



# National Electric Power Regulatory Authority

## Islamic Republic of Pakistan

NEPRA Tower, Ataturk 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

**Registrar**

No. NEPRA/R/DL/LAG-276/4113-23

March 20, 2015

Khawaja Nimr Majid  
Director Operation  
TAY Powergen Company (Pvt.) Limited  
1<sup>st</sup> Floor, hockey Club of Pakistan Stadium  
Liaqat Barracks, Block-3, Karachi

Subject: **Generation Licence No. IGSP/50/2015**  
**Licence Application No. LAG-276**  
**TAY Powergen Company (Pvt.) Limited**

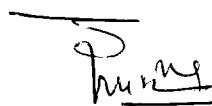
Reference: Your letter No. nil, dated July 02, 2014.

Enclosed please find herewith Determination of the Authority in the matter of Generation Licence Application of TAY Powergen Company (Pvt.) Limited (TAYPGCPL) along with Generation Licence No. IGSP/50/2015 annexed to this determination granted by the National Electric Power Regulatory Authority to TAYPGCPL for its 30.00 MW Bagasse based co-generation facility located at Tando Allayar Sugar Mills (Pvt.) Limited, Deh Kandiyari, Tehsil Chamber, District Tandoallayar, 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**  
**(IGSP/50/2015)**



  
20/03/15  
(Syed Safer Hussain)

Copy to:

1. Chief Executive Office, Alternative Energy Development Board, 2<sup>nd</sup> Floor, OPF Building, G-5/2, Islamabad
2. Chief Executive Officer, NTDC, 414-WAPDA House, Lahore
3. Chief Operating Officer, CPPA, 107-WAPDA House, Lahore
4. Chief Executive Officer, Hyderabad Electric Supply Company, WAPDA Water Wing Complex, Hussainabad, Hyderabad
5. Director General, Sindh Environmental Protection Agency, Plot No. ST 2/1, Sector 23, Korangi Industrial Area, Karachi

**National Electric Power Regulatory Authority**  
**(NEPRA)**

**Determination of the Authority**  
**in the Matter of Application of Tay PowerGen Company (Pvt.)**  
**Limited for the Grant of Generation Licence**

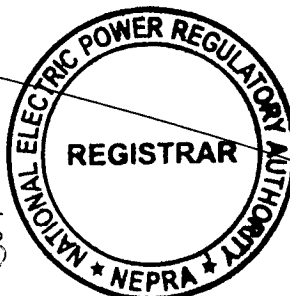
**March 17, 2015**  
**Case No. LAG-276**

**(A). Background**

(i). In order to harness the potential of Renewable Energy (RE), the Government of Pakistan (GoP) has formulated "the Policy for Development of Renewable Energy for Power Generation 2006" (hereafter the "RE Policy") for developing Hydro, Wind, Solar, Bagasse, Biomass, Waste-to-Energy and Bio-Energy Technologies. Under the RE Policy, a number of existing sugar mills have decided to set up High Pressure Bagasse based Generation Facilities/Co-Generation Facilities.

(ii). Further, in order to facilitate the development of Bagasse based Power Generation in the country, the Authority announced an Up-Front Tariff through its Determination No. NEPRA/R/TRF-UTB-2013/5152-5154, dated May 29, 2013 (the Up-Front Tariff). In terms of the RE Policy and the Up-Front Tariff, Tando Allah Yar Sugar Mills Limited (TAYSML) also decided setting a Bagasse based Generation Facility/Co-Generation/Power Plant.

(iii). In order to develop the project, TAYSML formulated a special purpose vehicle in the name of Tay PowerGen Company (Pvt.) Limited (TAYPGCPL) for setting 2 x 15.00 MW Bagasse based Generation Facility/Co-Generation/Power Plant. Accordingly, TAYPGCPL decided approaching the Authority for the grant of Generation Licence and the Up-Front Tariff.





**(B). Filing of Generation Licence Application**

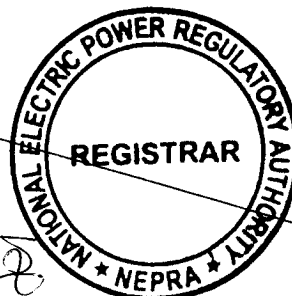
(i). TAYPGCPL in accordance with the Section-15 of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (the NEPRA Act), filed an application on July 11, 2014 requesting for grant of a Generation Licence. Registrar examined the submitted application and found the same non-compliant with the NEPRA Licensing (Application and Modification Procedure) Regulations, 1999 ("the Regulations").

(ii). In view of the above, Registrar directed TAYPGCPL for submitting the missing required information/documents as stipulated in the Regulations. TAYPGCPL completed the submission of required information/documentation on October 02, 2014. After completion of the required information as required under the Regulations, the Authority admitted the application under Regulation-7 of the Regulations on November 05, 2014 for consideration of grant of a Generation Licence. The Authority approved the draft of the Advertisement/Notice of Admission (NoA) to be published in daily newspapers, for informing and seeking comments of the general public as stipulated in Regulation-8 of the Regulations. The Authority also approved the list of interested/affected parties for inviting comments for assisting the Authority in the matter as stipulated in Regulation-9 (2) of the Regulations.

