



National Electric Power Regulatory Authority

Islamic Republic of Pakistan

Registrar

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No. NEPRA/PAR-137/8322
May 29, 2015

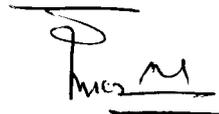
Managing Director,
National Transmission & Despatch Co. Ltd.
414 WAPDA House
Shaharah-e-Qauid-e-Azam
Lahore

Subject: Approval of Power Acquisition Request filed by National Transmission and Despatch Company Ltd. (NTDC) for Import of Power 1000 MW from TAVANIR, Iran under the NEPRA Interim Power Procurement (Procedures and Standards) Regulations, 2005 [Case # NEPRA/PAR-137]

Dear Sir,

Please find enclosed herewith the subject Decision of the Authority (07 pages) regarding Approval of Power Acquisition Request filed by National Transmission and Despatch Company Ltd. (NTDC) for Import of Power 1000 MW from TAVANIR, Iran under the NEPRA Interim Power Procurement (Procedures and Standards) Regulations, 2005 in Case No. NEPRA/PAR-137, for information and further necessary action please.

Enclosure: As above


(Syed Safer Hussain) 29.05.15

National Electric Power Regulatory Authority
(NEPRA)

Approval of

Power Acquisition Request filed by

National Transmission & Despatch Company (NTDC)

For Import of 1000 MW from TAVANIR, Iran

Under

Interim Power Procurement (Procedures & Standards) Regulations 2005

(NO: NEPRA/PAR-137)

Islamabad

May 29, 2015



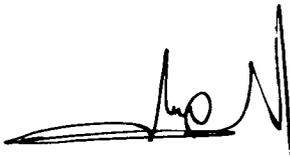
Approval of the Authority in the Matter of Power Request filed by National Transmission & Despatch Company (NTDC) for Import of 1000 MW from TAVANIR, Iran under Interim Power Procurement (Procedures & Standards) Regulations 2005

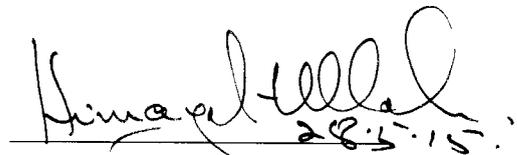
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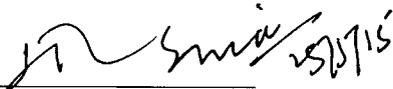
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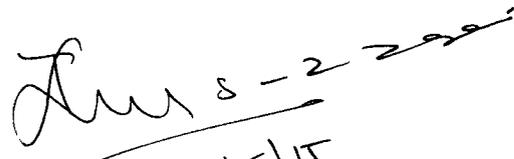
National Transmission & Despatch Company (NTDC), WAPDA House, Lahore

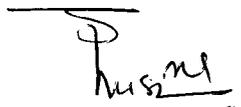
AUTHORITY


25.5.15
(Khawaja Muhammad Naeem)
Member


28.5.15
(Himayat Ullah Khan)
Member


25/5/15
(Maj. Rtd. Haroon Rashid)
Vice Chairman


27/5/15
(Brig. (R) Pariz Sadozai)
Chairman


27.05.15



National Transmission and Despatch Company Limited (NTDC), vide letter dated 06-08-2014 has submitted a Power Acquisition Request for import of power of 1000 MW from Iran under NEPRA Interim Power Procurement (Standards & Procedure) Regulations, 2005 ("IPPR"). The last information in the matter was submitted by NTDC on 24.09.2014. NTDC, vide above said letter dated 06-08-2014 has stated as below:

"The Cabinet of the Govt. of Pakistan has accorded its ex-post facto approval of the Memorandum of Understanding (MOU) dated 31st May 2012 signed by NTDC, (Pakistan) and TAVANIR, (Iran) for import of 1000 MW from TAVANIR, Iran as conveyed vide Ministry of Water and Power letter No. 5(31)/2014-NTDC dated 22nd July 2014. Pursuant to Para 7 of NEPRA Interim Power Procurement (Procedures and Standards) Regulations 2005, an application for determination of tariff and power acquisition duly supported with all relevant documents in compliance of Cabinet decision is enclosed herewith for your consideration and approval enabling us to proceed further."

