HELIOS POWER (Pvt) Ltd.

7th August, 2017

The Registrar
National Electric Power Regulatory Authority
NEPRA Tower Attaturk Avenue (East),
Sector G-5/1, Islamabad.

Subject: Submission of the Tariff Petition of 50 MWp Solar Power Project of Helios Power (Pvt.) Limited

Dear Sir,

We herewith submit the Company's Tariff Petition along with the fee as determined by the National Electric Power Regulatory Authority (**"NEPRA"** or the **"Authority"**) for kind consideration and favorable approval by the Authority in accordance, inter alia, with section-31 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 read with Rule 3 of the National Electric Power Regulatory Authority (Tariff Standards and Procedure) Rules, 1998 and other applicable provisions of NEPRA law.

The Tariff Petition (including its Annexures) is submitted in triplicate together with:

a. The Bank Draft No. 03956341 dated 03rd August, 2017, amounting to PKR 598,304 (Pakistani Rupees Five Hundred Ninety Eight Thousand Three Hundred & Four only) as requisite for fee for Tariff Petition as communicated by NEPRA.

b. Board Resolution of Helios Power (Pvt.) Limited

c. Affidavit of Mr. Usman Ahmad

Yours sincerely,

HELIOS POWER (PVT) LIMITED KARACHI

Usman Ahmad
CEO
Helios Power (Pvt.) Limited

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1. DETAILS OF THE PETITIONER

NAME AND ADDRESS

Helios Power (Pvt.) Limited
G-30/4, KDA Scheme No. 5, Block 8, Clifton, Karachi, Pakistan
TEL: +92 21 111 176 527, +92 21 35360583-4, +92 21 35304863-4
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REPRESENTATIVES OF M/S Helios Power (Pvt.) Limited

Mr. Usman Ahmad
Chief Executive Officer, Helios Power (Private) Limited

PROJECT SPONSORS

1) Scatec Sukhur B.V., a fully owned subsidiary of Scatec Solar ASA, Norway (Scatec)
2) Nizam Energy (Private) Limited, Pakistan (Nizam)

PROJECT ADVISORS

Bridge Factor (Private) Limited	Financial Advisors
Renewable Resources (RE2)	Owner's Engineer
Axis Law Chambers	Legal Advisors

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2. REGULATORY FRAMEWORK LEADING TO TARIFF PETITION

2.1 NATIONAL ELECTRIC POWER REGULATORY AUTHORITY – THE COMPETENT AUTHORITY FOR DETERMINATION OF TARIFF

2.1.1 NEPRA Act & NEPRA Rules

Under the Regulation for Generation, Transmission and Distribution of Electric Power Act (XL of) 1997 (the "**NEPRA Act**"), the National Electric Power Regulatory Authority ("**NEPRA**") is responsible, *inter alia*, for determining tariffs and other terms and conditions for the supply of electricity through generation, transmission and distribution. NEPRA is also responsible for determining the process and procedures for reviewing tariffs and recommending tariff adjustments. Further, pursuant to the enabling provisions of the NEPRA Act, the procedure for tariff determination has been prescribed in the NEPRA (Tariff Standards and Procedure) Rules, 1998 (the "**NEPRA Rules**").

2.2 PROCESS LEADING TO TARIFF PETITION

In compliance with the requirements laid out in the Policy for Development of Renewable Energy for Power Generation 2006 (the **"RE Policy 2006"**) and the Letter of Interest issued by the Energy Department of Government of Sindh (the "**Energy Department**") dated April 30, 2015, (the "**LoI**"), Helios Power (Pvt.) Limited (the **"Project Company"**) completed the Grid Interconnection Study, Environmental Study & detailed Feasibility Study and submitted the same to the respective departments for their review and approvals.

Following completion of detailed review by the respective organizations /departments, the requisite approvals have been issued to the Project Company and following is a summary of the related dates of approvals of the concerned government organizations:

Approvals/Consents	Dates
Letter of Intent (LOI), Government of Sindh	April 30, 2015
Incorporation Certificate, SECP	April, 2015
NTDC Grid Data Permission	October 29, 2015
Grid Interconnection Study Submission	November 5, 2015
1st LOI Extension, GoS	December 26, 2017
Environmental approval	January 6, 2016
Grid Connectivity Approval, SEPCO	March 3, 2017
SEPCO's Interconnection Study Approval and Consent to CPPA-G for Power Purchase from Project Company	March 3, 2017
Feasibility Study Approval, Panel of Experts (**"PoE"**)	March 13, 2017
Approval of Grid Interconnection Study, NTDC	April 4, 2017
NTDC Power Evacuation Certificate	June 20, 2017
2nd LOI Extension, GoS	July 14, 2017

The Generation License Application by the Project Company has been submitted and was admitted by NEPRA on 29th September 2016.

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2.2.1 REQUEST FOR DETERMINATION OF TARIFF

As:

(a) the LOI (duly extended) has been granted by Government of Sindh (**Annexure A**),

(b) land for the project has been allocated (**Annexure B**) by Government of Sindh,

(c) SEPCO has issued Interconnection Study Approval and also given consent to CPPA-G for Power Purchase from the Project Company (**Annexure C**),

(c) grid has been allocated, Power Evacuation Certificate has been issued and interconnection study approved by NTDC (**Annexure D**),

(d) the Project Feasibility Study has been approved by the Energy Department (**Annexure E**),

(e) applicable environmental approvals have been obtained from the Environment Protection Agency, Sindh (**Annexure F**),

(f) binding Engineering Procurement Construction (**"EPC"**) agreements dated May 11, 2017 for supply, construction, erection and commissioning of the project are in place (**Annexure G**),

(h) FMO Entrepreneurial Development Bank (Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden N.V.) has issued financing term sheet for arranging the project debt funding on August 03, 2017(**Annexure H**),

Accordingly, it is submitted that the requirements of the regulatory process for applying to NEPRA for the tariff determination of Helios Power (Pvt.) Limited's 50 MWp power generation facility to be located at U.A. No. 320 Deh Gagro, (near Goth Gagrawara) Taluka Saleh Pat, District Sukkur, Sindh, Pakistan (the **"Project"**) have been completed.

2.3 SUBMISSION

Pursuant to the relevant provisions of the NEPRA Rules, read with the provisions of the NEPRA Act and the Rules and Regulations made there under; and in view of compliance with the applicable requirements, Helios Power (Pvt.) Limited submits herewith before NEPRA, the competent regulatory authority lawfully authorized to determine tariff for solar PV power generation companies, a tariff petition (the **"Tariff Petition"**) for approval of:

(i) the reference generation tariff (the **"Reference Generation Tariff"**);
(ii) the Indexations and Adjustments;
(iii) Adjustments at commercial operations date; and
(iv) other matters set out in this Tariff Petition,

Given the advance stage of the Project, NEPRA is kindly requested to process the Tariff Petition at the earliest, thereby enabling Helios Power (Pvt.) Limited to achieve financial close and start generation by the end of 2018.

HELIOS POWER (PVT) LIMITED KARACHI

3. EXECUTIVE SUMMARY

3.1 BACKGROUND

Nizam Energy and Scatec Solar (the **"Project Sponsors"**) signed the Memorandum of Understanding (the **"MoU"**) in Oslo, Norway on July 7, 2015, to establish the Project. The Prime Minister of Pakistan and his Norwegian counterpart witnessed the signing ceremony.

At the time of the MoU signing ceremony and subsequently during the update meeting with the Prime Minister of Pakistan on 20th November 2015, the Project Sponsors committed to the Prime Minister of Pakistan that power from these projects will be made available to the national grid at the earliest and at the lowest possible prices. Accordingly, the proposed tariff under this petition is a reflection of the commitment made by the Project Sponsors to the Prime Minister of Pakistan.

The Government of Sindh (the **"GoS"**) issued the LOI for the Project on April 30, 2015 (Annex-A), and land for the Project was awarded at Goth Gagrawara, Taluka, Saleh Pat District Sukkur-Sindh by the Land Utilization Department of the GoS, with the approval of the Chief Minister of Sindh (Annex-B).

Since the allocation of land and award of LoI, the Project Sponsors mobilized and committed funds and resources to move the Project forward towards financial close and appointed reputed financial, technical and legal consultants for completion of the requisite studies and analysis. The Project Company expeditiously carried out all the required studies to complete the feasibility for this Project, including geo-tech and road surveys to assess the viability of establishing a solar farm at the Site. It is important to highlight that Sukkur District constitutes mostly of a desert area with some plan agricultural fertile area and the Project will have a positive impact in the development of the area.

On November 5, 2015, the Project Company submitted Grid Interconnection Studies to the Central Power Purchasing Agency (**"CPPA"**)/ NTDC for their review. NTDC through their letter dated September 2, 2016 provided their comments on the Interconnection Study wherein inputs from SEPCO were required.

The feasibility study was submitted to the Energy Department of the GoS in February 2016 (after grid interconnection approval from SEPCO) that was approved by the PoE on March 13, 2017 (Annex-E). The Project's environmental study was completed and submitted to Environment Protection Agency, Sindh on December 2015 and was approved on January 6, 2016 (Annex-F).

The Project Company provided requisite details and clarifications to SEPCO, based on which the related approvals, including consent to CPPA-G for purchase of power from Project Company, were issued on March 3, 2017 by SEPCO (Annex-C).

After SEPCO's approval the interconnections studies were reviewed by NTDC and the interconnection approval from NTDC was issued on April 4, 2017, while Power Evacuation Certificate was issued by NTDC on June 20, 2017 (Annex-D).

3.2 EPC APPROACH & ARRANGEMENT:

The Project Company in early 2017 approached different EPC contractors and suppliers to assess their interest in the Project. Based on the interest shown during the said meetings, the Project Company requested bids from the interested parties. In response to the RFP the Project Company received the following compliant offers from following the entities:

- Suzhou Akcome Energy Engineering Technology Co., Ltd,
- Sumec Complete Equipment and Engineering Co. Ltd,
- Scatec Solar, ASA

Based on the technical and financial review the best offer was received from Scatec Solar ASA, that was mainly driven by their extensive experience in implementing utility scale solar power project EPCs in comparable geographic locations with more than 50% of the operational portfolio based on 'single axis tracker' that has a superior electricity production capacity compared to fixed tilt solution. Also since the Sponsors are developing three solar power projects adjacent to each other, the EPC offer from Scatec becomes more competitive due to economies of scale while other bidders were reluctant in taking the risk of sharing the volume savings.

Additionally, the EPC offer from Scatec included commitment for arrangement of debt financing solution at lucrative rates from international lenders. Other bidders besides Scatec did not offer any financing solution.

The commitment for arrangement of long-term financing (as part of EPC package) under the project finance structure from Scatec further ensured achievement of the lowest levelised solar tariff, ever awarded, in Pakistan's history while maintaining requisite risk coverage for the Project Company, as per lender requirements.

Accordingly, Scatec negotiated financing solution for the Project Company with FMO, who issued the financing term sheet for debt financing dated August 03, 2017 (attached as **Annexure H**) to the Project Company.

Sacatec's EPC offer and financing offer reaffirmed their commitment made in July 2015 at the time of MOU signing ceremony with the Prime Minister of Pakistan to achieve the earliest possible Project completion, quality solution and lowest cost of energy.

Scatec's EPC offer and debt financing arrangement from FMO (at attractive rates and tenor) under the project finance structure, allowed the Project Company to offer the Unpredicted Levelized Reference tariff under this Tariff Petition.

Besides above factors in selection of EPC contractor, it is important to highlight that Scatec has an installation track record of 600 MW, and holds commendable experience of EPC, construction and operations of solar power plants in Africa, Middle East and other difficult geographic locations around the globe.

Keeping in view the above, the Project Company decided to appoint the consortium of Scatec Solar ASA for offshore EPC works and Scatec Solar (Private) Limited for

onshore EPC works. The EPC agreement with "firm prices and fixed commercial operations date' was signed on May 11, 2017 and is attached as **Annexure G** (the **"EPC Agreement"**).

Further it is highlighted that the EPC arrangements entered into with the EPC Contractor were concluded on May 11, 2017 in accordance with Rules 9(1) & 9(4)(d) of the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000 (the **"Generation Rules"**) and were in compliance with the aforesaid rules when entered into.

As per the EPC Agreement signed on May 11, 2017, one of the world's top PV module manufacturer **"BYD"** and PV inverter supplier **"Sungrow"** will provide solar panels and inverters, respectively. Brief description of these suppliers is provided hereunder.

BYD- Module Supplier

Founded in 1995, BYD is a listed company on the Hong Kong Stock Exchange and Shenzhen Stock Exchange. BYD is principally engaged in the IT industry, mainly related to rechargeable battery business, handset and computer components and assembly services, as well as automobile business including traditional fuel-powered vehicles and new energy vehicles while taking advantage of its technical superiority to actively develop other new energy products such as solar panels, energy storage station, electric vehicles, LED, electric forklift, etc. Currently, BYD has nearly 180,000 employees and 22 industrial parks around the world with an area of nearly 17,000,000 square meters.

BYD is one of the world's top PV manufacturers, produces from wafer to module, and is committed to high quality sustainable products and continuous improvement. Integrating with Electrical Vehicles Energy Storage technology makes BYD the world-leading solution provider from energy generating to consumption and storage.

The PV modules chosen for this project are BYD330-P6C-36DG -Series 4BB, which are 330 Wp 1500V double glass PV modules. These modules are frameless and fully certifies and suited for the proposed project location.

Sungrow- Inverter Supplier

Sungrow is a global leading PV inverter system solution supplier with over 31GW installed worldwide as of December 2016. Founded in 1997 by University Professor Renxian Cao, Sungrow is a global leader in research and development in solar inverters, with numerous patents and a broad product portfolio offering PV inverter systems as well as energy storage systems for utility-scale, commercial, and residential applications. With a twenty (20) year track record of growth and success, Sungrow has established sixteen (16) subsidiaries worldwide located throughout the Americas, APAC, the Middle East, Europe and Africa, maintaining a market share of over twenty percent (20%) in Germany and ten percent (10%) in the world.

The Project will use Sungrow SG 3000HV PV inverter, which provides maximum system efficiency up to ninety-nine percent (99%) with ½ MPPT wide MPPT voltage

range. This inverter model resists derating up to 50°C and its IP54 protection degree is suitable for harsh environment conditions.

3.3 O&M ARRANGEMENT:

For Operations and Maintenance (**"O&M"**) works during operations phase of the Project, the Project selected Scatec Solar (Private) Limited. For this purpose, an O&M arrangement between the Project Company and Scatec Solar (Private) Limited is in process of finalization.

The Project Company expects to incur total operational expense of USD 776,381, excluding insurance during operations, annually during first 14 years of operations. From 15th year onward, the Project Company reasonably expects to avoid debt related costs i-e monitoring and trustee fees, resulting in decreased operating expenses amounting to USD 728,381/annum.