(iii). Accordingly, advertisement/NoA was published in one Urdu and one English National Newspaper on November 12, 2014. Further, separate notices were also sent to Individual Experts/Government Ministries/Representative Organizations etc. on November 13, 2014 for submitting their views/comments in the matter for the assistance of the Authority.

**(C). Comments of Stakeholders**

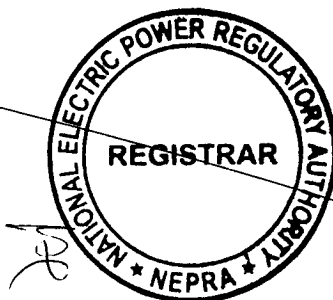
(i). In reply to the above, the Authority received comments from five (05) stakeholders. These included Central Power Purchasing Agency (CPPA) of



National Transmission and Despatch Company Limited (NTDC), Hyderabad Electric Supply Company Limited (HESCO), Energy Department Govt. of Sindh (EDGoS), Alternative Energy Development Board (AEDB) and Ministry of Water & Power (MoW&P).

(ii). The salient points of the comments offered by the said stakeholders are summarized in the following paragraphs: -

- (a). CPPA submitted that as HESCO is the purchaser therefore, it has no views and comments in the matter;
- (b). HESCO firstly commented that the sponsors of the project has not approached it therefore, it is not in position to submit its views and comments in the matter. Later on, HESCO through another correspondence requested for copy of the application of TAYPGCPL. Further, HESCO also requested for provision of information pertaining to project cost, confirmation of the applicant to accept announced Up-Front Tariff for Bagasse based Projects, details of components/documents, letter of credit and documents pertaining to EPC contract, civil works and O&M contracts of the Project;
- (c). EDGoS supported the grant of Generation Licence to TAYPGCPL;
- (d). AEDB informed that TAYPGCPL requested it for issuance of Letter of Intent (Lol) for its 2 x 15 MW Bagasse/Biomass Power Plant at Badin, Sindh. For issuance of Lol, the company was asked to provide remaining documents which are awaited. However, AEDB supported the grant of Generation Licence to the TAYPGCPL. Later on, AEDB submitted a corrigendum to its above mentioned comments stating the company is in the



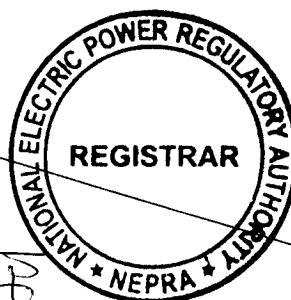
process of acquiring Lol from it which would be issued after fulfillment of necessary requisites. Therefore, the Authority may consider the application accordingly. Further, AEDB commented that in the absence of the Lol it is not in a position to comment on the issuance of the Generation Licence;

(e). MoW&P remarked that the Authority may process the application of TAYGCPL for the grant of Generation Licence as per the provisions of the NEPRA Act/rules and GoP Guidelines.

(iii). The Authority examined the above comments of the stakeholders and generally found in favor of the request of the TAYPGCPL for the consideration of grant of Generation Licence. However, in view of the observations of CPPA, HESCO and AEDB, the Authority considered it appropriate seeking perspective of TAYPGCPL on the comments of the said stakeholders.

(iv). On the observations of HESCO, it was confirmed that TAYPGCPL would be accepting the Up-Front Tariff announced by the Authority for the Bagasse based Projects. Further, it was also confirmed that all project costs would be in accordance with the determination of the Authority. TAYPGCPL also highlighted that it is continuously in touch with HESCO and confirmed that all necessary details pertaining to the project had already been provided to it. Whereas, on the comments of AEDB, it was clarified that the sponsors of the project had already submitted all the necessary information pertaining to the issuance of the Lol therefore, the issuance of the Lol is merely a formality and the same will be issued in due course of time.

(v). The Authority considered the above submitted rejoinders and found the same adequate in terms of the provisions of the Regulations and NEPRA Licensing (Generation) Rules 2000 (the Rules). Accordingly, the Authority considered it appropriate to process the application of TAYPGCPL for the



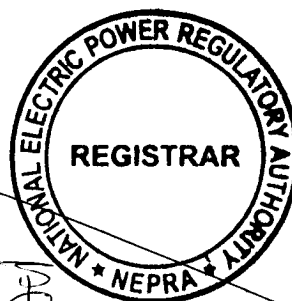
consideration of grant of Generation Licence as stipulated in the Regulations and the Rules.

**(D). Grant of Generation Licence**

(i). Energy is fundamental input to economic activity, and thus to human welfare and progress. The importance of electricity in the development of the economy of any country is beyond any doubt. The Economic Growth of any country is directly linked with the availability of safe, secure, reliable and cheaper supply of electricity. In view of the said reasons, the Authority is of the considered opinion that for sustainable development all indigenous power generation resources including Coal, Hydel, Wind, Solar and other RE resources must be developed on priority basis in the public and private sector.

