National Electric Power Regulatory Authority
Islamic Republic of Pakistan

Registrar

NEPRA Tower, Attaturk Avenue (East), G-5/1, Islamabad
Ph: +92-51-9206500, Fax: +92-51-2600026
Web: www.nepra.org.pk, E-mail: registrar@nepra.org.pk

No. NEPRA/R/DL/LAG-377/ 10059-64 June 13, 2017

Mr. Aslam Faruque,
Chief Executive Officer,
Mirpurkhas Energy Limited (MPREL)
Modern Motors House, Beaumont Road,
Karachi-75530.
Ph: 021-111354111

Subject: **Grant of Generation Licence No. IGSPL/84/2017**
Licence Application No. LAG-377
Mirpurkhas Energy Limited (MPREL)

Reference: MPREL's application vide letter dated January 10, 2017 (received on January 17, 2017).

Enclosed please find herewith Determination of the Authority in the matter of Application of Mirpurkhas Energy Limited (MPREL) for the Grant of Generation Licence along with Generation Licence No. IGSPL/84/2017 annexed to this determination granted by the National Electric Power Regulatory Authority (NEPRA) to MPREL for its 26.00 MW Bagasse based Co-Generation Facility located at Jamrao Umerkot Road, Taluka Hussain Bux, District Mirpurkhas, in the province of Sindh, pursuant to Section 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997).

2. Please quote above mentioned Generation Licence No. for future correspondence.

Enclosure: Generation Licence (IGSPL/84/2017)

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13.06.17

(Syed Safeer Hussain)

Copy to:

1. Chief Executive Officer, Alternative Energy Development Board (AEDB), 2nd Floor, OPF Building, G-5/2, Islamabad.
2. Chief Executive Officer, NTDC, 414-WAPDA House, Lahore.
3. Chief Executive Officer, CPPA-G, ENERCON Building, Sector G-5/2, Islamabad.
4. Chief Executive Officer, Hyderabad Electric Supply Company Limited (HESCO), WAPDA Offices Complex, Hussainabad, Hyderabad
5. Director General, Environment Protection Department, Government of Sindh, Complex Plot No. ST-2/1, Korangi Industrial Area, Karachi.

National Electric Power Regulatory Authority (NEPRA)

Determination of the Authority in the Matter of Application of Mirpurkhas Energy Limited for the Grant of Generation Licence

June 02, 2017
Case No. LAG-377

(A). Background

(i). In order to commercially harness the potential of the Renewable Energy (RE) Resources in the country, the Government of Pakistan (GoP) has set up Alternative Energy Development Board (AEDB) as one window facilitator for the potential investors. In this regard, GoP has formulated "the Policy for Development of Renewable Energy for Power Generation 2006" (the "RE Policy").

(ii). Initially, the scope of the RE Policy included development of hydro, wind, and solar technologies. Later on, GoP amended the scope of the RE Policy to include power projects based on bagasse, biomass, waste-to-energy and bio-energy. Further, GoP also extended the applicability of the RE Policy for an additional five years w.e.f. March 06, 2013. According to the said amendments, high-pressure (minimum 60 bar) bagasse/bio-mass based projects are envisaged to be set up as part of an existing sugar mill or as a separate entity.

(iii). In this regard, AEDB has issued Letter of Intent (LoI) to various developers. One such LoI was issued to Mirpurkhas Energy Limited (MPREL), for setting up a 26.00 MW bagasse based project in the province of Sindh. According to the LoI, the company was required to approach the Authority for the grant of generation licence and acceptance of the already determined up-front tariff.

(B). Filing of Application

(i). MPREL submitted an application on January 17, 2017 for the grant of generation licence in terms of Section-15 of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (the "NEPRA Act") read

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with the relevant provisions of the NEPRA Licensing (Application and Modification Procedure) Regulations, 1999 (the "Licensing Regulations").

(ii). The Registrar examined the submitted application to confirm its compliance with the Licensing Regulations and observed that the application lacked some of the required information/documentation. Accordingly, MPREL was directed to submit the missing information/documentation and the same was submitted on February 01, 2017. The Authority considered the matter and found the form and content of the application in substantial compliance with Regulation-3 of the Licensing Regulations. Accordingly, the Authority admitted the application on February 15, 2017 for consideration of the grant of the generation licence as stipulated in Regulation-7 of the Licensing Regulations. The Authority approved an advertisement to invite comments of general public, interested and affected persons in the matter as stipulated in Regulation-8 of the Licensing Regulations. Accordingly, notices were published in one (01) Urdu and one (01) English newspapers on February 18, 2017.

(iii). In addition to the above, the Authority approved a list of stakeholders for seeking their comments for the assistance of the Authority in the matter in terms of Regulation-9(2) of the Licensing Regulations. Accordingly, letters were sent to different stakeholders as per the approved list on February 21, 2017, soliciting their comments for the assistance of the Authority.

(C). Comments of Stakeholders

(i). In reply to the above, the Authority received comments from four (04) stakeholders. These included Ministry of Petroleum & Natural Resources (MoP&NR), AEDB, Anwar Kamal Law Associates (AKLA) and Energy Department Govt. of Sindh (EDGoS). The salient points of the comments offered by the said stakeholders are summarized below:-

(a). MoP&NR remarked that MPREL intends setting up a bagasse based generation facility for which no fossil fuel (i.e. oil, gas or

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coal) is required. Therefore, ministry has no objection in the matter;

(b). AEDB confirmed the issuance of the LoI for the project in terms of the RE Policy. Further, AEDB supported the issuance of generation licence to the project subject to fulfilment of all codal formalities in the matter;

(c). AKLA highlighted different issues pertaining to the power sector of the country including (a). surplus capacity; (b) underutilization of power plants; and (c). induction of new power plants on "Take or Pay" basis etc. Further, AKLA contested that RE power plants are not viable financially and economically due to higher upfront tariff and "must run condition". AKLA also questioned the induction of RE projects in the current scenario (i.e. reduction in oil prices, RLNG contract with Qatar, upcoming coal power projects and introduction of competitive market etc.), affordability vs. availability of electric power and long term PPAs on "Take or Pay" basis etc. AKLA stated that it not against setting up of new power plants and in this regard a very careful estimate of required generation capacities should be made or the licences should be granted on "Take and Pay" basis; and

(d). EDGoS submitted that country is facing energy crisis for which efforts are being made to exploit the indigenous RE potential in the country therefore, EDGoS supports the grant of generation licence to MPREL.

(ii). The Authority reviewed the above comments of the stakeholders and decided to seek the perspective of MPREL on the observations of AKLA. In reply to the said, MPREL submitted that points raised by AKLA relate to the policies of GoP for promotion of RE in the country and have been filed without fully appreciating the dynamics of the project, energy sector, financial and technical

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considerations relevant for determining project parameters. The biggest concern expressed by AKLA is that the projects are being planned on "Take or Pay" and the same may be changed to "Take and Pay". Under the current structure of the power sector which is governed by the regulated tariffs, till such time a flawless mechanism and market structure is introduced which can protect the interest of the power producer in terms of their ability to meet their fixed costs, a "Take and Pay" tariff structure for power projects is not bankable.

(iii). Further to the above, MPREL submitted that the renewable energy and greater use of indigenous resources can help diversify the energy mix of the country and reduce the dependence on imported fossil fuels, thereby mitigating against supply disruptions and price fluctuation risks. Bagasse based projects being set up by sugar mills are virtually foreign currency neutral. All fuel is locally generated and procured, projects are being financed by local banks in local currency and there is no foreign currency repatriation of dividends since all equity is being contributed by sugar mills in local currency. In case of other projects, the above three factors are expected to put considerable pressure on foreign currency requirement of the country in the future.

(iv). MPREL further stated that AKLA in its comments claimed that generation capacity of Pakistan is surplus. It appears that the commentator is not fully aware about the operational capacity and installed capacity, for instance the installed capacity of the hydro projects cannot operate at full load throughout the year as it is dependent on the hydrology. Furthermore, a sizeable portion of installed capacity is inefficient and not economically viable to be operated. Regarding the comparison of the project with furnace oil based generation facilities, MPREL highlighted that in the best scenario of the current low fuel prices, even the tariff for bagasse based projects is very much comparable. Further, the bagasse based projects being based on indigenous resource, do not result in drainage of any foreign exchange reserves. MPREL concluded that in the long run and on a levelized basis, the tariff for the bagasse based project would essentially

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be lower than fuel based projects considering that prices of fuel are highly volatile and cannot be assumed at the current low level.

(v). MPREL submitted that although there are projects under construction on coal and RLNG fuels, however, the ever-increasing demand of electricity will continue to exist therefore, RE has to maintain a sizeable share in the overall energy mix. It is pertinent to mention that indigenous renewable sector will result in savings of precious foreign exchange. Presently, Pakistan has the lowest contribution of renewable in the energy mix which needs to be improved to the level of other developing countries.