Under the O & M arrangement, total O & M cost during first 14 years will be US$ 15,293/MW (excluding land lease) out of which US$ 12,676/MW (about 80%) is expected to be foreign component. While in last 11 years, the O & M will reduce to USD 14,333/MW annually.

Land Lease payments are to be made every tenth year and have been accordingly provisioned on annual basis, besides O&M costs.

3.4 PROJECT SPONSORS

Nizam Energy (Private) Limited and Scatec Sukhur B.V will own 100% of the Project.

Nizam Group

Established in 1869, Nizam Group is a 5th generation family business. The group operates in various sectors of the economy including Textile, Hospitability, Recycling, Energy and Retail sector. Nizam Group currently employs over 1000 individuals, who contribute to the five companies of the Group. With over 150 years of experience, the Group has a global outreach of 90+ countries, with warehousing in 4+ continents and operations in 15 offices across the nation. The annual turnover of the group exceeded US$ 40 Million in 2015-16.

The Nizam Group will invest in the Project through their subsidiary i.e. Nizam Energy (Private) Limited, that holds significant experience in solar industry of Pakistan.

Scatec Solar

Scatec Solar is an integrated independent solar power producer, delivering affordable, rapidly deployable and sustainable source of clean energy worldwide. A long-term player, Scatec Solar develops, builds, owns, operates and maintains solar power plants, and already has an installation track record of 600 MW. The company is producing 322 MW of electricity from solar power plants in the Czech Republic, South Africa, Rwanda, Honduras and Jordan. With an established global presence,

the company is growing briskly with a project backlog and pipeline of 1.8 GW under development in the Americas, Africa, Asia and the Middle East.

Scatec Solar is headquartered in Oslo, Norway and listed on the Oslo Stock Exchange under the ticker symbol 'SSO'. Scatec Group will invest in the Project through their subsidiary i.e. Scatec Sukhur B.V.

3.5 DEBT FUNDING:

The capital structure of the Project is envisaged at 75:25 (Debt: Equity). The Project Company intends to obtain a hundred percent (100%) of the debt through foreign financing sources. FMO Entrepreneurial Development Bank (Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden N.V.) has provided indicative commitment to arrange a hundred percent (100%) of the required debt. The financing term sheet for the financing of the Project is attached to the petition as **Annexure H**.

3.6 SALIENT FEATURES OF THE PROJECT

Subject to the assumptions contained in this Tariff Petition, please find below a summary of the Project for NEPRA's perusal:

Project Company	Helios Power (Pvt.) Limited
Sponsor	Nizam Energy (Private) Limited and Scatec Sukkur B.V
Project Capacity	50 MWp
Project Location	Goth Gagrawara, Taluka Saleh Pat, District Sukkur, Sindh, Pakistan
Land Area	236.7 Acres – The total land allocated by GoS to the Project is 710 acres for 3 projects (50 MWp each), out of which 236.7 Acres are allocated to Project.
Concession Period	25 years from commercial operations date
Purchaser	Central Power Purchasing Agency (Guarantee) Limited
PV Modules	BYD330-P6C-36DG -Series 4BB solar modules
Invertor	Sungrow SG 3000HV PV inverter.
Energy Production	97 281.47 MWh for Year-1 at P50
EPC Contractor	Consortium of Scatec Solar ASA (offshore) and Scatec Solar (Pvt.) Limited (onshore)
Project Capital Cost	*(US$ in '000)* / **Amount** EPC Price: 43,000 Non-EPC Cost & Project Development Cost: 2,833 Insurance during Construction: 215 Financial Charges: 901 Interest During Construction: 1,021 ***Total Project Cost (CAPEX)***: ***47,969***
Funding Plan	Debt 75%:Equity 25%
Equity	US$ 11.99 million
Long Term Debt	US$ 35.98 million
Debt Arrangement	FMO Entrepreneurial Development Bank
Terms of Long Term Debt	***Currency***: US Dollars (100%) ***Term***: Up to 15 years (door to door) ***Grace Period***: Up to 12 months ***Repayment Period***: 14 years ***Debt Repayment***: Mortgage-style repayments ***Interest Rate***: Base Rate: 3 months LIBOR Spread: 430 basis points
O&M Contractor	Scatec Solar (Private) Limited

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Project Operation Cost	*(US$ in '000)*	*Yr 1 – 14*	*Yr 15 – 25*
	Operating Expenses[1]	776	728
	Insurance Cost	215	215
	Total Operating Cost	**991**	**943**
Levelized Tariff	Requested levelized tariff US¢ 5.9574 per kWh		
Financial Advisors	Bridge Factor		
Technical Advisors	Renewable Resources (RE2)		
Legal Counsel	Axis Law Chambers		

3.7 THE PROJECT COMPANY OFFERS AN UNPRECEDENTED REFERENCE LEVELIZED OF US¢ 5.9574 PER KWH FOR THE SOLAR POWER PROJECT

Nizam Energy and Scatec Solar both are experienced in the solar industry and based on their experience in renewable energy projects in Europe and in Pakistan, are confident that they can setup a commercially viable solar PV project in Pakistan at a landmark levelised tariff of US¢ 5.9574 per kWh to set a precedent for other upcoming solar power projects in Pakistan.

The Project offers significant savings (of about 11%) compared to Project cost envisaged under Suo-Moto proceedings of May 2016 and 20% lower compared to Project cost determined by Authority under upfront tariff of December 2015.

The unprecedented levelized tariff offered under the project is 37% lower compared to tariff established by Authroity during Suo-Moto Proceedings of 2016, while same is 45% lower compared to tariff determined by Authority under upfront tariff of December 2015.

Project Cost & Tariff comparison	USD/MWp		
	Proposed by Project Company	**Suo-Moto May 2016**	**Upfront Tariff Dec, 2015**
EPC Cost	860,000	968,847	1,071,431
Non-EPC & PDC	56,650	60,468	60,468
Pre-COD Insurance Cost	4,300	9,688	10,714
Base Project Cost	**920,950**	**1,039,003**	**1,142,613**
Financial Charges	18,019	23,378	29,994
Interest During Construction	20,420	18,544	21,334
Total Project Cost -	**959,389**	**1,080,925**	**1,193,941**
Levelized Tariff US¢/kWh	**5.9574**	**9.4511**	**10.7251**
Savings in Project Cost offered by the Project		**11%**	**20%**
Saving in Levelized Tariff offer by the Project		**37%**	**45%**

Keeping in view the above facts and substantial savings offered by the Project, the Authority is requested to allow tariff along-with adjustments, pass-through items and indexations as requested in this tariff petition. The breakup of proposed reference generation tariff is summarized hereunder:

[1] Including annual provision to meet Land Cost

Levelized Tariff Components		US¢ /kWh
Fixed O&M	Local	0.1466
	Foreign	0.6422
ROE		1.9724
Debt Servicing		2.9752
Insurance		0.2210
Total		**5.9574**

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4. THE PROJECT & KEY CONSIDERATIONS

4.1 RATIONALE FOR SOLAR POWER

4.1.1 PAKISTAN'S CURRENT ELECTRIC POWER SHORTAGE

Pakistan currently has around 25.374 (State of Industry Report 2016) GW of installed capacity for electricity generation. Conventional thermal plants (oil, natural gas, coal) account for 65.5% of Pakistan's capacity, with hydroelectricity making up 28.04%, nuclear 3.10% and wind 3.36%.

Pakistan's serious energy crisis is jeopardising its economic progress and social development. The major reasons for the energy crises are the lack of investment in power sector in the past, non-development of renewable energy sector i.e. hydel, wind and solar etc. and the depleting of oil and gas reserves. It is imperative for Pakistan to look for indigenous /cheap energy resources for sustainable growth through self-reliance.

One of the utilisable resources in the short term is solar power generation. Although it is a relatively new technology in Pakistan, it has a proven track record globally and is recognized as a commercially viable technology. With over 227 GW installed capacity around the globe and over 17.2 GW of installed capacity in India and China alone, the case for development of solar energy in Pakistan is very strong.

4.1.2 SOLAR POWER PROJECTS – A NATURAL CHOICE

To ensure a sustainable energy future for Pakistan, it is necessary that the energy sector be accorded a high priority. It is considered that solar power generation could become a significant contributor to Pakistan's electricity supply in the near future. The development of solar generation projects supports the environmental objectives of the Government of Pakistan by:

(a) reducing dependence on fossil fuels for thermal power generation;

(b) increasing diversity in Pakistan's electricity generation mix;

(c) reducing greenhouse gas emissions through the avoidance of thermal power generation; and

(d) helping in the reduction of the exorbitant trade deficit.

4.1.3 THE SOLAR POWER GENERATION POTENTIAL & GOVERNMENT OF PAKISTAN'S SUPPORT

National Renewable Energy Laboratory of the USA, estimates the solar energy potential of 2.9 million MW in the country. Pakistan being in the sunny belt is ideally located to take advantage of the solar energy technologies. This energy source is widely distributed and abundantly available in the country with about twenty-five hundred to three thousand (2500-3000) sunshine hours and 1.9 - 2.3 MWh per m2 per year. It has an average daily global insulation of 19 - 20 MJ/m2 per day with

annual mean sunshine duration of 8 to 8.5 hours a day. These values are among the highest in the world. For daily global radiation up to 23MJ/m2, 24 (80%) consecutive days are available in this area. If harnessed adequately, solar energy would eradicate energy shortages in the country. The Government of Pakistan is currently looking to build solar farms in the high solar irradiance areas.

The Government of Pakistan has clearly articulated its support for the development of renewable energies. Due to the fact that solar energy is one of the most economical and efficient of renewable energy production techniques, the focus is on supporting the development of solar farms through independent power producers (the **"Solar IPPs"**).

4.2 JOINT DEVELOPMENT AGREEMENT (JDA) BETWEEN SCATEC AND NIZAM DATED JULY 2015

On the occasion of Pakistani Prime Minister's visit to Norway in July 2015, Scatec Solar and Nizam Energy signed an agreement to jointly develop three solar power plants in Pakistan. The signing ceremony took place in the presence of Norwegian Prime Minister and Pakistani Prime Minister. The Project represents one of three solar plants of 50 MWp each, agreed to be developed under the JDA.

Mr. Raymond Carlsen, CEO of Oslo-headquartered Scatec Solar ASA (**"SSO"**) and Mr. Usman Ahmad, CEO of Karachi-based Nizam Energy (Pvt) Ltd signed the agreement on behalf of their companies.

On the occasion of the signing ceremony Mr. Raymond Carlsen said: "*This project is an important landmark in Scatec Solar's journey to provide clean and affordable energy in developing countries. The Pakistani authorities have shown their commitment to addressing the nation's rising energy demand.*" Mr. Usman Ahmad remarked: "*Access to energy is a prerequisite to improve standard of living. We are keen to increase the role of clean solar power in Pakistan's energy mix.*"

Further, Scatec Solar ASA (SSO), apart from being the majority shareholder in the project, showed their willingness to arrange financing, turnkey construction, operation and maintenance of the projects, thus demonstrating it's long-term commitment to the smooth functioning and efficiency of projects undertaken.

4.3 THE EPC CONTRACTOR; FIRM EPC COST AND FIXED COD

4.3.1 EPC CONTRACTOR SELECTION AND THE TURNKEY EPC AGREEMENT

In early 2017, the Project Company approached various EPC contractors and suppliers to gauge their interest in the Project. The ultimate objectives of initiating this process were to:

(i) achieve unprecedented Reference Tariff on take and pay basis;
(ii) achieve lower EPC contract price that on other hand allows optimum energy yield;
(iii) achieve bankable EPC structure; and
(iv) achieve guaranteed timely completion of the solar farm.

Based on the interest shown during the said meetings, the Project Company in February, 2017 issued RFP for EPC of the Project to interested contractors. A comprehensive bidding package was provided to the bidders for preparation of their bids, which included all necessary commercial and technical information, drawings, reports along-with the Project Requirements and commercial details. In response to the RFP the Project Company received following compliant offers from following entities

- Suzhou Akcome Energy Engineering Technology Co., Ltd,
- Sumec Complete Equipment and Engineering Co. Ltd,
- Scatec Solar, ASA

Based on the technical and financial review the best offer was received from Scatec Solar ASA, that was mainly driven by their extensive experience in implementing utility scale solar power project EPCs in comparable geographic locations with more than 50% of the operational portfolio based on 'single axis tracker system' that has a superior electricity production capacity compared to fixed tilt solution. Also since the Sponsors are developing three solar power projects adjacent to each other, the EPC offer from Scatec become more competitive due to economies of scale while other bidders were reluctant in taking the risk of sharing the volume savings.

Additionally the EPC offer from Scatec included commitment for arrangement of debt financing solution at lucrative rates from international lenders. Other bidders besides Scatec did not offer any financing solution.

Scatec negotiated financing solution for the Project Company with FMO, who issued the term sheet for debt financing dated August 03, 2017 (attached as **Annexure H**) to the Project Company. The arrangement of long-term financing (as part of EPC package) under the project finance structure from Scatec further ensured achievement of the lowest levelized solar tariff, ever awarded, in Pakistan's history while maintaining requisite risk coverage for the Project Company, as per lender requirements.

Overall EPC offer from Scatec Solar ASA was found in line with their commitment made in July 2015 at the time of MOU signing to achieve the earliest possible Project completion, quality solution and lowest cost of energy.

Based on the above bidding process, followed by due diligence and negotiations process with the suppliers and contractors, Helios Power (Pvt.) Limited selected BYD330-P6C-36DG-Series 4BB & SG 3000HV as the technology to be implemented using Single axis tracker system for its solar farm and the consortium of Scatec Solar ASA and Scatec Solar (Private) Limited as their EPC Contractor of the project with a fixed price and fixed commercial operation date (the COD).
The above EPC solution is designed keeping in view the state of development of solar industry in Pakistan, the lenders' strict requirement for turnkey EPC solutions and the Authority's tireless efforts to provide cheap electricity on fast track basis.

Throughout the project development phase, the Sponsors are striving to bring green energy to Pakistan at a very affordable tariff and the requested tariff for the Project

is below the energy purchase price of majority of the thermal power plants (new and old) and sets a levelized solar tariff unprecedented in the history of Pakistan.

Keeping in view the above facts the Project Company entered into the EPC contract with the consortium of Scatec Solar ASA and Scatec Solar (Private) Limited for offshore and onshore works respectively. The EPC Agreement is attached at **Annexure G.**

4.4 TECHNOLOGY & EQUIPMENT

4.4.1 THE SELECTED EPC CONTRACTOR SCATEC SOLAR

Scatec Solar is an integrated independent solar power producer, delivering affordable, rapidly deployable and sustainable source of clean energy worldwide. A long term player, Scatec Solar develops, builds, owns, operates and maintains solar power plants, and already has an installation track record of 600 MW. The company is producing 322 MW of electricity from 322 solar power plants in the Czech Republic, South Africa, Rwanda, Honduras and Jordan. With an established global presence, the company is growing briskly with a project backlog and pipeline of 1.8 GW under development in the Americas, Africa, Asia and the Middle East.

