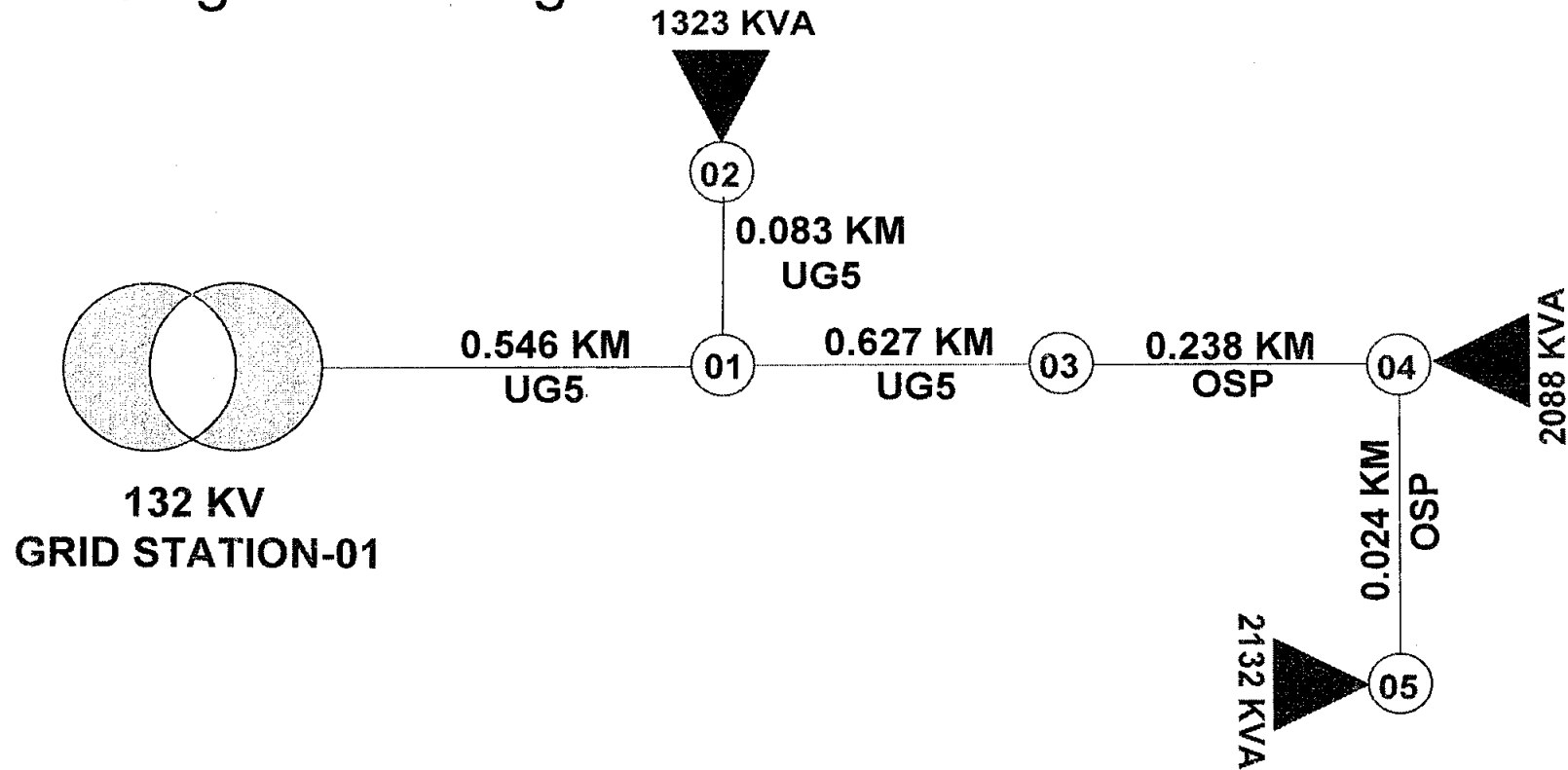
Single Line Diagram of 11 KV RSEZ PHASE-02 Feeder 04



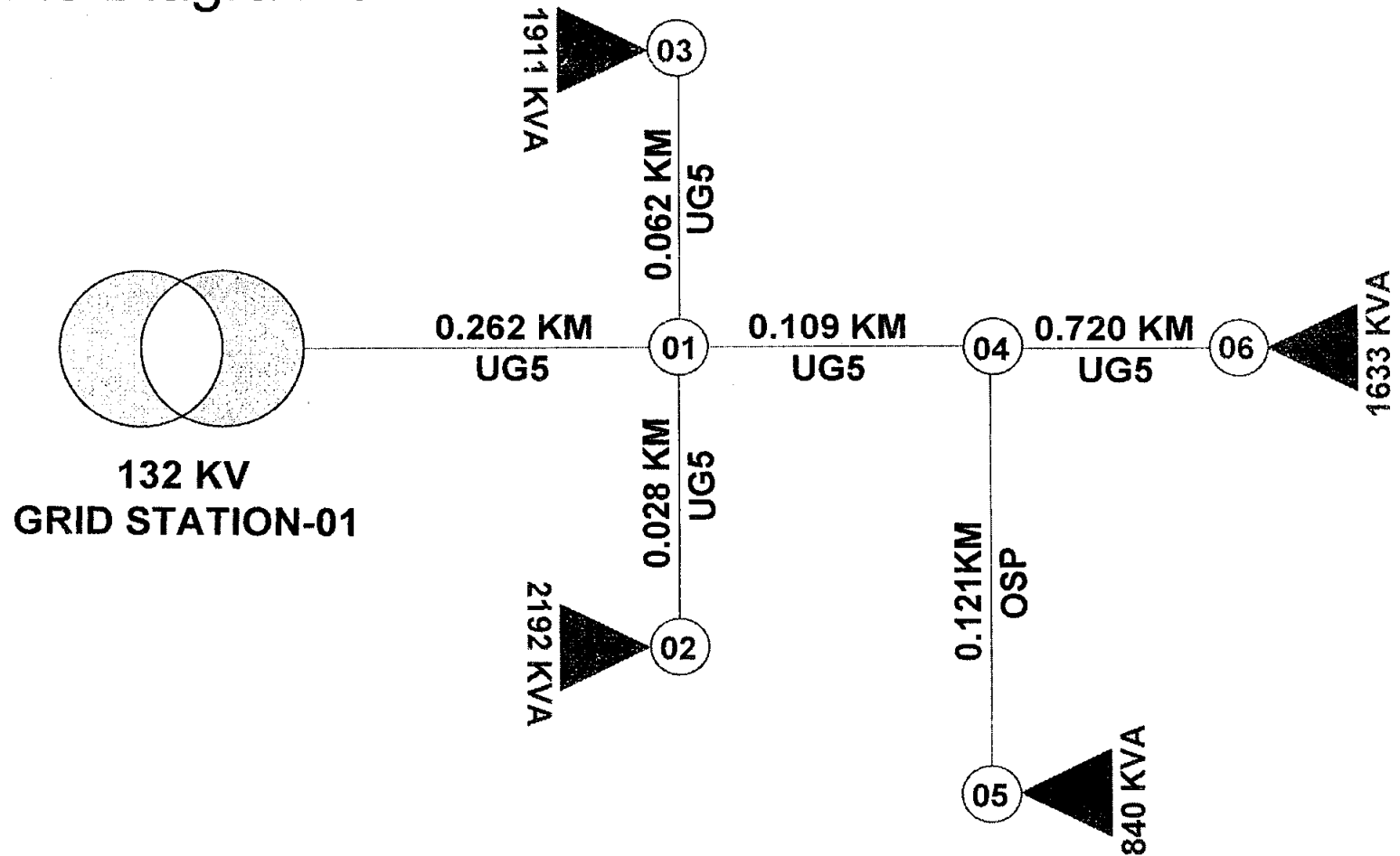
Single Line Diagram of 11 KV RSEZ PHASE-02 Feeder 05



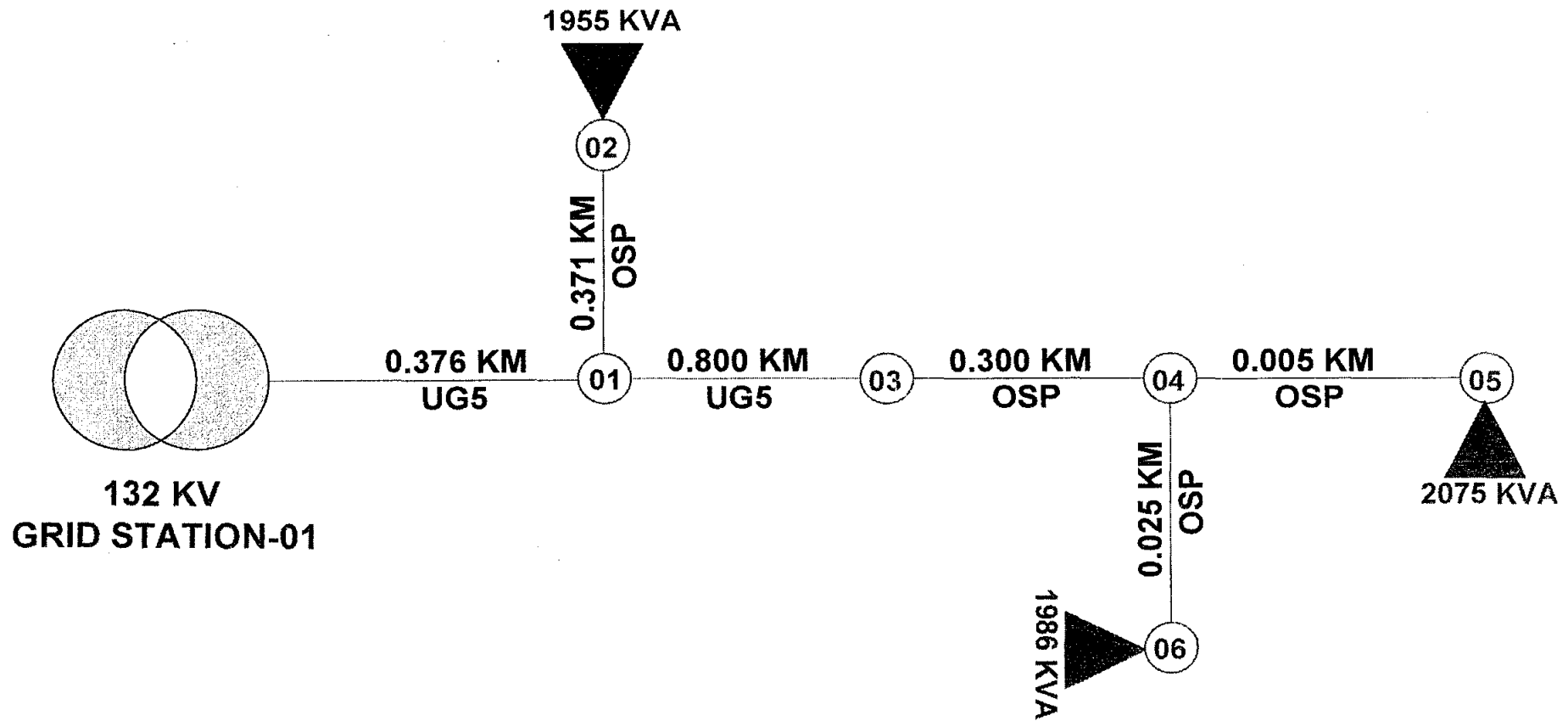
Single Line Diagram of 11 KV RSEZ PHASE-02 Feeder 06



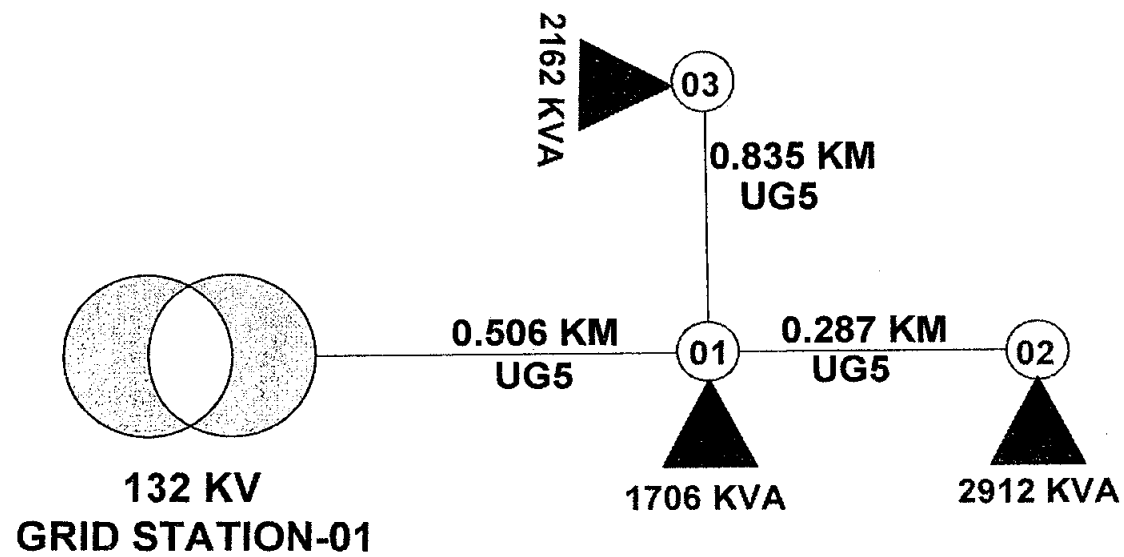
Single Line Diagram of 11 KV RSEZ PHASE-02 Feeder 07



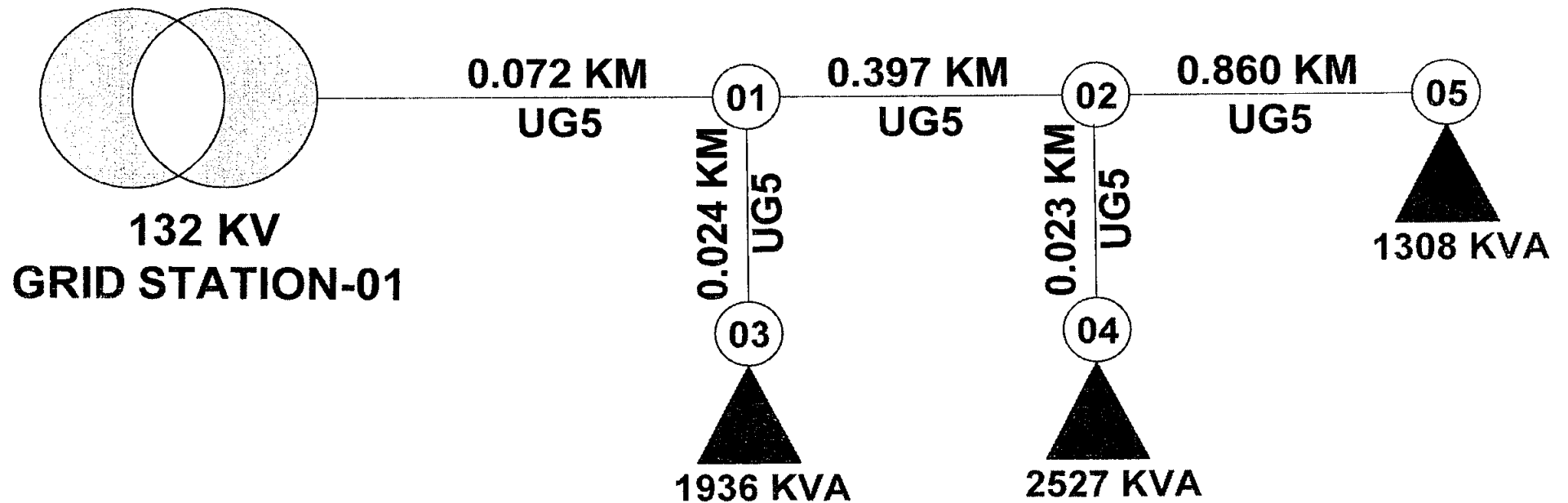
Single Line Diagram of 11 KV RSEZ PHASE-02 Feeder 08



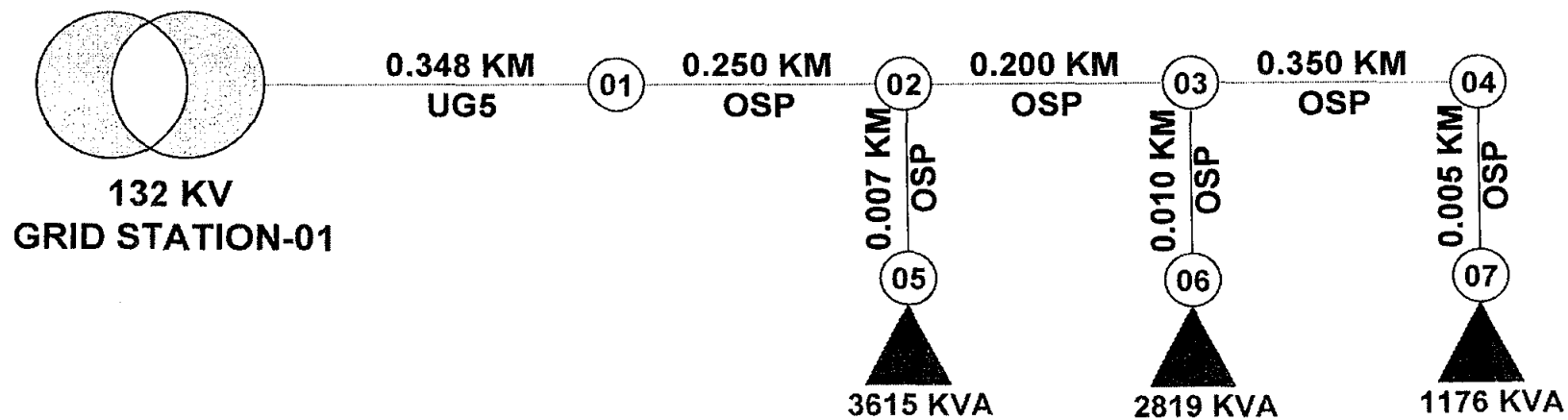
Single Line Diagram of 11 KV RSEZ PHASE-02 Feeder 09



