



National Electric Power Regulatory Authority Islamic Republic of Pakistan

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No. NEPRA/PAR-117/8892-8894
June 21, 2016

Subject: **Decision of the Authority in the matter of Power Acquisition Contract filed by National Transmission & Despatch Company Ltd. for CASA-1000 Transmission Project under NEPRA Interim Power Procurement (Procedure & Standards) Regulations, 2005 [Case # PAR-117]**

Dear Sir,

Please find enclosed herewith the subject Decision of the Authority along with Annex 1 (29 pages) in Case No. NEPRA/PAR-117.

2. The Decision is being intimated to the Federal Government for the purpose of notification in the official gazette in accordance with the provisions of Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

Enclosure: As above

(Syed Safer Hussain)

Secretary
Ministry of Water & Power
'A' Block, Pak Secretariat
Islamabad

CC:

1. Secretary, Cabinet Division, Cabinet Secretariat, Islamabad.
2. Secretary, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad.



National Electric Power Regulatory Authority
(NEPRA)

Decision of the Authority in the matter of
Approval of Power Acquisition Contract filed by
National Transmission & Dispatch Company (NTDC)

For CASA-1000 Transmission Project

Under

NEPRA Interim Power Procurement (Procedures & Standards) Regulations, 2005

(NO: NEPRA/PAR-117)

Islamabad

21st June
~~March~~, 2016



**Decision of the Authority in the matter of Approval of Power
Acquisition Contract filed by NTDC for CASA-1000 Transmission Project
(Case No. NEPRA/PAR-117)**

PETITIONER

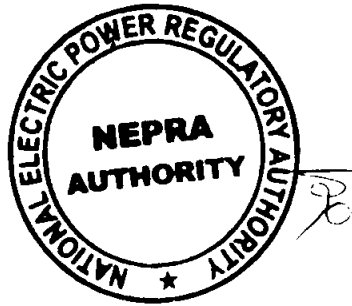
National Transmission & Dispatch Company Ltd., (NTDCL)

COMMENTATOR

1. Ministry of Planning and Development (Energy Wing), Islamabad.

REPRESENTATIVES:-

- | | | |
|----|-----------------------|-------------------------------|
| 1. | Mr. Rehan Akhtar | Chief Financial Officer, CPPA |
| 2. | Mr. Abdul Majid Khan | Legal Advisor NTDC |
| 3. | Mr. Muhammad Shafique | GM System Protection NTDC |
| 4. | Mr. Waseem | Manager Planning NTDC |



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1. BACKGROUND:

1.1 National Transmission and Dispatch Company Limited (NTDCL) submitted a Power Acquisition Request for permission to negotiate a Power Acquisition Contract for CASA - 1000 project, with the three other member countries of CASA i.e. Tajikistan, Kyrgyz Republic and Afghanistan, under NEPRA Interim Power Procurement (Procedure & Standards) Regulations (IPPR) 2005. The sellers (Tajikistan and Kyrgyzstan) had committed to provide 1000 MW to Pakistan and Pakistan can even buy 1300 MW if Afghanistan wishes to sell its own share of electricity 300 MW to Pakistan. The exporting countries (Kyrgyz Republic & Tajikistan) have conveyed that they shall be able to deliver > 4000 GWh of energy in a normal year and 4434 GWh in a wet year.

2. INTER GOVERNMENTAL COUNCIL RESOLUTION FOR THE SUBJECT PROJECT

2.1 NTDC has submitted a copy of "Inter Governmental Council Resolution No. 1-2013 dated September 16, 2013 to Proceed Through the Development Phase on the Basis of a Contractual Joint Venture and Regarding the Commercial Principles for the Core Project Agreements in Relation to the CASA – 1000 Transmission Project". The said Resolution has been signed by the Minister of Water & Power, Government of Pakistan, Minister of Energy & Water Afghanistan, Minister of Energy & Industry, Kyrgyz Republic and Minister of Energy & Industry, Tajikistan.

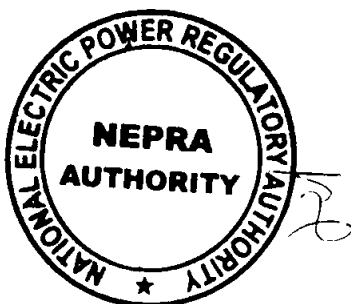
3. SCOPE OF WORK PROPOSED BY THE CONSULTANTS FOR IMPORT OF 1000 MW POWER FROM TAJIKISTAN TO PAKISTAN:

3.1 NTDC submitted the scope as per following:-

- 500 kV HVAC T/L from Kyrgyz to Tajikistan (477 km)
- ±500 kV HVDC T/L from Tajikistan to Pakistan via Afghanistan (750 km)
- 300 MW HVDC substation at Kabul in Afghanistan.
- 1300 MW HVDC convertor station at Tajikistan
- 1300 MW HVDC convertor station at Peshawar

4. PROJECT CONFIGURATION:

4.1 CASA-1000 project envisaged the transportation of surplus electric power available in the months of summer (May 1st to September 30th) from Kyrgyz Republic and Tajikistan to Afghanistan and Pakistan. The project will comprise the development, financing, construction, ownership and operation of the following:-





- a. A 750 km high voltage direct current transmission system between Tajikistan and Pakistan via Afghanistan together with associated converter stations at Sangtuda, Kabul (300 MW) and Peshawar (1000 MW) (the "DC Facilities").
- b. A 477 km 500 kV alternating current link between the Kyrgyz Republic (Datka) and Tajikistan (Khourjand) (the "AC Facilities").
- c. AC system upgrades necessary to safely and reliably accommodate the AC and DC facilities and the associated power flows (the "AC upgrades").

5. REQUEST OF NTDC

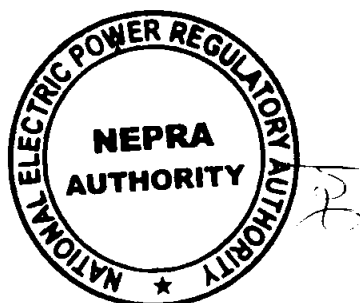
NTDC has requested that *"Permission for negotiating and approval of the power acquisition contract may kindly be given to NTDC urgently as the CASA-1000 project is being implemented on fast track basis"*

6. PROCEEDINGS:

- 6.1 Based on the Power Acquisition Request of the NTDC, NEPRA in accordance with the Regulation 4(1) of the Interim Power Procurement (Procedure & Standards) Regulations-2005 (hereinafter "IPPR-2005") granted permission to NTDC vide letter No. NEPRA/PAR-100/5801 dated 05-06-2014 for negotiating Power Acquisition Contract with seller countries. NTDC was also directed to submit the draft PAC for approval of the Authority in accordance with the provision of Regulation 5(1) of the IPPR-2005. Accordingly NTDC vide letter dated 3.4.2015 submitted the subject negotiated power purchase agreement i.e. Master Agreement and Power Purchase Agreements whereas Master Agreement signed by all four parties of the project which deals in transmission and allied functions and Power Purchase Agreement between Pakistan and Tajikistan covering commercial part of the deal, Power Purchase Agreement between Pakistan and Kyrgyz Republic, in respect of procurement of 1000 MW under CASA-1000 transmission project for further necessary action. NTDC vide its letter No. D/GM(CPPA)/DGMF/5040 dated 19-5-2015 submitted Justification of the rates, terms and conditions of CASA-1000 tariff as per the direction of the Authority. The Authority admitted the request for approval of Master Agreement and Power Purchase Agreements dated 21-05-2015.