(vi). The Authority has considered the comments of the stakeholders, the reply of MPREL and observes that except AKLA, all the stakeholders have supported the grant of generation licence to MPREL. The Authority observes that AKLA while submitting its comments has referred to its previous correspondences made on different issues including (a). surplus capacity; (b). capacity payment without supplying electricity; (c). addition of high cost renewable plants; (d). underutilization of power plants; and (e). induction of new power plants on "Take or Pay" basis and others. In this regard, the Authority observes that it has duly addressed the aforementioned objections/comments and sent a comprehensive reply to AKLA through letter no. NEPRA/SAT-I/TRF-100/17060, dated December 27, 2016. The Authority reiterates its earlier findings and observations given in the aforementioned letter and is of the considered opinion that there is considerable supply demand gap resulting in load-shedding and load management. It is substantiated by the fact that the proposed generation facility of MPREL is included in the future expansion plan of Hyderabad Electric Supply Company Limited (HESCO) for which it has already given a consent to Central Power Purchasing Agency (Guarantee) Limited (CPPA-G) which acts an agent for the utilities. Further, CPPA-G has also filed a power acquisition request for purchasing power from MPREL. Regarding the observations of AKLA that RE projects should have "Take and Pay" tariff, the Authority hereby clarifies that it had already determined an upfront tariff which is on unit delivered basis which means that a

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power producer/generation company is paid only for the energy it delivers. In view of foregoing, the Authority considers that the observations of AKLA stand suitably addressed.

(vii). In consideration of the above and having addressed the comments/objections, the Authority considered it appropriate to proceed further in the matter of application of MPREL for the consideration of grant of generation licence as stipulated in the Licensing Regulations and NEPRA Licensing (Generation) Rules, 2000 (the "Generation Rules").

(D). Evaluation/Findings

(i). The Authority has examined the submissions of MPREL including the information provided in its application for the grant of generation licence. The Authority has also considered the feasibility study of the project, interconnection & dispersal arrangement studies, provisions of the RE Policy, the relevant rules & regulations.

(ii). The Authority has observed that Ghulam Faruque Group is the main sponsor of the project, which is ranked amongst the most prominent commercial and industrial business houses of Pakistan. The group is recognized for its entrepreneurial skills and valuable contribution to the economy of the country. Since its inception in 1964, the group has continuously strengthened and diversified its lines of operation, which includes production of cement, sugar, ethanol and other allied products, packing material, construction of power transmission lines and grids, supply and installation of HVAC equipment, CNG filling stations and software development etc.

(iii). As part of its sugar business, the group had set up a sugar mill in the name of Mirpurkhas Sugar Mills Limited (MSML) with a crushing capacity of 8500 TCD located at Jamrao Umerkot Road, Taluka Hussain Bux Mari, District Mirpurkhas in the Province of Sindh. As part of the said facility, MSML owns, operates and maintains a generation facility/Captive Power Plant (CPP) with an installed capacity of 8.50 MW for which the Authority granted a generation

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licence (No. SGC/109/2015, dated February 13, 2015) for the above mentioned generation facility. MSML planned supplying around 7.00 MW of surplus electric power to HESCO from the said generation facility through a Power Purchase Agreement (PPA) however, the matter could not be materialized due to lack of interest of HESCO. It is pertinent to mention that apart from the said generation facility, the group owns different captive power plants to the tune of around 30.00 MW at different locations. According to the provided information, the sponsors have a total assets of Rs. 17.00 billion. In consideration of the above, the Authority is of the considered opinion that the sponsor has reasonable financial and technical capability to develop small and medium sized generation facilities.

(iv). The Authority has observed that based on the financial strength and other evaluation parameters, AEDB issued LoI for setting up an approximately 26.00 MW bagasse based generation facility/co-generation facility/power plant within MSML at above location. In order to implement the project, the sponsors incorporated a Special Purpose Vehicle (SPV) in the name of MPREL under Section-32 of the Companies Ordinance 1984 (XLVII of 1984) having Corporate Universal Identification No. 0101020, dated August 04, 2016. The memorandum of association of SPV/project company includes *inter alia* power generation and its sale as one of its business objects. The Authority has observed that SPV/MPREL carried out a feasibility study of the project including inter alia, proposed equipment for generation facility/co-generation facility/power plant, soil tests reports, technical details pertaining to selection of steam turbine generator and other allied equipment, electrical studies, environmental study and project financing etc. According to the feasibility study, the project company/MPREL will be setting up a 26.00 MW bagasse based generation facility/co-generation facility/power plant. In this regard, the sponsors have submitted necessary documents confirming that the proposed site of the project is in their name and possession.

(v). In consideration of the above, MPREL has confirmed that the proposed generation facility/co-generation facility/power plant will be consisting of

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1 x 26.00 MW of steam turbine (extraction cum condensing type) with high pressure (110 bar, 540°C) travelling grate boiler. According to the submitted information, the net efficiency of the proposed generation facility/co-generation facility/power plant will be at least 24.50%. The proposed generation facility/co-generation facility/power plant will be utilizing bagasse for firing the boiler.

(vi). The Authority has observed that the proposed generation facility/co-generation facility/power plant will utilize the bagasse generated from MSML. In this regard, MPREL has confirmed that the bagasse generated from MSML will be sufficient to operate the proposed generation facility/co-generation facility/power plant to meet with the required plant factor and plant availability as stipulated in the determination of the Authority No. NEPRA/R/TRF-UTB-2013/5152-54, dated May 29, 2013 for the upfront tariff for bagasse based projects. MPREL has also confirmed that if there is shortage of bagasse in the area due to change in pattern of crop of sugarcane, the bagasse will be purchased from the market and will be utilized for the operation of the generation facility/co-generation facility/power plant. In view of the above, the Authority is satisfied that the project will have the required fuel for the operation of the proposed generation facility/co-generation facility/power plant.

(vii). The Authority has noted that MPREL carried out the required interconnection and system stability study for dispersal of electric power from the proposed generation facility/co-generation facility/power plant. According to the said study, the dispersal of electric power will be made at 132 kV voltage level. The dispersal/interconnection arrangement will be consisting of 132 kV Double Circuit (D/C) transmission line (on ACSR LYNX Conductor) measuring about two (02) km in length, for making an In-Out of existing 132 KV S/C Mirpur Khas-Samaro transmission line connecting the generation facility/co-generation facility/power plant of MPREL with the network of HESCO. The Authority is satisfied that HESCO has reviewed the proposal for interconnection study and accorded approval of the same. Further, NTDC has also endorsed the proposed arrangement for interconnection.

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(viii). The Authority is encouraged that the proposed project of MPREL will be utilizing bagasse which is RE source. However, the Authority has observed that the proposed generation facility/co-generation facility/power plant will be working as a conventional thermal power plant using steam turbine for generation of electric power/energy that may cause environmental concerns. In this regard, the Authority has observed that MPREL carried out the Initial Environment Examination Study and Environmental Protection Agency, Government of the Sindh (EPAGoS) has issued a No Objection Certificate (NOC) for the construction of the project.

(ix). In terms of Rule-3 of the Generation Rules, the Authority may grant a generation licence to any person to engage in the generation business. In the particular case under consideration, the Authority has observed that MPREL has provided details of location, technology, size, net capacity/energy yield, interconnection arrangements, technical limits, technical functional specifications and other details specific to the generation facilities stratifying provisions of Rule-3(2) and Rule-3(3).

(x). Regarding the Rule-3(5) of the Generation Rules which stipulates that the Authority may refuse to issue a generation licence where the site, technology, design, fuel, tariff or other relevant matters pertaining to the generation facility/co-generation facility/power plant proposed in an application for a generation licence are either not suitable on environmental grounds or do not satisfy the least cost option criteria. In this regard, the Rule-3(5) of the Generation Rules stipulates the conditions pertaining to Least Cost Option Criteria which includes (a). sustainable development or optimum utilization of the RE or non-RE resources proposed for generation of electric power; (b). the availability of indigenous fuel and other resources; (c). the comparative costs of the construction, operation and maintenance of the proposed generation facility/co-generation facility/power plant against the preferences indicated by the Authority; (d). the cost and right-of-way considerations related to the provision of transmission and interconnection facilities; (e). the constraints on the transmission system likely to result from the

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proposed generation facility/co-generation facility/power plant and the costs of the transmission system expansion required to remove such constraints; (f). the short-term and the long-term forecasts for additional capacity requirements; (g). the tariff resulting or likely to result from the construction or operation of the proposed generation facility/co-generation facility/power plant; and (h). the optimum utilization of various sites in the context of both the short-term and the long-term requirements of the electric power industry as a whole.