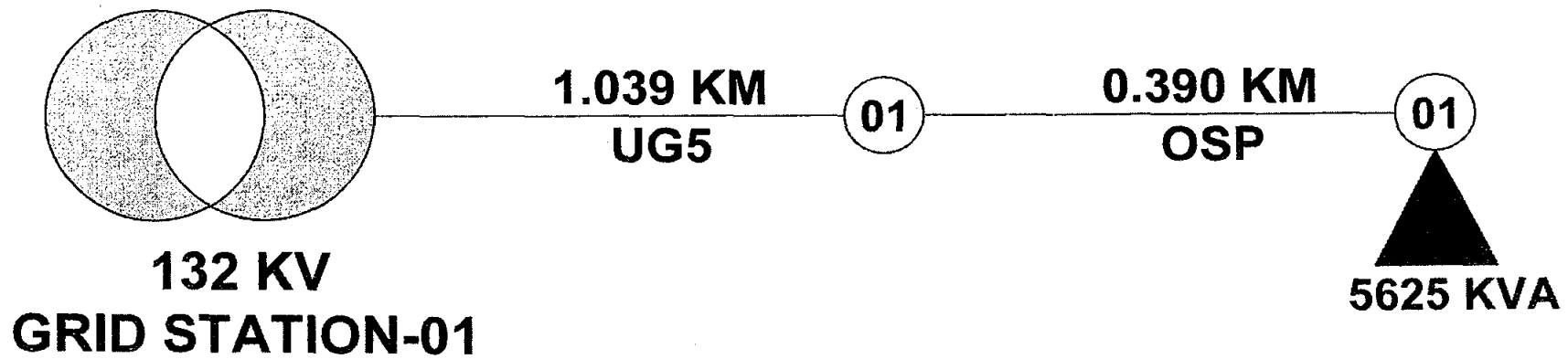
Single Line Diagram of 11 KV RSEZ PHASE-03 Feeder 01



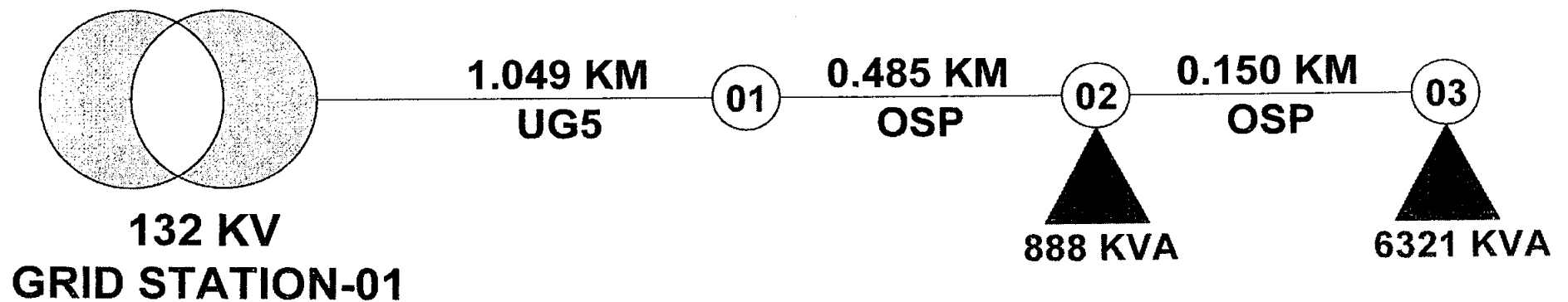
Single Line Diagram of 11 KV RSEZ PHASE-03 Feeder 02



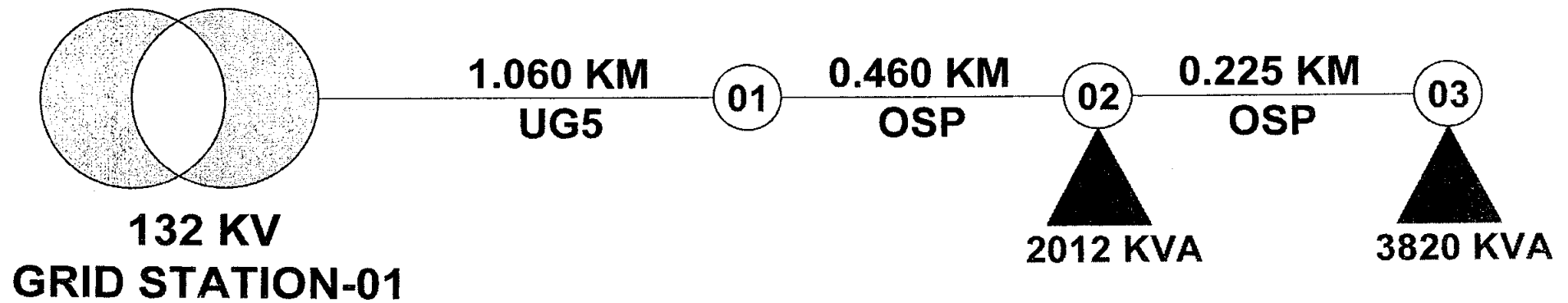
Single Line Diagram of 11 KV RSEZ PHASE-03 Feeder 03



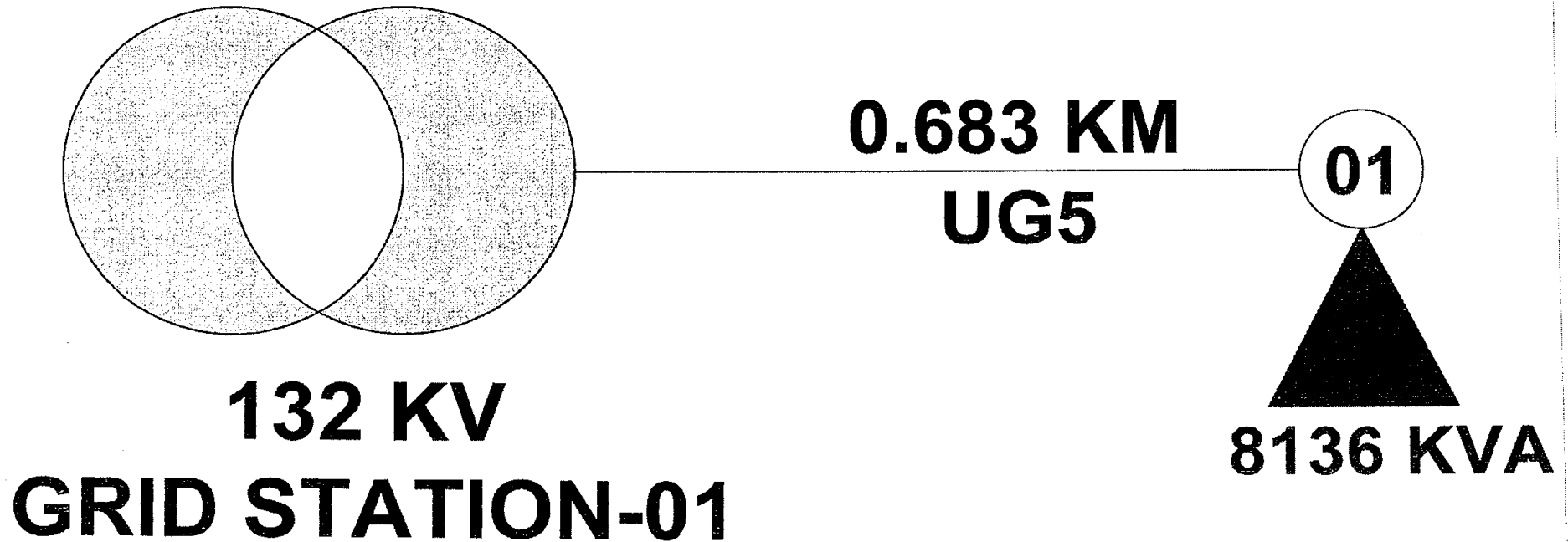
Single Line Diagram of 11 KV RSEZ PHASE-03 Feeder 04



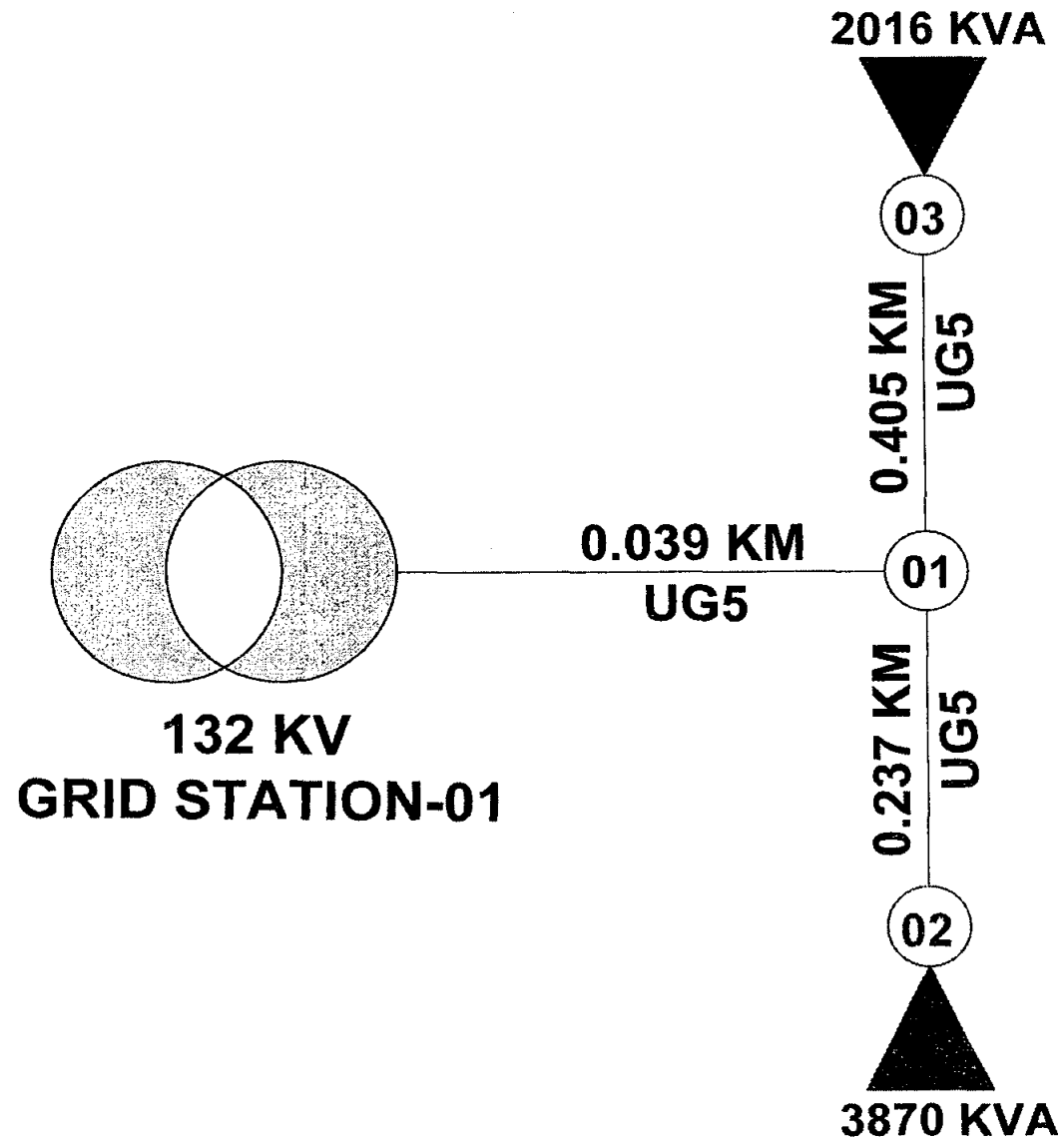
Single Line Diagram of 11 KV RSEZ PHASE-03 Feeder 05



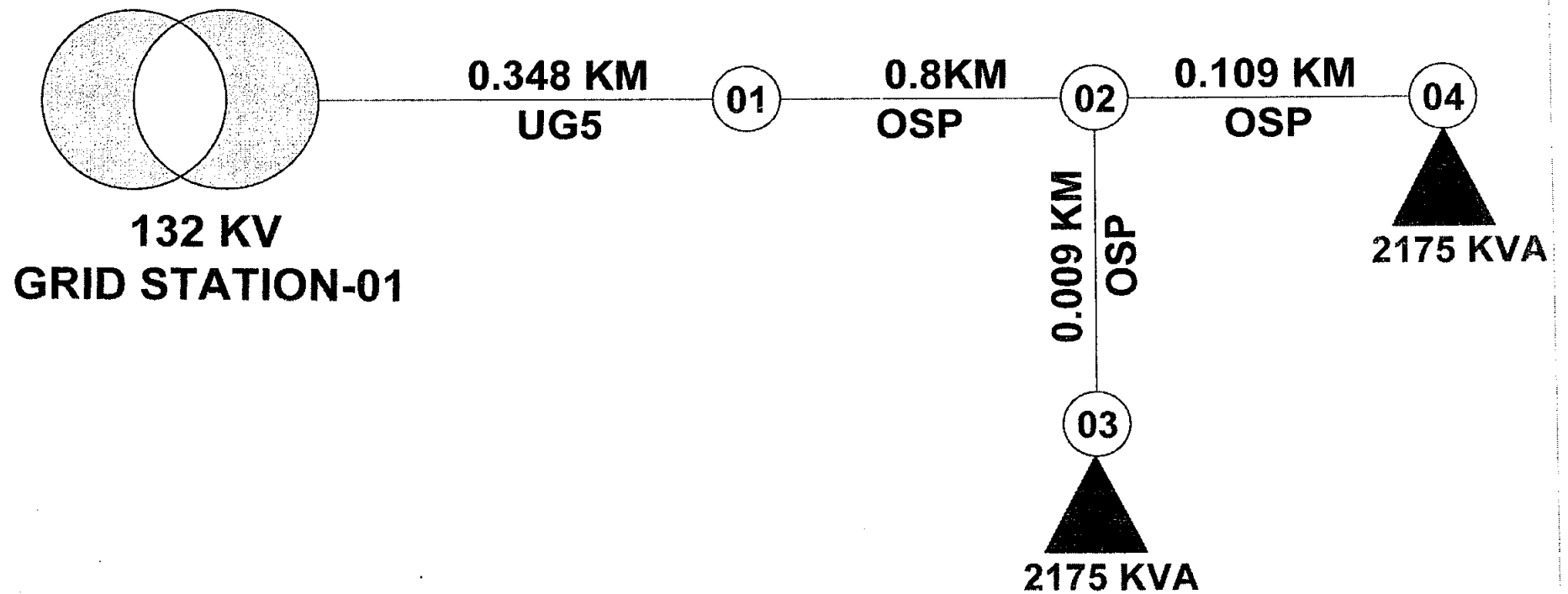
Single Line Diagram of 11 KV RSEZ PHASE-03 Feeder 06



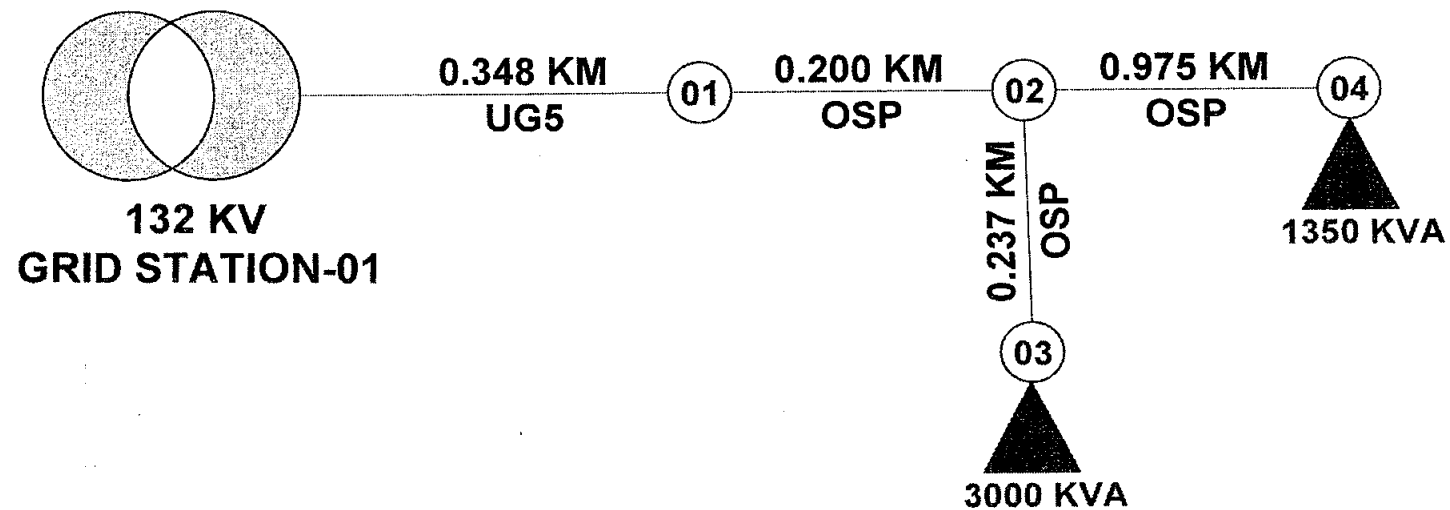
Single Line Diagram of 11 KV RSEZ PHASE-03 Feeder 07