7. MINISTRY OF PLANNING, DEVELOPMENT AND REFORM - (ENERGY WING)- COMMENTATOR

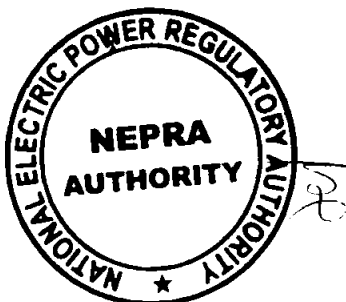
- 7.1 The Commentator submitted that the Central Asian countries of Kyrgyz Republic and Tajikistan have significant hydropower potential and surplus electricity in summer, which has been proposed to be imported, that may ease the electricity deficit of Pakistan in summer times when the electrical demand is high. The estimated overall project cost,





excluding IDC, is estimated at US\$ 873 million based on current market conditions which may change over time in response to market volatility.

- 7.2 That CASA 1000 transmission project will transmit 1,300 MW of surplus hydel power generated in the central Asian states i.e., Tajikistan and Kyrgyz Republic through Afghanistan to Pakistan. The total distance covered by these transmission lines is 1200 km. The full CASA-1000 transmission lines will move electricity at high voltages between the Kyrgyz Republic and Tajikistan (the first 477 kilometers) and from Tajikistan to Afghanistan and Pakistan (the next 750 kilometers). Each country will be responsible for construction of transmission line in its jurisdiction. Out of 1300 MW of exported power, Pakistan will get 1,000MW of power while Afghanistan will receive the remaining 300MW. The transmission lines covering a distance of 100 km from Pak-Afghan border to Peshawar are to be constructed along with converter station.
- 7.3 That the major portion of transmission line will be laid down in Afghanistan, whereas; small portion of 100 km will be in Pakistan. The Pakistani side mainly consists of tribal area or settled trouble areas.
- 7.4 That the source of energy with availability of surplus power from Kyrgyz and Tajik Republics, the tariff of US 9.41 cents per kWh as mentioned by NTDC, Afghanistan interest as it is currently no more interested in consuming power and safeguarding the interest of Pakistan by protecting the entire transmission line are some of the key issues needed to be resolved.
- 7.5 That the project being implemented is quite different than the assumptions of the feasibility study by SNC LAVLIN which created and justified the project in the first place.
- 7.6 That the cost of supply of US 1.5 cents/ kWh from Tajikistan had been assumed in the feasibility study while actual agreement is based on US 5.15 cents/ kWh.
- 7.7 That the benefit cost ratio of 1.15 is very low even with assumption in para 7.5 above and assuming RFO and Diesel as a reference price. In our view, either average cost or Hydro Tariff should have been used, which would have resulted in much less Benefit-cost ratio. Only PPAs using residual fuel oil (RFO) and diesel have been considered. For the economic analysis, the economic viability of the project was examined by using firm energy valued at the levelized price of energy and capacity and non firm energy, valued at the price of energy Only. The rate for firm energy is 13.2 US cents/kWh and the rate for non-firm is 9.2 US cents/kWh.
- 7.8 That the low B-C ratio assumed no Afghan Transit fee, while we have agreed to 1.5 cents in this respect, which will further reduce the B-C ratio. Transit charges in Central Asia



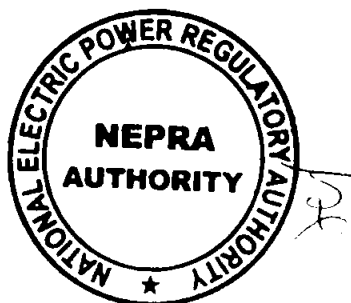


are in average of around 0.3 cents. It appears that no professional advice was available at the receiving end negotiators who apparently relied on hunch figures.

- 7.9 That the transmission charge of US Cents 2.91 is ten times higher than that of NTDC and 3 times higher than that in Europe.
- 7.10 That the present CASA Tariff is around Rs 10 per kWh which is higher than the putative benefits claimed: for this project originally. This is expected to escalate as the feasibility study has been done in 2011.

8. RISK ANALYSIS; OPTIONS AND ALTERNATIVES THEREOF BY COMMENTATOR.

- 8.1 Further the commentator submitted that one should wait and explore the development of a full open access network regime where there are many buyers and sellers based on hydro and thermal sources which may result in a reasonable transmission tariff of below 1 cent as opposed to the proposed 2.91 cents, which is expected to rise exponentially in future with lesser availability of power supply as the power demand in exporting countries will increase. In order to assure energy availability in the later years, the exporter has demanded higher price of 5.15 cents which in the original feasibility was assumed to be 1.5 cents, It may be mentioned that current hydro tariff in Pakistan is under 2.5 cents and identical is the case for hydro power tariff in India. Internationally, PPAs (Wind Power and others) have been signed in the U.S is around 2.5 cents.
- 8.2 That at present, Afghanistan is being supplied energy from three different countries in the region. It imports 500 GWh at 3.5 cents/kWh from Tajikistan, 200 GWh from Iran at 4 cents/kWh (including aid of 1 cents/kWh) and from Turkmenistan at 3 cents/kWh (no wonder Afghanistan is not very much interested in CASA project).
- 8.3 That most likely, CASA was conceived to provide alternatives to Pakistan obviating the need of Gas import from Iran. With changing political environment and prospects of lifting of restrictions on Iran, the rationale for such projects may lose its appeal. In addition, Chinese; have also offered electricity exports via Khunjerab under CPEC program. Although such an offer is at an initial stage and feasibility study is yet to be carried out, Chinese energy may not suffer from risks and instability issues as compared to CASA1000 due to Afghanistan factor. No wonder, project of CASA-1000 has been geared-up knowing to Chinese offer.
- 8.4 That there is no collateral from the agencies which want to promote regional cooperation under CASA-1000. It appears that all costs have been loaded onto Pakistani consumer through a very liberal transit charge of US 1.25 cents per kWh, Afghanistan is expected to earn revenue of 50 million USD per year. Over the project life of 30 years, Pakistani consumers will pay US\$ 1.50 billion. A fair transit fee would only be a small fraction of

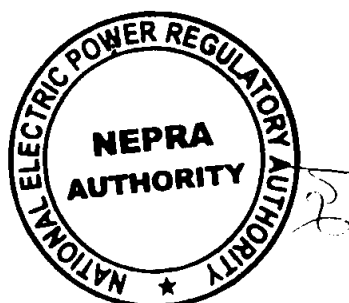


what has been agreed to; a handsome parting gift to Afghanistan from the advanced countries on Pakistan's expense.

- 8.5 That it appears that Afghanistan is probably not interested in the project which makes the project very risky and may result in lack of interest in securing the transmission line. The reason of lack of Afghan interest in the project also indicates the bad economics and risk profile of the project. Afghanistan may have better alternatives than seasonal supplies of CASA-1000 project.
- 8.6 That in the absence of a strategic plan of developing power network involving many sources and sinks and two directional flows, the proposed project may be destined to remain a solo underutilized investment with decreasing, seasonal and insecure supplies that may face interruptions due to uncertain law and order situation in Afghanistan.
- 8.7 That a trend may set-in among international donor agencies or precedence's which may take financing of hydro projects in Central Asia and discourage Hydro Power development in Pakistan. It happens to be evident from the lack-luster support to Pakistan Hydro projects such as Bhasha Dam and Bunji hydropower project etc.