Scatec Solar is headquartered in Oslo, Norway and listed on the Oslo Stock Exchange under the ticker symbol **"SSO".**

4.4.2 DESCRIPTION OF SIMILAR EPC ASSIGNMENTS OF SCATEC SOLAR

Following the entry into South Africa in early 2010, Scatec Solar has successfully developed and closed a portfolio of 190 MW of large-scale solar PV projects. The first of these projects, the Kalkbult 75 MWp in Northern Cape, was grid-connected early September 2013. The plant was the first large-scale solar plant in Southern Africa. It produces 135 million kilowatt hours a year, equivalent to the annual electricity consumption of 33 000 households. 750 000 work hours were completed with zero accidents, the entire execution was completed three months ahead of schedule and within budget.

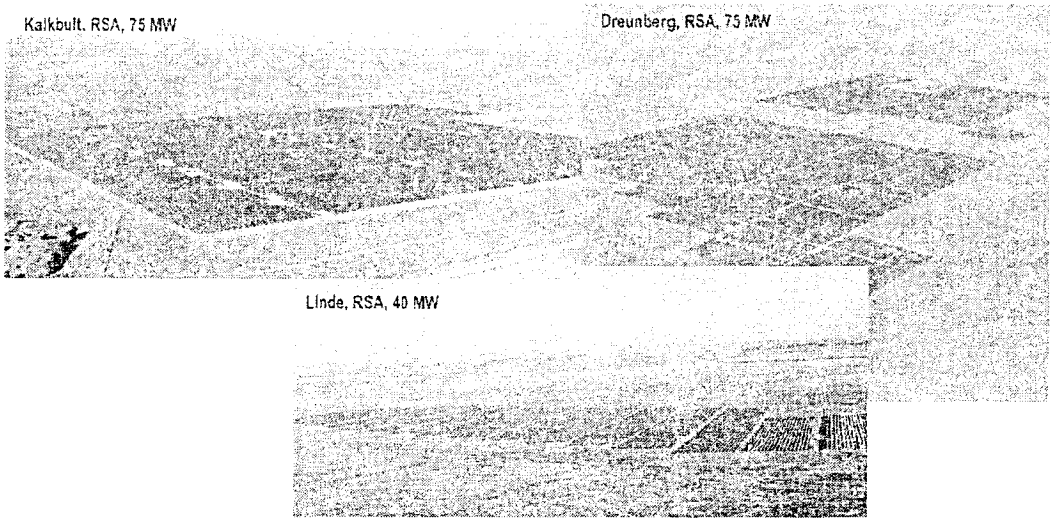
Scatec Solar has built on this success and subsequently constructed the 40 MW Linde Project and the 75 MWp Dreunberg Project. Situated in Northern Cape in South Africa, Linde is the first of the large-scale PV plants in production from the second round of the REIPPP Program. The plant is ideally located for producing solar power and generates electricity for thousands of South African households under a PPA with state-owned utility company ESKOM. Scatec Solar was awarded the Linde project in April 2013. The financial close was in May 2013. The 40 MW power plant was completed in the second quarter of 2014. Scatec Solar had the leading role for all EPC activities and Health, Safety and Environment (HSE) tasks and managed the construction phase and is now operating the plant through an O&M service contract.

The Dreunberg project, located in Eastern Cape, was awarded to Scatec Solar in December 2011 and financial close was in November 2012. The construction of the 75 MW power plant was completed in the third quarter 2014. Scatec Solar had the

leading role for all EPC activities and managed the construction phase and is now operating the plant. Furthermore, Scatec Solar has constructed an 8.5 MWp PV Project in Rwanda, which is the first large-scale solar plant in Eastern Africa. The plant entered into operation in July 2014, and produces 15.5 Gigawatt hours (GWh) annually.

With close to 200 MWp already installed and operating in Sub-Saharan Africa, Scatec Solar is the leading solar PV IPP on the continent.

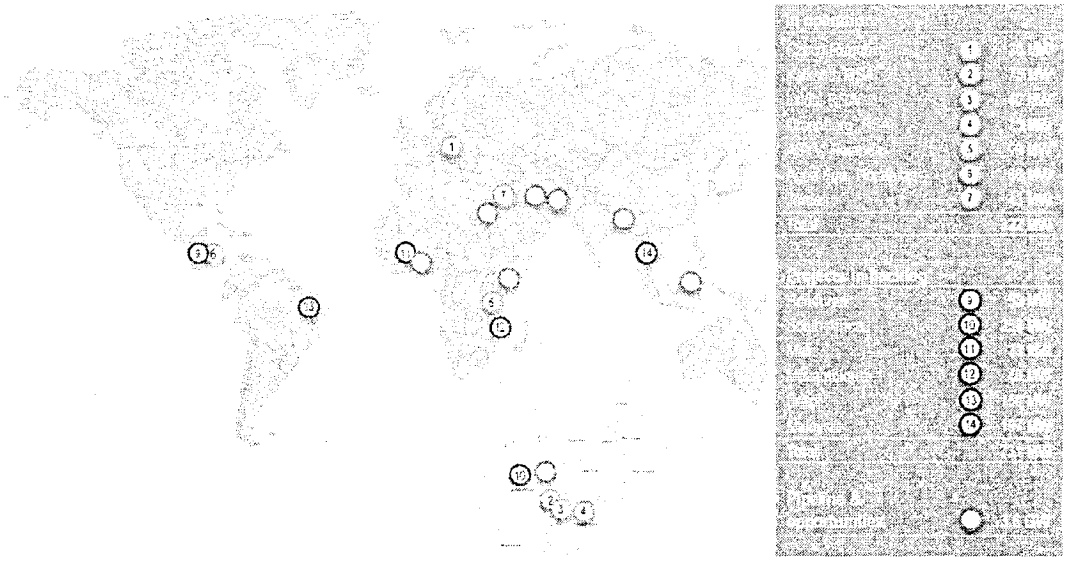
Scatec Solar's Operational Projects in South Africa



Scatec Solar's Reference Operational Solar Assets

Project Name	Location	Capacity	Technology Deployed
Czech Solar Plants	Czech Republic	20 MW	Fixed Tilt Solar PV
ASYV	Rwanda	9 MW	Single-Axis Tracking Solar PV
Kalkbult	South Africa	75 MW	Fixed Tilt Solar PV
Linde	South Africa	40 MW	Single-Axis Tracking Solar PV
Dreunberg	South Africa	75 MW	Single-Axis Tracking Solar PV
Agua Fria	Honduras	60 MW	Fixed Tilt Solar PV
Oryx, EJRE, GLAE	Jordan	43 MW	Single-Axis Tracking Solar PV
Total		**322 MW**	

Scatec Solar's Global Presence



It is highlighted, as one of the key strengths of the Project, that Scatec Solar ASA and Scatec Solar (Private) Limited appointment as the EPC contractors is based on a firm EPC price and confirmed commercial operations date, failing which the EPC Contractors will be liable to compensate (through liquidated damages) the Project Company for all its losses incurred due to the delay.

The Project Company, therefore, humbly submits to NEPRA that its Tariff Petition is submitted on the basis of firm EPC cost (the ***Firm EPC Cost****) and fixed COD.*

4.4.3 TECHNOLOGY SELECTION CRITERIA

The technology selected for the Project has been selected after detailed analysis of various power generation technologies available internationally for the purposes of solar power generation. The Project Company reviewed a range of technologies for solar power generation. Various factors were considered in selection of equipment and technology that included:

(a) equipment to be of suitable technology (in line with environment of Sindh), high rated power and more efficiency;
(b) compliance of the proposed equipment with local climatic conditions;
(c) references and experiences of the equipment manufacturers under similar environmental conditions (e.g. temperature, solar farm size, area);
(d) sufficient track record of the equipment in the utility scale projects i.e. 50 MWp project size or higher;
(e) cost of equipment to be competitive;
(f) energy output with guaranteed degradation and other performance guarantees;
(g) grid compatibility; and

HELIOS POWER (PVT) LIMITED KARACHI

(h) suitability of operation and maintenance concept for the size and location of projects with suitable availability of spare parts, consumables and main components.

4.4.4 THE SELECTED TECHNOLOGY

After a consummate search and elaborate analysis, the following equipment has been selected for the Project:

A- PV Modules

MANUFACTURER	BYD
TYPE	Polycrystalline Silicon, Double Glass,
MODEL	330-P6C-36DG-Series 4BB
NUMBER OF MODULES	151,530
TOTAL INSTALLED CAPACITY	50 MWp

a) Proven energy yield advantage of BYD Modules:

Double glass technology allows for better and more efficient cleaning options. The double glass structure also improves the thermal characteristics and reduces the PID effect of the module.

b) Certifications & tests of BYD Modules:
IEC 61215
IEC 61730
IEC 61701
IEC 62804
IEC 62716

B- PV Inverter

MANUFACTURER	SUNGROW
MODEL	SG 3000HV
NUMBER OF INVERTERS	14
INVERTER RATING	3000 kVA @ <=50 °C

Sungrow is a global leading PV inverter system solution supplier with over 31GW installed worldwide as of December 2016. Founded in 1997 by University Professor Renxian Cao, Sungrow is a global leader in research and development in solar inverters, with numerous patents and a broad product portfolio offering PV inverter systems as well as energy storage systems for utility-scale, commercial, and residential applications. With a 20-year track record of growth and success, Sungrow has established 16 subsidiaries worldwide located throughout the America, APAC, the Middle East, Europe and Africa, maintaining a market share of over twenty percent (20%) in Germany and ten percent (10%) in the world.

The selected PV Inverter has following distinguishing features;

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a) Secured yield: It provides maximum system efficiency up to ninety-nine percent (99%) and ½ MPPT wide MPPT voltage range. It also resists de-rating up to 50°C with a further ten percent (10%) overload capability.

b) Flexibility: It provides complete grid support: LVRT, HVRT, ZVRT IP54 protection degree suitable for harsh environment condition. Fully containerized for quick and effective installation.

In addition to the above, this PV Inverter module is cost effective and easy to maintain.

The EPC of the Project is based on state-of-the-art equipment using single-axis trackers technology, capable of withstanding the harsh climatic conditions prevailing at the site, for the Project.

4.5 THE SITE

The Project Site is acquired near Goth Gagrawara, Taluka Saleh Pat, District Sukkur-Sindh. The project site is located around 55 kilometers away from Sukkur city.

The land area is about two hundred and thirty-four (234) acres and is leased by GoS, for the implementation of 50MW solar PV project. The proposed site located at latitude of 27°24'14.17"N and longitude of 69°00'35.36"E with elevation of around sixty (60) to sixty-seven (67) meters.

The land allocation letter is attached as **Annexure B**

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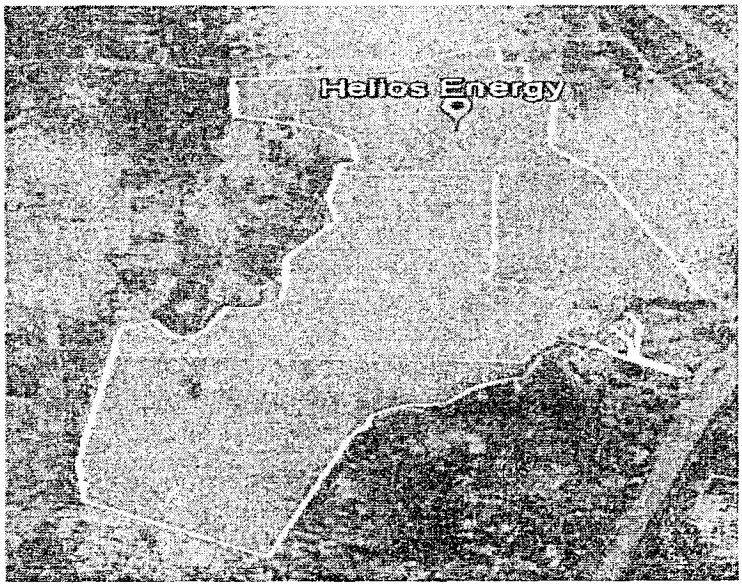
SITE CONDITIONS, INTERCONNECTION & ACCESSIBILITY

(a) Location of the Grid:

The project site is located around 400 meters from the nearest 66kVA grid station Nara 1. Another grid station is located in Tehsil Rohri which is approximately forty-five (45) kilometers away from project site and there is 11kV transmission line passing through the project area. An electrical and grid interconnection study has been conducted for the project including 'Power Quality', 'Load Flow', 'Short Circuit' and 'Power Evacuation', that has been vetted and approved by NTDC (refer **Annexure C**).



(b) Site Accessibility:

The major track from Karachi to site is multi-lane road. The terrain is flat. In general, the track has no issue and a very good route for accessing the site area.

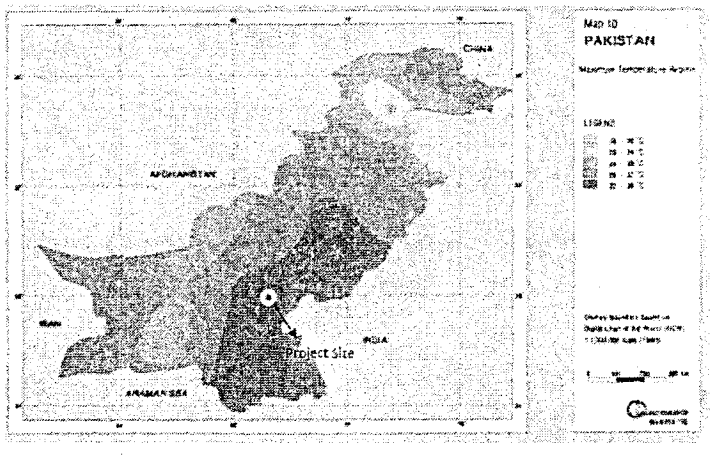
The Bin Qasim Port, one of the ports of Pakistan and the point of delivery of equipment for the proposed Solar power project is located towards southwest of the site as shown in Figure below.

Ariel distance of the port from the site is three hundred and thirty-three (333) kilometers. Total track length between Port Qasim and site is approximately five hundred and three (503) kilometers. There are few bridges on the way

from Bin Qasim port to the site. The load bearing capacity of the bridges in between the site and the port is good. Considering track is already been used for heavy transportation therefore road conditions are reasonable for transportation of equipment. Over and above, the road conditions from Sukkur to the site, the load bearing capacity of culverts, causeway is also suitable enough for transportation to site.

(c) Climate Conditions:

Sukkur has extremes of climate; and the climate of Sukkur is characterized by hot and hazy weather during summer days. The summer season begins from March to April and end before October. June (month before monsoon) is the hottest month in Sukkur with its average high temperatures at 35°C and it goes from 35°C to 50°C. While winter are dry and cold. The coldest month is January and temperature ranges from 10°C to 20°C with an average highs is 15.6°C. The average rainfall of the district is 20-30 mm, (ranges from 0.59 mm to 25.62 mm) per annum. Sukkur has 8.4 hours of sunshine daily on average Maximum and Minimum Temperature Regime Map of Pakistan is shown in figure below.