Single Line Diagram of 11 KV RSEZ PHASE-03 Feeder 08



Single Line Diagram of 11 KV RSEZ PHASE-03 Feeder 09



**“11KV FEEDER LOAD FLOW
ANALYSIS”**

WATER AND POWER DEVELOPMENT AND OPERATION COMPANY (PVT) LTD I T Y

LOAD FLOW ANALYSIS FOR - 11KV RSEZ P-01 F-01 (C:RSEZ1)

(HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS = 290.00 AMPS
BUS VOLTAGE = 11.0 Kv

TOTAL FEEDER DEMAND = 5525 KVA
TOTAL SPOT LOAD DEMAND = 0 KVA
FEEDER LOAD FACTOR = 60 %

EXISTING PF = 85 %
PROPOSED PF = 85 %

SECTION						EXISTING SYSTEM					PROPOSED SYSTEM					
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS
NODE	NODE	KMTRS	KVA	KVA		KVAR	AMPS	LDNG.	DROP	KWATTS		KVAR	AMPS	LDNG.	DROP	KWATTS
0.0	1.0	1.845	0	5559	OSP		290.0	44%	2.3	57.256			290.0	44%	2.3	57.256
1.0	2.0	0.250	0	5559	OSP		290.0	44%	2.6	7.758			290.0	44%	2.6	7.758
2.0	3.0	0.250	300	5559	OSP		290.0	44%	2.9	7.758			290.0	44%	2.9	7.758
3.0	4.0	0.150	1776	5259	OSP		274.3	42%	3.1	4.165			274.3	42%	3.1	4.165
4.0	5.0	0.323	3483	3483	OSP		181.7	28%	3.4	3.935			181.7	28%	3.4	3.935

TOTAL 2.818 5559

80.872

80.872

SYSTEM SUMMARY

		EXISTING	PROPOSED	BENEFIT
Line Losses	=	80.9 KW	80.9 KW	0.0 KW
Transformation Losses	=	0.0 KW	0.0 KW	0.0 KW
Total Power Losses	=	80.9 KW	80.9 KW	0.0 KW
% Power Losses	=	2 %	2 %	0 %
Annual Energy Loss	=	306068.2 KWH	306068.2 KWH	0.0 KWH
% Annual Energy Loss	=	1 %	1 %	0 %

OSP - 660A,

's' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

WATER AND POWER DEVELOPMENT AUTHORITY
RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

LOAD FLOW ANALYSIS FOR - 11KV RSEZ P-01 F-02 (C:RSEZ2)

(HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS = 220.00 AMPS

TOTAL FEEDER DEMAND = 4192 KVA

EXISTING PF = 85 %

BUS VOLTAGE = 11.0 Kv

TOTAL SPOT LOAD DEMAND = 0 KVA

PROPOSED PF = 85 %

FEEDER LOAD FACTOR = 60 %

SECTION TRF.						EXISTING SYSTEM						PROPOSED SYSTEM					
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS	
NODE	NODE	KMTRS	KVA	KVA		KVAR	AMPS	LDNG.	DROP	KNATTS		KVAR	AMPS	LDNG.	DROP	KNATTS	
0.0	1.0	2.200	0	4211	OSP		220.0	33%	2.1	39.291		220.0	33%	2.1	39.291		
1.0	2.0	0.425	1529	1529	OSP		79.9	12%	2.2	1.001		79.9	12%	2.2	1.001		
1.0	3.0	0.125	2682	2682	OSP		140.1	21%	2.2	0.905		140.1	21%	2.2	0.905		

TOTAL 2.750 4211

41.197

41.197

SYSTEM SUMMARY

		EXISTING	PROPOSED	BENEFIT
Line Losses	=	41.2 KW	41.2 KW	0.0 KW
Transformation Losses	=	0.0 KW	0.0 KW	0.0 KW
Total Power Losses	=	41.2 KW	41.2 KW	0.0 KW
% Power Losses	=	1 %	1 %	0 %
Annual Energy Loss	=	155917.8 KWH	155917.8 KWH	0.0 KWH
% Annual Energy Loss	=	1 %	1 %	0 %

OSP - 660A,

's' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

WATER AND POWER DEVELOPMENT AUTHORITY

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

LOAD FLOW ANALYSIS FOR - 11KV RSEZ p-01 F-3 (C:RSEZ3)

(HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS : 243.00 AMPS

TOTAL FEEDER DEMAND : 4630 KVA

EXISTING PF : 85 %

BUS VOLTAGE : 11.0 Kv

TOTAL SPOT LOAD DEMAND : 0 KVA

PROPOSED PF : 85 %

FEEDER LOAD FACTOR : 60 %

FEEDER LOAD FACTOR = 80 %																
SECTION TRF.						EXISTING SYSTEM					PROPOSED SYSTEM					
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS
MODE	MODE	KMTRS	KVA	KVA		KVAR	AMPS	LDNG.	DROP	KWATTS		KVAR	AMPS	LDNG.	DROP	KWATTS
0.0	1.0	1.845	0	4833	OSP		243.0	37%	1.9	40.201			243.0	37%	1.9	40.201
1.0	2.0	0.175	2833	3833	OSP		192.7	29%	2.0	2.398			192.7	29%	2.0	2.398
1.0	4.0	0.445	1000	1000	OSP		50.3	8%	2.0	0.415			50.3	8%	2.0	0.415
2.0	3.0	0.140	1000	1000	OSP		50.3	8%	2.0	0.131			50.3	8%	2.0	0.131

TOTAL 2.605 4833

43.145

43.145

SYSTEM SUMMARY

		EXISTING		PROPOSED		BENEFIT	
Line Losses	=	43.1 KW		43.1 KW		0.0 KW	
Transformation Losses	=	0.0 KW		0.0 KW		0.0 KW	
Total Power Losses	=	43.1 KW		43.1 KW		0.0 KW	
% Power Losses	=	1 %		1 %		0 %	
Annual Energy Loss	=	163296.1 KWH		163296.1 KWH		0.0 KWH	
% Annual Energy Loss	=	1 %		1 %		0 %	

OSP - 660A,

' Indicates Spot Load.

' Indicates Voltage Drop above 5 %

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

(HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS : 246.00 AMPS
BUS VOLTAGE : 11.0 Kv

TOTAL FEEDER DEMAND : 4687 KVA
TOTAL SPOT LOAD DEMAND : 0 KVA
FEEDER LOAD FACTOR : 60 %

EXISTING PF : 85 %
PROPOSED PF : 85 %

SECTION		TRF.	EXISTING SYSTEM		PROPOSED SYSTEM	
FROM	TO	LENGTH	SIZE	CUM : COND	CAP. CURRENT % %VOLT	LOSS : COND
NODE	NODE	KM/RS	KVA	KVA :	KVAR AMPS LONG, DROP	KWATTS :
0.0	1.0	1.980	1670	4693	OSP 246.0 37% 2.1 44.214	246.0 37% 2.1 44.214
1.0	2.0	0.525	1023	1023	OSP 53.6 8% 2.2 0.557	53.6 8% 2.2 0.557
1.0	3.0	0.030	2000	2000	OSP 104.8 16% 2.1 0.122	104.8 16% 2.1 0.122

TOTAL 2.535 4693

44.893

44.893

SYSTEM SUMMARY

	EXISTING	PROPOSED	BENEFIT
Line losses	= 44.9 KW	44.9 KW	0.0 KW
Transformation Losses	= 0.0 KW	0.0 KW	0.0 KW
Total Power Losses	= 44.9 KW	44.9 KW	0.0 KW
% Power Losses	= 1 %	1 %	0 %
Annual Energy Loss	= 169912.2 KWH	169912.2 KWH	0.0 KWH
% Annual Energy Loss	= 1 %	1 %	0 %

OSP - 660A,

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

WATER AND POWER DEVELOPMENT AUTHORITY
RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

LOAD FLOW ANALYSIS FOR - 11KV RSEZ P-1 F-5 (C:RSEZ5)

(HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS = 101.00 AMPS
BUS VOLTAGE = 11.0 Kv

TOTAL FEEDER DEMAND = 1924 KVA
TOTAL SPOT LOAD DEMAND = 0 KVA
FEEDER LOAD FACTOR = 60 %

EXISTING PF = 85 %
PROPOSED PF = 85 %

FEEDER LOSS FACTOR = 80 %																
SECTION TRF. :							EXISTING SYSTEM :					PROPOSED SYSTEM :				
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS
: NODE	: NODE	: KMTRS	: KVA	: KVA	:	: KVAR	: AMPS	: LONG.	: DROP	: KWATTS	:	: KVAR	: AMPS	: LONG.	: DROP	: KWATTS
0.0	1.0	2.884	1058	2058	OSP		101.0	15%	1.2	10.856			101.0	15%	1.2	10.856
1.0	2.0	0.385	1000	1000	OSP		49.1	7%	1.3	0.342			49.1	7%	1.3	0.342
TOTAL		3.269	2058							11.198						11.198

SYSTEM SUMMARY

		EXISTING	PROPOSED	BENEFIT
Line Losses	=	11.2 KW	11.2 KW	0.0 KW
Transformation Losses	=	0.0 KW	0.0 KW	0.0 KW
Total Power Losses	=	11.2 KW	11.2 KW	0.0 KW
% Power Losses	=	1 %	1 %	0 %
Annual Energy Loss	=	42391.2 KWH	42391.2 KWH	0.0 KWH
% Annual Energy Loss	=	0 %	0 %	0 %

OSP - 660A,

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

LOAD FLOW ANALYSIS FOR - 11KV RSEZ Phase-02 Feeder-01 (C:RSEZP2F1)

(HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS = 290.00 AMPS

TOTAL FEEDER DEMAND = 5525 KVA

EXISTING PF = 85 %

BUS VOLTAGE = 11.0 Kv

TOTAL SPOT LOAD DEMAND = 0 KVA

PROPOSED PF = 85 %

FEEDER LOAD FACTOR = 60 %

SECTION TRF. :					EXISTING SYSTEM :					PROPOSED SYSTEM :						
FROM	TO	LENGTH	SIZE	CUM :	COND	CAP.	CURRENT	%	%VOLT	LOSS :	COND	CAP.	CURRENT	%	%VOLT	LOSS :
NODE	NODE	KMTRS	KVA	KVA :		KVAR	AMPS	LDNG.	DROP	KWATTS :		KVAR	AMPS	LDNG.	DROP	KWATTS :
0.0	1.0	0.400	0	5813	OSP		290.0	44%	0.5	12.413			290.0	44%	0.5	12.413
1.0	2.0	0.450	3530	5813	OSP		290.0	44%	1.1	13.965			290.0	44%	1.1	13.965
2.0	3.0	0.025	1283	2283	OSP		113.9	17%	1.1	0.120			113.9	17%	1.1	0.120
3.0	4.0	0.030	1000	1000	OSP		49.9	8%	1.1	0.028			49.9	8%	1.1	0.028

TOTAL 0.905 5813

26.526

26.526

SYSTEM SUMMARY

EXISTING	PROPOSED	BENEFIT

Line Losses	=	26.5 KW	26.5 KW	0.0 KW
Transformation Losses	=	0.0 KW	0.0 KW	0.0 KW
Total Power Losses	=	26.5 KW	26.5 KW	0.0 KW
% Power Losses	=	1 %	1 %	0 %
Annual Energy Loss	=	100404.4 KWH	100404.4 KWH	0.0 KWH
% Annual Energy Loss	=	0 %	0 %	0 %

OSP - 660A.

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

LOAD FLOW ANALYSIS FOR - 11KV RSEZ Phase-02 Feeder-02 (C:RSEIP2F2)

(HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS = 256.00 AMPS

TOTAL FEEDER DEMAND = 4877 KVA

EXISTING PF = 85 %

BUS VOLTAGE = 11.0 Kv

TOTAL SPOT LOAD DEMAND = 0 KVA

PROPOSED PF = 85 %

FEEDER LOAD FACTOR = 60 %

EXISTING SYSTEM										PROPOSED SYSTEM									
SECTION	TRF.																		
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS			
NODE	NODE	KMTRS	KVA	KVA		KVAR	AMPS	LONG.	DRQP	KWATTS		KVAR	AMPS	LONG.	DRQP	KWATTS			
0.0	1.0	0.468	0	4885	OSP		256.0	39%	0.5	11.318			256.0	39%	0.5	11.318			
1.0	2.0	0.330	2495	4885	OSP		256.0	39%	0.9	7.980			256.0	39%	0.9	7.980			
2.0	3.0	0.342	2390	2390	OSP		125.2	19%	1.1	1.978			125.2	19%	1.1	1.978			
TOTAL		1.140	4885							21.276						21.276			

SYSTEM SUMMARY

	EXISTING	PROPOSED	BENEFIT
Line Losses	= 21.3 KW	21.3 KW	0.0 KW
Transformation Losses	= 0.0 KW	0.0 KW	0.0 KW
Total Power Losses	= 21.3 KW	21.3 KW	0.0 KW
% Power Losses	= 1 %	1 %	0 %
Annual Energy Loss	= 80530.3 KWH	80530.3 KWH	0.0 KWH
% Annual Energy Loss	= 0 %	0 %	0 %

OSP - 660A,

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

WATER AND POWER DEVELOPMENT AUTHORITY RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

LOAD FLOW ANALYSIS FOR - 11KV RSEZ Phase-02 Feeder-3 (C:RSEZP2F3)

(HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS = 289.00 AMPS
BUS VOLTAGE = 11.0 Kv

TOTAL FEEDER DEMAND = 5506 KVA
TOTAL SPOT LOAD DEMAND = 0 KVA
FEEDER LOAD FACTOR = 60 %

EXISTING PF = 85 %
PROPOSED PF = 85 %

FEEDER LOAD PROGN -										BY						
SECTION TRF.						EXISTING SYSTEM				PROPOSED SYSTEM						
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS
NODE	NODE	KMTRS	KVA	KVA	:	KVAR	AMPS	LONG.	DROP	KWATTS	:	KVAR	AMPS	LONG.	DROP	KWATTS
0.0	1.0	0.468	0	5518	OSP		289.0	44%	0.6	14.423			289.0	44%	0.6	14.423
1.0	2.0	0.445	1330	5518	OSP		289.0	44%	1.1	13.715			289.0	44%	1.1	13.715
2.0	3.0	0.300	1753	4188	OSP		219.3	33%	1.4	5.324			219.3	33%	1.4	5.324
3.0	4.0	2.500	2435	2435	OSP		127.5	19%	2.8	14.996			127.5	19%	2.8	14.996

TOTAL 3.713 5518

48.458

48.458

SYSTEM SUMMARY

	EXISTING	PROPOSED	BENEFIT
Line Losses	= 48.5 KW	48.5 KW	0.0 KW
Transformation Losses	= 0.0 KW	0.0 KW	0.0 KW
Total Power Losses	= 48.5 KW	48.5 KW	0.0 KW
% Power Losses	= 1 %	1 %	0 %
Annual Energy Loss	= 183403.3 KWH	183403.3 KWH	0.0 KWH
% Annual Energy Loss	= 1 %	1 %	0 %

OSP - 660A,

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

WATER AND POWER DEVELOPMENT AUTHORITY
RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD
 LOAD FLOW ANALYSIS FOR - 11KV RSEZ Phase-02 Feeder-4 (C:RSEIP2F4) (HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS = 276.00 AMPS
 BUS VOLTAGE = 11.0 Kv

TOTAL FEEDER DEMAND = 5259 KVA
 TOTAL SPOT LOAD DEMAND = 0 KVA
 FEEDER LOAD FACTOR = 60 %

EXISTING PF = 85 %
 PROPOSED PF = 85 %

FEEDER LOAD FACTOR - 89%																
SECTION TRF. :						EXISTING SYSTEM :					PROPOSED SYSTEM :					
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS
NODE	NODE	KMTRS	KVA	KVA	:	KVAR	AMPS	LDNG.	DROP	KNATTS	:	KVAR	AMPS	LDNG.	DROP	KNATTS
0.0	1.0	0.400	0	5250	OSP		276.0	42%	0.5	11.244			276.0	42%	0.5	11.244
1.0	2.0	0.250	0	5250	OSP		276.0	42%	0.8	7.027			276.0	42%	0.8	7.027
2.0	3.0	0.425	4070	5250	OSP		276.0	42%	1.3	11.946			276.0	42%	1.3	11.946
3.0	4.0	0.300	1180	1180	OSP		62.0	9%	1.4	0.426			62.0	9%	1.4	0.426
TOTAL		1.375	5250							30.643						30.643

SYSTEM SUMMARY

		EXISTING	PROPOSED	BENFFIT
Line Losses	=	30.6 KW	30.6 KW	0.0 KW
Transformation Losses	=	0.0 KW	0.0 KW	0.0 KW
Total Power Losses	=	30.6 KW	30.6 KW	0.0 KW
% Power Losses	=	1 %	1 %	0 %
Annual Energy Loss	=	115978.1 KWH	115978.1 KWH	0.0 KWH
% Annual Energy Loss	=	0 %	0 %	0 %

OSP - 660A,

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

WATER AND POWER DEVELOPMENT AUTHORITY

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (RSEZDO)
LOAD FLOW ANALYSIS FOR - 11KV RSEZ Phase-02 Feeder-5 (C:RSEZP2F5) (DATE: 27/07/21)