9. RECOMMENDATIONS BY COMMENTATOR:-

- 9.1 The Commentator suggested that some subsidy, grant must be demanded from the Project Promoters and the donor agencies so that the cost of supplies to Pakistan becomes more attractive and competitive.
- 9.2 That an upper limit of tariff may be built in the PPA, as it appears that escalation uncertainties may result in increase of tariff beyond Rs. 10 per kWh which would not be a desirable tariff at all.
- 9.3 That energy supply rate from exporter currently agreed at Rs. 5.00 per unit and Afghan Transit charge of Rs.1.5 per unit should be re-negotiated to a more reasonable and acceptable level. At least, there should be no escalation in Energy Charge. It should be a fixed price contract in USD.
- 9.4 That the project's viability is highly questionable both in terms of profitability and risk profile. In order to improve its viability, its capacity and scope may be expanded increasing the transmission capacity to 3300 MW and by adding thermal sources such as Gas fired NGCC at Turkmenistan (possibly replacing TAPI) or/ and adding a thermal power plant (coal fired) in Afghanistan. It may also be made multiple way network and open access character to it. A new feasibility study needs to be undertaken, if one is interested in promoting cooperation among Central Asian and South Asian countries.





9.5 The commentator mentioned that keeping the afore-mentioned in view, and divergence from Feasibility, estimates which was the basis of project formulation in the first place, it is not likely that NEPRA may approve the project and its tariff in the form it has been negotiated. A third-party evaluation or updating the 2011 Feasibility Study would meet NEPRA and Planning Commission requirements. The earlier it is commissioned, the better it would be. NEPRA has declined to issue any supporting statements. NEPRA procedure requires tariff proceedings before any firm up and commitments such as PPA. Hence, before taking the project to ECNEC, it may be advisable to submit the project to NEPRA for approving the Tariff.

Feasibility Estimates vs Negotiated Tariff

	Feasibility Estimate (cents)	As negotiated (cents)
Energy Charge	1.5	5.10
Afghan Transit Charge	0.0	1.25
Transmission	2.98	2.98
Others	0.50	0.50
Total	4.98	9.83

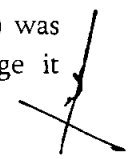
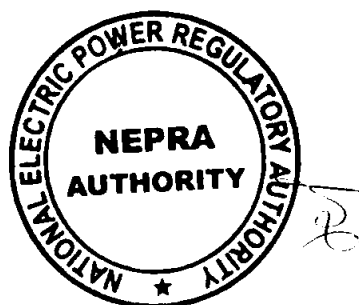
10. NTDCL'S RESPONSE TO MINISTRY OF PLANNING, DEVELOPMENT AND REFORM (ENERGY WING)

10.1 NTDCL submitted its reply vide letter No. MD(NTDC)/DGMF/6838-40 dated 4-8-2015 against NEPRA's letter No. NEPRA/R/SAT-1/PAR-117/10498 dated July 13, 2015 forwarded through Ministry of Water and power for the issues/concerns raised by the Commentator (Ministry of Planning & Development - Energy Wing).

10.2 NTDC stated that to have the grants for this project will affect positively on the tariff of the project but to extend the grant to Pakistan and specifically to this project is always the choice of the grant extending agency.

10.3 That building up the upper limit in PPA price as it has already been negotiated and it has been handled in the PPA that in case the EPC bids are higher than the Feasibility study prices then parties have the right to walk away. However after the EPC is finalized the risk of cost overrun is inherent in all projects.

10.4 That the energy supply (US Cents 5.15/kWh) and transit fee (US Cents 1.25/kWh) was negotiated and finalized by the Governments after number of meetings. At this stage it

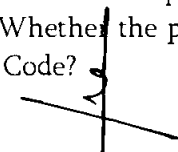


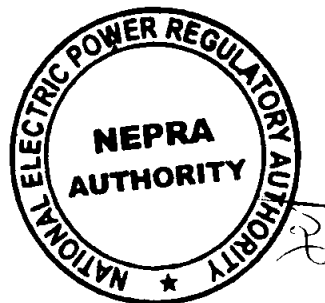
cannot be reopened as it is agreed position between the parties. However transit fee is always a Government to Government affair and respective Governments can reconsider it.

- 10.5 That expanding the project Size upfront could be risky as huge investment is required. Therefore the optimum size to match the supply from the Sellers has been selected. The project has the concept of the Open Access, therefore if any generation is available in future from any source it can be transported to the Load centers in South Asia and Central Asia. The lines have the two way transmission capability.
- 10.6 That the project's Feasibility Study (to which the Energy Wing has referred to frequently) was conducted by SNC-Lavalin in 2011. Several of the assumptions made in the FS have now been changed in the signed documents (the PPAs and the Master Agreement) and most of these changes have enhanced the viability of the Project.
- 10.7 That for example, the Feasibility Study had assumed that the profile of energy by the Sellers (Kyrgyz Republic and Tajikistan) would decline substantially every year over the 15 year Agreement Term resulting in an escalating tariff which would rise to over 40 Cents/kWh in Year 15. This was unacceptable to NTDC for obvious reasons. Hence NTDC has revised this concept and as per the PPAs, the Sellers are obligated to provide a committed quantity of energy (4200 GWh to 4400 GWh per year) which remains almost flat throughout the 15 year Agreement Term.
- 10.8 That if the Sellers are unable to provide the committed energy each year (and these amounts have been recorded in advance in the PPAs) they would be liable to pay LDs. Hence the burden of hydrological risk has been shifted to the Seller (this provisions contrary to the Policy applicable to our own hydropower IPPs, in which the hydrological risk is borne by the Power Purchaser).
- 10.9 That all of the energy cost is on per kWh basis and the buyers would be required to pay for only the energy despatched and recorded by the meters (i.e., there are no fixed payments)

11. FRAMING OF ISSUES:

- 11.1 Following issues were framed to be considered during the hearing and for presenting written as well as oral evidence and arguments:-
- Whether the proposed rates for purchase of power are reasonable?
 - Whether the provisions of NTDC's Grid Code have been incorporated in Technical Code?







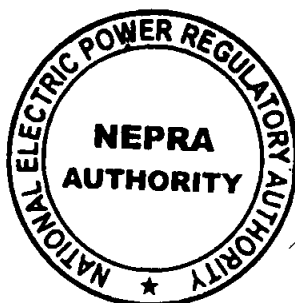
- iii. Whether revision/modification in Grid Code is required in the absence of voltage profiles?
- iv. Whether the arrangements have been made by the NTDC for dispersal of power from Peshawar to other load centers, keeping the (N-1) contingency criteria?
- v. Whether the expected timeline will be achieved in view of the present status of the CASA-1000 project?
- vi. Whether the Power Purchaser shall be CPPA-G in the light of modification made in the Transmission License of NTDC?