(ii). The existing energy mix of the country is heavily skewed towards the costlier thermal power plants, mainly operating on imported furnace oil. The import of furnace oil for electric power generation not only causes depletion of 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 (ESAP) of GoP, also 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. The Authority considers that the proposed project of TAYPGCPL is consistent with the provisions of ESAP. 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 furnace oil but will also help reduction in carbon emission by generating clean electricity, thus improving the environment.

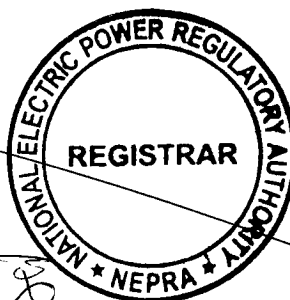
(iii). The Authority has examined the submissions of TAYPGCPL in its application for the grant of Generation Licence, the comments offered by the



stakeholders and rejoinders of the applicant/company. The Authority is convinced that TAYPGCPL has complied with the requirements of the Regulations therefore, it qualifies for the grant of Generation Licence. The Authority has observed that AEDB has made certain observations pertaining to non-issuance of Lol. The Authority has noted that in the Regulations there was no mandatory requirement for submission of the Lol. Further, the Authority observes that under the NEPRA Up-front Tariff (Approval & Procedure) Regulations, 2011 (the Up-Front Regulations), any company interested in opting an up-front tariff, is required submitting Lol. Therefore, TAYPGCPL will be required submitting Lol at the time of filing of its application for the grant of Up-Front Tariff. In view of the said, the Authority is of the considered view that in the absence of the Lol, the project company i.e. TAYPGCPL qualifies for the grant of the Generation Licence. However, the Authority clarifies that issuance of the Generation Licence will not entitle TAYPGCPL of any claims subsequently if it fails to get the Lol at a later stage.

(iv). The Term of a Generation Licence under the Rules is to be commensurate with the maximum expected useful life of the units comprised in a generation facility. TAYPGCPL has confirmed that its proposed facility will be achieving the Commercial Operation Date (COD) on November 30, 2015 and will have a useful life of more than thirty (30) years from its COD. In this regard, TAYPGCPL has requested that the term of its 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 Power Purchaser. The Authority considers that information provided by TAYPGCPL about the useful life of the Steam Turbine and its subsequent request for fixing the term of the Generation Licence is rational. Therefore, the Authority sets the term of the Generation Licence to thirty (30) years from COD of the Co-Generation/Generation Facility.

(v). Regarding the Tariff of the Generation Facility/Co-Generation Facility, as explained at Para-C(iv) above, TAYPGCPL intends unconditionally accepting the Up-Front Tariff in terms of the Determination of the Authority No. NEPRA/R/TRF-UTB-2013/5152-5154, dated May 29, 2013. In this regard, TAYPGCPL submitted

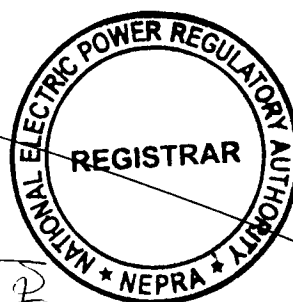


an application for the unconditional acceptance of Up-Front Tariff however, the application was returned due to non-submission of required information as required under the Up-Front Tariff Regulations. Pending the approval/grant of the Up-Front Tariff, the Authority directs TAYPGCPL to charge only such tariff as may be determined, approved or specified by the Authority, in terms of Rule-6 of the Rules without any exception.

(vi). The proposed Co-Generation Power Plant/Generation Facility of TAYPGCPL will be using RE Resource for Generation of Electric Power. Therefore, the project may qualify for the Carbon Credit under the Kyoto Protocol (for RE projects coming into operation upto 2020). In view of the said, the Authority directs TAYPGCPL to initiate the process in this regard at the earliest so that proceeds for the Carbon Credits are materialized. TAYPGCPL shall be required to share the proceeds of the Carbon Credits with the Power Purchaser as stipulated in Article-13 of its Generation Licence.

(vii). The proposed Co-Generation Power Plant/Generation Facility of TAYPGCPL for which Generation Licence has been sought, is a Conventional Steam Turbine Power Plant using Bagasse as fuel to be burned in the High Pressure boilers. Bagasse is a RE source which does not cause pollution however, the operation of the generation facility may cause some other type of pollution including Soil Pollution, Water Pollution and Noise Pollution. The Authority has considered these aspects and has made TAYPGCPL obligatory to comply with the required rules and regulation on environment. Further, the Authority directs TAYPGCPL to submit a quarterly report confirming that its operation is compliant with required Environmental Standards of the Environmental Protection Agency of Govt. of Sindh.

(viii). In view of the above, the Authority hereby decides to approve the grant of Generation Licence to TAYPGCPL on the terms set out in the Generation Licence annexed to this determination. The grant of Generation Licence will be

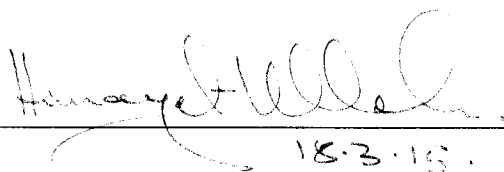




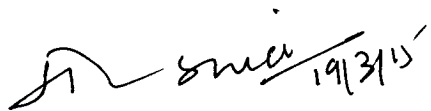
subject to the provisions contained in the NEPRA Act, relevant rules and regulations framed there under including the Grid Code.