LOAD AMPS = 250.00 AMPS
 BUS VOLTAGE = 11.0 Kv

TOTAL FEEDER DEMAND = 4763 KVA
 TOTAL SPOT LOAD DEMAND = 0 KVA
 FEEDER LOAD FACTOR = 60 %

EXISTING PF = 85 %
 PROPOSED PF = 85 %

SECTION TRF. :						EXISTING SYSTEM :				PROPOSED SYSTEM :					
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT
NODE	NODE	KMTRS	KVA	KVA	:	KVAR	AMPS	LONG.	DROP	KWATTS	:	KVAR	AMPS	LONG.	DROP
0.0	1.0	0.410	0	4764	OSP		250.0	38%	0.4	9.456			250.0	38%	0.4
1.0	2.0	0.250	0	4764	OSP		250.0	38%	0.7	5.766			250.0	38%	0.7
2.0	3.0	0.077	1811	1811	OSP		95.0	14%	0.7	0.256			95.0	14%	0.7
2.0	4.0	0.850	2953	2953	OSP		155.0	23%	1.3	7.535			155.0	23%	1.3

****TOTAL**** 1.587 4764

23.013

23.013

SYSTEM SUMMARY

	EXISTING	PROPOSED	BENEFIT
Line Losses	= 23.0 KW	23.0 KW	0.0 KW
Transformation Losses	= 0.0 KW	0.0 KW	0.0 KW
Total Power Losses	= 23.0 KW	23.0 KW	0.0 KW
% Power Losses	= 1 %	1 %	0 %
Annual Energy Loss	= 87103.7 KWH	87103.7 KWH	0.0 KWH
% Annual Energy Loss	= 0 %	0 %	0 %

OSP - 660A,

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

WATER AND POWER DEVELOPMENT AUTHORITY

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PLC) (Version 1.0)

LOAD FLOW ANALYSIS FOR - 11KV RSEZ Phase-02 Feeder-6 (C:RSEZP2F6)

Date : 27/07/21

LOAD AMPS = 232.00 AMPS
BUS VOLTAGE = 11.0 Kv

TOTAL FEEDER DEMAND = 4420 KVA
TOTAL SPOT LOAD DEMAND = 0 KVA
FEEDER LOAD FACTOR = 60 %

EXISTING PF = 85 %
PROPOSED PF = 85 %

FEEDER LOAD FACTOR = 80 %																
SECTION TRF.					EXISTING SYSTEM					PROPOSED SYSTEM						
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS
NODE	NODE	KMTRS	KVA	KVA		KVAR	AMPS	LDNG.	DROP	KWATTS		KVAR	AMPS	LDNG.	DROP	KWATTS
0.0	1.0	0.468	0	4455	OSP		232.0	35%	0.5	9.295			232.0	35%	0.5	9.295
1.0	2.0	0.210	1059	4455	OSP		232.0	35%	0.7	4.171			232.0	35%	0.7	4.171
2.0	3.0	0.600	0	3396	OSP		176.9	27%	1.2	6.928			176.9	27%	1.2	6.928
3.0	4.0	0.100	0	3396	OSP		176.9	27%	1.3	1.155			176.9	27%	1.3	1.155
4.0	5.0	0.490	3396	3396	OSP		176.9	27%	1.7	5.658			176.9	27%	1.7	5.658

TOTAL 1.868 4455

27.207

27.207

SYSTEM SUMMARY

	EXISTING	PROPOSED	BENEFIT
Line Losses	= 27.2 KW	27.2 KW	0.0 KW
Transformation Losses	= 0.0 KW	0.0 KW	0.0 KW
Total Power Losses	= 27.2 KW	27.2 KW	0.0 KW
% Power Losses	= 1 %	1 %	0 %
Annual Energy Loss	= 102975.1 KWH	102975.1 KWH	0.0 KWH
% Annual Energy Loss	= 1 %	1 %	0 %

OSP - 660A,

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

WATER AND POWER DEVELOPMENT AUTHORITY RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

LOAD FLOW ANALYSIS FOR - 11KV RSEZ Phase-02 Feeder-7 (C:RSEZP2F7)

(HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS = 240.00 AMPS

TOTAL FEEDER DEMAND = 4573 KVA

EXISTING PF = 85 %

BUS VOLTAGE = 11.0 Kv

TOTAL SPOT LOAD DEMAND = 0 KVA

PROPOSED PF = 85 %

FEEDER LOAD FACTOR = 60 %

SECTION TRF.						EXISTING SYSTEM						PROPOSED SYSTEM					
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS	
NODE	NODE	KMTRS	KVA	KVA		KVAR	AMPS	LDNG	DROP	KNATTS		KVAR	AMPS	LDNG	DROP	KNATTS	
0.0	1.0	0.425	1	4588	OSP		240.0	36%	0.4	9.033			240.0	36%	0.4	9.033	
1.0	2.0	0.800	0	3282	OSP		171.7	26%	1.0	8.703			171.7	26%	1.0	8.703	
1.0	5.0	0.202	0	1305	OSP		68.3	10%	0.5	0.348			68.3	10%	0.5	0.348	
2.0	3.0	0.300	1753	3282	OSP		171.7	26%	1.2	3.264			171.7	26%	1.2	3.264	
3.0	4.0	0.025	1529	1529	OSP		80.0	12%	1.2	0.059			80.0	12%	1.2	0.059	
5.0	6.0	0.150	1305	1305	OSP		68.3	10%	0.5	0.258			68.3	10%	0.5	0.258	

TOTAL 1,902 4588

21.665

21.665

SYSTEM SUMMARY

		EXISTING	PROPOSED	BENEFIT
Line Losses	=	21.7 KW	21.7 KW	0.0 KW
Transformation Losses	=	0.0 KW	0.0 KW	0.0 KW
Total Power Losses	=	21.7 KW	21.7 KW	0.0 KW
% Power Losses	=	1 %	1 %	0 %
Annual Energy Loss	=	82017.6 KWH	82017.6 KWH	0.0 KWH
% Annual Energy Loss	=	0 %	0 %	0 %

OSP - 660A,

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

WATER AND POWER DEVELOPMENT AUTHORITY
RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD
 LOAD FLOW ANALYSIS FOR - 11KV RSEZ Phase-02 Feeder-8 (C:RSEZP2F8) (HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS = 288.00 AMPS
 BUS VOLTAGE = 11.0 Kv

TOTAL FEEDER DEMAND = 5487 KVA
 TOTAL SPOT LOAD DEMAND = 0 KVA
 FEEDER LOAD FACTOR = 60 %

EXISTING PF = 85 %
 PROPOSED PF = 85 %

FEEDER LOAD FACTOR																
SECTION TRF.						EXISTING SYSTEM					PROPOSED SYSTEM					
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS
NODE	NODE	KMTRS	KVA	KVA		KVAR	AMPS	LDNG.	DROP	KWATTS		KVAR	AMPS	LDNG.	DROP	KWATTS
0.0	1.0	0.300	0	5560	OSP		288.0	44%	0.4	9.182			288.0	44%	0.4	9.182
1.0	2.0	0.050	1588	3902	OSP		202.1	31%	0.4	0.754			202.1	31%	0.4	0.754
1.0	7.0	0.040	1658	1658	OSP		85.9	13%	0.4	0.109			85.9	13%	0.4	0.109
2.0	3.0	0.050	0	2314	OSP		119.9	18%	0.4	0.265			119.9	18%	0.4	0.265
3.0	4.0	0.700	1564	1564	OSP		81.0	12%	0.6	1.695			81.0	12%	0.6	1.695
3.0	5.0	0.202	0	750	OSP		38.8	6%	0.4	0.112			38.8	6%	0.4	0.112
5.0	6.0	0.300	750	750	OSP		38.8	6%	0.4	0.167			38.8	6%	0.4	0.167

TOTAL 1.642 5560

12.284

12.284

S Y S T E M S U M M A R Y

EXISTING	PROPOSED	BENEFIT

Line Losses	=	12.3 KW	12.3 KW	0.0 KW
Transformation Losses	=	0.0 KW	0.0 KW	0.0 KW
Total Power Losses	=	12.3 KW	12.3 KW	0.0 KW
% Power Losses	=	0 %	0 %	0 %
Annual Energy Loss	=	46516.9 KWH	46516.9 KWH	0.0 KWH
% Annual Energy Loss	=	0 %	0 %	0 %

OSP - 660A,

S' Indicates Spot Load.

*' Indicates Voltage Drop above 5 %

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (BOT) LTD R I T Y

LOAD FLOW ANALYSIS FOR - 11KV RSEZ Phase-02 Feeder-9 (C:RSEZP2F9)

(HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS : 285.00 AMPS
BUS VOLTAGE : 11.0 Kv

TOTAL FEEDER DEMAND : 5430 KVA
TOTAL SPOT LOAD DEMAND : 0 KVA
FEEDER LOAD FACTOR : 60 %

EXISTING PF : 85 %
PROPOSED PF : 85 %

SECTION TRF.					EXISTING SYSTEM					PROPOSED SYSTEM						
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS
: NODE	: NODE	: KMTRS	: KVA	: KVA	:	: KVAR	: AMPS	: LDNG.	: DROP	: KNATTS	:	: KVAR	: AMPS	: LDNG.	: DROP	: KNATTS
0.0	1.0	0.575	0	5422	OSP		285.0	43%	0.7	17.234			285.0	43%	0.7	17.234
1.0	2.0	0.400	1364	5422	OSP		285.0	43%	1.2	11.989			285.0	43%	1.2	11.989
2.0	3.0	0.285	2329	4058	OSP		213.3	32%	1.5	4.785			213.3	32%	1.5	4.785
3.0	4.0	0.550	1729	1729	OSP		90.9	14%	1.7	1.677			90.9	14%	1.7	1.677
TOTAL		1.810	5422							35.685						35.685

SYSTEM SUMMARY

EXISTING	PROPOSED	BENEFIT

Line Losses	=	35.7 KW	35.7 KW	0.0 KW
Transformation Losses	=	0.0 KW	0.0 KW	0.0 KW
Total Power Losses	=	35.7 KW	35.7 KW	0.0 KW
% Power Losses	=	1 %	1 %	0 %
Annual Energy Loss	=	135066.2 KWH	135066.2 KWH	0.0 KWH
% Annual Energy Loss	=	1 %	1 %	0 %

OSP - 660A.

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

WATER AND POWER DEVELOPMENT AUTHORITY

LOAD FLOW ANALYSIS FOR - 11KV RSEI Phase-03Feeder-1 (C:RSEI03F1)

(HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS = 242.00 AMPS

TOTAL FEEDER DEMAND = 4611 KVA

EXISTING PF = 85 %

BUS VOLTAGE = 11.0 Kv

TOTAL SPOT LOAD DEMAND = 0 KVA

PROPOSED PF = 85 %

FEEDER LOAD FACTOR = 60 %

EXISTING SYSTEM										PROPOSED SYSTEM						
FROM	TO	SECTION	TRF.	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS
: NODE	: NODE	: KMTS	: KVA	: KVA	: KVAR	: AMPS	: LONG.	: DROP	: KWATTS	: KVAR	: AMPS	: LONG.	: DROP	: KWATTS		
0.0	1.0	0.125	1548	4616	OSP	242.0	37%	0.1	2.701		242.0	37%	0.1	2.701		
1.0	2.0	0.425	2022	3068	OSP	160.8	24%	0.4	4.055		160.8	24%	0.4	4.055		
2.0	3.0	0.083	1046	1046	OSP	54.8	8%	0.4	0.092		54.8	8%	0.4	0.092		
TOTAL		0.633	4616						6.848							6.848

SYSTEM SUMMARY

	EXISTING	PROPOSED	BENEFIT
Line Losses	= 6.8 KW	6.8 KW	0.0 KW
Transformation Losses	= 0.0 KW	0.0 KW	0.0 KW
Total Power Losses	= 6.8 KW	6.8 KW	0.0 KW
% Power Losses	= 0 %	0 %	0 %
Annual Energy Loss	= 25937.7 KWH	25937.7 KWH	0.0 KWH
% Annual Energy Loss	= 0 %	0 %	0 %

WATER AND POWER DEVELOPMENT AUTHORITY

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD (HIGH TENSION ANALYSIS)

LOAD FLOW ANALYSIS FOR - 11KV RSEZ P-03 F-02 (C:RSEZP3F2)

Date : 27/07/21

LOAD AMPS = 319.00 AMPS

TOTAL FEEDER DEMAND = 6078 KVA

EXISTING PF = 85 %

BUS VOLTAGE = 11.0 Kv

TOTAL SPOT LOAD DEMAND = 0 KVA

PROPOSED PF = 85 %

FEEDER LOAD FACTOR = 60 %

FEEDER LOAD FACTOR = 80 %																
SECTION TRF.						EXISTING SYSTEM					PROPOSED SYSTEM					
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS
NODE	NODE	KMTRS	KVA	KVA		KVAR	AMPS	LONG.	DROP	KWATTS		KVAR	AMPS	LONG.	DROP	KWATTS
0.0	1.0	0.325	0	6148	OSP		319.0	48%	0.4	12.204			319.0	48%	0.4	12.204
1.0	2.0	0.240	0	6148	OSP		319.0	48%	0.7	9.012			319.0	48%	0.7	9.012
2.0	3.0	0.050	2892	6148	OSP		319.0	48%	0.8	1.877			319.0	48%	0.8	1.877
3.0	4.0	0.400	2256	3256	OSP		168.9	26%	1.1	4.211			168.9	26%	1.1	4.211
4.0	5.0	0.350	1000	1000	OSP		51.9	8%	1.2	0.348			51.9	8%	1.2	0.348

TOTAL 1.365 6148

27.652

27.652

SYSTEM SUMMARY

	EXISTING	PROPOSED	BENEFIT
Line Losses	= 27.7 KW	27.7 KW	0.0 KW
Transformation Losses	= 0.0 KW	0.0 KW	0.0 KW
Total Power Losses	= 27.7 KW	27.7 KW	0.0 KW
% Power Losses	= 1 %	1 %	0 %
Annual Energy Loss	= 104666.7 KWH	104666.7 KWH	0.0 KWH
% Annual Energy Loss	= 0 %	0 %	0 %

OSP - 660A,

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

WATER AND POWER DEVELOPMENT AUTHORITY RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

LOAD FLOW ANALYSIS FOR - 11KV RSEZ P-03 F-03 (C:RSEZP3F3)

(HIGH TENSION ANALYSIS)

Date : 21/07/21

LOAD AMPS = 244.00 AMPS
BUS VOLTAGE = 11.0 Kv

TOTAL FEEDER DEMAND = 4649 KVA
TOTAL SPOT LOAD DEMAND = 0 KVA
FEEDER LOAD FACTOR = 60 %

EXISTING PF = 85 %
PROPOSED PF = 85 %

FEEDER LOAD FACTOR = 80 %																	
SECTION TRF. :								EXISTING SYSTEM :				PROPOSED SYSTEM :					
FROM TO		LENGTH	SIZE	CUM :	COND	CAP.	CURRENT	%	%VOLT	LOSS :	COND	CAP.	CURRENT	%	%VOLT	LOSS :	
: NODE	MODE	KNTRS	KVA	KVA :		KVAR	AMPS	LONG	DROP	KNATTS :		KVAR	AMPS	LONG	DROP	KNATTS :	
0.0	1.0	1.750	0	4670	OSP		244.0	37%	1.8	38.445			244.0	37%	1.8	38.445	
1.0	2.0	0.110	1610	4670	OSP		244.0	37%	1.9	2.417			244.0	37%	1.9	2.417	
2.0	3.0	0.225	3060	3060	OSP		159.9	24%	2.1	2.123			159.9	24%	2.1	2.123	
TOTAL		2.085	4670							42.985						42.985	

SYSTEM SUMMARY

EXISTING		PROPOSED		BENEFIT	
Line Losses	=	43.0 KW	43.0 KW	0.0 KW	
Transformation Losses	=	0.0 KW	0.0 KW	0.0 KW	
Total Power Losses	=	43.0 KW	43.0 KW	0.0 KW	
% Power Losses	=	1 %	1 %	0 %	
Annual Energy Loss	=	162684.1 KWH	162684.1 KWH	0.0 KWH	
% Annual Energy Loss	=	1 %	1 %	0 %	

OSP - 660A,

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

**WATER AND POWER DEVELOPMENT AUTHORITY
RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD**

LOAD FLOW ANALYSIS FOR - 11KV RSEZ P-03 F-04 (C:RSEZP3F4)

(HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS : 301.00 AMPS
BUS VOLTAGE : 11.0 Kv

TOTAL FEEDER DEMAND : 5735 KVA
TOTAL SPOT LOAD DEMAND : 0 KVA
FEEDER LOAD FACTOR : 60 %

EXISTING PF : 85 %
PROPOSED PF : 85 %

FREQUENCY LOAD FACTOR = 80 %																
SECTION TRF.						EXISTING SYSTEM					PROPOSED SYSTEM					
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS
: NODE	: NODE	: KMTRS	: KVA	: KVA	:	: KVAR	: AMPS	: LDNG.	: DROP	: KWATTS	:	: KVAR	: AMPS	: LDNG.	: DROP	: KWATTS
0.0	1.0	1.750	0	5800	OSP		301.0	46%	2.3	58.506			301.0	46%	2.3	58.506
1.0	2.0	0.135	750	5800	OSP		301.0	46%	2.5	4.513			301.0	46%	2.5	4.513
2.0	3.0	0.150	5050	5050	OSP		262.1	40%	2.7	3.802			262.1	40%	2.7	3.802
TOTAL		2.035	5800							66.821						66.821

S Y S T E M S U M M A R Y

	EXISTING	PROPOSED	BENEFIT
Line Losses	= 66.8 KW	66.8 KW	0.0 KW
Transformation Losses	= 0.0 KW	0.0 KW	0.0 KW
Total Power Losses	= 66.8 KW	66.8 KW	0.0 KW
% Power Losses	= 1 %	1 %	0 %
Annual Energy Loss	= 252887.2 KWH	252887.2 KWH	0.0 KWH
% Annual Energy Loss	= 1 %	1 %	0 %