12. HEARING:

- 12.1 Further, although Regulations do not provide for holding a hearing, however for the purpose of transparency through participation of the stakeholders in the tariff setting process and in order to meet the ends of natural justice the Authority vide its meeting 15-576 dated 20-10-2015 decided to hold public hearing on November 18, 2015. Accordingly Notice of Admission/public hearing along with salient features was made public in the leading national newspapers on 3-11-2015 inviting comments/participation from the general public and other stakeholders within 7 days of the publication of the advertisement. Individual letters were also sent to all concerned for inviting comments and intervention requests. Ministry of Planning, Development and Reform (Energy Wing) submitted comments. During the hearing, the Power Purchaser was represented by Mr. Rehan Akhtar, Chief Financial Officer of the Power Purchaser along with his technical team. General Public and Media also participated in the hearing.
- 12.2 On the basis of pleadings, evidence/record produced and arguments raised during the hearing, issue-wise findings are given as under:

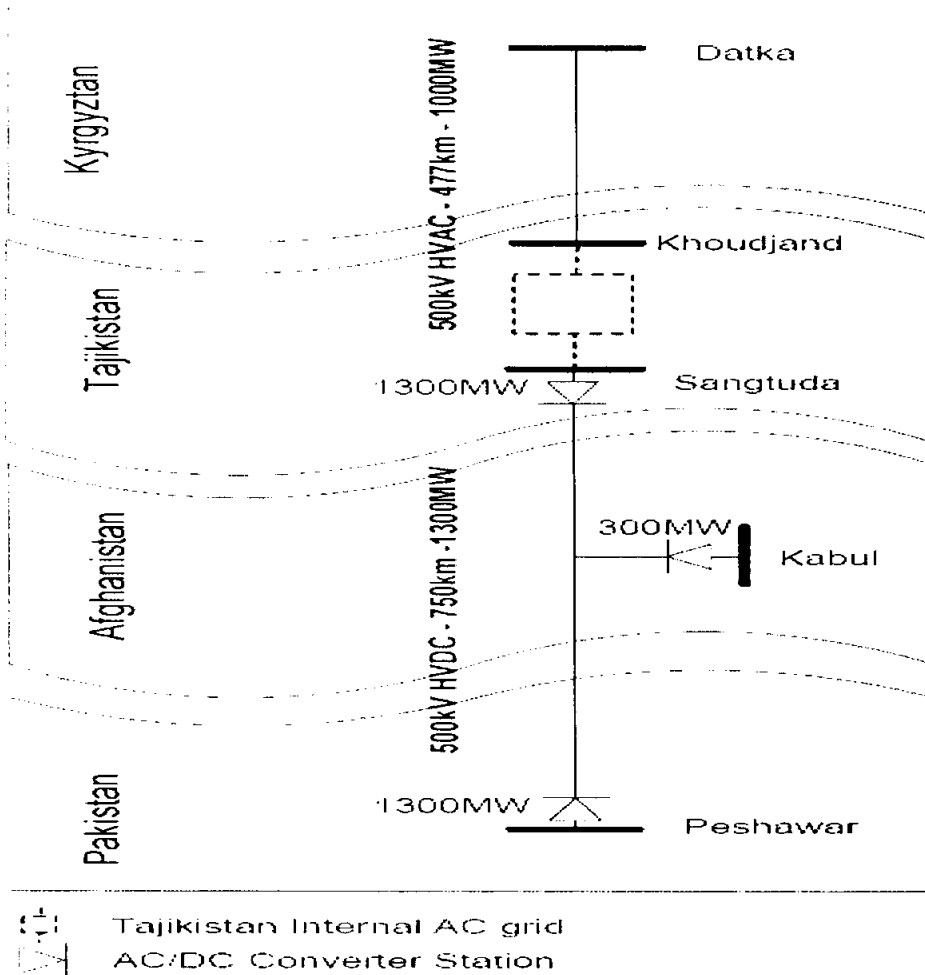
13. Issue # 1 Whether the proposed rates for purchase of power are reasonable?

- 13.1 NTDC submitted that the CASA-1000 Transmission Project envisages the transportation of surplus electric power available in summer months (May 1 to September 30) from Kyrgyz Republic and Tajikistan to Afghanistan and Pakistan. A techno-economic feasibility study for the Central Asia-South Asia Transmission Interconnection (CASA1000) was completed in October 2008 by SNC Lavalin. This study set the basis for the implementation of the transmission project.
- 13.2 Further SNC Lavalin issued an updated feasibility study of the project, in February 2011, which contains the revised cost estimates of the project along with an update on the exportable surplus in the seller countries and import requirements of the buyer countries. The updated revised feasibility study also re-established the economic viability of the transmission project under the new costs and benefits of the project.

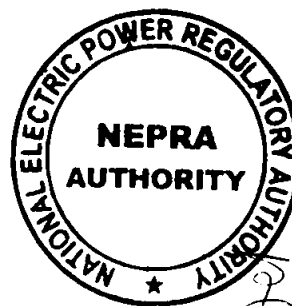


13.3 That the CASA-1000 Transmission Line (T/L) to Peshawar would be capable of delivering 1300 MW (1000 MW is Pakistan's share & 300 MW is Afghanistan's share; however, the Afghan share may be available for Pakistan as Afghanistan may not need the power in near future). The exporting countries (Kyrgyz Republic & Tajikistan) have conveyed that they shall be able to deliver >4000 GWh of energy in a normal year and 4434 in a wet year.

Schematic Diagram of CASA-1000 Project



13.4 That the CPPA/NTDCL has entered into EPA/PPA lower than this as well higher than this tariff Dynamics Project is available for transmission during seven months from CA grid. In CEPEC scenario if Pakistan have surplus thermal generation in winter can be sold to the Land Locked Countries.





14. TARIFF STRUCTURE

14.1 NTDC submitted that the tariff payable by Pakistan is composed of four (4) components and is based on “take & pay” basis for energy delivered and measured at sangtuda, Tajikistan (“delivery point”).

ENERGY CHARGE	US CENTS 5.15/KWH
TRANSMISSION CHARGE	US CENTS 2.91/KWH
AFGHAN TRANSIT FEE	US CENTS 1.25/KWH
TAJIKISTAN WHEELING CHARGES ¹	US CENTS 0.10/KWH

TOTAL	US CENTS 9.41/KWH
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15. ENERGY CHARGE

15.1 The Power Purchaser submitted that the energy charge of US cents 5.15/kWh is the price of electricity payable to Tajikistan and Kyrgyzstan (Sellers) for the energy delivered and measured at Delivery Point. This price remained the subject of extensive debate among the Buyers and Sellers. The Sellers initially demanded US cents 6.00/kWh, but later on after several rounds of negotiations, the final price of US cents 5.15/kWh was agreed. The Energy Charge has been negotiated Government to Government basis.

15.2 Further the determination of reasonable energy price for this project was most difficult aspect of tariff negotiations as the Sellers were of the view that Pakistan should price their energy at Replacement cost of most expensive energy whereas Petitioner's viewpoint was that both Sellers heavily depend upon hydropower generation to meet their electricity demand as well as for imports. Moreover, for the guidance purpose of price negotiating team, USAID, upon the request of Government of Pakistan, conducted a study namely “CASA 1000 PROJECT – ADVISORY SERVICES – POSITION PAPERS, INCLUDING: POWER PRICING, TRANSMISSION COSTS, AND TRANSIT FEES” in March 2012 which recommended that “in order to secure the CASA-1000 Project, Pakistan can stretch the energy purchase price to 4.43 cents/kWh provided the seller countries commit to constantly supplying 4 TWh over the project life. On a similar note, if the sellers commit to 5 TWh, Pakistan can further increase its offer to US Cents 5.13/kWh”. So, in view of the aforesaid report & load demand position of the country, the energy price of US cents 5.15/kWh was agreed upon.