4.6 POWER OFF-TAKE AND THE GOVERNMENT OF PAKISTAN'S IMPLEMENTATION AGREEMENT

The electricity generated through the Project will be sold to Central Power Purchasing Agency Guarantee Limited (**"CPPA-G"**) on behalf of ex-WAPDA distribution companies (the **Purchaser**) pursuant to the energy purchase agreement (the **"EPA"**), which in turn will distribute and modulate the electricity generated by Helios Power (Pvt.) Limited.

In furtherance of the Government of Pakistan's model for setting up IPPs in Pakistan, Helios Power (Pvt.) Limited will also enter into an Implementation Agreement (the **"IA"**) with AEDB in respect of the Project.

The EPA will be finalized and executed by and between Helios Power (Pvt.) Limited and the Purchaser and the IA will be finalized and executed by and between the Project Company and the President of the Islamic Republic Pakistan (through AEDB), in each case, following NEPRA's approval of Helios Power (Pvt.) Limited's

twenty-five (25) years Reference Generation Tariff, the grant of a generation license to Helios Power (Pvt.) Limited and after execution of the tripartite LOS with AEDB and the Energy Department, GoS.

4.7 ESTIMATED OUTPUT

In line with AEDB's guidelines, the Project's technical consultant - Renewable Resources (one of Pakistan's leading consultants on renewable energy technology) carried out detailed evaluations to estimate the energy production for the Project, based on:

(a) the technical specifications of the plant components;
(b) the site conditions; and
(c) layout.

The summary of the results is as follows:

GROSS DC CAPACITY	50 MWp
NET CAPACITY FACTOR	22.21% for Year-1 at P50
ANNUAL ENERGY GENERATION	97,281.47 MWh for Year-1 at P50

4.8 PROJECT COST AND CAPITAL STRUCTURE

Based on the assumptions contained in this Tariff Petition and in light of the proposed discussion contained in Section 5, the proposed Project cost is USD 47,969,434 (United States Dollars Forty Seven Million Nine Hundred Sixty Nine Thousands Four Hundred and Thirty Four Only) (the **"Project Cost"**).

The planned financing of the Project Cost is by:
(a) 25% equity (the **Equity**); and
(b) 75% debt (the **Debt**).

4.9 THE SPONSOR – NIZAM GROUP

Established in 1869, Nizam Group is a 5th generation family business. The group operates in various sectors of the economy including Textile, Hospitability, Recycling, Energy and Retail sector. Nizam Group currently employs over thousand (1000) individuals, who contribute to the five (5) companies of the Group. With over one hundred and fifty (150) years of experience, the Group has a global outreach of over ninty (90) countries, with warehousing in over four (4) continents and operations in fifteen (15) offices across the nation. The annual turnover of the group exceeded forty million US dollars (USD 40,000,000) in the year 2015-16. The following is the list of companies under the Nizam Group Umbrella:

Nizam Canvas

Manufacturing units of the subsidiary are based in Karachi & Lahore, with key initiatives including manufacturing Tents and Blankets. Clientele of Nizam Canvas includes UN, Red Cross, Save The Children among various other Armed Forces and Private companies all over the world.

Imperial Wedding lawns

The Imperial has functioned for the past eight (8) years in Pakistan. Operations of this subsidiary are conducted in Karachi, with an aim of further expansion across the country. The banquet halls have the capacity to cook food for about five thousand (5000) people, and the three (3) independent facilities can cater for up to a thousand (1000) guests each.

Pinnacle Recycling

Pinnacle Recycling (Pvt.) Ltd. is a recycling company, specializing in PET Bottles. Over the last two (2) years Pinnacle has become the largest recyclers of PET Bottles in Pakistan. Nearly recycling 14,000 MT of PET Bottles are conducted annually. Future planning includes downstream expansions in the industry.

Grandeur

An Art Gallery & Furnishings company, Grandeur is a premium store for Exclusive Art and Furnishings located on a prime Location in Karachi. Over the last five (5) years "Grandeur" has become the venue of choice for leading artists and Exquisite Furniture Accessory suppliers in the Metropolitan city.

Le Sac, Slate

Established in 1992, Le Sac is a premium retailer for luxury bags and shoes, and has grown to multiple outlets in three (3) large cities of Pakistan.

Slate has operated since three (3) years as Pret wear for women. Along with it's own store, the products are available in 6 separate stores across the country.

Nizam Energy

Established in 2012, Nizam Energy has expanded to become the market leader for solar solutions across the country, providing services such as off grid solutions for rural electrification, Grid-tied/hybrid solutions for Industrial and residential solutions, as well as EPC services.

Nizam Energy is one of Pakistan's largest solar solution provider in Pakistan. It is headquartered in Karachi and operates in various segments within the Solar Power Sector. Nizam Energy currently offers various solar products for homes and commercial use. Currently the company is focused to provide access to energy especially in the remote, off-grid parts of Pakistan.

Nizam Energy has formed three (3) major investments of 50 MW each in the on-grid sector while other investments have been made in the Off-grid sectors for Solar PV solutions to consumers, with further investments in Pipeline.

4.10 THE SPONSOR - SCATEC SUKKUR B.V

Scatec Sukkur B.V is 100% owned subsidiary of Scatec Solar ASA that is a leading international solar power producer with head office in Oslo and listed at the Norwegian stock exchange. Scatec Solar develops, finances, constructs and operates solar power plants, with a global footprint in Europe, Africa, Latin America, Middle East and the United States. Scatec has built more than [600 MW] of solar PV plants, and currently has 322 MW under operation/ownership Czech Republic, South Africa, Rwanda, Honduras and Jordan. Scatec Solar is growing strongly with currently 1.8 GW of projects under development in Africa, Asia, Americas, and the Middle East.

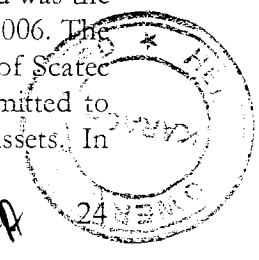
Scatec Solar's main focus is to make solar power attractive and affordable to customers worldwide. The story of Scatec Solar reflects the history of utility scale PV plants. Scatec was the first to develop a megawatt- sized project in Germany. Three times, it held the world record for the largest PV power plant of the world, and their project track- record is more than 600 MW.

To date, Scatec Solar has a track record of approximately one and a half billion Euro (€1,500,000,000) debt and equity raised for its projects. Scatec works with the leading private banks involved in project financing, and has developed a close collaboration with the International Finance Corporate (**"IFC"**), the European Bank for Reconstruction and Development (**"EBRD"**) for the financing of their projects, and cooperates with the leading Development Finance Institutions (**"DFIs"**), Overseas Private Investment Cooperation (**"OPIC"**), FMO, KfW Development Bank (**"KfW"**) and Proparco as well. In Egypt, Scatec has recently signed a co-development agreement with The Islamic Development Bank Group (the **"IDC"**), with the intention to extend the cooperation to other parts of world where both parties operate. It has co-investment partnership with Norway's fund for investment in emerging markets, Norfund, and it also works with Export credit Norway for long-term financing as well. Scatec fully expects to cooperate with its financing partners also for the financing of its projects in Pakistan.

Since its establishment, the Company has grown significantly and now has more than one hundred and fifty (150) employees in different geographical locations. With its large project backlog and a significant development pipeline Scatec Solar is poised to significantly increase the scale and scope of its operations.

Scatec entered Pakistan solar market in July by signing a Join Development and Investment Agreement for development and operation of 3X50 MW solar farms with Nizam Energy in the presence of the Pakistan Prime Minister Sharif and Norwegian Prime Minister Solberg.

Scatec Solar ASA is listed on Oslo Stock Exchange. The main shareholder is Scatec AS which holds 18.88% of the company. Scatec AS is privately held by its founder Dr. Alf Bjørseth and his family. Dr. Bjørseth is a solar industry pioneer and was the founder of Renewable Energy Corporation (REC) which went public in 2006. The second largest shareholder is Ferd AS which owns the remaining 13 % of Scatec Solar. Ferd AS is a family-owned Norwegian investment-company committed to value-creating ownership of businesses and investments in financial assets. In



addition to the group's purely commercial activities, Ferd has an extensive involvement in social entrepreneurship.

Scatec Solar has a unique business model as an independent project integrator, covering the value chain of Development, Engineering, Finance, Construction, Ownership and O&M. The company is also an Independent Power Producer (**"IPP"**) through ownerships in a number of solar PV parks, all developed, built and operated by the company itself. Corporate Social Responsibility (**"CSR"**) is an inherent and integral part of Scatec Solar's business wherever the company operates. An important reason the company came out as the most successful bidder in the first two (2) rounds of the tender program in South Africa was serious and professional approach to meeting the Government's expectations regarding local content and job creation. In general Scatec Solar focuses on using locally produced components wherever possible, and a key element in their efforts is to work with potential vendors, both domestic and international, to promote manufacturing. Scatec Solar plans to transfer skills and employ an increasing proportion of the required resources locally to manage and carry out the key engineering, procurement and construction activities.

4.11 CARBON CREDITS

The Clean Development Mechanism (the **"CDM"**) is one of the flexible, project-based mechanisms for greenhouse gas emission reductions (the **"GHG"**) under the Kyoto Protocol. By using the CDM, two (2) countries can jointly develop GHG emission reductions projects. While the project proponents in the host country sell the emission reductions from the project as Certified Emission Reductions (the **"CERs"**), project participants in the partner country act as the CER buyer. In this set-up, the host country of the project benefits from domestic investment and technology transfer. For the owners of the CDM project, selling CERs means additional revenues to the project. Each CER represents one ton of carbon dioxide equivalent abated by the project.

The CDM was initiated under the Kyoto Protocol of the United Nations Framework Convention on Climate Change (the **"UNFCCC"**) in order to explore cost-effective options to mitigate the impacts of climate change. It is one of the instruments that help the developing countries in achieving sustainable development, while at the same time contributes to the ultimate objective of the UNFCCC. CDM assists the developing countries to implement project activities that reduce GHG emissions in return for generating carbon credits / CERs.

Pakistan deposited its instrument of accession to the Kyoto Protocol on January 11, 2005, and thus became eligible to benefit from CDM. For this purpose, the Ministry of Environment has been declared as the Designated National Authority (the **"DNA"**). A "CDM Cell" was established in Pakistan in August 2005 for providing technical and policy support to conduct awareness raising, enhancement of capacity for CDM project development, review of CDM projects for grant of approval by the DNA and to advise the Government of Pakistan in technical matters related to CDM in Pakistan. It was also established to implement the CDM strategy.

Pakistan national operational strategy for CDM was approved by the Prime Minister of Pakistan in February 2006. The strategy provides policy guidance for

implementation of CDM in Pakistan in line with national sustainable development goals. It is an incentive based strategy that ensures efficiency and transparency. The strategy defines institutional arrangement for implementation of CDM in Pakistan, tax and credit sharing policy and the criteria grant of host country approval to CDM projects.

While it appears possible that the Project may be able to realize monetary gains from such carbon credit schemes, the actual timing, amount, and other details of the outcome are quite uncertain at this point. It is thus proposed that the Reference Generation Tariff for the Project be approved irrespective of the outcome of the carbon credits.

However, if any CER related revenues are realized, it is submitted that they will be shared as per the policy of the Government of Pakistan. Regardless of the outcome, Helios Power (Pvt.) Limited has already initiated the CDM project for the Project at its own cost and negotiations with various internationally reputed CDM consultants have already been initiated to complete the CDM project.

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5. PROJECT COST AND TARIFF

5.1 PROJECT COST SUMMARY

The total Project Cost, expressed in US Dollars, has been calculated after thorough analysis, evaluation and understanding of the dynamics that affect the development and operation of a solar PV project. The reference exchange rates used to convert the relevant costs into United States Dollars are USD 1 = PKR 105.

For NEPRA's benefit and approval, a summary of the Project Cost is given below:

SR. NO.	INVESTMENT / COST	USD
1.	EPC COST	43,000,000
2.	NON-EPC & PROJECT DEVELOPMENT COST	2,832,509
3.	PRE-COD INSURANCE COST	215,000
4.	FINANCIAL CHARGES	900,926
5.	INTEREST DURING CONSTRUCTION	1,020,999
	TOTAL PROJECT COST	**47,969,434**

5.2 DETAILS OF PROJECT COST

5.2.1 EPC COST

The breakup of costs contained in the EPC Agreement are as follows:

SR. NO.	COST HEAD (IN MILLIONS)	USD
1	OFFSHORE AGREEMENT	30,530,000
2	ONSHORE AGREEMENT	12,470,000
	TOTAL EPC COST	**43,000,000**

The EPC Cost includes the cost of, One Hundred Fifty One Thousand Five Hundred and Thirty (151,530) PV Modules, Fourteen (14) PV inverters, trackers, electrical equipment, together with ancillary equipment and other goods, systems and machinery and includes the cost of, inter alia, the erection, testing, completion and commissioning of the equipment and construction of the facility that is capable of fulfilling the intended purpose.

The sponsors while ensuring state-of-the-art equipment that is capable of withstanding the harsh climatic conditions prevailing at the site also achieved an unprecedented low solar tariff. The efforts made in this regard are evident from the fact that the EPC cost, achieved by Helios Power (Pvt.) Limited, is significantly lower compared to the EPC costs allowed in previous upfront solar tariff determinations issued by NEPRA till date, while there it is also significantly lower even if compared with the EPC cost assumed in last Suo-Moto proceedings initiated by NEPRA in May 2016.

5.2.2 NON-EPC AND PROJECT DEVELOPMENT COST

HELIOS POWER (PVT.) LIMITED

The "Non-EPC Cost" includes the cost of items that are not part of the EPC Contractor's scope of work pursuant to the EPC Agreement while "Project Development Costs" include the costs incurred for the purpose of Project development and all costs, fees and expenses incurred or to be incurred for such purpose.

This cost head include, inter alia, costs of feasibility studies, topographical survey of land, geotechnical investigation of land, electric grid interconnection studies; fees of consultants; costs related to the bank guarantee to be furnished to AEDB, costs related to the Purchaser letter of credit to be furnished to the Purchaser pursuant to the provisions of the EPA, various regulatory fees to be paid to NEPRA and other governmental agencies, costs incurred during Helios Power (Pvt.) Limited's formation and capital enhancement; and costs relating to various permits for the Project, land cost, post financial close technical supervision, administration, audit, accounting and travelling (including boarding lodging) during construction.