OSP - 660A,

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

WATER AND POWER DEVELOPMENT AUTHORITY
RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD.
 LOAD FLOW ANALYSIS FOR - 11KV RSEZ P-03 F-05 (C:RSEZP3F5) (HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS = 235.00 AMPS	TOTAL FEEDER DEMAND = 4477 KVA	EXISTING PF = 85 %
BUS VOLTAGE = 11.0 kv	TOTAL SPOT LOAD DEMAND = 0 KVA	PROPOSED PF = 85 %
	FEEDER LOAD FACTOR = 60 %	

FEEDER LOAD FACTOR = 0.9																
SECTION TRF.						EXISTING SYSTEM						PROPOSED SYSTEM				
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS
NODE	NODE	KMTRS	KVA	KVA		KVAR	AMPS	LDNG.	DROP	KWATTS		KVAR	AMPS	LDNG.	DROP	KWATTS
0.0	1.0	1.790	4500	4500	OSP		235.0	36%	1.8	36.477			235.0	36%	1.8	36.477
TOTAL		1.790	4500							36.477						36.477

SYSTEM SUMMARY

		EXISTING	PROPOSED	BENEFIT
Line Losses	=	36.5 KW	36.5 KW	0.0 KW
Transformation Losses	=	0.0 KW	0.0 KW	0.0 KW
Total Power Losses	=	36.5 KW	36.5 KW	0.0 KW
% Power Losses	=	1 %	1 %	0 %
Annual Energy Loss	=	138048.2 KWH	138048.2 KWH	0.0 KWH
% Annual Energy Loss	=	1 %	1 %	0 %

OSP - 660A,

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

WATER AND POWER DEVELOPMENT AUTHORITY RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

LOAD ANALYSIS FOR 11KV RSEZ P-03 F-06 (C:RSEZP3F6) (HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS : 339.00 AMPS
BUS VOLTAGE : 11.0 Kv

TOTAL FEEDER DEMAND : 6459 KVA
TOTAL SPOT LOAD DEMAND : 0 KVA
FEEDER LOAD FACTOR : 60 %

EXISTING PF : 85 %
PROPOSED PF : 85 %

SECTION TRF.						EXISTING SYSTEM						PROPOSED SYSTEM					
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS	
: NODE	: NODE	: KMTRS	: KVA	: KVA	:	: KVAR	: AMPS	: LONG.	: DROP	: KWATTS	:	: KVAR	: AMPS	: LONG.	: DROP	: KWATTS	:
0.0	1.0	0.650	6505	6505	OSP		339.0	51%	0.9	27.564			339.0	51%	0.9	27.564	
TOTAL		0.650	6505							27.564						27.564	

SYSTEM SUMMARY

		EXISTING	PROPOSED	BENEFIT
Line Losses	=	27.6 KW	27.6 KW	0.0 KW
Transformation Losses	=	0.0 KW	0.0 KW	0.0 KW
Total Power Losses	=	27.6 KW	27.6 KW	0.0 KW
% Power Losses	=	1 %	1 %	0 %
Annual Energy Loss	=	104318.6 KWH	104318.6 KWH	0.0 KWH
% Annual Energy Loss	=	0 %	0 %	0 %

OSP - 660A,

' Indicates Spot Load.

' Indicates Voltage Drop above 5 %

W A T RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

LOAD FLOW ANALYSIS FOR - 11KV RSEZ P-03 F-07 (C:RSEZP3F7)

(HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS : 243.00 AMPS
BUS VOLTAGE : 11.0 Kv

TOTAL FEEDER DEMAND = 4630 KVA
TOTAL SPOT LOAD DEMAND = 0 KVA
FEEDER LOAD FACTOR = 60 %

EXISTING PF : 85 %
PROPOSED PF : 85 %

EXISTING SYSTEM										PROPOSED SYSTEM									
FROM	TO	SECTION	TRF.	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT
: NODE	: NODE	: KMTRS	: KVA	: KVA	: KVAR	: AMPS	: LDNG.	: DROP	: KWH	: KWH	: KVAR	: AMPS	: LDNG.	: DROP	: KWH	: KWH	: KVAR	: AMPS	: LDNG.
0.0	1.0	0.300	0	4639	DSP	243.0	37%	0.3	6.537			243.0	37%	0.3	6.537			243.0	37%
1.0	2.0	0.400	1544	1544	DSP	80.9	12%	0.4	0.966			80.9	12%	0.4	0.966			80.9	12%
1.0	3.0	0.215	3095	3095	DSP	162.1	25%	0.4	2.085			162.1	25%	0.4	2.085			162.1	25%

TOTAL 0.915 4639

9.588

9.588

SYSTEM SUMMARY

		EXISTING	PROPOSED	BENEFIT
Line Losses	=	9.6 KW	9.6 KW	0.0 KW
Transformation Losses	=	0.0 KW	0.0 KW	0.0 KW
Total Power Losses	=	9.6 KW	9.6 KW	0.0 KW
% Power Losses	=	0 %	0 %	0 %
Annual Energy Loss	=	36299.2 KWH	36299.2 KWH	0.0 KWH
% Annual Energy Loss	=	0 %	0 %	0 %

OSP - 660A,

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

WATER AND POWER DEVELOPMENT AUTHORITY

RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD

LOAD FLOW ANALYSIS FOR - 11KV RSEZ P-03 F-08 (C:RSEZP3F8)

(HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS = 185.00 AMPS

TOTAL FEEDER DEMAND = 3525 KVA

EXISTING PF = 85 %

BUS VOLTAGE = 11.0 KV

TOTAL SPOT LOAD DEMAND = 0 KVA

PROPOSED PF = 85 %

FEEDER LOAD FACTOR = 60 %

SECTION TRF. :						EXISTING SYSTEM :					PROPOSED SYSTEM :					
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS
NODE	NODE	KMTRS	KVA	KVA	:	KVAR	AMPS	LONG	DROP	KNATTS	:	KVAR	AMPS	LONG	DROP	KNATTS
0.0	1.0	0.325	0	3770	OSP		185.0	28%	0.3	4.104			185.0	28%	0.3	4.104
1.0	2.0	0.240	0	3770	OSP		185.0	28%	0.5	3.031			185.0	28%	0.5	3.031
2.0	3.0	0.432	2770	3770	OSP		185.0	28%	0.8	5.456			185.0	28%	0.8	5.456
3.0	4.0	0.975	1000	1000	OSP		49.1	7%	1.0	0.867			49.1	7%	1.0	0.867

TOTAL 1.972 3770

13.458

13.458

SYSTEM SUMMARY

	EXISTING	PROPOSED	BENEFIT
Line Losses	= 13.5 KW	13.5 KW	0.0 KW
Transformation Losses	= 0.0 KW	0.0 KW	0.0 KW
Total Power Losses	= 13.5 KW	13.5 KW	0.0 KW
% Power Losses	= 0 %	0 %	0 %
Annual Energy Loss	= 50943.8 KWH	50943.8 KWH	0.0 KWH
% Annual Energy Loss	= 0 %	0 %	0 %

OSP - 660A,

'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

WATER AND POWER DEVELOPMENT AUTHORITY
RASHAKAI SPECIAL ECONOMIC ZONE DEVELOPMENT AND OPERATION COMPANY (PVT) LTD
 LOAD FLOW ANALYSIS FOR - 11KV RSEZ P-03 F-09 (C:RSEZP3F9) (HIGH TENSION ANALYSIS)

Date : 27/07/21

LOAD AMPS = 176.00 AMPS
 BUS VOLTAGE = 11.0 Kv

TOTAL FEEDER DEMAND = 3353 KVA
 TOTAL SPOT LOAD DEMAND = 0 KVA
 FEEDER LOAD FACTOR = 60 %

EXISTING PF = 85 %
 PROPOSED PF = 85 %

SECTION TRF.					EXISTING SYSTEM					PROPOSED SYSTEM						
FROM	TO	LENGTH	SIZE	CUM	COND	CAP.	CURRENT	%	%VOLT	LOSS	COND	CAP.	CURRENT	%	%VOLT	LOSS
NODE	NODE	KMTRS	KVA	KVA	:	KVAR	AMPS	LDNG	DROP	KWATTS	:	KVAR	AMPS	LDNG	DROP	KWATTS
0.0	1.0	0.325	0	3370	OSP		176.0	27%	0.2	3.715			176.0	27%	0.2	3.715
1.0	2.0	0.240	0	3370	OSP		176.0	27%	0.4	2.743			176.0	27%	0.4	2.743
2.0	3.0	0.600	1685	3370	OSP		176.0	27%	0.9	6.858			176.0	27%	0.9	6.858
3.0	4.0	0.100	1685	1685	OSP		88.0	13%	0.9	0.286			88.0	13%	0.9	0.286

****TOTAL**** 1.265 3370

13.602

13.602

S Y S T E M S U M M A R Y

		EXISTING	PROPOSED	BENEFIT
Line Losses	=	13.6 KW	13.6 KW	0.0 KW
Transformation Losses	=	0.0 KW	0.0 KW	0.0 KW
Total Power Losses	=	13.6 KW	13.6 KW	0.0 KW
% Power Losses	=	0 %	0 %	0 %
Annual Energy Loss	=	51489.5 KWH	51489.5 KWH	0.0 KWH
% Annual Energy Loss	=	0 %	0 %	0 %

OSP - 660A,

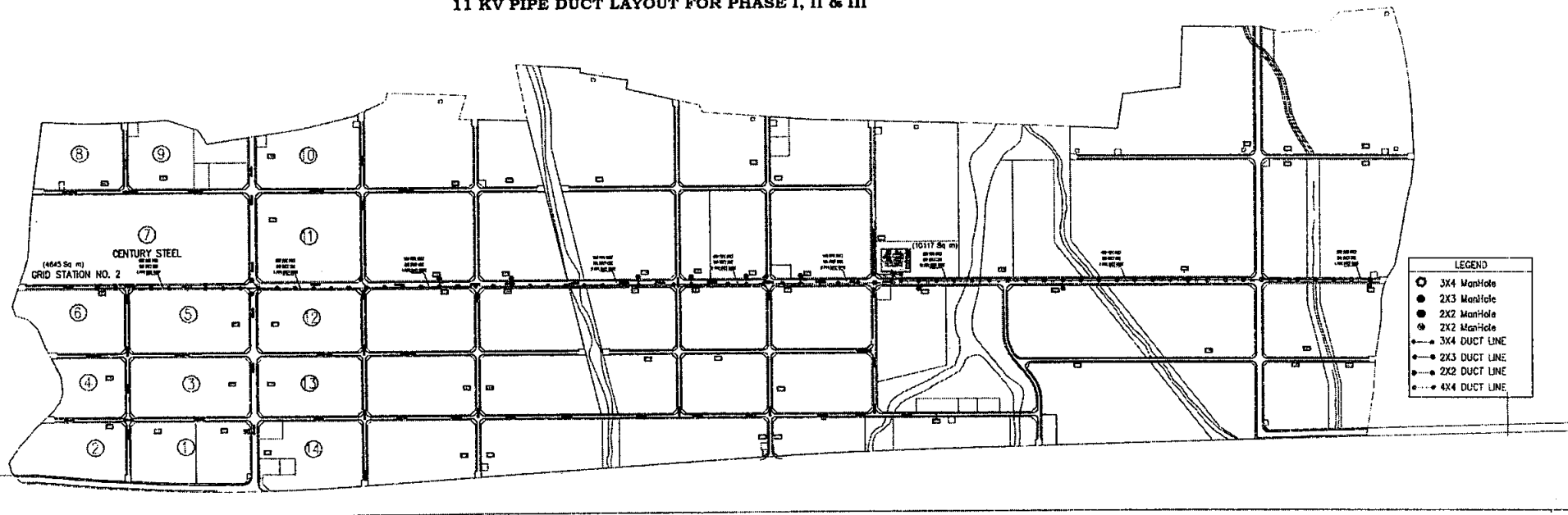
'S' Indicates Spot Load.

'*' Indicates Voltage Drop above 5 %

**COMPLETE LAYOUT OF
11KV NETWORK**

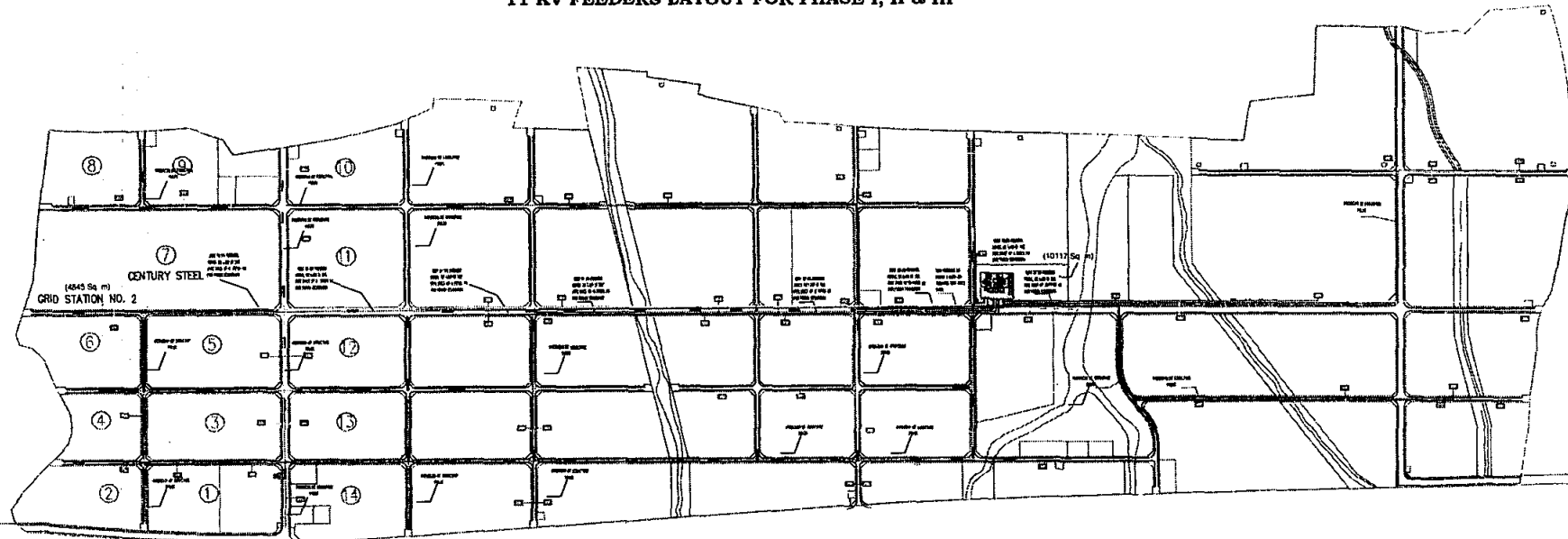
HT DISTRIBUTION NETWORK FOR RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)

11 KV PIPE DUCT LAYOUT FOR PHASE I, II & III



HT DISTRIBUTION NETWORK FOR RASHAKAI SPECIAL ECONOMIC ZONE (RSEZ)

11 KV FEEDERS LAYOUT FOR PHASE I, II & III





NATIONAL TRANSMISSION & DESPATCH COMPANY LTD

CHIEF ENGINEER DESIGN (NTDCL)

No.CED/NTDC/MGS/G/22/

15892-94

Dated: 25/11/2021

✓
Chief Executive Officer, Rashakai
Special Economic Zone Development
And Operations Company Private Limited
House # 02, Street No.33, F-8/1, Islamabad

Subject: CONTOUR APPROVAL/VETTING OF CONSTRUCTION DRAWINGS
FOR 132KV GRID STATIONNO.01 (120MW) & 132KV GRID
STATION-II (90 MW) JOB NO.1804-N: RASHKAI SPECIAL
ECONOMIC ZONE

Ref: - i) Your letter No. RSEZDOC/HO/2021/105 dated 23.11.2021
ii) Your letter No. RSEZDOC/HO/2021/103 dated 16.11.2021

With reference to your letter at Ref[i], the following drawings of the subject work have been reviewed and one copy of the same duly approved with remarks marked in red thereon, to be incorporated is enclosed herewith for further necessary action.

Sr.No	Description	Drawing No.
1	Single Line Diagram	GW-2019-0001-132KV-ES001
2	General Layout Plan	GW-2019-0001-132KV-Z01

Approval from this office does not relieve the Contractor from his responsibility to do the work in accordance with the contract.