(xi). In consideration of the above, the Authority considers that the proposed project will result in optimum utilization of the RE which was earlier untapped, resulting in pollution free electric power. The Authority is of the considered opinion that bagasse is an indigenous fuel and such fuels should have a preference for the energy security. As explained above, the Authority through its determination No. NEPRA/R/TRF-UTB-2013/5152-54, dated May 29, 2013 announced an upfront levelized tariff for the future bagasse projects which works out to be Pak. Rs. 10.4078/kWh which is very competitive considering the fact that not only cheap electric power will be generated but it will utilize the bagasse and other bio-mass which is otherwise burnt causing air and soil pollution.

(xii). As explained at Para-D(vii) above, the sponsors of the project carried out the grid interconnection study which concludes that the project will not face any constraints in transmission system. Further, being located at reasonable distance from the thick population, the project will not result in cost and right-of-way issue for the provision of transmission and interconnection facilities. The Authority has observed that HESCO has included the project in its mid and long-term forecasts for additional capacity requirements. In view of the said, the Authority is of the considered view that the project of MPREL fulfills the eligibility criteria for grant of generation licence as stipulated in the NEPRA Act, rules and regulations and other applicable documents.

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(E). Grant of Generation Licence

(i). The sustainable and affordable energy/electricity is a key prerequisite for socio-economic development of any country. In fact, the economic growth of any country is directly linked with the availability of safe, secure, reliable and cheaper supply of energy/electricity. In view of the said reasons, the Authority is of the considered opinion that for sustainable development, all indigenous power generation resources including RE must be developed on priority basis.

(ii). The existing energy mix of the country is heavily skewed towards the thermal power plants, mainly operating on imported fossil fuel. The continuous import of fossil fuel not only creates pressure on the precious foreign exchange reserves of the country but is also an environmental concern. Therefore, in order to achieve sustainable development it is imperative that indigenous RE resources are given priority for power generation and their development is encouraged. The Energy Security Action Plan 2005 approved by the GoP, duly recognizes this very aspect of power generation through RE and envisages that at least 5% of total national power generation capacity (i.e. 9700 MW) to be met through RE resources by 2030.

(iii). The Authority considers that the proposed project of MPREL is consistent with the provisions of Energy Security Action Plan 2005. The project will help in diversifying the energy portfolio of the country. Further, it will not only enhance the energy security of the country by reducing the dependence on imported fuel but will also help in reducing the carbon emission by generating clean electricity, thus improving the environment.

(iv). As explained at Para-D(ix) above, MPREL has provided the details of location, technology, size, net capacity/energy yield, interconnection arrangements, technical details and other related information for the proposed generation facility/co-generation facility/power plant. In this regard, the Authority has observed that sponsors of the project have acquired approximately twenty (20) acres of land for setting up the generation facility/co-generation facility/power

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plant. The said details have been incorporated in Schedule-I of the proposed generation licence. In this regard, the Authority directs MPREL to utilize the said mentioned land for the exclusive purpose of setting up of the proposed generation facility/co-generation/power plant and not to change its use except with its prior approval.

(v). The term of a generation licence under Rule-5(1) of the Generation Rules is required to match with the maximum expected useful life of the units comprised in a generating facility. According to the information provided by MPREL, the COD of the proposed generation facility/co-generation facility/power plant will be March 31, 2019 and it will have a useful life of more than thirty (30) years from its COD. In this regard, MPREL has requested that the term of the proposed generation licence may be fixed to thirty (30) years in consistent with the term of the proposed Energy Purchase Agreement (EPA) to be signed with the power purchaser. The Authority considers that said submission of MPREL about the useful life of the generation facility/co-generation facility/power plant and the subsequent request of MPREL to fix the term of the generation licence is consistent with international benchmarks therefore, the Authority fixes the term of the generation licence to thirty (30) years from COD of the project.

(vi). Regarding the tariff, it is hereby clarified that under Section-7(3)(a) of the NEPRA Act, determining tariff, rate and charges etc. is the sole prerogative of the Authority. As explained at Para-D(vi) above, the project is being developed in terms of the upfront tariff for bagasse based projects, announced vide determination of the Authority No. NEPRA/R/TRF-UTB-2013/5152-54, dated May 29, 2013. In this regard, MPREL has already submitted an application for acceptance of the said upfront tariff. Notwithstanding the said, the Authority directs MPREL to charge the power purchaser only such tariff which has been determined, approved or specified by it. In this regard, the Authority decides to include Article-6 in the proposed generation licence and directs MPREL to adhere to the provision of the said article of the generation licence in letter and spirit without any exception.

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(vii). Regarding compliance with the environmental standards, as stated at Para-D(viii) above, MPREL has provided the NOC from EPAGoS and has confirmed that project will comply with the required standards during the term of the generation licence. In view of the importance of the issue, the Authority has decided to include a separate article (i.e. Article-10) in the generation licence along with other terms and conditions making it obligatory for MPREL to comply with relevant environmental standards at all times. Further, the Authority directs MPREL to submit a report on a bi-annual basis, confirming that operation of its generation facility/co-generation facility/power plant is in compliance with the required environmental standards as prescribed by the concerned environmental protection agency.

(viii). The proposed generation facility/co-generation facility/power plant of MPREL will be using RE resource for generation of electric power. Therefore, the project may qualify for the carbon credits under the Kyoto Protocol. Under the said protocol, projects coming into operation up to the year 2020 can qualify for the carbon credits. MPREL has informed that the project will achieve COD by March 31, 2019 which is within the deadline of the Kyoto Protocol. In view of the said, an article (i.e. Article-12) for carbon credits and its sharing with the power purchaser has been included in the generation licence. Foregoing in view, the Authority directs MPREL to initiate the process in this regard at the earliest so that proceeds for the carbon credits are materialized. MPREL will be required to share the proceeds of the carbon credits with the power purchaser as stipulated in Article-12 of the generation licence.

(ix). The Authority has observed that proposed generation facility/co-generation facility/power plant of MPREL will be supplying to the power purchaser approximately 19.65 MW and 23.16 MW of clean electric power during crushing and off season respectively. In addition to supplying the national grid, MPREL also plan to supply to MSML to the tune of 4.01 MW and 00.50 MW during crushing season and off season respectively. According to Section-2(ii) of the NEPRA Act, a Bulk Power Consumer (BPC) is consumer which purchases or receives electric

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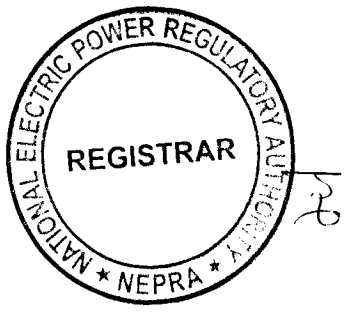
power at one premises, in an amount of one megawatt or more or in such amount and voltage level and with such characteristics as the Authority may determine. In view of said, MSML qualifies as BPC under the NEPRA Act and accordingly the Authority declares MSML a BPC of MPREL.

(x). Regarding supply to MSML, the Authority observes that both MSML and MPREL are located within the same premises. Further, MSML will be supplied through one (01) underground cables/feeders of 11 KV voltage (measuring about 500 meters) not involving any public or third party property. Pursuant to proviso to Section-21 of the NEPRA Act, the Authority is empowered to allow a generation company to sell electric power to a BPC located in the service territory of a distribution company. In view of the said, the Authority allows the proposed arrangement to sell electricity to MSML. Further, under Section-2(v) of the NEPRA Act, ownership, operation, management and control of distribution facilities located on private property and used solely to move or deliver electric power to the person owning, operating, managing and controlling those facilities or to tenants thereof has not been included in the definition of "distribution". Based on the said considerations that the proposed BPC in the name of MSML is located within the same premises and no public area is involved, the supply of power to MSML by MPREL does not constitute a distribution activity under the NEPRA Act, and MPREL will not require a distribution licence for supplying to MSML.

(xi). Regarding the rates, charges and terms and conditions of tariff between MPREL and MSML), it is reiterated that under Section-7(3)(a) of the NEPRA Act, determining tariff, rate and charges etc. is the sole prerogative of the Authority. However, the Authority observes that tariff between MPREL and its BPC (i.e. MSML), does not affect any other consumer or third party. Therefore for the purpose of tariff, the Authority considers it appropriate directing MPREL and MSML to agree on a bilateral agreement and accordingly MPREL will be allowed to charge the agreed tariff subsequent to the grant of the generation licence.



(xii). In view of the above, the Authority hereby approves the grant of generation licence to MPREL on the terms and conditions set out in the generation licence annexed to this determination. The grant of generation licence will be subject to the provisions contained in the NEPRA Act, relevant rules, regulations framed thereunder and other applicable documents.