2. NTDC requested that "NEPRA Authority is requested to determine the Tariff mentioned at Para 6(g), (h) and (i) and accord its approval, which will become the integral part of the Power Purchase Agreement." NTDC requested following tariff for approval along with the indexation mechanism:

$$R = 2.5 + 0.07 \times P$$

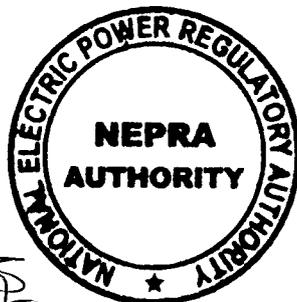
Where:

R: Electric Energy Price payable in US Cents per each kWh
2.5: US Cents per kWh as fixed charge of the delivered electricity cost
P: The monthly average price of barrel of OPEC basket crude oil in
78.57 US\$ \leq P \leq 121.43 US\$

Notwithstanding the above mentioned formula, the delivered electricity shall remain within the limits of 8.00 to 11.00 cents/kWh.

- There will be no revision in the tariff in case the price of crude oils remains up to US\$ 145 per barrel. However, in case the crude oil price exceeds US\$ 145 per barrel during the term of the contract then both parties will negotiate and agree to revise the tariff with mutual agreement.

3. According to NTDC, the above stated price formula will initially be effective from the commercial operation date of interconnection project up to the expiry of 5th Agreement year and will be periodically revised each after every three years with mutual agreements of the parties. According to MOU this project of supply of 1000 MW will be completed within four years period (i.e. 2016). According to NTDC the Iranian side will provide a detail time schedule for timely implementation of





the project and a joint team will work in close co-operation for timely implementation and completion of the project.

4. NTDC submitted that the Power Purchase Agreement which shall be largely based on the PPA already signed with the TAVANIR for import of 100 MW power, is being finalized and shall be submitted to NEPRA as soon as it is signed. It shall incorporate the tariff indicated in above paragraph. NTDC has submitted the background of the subject project as below:

I. *Memorandum of Understanding (MOU) was signed between Iran and Pakistan on 8th April 2007 in Tehran, Iran wherein the proposition for supply of 1000 MW from Iran to Pakistan was considered subject to an appropriate Feasibility Study.*

II. *Accordingly, Feasibility Study was conducted jointly by MOSHANIR (Iran) and NESPAK (Pakistan) for import of 1000 MW and its Report was submitted on 26th April 2010. The salient features of the Feasibility Report are given as under:*

- *The Parties agreed to construct HVDC interconnection on ± 500 kV level with Converter and Switching stations at Zahedan and Quetta.*
- *Total length of the Transmission line will be around 678 KM, out of which, 93 KM will be constructed in Iran and 585 KM will be constructed in the territory of Pakistan.*
- *Iran will construct dedicated 1300 MW power plant at Zahedan for supply of 1000 MW to Pakistan.*
- *The total estimated cost of transmission line project will be US\$ 700 million.*

5. NTDC submitted copies of following Memorandum of Understandings (MOUs):

- i. Memorandum of Understanding (MOU) was signed between Iran and Pakistan on 8th April 2007 in Tehran, Iran wherein the proposition for supply of 1000 MW from Iran to Pakistan was considered subject to an appropriate Feasibility Study.
- ii. Accordingly, Feasibility Study was conducted jointly by MOSHANIR (Iran) and NESPAK (Pakistan) for import of 1000 MW and its Report was submitted on 26th April 2010.

6. MOU between Iran Power Generation, Transmission and Distribution Management Company (TAVANIR) and National Transmission and Despatch Company (NTDC), Pakistan was signed on May 31, 2012. The salient features of the MOU are as under:

- o TAVANIR and NTDC approved the feasibility study report prepared jointly by NTDC and MOSHANIR (Iran) consultants on 1,000 MW electricity supply from Pakistan.
- o HVDC transmission line along with Converter station at either and were proposed to transmit the power to the national grid at Quetta.
- o The cost of this HVDC interconnection project including two HVDC converter / inverter substations, one for each side as well as HVDC ± 500 kV line is estimated to be approximately 700 million US\$ excluding the cost of 1300 MW power plant needed to be constructed on Iranian side. Iran will construct the power plant from its own resources.
- o TAVANIR consented for financing of the HVDC interconnection project cost in its own territory (approximately 265 million US\$)

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- o Both sides agreed that the Power Purchase Contract dated 7th February 2007 for supply of 100 MW to Gawadar shall be used as a base document in preparation of the contract for supply of 1000 MW.