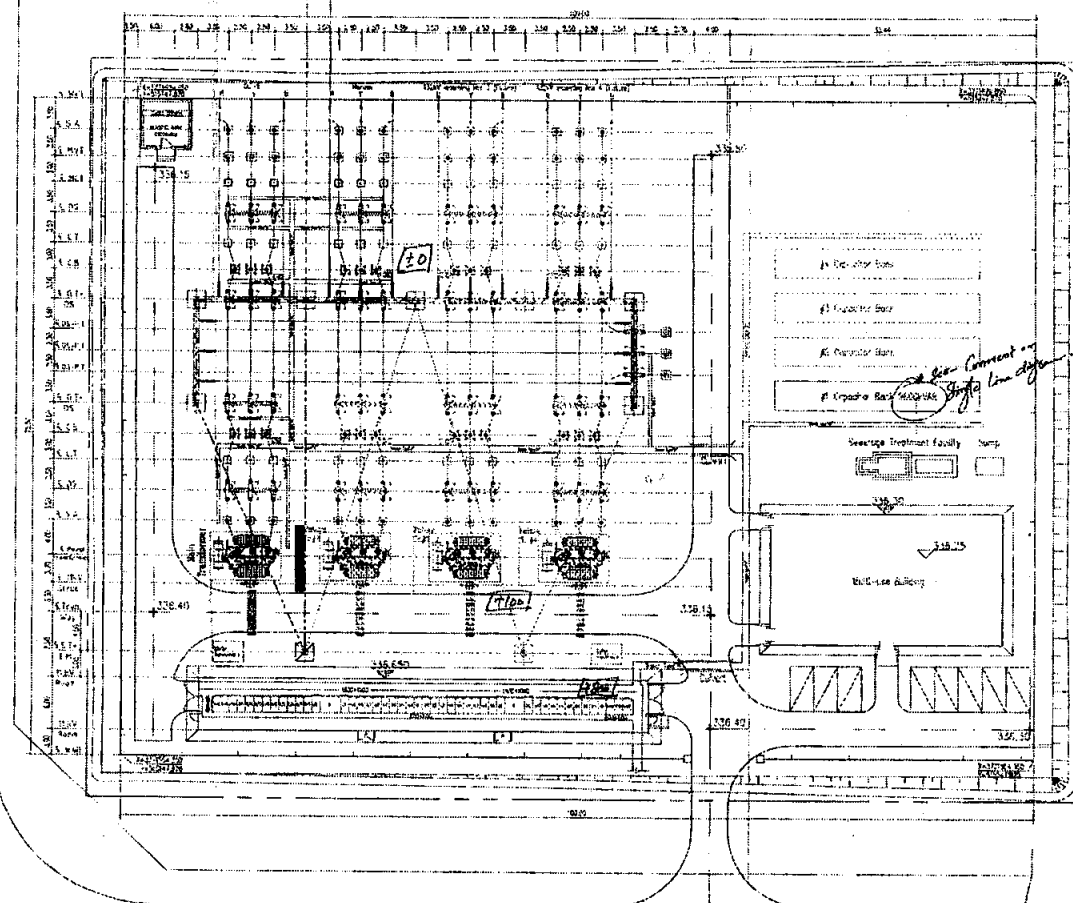
In case of any incompatibility in drawings with the actual site conditions, the case may please be referred to this office for remedial measure/advice prior to start of the work.

D.A as Above
Copy to:

MANAGER DESIGN (GS) NTDC

- 1- Chief Executive Officer, PESCO, Peshawar
- 2- Chief Engineer (Dev.) PMU PESCO Peshawar
- Master File/ Relevant file

Spec. for installation of reaction power construction
by field of accompanied by substation site to be checked.



LAND OF SUBSTATION

No.	Description	Unit	Quantity
1	Area of substation land	m ²	7550.00
2	Area of substation land	m ²	6162.78

LEGENDS

No.	Name	Designation	Symbol
1	Large Reactor	SA	⊙
2	Measuring Voltage Transformer	MVT	⊕
3	Measuring Current Transformer	MCT	⊕
4	Disconnector, Single Ground	QTC	⊕
5	Current Transformer	CT	⊕
6	Small Reactor	CB	⊕
7	Capacitor	CT	⊕
8	Earth Mat	EM	⊕
9	Station Transformer	ST	⊕
10	Building		⊕
11	Wall and Gate		⊕
12	Building Ground Elevation		⊕
13	Location of Outlets		⊕
14	Land using Boundary		⊕
15	Site Slope		⊕
16	Road		⊕
17	Substation architecture		⊕
18	Shield Wire		⊕

Notes:-

1. This drawing is designed according to the surveying and mapping map provided by the owner.
2. From concrete base and shall be used for access road and on-site road.
3. The coordinates and dimensions in the figure are in meters.
4. For Switchyard Area dimensions/details, please refer to Switch Yard Layout and Section Drawing.
5. If there is any confusion or if drawings is not clear matter should be referred to Designer prior to execution.
6. The Slope shown in Grey Color is reserved for future Scope.
7. 20 feet shall be provided in substation area and it shall be defined between above the external road level.
8. Grade of C.B.R. equipment foundations, boundary wall, roads, and other shall be defined as shall be confirmed to final 20 feet.
9. Terms & Conditions of Price as per Road Section/Official Technical Reference shall be incorporated.
10. Detail Check for Protection of substation equipment foundations, check for fire, flood, lightning and other details shall be done in Official Reference.

APPROVED COMPANY

CHINA ROAD AND BRIDGE CORPORATION

1322KV STEP-DOWN STATION PROJECT OF RASHKANI SPECIAL ECONOMIC ZONE IN KP, PAKISTAN

1322KV GS-1 SUBSTATION GENERAL LAYOUT

Date	2023-11	Drawn By	As Spec	Checked By	As Spec	Drawn By	As Spec
Approved By	As Spec	Reviewed By	As Spec	Checked By	As Spec	Drawn By	As Spec

THE EXPECTED LIFE OF THE SYSTEM

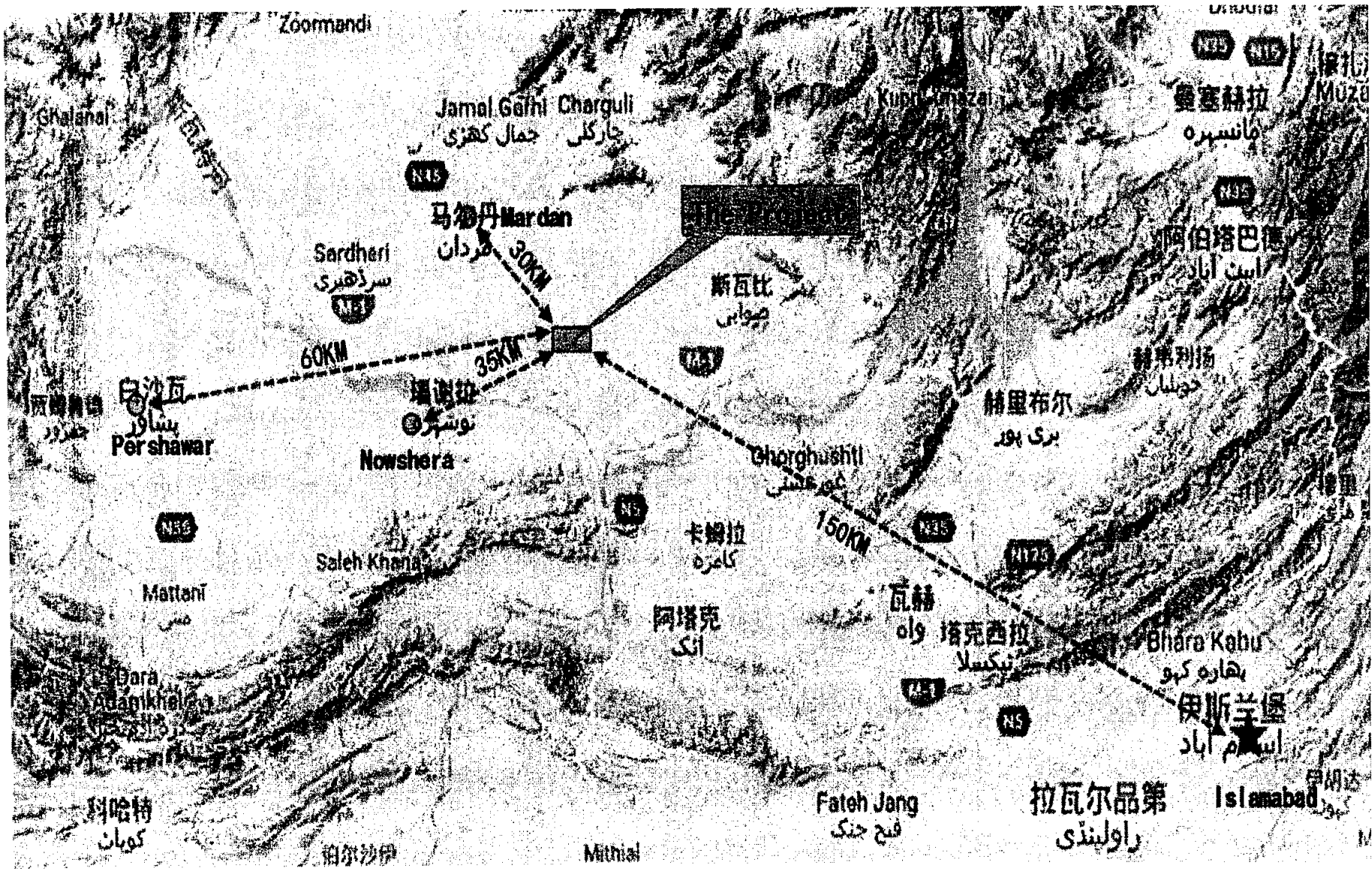
The expected life of the system will be approximately **30 years**.

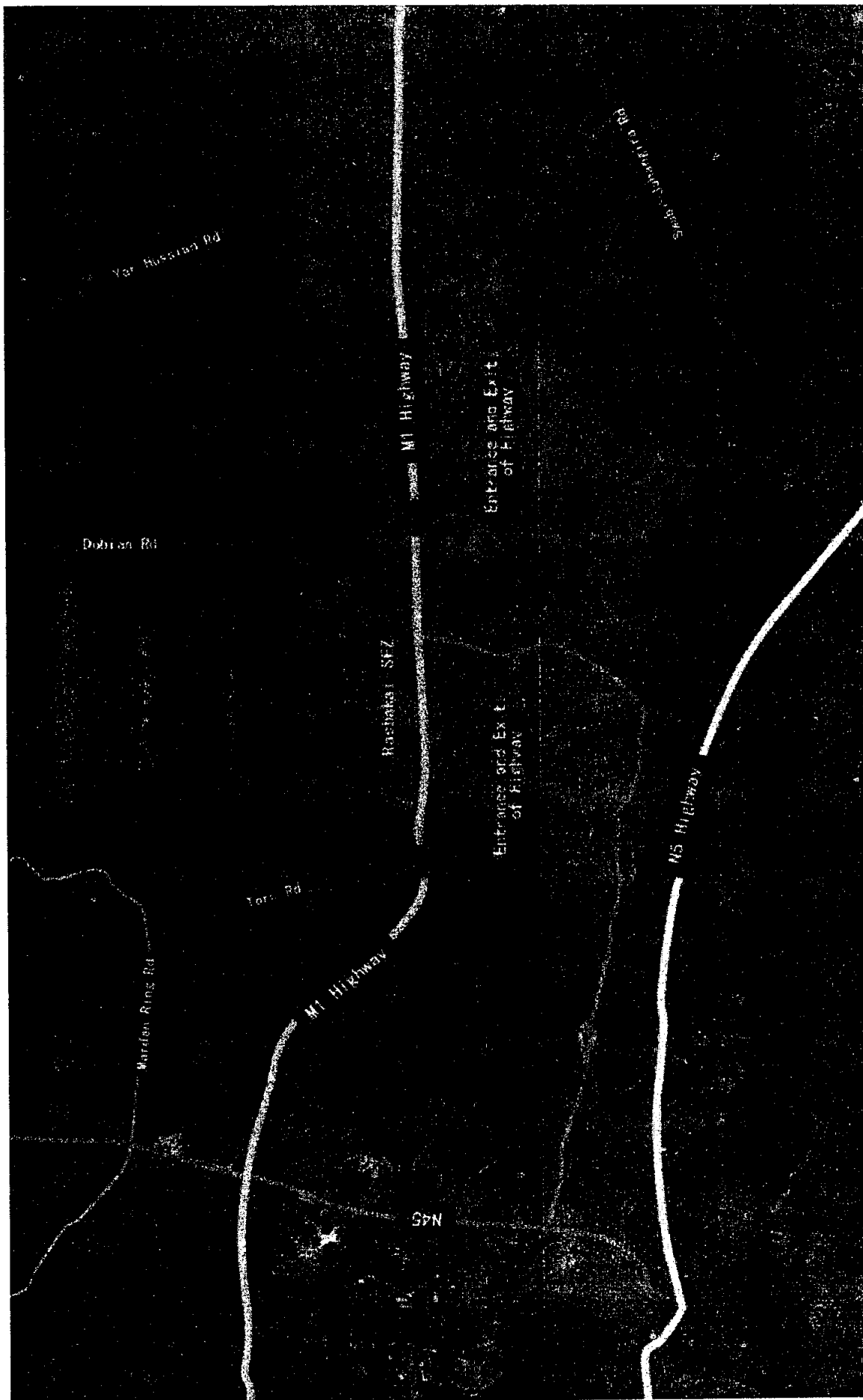
**THE LOCATION OF THE SYSTEM, OR THE TERRITORY WITH OUTER BOUNDARIES
WITHIN WHICH THE SYSTEM IS PROPOSED TO BE INSTALLED AND OPERATED BY
THE LICENSEE, ALONG WITH MAPS AND PLANS**

The RSEZ is adjacent to the Kernal Sher Khan interchange on M-1, which is the main motorway linking Peshawar with Islamabad and CPEC alignments. The RSEZ is also 30 km from Mardan in the north, 35 km from Nowshera in the south, 40 km from Peshawar in the west, and 150 km to Islamabad in the east, which enjoys a unique location advantage. RSEZ is located in the northwest of Hattar SEZ, where the linear distance is about 73 km.

Micro and macro maps of the RSEZ are provided herein below.

Further, land documents pertaining to the acquisition and possession of the service territory (1000 Acres of land) is provided herein below.







Office of the
Tehsildar Jehangira

(Phone No.0923-510229, E-mail: ACJehangira337@gmail.Com)

No. 19 /Teh/Jeh/2019
29 March, 2019

To

Li Zhihuai

General Manager

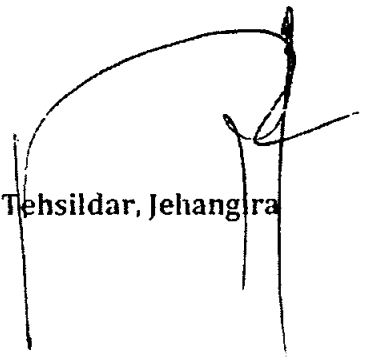
China Road and Bridge Corporation (Pakistan),

House No 2 Street No 33 F-8/1, Islamabad, 44000, Pakistan.

Sub: Non- Encumbrance Certificate (NEC) for the Rashakai SEZ Land (RSEZ)

With reference to the above subject, we would like to submit the Non-Encumbrance Certificate (NEC) for the Rashakai SEZ land. The Project Land is not subject to any encumbrances or legal disputes other than the existing Court cases related to the Enhance Price of the land. The Khyber Pakhtunkhwa Economic Zone Development and Management Company filed an appeal before the Hon'ble Peshawar High Court against the Enhance Price of the subject land.

The land has been acquired through Land Acquisition Act 1894 vide Award Notification order dated 28-05-2010 by fulfilling all the legal and codel formalities .The land Measuring approximately 1000 Acres Expansion of Nowshera Industrial Estate at Misri Banda, Mishak, Ali Muhammad and Mughalki on Peshawar Islamabad Motorway (M-1) District Nowshera .


Tehsildar, Jehangira



**KHYBER PAKHTUNKHWA
ECONOMIC ZONES DEVELOPMENT
& MANAGEMENT COMPANY**

Ref No: KPEZDMC/RSEZ/03

Date: 12/17/2018

**The Deputy Commissioner,
Nowshera,
Govt of KPK.**

Subject: Land demarcation of Rashakai special economic zone on urgent basis

Respected Sir,

It is to bring in your kind information that KPEZDMC is in progress to initiate Rashakai Special Economic Zone as per government policy. In this regards KPEZDMC Management had meeting in your office on dated 12/11/2018, KPEZDMC has initally decide to demarcate the land of SPECIAL ECONOMIC ZONE RASHAKAI as per your permission,

Therefore KPEZDMC is requesting you to provide all the concerned Halqa Ptwaris one at a time (MisriBanda, Ali Muhammad, Mishak, Mughalki, Nandrak) for land demarcation of all sides with solid reference points and provide security.

KPEZDMC will highly appriciate your prompt action and support.

Your Faithful

Estate Manager Rashakai SEZ

M. Asif Khan

Received
17/12/18



KHYBER PAKHTUNKHWA
Economic Zone Development & Management Company
RESZ.
 Govt. of Khyber Pakhtunkhwa



No. RESZ/Land/

Dated: 15/4 2019.

The Assistant Commissioner
 Jehangiera.

Subject: DEMARICATION OF LAND AT RESZ.

I am directed by the competent authority and to state here that the CRBC (chines based company) are going on to start survey in adjoin land of the acquired 1000-acre land of RESZ. Therefore, it is to request you to please depute the concerned revenue staff (halqa Patwari and Girdawar) to demarcate the boundaries of acquired land measuring 1000 acres of RESZ on urgent basis so as to facilitate the foreigner company in the site work.


 State Manager
 RESZ, KPEZDMC

CC:

1. The DC, Nowshera
2. The MEO, KPEZDMC, Peshawar.
3. PS to CEO, KPEZDMC, Pesh

Tehsildar Jehangiera
Plz carry out the
demarcation by Tomorrow
i.e 17/04/18 and report

Received
16 4-18

16/4
A/S

16/04/18.



Office of the
Deputy Commissioner
Nowshera

(Office Phone#0923-9220099, Fax#0923-9220159, Email: dc@nsrpk@yahoo.com)

13 August, 2018

NOTIFICATION

No. _____ /DK/DC/V.T 2018-19/NSR. In pursuance of Board of Revenue, Revenue & Estate Department, Government of Khyber Pakhtunkhwa letter No. AS(S)3/249/Swabi-P-II/27953-74 dated 17.07.218 and in supersession of this office Notification No.892-912/DK/DC/VT.2017-18/NSR dated 31.07.2017, revised valuation table for the year 2018-19 is notified for District Nowshera @ per Marla for the purpose of evaluation of Stamp Duty/ Mutation fee/ Registration fee as per schedule attached to this notification showing rate of different types of land. The valuation table shall take place with immediate effect and shall remain in force till further orders.