**Authority**

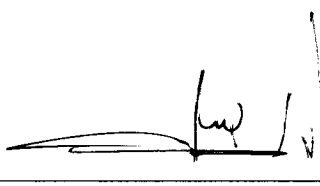
Himayat Ullah Khan  
Member

  
18.3.15.

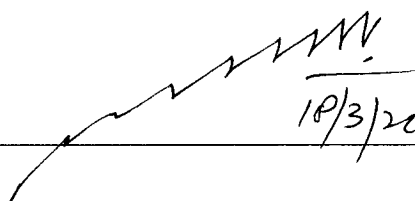
Maj. (R) Haroon Rashid  
Member

  
19/3/15

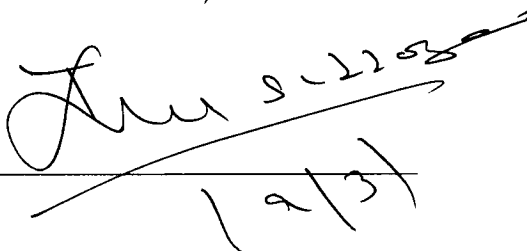
Khawaja Muhammad Naeem  
Member

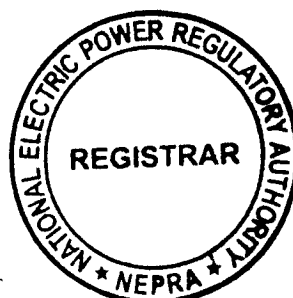
  
19.3.15.

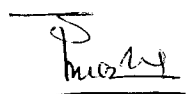
Habibullah Khilji  
Member/Vice Chairman

  
18/3/2015

Brig. (R) Tariq Saddozai  
Chairman

  
12/3/15



  
20.03.15

**National Electric Power Regulatory Authority  
(NEPRA)  
Islamabad – Pakistan**

**GENERATION LICENCE**

**No. IGSP/50/2015**

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

**Tay PowerGen Company (Pvt.) Limited**

Incorporated under the Companies Ordinance, 1984  
Under Corporate Universal Identification No. 0088940, dated June 24, 2014

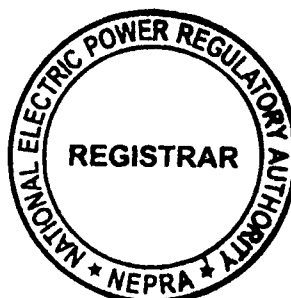
**for its Bagasse based Co-Generation Facility Located at Tando Allayar Sugar Mills (Pvt.) Limited, Deh Kandhari, Tehsil Chambar, District Tandoallayar in the Province of Sindh**

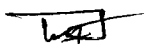
(Installed Capacity: 30.00 MW Gross)

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

Given under my hand this 20<sup>th</sup> day of March Two Thousand & Fifteen and expires on 29<sup>th</sup> day of November Two Thousand & Forty Five

  
Registrar





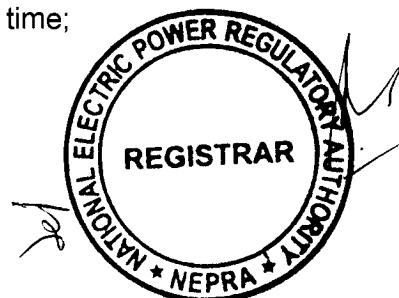


**Article-1**  
**Definitions**

1.1 In this Licence

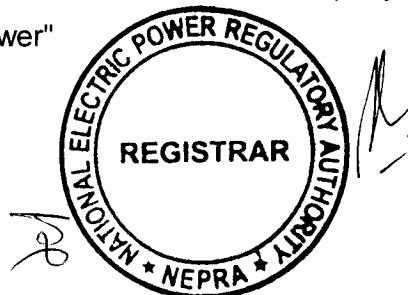
- (a). "Act" means "the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997";
- (b). "Authority" means "the National Electric Power Regulatory Authority constituted under Section-3 of the Act";
- (c). "Bus Bar" means a system of conductors in the generation facility of the Licensee on which the electric power of all the generators is collected for supplying to the Power Purchaser;
- (d). "Carbon Credits" mean the amount of carbon dioxide (CO<sub>2</sub>) and other greenhouse gases not produced as a result of generation of energy by the generation facility 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, which are available or can be obtained in relation to the generation facility after the COD;
- (e). "Commercial Operations Date (COD)" means the day immediately following the date on which the generation facility of the Licensee is Commissioned;
- (f). "CPPA" means the Central Power Purchasing Agency of NTDC or any other entity created for the like purpose;
- (g). "Energy Purchase Agreement" 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, as may be amended by the parties thereto from time to time;