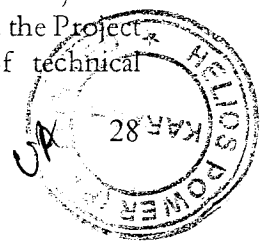
This cost head also include staff accommodation (construction of the camping building(s) and permanent housing), certain sections of access road (for transportation of equipment) to the site, fencing around the site, site security and utility connection cost with regard to the Project. However please note that the cost estimations provided herein are based on the assumption that the Project Sponsors will be implementing three solar power projects of 50 MWp each (i.e. through HNDS Energy (Private) Limited, Helios Power (private) Limited, Meridian Energy (Private) Limited) and the resultant savings have been included in the cost estimates to offer the lowest possible tariff for Authority's approval.

A breakdown of some of such costs is provided below:

SR. NO.	COST	USD
1.	Consultancy Costs & Technical Studies – Pre-Financial Close	894,002
2.	Owner's Engineer Supervision – Post Financial Close	100,000
3.	Independent Engineer - Pursuant to the EPA	150,000
5.	Permits, Permissions and Related Costs	165,571
6.	Site, Security and Infrastructure	1,115,373
7.	Administration Cost	234,188
8.	Travelling Costs	173,374
	TOTAL NON-EPC & PROJECT DEV. COST	**2,832,509**

(a) Consultancy Costs & Technical Studies (Owners & Lenders)- Pre Financial Close:

Helios Power (Pvt.) Limited has engaged highly reputed and leading consultants as Project advisors that have unmatched expertise in planning, engineering, financial, legal and technical matters. Helios Power (Pvt.) Limited has endeavored to put together the best team of consultants for the Project so as to ensure that solar power sector in the country is developed and the Project is bankable from all aspects. Based on the requirements of technical



consultants, Helios Power (Pvt.) Limited has already completed site surveys, electrical, geotechnical, topographical, soil and other related studies for the purpose of completing Project's feasibility study.

This cost also include fee for the lenders' various advisors for the due-diligence of the Project, stamp duty applicable on the financing documents, agency fee; security trustee fee; lenders' Project monitoring fee etc.

(b) Owner's Engineer & Supervision Costs – Post Financial Close:

Helios Power (Pvt.) Limited will engage an experienced engineering supervision team to ensure the contractor's compliance with the relevant contracts, as well as reporting on progress and budget. The construction supervision team will comprise a site engineer supported by technical experts. The Owner's Engineer will also conduct review of proposed designs, construction monitoring and witnessing of key tests to ensure project's success.

(c) Independent Engineer:

Helios Power (Pvt.) Limited is required to engage an Independent Engineer pursuant to the EPA. Under the terms of the EPA the Independent Engineer will be a firm of engineering consultants that would be appointed and hired by Helios Power (Pvt.) Limited, with the approval of the CPPA-G, to monitor the construction of the Complex and Commissioning and to deliver the related certificates and carry out all of the responsibilities specified in the EPA, including certifying the results of the commissioning tests, readiness of interconnection facilities and synchronisation.

(d) Permits, Permissions and Related Costs:

During development and construction of the Project Helios Power (Pvt.) Limited will incur costs related to various fees and charges payable in respect of permits and permissions required from various authorities and regulatory bodies including but not limited to cost of bank guarantees for LoI and LoS, Standby Letter of Credit (**"SBLC"**) in favor of power purchaser, No Objection Certification (**"NOC"**) from competition commission, LoI Fee, AEDB/Energy Department facilitation and legal fee, NTDC vetting charges for Grid Electrical Grid Studies, NEPRA fee and charges, registration and other charges to SECP etc. to be incurred during development and construction of the Project.

(e) Site, Security and Infrastructure:

This head includes upfront payment of the site lease for first ten (10) years and costs related to site leveling & preparation, site access, infrastructure, electricity connection, fencing cost, access road, staff housing etc. Helios Power (Pvt.) Limited is also responsible for the security of its local and foreign personnel and the EPC contractors' staff.

(f) Administration Costs:

Helios Power (Pvt.) Limited's head office is based in Karachi. In addition, there will be a site office with limited accommodation to coordinate the construction and monitoring activities at site. This portion of the Non-EPC Cost includes costs associated with company registration, accounting and admin staff, rent, utilities, equipment inspection, communication charges, printing & stationery, supplies, communication charges, vehicles fuel and maintenance and other allied expenses during the construction period. This cost head also include certain financial cost for issuing SBLCs to be provided to financiers.

(g) Travelling Cost:

This head covers costs related to travelling, accommodation, daily allowances and other allied expenses of the Norwegian and local personal, incurred for development, arrangement of financing & EPC and for progress / monitoring meetings etc. during development and construction period of the Project.

Any other cost that relates to development and construction of the Project, if incurred, will be provided at True-up stage.

5.2.3 PRE-COD INSURANCE COST

Pre-COD Insurance Cost covers the insurance cost of Helios Power (Pvt.) Limited's assets during construction and the same are incurred prior to COD. These cost estimates have been developed based on the Helios Power (Pvt.) Limited's determination to obtain Pre-COD insurance at relatively lower rates (0.50% of EPC cost) at the strength of its Sponsors.

However in the any event Helios Power (Pvt.) Limited cannot arrange the insurance at 0.50%, due to any reasons beyond its control, NEPRA is requested to allow the actual Pre-COD Insurance Cost at actual up to 1.0% of the EPC cost in line with earlier tariff determinations by NEPRA for other IPPs.

Helios Power (Pvt.) Limited, in view of the practices set by other IPPs in Pakistan and in accordance with the requirements set out by the lenders funding the Project, intends to procure the following insurances during the construction phase of the Project:

(a) Construction All Risk Insurances (**"CAR"**);
(b) CAR Delay in Start-up Insurance;
(c) Terrorism Insurance;
(d) Marine and Inland Transit Insurance;
(e) Marine - Delay-In Startup Insurances; and
(f) Comprehensive General Liability.

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The premiums payable under the above stated Pre-COD insurances do not include the administrative surcharge, the Federal Insurance Fee and the Federal Excise Duty,

and Helios Power (Pvt.) Limited prays that the same kindly be allowed by NEPRA as part of the One-Time Adjustments allowed at the time of COD.

Please also note that proposed solution is using trackers single axis technology that has more moving parts compared to fix-tilt solutions, we expect that insurance of the Project will be at 0.5% based on the strength of EPC contractor and sponsors standing and experience, however in case actual insurance cost is higher being first of its kind project in Pakistan, we agree to accept the insurance cap of up to 1% of EPC in line with other IPPs.

Helios Power (Pvt.) Limited requests to allow pre-COD insurance cost at 0.50% of EPC however in case of an deviation NEPRA is requested to allow the actual Pre-COD Insurance Cost capped at 1.0% of the EPC cost in line with earlier tariff determinations by NEPRA for other IPPs.

5.2.4 FINANCIAL CHARGES

Financial Charges include the costs related to the debt financing of the Project. Such costs include, inter alia, the lenders' up-front fee, arrangement fee and commitment fee that cumulatively constitute 2.50% of debt amount (including appraisal fee adjustable against front end fee).

These financial charges are in line with the prevailing market conditions and practices applicable for project financing transactions and as allowed by NEPRA in its other tariff determinations. The term sheets for arrangement of debt financing agreed with the lenders are attached with this Tariff Petition (**Annexure H**).

Helios Power (Pvt.) Limited requests NEPRA that as Helios Power (Pvt.) Limited has not considered any duties and taxes on account of Financial Fees and Charges, any duties and taxes if applicable on account of these costs may kindly be allowed as adjustment for actual cost at the time of COD.

5.2.5 INTEREST DURING CONSTRUCTION

The Interest During Construction (the **"IDC"**) has been calculated on the basis of the financing term sheet issued by the lenders, which stipulate a base rate equal to 3 months LIBOR plus a margin in the range of 430 - 435 basis points (USD financing), based on the Scatec's relation with FMO. Helios Power (Pvt.) Limited expects that financing will be available at LIBOR plus 430 basis points and has assumed this rate for the development of the Tariff Petition. However to achieve this unprecedented rate NEPRA is requested to allow financial charges at 2.50% of the debt amount.

Actual IDC, however, shall be subject to change depending on the fluctuations in base rate (i.e. 3-month LIBOR), funding requirement (draw-downs) of the Project during the construction period, changes in Project Cost including changes due to Taxes and Duties, and variations in PKR / USD exchange rate.

It is pertinent to highlight that taxes (WHT or sales tax) on payment of interest/mark-up and financial fees & charges have not been assumed in calculating proposed reference generation tariff (for both construction and operational phases).

Accordingly if any such taxes become applicable then same are requested to be allowed at the tariff true-up stage.

BASIS FOR IDC CALCULATIONS	3 – MONTH LIBOR
ASSUMED BASE RATE	0.60%
SPREAD	4.30%
TOTAL INTEREST RATE	**4.90%**

IDC, at this stage, is an estimated figure, which is adjustable at COD, based on actual LIBOR, timing and amount of loans drawdown during the Project construction period after financial close, therefore, it is prayed that NEPRA kindly allow adjustment for the same at the time of tariff true-up at COD. It is further submitted to allow financial charges at 2.50% of the debt amount, keeping in view the fact Project Company offers unprecedented debt arrangement at Libor Plus 4.3% with 15 years (door to door) tenor. Impact of taxes on the debt related cost items may kindly be allowed at true-up stage.

5.2.6 PERMANENT WORKING CAPITAL

Inflow of Funds During Operating Period:

Under the terms of the EPA to be executed between Helios Power (Pvt.) Limited and the Purchaser, Helios Power (Pvt.) Limited shall invoice the Purchaser for the settlement of the Monthly Energy Payment on or after the first day of the month following the month to which the Monthly Energy Payment relates. The Purchaser has to make the payment of the same by the thirtieth day following the day of submission of the invoice i.e. thirtieth (31st) day.

Outflow of Funds & Requirement for Working Capital:

(a) Helios Power (Pvt.) Limited is required to collect sales tax from the Purchaser on behalf of the Government of Pakistan and deposit the same by the twenty-fifth (25th) day of the month to which it relates. However, as explained above, the Purchaser is only obligated to make payment to Helios Power (Pvt.) Limited against the invoice raised within 30 days from the date of invoice – thus creating an inherent mismatch in the availability of cash flows to Helios Power (Pvt.) Limited for settlement of its liabilities.

(b) The terms of debt financing stipulate repayment of debt on quarterly basis commencing from COD. By the time the first repayment is to be made to the lenders, assuming the Purchaser pays without even one day of delay, Helios Power (Pvt.) Limited would have received two (2) only months of revenue in accordance with the thirty day (30) payment terms under the EPA. Thus a permanent shortfall of 1/3rd of the debt installment would be created which Helios Power (Pvt.) Limited intends to fund through upfront permanent working capital; this requirement is standard in all financing transactions of this type.

(c) Besides above there is also an expected mismatch of cash flows for meeting O&M expenses.

It is submitted that permanent working capital may kindly allowed to be injected at the time of tariff true-up on COD based on the terms of financing agreements, PPA payment terms and sales tax provisions applicable at that time.

5.2.7 TAXES & CUSTOMS DUTY

(a) Customs Duty:

The amount of customs duty to be paid on renewable energy projects is to be calculated based on Section 18(1A) of the Customs Act 1969 read with Serial 11 to the Part I of the Fifth Schedule of the Customs Act 1969 (the Schedule), which allows Customs Duty at a rate of zero percent (0%) for the following items;

"Machinery, equipment and spares meant for initial installation, balancing, modernization, replacement or expansion of projects for power generation through nuclear and renewable energy sources like solar, wind, micro-hydel bio-energy, ocean, waste-to-energy and hydrogen cell etc."

Accordingly, Helios Power (Pvt.) Limited has assumed zero percent (0%) customs duty regarding imported plant, equipment, machinery etc. in accordance with the above.

However, in case of applicability of any duty, Helios Power (Pvt.) Limited prays NEPRA to allow adjustment of capital cost of the Project and tariff at COD, for actual customs duty paid.

(b) Special Excise Duty:

Special Excise Duty is assumed at zero percent (0%), as the same is correlated with the rate of customs duty (discussed above - Zero Rated). In case the Project has to pay customs duty then the Special Excise Duty at one percent (1%) is levied. Accordingly, Helios Power (Pvt.) Limited requests NEPRA to kindly allow adjustment in capital cost of the Project and the tariff at COD, for actual special excise duty paid.

(c) Sales Tax:

No Sales Tax is assumed on import and local supply of the imported plant, equipment, and machinery etc., as per Sixth Schedule (the Schedule) to the Sales Tax Act 1990 read with Section 13 (1) of the Sales Tax Act 1990 wherein exemption from applicability of sales tax is provided. Serial # 7 of the Schedule cites following items which are exempt from sales tax;

"1. Machinery, equipment and spares meant for initial installation, balancing, modernization, replacement or expansion of projects for power generation through nuclear and renewable energy sources like solar, wind, micro-hydel bio-energy, ocean, waste-to-energy and hydrogen cell etc."

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Furthermore, for the purpose of this Tariff Petition, Helios Power (Pvt.) Limited has not taken into account the impact (if any) of the Sindh Sales Tax on Services Act, 2011. The true implications and procedures with regard applicability of the Sindh Sales Tax of Services Act, 2011 are not clear at this time, however, in case the said Sales Tax on services become applicable on the EPC Onshore Agreement, then the related impact will be adjusted against output sales tax on electricity sales receipts (post COD) and there will be no impact on the Project Cost because of provincial sales tax on services.

However, in case of change in laws by virtue of which if either (a) federal sales tax applicable on procurement of plant, machinery and equipment becomes applicable, or (b) provincial sales tax on services does not remain adjustable against sales tax charged on sale of electricity, the same is requested to be adjusted in Project Cost and Tariff allowed at COD / Tariff true-up stage.

(d) Advance Income Tax:

Advance Income Tax @ zero percent (0%) has been assumed at the time of import of machinery, equipment, goods, spares and materials for the Project in line with exemption provided under Section 53 of the Income tax Ordinance 2001, read with clause 77 to the Part II of 2nd Schedule to the Income Tax Ordinance, as reproduced hereunder

"(77) Provisions of sections 148 and 153 shall not be applicable on import and subsequent supply of items with dedicated use of renewable sources of energy like solar and wind etc., even if locally manufactured, which include induction lamps, SMD, LEDs with or without ballast with fittings and fixtures, wind turbines including alternator and mast, solar torches, lanterns and related instruments, PV modules (with or without) the related components including invertors, charge controllers and batteries.".

However, in case of change in laws before import of related plant, equipment and machinery by virtue of which such advance income tax rate is increased from currently applicable zero percent then the same is requested to be adjusted in Project Cost and Tariff allowed at COD / Tariff true-up stage.

(e) Sindh Infrastructure Development Surcharge (**"SIDS"**):

Since SIDS is dependent upon the weight and distance covered in the Sindh province from the port for delivery of imported plant, machinery, equipment and other ancillary items to the Project site, Helios Power (Pvt.) Limited has not assumed Sindh Infrastructure Development Surcharge on account of imports under the Off-Shore Contract, and same is requested to be allowed as a pass-through item as per actual..