Deputy Commissioner /
District Collector
Nowshera

No. 585-604 /DK/DC/VT 2018-19/NSR. ✓

Copy forwarded for information to the:-

- 1- Senior Member of Revenue, Government of Khyber Pakhtunkhwa, Peshawar.
- 2- Commissioner, Peshawar Division, Peshawar.
- 3- Secretary-I, Board of Revenue, Government of Khyber Pakhtunkhwa, Peshawar.
- 4- Director Land Records, Government of Khyber Pakhtunkhwa, Peshawar.
- 5- District Nazim Nowshera.
- 6- Director General Excise and Taxation, Government of Khyber Pakhtunkhwa, Peshawar.
- 7- Controller, Government Printing press, Peshawar, for publication in next issue of government Gazette.
- 8- Assistant Secretary (Stamps), Board of Revenue, Government of Khyber Pakhtunkhwa, Peshawar w/r to his office letter quoted above.
- 9- Additional Deputy Commissioner, Nowshera.
- 10- Executive Engineer (C&W), Division Nowshera.
- 11- Executive Officer, Cantonment Board, Nowshera/ Risalpur.
- 12- Military Estates Officer, Nowshera.
- 13- Assistant Commissioner, Nowshera/Jehangira.
- 14- All Additional Assistant Commissioner in District Nowshera.
- 15- Tehsil Municipal Officer, Nowshera/Pabbi/Jehangira.
- 16- Account Officer Deputy Commissioner Nowshera & Government Gazette.
- 17- Tehsildar,
Nowshera /Pabbi/Jehangira.
- 18- Naib Tehsildar, Khairabad.
- 19- Sub-Registrar, Nowshera.
- 20- Office Copy.

(From S# 17 to 19) For necessary action & with the
direction to affix at conspicuous places and at
PatwarKhanas for the information of general public.

Deputy Commissioner /
District Collector
Nowshera

IN THE COURT OF DISTRICT OFFICER (R&E) COLLECTOR NOWSHERA.

Award Under Section 11 of the Land Acquisition Act 1894 in respect of the land acquired for the purpose of "Expansion of Nowshera Industrial Estate at Mesri Banda, Meshak, Ali Muhammad and Mughalki on Peshawar Islamabad Motorway District Nowshera.

The Acquiring Department i.e. Srialad Development Authority Govt of Khyber Pukhtoon Khwa has requested vide his letter No. SDANIE/03-A/179-184 dated 19.04.2008 to initiate acquisition proceeding for the land measuring 1000 Acre for "Expansion of Nowshera Industrial Estate at Mesri Banda, Meshak, Ali Muhammad and Mughalki on Peshawar Islamabad Motorway District Nowshera.

Accordingly, Draft Notification U/S-4 of the Land Acquisition Act, 1894 was notified vide this office Notification No. 620-26/DOR/Acq dated 17.06.2008 and copies thereof endorsed to all concerned. List of Khasra numbers as notified/mentioned in the Notification Under Section 4 is attached as Annexure - A.

The Revenue Officer Circle/Tehsildar Nowshera vide memo No.836/DOR/Acq 30.06.2008 was directed to furnish Ausat Yaksala based on the rates of mutations attested from 18.06.2007 to 17.06.2008. The Revenue Officer Circle/ Naib Tehsildar Khairabad has furnished Ausat Yaksala vide his endorsement No. 201/NF dated 27.08.2008. Detail of rates as per Ausat Yaksala is as under:

S.#	Name of muza	Kind of land	Ausat Yaksala	per Kanal
1.	Ali Muhammad	Barani	4528/80	
2.	-do-	Mera	2715/20	
3.	-do-	Nul Chahi	25230/80 (Adj)	
4.	-do-	Banjir Qadeem	3669/20 (Adj)	
5.	-do-	Ghair Mumkin	63200/66 (Adj)	
6.	Meshak	Barani	9559/20	
7.	-do-	Ghair Mumkin	63200/66 (Adj)	
8.	-do-	Nul Chahi	25280/80	
9.	-do-	Mera	14240/30	
10.	Mughalki	Barani	13561/40	
11.	-do-	Ghair Mumkin	66200/66 (Adj)	
12.	-do-	Banjir Qadeem	3659/20	
13.	Mesri Banda	Barani	14693/87	
14.	-do-	Nul Chahi	22784/81	
15.	-do-	Banjir Qadeem	12612/61	
16.	-do-	Mera	11202/76	
17.	-do-	Ghair Mumkin	60230/66	

It is mentioned that the rate of Nul Chahi kind of land has been determined from the adjacent Muza Meshak, whereas the rate of Banjir Qadeem kind of land has been worked out from the adjacent Muza Mughalki, while the rate of Ghair Mumkin kind of land of Muza Ali Muhammad has been carried out from the adjacent Muza Mesri Banda and the rate of Ghair Mumkin kind of land of Muza Meshak has been come out from the adjacent Muza Mesri Banda and the rate of Ghair Mumkin kind of land of Muza Mughalki has been determined from the adjacent Muza Mesri Banda.

ATTESTED
Copying Branch
CC Office Nowshera

18/02/2008

418.

S/O
that
the
ided



A circular official stamp with the text "DEPUTY COMMISSIONER" around the top inner edge and "Newshera" in the center.

In compliance a corrigendum Notification U/S-4 of the LAA, 1894 has been issued vide No. 7800/ORAq dated 16.03.2009 and the land reduced from 12903 Kanal 13 Marla to 8000 Kanal and 13 Marla. Corrigendum Notification U/S-4 of the LAA, 1894 is attached as Annexure -B.

In response the Acquiring Department vide No. SDA/NIE/PCEZ/1684-89 dated 03.08.2009 has furnished a cross cheque No. 6953652 dated 01.08.2009 for an amount of Rs.43000000/- which has been deposited in the Govt Treasury vide challan No. 16 dated 17.08.2009. This office again requested the Acquiring Department vide No. 241/DOR/Acq dated 31.08.2009 to remit the remaining amount i.e. Rs. 4,40,51,283/- so that further proceed in the matter. Consequently the Acquiring Department has sent a cheque No. 7014547 dated 01.09.2009 for an amount of Rs.4,40,51,000/- vide memo No. SDA/NIE/CPEZ/1778-83 dated 03.09.2009, which has also been deposited in the Govt Treasury, vide Challan No.22 dated 10.9.2009.

The Acquiring Department submitted Draft Notification U/S-6 & 17 of the Land Acquisition Act, 1894 for further proceeding. Accordingly, this office signed the said Draft Notification and forwarded it to worthy Commissioner Peshawar Division Peshawar vide this office No.251/DOR&E/Acq dated 16.09.2009 for countersignature and issuance. The worthy Commissioner Peshawar Division Peshawar signed the said Notifications and issued vide No. AC(R)/Pesh/3-17/1874-81 and No. AC(R)/Pesh/3-17/2009-1882-90 dated 09.10.2009 respectively.

This office requested vide No. 279-81/DOR&E/Acq dated 22.10.2009 the Executive District officer (Works & Services), the Executive District officer (Agriculture) and Divisional Forest Officer Nowshera to make spot visit for assessment of the value of Super Structure, Firewood Trees and Fruit Plants erected upon on the proposed land.

Copy to Branch
Office Nowshera

18

2018

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In response, the DFO Peshawar Forest Division Nowshera has intimated vide No. 314/DOR/Acq dated 11.11.2009 that the said area is under the jurisdiction of Mardan Forest Division, therefore the concern office may be contacted in this regard vide No. 968/E dated 05.11.2009. Resultantly, this office requested the Division Forest Officer Mardan Division Mardan for early action.

This office reminded the departments concerned to expedite the assessment process vide this office No. 348/DOR&E/Acq dated 21.12.2009 and No. 349/DOR&E/Acq dated 21.12.2009 but no action has been taken by the concerned departments. Beside this a meeting of all concerned was called on 07.01.2010 in the office of the undersigned and express great concern over the slow process of assessment and directed the participants to expedite the assessment process. Minutes of the meeting issued to all concern vide No. 12/DOR&E/Acq dated 15.01.2010.

Notice U/S-9 (1) of the Land Acquisition Act, 1894 was issued vide this office No. 348/DOR/Acq dated 24.10.2009 wherein the concerned land owners were informed to attend this court on 11.11.2009 personally or through authorized agent to file their claims/objections if any. The land owners of muza Mughalki and Mesri Banda namely Malik Faiz ullah Khan S/O Mir Zaman, Gul Faraz S/O Mirwas Khan, Fazal Wahid, Khawas Khan, Javed Iqbal residents of Muza Mesri Banda attend this court and stated in written that the rate fixed for is meager than the market rate but they have not substantiated their claim through supporting documents. Hence, this court rejected their objections.

It is further added the land owners submitted an application to Chief Minister Khyber Pukhtoon Khwa through the Federal Minister of State for Local Govt. Mr. Masood Abbas Khattak, stating in application that their land may be exempted from acquisition as an agriculture and only source of their income. In this regard a meeting was held with the Chief Minister Khyber Pukhtoon Khwa in presence of Mr. Masood Abbas Khattak as a local MNA of the locality. The Senior Member Board of Revenue, the Commissioner Peshawar Division Peshawar, the District Coordination Officer Nowshera and the undersigned attend the said meeting and it was decided that a spot visit may be made and assure the kind of land, so that the grievances of the land owners may be redressed. In compliance the undersigned visited the area and it was observed that the mostly land is barren and the report furnished by the Field Revenue Staff regarding kind of land is correct and based on fact.

The instant case was initiated on 17.06.2008, as per guidelines every acquisition case has to be completed within (6) months, which took about two years. The Acquiring Department as well as the high-ups pressing hard for passing of award in the best interest of public. Therefore I intend to pass award of land only so far as the award of Super Structure, firewood/fruit trees is concerned it will be announced as and when the assessment process is completed.

To proceed further acquisition proceeding, this office made a request to the Commissioner Peshawar Division Peshawar for grant of approval as the estimated cost of the land is more than five million which is required to be approved from the competent authority vide No. 49/DOR&E/Acq dated 15.03.2010. In response the Commissioner Peshawar Division Peshawar has conveyed the approval vide his letter No. AC (P/D)/Pehs/3-17/2010 dated 16.05.2010.

ATTESTED
Copying Branch
DC Office Nowshera

18-02-2010

Therefore, I hereby announce the award of the land as per detail given below:-

S.No	Name of Muza	Kind of land	Land acquired K M	Rate per kanal	Total amount
1.	Mesri Banda,	Barani	118 01	Rs. 14693/87	Rs. 1734611/35
2.	-do-	Nul Chahi	344 16	Rs. 22784/61	Rs. 7856202/49
3.	-do-	Banjer Qadeem	26 09	Rs. 12612/61	Rs. 333603/53
4.	-do-	Mera.	1733 14	Rs. 11202/76	Rs. 19422225/01
5.	-do-	Ghair Mumkin	38 07	Rs. 60200/66	Rs. 2308695/31
6.	Ali Muhammad.	Barani,	344 00	Rs. 4528/80	Rs. 1557907/20
7.	-do-	Mera	1008 10	Rs. 5715/20	Rs. 5763779/20
8.	-do-	Nul Chahi	562 03	Rs. 25280/80	Rs. 14211601/72
9.	-do-	Banjer Qadeem	44 03	Rs. 5669/20	Rs. 250295/18
10.	-do-	Ghair Mumkin	158 16	Rs. 60200/66	Rs. 9559864/80
11.	Meshak.	Barani	10 15	Rs. 9569/20	Rs. 102868/90
12.	-do-	Ghair Mumkin	81 17	Rs. 60200/66	Rs. 4927424/02
13.	-do-	Nul Chahi	208 00	Rs. 25280/80	Rs. 5258406/40
14.	-do-	Mera	1867 19	Rs. 16240/80	Rs. 30337002/36
15.	Mughalki	Barani	1397 17	Rs. 12561/40	Rs. 18956802/99
16.	-do-	Ghair Mumkin	49 12	Rs. 60200/66	Rs. 2985952/74
17.	-do-	Banjer Qadeem	05 14	Rs. 5669/20	Rs. 32314/14
Total Land			8000 13	Total Rs. 125599558/-	
15% Compulsory Acquisition Charges.					Rs. 18839934/-
2% Mutation fee					Rs. 2511991/-
Khumas Fee.					Rs. 99300/-
Grand Total: Rs. 14,70,51,283/-					

Under the circumstances explained above, I hereby pass an award for Rs. 14,70,51,283/- in respect of the above land. The land owners shall be entitled for their share as entered in the Register Haqdarar-e-Zamin, in the owner ship column, therein.

[Signature]
District Officer,
Rev. & Estate/Collector,
Nowshera

No. 99-106/DOR/Acq/NSR Dated Nowshera the 28/5/2010

Copy forwarded for information to:-

1. The Commissioner Peshawar Division Peshawar.
2. District Coordination Officer, Nowshera.
3. The Secretary Board of Revenue Khyber Pakhtoon Khwa, Peshawar.
4. The Director (P&A) SDA Peshawar.
5. The General Manager (Tech) SDA Peshawar.
6. The Manager (Planning) SDA Peshawar.
7. The Project Manager Nowshera Industrial Estate, Risalpur.
8. The Naib Tehsildar, Khairabad for information. He is also directed to enter & attest mutations in the name of acquiring department and also prepare Acquittance Roli, Naqsha Tajweezi and Field book of the acquired land within one month positively.

Serial No. 65
Name of Applicant
Date of Application
Date of Receiving

ATTESTED

Copying Branch
Office Nowshera

[Signature]
District Officer,
Rev. & Estate/Collector,
Nowshera

18 02 2019

(350)

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S.No.	Name of Muza	Kind of Land	Land to be Acquired		Rate per Kanal
			K	M	
1.	Misri Banda	Banda	118	01	Rs. 14693/87
2.	-do-	Nul Chahi	344	16	Rs.. 22784/81
3.	-do-	Banjir Qadeem	26	09	Rs. 12612/61
4.	-do-	Mera	1733	14	Rs. 11202/76
5.	-do-	Ghair Mumkin	38	07	Rs. 60200/66
			2261	07	-----
6.	Ali Mohammad	Barani	344	00	Rs. 4528/80
7.	-do-	Mera	1008	10	Rs. 5715/20
8.	-do-	Nul Chahi	562	03	Rs. 25280/80
9.	-do-	Banjir Qadeem	44	03	Rs. 5669/20
10.	-do-	Ghair Mumkin	158	16	Rs. 60200/66
			2117	12	-----
11.	Meshak	Barani	10	15	Rs. 9569/20
12.	-do-	Ghair Momkin	81	17	Rs. 60200/66
13.	-do-	Nul Chahi	208	00	Rs. 25280/80
14.	-do-	Mera	1867	19	Rs. 16240/80
			2168	11	-----
15.	Mughalki	Barani	1397	17	Rs. 13561/40
16.	-do-	Ghair Mumkin	49	12	Rs. 60200/66
17.	-do-	Banjir Qadeem	05	14	Rs. 5669/20
			1453	03	-----
	Total		8000	13	
	Total Cost of land		Rs. 125599558/-		
	15% Compulsory Acquisition Charge		Rs. 18839934/-		
	2% Mutation Fee		Rs. 2511991/-		
	Khumas Fee		Rs. 99800/-		
	Grand Total		Rs. 147051283/-		

359 342

OFFICE OF THE DISTRICT COORDINATION OFFICER/ADMINISTRATOR
NOWSHERA

No. 717-20/PS/DCO/NSR/2012

23 February 23, 2012

To:

The Chairman,
Sarhad Development Authority,
Khyber Pakhtunkhwa, Peshawar

Subject: - Joint Application for De-Notification of land acquired for Pak
China Economic Zone Motorway M-1

Enclosed please find herewith a joint application received from residents of Misri Banda, Mughulkai, Ali Muhammad and Mishak, Tehsil and District Nowshera, wherein they have prayed for de-notification of land acquired for the establishment of Pak China Economic Zone along with Motor Way.

Sarhad Development Authority has purchased land for Pak China Economic Zone Motorway M-1 and payment has been made. The land owners were aggrieved against the acquisition of their land and were making frequent request for its de-notification.

The District Government Nowshera agrees with the contention of the land owners and requests that the land acquired for the subject scheme may kindly be de-notified as requested by the residents of the above mentioned villages in their joint application.

Muhammad Ayaz Mandokhel
District Coordination Officer/Administrator
Nowshera

No. & Date Even.

Copy to the: -

1. Commissioner, Peshawar Division, Peshawar.
2. Project Manager, Industrial Estate, Nowshera Risalpur.
3. District Officer, R&E, Nowshera.

District Coordination Officer/Administrator
Nowshera

RECEIVED

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21/3-2012

Q

21/3/12



SARHAD DEVELOPMENT AUTHORITY

Government of Khyber Pakhtunkhwa

P.I.A. Building Arbab Road, Peshawar Cantt: (Pakistan)

Post Box No.172 Fax No.9211605

Tele:9211608 - 9211609

Website: <http://www.sda.org.pk>

No.SDA/D(P&I)/1EN/1365.

Dated 26.06.2013

The Deputy Commissioner/
Land Acquisition Collector,
Nowshera

**SUBJECT:- POSSESSION OF 1000 ACRES LAND AT M-I NEAR RASHAKAI
INTERCHANGE FOR EXPANSION OF NOWSHERA INDUSTRIAL
ESTATE**

Dear Sir,

The Provincial Government had approved a scheme for acquisition of 1000 acres land at M-I near Rashakai Interchange Nowshera for which the SDA has already deposited Rs 147.051 million in 2009 on a/c of acquisition of 1000 acres land. Besides above, the SDA has also deposited Rs 13.508 million for acquisition of 398 kanals and 05 marlas land to provide connectivity to the 1000 acres land through approach road.