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- (h). "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 any necessary approval by the Authority;
- (i). "HESCO" means "Hyderabad Electric Supply Company Limited" and its successors or permitted assigns;
- (j). "IEC" means "the International Electro-technical Commission and its successors or permitted assigns;
- (k). "IEEE" means the Institute of Electrical and Electronics Engineers and its successors or permitted assigns;
- (l). "Licensee" means "**Tay PowerGen Company (Pvt.) Limited**" and its successors or permitted assigns;
- (m). "NTDC" means National Transmission and Despatch Company Limited and its successors or permitted assigns;
- (n). "Policy" means "the Policy for Development of Renewable Energy for Power Generation, 2006" of Government of Pakistan as amended from time to time;
- (o). "Power Purchaser" means NTDC (through CPPA) on behalf of XW-DISCOs or any XW-DISCO which purchases electricity from the Licensee, pursuant to an Energy Purchase Agreement for procurement of electricity;
- (p). "Rules" mean "the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000";
- (q). "XW DISCO" means "an Ex-WAPDA distribution company engaged in the distribution of electric power"

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1.2 Words and expressions used but not defined herein bear the meaning given thereto in the Act or in the Rules.

**Article-2**  
**Application of Rules**

This Licence is issued subject to the provisions of the Rules, as amended from time to time.

**Article-3**  
**Generation Facilities**

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

3.2 The net capacity of the generation facility of the Licensee is set out in Schedule-II hereto.

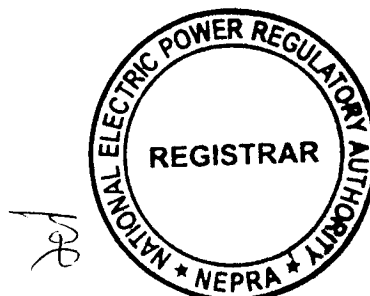
3.3 The Licensee shall provide the final arrangement, technical and financial specifications and other specific details pertaining to its generation facility before its COD.

**Article-4**  
**Term of Licence**

4.1 The Licence is granted for a term of thirty (30) years from the COD of the generation facility.

4.2 Unless suspended or revoked earlier, the Licensee may apply for renewal of this Licence under the National Electric Power Regulatory Authority Licensing (Application & Modification Procedure) Regulations, 1999 (as amended or replaced from time to time), within ninety days (90) days prior to the expiry of the term of this Licence.

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**Article-5**  
**Licence fee**

After the grant of the Generation Licence, the Licensee shall pay to the Authority the Licence fee, in the amount, manner and at the time set out in the National Electric Power Regulatory Authority (Fees) Rules, 2002.

**Article-6**  
**Tariff**

The Licensee shall charge only such tariff which has been determined, approved or specified by the Authority in terms of Rule-6 of the Rules.

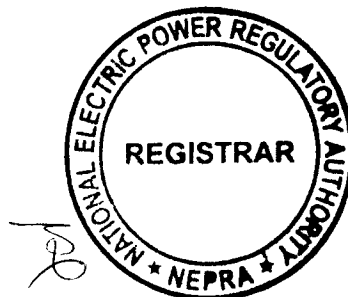
**Article-7**  
**Competitive Trading Arrangement**

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 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.

**Article-10**  
**Compliance with Environmental Standards**

The Licensee shall comply with the environmental standards as may be prescribed by the relevant competent authority from time to time.

**Article-11**  
**Power off take Point and Voltage**

The Licensee shall deliver electric power to the Power Purchaser at the outgoing Bus Bar of its generation facility. The up-gradation (step up) of generation voltage up to 132 KV will be the responsibility of the Licensee.

**Article-12**  
**Provision of Information**

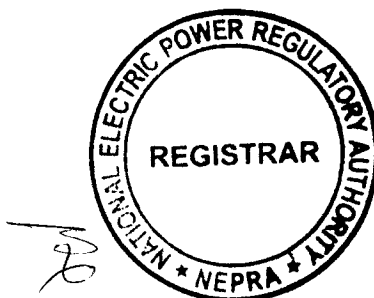
12.1 The obligation of the Licensee to provide information to the Authority shall be in accordance with Section-44 of the Act.

12.2 The Licensee shall be subject to such penalties as may be specified in the relevant rules made by the Authority for failure to furnish such information as may be required from time to time by the Authority and which is or ought to be or has been in the control or possession of the Licensee.

**Article-13**  
**Carbon Credits**

The Licensee shall process and obtain Carbon Credits expeditiously and credit the proceeds to the Power Purchaser as per the Policy.

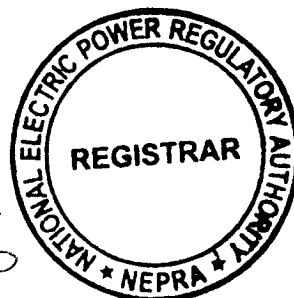
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**Article-14**  
**Design & Manufacturing Standards**

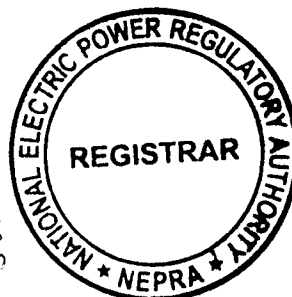
The generation facilities of the Licensee shall be designed, manufactured and tested according to the latest IEC standards or other equivalent standards. All plant and equipment shall be un-used/brand new and of relevant IEC/IEEE standard.