Authority:

Maj. (R) Haroon Rashid
(Member)

Syed Masood-ul-Hassan Naqvi
(Member)

Himayat Ullah Khan
(Member)

Saif Ullah Chattha
(Member/Vice Chairman)

9.6.2017

Tariq Saddozai
(Chairman)

ON TOUR

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National Electric Power Regulatory Authority
(NEPRA)
Islamabad – Pakistan

GENERATION LICENCE

No. IGSPL/84/2017

In exercise of the Powers conferred upon under Section 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, the Authority hereby grants the Generation Licence to:

MIRPURKHAS ENERGY LIMITED

Incorporated Under Section-32 of the Companies Ordinance 1984 (XLVII of 1984) Having Corporate Universal Identification No. 0101020, dated August 04, 2016

for its Bagasse based Generation Facility/ Co-Generation Power Plant Located at Jamrao Umerkot Road, Taluka Hussain Bux Mari, District Mirpurkhas in the Province of Sindh

(Total Installed Capacity: 26.00 MW Gross ISO)

to engage in generation business subject to and in accordance with the Articles of this Licence.

Given under my hand this on 13th day of June Two Thousand & Seventeen and expires on 30th day of March Two Thousand & Forty Nine.

13.06.17

Registrar

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
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Article-1
Definitions

1.1 In this licence

(a). "Act" means the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 as amended or replaced from time to time;

(b). "AEDB" means the Alternative Energy Development Board or any other entity created for the like purpose established by the GoP to facilitate, promote and encourage development of renewable energy in the country;

(c). "Applicable Documents" mean the Act, the rules and regulations framed by the Authority under the Act, any documents or instruments issued or determinations made by the Authority under any of the foregoing or pursuant to the exercise of its powers under the Act, the Grid Code, the applicable Distribution Code, if any, or the documents or instruments made by the Licensee pursuant to its generation licence, in each case of a binding nature applicable to the Licensee or, where applicable, to its affiliates and to which the Licensee or any of its affiliates may be subject;

(d). "Applicable Law" means the Act, relevant rules and regulations made there under and all the Applicable Documents;

(e). "Authority" means the National Electric Power Regulatory Authority constituted under Section-3 of the Act;

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(f). "Bulk Power Consumer (BPC)" means a consumer which purchases or receives electric power, at one premises, in an amount of one (01) megawatt or more or in such other amount and voltage level and with such other characteristics as the Authority may determine and the Authority may determine different amounts and voltage levels and with such other characteristics for different areas;

(g). "Bus Bar" means a system of conductors in the generation facility/Co-Generation Facility/Power Plant of the Licensee on which the electric power from all the generators is collected for supplying to the Power Purchaser or BPC;

(h). "Carbon Credits" mean the amount of Carbon Dioxide (CO_2) and other greenhouse gases not produced as a result of generation of energy by the generation facility/Co-Generation Facility/Power Plant and other environmental air quality credits and related emissions reduction credits or benefits (economic or otherwise) related to the generation of energy by the generation facility/Co-Generation Facility/Power Plant, which are available or can be obtained in relation to the generation facility/Co-Generation Facility/Power Plant after the COD;

(i). "Co-Generation Facility/Power Plant" means the generation facility for simultaneous production of both electric power and heat or steam for industrial processes from a common fuel source;

(j). "Commercial Operations Date (COD)" means the day immediately following the date on which the generation facility/Co-Generation Facility/Power Plant of the Licensee is commissioned;

(k). "CPPA-G" means Central Power Purchasing Agency (Guarantee) Limited or any other entity created for the like purpose;

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(l). "Distribution Code" means the distribution code prepared by the concerned XW-DISCO and approved by the Authority, as it may be revised from time to time with necessary approval of the Authority;

(m). "Energy Purchase Agreement (EPA)" means the energy purchase agreement, entered or to be entered into by and between the Power Purchaser and the Licensee, for the purchase and sale of electric energy generated by the generation facility/Co-Generation Facility/Power Plant, as may be amended by the parties thereto from time to time;

(n). "Generation Rules" mean the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000 as amended or replaced from time to time;

(o). "Grid Code" means the grid code prepared by NTDC and approved by the Authority, as it may be revised from time to time by NTDC with necessary approval by the Authority;

(p). "GoP" means the Government of Pakistan acting through the AEDB which has issued or will be issuing to the Licensee a LoS for the design, engineering, construction, insuring, commissioning, operation and maintenance of the generation facility/Co-Generation Facility/Power Plant and has signed or will be signing an IA with the Licensee;

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(q). "HESCO" means Hyderabad Electric Supply Company Limited or its successors or permitted assigns;

(r). "IEC" means the International Electrotechnical Commission or its successors or permitted assigns;

(s). "IEEE" means the Institute of Electrical and Electronics Engineers or its successors or permitted assigns;

(t). "Implementation Agreement (IA)" means the implementation agreement signed or to be signed between the GoP and the Licensee in relation to this particular generation facility/Co-Generation Facility/Power Plant, as may be amended from time to time;

(u). "Letter of Support (LoS)" means the letter of support issued or to be issued by the GoP through the AEDB to the Licensee;

(v). "Licensee" means **Mirpurkhas Energy Limited** or its successors or permitted assigns;

(w). "Licensing Regulations" mean the National Electric Power Regulatory Authority Licensing (Application & Modification Procedure) Regulations, 1999 as amended or replaced from time to time;

(x). "NTDC" means National Transmission and Despatch Company Limited or its successors or permitted assigns;

(y). "Policy" means the Policy for Development of Renewable Energy for Power Generation, 2006 of GoP as amended from time to time;

(z). "Power Purchaser" means CPPA-G which will be purchasing electric power from the Licensee either on behalf of all XW-DISCOs or any single XW-DISCO, pursuant to the EPA for procurement of electric power;

(aa). "XW-DISCO" means "an ex-WAPDA distribution company engaged in the distribution of electric power".

1.2 Words and expressions used but not defined herein bear the meaning given thereto in the Act or rules and regulations issued under the Act.

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Article-2
Applicability of Law

This licence is issued subject to the provisions of the Applicable Law, as amended from time to time.

Article-3
Generation Facilities

3.1 The location, size (capacity in MW), technology, interconnection arrangements, technical limits, technical functional specifications and other details specific to the generation facility/Co-Generation Facility/Power Plant of the Licensee are set out in Schedule-I of this licence.

3.2 The net capacity of the generation facility/Co-Generation Facility/Power Plant of the Licensee is set out in Schedule-II hereto. The Licensee shall provide the final arrangement, technical and financial specifications and other specific details pertaining to its generation facility/Co-Generation Facility/Power Plant before its COD.

Article-4
Term of Licence

4.1 This licence shall become effective from the date of its issuance and will have a term of thirty (30) years from the COD of the generation facility/Co-Generation Facility/Power Plant of the Licensee.

4.2 Unless suspended or revoked earlier, the Licensee may apply for renewal of this licence ninety (90) days prior to the expiry of the above term, as stipulated in the Licensing Regulations.

Article-5
Licence fee

The Licensee shall pay to the Authority the Licence fee as stipulated in the National Electric Power Regulatory Authority (Fees) Rules, 2002 as amended or replaced from time to time.

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Article-6
Tariff

The Licensee shall charge the Power Purchaser only such tariff which has been determined, approved or specified by the Authority.

Article-7
Competitive Trading Arrangement

7.1 The Licensee shall participate in such manner as may be directed by the Authority from time to time for development of a Competitive Trading Arrangement. The Licensee shall in good faith work towards implementation and operation of the aforesaid Competitive Trading Arrangement in the manner and time period specified by the Authority. Provided that any such participation shall be subject to any contract entered into between the Licensee and another party with the approval of the Authority.

7.2 Any variation or modification in the above-mentioned contracts for allowing the parties thereto to participate wholly or partially in the Competitive Trading Arrangement shall be subject to mutual agreement of the parties thereto and such terms and conditions as may be approved by the Authority.

Article-8
Maintenance of Records

For the purpose of sub-rule (1) of Rule-19 of the Generation Rules, copies of records and data shall be retained in standard and electronic form and all such records and data shall, subject to just claims of confidentiality, be accessible by authorized officers of the Authority.

Article-9
Compliance with Performance Standards

The Licensee shall comply with the relevant provisions of the National Electric Power Regulatory Authority Performance Standards (Generation) Rules 2009 as amended from time to time.

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Article-10
Compliance with Environmental & Safety Standards

10.1 The generation facility/Co-Generation Facility/Power Plant of the Licensee shall comply with the environmental and safety standards as may be prescribed by the relevant competent authority from time to time.

10.2 The Licensee shall provide a certificate on a bi-annual basis, confirming that the operation of its generation facility/Co-Generation Facility/Power Plant is in conformity with required environmental standards as prescribed by the relevant competent authority.

Article-11
Provision of Information

In accordance with provisions of Section-44 of the Act, the Licensee shall be obligated to provide the required information in any form as desired by the Authority without any exception.

Article-12
Emissions Trading/Carbon Credits

The Licensee shall process and obtain expeditiously the Carbon Credits admissible to the generation facility/Co-Generation Facility/Power Plant. The Licensee shall share the said proceeds with the Power Purchaser as per the Policy.