15.3 The Energy Price, essentially, constitutes the cost of operating the generation plants plus a reasonable incentive for the owners of the plants for running their plants. This, in Pakistan's tariff regime, is a collective cost claimed by power projects under Variable





O&M, Fixed O&M, Insurance and ROE & ROEDC. If it is compared with the tariff of Suki Kinari Hydropower Project excluding debt component, the tariff of Suki Kinari Project is US cents 5.57/kWh whereas that of CASA Project is US cents 5.15/kWh. The rationale for comparing with Suki Kinari hydropower Project is that the generation resources of the Seller countries are pre-dominantly hydropower and they shall be supplying extra generation in summer months from their hydropower plants to Pakistan, though such thing is not specifically mentioned in Power Purchase Agreement and Master Agreement.

16. TRANSMISSION CHARGE

16.1 NTDC submitted that the transmission charge of US cents 2.91/kWh is meant to cover construction costs along with O&M and Insurance of the Project. Following is the detail of costs involved:-

Project Eligible Cost	US\$ Million	US\$ Cent/kWh
Project EPC & Non-EPC		
The Kyrgyzstan Republic Segment EPC - HVAC	208.30	0.4981
Tajikistan Segment EPC - HVDC	217.40	0.2304
Tajikistan Segment EPC - HVAC	96.30	0.5198
Afghanistan Segment EPC - HVDC	247.60	0.5921
Total EPC	769.60	1.8404
O&M & Insurance:		
O&M & Insurance The Kyrgyz Republic AC Segment =2.5% of EPC	4.60	0.1068
O&M & Insurance Tajikistan AC Segment = 2.5% of EPC	2.10	0.0491
O&M & Insurance Tajikistan DC Segment= 3.9% of EPC	7.40	0.1729
O&M & Insurance Afghanistan DC Segment= 3.9% of EPC	11.60	0.2694
O&M & Insurance Pakistan DC Segment= 3.9% of EPC	6.90	0.1594
		0.7577
Community Development Fund Contribution	4.30	0.1000
Reserve Fund Contribution	8.00	0.1615
Operating Committee Costs for Account Bank, Executive and Auditor	2.00	0.0464
		2.906





Summary of the transmission charge of US cents 2.91/kWh is as per following:-

The Kyrgyz Republic HVAC EPC (Loan Amortization)	0.498 US cents/kWh
Tajikistan HVAC EPC (Loan Amortization)	0.230 US cents/kWh
Tajikistan HVDC EPC (Loan Amortization)	0.520 US cents/kWh
Afghanistan HVDC EPC (Loan Amortization)	0.592 US cents/kWh
O&M & Insurance Kyrgyz Republic AC Segment	0.107 US cents/kWh
O&M & Insurance Tajikistan AC Segment	0.049 US cents /kWh
O&M & Insurance Tajikistan DC Segment	0.173 US cents kWh
O&M & Insurance Afghanistan DC Segment	0.269 US cents /kWh
O&M & Insurance Pakistan DC Segment	0.159 US cents /kWh
Annual Community Support Program	0.100 US cents /kWh
Common Fund Tariff	0.208 US cents /kWh

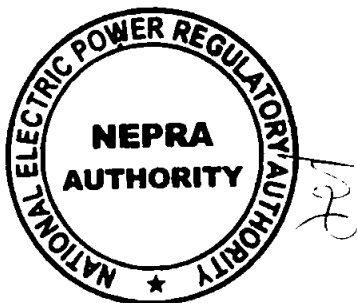
Total Transmission Charge	2.91 US cents /kWh
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16.2 Further this charge of US cents 2.91/kWh purely corresponds to the system construction cost and no party has any control over it. Interest During Construction (IDC) of 6% as cost of capital has also been included in the Project Eligible Costs which comes to US\$ 76.6 million for the whole life of the project. Transmission Charge has been worked out on the basis of feasibility study estimates plus 25% contingencies over equipment to be installed in Afghanistan and 15% for other three countries. It shall be adjusted after receipt of EPC bids and at commissioning of the Project as well as after execution of O&M agreement with D.C Operator.

16.3 Transmission charge has been computed on estimated cost basis and a spreadsheet based financial model has been used to compute it which has been forwarded to the Authority as well.

17. TRANSMISSION CHARGE ADJUSTMENT MECHANISM

17.1 NTDC mentioned that this estimated cost of the CASA-1000 Project transmission (only the core project) IDC & Taxes based on SNC Lavlin Feasibility study in 2011 plus 25% contingencies for Afghanistan and 15% Contingencies for other three countries. The final cost shall be determined through a competitive bidding process under the World Bank guidelines for procurement. If the final actual EPC costs under the EPC Contracts at the time of the Commercial Operations Date are greater than the estimates for such costs as set forth in the 2011 SNC Lavlin feasibility study and Tajik Grid Strengthening Study plus contingencies of 15% or 25% (as the case maybe); the difference will be equally shared among Buyers and Sellers (50/50).



18. AFGHANISTAN TRANSIT CHARGE

- 18.1 NTDC submitted that the Afghanistan transit charge of US cents 1.25/kWh is purely a Government to Government matter and it is settled in the same manners. However in this Transit fee, Afghanistan is also responsible to provide the security during and after construction of the project.
- 18.2 The Afghanistan Transit Charge of US cents 1.25/kWh remained a subject of extended debate spanned over years. Initially, Afghanistan demanded US cents 2.50/kWh under this head, but later on, after several rounds of negotiations, the parties agreed upon a price of US cents 1.25/kWh. In return to this fee, Afghanistan has assumed security responsibility during construction and operation of CASA Project.

19. TAJIKISTAN TRANSIT CHARGE

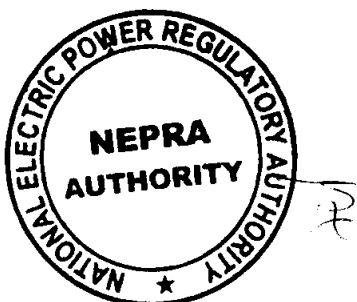
- 19.1 NTDC stated that the Tajikistan Transit Charge of US cents 0.10/kWh is applicable only on the Kyrgyz electricity passing through the territory of Tajikistan and shall be payable to Tajikistan by the electricity importing country. Again, it was settlement after extensive discussions in Joint Working Groups Meeting and negotiated on G2G basis.
- 19.2 This charge has been negotiated as to be US cents 0.10/kWh. The purpose of this charge is two-pronged. First, Tajikistan will bear the losses of electricity transmission through its network, and supply Kyrgyz electricity at Delivery Point, net of losses. Moreover, Tajikistan will be responsible for security of the CASA assets within its territorial jurisdiction

20. GENERAL JUSTIFICATIONS OF ELECTRICITY TARIFF

NTDC submitted few justifications in favour of its claimed tariff which are as follows:-

i. CONTRACTUAL JOINT VENTURE OF FOUR COUNTRIES

- a. That the CASA-1000 Transmission Project is being developed by four participating countries i.e. Pakistan, Afghanistan, Tajikistan & Kyrgyzstan as a "Contractual Joint Venture". The project is not a profit motivated scheme by a Company in some country; however, reasonable commercial viability has been made part of this transaction to attribute value to the resources being tied up in this project.
- b. That the project investment by all four countries shall only attract fixed & nominal 6.00% of interest during construction as well as during operational phase of 15 Years. (Investment Period of about 18 years)