## **SCHEDULE-I**

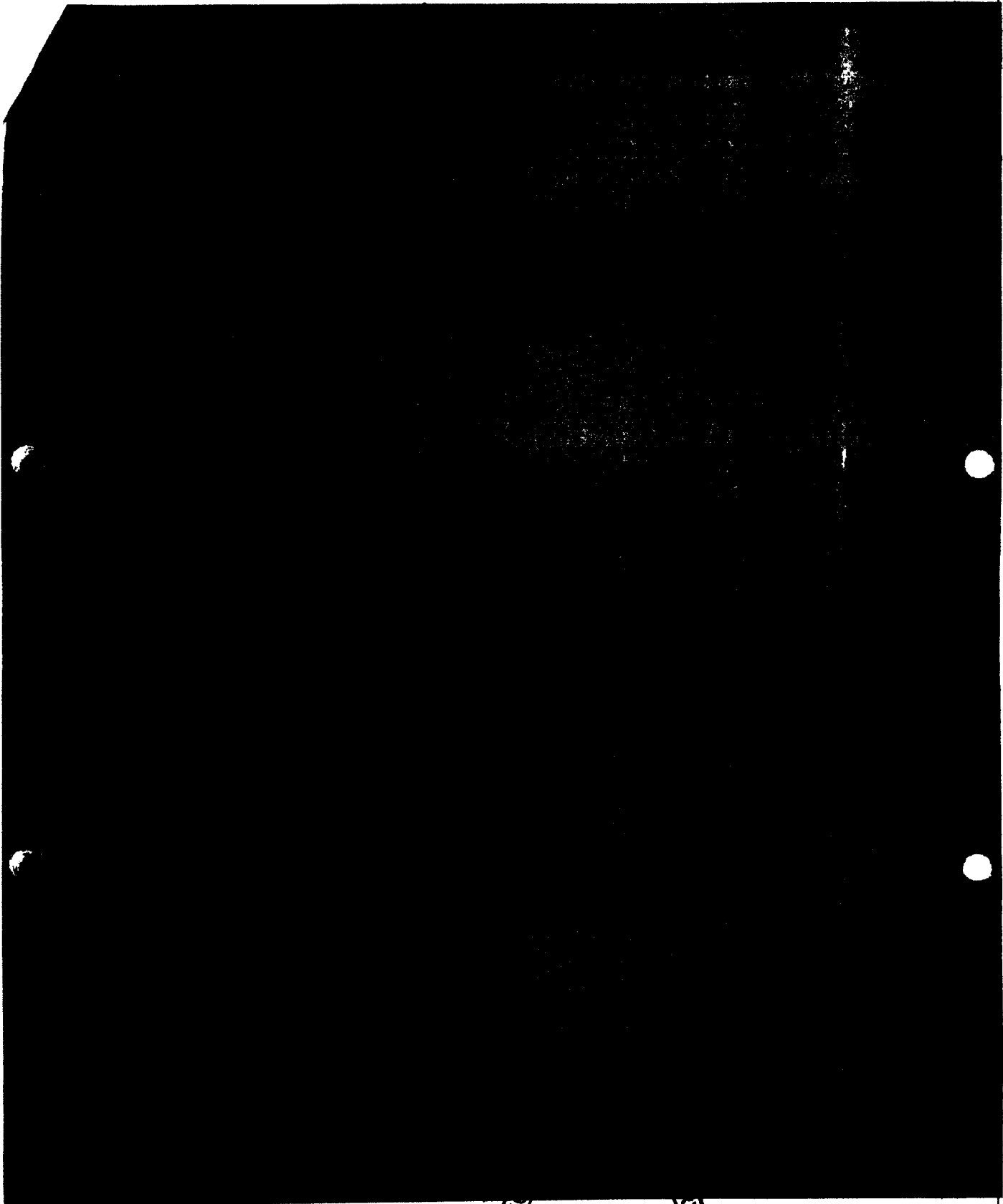
The Location, Size (i.e. Capacity in MW), Type of Technology, Interconnection Arrangements, Technical Limits, Technical/Functional Specifications and other details specific to the Generation Facilities of the Licensee are described in this Schedule



Generation Licence  
TAY PowerGen Company (Pvt.) Limited  
Deh Kandhari, Tehsil Chamber  
District Tandoallayar  
in the Province of Sindh