(f) Federal Excise Duty (**"FED"**):

FED on the payments to be made to (1) local financial institutions, and (2) insurer's, has not been assumed. In case FED is levied on the financial

advisors and lead arrangers' fee, debt arrangement fee and commitment fee, L/C commission and charges, loan administration charges, and insurance premium the same should be allowed as pass-through under the tariff.

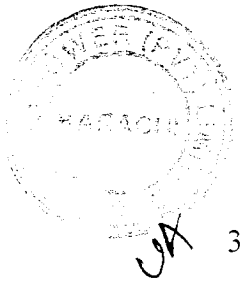
The taxes and duties are requested to be adjusted at actual at the COD stage tariff adjustment / Tariff true-up.

5.3 PROJECT COST COMPARISON WITH NEPRA'S PREVIOUS UPFRONT TARIFFS

The Petitioner respectfully submits hereunder a comparison of proposed levelized tariff and Project costs with NEPRA's previous upfront tariffs.

Project Cost & Tariff comparison	USD/MWp					
	Proposed by Project Company	Suo-Moto May 2016	Upfront Tariff Dec, 2015	Upfront Tariff May, 2015	Upfront Tariff Jan, 2015	Upfront Tariff Jan, 2014
EPC Cost	860,000	968,847	1,071,431	1,358,865	1,358,865	1,692,708
Non-EPC & PDC	56,650	60,468	60,468	80,158	80,158	132,000
Pre-COD Insurance Cost	4,300	9,688	10,714	10,191	10,191	12,695
Base Project Cost	**920,950**	**1,039,003**	**1,142,613**	**1,142,613**	**1,449,214**	**1,837,404**
Financial Charges	18,019	23,378	29,994	38,042	38,042	48,232
Interest During Construction	20,420	18,544	21,334	38,042	38,042	15,052
Total Project Cost -	**959,389**	**1,080,925**	**1,193,941**	**1,514,314**	**1,514,314**	**1,900,688**
Levelized Tariff USc/kWh	**5.9574**	**9.4511**	**10.7251**	**14.1516**	**14.1516**	**16.3063**
Savings in Cost offered by Project		**11%**	**20%**	**37%**	**37%**	**50%**
Saving in Levelized Tariff offer by Project		**37%**	**45%**	**58%**	**58%**	**64%**

Above comparison indicates that the Project cost and Helios Power (Pvt.) Limited's proposed levelised tariff is substantially lower than the previously allowed project costs and levelised tariffs.



6. PROJECT FUNDING STRUCTURE (DEBT & EQUITY)

6.1 THE FUNDING ARRANGEMENT

The Project Cost will be funded on the basis of a Debt to Equity ratio of 75 to 25, thereby resulting in the following capital structure for the Project:

		USD IN "000"
DEBT	FOREIGN (100%)	35,977
EQUITY		11,992
TOTAL PROJECT COST		47,969

6.2 BRIEF ABOUT DEBT AND EQUITY FINANCING

The envisaged Debt to Equity structure of the Project is 75 to 25 implying a total debt requirement of USD 35.98 million (based on a project cost of USD 47.97 million).

The entire debt financing will be funded by FMO Entrepreneurial Development Bank.

Debt amount will be denominated in USD (repayment in USD, interest payments to be indexed to LIBOR).

Based on the current Project cost estimates, the equity required to be injected by the Sponsor amounts to USD 11.99 million. The principal Sponsors, Nizam Group and Scatec Solar through their subsidiaries Nizam Energy (Private) Limited and Scatec Solar Sukkur B.V respectively, will subscribe for hundred percent (100%) of the equity requirement.

6.3 RETURN ON EQUITY

The Tariff Standards prescribed under Rule 17.3(ii) of the Tariff Rules require that the return on investment should be "*commensurate with other investments of comparable risk*". In this regard it is submitted that:

- NEPRA has allowed seventeen percent (17%) return to hydel projects where the hydrology risk and unforeseen soil conditions are both well mitigated under the Power Purchase Agreement and NEPRA's tariff guidelines which permit a "3 stage" tariff process permitting a reopening of the tariff parameters, whereas resource risk in solar power projects rests with the project companies/ sponsors.

- Solar and wind energy projects were allowed IRR based ROE at seventeen percent (17%) in previous upfront tariff determinations by NEPRA. However, in a recent Determination for Wind Power Generation Projects dated 27th January 2017 and "Suo Moto Proceedings for Development of New Tariff for Solar PV Power Projects", by NEPRA, a Return on Equity (**"ROE"**) of sixteen

percent (16%) on Internal Rate of Return ("**IRR**") basis has been allowed to renewable energy Projects.

Provided hereunder are Capital Asset Pricing Model ("**CAPM**") calculations for assessment of Helios Power (Pvt.) Limited's rate of return, NEPRA's consideration:

6.3.1 CALCULATION OF ROE UNDER CAPM

Based on the internationally accepted methods for calculation of required rate of returns, the required rate of returns is follows:

Required Return Calculations	
Risk-Free rate	2.38%
Equity Market Return (S&P 500)	7.70%
Re-levered Beta	1.82
Country Risk Premium (Credit Rating)	7.29%
Required Rate of Return	**19.43%**

a) Risk-Free Rate:

The ten (10) year US Treasury bond rate has been used as the risk free rate, by taking cut-off yield of 2.38% as at July 10, 2017. The same can be accessed using the following link:

https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yield

Date	1 Mo	3 Mo	6 Mo	1 Yr	2 Yr	3 Yr	5 Yr	7 Yr	10 Yr	20 Yr	30 Yr
7/10/2017	0.95	1.04	1.13	1.23	1.40	1.59	1.93	2.20	2.38	2.70	2.93

b) Equity Market Return (S&P 500):

To calculate Market risk premium, last thirty (30) years S&P 500 Index is used based on which the geometric mean return comes to be 7.70%. This period takes into account economic upturns and downturns sufficiently. Data as collected by Damodaran since 1960-2016 has been used for the Index level. The same may be accessed on the following link:

http://www.stern.nyu.edu/~adamodar/pc/datasets/histimpl.xls

Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
S&P 500	247	278	353	330	417	436	466	459	616	741	970	1229	1469	1320	1148
YoY Growth	2%	12%	27%	-7%	26%	4%	7%	-2%	34%	20%	31%	27%	20%	-10%	-13%

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
S&P 500	880	1112	1212	1248	1418	1468	903	1115	1258	1258	1426	1848	2059	2044	2239
YoY Growth	-23%	26%	9%	3%	14%	4%	-38%	23%	13%	0%	13%	30%	11%	-1%	10%

30 years		
Cumulative Aggregate Growth	Geometric Mean	Arithmetic Mean
7.62%	7.69%	9.10%

c) Calculation of 'Beta'

For the computation of Beta, a dataset of 68 power companies in the United States of America, has been analyzed, keeping in view the debt-equity structure of Helios Power (Pvt.) Limited. For the calculation of Beta, we have considered the dataset from Damodaran, which is a comprehensive list of existing publicly, traded IPPs in the USA. The dataset includes unlevered Betas of the companies.

We have calculated adjusted Beta as per Blume method to account for the fact that Beta is expected to revert to the mean level in the long term. This is calculated using the adjusted Beta formula ((Beta) x 2/3) + ((Market Beta of 1) x 1/3). The adjustment is required as the Beta is to be used for a Project that has 25 years project life (long term perspective) while associated risk-free rates used in CAPM calculations are based on ten (10) year US treasury bond rates. Accordingly, the associated adjusted unlevered Beta for US power sector is 0.55.

This is re-levered on 70 to 30 Debt to Equity basis, as allowed by NEPRA. Given the zero percent (0%) tax rate applicable to Helios Power (Pvt.) Limited, the same has been used for calculation of Beta. The final levered beta based on adjusted unlevered beta comes out to 1.82, which appropriately reflects the associated risks of the project.

d) Country Risk Premium (Credit Rating)

We have used Moody's Default Spread for the credit rating of Pakistan (B3) as a measure of country risk premium. This corresponds to a country risk premium of 7.29%. We have not applied the adjustment (using adjustment factor of 1.4) to the CRP as suggested by Damodaran, which increases the CRP to 10.21%. The same can be accessed at the following link:

http://www.stern.nyu.edu/~adamodar/pc/datasets/ctrypremJuly16.xls

6.3.2 ROE REQUESTED BY Helios Power (Pvt.) Limited

It is pertinent to mention here that rationale provided in Section 6.3.1 above, the appropriate required rate of equity return for the Project should be around 19.43%. However, inline with recent determinations by NEPRA and commitment of sponsors to provide clean energy at lowest possible tariff as discussed in Sections 6.3 and 4.2 above respectively, the Project Company is proposing the Reference Generation Tariff calculated at, *inter alia*, 16% ROE on IRR basis.

Based on the facts detailed above and keeping in view payment of upfront provincial sales tax on services during construction, which will be recovered over a period of one year, and upfront funding of Debt Service Reserve Account (DSRA) which will have a further hit on actual ROE, it is justified to request NEPRA to determine the ROE component based on a market return of 19.43% (IRR basis) for the Project.

However, as discussed above, Helios Power (Pvt.) Limited accepts ROE at 16 % (IRR basis), subject to the condition that the assumptions and Project Costs detailed in this Tariff Petition are accepted and allowed by NEPRA. In the event the NEPRA disallows or reduces any Project Costs or assumptions of Helios Power (Pvt.) Limited, the ROE is requested to be adjusted as per market return of 19.43% to arrive at a minimum levelized tariff of US Cents 5.9574 / kWh.

Further Helios Power (Pvt.) Limited has not assumed any Return on Equity During Construction Period and same is requested to be allowed at the time of one-time adjustment / tariff true-up at COD

A comparison of the tariff based on different rates of return are provided hereunder:

Impact of ROE on Levelized Tariff	At 16% proposed by Helios Power (Pvt.) Limited	Based on 19.43% under CAPM
Tariff during 1st 14 Year - US¢/kWh	6.6575	7.0803
Tariff during remaining 11 Years - US¢/kWh	2.9421	3.3650
Levelized Tariff - US¢/kWh	**5.9574**	**6.3802**

6.4 DEBT SERVICING

The capital structure of the Projects is envisaged at 75 to 25 (Debt to Equity). FMO Entrepreneurial Development Bank will provide a hundred percent (100%) of the required debt. The door to door tenor of the loan agreed with the lenders is 15 year. The financing will be based on 3-month LIBOR plus assuming a margin of 4.3 percent (4.3%) adjustable on quarterly basis.

It is pertinent to highlight that taxes (WHT or sales tax) on payment of interest/mark-up and lenders' monitoring/agency fees etc. have not been assumed in calculating proposed reference generation tariff. Accordingly if any such taxes become applicable then same are requested to be allowed at the tariff true-up stage.

6.4.1 TERMS OF DEBT FINANCING

The following terms for financing the debt portion of the Project Cost have been agreed and locked, between Helios Power (Pvt.) Limited and the lenders, through execution of the financing term sheets attached at **Annexure G**:

Cost Head	Terms
Total Project Value USD M	47.97
Total Value of Debt @ 75% of total project Value USD M	35.98
Base Rate	*3-month LIBOR*
Spread	4.30%
Repayment Period	14 years
Grace Period	Up to 12months
Re-Payment Schedule	Quarterly

7. OPERATIONAL COSTS

7.1 UNDERSTANDING & BENCHMARKS

Helios Power (Pvt.) Limited is in process of finalizing the O&M arrangement with Scatec Solar (Private) Limited (the **O&M Contractor**), wherein the initial term of O&M arrangement for the Project will be fourteen (14) years. Under the arrangement the O&M Contractor shall be responsible for provision or procurement and performance of all the works, services, supplies and other activities including management services necessary to operate and maintain the Project to ensure energy production is maximized and that the Project is operated and maintained in accordance with the applicable performance standards, agreed environmental-social & monitoring plans and prudent operating practices.

The initial term of fourteen (14) years for O&M services through a fixed contract is ensured to match the debt repayment period of the Project and provide additional comfort to the Lenders.

The O&M costs suggested in the Tariff Petition are clearly well within international and local benchmarks. It is the humble request of Helios Power (Pvt.) Limited that the O&M costs presented below may kindly be allowed by NEPRA in order to ensure smooth, efficient, and effective operation of the Project.

7.2 BREAKUP OF OPERATING COST

The operations cost of Helios Power (Pvt.) Limited comprises of the operations and maintenance cost and the cost of the operational insurances to be taken out by Helios Power (Pvt.) Limited. Break-up of the same is provided hereunder:

	USD IN THOUSANDS (PER ANNUM)	
YEARS	1 – 14	15 – 25
O&M COST (FOREIGN COMPONENT)*	633.80	585.80
O&M COST (LOCAL COMPONENT)**	142.58	142.58
INSURANCE COST	215.00	215.00
TOTAL OPERATING COST	**991.38**	**943.38**

* Lenders' monitoring/ agency fees will not be applicable after debt repayment period i-e 14th year.

** includes land lease charges.

7.2.1 O&M COST

The O&M arrangement will be executed through two separate contracts covering:

(i) Years 1 – 14 (Initial O&M Contract); and
(ii) Years 15 – 25 (Option of extended O&M Contract)

YEARS	USD IN THOUSANDS (PER ANNUM)	REQUESTED INDEXATIONS
	USD	
1 – 25	FOREIGN CURRENCY COMPONENT:	USD plus US CPI
	LOCAL CURRENCY COMPONENT:	Local CPI

External O&M services have to be procured by the Project for 14 years in order to fulfill the lenders requirement to have experienced O&M Contractors performing O&M services during the debt repayment period.

Upon completion of the fourteen (14) year O&M period (during which the O&M Contractor will be responsible for carrying out the O&M activities), Helios Power (Pvt.) Limited will carry out a cost benefit analysis of carrying out the O&M themselves or again outsourcing the work to an operations and maintenance contractor. The decision to either carry out the O&M function in-house or through an external source will depend on a number of factors including (i) level of development of the local solar industry, (ii) availability of critical spare parts in the secondary market, (iii) presence of skilled manpower in the local market etc.

Based on the reasons discussed above, Helios Power (Pvt.) Limited estimates that the cost of carrying out or out-sourcing the entire O&M function of the project is expected to remain same throughout the life of the Project except for the impact of debt financing related costs i-e monitoring & trustee charges.

7.2.2 Comparison of O&M Cost with NEPRA's previous upfront tariff determinations for Solar PV Projects

Helios Power (Pvt.) Limited has proposed O&M cost of US$ 15,528/MW/annum for first 14 years and US$ 14,568/MW/annum for last 11 years of the tariff period, compared to US$ 27,005/MW/annum proposed by NEPRA in Suo-Moto proceedings held in May 2016 and previous tariff upfront determinations for Solar Tariff determinations.

The Project Company requests the Authority to allow the requested O&M cost for smooth operation of the Project.