7. Proceedings

The request of NTDC was considered by the Authority to access the reasonability of the rates of electricity proposed to be imported from Iran. Although IPPR do not provide for conducting any hearing, however for the purpose of transparency the Authority decided to conduct the hearing in the matter for valuable input of the stakeholders. Accordingly advertisement in this regard was published on 1st March 2015 in the national newspapers wherein the salient features of the request were indicated. The issues framed were also published in the aforesaid advertisement. The individual letters were also communicated to the stakeholders. In response no objection or comments were filed.

8. Issues

Following issues were framed for the hearing:

- Whether the NTDC's request for permission is reasonable?
- Whether NTDC conducted any technical assessment regarding selection of HVDC or HVAC transmission lines which will meet future load demand in the area? Since NTDC has no experience of operating HVDC systems therefore detailed studies /trainings will be required.
- What are the arrangements for dispersal of power from Quetta to other load centers, keeping the (N-1) contingency criteria in view?

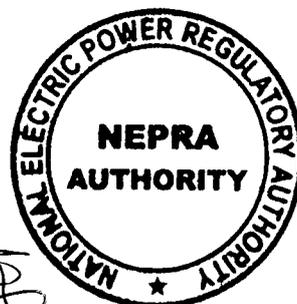
9. Hearing

Hearing in the matter was held on 10.3.2015 which was attended by the different stakeholders.

10. The Issue-wise findings are as under:-

11. Whether the NTDC's request for permission is reasonable?

- 11.1 NTDC submitted that keeping in view the current demand supply gap there is a dire demand of electricity in the country and specifically in the Balochistan area. NTDC further submitted that the losses will be reduced due to supply from Iranian side as compared to the other parts of the country. This will also help in achieving the socio-economic objectives of the GOP. NTDC submitted that in 2002 Pakistan and Iran entered into agreement for supply of electricity. According to NTDC initially the agreement was for 34 MW which was further increased by 30 MW. Moreover, another 30 MW will be inducted in the national grid in 2016; thus increasing the capacity to 104 MW. While justifying the agreed formula with TAVANIR for 100 MW, representatives of NTDC stated that there is floor and ceiling on both side. The minimum energy delivered will be on 8 US Cents/kWh. Similarly the 11 US Cents/kWh is the ceiling and in case the crude oil prices increases till US 145 barrel no change in tariff will be made. According to representative of NTDC, the Iran will construct gas power plant for dedicated supply of 1000 MW electricity to Pakistan. Muhashir and Nespak have carried out joint study with respect to the transmission line in this regard. The length of the transmission line will be around 700 Km in which 100 Km shall be on Iranian side



and remaining 585 Km will be on Pakistan side. The consultant have recommended 500 kV HVDC transmission line. According to NTDC the Iran has agreed to finance 70% of the cost of transmission line to be constructed in Pakistan side whereas 30% will be met through NTDC' own sources. NTDC further submitted that Iran have offered 3000 MW which is under consideration. NTDC requested following tariff for approval along with the indexation mechanism:

$$R = 2.5 + 0.07 \times P$$

Where:

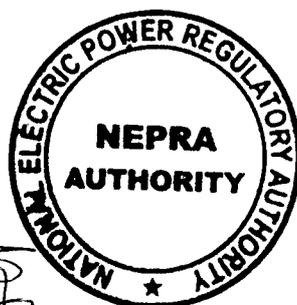
R: Electric Energy Price payable in US Cents per each kWh
2.5: US Cents per kWh as fixed charge of the delivered electricity cost
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78.57 US\$ \leq P \leq 121.43 US\$

Notwithstanding the above mentioned formula, the delivered electricity shall remain within the limits of 8.00 to 11.00 cents/kWh.