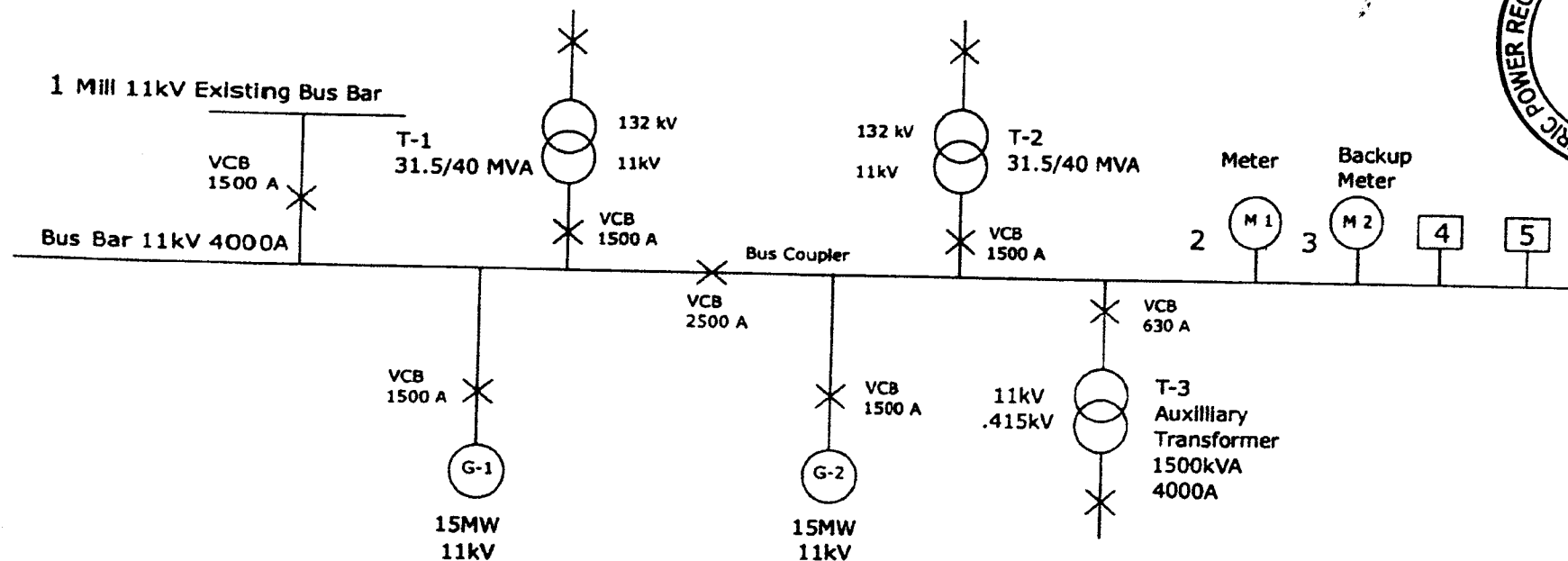
Generation Licence  
TAY PowerGen Company (Pvt.) Limited  
Deh Kandhari, Tehsil Chamber  
District Tandothal  
in the Province of Sindh



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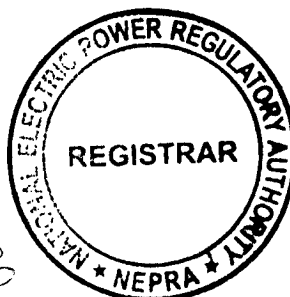


**Interconnection Facilities/  
Transmission Arrangements for Dispersal of Power from  
the Generation Facility/Co-Generation/  
Power Plant**

The electric power from the Bagasse based Generation Facility/Co-Generation Power Plant of Tay PowerGen Company (Pvt.) Limited (TAYPGCPL) will be dispersed 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 for supplying to HESCO will be consisting of a 132 KV D/C Transmission Line (Measuring about 12-KM in length on ACSR Lynx Conductor) connecting the Generation Facility/Co-Generation/Power Plant to 132 KV Mirwah Gorchani Grid Station.

(3). Any change in the above mentioned IF/TA for dispersal of electric power as agreed by the Licensee and the Power Purchaser shall be communicated to the Authority in due course of time.



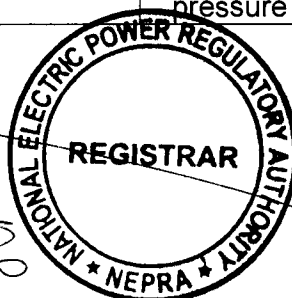
**Detail of**  
**Generation Facility/Co-Generation/**  
**Power Plant**

**(A). General Information**

(i).	Name of Applicant	TAY Powergen Company (Pvt.) Limited
(ii).	Registered /Business Office	1 <sup>st</sup> Floor, Block 2 Hockey Club of Pakistan Stadium, Liaquat Barracks, Karachi, in the Province of Sindh
(iii).	Plant Location	Deh Kandhari, Tehsil Chambar, District Tandoallayar, Province of Sindh
(iv).	Type of Generation Facility	Bagasse based, High-Pressure Co-Generation Thermal power Plant.

**(B). Plant Configuration**

(i).	Plant Size Installed Capacity	30.00 MW		
(ii).	Type of Technology	Conventional Steam Turbine based Power Plant [with Extraction cum Condensing Steam Turbine with 65 bar (kg/cm <sup>2</sup> ) boiler].		
(iii).	Number of Units/Size (MW)	Steam Turbine	Unit No. -I	Unit No. -II
			15.00 MW	15.00 MW
(iv).	Unit Make/Model/Type & Year of Manufacture Etc.	Steam Turbine	Unit No. -I	Unit No. -II
			Hongzhou Turbine Company, China or equivalent	Hongzhou Turbine Company, China or equivalent
		Boiler	Dumping grate type Boiler with 84 TPH Capacity and 65 Bar (kg/cm <sup>2</sup> ) pressure from Descon Engineering	