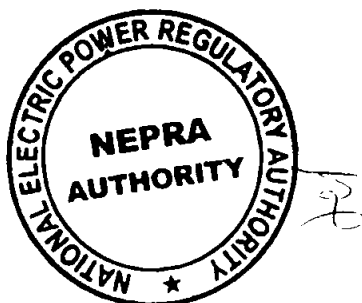
- c. That all of the contracts to EPC contractors and D.C Operator for Operation & Maintenance of the Project shall jointly be evaluated and awarded by the four countries. In this way, transparency shall be ensured by participation of the member countries.
- d. That the Feasibility Report of the Project was prepared and cost estimates were made by the Consultants independently instead of the case where the Private Company conducts feasibility study of the project.
- e. That the World Bank & Islamic Development Bank are the lenders of this project and these organizations extend loan facilities primarily for development purposes and profitability stands as other objectivity of the engagement. Moreover, these banks conduct their own due diligence regarding project viability and transparency.
- f. That the Project shall be jointly built by four public sector companies of the respective countries whose accounts are subject to strict audit which adds to the transparency of the costs and expenditures.
- g. That the Project does not involve any "Capacity Charge" payable on the basis of availability of capacity irrespective of actual electricity generation; rather the transaction is based on "Take & Pay" basis so the actual electricity cost would be very much closer to the afore-stated price.

ii. IN LINE WITH THE TARGET OF NATIONAL POWER POLICY 2013

- a. That the National Power Policy 2013 has set a target of decreasing combined cost of electricity generation from 12 c/kWh to 10 c/kWh by 2017. So the electricity costing less than 10 c/kWh will definitely contribute in decreasing the combined cost of generation and such transaction shall play its positive role in achieving this target.

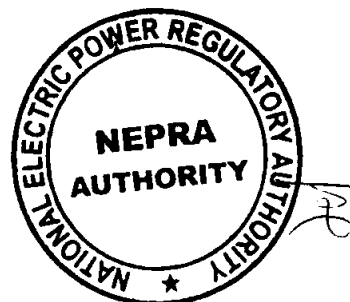
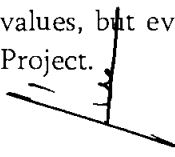
iii. COMPARISON WITH AVAILABLE ALTERNATIVES

- a. That RLNG based Power Plants: NEPRA in April 2015 awarded Upfront Levelized tariff of US cents 9.7797/kWh to 800 MW RLNG based Power Plants on Local Financing and US cents 9.3628/kWh to the same category plants with foreign financing. It is evident that the CASA Project's total tariff of US cents 9.48/kWh is closer to the tariff of RLNG projects. Additionally, in CASA Project, the risk of fuel escalation and transportation from abroad and inland is non-existent and the payment shall only be made for electricity delivered.
- b. That for Large Hydropower Plants (IPPs), NEPRA, in March 2014, determined Levelized tariff of US cents 8.8145/kWh + Sinosure fee (lump sum) of US 94.585



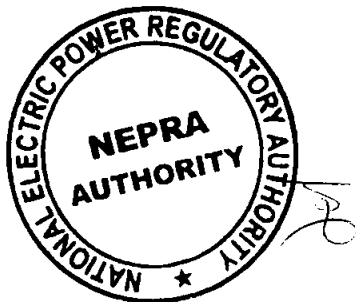
million for 870 MW Suki Kinari Hydropower Project. By making Sinosure fee of US\$ 93 million as part of the tariff computations, the resultant levelized tariff comes out to be around US cents 9.30/kWh. This tariff is closely comparable with that of CASA Project.

- c. That the Upfront Tariff for Thar Coal Projects: NEPRA, in July 2013, announced upfront tariff of US cents 9.1368/kWh for 1100 MW Coal projects financed through local financing and based on Thar coal. This tariff is closely comparable to that of CASA Project despite of the fact that government has to provide huge infrastructure for these projects to materialize which is not the case for CASA Project.
- d. That for Imported Coal based Power Plants, NEPRA in February 2015 has awarded Levelized Tariff US cents 8.3601/kWh to Port Qasim Electric Power Company for 2x660 MW Imported Coal based Power Plant. Though, apparently, the tariff is lower than of CASA tariff, but the cost externalities such as environmental considerations, risks associated with transportation of coal, fuel cost vulnerability etc further adds to the above tariff whereas CASA project has no such issues.
- e. That for Import from Iran, NTDC currently importing electricity from Iran @ a tariff of US cents 7/kWh to 10 cents/kWh corresponding to crude oil price of US\$ 65 per barrel and US@ 110 per barrel. Though, present fuel prices are on the history's lower edge, but due to being a finite resources and evolving gulf situation, it is more likely that the fuel prices will increase with the passage of time and the tariff of imported electricity from Iran will settle close to that of CASA Project.
- f. That for Upfront Tariff for Solar PV Plants, NEPRA on March 19, 2015 approved (Us Cents 17.18 for first ten years) and Levelized tariff of US cents 14.1516/kWh (without degradation factor) as upfront tariff for 100 MW Solar PV Power Plant sponsored by Quid-e-Azam Solar Power (Pvt.) Ltd. The comparison here is favorably tilted towards CASA Project as its tariff is not only significantly lower than that of solar Power Plants but the plant factor and reliability of the CASA Project will be much better than that of Solar Projects.
- g. That for Upfront Tariff for Wind Power Plants, NEPRA, has proposed upfront tariff for Wind hydropower projects as US cents 10.8688/kWh and US cents 9.1545/kWh on local financing and foreign financing respectively. Though the current applicable tariff of wind power projects is far higher than these proposed values, but even these new values are higher as compared to the tariff of CASA Project.



- h. That for Upfront Tariff for Small Hydropower Projects, NEPRA, on April 02, 2015, has announced upfront tariff of US cents 11.0600/kWh and US cents 10.1482/kWh for small hydropower projects financed through 100% local debt. The projects opting for these tariffs shall, by comparison with CASA Project, shall constitute a costly purchase from tariff/unit's perspective.
- i. That if the analysis is made as per the available purchase options to the Power Purchase for eradication of load shedding and to meet with future electricity demand, the CASA Project appears to be a reasonable option among all options mentioned above.

- 20.1 Keeping in view the objections and concerns raised by the commentator and reply of the power purchaser, the Authority considers that the reply of the Power Purchaser appropriate as NTDC addressed all the concerns raised by the commentator. In the above analysis the transmission cost also needs to be considered in addition to referred generation tariff which makes CASA Tariff quite competitive. The Authority considers that CASA 1000 project's Tariff is comparable to the Tariff of hydropower IPPs in Pakistan. If CASA 1000 is compared with other hydropower project inside Pakistan: the hydropower project located in Pakistan would have the advantage of providing at least some energy in the winter months (the CASA project only provides energy in the 5 summer months May to September), otherwise based on annual delivery the tariff would have come down substantially. The hydropower projects inside Pakistan also have another edge as they are less risky and are the country's own asset; hence a desirable CASA tariff from Pakistan's point of view should be slightly lower than the tariffs of incoming hydropower tariffs (which are generally in the range of 8 to 10 Cents/kWh).
- 20.2 On the other hand, in the CASA project the hydrological risk is borne by the Sellers while in case of hydropower IPPs the hydrological risk is with the power purchaser. The CASA project also has far-reaching political and economic benefits and should be viewed in this context as well. It seems that the Energy Wing is still under the misconception that hydropower tariffs in Pakistan are as low as 2.5 Cents/kWh (which is not the case). Moreover, the view that the CASA project conflicts with the development of alternate hydropower plants inside Pakistan is also not correct.
- 20.3 In view of the foregoing arguments, the Authority decided to approve the negotiated Tariff i.e. US Cents 9.41/kWh for CASA-1000 Transmission Project.