The Provincial Government has allocated a sizeable amount in the ADP for 2013-14 for master planning of the said land, keeping in view the importance of the project as the same will promote industrialization and create adequate job opportunities in the province. You are, therefore, requested to kindly direct the Revenue staff to give physical possession of 1000 land to the Industrial Estate Manager Nowshera at the earliest. Moreover, the case for the award of additional area of 398 kanals & 05 marlas land may also kindly be expedited.


Director
(Planning & Implementation)

cc to:

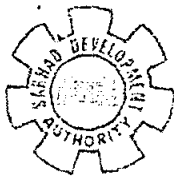
1. General Manager (Planning), SDA, Peshawar with the instructions to follow up the matter with the Deputy Commissioner Nowshera.
2. Industrial Estate Manager Nowshera with the advice to please pursue the matter vigorously.
3. P.S. to Secretary Industries, Commerce & Technical Education Department, Govt. of Khyber Pakhtunkhwa, Peshawar.
4. P.S. to Chairman, Sarhad Development Authority, Peshawar.

RECEIVED
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Nowshera Industrial Estate
SARHAD DEVELOPMENT AUTHORITY
Govt: of Khyber Pakhtunkhwa
Nowshera Mardan Road, Risalpur
Tel/Fax: 0937/880111

No. SDA/IEM/NSR/141-46

Date 25-4-2013

The Deputy Commissioner/Collector,
District Nowshera.

Subject:- MASTER PLANNING OF INDUSTRIAL ESTATE NOWSHERA ALONG
M-1 (1000 ACRES)

I am directed to please refer to G.M (Planning) SDA letter dated 23-04-2013 (copy enclosed) pertaining to taken-over possession of the acquired land measuring 1000 acres along Motorway for the establishment of Pak—China Economic Zone.

It is pertinent to mention that SDA has deposited the entire awarded amount ^{to the Govt of Rs. 147.051 million} i.e cost of acquired land and Award & Mutation has already been issued in favour of Nowshera Industrial Estate, SDA.

It is, therefore, requested to kindly depute the concerned Revenue Staff for demarcation and handing-over the possession of 1000 acres land to SDA management at the earliest, as the Provincial Govt: is pressing hard for early completion of the scheme in order to achieve the desired goal please.

With regards.

Industrial Estate Manager
Nowshera.

Copy to:-

- 1) Director (Finance) SDA.
- 2) Director (Planning & Implementation) SDA.
- 3) Asstt: Commissioner/LAC, Nowshera.
- 4) G.M (Planning) SDA-----w/r to his letter as quoted above please.
- 5) P.S to Chairman, SDA.

Spice 2014

FUEL TYPE AND AVAILABILITY

Fuel type and availability is not applicable/relevant as RSEZDOC will provide grid load to all zone enterprises.

**INFRASTRUCTURE PROJECT COST, FINANCING PLAN, FINANCING TERMS, TARIFF
CALCULATIONS AND ASSUMPTIONS OF FINANCIAL CALCULATIONS INCLUDING
ECONOMIC/FINANCIAL ANALYSIS**

These details will be provided at the time of tariff petition.

THE TYPE AND DETAILS OF THE SERVICES PROPOSED TO BE PROVIDED

Services proposed to be provided shall include professionally handling of all issues relating to:

- i. Un-interrupted power supply to the zone enterprises in RSEZ throughout the year;
- ii. Maintaining quality of power with respect to internal voltage deviation, frequency variation, and harmonics;
- iii. Safety standards and its implementation;
- iv. Operation of electrical system with high reliability & availability;
- v. Maintenance of system with least power outages and durations;
- vi. Customer services;
- vii. Billing after providing power connections to zone enterprises;
- viii. Tariff structuring and management of other tariff related matters and dealing with NEPRA from time to time;
- ix. Preparation of performance reports;
- x. Maintenance of data and records in respect of provision of electrical power services.

THE ENVIRONMENTAL IMPACT OF THE SYSTEM

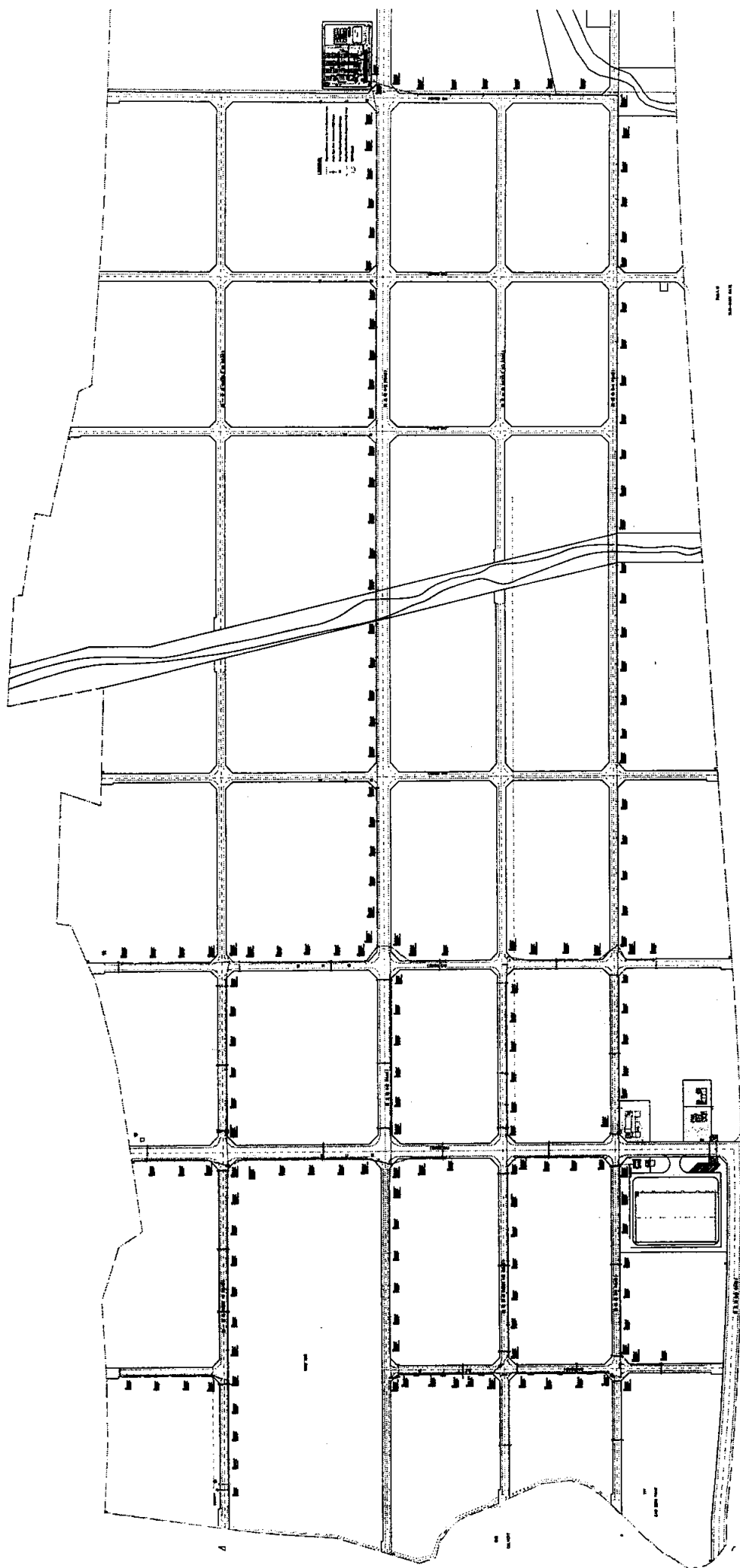
The environment impact is covered within the Environmental Impact Assessment (EIA) of the RSEZ project, as approved, which is appended herein below.

VII.

DETAILS OF THE SUPPLY SYSTEM

RELEVANT FEEDER MAPS

Feeder maps are provided in the External Electrification Design Book of the 11kv distribution network (Annex E-2), on pages 47, 48, 49, 50, 51, and 52 thereof. The complete map is provided herein below.



**CONSUMER CATEGORY ON THE BASIS OF SANCTIONED LOAD AND VOLTAGE
LEVEL AND TARIFF CATEGORY**

The supply of electric power is divided into three phases whereby the sanctioned load for GS-I in Phase-I is approximately 22 MW and the voltage level will be 11kV. Accordingly, there will be two types of consumers receiving power in Phase-I which will be commercial and industrial in nature.

Further, the tariff categories of consumer classes to be served will be specified at time of tariff petition.

12- MONTH PROJECTIONS ON EXPECTED LOAD, NUMBER OF CONSUMERS AND EXPECTED SALE OF UNITS

RSEZ Expected Electricity Consumption for the Year 2023 (Expected Number of Consumers = 7)

Date	2023.1	2023.2	2023.3	2023.4	2023.5	2023.6	2023.7	2023.8	2023.9	2023.10	2023.11	2023.12
Expected electricity consumption (MW)	45	45	45.05	45.05	45.05	45.05	45.05	45.88	45.88	46.59	46.59	47.59

DEMAND AND CONSUMPTION PATTERN ON DIFFERENT TIME PERIODS

SR	INDUSTRY TYPE	POWER KW	ESTIMATED PRODUCTION TIME
1	Food	500	2024.05
2	Steel	45000	2023.1
3	Pharmaceutics	400	2024.1
4	Construction Materials	50	2023.03
5	Mobile Accessories	200	2023.08
6	Plastic	500	2023.10
7	Electrical	210	2023.10
8	Sport	700	2024.04
9	Medical Equipment	600	2024.12

10	Chemical	625	2023.08
11	Mobile	50	2024.10
12	Cable	400	2024.10
13	PVC Pipe	500	2024.02
14	Oxygen	4800	2024.08
15	Plastic	320	2024.10
16	Food	500	2024.12
17	Electric Vehicles	650	2024.06
18	Transformer	1000	2023.12
19	Medical Equipment	1000	2024.06

PROCUREMENT PLAN FOR MEETING EXPECTED LOADS

The RSEZ is developing at a fast pace for which an immediate source of power is necessary. For that reason, the Petitioner aims to procure power from PESCO to meet the expected load. The Petitioner and PESCO will enter into a power purchase agreement for the sale and purchase of electricity, however, the Petitioner may, in the long-term, consider to set up its own generation facility for the RSEZ after providing a reasonable notice to PESCO in accordance with the applicable regulations of NEPRA.

The power procurement plan will meet the expected demands of the various zone enterprises at all times and ensure that there is continuous and uninterrupted supply of electricity to the RSEZ.

ANNEX – F-6

5-YEAR INVESTMENT PLAN INDICATING SCHEMES/MODELS/Framework FOR UNDERTAKING SUPPLY OF ELECTRIC POWER

YEAR	DESCRIPTION	STATUS OF COMPLETION
Year 1-2	Grid station has been constructed having 2 no. line bays and 1 No. Transformer Bay with 40 MVA Transformer complete in all aspects. 11kV distribution network (approx.14km) has been deployed for phase -1 (247 Acre Area) only.	73% completed.
Year 2-3	Construction of GS-II shall be started. One T/f bay shall be constructed in phase-2 to add up one 40 MVA Transformer at GS-I as per expected load demand. 11kV network shall be extended for phase 2. Special Metering system shall be deployed for consumer-end metering.	Proposed.
Year 3-5	Two no. Line bays and T/f bays shall be constructed in phase-3 to add up Two 40 MVA Transformer at GS-I as per expected load demand. 11kV network shall be extended for phase 3.	Proposed.

TRAINING AND DEVELOPMENT PROCEDURES AND MANUALS

- In-house training facilities will be available to train manual labour, technical staff, employees and managers.
- Safety trainings will be conducted as a matter of routine.
- Specialized training for equipment will be given by manufacturers.
- On-job training shall be imparted during construction of the installations.
- Maintenance and operation manuals shall be available to train engineers for following :
 - Overall maintenance and monitoring of the grid station and distribution system.
 - Circuit breakers, operating mechanism testing, routing maintenance.
 - Monitoring and testing of power transformer, current and voltage transformer and routine maintenance.
 - Protection relays.
 - Operations indications, testing including control and indicating instruments.
 - Distribution transformers, switchgear and metering.
 - MV feeders and distribution lines lying and maintenance.
 - Earthing systems and its routine testing and measurement.

CONSUMER SERVICE MANUAL

The Petitioner will adopt and implement the Consumer Service Manual published by NEPRA, as amended from time to time, in letter and spirit. The consumer services department of RSEZDOC will act as a one-stop facilitator for all electricity related issues of the zone enterprises at the RSEZ.

BILLING AND COLLECTION PROCEDURES (INCLUDING PROVISIONS FOR REMOTE METERING)

Meter Reading & Billing

- Meter reading of all the consumers will be carried out on a routine basis each month to record the consumption of energy consumed by each consumer during a given period (billing cycle/billing month);
- The meter reading will be recorded by the concerned staff;
- The meter reading program shall be prepared in such a way that the meters are normally read on the same dates each month;
- Snapshots of meter readings of all consumer categories will be taken. Meter readings are taken through mobile snapshots/hand held units to ensure correct readings. The snapshots of meter reading including Net Metering facility wherever applicable showing import and export units will be printed on electricity bill issued by RSEZDOC;
- Remote metering may be done by automatic remote metering (AMR) along with advance metering infrastructure;
- RSEZDOC shall make available record of snapshots for twelve months for presenting before NEPRA or any other competent forum if required for settlement of billing dispute, raised by any of the zone enterprises;
- Meter Readers shall also check the irregularities/discrepancies in the metering system at the time of reading meters / taking snap shots and report the same in the reading book/discrepancy book or through any other appropriate method as per the practice. The concerned officer/official will take corrective action to rectify these discrepancies;
- If due to any force majeure it is not possible for RSEZDOC take actual meter reading,

the consumer may provide meter reading snap to RSEZDOC for carrying out actual billing or RSEZDOC may issue a provisional bill on average basis i.e. consumption in corresponding month(s) of last year or average consumption of previous eleven months whichever is lower. In such a case, bill along with a slab benefit will be issued as per actual meter reading upon normalization of the situation.

Collection & Payment

- The due date for payment of bills shall be within fifteen (15) days from the issue date of the bills. However, the consumers will have clear seven (7) days from the date of actual delivery of the bill for the purpose of payment. RSEZDOC may develop alternative method for distribution /dispatch of electricity bill electronically;
- The bill distributor of RSEZDOC shall deliver the bills at the premises of the consumers within a day of receipt of the bill for distribution and electricity bill shall also be made available on RSEZDOC's website for downloading and payment;
- Electricity bills can be paid at any Commercial Bank branch at the RSEZ. Online payment and payment through ATM Card/Credit Cards or through cross cheques at designated bank branches can also be made where possible;
- In order to avoid Late Payment Surcharge (LPS), as determined and published by RSEZDOC from time to time, consumers shall pay their bills within due date.

**ABILITY TO ACCESS CONSUMER METERING SYSTEMS AND OTHER
SERVICES/EQUIPMENT**

Please see the above information provided in Annex F-9.

PROPOSED SERVICE TERRITORY

RSEZ is located at the district of Nowshera, KP along the Peshawar-Islamabad Motorway and is 60km away from the city of Peshawar. The service territory is shown at **Annex E-4**.

EMERGENCY PROVISIONS AND PROTOCOLS

- Fire tenders with at least state of art equipment will be available.
- Automatic alarms will be initiated in any emergency conditions.
- SAS system will be used to cut off the lines or consumer supply remotely to minimize the effect of any fire or hazardous situation.
- Ambulances with medical aid will be readily available in case of any medical emergency.
- The communication system will be designed to minimize reporting time to limit loss.

**BASIS OF COMMON SERVICES FOR COMMERCIAL AND RESIDENTIAL
CONSUMERS AND THEIR ALLOCATION THEREOF**

Common services will *inter alia* include provision of uninterrupted electricity supply, preventive and scheduled maintenance, trouble-shooting and scheduled maintenance, and efficacious complaint handling.

Uninterrupted electricity supply:

To provide uninterrupted power supply to customers enabling trade and industry, as well as social activities at RSEZ, RSEZDOC will ensure that the standard quality power supply parameters are as per NTDC and NEPRA specifications.

Preventive and scheduled maintenance:

To keep the electrical power system in safe, stable and reliable operating condition, it is necessary that the system should be operated and maintained properly to retain its each component in or restore it to a state in which it can perform a required function.

Hence, the preventive maintenance will be carried out in accordance with an established time schedule. Scheduled maintenance covers all measures aimed at retaining the design state of the technical equipment and may take place as and when required or at regular/fixed timings.

Scheduled maintenance includes such activities as cleaning and washing, conservation, lubrication and where necessary amending or replacing parts subject to wear and tear.

Scheduled maintenance also involves preparation of maintenance schedules, carrying out the specified work and dealing with feedback relating to this work. It is worth mentioning that an

effective preventive maintenance program always minimizes emergency maintenance breakdowns and damages of infrastructure / grid station equipment.

Trouble Shooting and Non-Scheduled Maintenance:

RSEZDOC will undertake non-scheduled or corrective or emergency maintenance. Non-scheduled maintenance covers all measures aimed at restoring the designed state of the technical equipment belonging to a system. Repair work and part replacement are typical types of corrective maintenance. It also involves planning, handling requests for performing/checking and evaluating the necessary measures (functional tests etc.). To identify the fault in case of power failure, the troubleshooting is done through test instruments and corrective measurements which can be used to help narrow down the problem area and identify the problem components. Once the equipment is repaired/replaced, the power is restored.

Complaint handling:

The complaint in respect of electric supply failures, quality of poor, meter reading and billing, and other matters relating to supply of electric power services will be handled by RSEZDOC expeditiously. The consumer services department of RSEZDOC will act as a one-stop facilitator for all electricity related issues of the zone enterprises at the RSEZ.