Article-13
Power off take Point and Voltage

The Licensee shall deliver the electric power to the Power Purchaser at the outgoing Bus Bar of its generation facility/Co-Generation Facility/Power Plant. The Licensee shall be responsible for the up-gradation (step up) of generation voltage up to the required dispersal voltage level.

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Article-14
Design & Manufacturing Standards

The generation facility/Co-Generation Facility/Power Plant of the Licensee shall be designed, manufactured and tested according to the latest IEC, IEEE or other equivalent standards. All the plant and equipment of the generation facility/Co-Generation Facility/Power Plant shall be unused and brand new.

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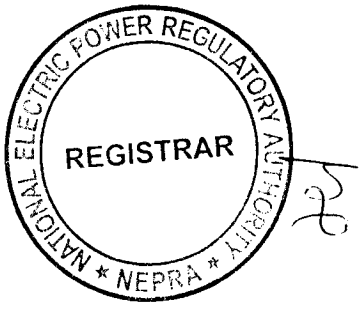
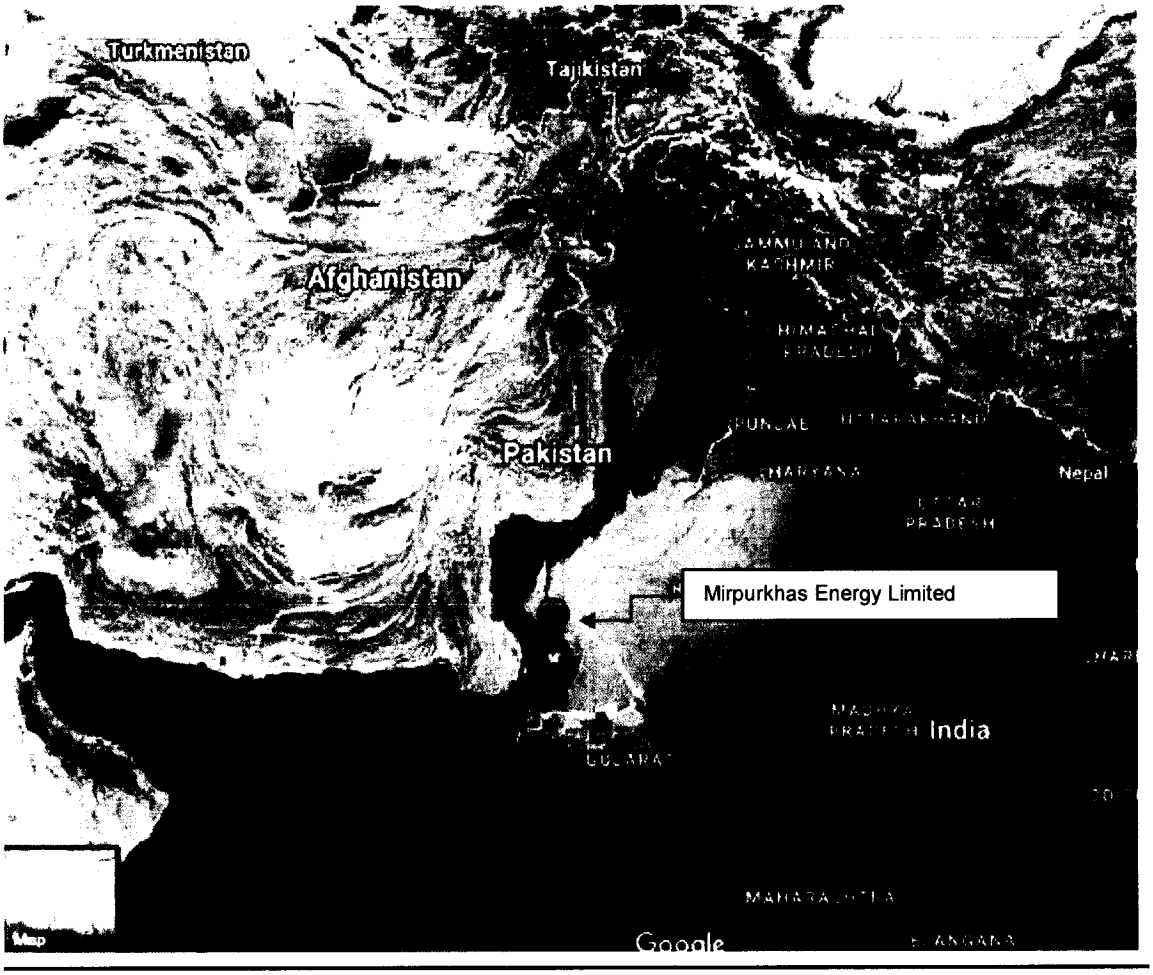
SCHEDULE-I

The Location, Size (i.e. Capacity in MW), Type of Technology, Interconnection Arrangements, Technical Limits, Technical/Functional Specifications and other details specific to the Generation Facilities of the Licensee are described in this Schedule.



Location of the Generation Facility/Co-Generation Facility/Power Plant of the Licensee



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Land Coordinates of the Co-Generation Facility/Thermal Power Plant of the Licensee

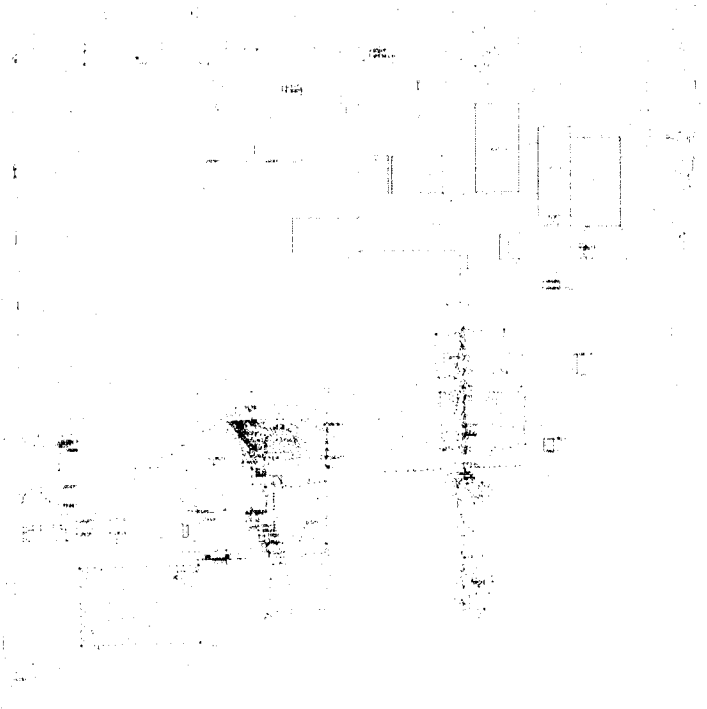
CO-ORDINATES OF AREA (A)				
Point #	Easting	Northing	Elevation	Code
1	20000.000	40000.000	99.934	A1
2	19998.781	40022.994	100.571	A2
3	20059.986	40026.241	100.503	A 3
4	20061.185	40003.268	100.455	A 4
1 GPS	508117.0	2822747.0	99.934	A 1
4 GPS	508128.0	2822741.0	100.455	A 4

CO-ORDINATES OF AREA (B)				
Point #	Easting	Northing	Elevation	Code
1	20016.604	39983.024	100.786	B 1
2	20018.119	39896.051	100.394	B 2
3	20176.943	39898.773	102.480	B 3
4	20175.441	39985.815	101.513	B 4

CO-ORDINATES OF AREA (M)				
Point #	Easting	Northing	Elevation	Code
1	20096.731	40033.884	100.100	BM
2	20061.350	39997.520	100.443	BM
3	20162.800	39999.290	100.497	BM
4	20159.000	39985.470	102.907	BM

CO-ORDINATES OF AREA (C)				
Point #	Easting	Northing	Elevation	Code
1	19881.513	39874.527	100.075	C 1
2	19880.237	39927.421	100.188	C 2
3	19967.669	39929.628	99.979	C 3
4	19968.927	39876.610	100.105	C 4

CO-ORDINATES OF AREA (D)				
Point #	Easting	Northing	Elevation	Code
1	30256.860	40012.060	100.157	D 1
2	30146.872	40008.320	100.933	D 2
3	30144.386	40048.217	101.418	D 3
4	30143.727	40058.237	101.509	D 4
5	30141.912	40088.167	101.477	D 5
6	30191.850	40091.230	101.692	D 6
7	30204.350	40051.950	100.325	D 1