7.3 INSURANCE DURING O&M

The Insurance Cost consists of the insurances required under the Implementation Agreement and the Energy Purchase Agreement coupled with those customarily required for project financing transactions, including all-risk insurance/reinsurance, business interruption insurance, and machinery break-down, natural calamities, sabotage and terrorism. As these risks are an impediment to the smooth and efficient running of the day-to-day affairs of the Project, it is critical that all risks associated with the Project are adequately addressed and all insurable events are catered for in a foolproof manner. Keeping in view the generally adopted global trends and the magnitude of the Project, a comprehensive operational insurance and reinsurance arrangement is also fundamental to ensure bankability of the Project.

During the operations phase, Helios Power (Pvt.) Limited intends to acquire insurance from one of the leading insurance companies in the country. As it is

standard practice for local insurers to only retain five percent (5%) of the risk and acquire reinsurance for the remaining ninety-five (95%) through foreign re-insurer, it is prayed to NEPRA that the insurance costs for the operations phase be allowed in US Dollars (as has been done in case of all other power projects). The requirement to have the operational phase insurance cost denominated in US Dollars is further supported by the fact that the lenders financing the Project will inevitably require the Project to be insured on replacement cost basis; since a major part of the total Project Cost is already denominated in US Dollars, the replacement cost basis insurance would also need to be taken out in US Dollars. It is pertinent to highlight, that any replacement costs incurred as a consequence of the occurrence of an insurable event will also be incurred in US Dollars.

Helios Power (Pvt.) Limited, in view of the practices set by the other IPPs in Pakistan and in accordance with the requirements set by the lenders, proposes to procure the following insurance during the operational phase of the Project:

- Property Damage and Comprehensive Machinery Insurance (including Business Interruption insurance);
- Third Party Liability;
- Terrorism insurance;
- Group Personal Accident Insurance; and
- Motor Comprehensive Insurance.

The insurance cost has been estimated at 0.50% of the EPC Cost based on the strength of the Nizam Group, however any increase therefrom up to 0.75% of the EPC Cost may kindly be allowed upon submission of evidences. The insurance cost shall be charged by Helios Power (Pvt.) Limited at actual (subject to proposed cap) and will be recoverable as the insurance cost component of the Reference Generation Tariff.

The insurance cost (for the operations phase) set out in the Tariff Petition does not however, cover the administrative surcharge, Federal Excise Duty and Federal Insurance Fee, that might be applicable on the insurance cost, the same should be treated as a pass-through item under the tariff determination.

8. REFERENCE GENERATION TARIFF & DEBT SCHEDULE

8.1 TARIFF CONTROL PERIOD

As the Project is seventy-five percent (75 %) debt funded with loan tenure of fourteen (14) years for repayment, this means that there will be higher debt service cost requirements in the first fourteen (14) years of the Project. In the last eleven (11) years of the Project, the tariff will be decreased due to no debt service related costs.

The proposed tariff is for the life of the Project i.e. term of the EPA, signed with the Purchaser, which is twenty-five (25) years from COD. The tariff is divided into two (2) bands i.e. year 1 – 14 and year 15 – 25 to cover the variations due to the debt repayment period.

8.2 SUMMARY OF REFERENCE GENERATION TARIFF

A summarized Reference Generation Tariff table setting out the two bands is provided below:

PKR /kWh

YEARS		1 – 14	15 – 25
FIXED O&M	LOCAL	0.1539	0.1539
	FOREIGN	0.6841	0.6323
ROE		2.0710	2.0710
DEBT SERVICING		3.8493	0.0000
INSURANCE		0.2321	0.2321
TOTAL		**6.9904**	**3.0892**

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8.3 REFERENCE GENERATION TARIFF

Year	O&M (Local)	O&M (Foreign)	Insurance	ROE	Loan Repayment	Interest Payment	Total Tariff	Total Tariff
	PKR/kWh	PKR/kWh	PKR/kWh	PKR/kWh	PKR/kWh	PKR/kWh	PKR/kWh	US¢/kWh
1	0.1539	0.6841	0.2321	2.0710	1.9826	1.8667	6.9904	6.6575
2	0.1539	0.6841	0.2321	2.0710	2.0816	1.7677	6.9904	6.6575
3	0.1539	0.6841	0.2321	2.0710	2.1854	1.6639	6.9904	6.6575
4	0.1539	0.6841	0.2321	2.0710	2.2945	1.5548	6.9904	6.6575
5	0.1539	0.6841	0.2321	2.0710	2.4090	1.4403	6.9904	6.6575
6	0.1539	0.6841	0.2321	2.0710	2.5293	1.3200	6.9904	6.6575
7	0.1539	0.6841	0.2321	2.0710	2.6555	1.1938	6.9904	6.6575
8	0.1539	0.6841	0.2321	2.0710	2.7880	1.0613	6.9904	6.6575
9	0.1539	0.6841	0.2321	2.0710	2.9272	0.9221	6.9904	6.6575
10	0.1539	0.6841	0.2321	2.0710	3.0732	0.7760	6.9904	6.6575
11	0.1539	0.6841	0.2321	2.0710	3.2266	0.6227	6.9904	6.6575
12	0.1539	0.6841	0.2321	2.0710	3.3877	0.4616	6.9904	6.6575
13	0.1539	0.6841	0.2321	2.0710	3.5567	0.2926	6.9904	6.6575
14	0.1539	0.6841	0.2321	2.0710	3.7342	0.1151	6.9904	6.6575
15	0.1539	0.6323	0.2321	2.0710	0.0000	0.0000	3.0892	2.9421
16	0.1539	0.6323	0.2321	2.0710	0.0000	0.0000	3.0892	2.9421
17	0.1539	0.6323	0.2321	2.0710	0.0000	0.0000	3.0892	2.9421
18	0.1539	0.6323	0.2321	2.0710	0.0000	0.0000	3.0892	2.9421
19	0.1539	0.6323	0.2321	2.0710	0.0000	0.0000	3.0892	2.9421
20	0.1539	0.6323	0.2321	2.0710	0.0000	0.0000	3.0892	2.9421
21	0.1539	0.6323	0.2321	2.0710	0.0000	0.0000	3.0892	2.9421
22	0.1539	0.6323	0.2321	2.0710	0.0000	0.0000	3.0892	2.9421
23	0.1539	0.6323	0.2321	2.0710	0.0000	0.0000	3.0892	2.9421
24	0.1539	0.6323	0.2321	2.0710	0.0000	0.0000	3.0892	2.9421
25	0.1539	0.6323	0.2321	2.0710	0.0000	0.0000	3.0892	2.9421
						AVERAGE TARIFF	5.2739	5.0227
						LEVELIZED TARIFF	6.2553	5.9574

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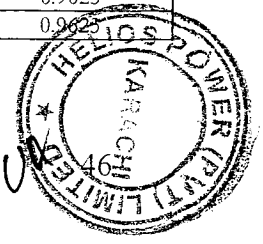
8.4 DEBT REPAYMENT SCHEDULE

Quarters	Principal Repayment - US$	Principal Repayment - Tariff Component (Rs/kWh)	Interest - US$	Interest - Tariff Component (Rs/kWh)	Instalments US$	Installment - Tariff Component (Rs/kWh)
1	450,865	0.4866	440,719	0.4757	891,584	0.9623
2	456,388	0.4926	435,196	0.4697	891,584	0.9623
3	461,979	0.4986	429,605	0.4637	891,584	0.9623
4	467,638	0.5047	423,946	0.4576	891,584	0.9623
5	473,366	0.5109	418,218	0.4514	891,584	0.9623
6	479,165	0.5172	412,419	0.4451	891,584	0.9623
7	485,035	0.5235	406,549	0.4388	891,584	0.9623
8	490,976	0.5299	400,607	0.4324	891,584	0.9623
9	496,991	0.5364	394,593	0.4259	891,584	0.9623
10	503,079	0.5430	388,505	0.4193	891,584	0.9623
11	509,242	0.5496	382,342	0.4127	891,584	0.9623
12	515,480	0.5564	376,104	0.4059	891,584	0.9623
13	521,795	0.5632	369,789	0.3991	891,584	0.9623
14	528,187	0.5701	363,397	0.3922	891,584	0.9623
15	534,657	0.5771	356,927	0.3852	891,584	0.9623
16	541,206	0.5841	350,377	0.3782	891,584	0.9623
17	547,836	0.5913	343,748	0.3710	891,584	0.9623
18	554,547	0.5985	337,037	0.3638	891,584	0.9623
19	561,340	0.6059	330,243	0.3564	891,584	0.9623
20	568,217	0.6133	323,367	0.3490	891,584	0.9623
21	575,178	0.6208	316,406	0.3415	891,584	0.9623
22	582,223	0.6284	309,360	0.3339	891,584	0.9623
23	589,356	0.6361	302,228	0.3262	891,584	0.9623
24	596,575	0.6439	295,009	0.3184	891,584	0.9623
25	603,883	0.6518	287,700	0.3105	891,584	0.9623
26	611,281	0.6598	280,303	0.3025	891,584	0.9623
27	618,769	0.6679	272,815	0.2945	891,584	0.9623
28	626,349	0.6760	265,235	0.2863	891,584	0.9623
29	634,022	0.6843	257,562	0.2780	891,584	0.9623
30	641,789	0.6927	249,795	0.2696	891,584	0.9623
31	649,650	0.7012	241,933	0.2611	891,584	0.9623
32	657,609	0.7098	233,975	0.2525	891,584	0.9623
33	665,664	0.7185	225,919	0.2438	891,584	0.9623
34	673,819	0.7273	217,765	0.2350	891,584	0.9623
35	682,073	0.7362	209,511	0.2261	891,584	0.9623
36	690,428	0.7452	201,155	0.2171	891,584	0.9623
37	698,886	0.7543	192,698	0.2080	891,584	0.9623
38	707,448	0.7636	184,136	0.1987	891,584	0.9623
39	716,114	0.7729	175,470	0.1894	891,584	0.9623
40	724,886	0.7824	166,698	0.1799	891,584	0.9623
41	733,766	0.7920	157,818	0.1703	891,584	0.9623
42	742,755	0.8017	148,829	0.1606	891,584	0.9623
43	751,853	0.8115	139,730	0.1508	891,584	0.9623
44	761,064	0.8214	130,520	0.1409	891,584	0.9623
45	770,387	0.8315	121,197	0.1308	891,584	0.9623
46	779,824	0.8417	111,760	0.1206	891,584	0.9623
47	789,377	0.8520	102,207	0.1103	891,584	0.9623
48	799,047	0.8624	92,537	0.0999	891,584	0.9623
49	808,835	0.8730	82,749	0.0893	891,584	0.9623
50	818,743	0.8837	72,841	0.0786	891,584	0.9623
51	828,773	0.8945	62,811	0.0678	891,584	0.9623
52	838,925	0.9055	52,659	0.0568	891,584	0.9623
53	849,202	0.9166	42,382	0.0457	891,584	0.9623
54	859,605	0.9278	31,979	0.0345	891,584	0.9623
55	870,135	0.9392	21,449	0.0232	891,584	0.9623
56	880,794	0.9507	10,790	0.0116	891,584	0.9623



8.5 CORRECTION FACTOR

The method for tariff calculation employed by NEPRA is based on the assumption that the energy produced on a monthly basis is the average of the annual energy production figure (i.e. annual energy production / 12) and therefore, the Project is expected to receive harmonized cash flows throughout the year.

However, the energy produced by the Project for a given month is directly dependent on the solar irradiation for that month, which varies significantly from one month to the next and thus results in erratic Project cash flows.

The total Project Cost is to be funded on a 75 to 25 Debt to Equity basis and variation in monthly solar irradiation will result in an un-even behavior of the cash flows – thus hampering the debt servicing capability of Helios Power (Pvt.) Limited. Therefore, Helios Power (Pvt.) Limited requests NEPRA to allow a correction factor to be applied to the monthly energy production figure (to be used for calculation of the Monthly Energy Payment (as defined under the EPA)) (the **Correction Factor**) that is similar to the treatment provided in Schedule 10 of the standard Power Purchase Agreements for thermal power producers.

The Correction Factor formula proposed to be applied for calculation of Monthly Energy (to be used for determining the Monthly Energy Payment) is set out below:

$$Correction\ Factor = \frac{\left(\frac{Sum\ of\ Monthly\ Benchmark\ Energy\ for\ a\ year}{12}\right)}{Monthly\ Benchmark\ Energy\ for\ the\ relevant\ month}$$

The Correction Factor being requested will not impact the total annual revenues of Helios Power (Pvt.) Limited and will only provide means of self-sustenance to the Project.

9. INDEXATIONS, ESCALATIONS AND COST ADJUSTMENT

9.1 INDEXATIONS

NEPRA is requested to allow indexation for the various Reference Generation Tariff components in the following manner.

9.1.1 FIXED O&M (LOCAL) COST COMPONENT

The Reference Fixed O&M (Local) Cost Component shall be quarterly indexed to the WPI of manufacturing in Pakistan, as notified by the Federal Bureau of Statistics based on the following formula:

$$FO\&M_{(LRev)} = \text{Relevant Reference Generation Tariff Component} * (WPI_{(Rev)} / WPI_{(Ref)})$$

Where:

$FO\&M_{(LRev)}$	=	the revised Fixed O&M (Local) Cost Component applicable for the relevant quarter.
$WPI_{(Rev)}$	=	the revised WPI of manufacturing in Pakistan for the month prior to the month in which indexation is applicable, as notified by the Federal Bureau of Statistics.
$WPI_{(Ref)}$	=	the WPI of manufacturing in Pakistan for the month in which tariff is determined, as notified by the Federal Bureau of Statistics.

9.1.2 FIXED O&M (FOREIGN - USD) COST COMPONENT

The Reference Foreign Fixed O&M (Foreign - USD) Cost Component shall be quarterly indexed to both:

(a) the USD/PKR exchange rate, based on the revised TT & OD selling rate of USD notified by the National Bank of Pakistan; and

(b) the US CPI (for all Urban-consumers), issued by the US Bureau of Labor Statistics.

The applicable formula shall be as follows:

$$FO\&M_{(FUSD - Rev)} = \text{Relevant Reference Generation Tariff Component} * (US\ CPI_{(Rev)} / US\ CPI_{(Ref)}) * (FX\ USD_{(Rev)}/105)$$

Where:

$FO\&M_{(FUSD - Rev)}$	=	the revised Foreign O&M (Foreign – USD) Cost Component, applicable for the relevant quarter

$US\ CPI_{(Rev)}$	=	the revised US CPI (for all Urban-consumers) for the month prior to the month in which indexation is applicable, issued by US Bureau of Labor Statistics.
$US\ CPI_{(Ref)}$	=	the US CPI (for all Urban-consumers) for the month in which tariff is determined, as issued by US Bureau of Labor Statistics.
$FX\ USD_{(Rev)}$	=	the revised TT & OD selling rate of PKR/USD as on the date on which indexation is applicable, as notified by the National Bank of Pakistan.