- There will be no revision in the tariff in case the price of crude oils remains up to US\$ 145 per barrel. However, in case the crude oil price exceeds US\$ 145 per barrel during the term of the contract then both parties will negotiate and agree to revise the tariff with mutual agreement.

11.2 The Authority considered the submission of the NTDC. The Authority considers that sustainable, reliable and affordable provision of electricity is mandatory for economic viability of the country. Considering the demand supply gap and keeping in view the demand forecast the request of NTDC seems reasonable. In addition to that the electricity shall be provided in the area of Balochistan the economic growth of which is the priority of the GOP which is in line with the socio-economic objectives of the policy guideline of NEPRA Act. While considering the agreed rates submitted by NTDC, the Authority carried out detailed in-house analysis. The Authority considers that the option to procure power from Iran in the scenario of depleting gas in the country whereby the most efficient gas power plants are forced to operate on HSD, the proposal appears to be reasonable. In the Authority's opinion the proposed rates are competitive in case the gas based IPPs are operated on LNG costing around US\$ 12/MMBTU. The fuel cost component in this case works out as Rs. 9/kWh which after adding the capacity charges works out as Rs. 11.8/kWh. Keeping in view the existing generation scenario, the Authority considers that dedicated supply from TAVANIR, Iran would further enable the GOP to minimize the demand supply gap thus helping economic growth in the country.

11.3 Keeping in view the demand supply conditions, current generation mix and demand forecast in future the Authority considers that the NTDC's request for acquisition of 1000 MW power from TAVANIR, Iran is justified. Considering the current per unit cost rates of the electricity on





different sources, the requested tariff seems reasonable. However, the same shall be considered in detail once the Power Acquisition Contract is submitted by the NTDC in accordance with the provision of Regulation 5(1) of the IPPR-2005.

11.4 Keeping in view the above the Authority has decided grant permission to NTDC for Import of 1000 MW power from TAVANIR, under Regulation 4 of NEPRA Interim Power Procurement (Procedure & Standards) Regulations 2005 with the directions to submit the proposed transmission lines and their associated grid stations indicating their voltage profiles and timeline for completion.

12. Whether NTDC conducted any technical assessment regarding selection of HVDC or HVAC transmission lines which will meet future load demand in the area? Since NTDC has no experience of operating HVDC systems therefore detailed studies /trainings will be required.

12.1 NTDC submitted that the technical study was conducted by Muhashir and Nespak jointly with respect to the HVDC transmission line. The expert have finalized the HVDC line after carrying out detailed study. While justifying the HVDC line, NTDC submitted that the HVDC line will provide more opportunity of having experience of maintaining and operating HVDC transmission line. NTDC further stated that CASA 1000 is also planned on HVDC line therefore the operational and maintaining experience on HVDC line will further help NTDC in the case of CASA 1000. NTDC stated that the nuclear power plants dispersal is also under consideration on HVDC line therefore the same is justified in the case of TAVANIR 1000 MW.

12.2 The response by NTDC regarding technical assessment of the three alternatives and selection criteria of the transmission project as proposed in the feasibility study being satisfactory is accepted.

13. What are the arrangements for dispersal of power from Quetta to other load centers, keeping the (N-1) contingency criteria in view?

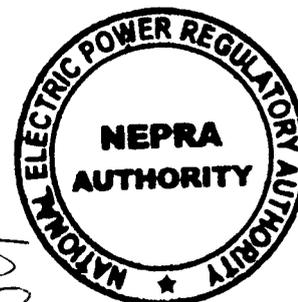
13.1 NTDC submitted that the power dispersed to Quetta grid station will be transmitted to other part of the Province keeping in view the demand of electricity. NTDC submitted that all factors have been accounted for while considering the load dispersal plan.

13.2 The proposed arrangements for dispersal of power from Quetta to other load centers are not very much clear regarding voltage level of transmission lines and grid stations; therefore NTDC is directed to provide list of proposed transmission lines and their associated grid stations indicating their voltage profiles and timeline for completion.

14. Order

From what has been stated above, the Authority is satisfied as to the prudence of the procurement of electricity from Iran by NTDC and accordingly in term and regulations 4 of IPPR, NTDC is granted power acquisition permission to initiate power acquisition contract negotiation for input of 1000 MW from TAVANIR IRAN.

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