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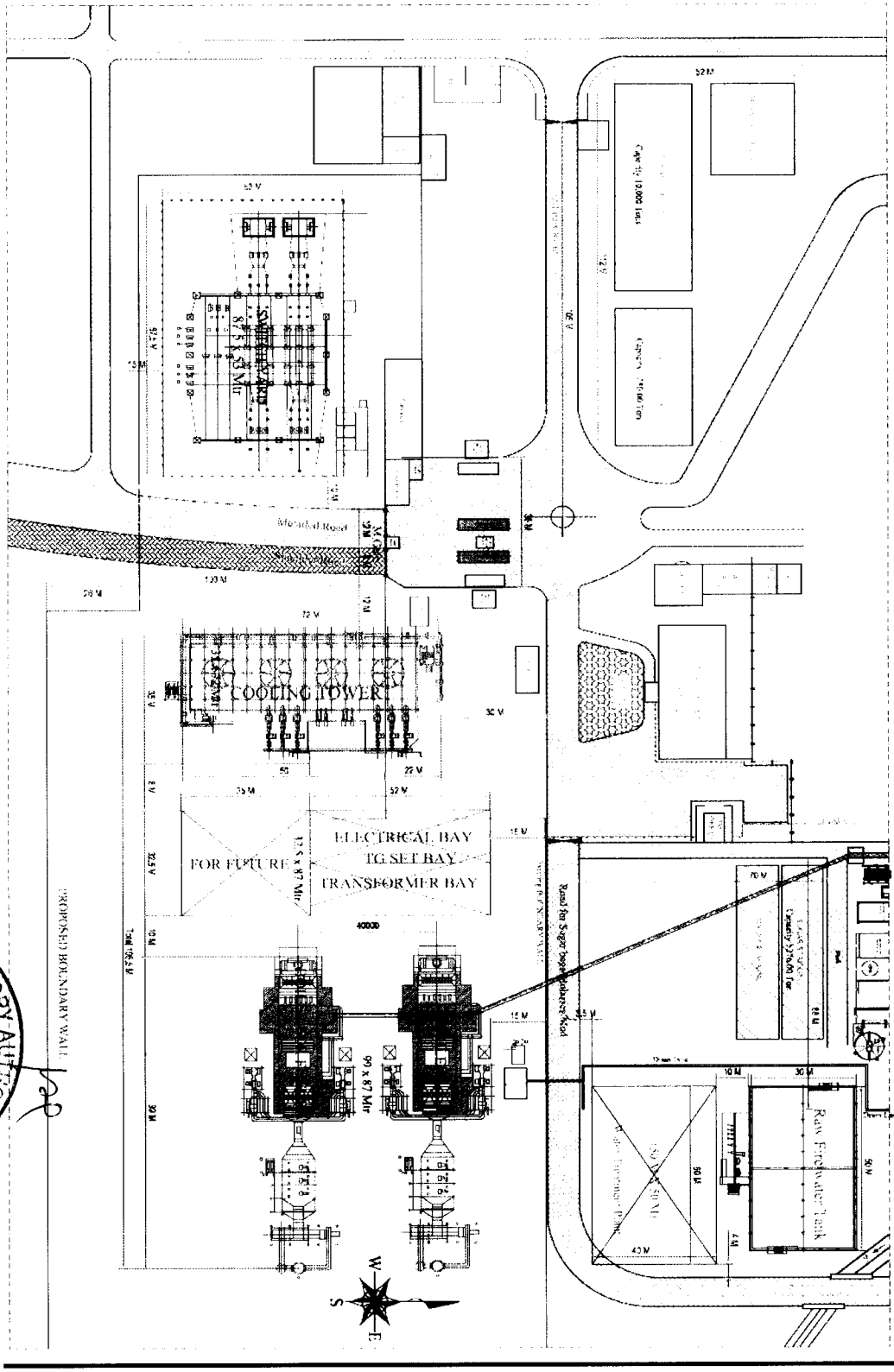
Lay-out of the Generation Facility/Co-Generation Facility/Power Plant of the Licensee



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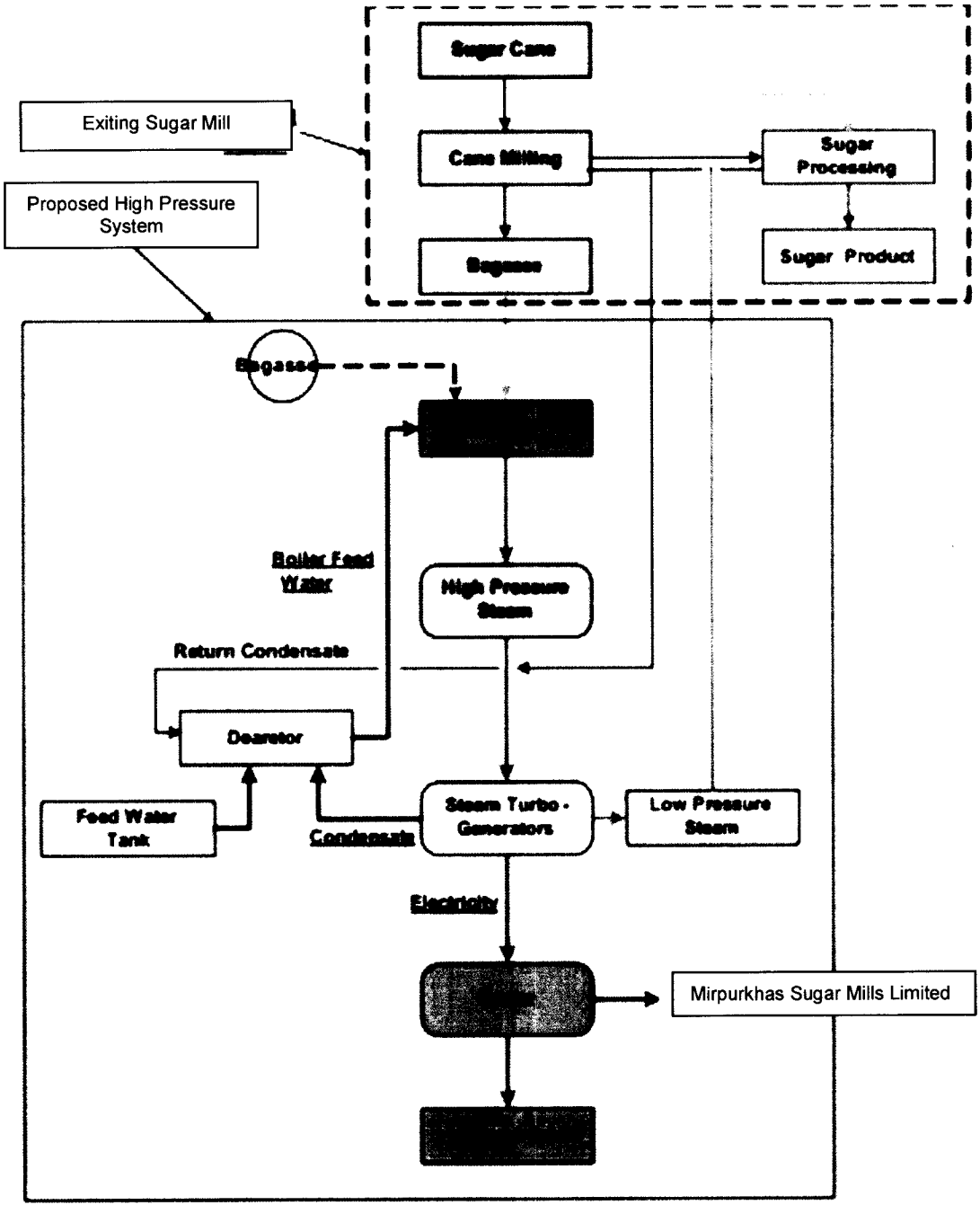
Process Diagram of the Generation Facility/Co-Generation Facility/Power Plant of the Licensee