9.1.3 INSURANCE COST

The Reference Insurance Cost Component shall be quarterly indexed to USD/PKR exchange rate, based on the revised TT & OD selling rate of USD notified by the National Bank of Pakistan.

Furthermore, the Reference Insurance Cost Component has been calculated on the basis of insurance premium of US$ 215,000 (0.50% of the EPC Price) per annum, which is subject to a maximum cap of 0.75% of the EPC Price per annum on the production of actual insurance premium. This adjustment of Insurance Cost Component of the Reference Generation Tariff for increased insurance premium shall only be applicable if the actual insurance premium for any year is more than US$ 215,000 (0.50% of the EPC Price) and shall be applied for by Helios Power (Pvt.) Limited along with the quarterly indexations and shall be applicable for the then subsequent year.

(a) Indexation Formula

The indexation of the Insurance Cost Component shall be based on the following formula:

$$\mathbf{Insurance_{(Rev)} = Relevant\ Reference\ Generation\ Tariff\ Component * (FX\ USD_{(Rev)} / 105)}$$

Where:

$Insurance_{(Rev)}$	=	the revised Insurance Cost Component applicable for the relevant quarter.
$FX\ USD_{(Rev)}$	=	the revised TT & OD selling rate of PKR/USD as on the date on which indexation is applicable, as notified by the National Bank of Pakistan.

(b) Adjustment Formula

The adjustment of the Insurance Cost Component for increase in insurance premium shall be based on the following formula:

$$\text{Insurance}_{(Adj)} = \text{Relevant Reference Generation Tariff Component} * (P_{(Act)} / P_{(Ref)})$$

Where:

$\text{Insurance}_{(Adj)}$ = the revised Insurance Cost Component applicable for the relevant year.

$P_{(Act)}$ = Actual Insurance Premium or 0.75% of the EPC Price whichever is lower.

$P_{(Ref)}$ = Reference Insurance Premium of US$ 215,000 (0.50% of the EPC Price).

9.1.4 RETURN ON EQUITY

In line with NEPRA's previous determinations for thermal IPPs and the renewable energy IPPs, the ROE Component of the Reference Generation Tariff shall be quarterly indexed to the USD/PKR exchange rate, based on the revised TT & OD selling rate of USD notified by the National Bank of Pakistan.

The applicable formula shall be as follows:

$$ROE_{(Rev)} = \text{Relevant Reference Generation Tariff Component}* (FX\ USD_{(Rev)} / 105)$$

Where:

$ROE_{(Rev)}$ = the revised ROE component applicable for the relevant quarter.

$FX\ USD_{(Rev)}$ = the revised TT & OD selling rate of PKR/USD as on the date on which indexation is applicable, as notified by the National Bank of Pakistan.

9.1.5 PRINCIPAL COMPONENT (FOREIGN)

The Reference Principal Component (Foreign) shall be quarterly indexed to USD/PKR exchange rate, based on the revised TT & OD selling rate of USD notified by the National Bank of Pakistan.

The applicable formula shall be as follows:

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$$PRIN_{(FRev)} = \text{Relevant Reference Generation Tariff Component} * (FX\ USD_{(Rev)} / 105)$$

Where:

$PRIN_{(FRev)}$ = the revised Principal Component (Foreign) applicable for the relevant semi-annual period.

$FX\ USD_{(Rev)}$ = the revised TT & OD selling rate of PKR/USD as on the date on which indexation is applicable, as notified by the National Bank of Pakistan.

9.1.6 INTEREST CHARGES (FOREIGN)

The Interest Charges (Foreign) part of the Reference Debt Service Component shall be quarterly adjusted for variations in interest rate as a result of variation in 3 months LIBOR & foreign exchange fluctuations in the PKR / USD exchange rate.

The Interest Charges (Foreign) of the Debt Service Component shall be indexed based on the following formula:

$$I_{(Rev)} = \text{Relevant Generation Tariff Component} * (LIBOR_{(Rev)} + 4.3\%) / (LIBOR_{(Ref)} + 4.3\%) * (FX\ USD_{(Rev)} / 105)$$

Where:

$I_{(Rev)}$ = the revised Interest Charge component applicable for the relevant quarter.

$Libor_{(Rev)}$ = the revised 3 month LIBOR rate at the end of each 3 months period.

$Libor_{(Ref)}$ = 3 month LIBOR rate prevailing on the date of tariff determination.

$FX\ USD_{(Rev)}$ = the revised TT & OD selling rate of PKR/USD as on the date on which indexation is applicable, as notified by the National Bank of Pakistan.

9.2 ANNUAL DEGRADATION ADJUSTMENT

Aging and degradation of PV modules has an impact on the electricity generation and revenue inflows of the Project over twenty-five (25) years, accordingly Helios Power (Pvt.) Limited requests that actual degradation subject to a cap of 0.7% per annum of initial power may kindly be allowed through adjustment in Reference Tariff in respective years in line with the "Determination of National Electric Power Regulatory Authority in the Matter of Upfront Generation Tariff for Solar PV Power Plants" dated January 22, 2015.

For this purpose following formula is proposed for adjustment of annual degradation on the Project:

End of Year	Energy (GWh) at the busbar
1	$X_1=X_0$
2	$X_2=X_1*0.993$
3	$X_3=X_2*0.993$
4	$X_4=X_3*0.993$
....	....

X_0= Energy generation assumed for development of Tariff that is 97,281,470 kWh

a) 0.993 corresponds to a degradation factor of 0.7% which will be changed according to the actual degradation in the respective year.
b) $X_1,X_2,X_3,\ldots$ are energy values at the end of year 1, year 2, year 3, and so on if degradation is allowed subject to conditions to be satisfied are not above.
c) Reference tariff will be correspondingly adjusted in respective years.

9.3 ADJUSTMENTS AT COD

NEPRA is requested to allow the below adjustments to the Reference Generation Tariff at the time of true up at COD.

9.3.1 ADJUSTMENTS TO PROJECT COST

It is submitted that the Project Cost be adjusted at COD for the following based on the assumptions detailed in Section 5 (*Project Cost & Tariff*) and the adjustment to the Project Cost to be reflected in the relevant tariff components (Return on Equity and Debt Servicing):

(a) the Principal Repayment and cost of debt be adjusted at COD as per the actual borrowing composition;

(b) interest During Construction be adjusted as per actual based on actual disbursement of loans and prevailing LIBOR rates during the project construction period;

(c) the specific items of Project Cost to be incurred in foreign currency (US$) be adjusted at COD based on the PKR / US$ exchange rate prevailing on the date the transaction was carried out;

(d) customs duty and other taxes (including SIDS) be adjusted/allowed as per actual;

(e) any negative financial implications resulting from changes in tax rates, duties etc. and currently applicable sales tax structure may kindly be adjusted in the Project Cost;

(f) pre-COD Insurance Cost be adjusted at actual subject to a cap of one percent (1 %) of the EPC cost in line with earlier tariff determinations by NEPRA for other IPPs;

(g) ROE be adjusted at COD in order to ensure an IRR based return of 16% on equity (while treating the project as a Build-Own-Operate type project). However as discussed in the relevant section of this Tariff Petition that 16% on equity is subject to acceptance of assumptions and Project Costs detailed in this Tariff Petition. Any resultant upward revision in 16%, because of any revision in assumptions or Project Cost, the revised increased rate is to be used for adjustments in Project Costs at COD; and

(h) ROEDC is to be allowed at the time of COD, as true-up adjustment, based on actual equity injections to the Helios Power (Pvt.) Limited by the Project Sponsors.

10. CONSIDERATIONS WITH RESPECT TO EPA

10.1 ENERGY PRODUCTION

Helios Power (Pvt.) Limited has assumed an initial energy estimate of 97 281 MWh (Year 1) for development of this tariff petition. This estimate is based on *Probability of Exceedance (PoE) level of* P50 – 50% probability that energy production will be below this level.

The probability of Exceedance describes how confident a calculated result is; in this case it relates to energy production.

For calculation of P-50 based energy estimate following method has been used for resource assessment of the Project:

In order to conduct the detailed resource assessment, Site assessment surveys were conducted, solar resource from different commonly used meteorological database were reviewed and conceptual PV plant design was modelled in "PVsyst".

Based on the preliminary findings from site assessment, MeteoNorm7 is selected for the solar resource and energy yield calculations. The long term annual average solar resources i.e. Global Horizontal Irradiation (GHI) estimated based on 16 years of solar data (1999-2010) is found to be 1987.6 kWh/m2. This level of solar resource is attractive for the development of PV project. The Project energy has been estimated based on the specifications provided by the equipment manufacturer (datasheet).

For the energy estimation, following equipment is considered:

- Panels: BYD-330-P6D-36DG-4BB
- Inverters: Sungrow SG3000 HV

The calculations are performed in professional software PVSyst 6.3.8 and all losses have been taken into account. The energy yield estimation considers a preliminary conceptual design comprising of PolySi solar PV module from BYD and central inverter from Sungrow.

The 50 MWp Helios Power (Pvt.) Limited Solar PV farm is expected to produce 97 281 MWh during its first year of operation. The corresponding capacity factor is estimated as 22.21%.

11. GENERAL ASSUMPTIONS

The following have been assumed while calculating the Reference Generation Tariff and changes in any of these assumptions will result in changes in the Reference Generation Tariff:

1. Debt to Equity ratio is assumed to be 75 to 25;

2. foreign lenders shall contribute towards funding a hundred percent (100%) of the Debt (LIBOR based financing);

3. interest rate for LIBOR based debt has been determined based on 3 Month LIBOR (0.60%) plus 4.30% spread and quarterly indexation on the same will be allowed by NEPRA;

4. indexation against PKR / USD variations will be permitted for debt servicing payments to be made for settlement of foreign source debt;

5. a constant ROE of 16% (IRR based) is assumed, that is subject to the acceptance by NEPRA of the assumptions and Project Costs set out in this Tariff Petition;

6. exchange rate have been assumed to be: PKR 105 /USD;

7. any taxes federal, provincial, local or district, stamp duties and levies etc. which are not factored in the tariff calculation shall be treated as pass through items, in terms of the EPA;

8. no customs duties and income tax have been considered for imports. Any changes in the customs duties or any other duty or tax on import of equipment and material will be treated as "pass through" to the Purchaser. Similarly, customs duties on spare parts after COD will be "passed through" to the Purchaser;

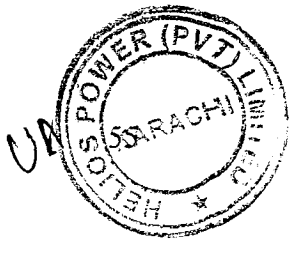
9. any change in the existing structure of sales tax that results in negative impact on project is assumed to be adjusted in tariff at COD;

10. deduction of withholding tax is assumed only in the On-Shore Contract. No withholding tax has been considered in the Off- Shore Contract. Any additional tax, if levied, will be "pass through" to the Purchaser;

11. 7.5% withholding tax on dividend is assumed. Any changes in the aforesaid withholding tax regime will be "pass through" to the Purchaser;

12. the Zakat deduction on dividends (currently @ 2.5%), as required to be deducted under Zakat Ordinance, is to be considered as "pass through";

13. Sindh Infrastructure Development Surcharge on the imports for the Project has not been assumed and shall be treated as "pass through" to the Purchaser;



14. Federal Excise Duty has not been assumed as part of the Project Cost; in case the same is required to be paid by the Project, the same should be treated as pass-through under the tariff;

15. the Purchaser shall be exclusively responsible for the financing of construction, operation and maintenance of the interconnection and transmission lines as per the prevailing policy at the time of tariff determination;

16. Main Energy meter will be provided by the Purchaser at its own cost;

17. financing terms are based on the initial discussion with the financial institutions and hence are subject to final negotiations once tariff has been determined by NEPRA and the EPA / IA are signed. This will include mainly the debt-equity ratio, grace period and loan repayment term, benchmark index (LIBOR/KIBOR) and the spread margin of the financial institution;

18. pre-COD insurance costs are considered based on the estimates in line with market rates and Group's strengths. Premium rate for the insurance arrangements will be finalized at the time of financial close;

19. no hedging cost is assumed for exchange rate fluctuations during construction and all cost overruns resulting from variations in the exchange rate during construction shall be included in the Project Cost.;

20. project contingency and maintenance reserves are not included in Reference Generation Tariff calculations. If required by lenders, these will be adjusted accordingly in the Reference Generation Tariff;

21. any other assumptions that are not expressly stated herein but are based on the EPA draft negotiated by Helios Power (Pvt.) Limited with the Purchaser. Consequently, any change in any such assumptions may lead to change in the Reference Generation Tariff;

22. the payments to Workers Welfare Fund and Workers Profit Participation Fund have not been accounted for in the Project budget and have been assumed to be reimbursed at actual by the Purchaser;

23. adjustment in Reference Tariff in respective years for annual degradation, as provided under Section 9.2;

24. insurance during operations will be allowed annually by NEPRA subject to the maximum cap of 0.75% of EPC cost; and

25. any incentives given to any other solar IPP shall also be given to Helios Power (Pvt.) Limited.

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12. TARIFF SUMMARY

In summation, Helios Power (Pvt.) Limited herewith most respectfully submits before NEPRA for its approval the matters set out in this Tariff Petition and further prays for NEPRA to kindly approve the following:

12.1 the Project Costs and related arrangements stated in this Tariff Petition be allowed to the Petitioner;

12.2 energy production estimate of 97.281 GWh per annum for calculation of the tariff and energy payments for the years 1 – 25 after COD;

12.3 funding of the Project on an 75 to 25 Debt to Equity basis;

12.4 100 % foreign debt on LIBOR basis;

12.5 LIBOR based debt financing (100%) with a base rate equal to 3-Month LIBOR plus a spread of 4.30%;

12.6 sharing of any CER related revenues subsequently realized, as per the Government of Pakistan policy;

12.7 a Return on Equity of 16%, reasons for which have been provided in detail in Section 6.3 (*Equity*) above;

12.8 indexations and adjustments for the individual tariff components, as detailed in Section 9 (*Indexations, Adjustments and Cost Escalations*) above;

12.9 the Reference Generation Tariff provided under Section 8.3 (*Reference Generation Tariff Table*) above along with individual tariff components and debt schedule provided under Section 8.4 (*Debt Schedule*) above;

12.10 adjustment in Reference Tariff in respective years for annual degradation, as provided under Section 9.2 (*Adjustment for Annual De-gradation*);

12.11 adjustments at COD, as provided under Section 9.3 (*Adjustments at COD*) above; and

12.12 the General Assumptions, as provided in this Section 11 (*General Assumptions*).

Furthermore, given the advance stage of the Project, NEPRA is kindly requested to process the Tariff Petition at the earliest thereby enabling Helios Power (Pvt.) Limited to proceed further with the development process.

Helios Power (Private) Limited
Dated: 7th August 2017