21. Issue # 2 Whether the provisions of NTDC's Grid Code have been incorporated in Technical Code?
Issue # 3 Whether revision/modification in Grid Code is required in the absence of voltage profiles?

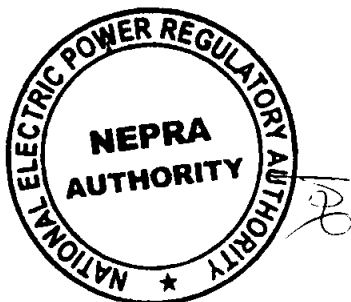
21.1 NTDC submitted that "Technical Code" means the Technical Code that provides for the operating procedures and principles governing the relationship between the DC Operator, each National Transmission Company and all other Third-Party Users of the CASA 1000 Transmission System, as such Code may be amended from time to time in accordance with its terms. On HVAC side within Pakistan, all the clauses of NTDC Grid's Grid have been followed. Since there are no provisions of HVDC in the current NTDC's Grid Code, therefore, IEC standard has been followed on HVDC part as per international practice. Further the revision/modification in Grid Code is required for integration of HVDC system in NTDC network through international consultant.

21.2 The Authority accepts the response of NTDC. Further Authority directs NTDC to provide the timeline for modification/revision in the Grid Code required for integration of HVDC system in NTDC network. It is pertinent to mention here that NTDC arranged a technical study which was conducted by Muhashir and Nespak jointly with respect to the HVDC transmission line regarding Import of Power 1000 MW from TAVANIR, Iran. The experts have finalized the HVDC line after carrying out detailed study. The HVDC line will provide more opportunity of having experience of maintaining and operating HVDC transmission line. Further the nuclear power plants dispersal is also under consideration on HVDC line therefore the same is justified in the case of CASA 1000 MW. The Authority directed NTDC vide letter No. NEPRA/SAT-I/PAR-117/17522 dated December 9, 2015 to provide detailed report on the provisions of the Technical Code with HVDC profiles, details of IEC Standards being practiced and to propose necessary amendments in the Grid Code required for integration of HVDC systems in NTDC network.

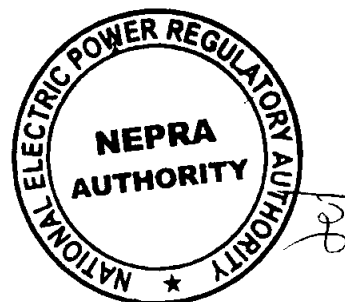
22. Issue # 4 Whether the arrangements have been made by the NTDC for dispersal of power from Peshawar to other load centers, keeping the (N-1) contingency criteria?

22.1 NTDC submitted that it has planned the following transmission arrangement for dispersal of power from converter station at Peshawar to the load centers, keeping the (N-1) criteria:

- 500 kV substation Peshawar New with 2x750 MVA, 500/220 kV transformers.
- 500 kV HVAC double circuit transmission line for In/out of existing 500 kV Tarbela – Peshawar S/C at Peshawar New (15 km).



- Two 220 kV double circuit transmission lines for In/out of 220 kV Peshawar – Shahibagh double circuit transmission line at Peshawar New (1+1 km)
- 22.2 Further NTDC submitted PC-1 in February 2014 for the above HVAC component and the following HVDC Component (for import of power from Tajikistan to Peshawar). Conceptual approval was awarded by CDWP on 22.04.2015.
- **HVDC Component (for import of power from Tajikistan to Peshawar)**
 - ± 500 kV HVDC bipolar transmission line from Pak – Afghan border to Peshawar (100 km)
 - Converter Station at Peshawar (1300 MW)
 - Grounding Electrode Station.
- 22.3 The Authority noted the transmission expansion plan submitted by NTDC for the power dispersal of 1300 MW from Peshawar which includes following HVAC additions in the system;
- (i) 500 kV Substation at Peshawar New.
 - (ii) 500 kV transmission lines (in and out)
 - (iii) Two 220kV Double Circuit transmission lines.
- 22.4 The Authority further observed that NTDC has submitted PC-1 which was principally approved by CDWP for HVAC components and for the HVDC additions required from Afghanistan border which include
- (i) 100 Km of HVDC Transmission Line
 - (ii) Converter Station at Peshawar (1300 MW)
 - (iii) Grounding Electrode Station
- 22.5 The Authority considers that not only the technical studies and approvals are essential but the actual construction and implementation of proposed schemes to match the overall completion of works under CASA are critical. The Authority is of the view that process for necessary modification/additions in the existing grid code be taken up on war-footing basis in view of the above project and similar other projects in the southern region of NTDC network.
- 22.6 However, the Authority accepts the proposed arrangements for dispersal of power from Peshawar to other load centers with the following directions to NTDC;
- (i) To provide quarterly report to Authority on the progress of HVAC and HVDC system implementation.



- (ii) To initiate immediately the process of modification in the grid code and provide a detailed timeline for the completion of this activity within 30 days of the issuance of this determination.

23. Issue # 5 Whether the expected timeline will be achieved in view of the present status of the CASA-1000 project?

23.1 NTDC submitted that the construction term is 40 months as per current EPC contracts and it is expected that it will be achieved in time. However the construction has been delayed due to which project is expected to be completed in the year 2019.

23.2 The Authority decided to accept the construction period of 40 months with proposed year of completion of the project which is 2019.

24. Issue # 6 Whether the Power Purchaser shall be CPPA-G in the light of modification made in the Transmission License of NTDC?

24.1 NTDC submitted that the recitals of the Master Agreement it has been mentioned that the Master Agreement is being made by "NTDC (which expression shall include its successors and/or permitted assigns) on behalf of itself and the CPPA. Therefore by including this in the recitals Legal team seems to have anticipated the future transfer of the power purchasing function to Central Power Procurement Agency (CPPA). Apart from this, in Article 8(Transfer) and 9 (Successors and Assigns) of the Standard Terms and Conditions of the Master Agreement provision for transfer or assignment of the agreement is also catered for. BOD of NTDC has approved the Project agreement after having assurance of assignment clauses. Interconnection will be with NTDC loan agreements with NTDC

24.2 Keeping in view the submission of NTDC, the Authority considers that after the modification made in the transmission license of NTDC, CPPA-G will be responsible for power purchase as a separate and independent entity. Therefore the Power Purchaser shall be CPPA-G and not NTDC under the license modification. However the Authority approves the Power Acquisition Contract subject to the condition that the NTDC completes all legal/contractual formalities under Schedule 1, Article 8 " Transfer" of the Master Agreement which is also part of the PPA by reference, and further directs NTDC to complete all legal formalities regarding its post license modification scenario.