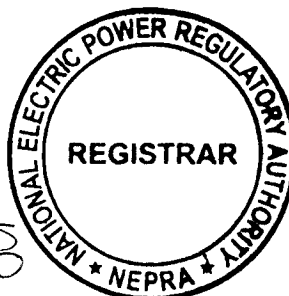


		Limited, Pakistanor Heavy Mechanical Complex-HMC, Pakistan	
(v).	COD of the Generation Facility (Expected)	Unit No. -I	Unit No. -II
		November 30, 2015	November 30, 2015
(vi).	Expected Useful Life of the Generation Facility from COD	Unit No. -I	Unit No. -II
		30 Years (Minimum)	30 Years (Minimum)

(C). **Fuel/Raw Material Details**

(i).	Primary Fuel	Bagasse		
(ii).	Alternate Fuel	Rice Husk, Agriculture Waste, etc.		
(iii).	Start Up Fuel	Furnace Oil		
(iv).	Fuel Source (Imported/ Indigenous)	Primary Fuel	Alternate Fuel	Start Up Fuel
		Indigenous	Indigenous	Indigenous/ Imported
(v).	Fuel Supplier	Primary Fuel	Alternate Fuel	Start Up Fuel
		Tando Allah Yar Sugar Mills Limited (TAYSML) or Other Sugar Mill in the vicinity	Any Rice Mill/Sheller in the vicinity	Pakistan State Oil (PSO)/Shell Pakistan Limited (Shell)
(vi).	Supply Arrangement	Primary Fuel	Alternate Fuel	Start Up Fuel
		Through Conveyor Belts/Loading Trucks/Tractor Trolleys etc	Through Conveyor Belts/Loading Trucks/Tractor Trolleys etc	Through Oil Tankers

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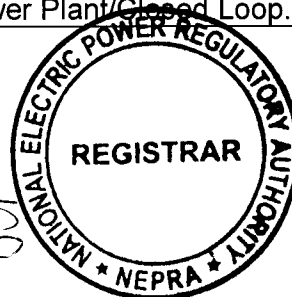
(vii).	Sugarcane Crushing Capacity of TAYSML	9,000 Ton Crushing Per Day		
(viii).	Bagasse Generation Capacity of TAYSML	2,700 Tons per day		
(ix).	Fuel Storage facilities	Primary Fuel	Alternate Fuel	Start Up Fuel
		Bulk Storage	Bulk Storage	One (01) Tank
(x).	Capacity of Storage facilities	Primary Fuel	Alternate Fuel	Start Up Fuel
		25,000 Metric Tons bulk storage	Part of Primary Fuel	300 Metric Tons
(xi).	Gross Storage Capacity	Primary Fuel	Alternate Fuel	Start Up Fuel
		25,000 Metric Tons Bulk Storage	Part of Primary Fuel	300 Metric Tons

**(D). Emission Values**

		Primary Fuel	Alternate Fuel	Start Up Fuel
(i).	SO <sub>x</sub> (mg/m <sup>3</sup> )	< 400	< 400	< 400
(ii).	NO <sub>x</sub> (mg/m <sup>3</sup> )	< 400	< 400	< 400
(iii).	CO <sub>2</sub> (%)	12 ~13	12 ~13	12 ~13
(iv).	CO (mg/m <sup>3</sup> )	<3%	<3%	<3%
(v).	PM <sub>10</sub> (mg/m <sup>3</sup> )	0.107	0.107	0.107

**(E). Cooling System**

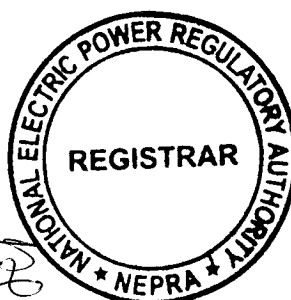
(i).	Cooling Water Source/Cycle	Condensate water of Ground Water Turbine Installed at Generation Facility/Co-Generation Power Plant/Closed Loop.
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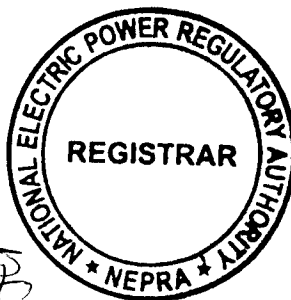
(F). **Plant Characteristics**

(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	3.3kw/Sec
(vi).	Time required to Synchronize to Grid	Four (4) hours for Cold Start and 30 sec when in hot condition



## **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 is given in this Schedule



## **SCHEDULE-II**

(1).	Total Gross Installed Capacity of the Generation Facility	30.00 MW
(2).	De-rated Capacity of Generation Facility at Reference Site Conditions	30.00 MW
(3).	Auxiliary Consumption of the Generation Facility	03.00 MW
(4).	Total Installed Net Capacity of Generation Facility at Reference Site Condition	27.00 MW

**Note**

All the above figures are indicative based on the information provided in the application for the grant of Generation Licence. The Net Energy available to Power Purchaser will be in accordance with the Energy Purchase Agreement (signed or to be signed between the Licensee and the Power Purchaser) or any other applicable document(s).