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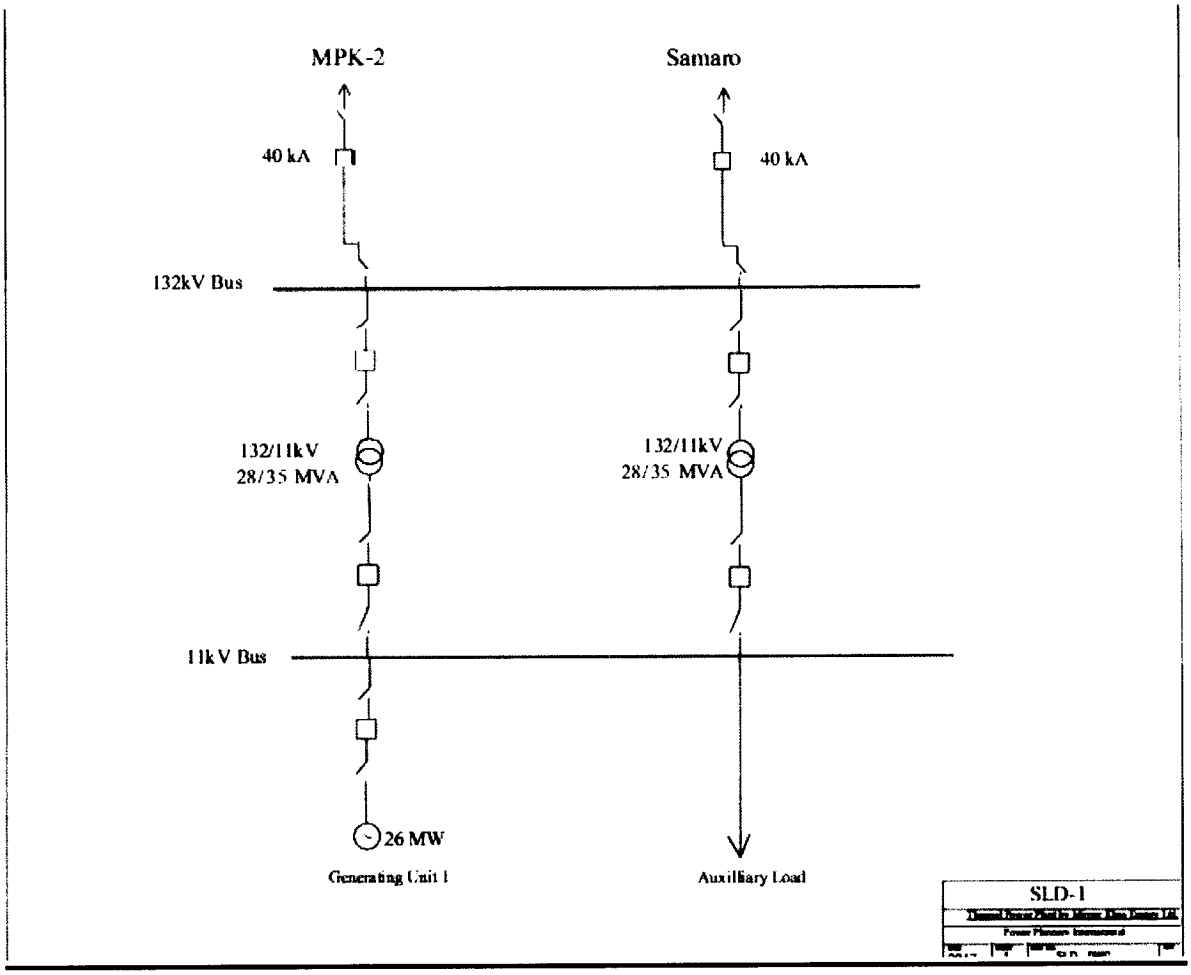
Single line Diagram (Electrical) of the Generation Facility/Co-Generation Facility/Power Plant of the Licensee



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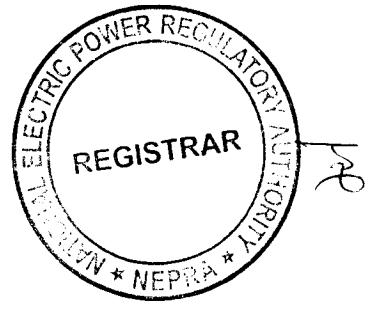
Interconnection Arrangement for Dispersal of Electric Energy/Power from the Generation Facility/Co-Generation Facility/Power Plant

The electric power from the Bagasse based Co-Generation Facility/Co-Generation Power Plant of Licensee will not only be supplied to a Bulk Power Consumer-BPC* (i.e. Mirpurkhas Sugar Mills Limited-MSML as enumerated in this Schedule-I) but also to the load center of HESCO.

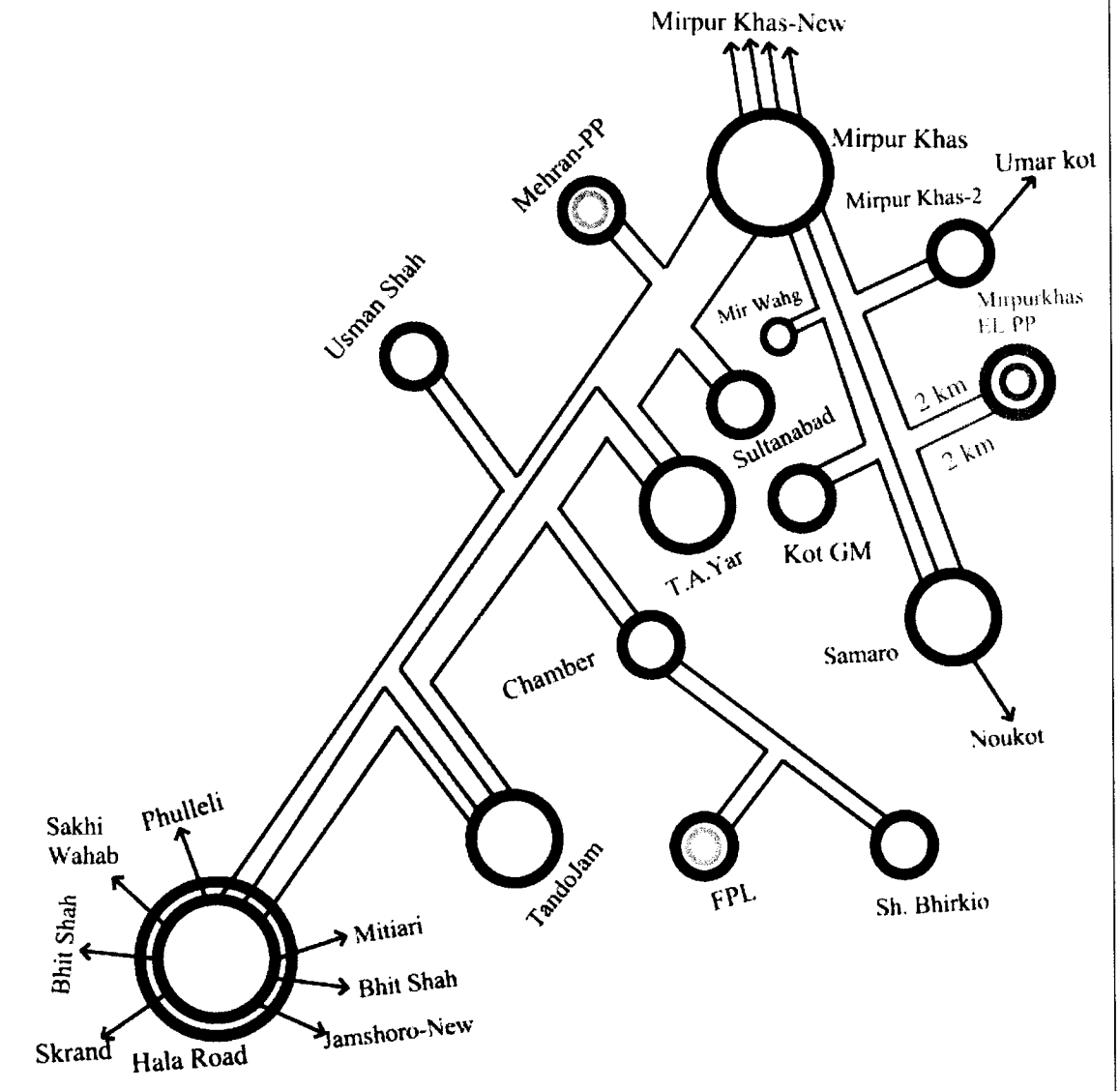
(2). The Interconnection Facilities (IF)/Transmission Arrangements (TA) for supplying to HESCO from the above mentioned generation facility shall be at 132 kV level. The dispersal/interconnection arrangement will be consisting of a 132 KV Double Circuit (D/C) Transmission Line (on ACSR LYNX Conductor) measuring about two (02) Kilo-Meter for making an In-Out of existing 132 KV Single Circuit-S/C Mirpurkhas-Samaro Transmission Line connecting the generation facility/Co-Generation Facility/Power Plant to the network of HESCO.

(3). The above IF/TA is based on the approval of HESCO regarding the Grid Interconnection Study. Any change in the above mentioned IF/TA for dispersal of electric power as agreed by the Licensee, HESCO or the Power Purchaser shall be communicated to the Authority in due course of time.



* The details of the pertaining to BPC, supply arrangement and other relating information is provided in the subsequent description of this Schedule-I.

Schematic Diagram for Dispersal of Electric Energy/Power from the Generation Facility/Co-Generation Facility/Power Plant



Legend

Proposed 11 kV
Proposed 132 kV
11 kV
132 kV
220 kV

Sketch-2		
Interconnection Study of Mirpurkhas Energy Limited (P		
Power Planners International		
DATE 2016	SHEET 1	DWG NO WEL Sketch-2.DWG

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Details of Generation Facility/Co-Generation Facility/ Power Plant

(A). General Information

(i).	Name of the Company/Licensee	Mirpurkhas Energy Limited
(ii).	Registered Office of the Company	Jamrao Umerkot Road, Taluka Hussain Bux Mari, District Mirpurkhas in the Province of Sindh
(iii).	Business Address/ Office of the Company	3rd Floor, Modern Motors House, Beaumont Road, Karachi in the Province of Sindh
(iv).	Location of the Generation Facility	Jamrao Umerkot Road, Taluka Hussain Bux Mari, District Mirpurkhas in the Province of Sindh
(v).	Type of the Generation Facility	Bagasse based, high-pressure generation facility/Co-Generation Facility/Thermal Power Plant.

(B). Configuration of Generation Facility

(i).	Installed Capacity/Size of the Generation Facility	26.00 MW.	
(ii).	Type of the Technology of the Generation Facility	Conventional Steam Turbine based Power Plant [1 x 26.00 MW extraction cum condensing Steam Turbine and One (01) Travelling grate bagasse fired boiler Operating at 110 bar (kg/cm^2) and Producing 130 Tons of Steam Per Hour-TPH].	
(iii).	Number of Units & Size of Each Unit of the Generation Facility	Steam Turbine	1 x 26.00 MW
(iv).	Make/Model/Type/ Year of Manufacture Etc. of each Unit of the Generation Facility	Steam Turbine	Hangzhou Steam Turbine Co. Limited-HTC/ SKODA, SIEMENS or Equivalent.

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		Boiler	Travelling grate type Boiler 130 TPH Capacity and 110 bar(kg/cm2) Wuxi Huaguang Boiler Co.,Ltd China./JLIANCO/DESCON/ ISGEC/SINOMA/GUANG Xi or Equivalent.
(v).	Expected/ Anticipated COD of the Generation Facility	March 31, 2019	
(vi).	Expected Useful Life of the Generation Facility from COD	30 Years (Minimum)	

(C). Fuel/Raw Material Details

(i).	Primary Fuel	Bagasse	
(ii).	Alternate/Start Up Fuel	Furnace Oil	
(iii).	Fuel Source (Imported/Indigenous)	Primary Fuel	Alternate/ Start Up Fuel
		Indigenous	Indigenous/Imported
(iv).	Fuel Supplier	Primary Fuel	Alternate/ Start Up Fuel
		Mirpurkhas Sugar Mills Limited-MSML(primary)/other Bagasse suppliers (if available in the nearby area)	Shell Pakistan Limited/Pakistan State Oil Limited-PSO
(v).	Supply Arrangement	Primary Fuel	Alternate/ Start Up Fuel
		Through Conveyor Belts/Loading Trucks/Tractor Trolleys etc.	Through Bousers/Oil Tankers etc.

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(vi).	Sugarcane Crushing Capacity	8,500 Ton per day	
(vii).	Bagasse Generation Capacity	2,550 Ton per day	
(viii).	Fuel Storage facilities	Primary Fuel	Alternate/ Start Up Fuel
		Bulk Storage	One Tank
(ix).	Capacity of Storage facilities	Primary Fuel	Alternate/ Start Up Fuel
		130,000 Metric Tons bulk storage	75 Tons
(x).	Gross Storage Capacity	Primary Fuel	Alternate/ Start Up Fuel
		130,000 Metric Tons bulk storage	75 Tons

(D). Emission Values

		Primary Fuel	Alternate Fuel
(i).	SO_x	<264mg/Nm^3	<264mg/Nm^3
(ii).	NO_x	<100 mg/ Nm^3	<100 mg/ Nm^3
(iii).	CO_2	11% -13%	11% -13%
(iv).	CO	<200mg/ Nm^3	<200mg/ Nm^3
(v).	PM_{10}	<150mg/Nm^3	<150mg/Nm^3

(E). Cooling System

(i).	Cooling Water Source/Cycle	Canal Water/RCC Cooling tower of induced draft counter flow type. Make up water will be drawn from the Canal Water Storage /Closed loop.

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(F). Plant Characteristics

(i).	Generation Voltage	11.00 KV		
(ii).	Frequency	50 Hz		
(iii).	Power Factor	0.80 lagging - 0.90 leading		
(iv).	Automatic Generation Control (AGC)	Yes		
(v).	Ramping Rate	4 KW/Second		
(vi).	Time required to Synchronize to Grid	210 Minutes	120 Minutes	60 Minutes
		During cold start (i.e. when plant is started later than 72 hours after shutdown)	During warm start (i.e. when plant is started at less 36 hours after shutdown)	During Hot start (i.e. when plant is started at less than 12 hours after shutdown)

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Information Regarding
Distribution Network for Supply of Power to Bulk Power Consumer
[in the Name of Mirpurkhas Sugar Mills Limited/MSML of the Licensee (i.e. Mirpurkhas Energy Limited-MPREL)]

(i).	No. of Feeders		01 (One)
(ii).	Length of Each Feeder (Meter)		500 Meter (Approximately)
(iii).	Length of Each Feeder to each Consumer		500 Meter (One Feeder to MSML)
(iv).	In respect of all the Feeders, describe the property (streets, farms, Agri land, etc.) through, under or over which they pass right up to the premises of customer, whether they cross-over.		The 11 KV cable supplying power to MSML is located on private property owned by MSML, without crossing of any Public or third party Private Property etc.
(v).	Whether owned by MPREL, Consumer or HESCO-(deal with each Feeder Separately)		
	(a).	If owned by HESCO, particulars of contractual arrangement	N/A
	(b).	Operation and maintenance responsibility for each feeder	The Operation and Maintenance is the responsibility of MSML.
(vi).	Whether connection with network of HESCO exists (whether active or not)- If yes, provide details of connection arrangements (both technical and contractual)		Yes/MSML is B-3 Consumer of HESCO
(vii).	Any other network information deemed relevant for disclosure to or consideration of the Authority.		N/A

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Information Regarding
Distribution Network for Supply of Electric Power to Bulk Power Consumer-BPC to be Supplied By the Licensee [(i.e. Mirpurkhas Energy Limited - MPREL)]

(i).	No. of Consumers		One (01)	
(ii).	Location of consumers (distance and/or identity of premises)		Jamrao Umerkot Road, Taluka Hussain Bux Mari, District Mirpurkhas in the Province of Sindh	
(iii).	Contracted Capacity and Load Factor for consumer		During Crushing Season	During Off Crushing Season
			04.01 MW (Max)	00.50 MW (Max)
(iv).	Specify Whether			
	(a).	The consumer is an Associate undertaking of the MPREL-If yes, specify percentage ownership of equity;	MSML and MPREL are group companies of the Ghulam Faruque Group. MPREL is a 100% owned Subsidiary of MSML.	
	(b).	There are common directorships:	Yes	
	(c).	Either can exercise influence or control over the other.	Yes	
(v).	Specify nature of contractual Relationship			
	(a).	Between each consumer and MPREL.	MSML and MPREL are group companies of the Ghulam Faruque Group/Supply of Electricity on Continuous basis	
	(b).	Consumer and HESCO.	MSML is B-3 Consumer of HESCO	
(vi)	Any other network information deemed relevant for disclosure to or consideration of the Authority.		N/A	

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SCHEDULE-II

The Installed/ISO Capacity (MW), De-Rated Capacity at Mean Site Conditions (MW), Auxiliary Consumption (MW) and the Net Capacity At Mean Site Conditions (MW) of the Generation Facilities of Licensee are given in this Schedule

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SCHEDULE-II

		Season Operation	Off-Season Operation
(1).	Total Gross Installed Capacity of the Generation Facility	26.00 MW	26.00 MW
(2).	De-rated Capacity of Generation Facility at Reference Site Conditions	26.00 MW	26.00 MW
(3).	Auxiliary Consumption of the Generation Facility	02.34 MW	02.34 MW
(4).	Average Electric Power Supplied to Bulk Power Consumer (i.e. Mirpurkhas Sugar Mills Limited-MSML) from the Generation Facility at Reference Site Condition	04.01 MW	00.50 MW
(5).	Total Installed Net Capacity of Generation Facility at Reference Site Condition	19.65 MW	23.16 MW

Note

All the above figures are indicative as provided by the licensee. The net capacity available to Power Purchaser for dispatch will be determined through procedure(s) contained in the Energy Purchase Agreement/bi-lateral agreement or any other applicable document(s).

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Authorization
by National Electric Power Regulatory Authority (NEPRA) to Mirpurkhas Energy Limited

Incorporated Under Section-32 of the Companies Ordinance 1984 (XLVII of 1984) Having Corporate Universal Identification No. 0101020, dated August 04, 2016

For
Sale to Bulk Power Consumer

Pursuant to Section-21 of the Act and Rule-7 of the NEPRA Licensing (Generation) Rules-2000, the Authority hereby authorize Mirpurkhas Energy Limited-MPREL (the Licensee) to engage in second-tier supply business, limited to the following consumers:-

(a). Mirpurkhas Sugar Mills Limited

Maj. (R) Haroon Rashid
(Member)

Syed Masood Ul Hassan Naqvi
(Member)

Himayat Ullah Khan
(Member)

Saif Ullah Chattha
(Member/Vice Chairman)

ON TOUR

Tariq Saddozai
(Chairman)

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13.06.17