25. ORDER:-

25.1 Based on discussion in the preceding paragraphs, NTDC is granted approval of power acquisition contracts for power procurement on behalf of DISCOs. Under regulation 4(2) of the IPPR, 2005, the Authority hereby allows as advanced tariff subject to adjustment/ indexation of the specified tariff for delivery of electricity at Annexure I to the Power Purchaser.

Tariff Component	US\$ (Cents)
Energy Charge	5.15/kWh
Transmission Charge	2.91/kWh
Afghanistan Transit Fee	1.25/kWh
Tajikistan Wheeling Charges	0.10/kWh

TOTAL	US CENTS 9.41/KWH
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Note:

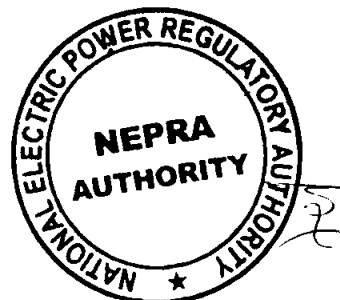
- i) The reference tariff has been calculated on the basis of annual energy available for transmission i.e. 4,317 GWh.
- ii) In case of non supply LDS will be applied as per PPA.
- iii) The tariff is applicable for 15 years commencing from the commercial operation date of the project.
- iv) The applicable component wise tariff is indicated at **Annex-I**.

The following adjustments /indexations shall be applicable to reference tariff as well:-

26. ADJUSTMENTS

26.1 Onetime adjustment in Project Cost, AC Facilities Fee, DC Operator Charge & Operating Committee Cost for Account Bank Executive and Auditor.

26.2 Onetime adjustment of Eligible Project Costs (Total all countries), AC Facilities Fee, DC Operator Charge & Operating Committee Cost for Account Bank Executive and Auditor shall be made on account of the portion paid at the time of COD and subject to adjustment basis. In this regard, the sponsor will be required to provide all the necessary relevant details along with verifiable documentary evidence. Based upon such information, the Project Costs and other onetime adjustment costs shall be established and applied to the total project cost components i.e. EPC & Non-EPC including Interest During Construction (IDC).





Description	Adjustment basis
Project Cost (Total All Countries)	One time adjustment
AC Facilities Fee	One time adjustment
DC Operator	ICB
Operating Committee Cost for Account Bank Executive and Auditor	Executive Committee of project.

27. Indexations:

27.1 The following indexation shall be applicable to the reference tariff as follows:

INDEXATIONS

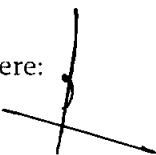
Description	Indexations
Energy Charge	US CPI Annual
Afghanistan Transit Fee	US CPI Annual
Reserve Fund	US CPI Annual
Tajikistan Wheeling Charge	US CPI Annual
Community Development Fund Contribution	US CPI Annual
AC Facilities Fee	Onetime adjustment at COD, US CPI (Using the COD year CPI as base year)
DC Operator	After each three year period rate will be decided after bidding, whereas for second and third year after rate revision US CPI indexation will be allowed.
Operating Committee Costs for Account Bank, Executive and Auditor	After each three year period rate will be revised by the Executive Committee, whereas for second and third year after rate revision US CPI indexation will be allowed.

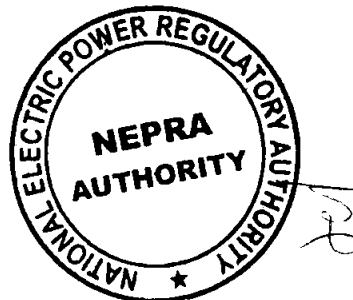
28. Indexation of Energy Charge

28.1 The Energy Charge will be adjusted on account of Inflation (US CPI-All Urban Consumers) as per available information with respect to US CPI notified by the US Department of Labour (Bureau of Labour Statistics). The mode of indexation will be as under:

The formula for indexation of Energy Charge component will be as under:

$$\text{Energy Charge (Rev)} = \text{US Cents } 5.15/\text{kWh} * \text{US CPI (Rev)} / 236.916$$

Where: 



$CPI_{(REV)}$ = The revised US Consumer Price Index (All Urban Consumers)

$CPI_{(Ref)}$ = Reference US Consumer Price Index (All Urban Consumers) of the reference 236.916 of January 2016

29. Indexation of Afghanistan Transit Fee

29.1 The Afghanistan Transit Fee will be adjusted on account of Inflation (US CPI-All Urban Consumers) as per available information with respect to US CPI notified by the US Department of Labour (Bureau of Labour Statistics). The mode of indexation will be as under:

The formula for indexation of Afghanistan Transit Fee component will be as under:

$$\text{Afghanistan Transit Fee (REV)} = \text{US Cents } 1.25/\text{kWh} * \text{US CPI (REV)} / 236.916$$

Where:

$CPI_{(REV)}$ = The revised US Consumer Price Index (All Urban Consumers)

$CPI_{(Ref)}$ = Reference US Consumer Price Index (All Urban Consumers) of the reference 236.916 of January 2016

30. Indexation of Reserve Fund

30.1 The Reserve Fund will be adjusted on account of Inflation (US CPI-All Urban Consumers) as per available information with respect to US CPI notified by the US Department of Labour (Bureau of Labour Statistics). The mode of indexation will be as under:

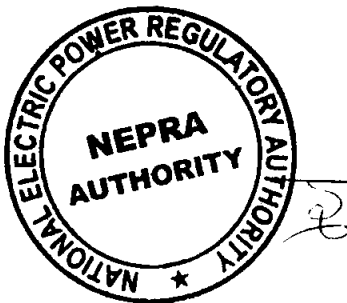
The formula for indexation of Reserve Fund component will be as under:

$$\text{Reserve Fund (REV)} = \text{US Cents } 0.1615/\text{kWh} * \text{CPI (REV)} / 236.916$$

Where:

$CPI_{(REV)}$ = The revised US Consumer Price Index (All Urban Consumers)

$CPI_{(Ref)}$ = Reference US Consumer Price Index (All Urban Consumers) of the reference 236.916 of January 2016





31. Indexation of Tajikistan Wheeling Charge

31.1 The Tajikistan Wheeling Charge will be adjusted on account of Inflation (US CPI-All Urban Consumers) as per available information with respect to US CPI notified by the US Department of Labour (Bureau of Labour Statistics). The mode of indexation will be as under:

The formula for indexation of TJ Wheeling Charge component will be as under:

$$\text{TJ Wheeling Charge (REV)} = \text{US Cents } 0.1000/\text{kWh} * \text{CPI (REV)}/236.916$$

Where:

$\text{CPI}_{(\text{REV})}$ = The revised US Consumer Price Index (All Urban Consumers)

$\text{CPI}_{(\text{Ref})}$ = Reference US Consumer Price Index (All Urban Consumers) of the reference 236.916 of January 2016

32. Indexation of Community Development Fund Contribution

32.1 The Community Development Fund Contribution will be adjusted on account of Inflation (US CPI-All Urban Consumers) as per available information with respect to US CPI notified by the US Department of Labour (Bureau of Labour Statistics). The mode of indexation will be as under:

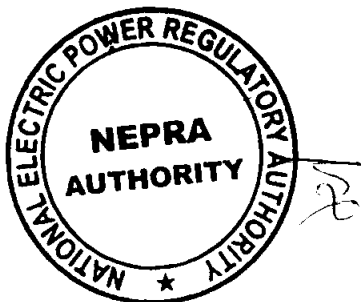
The formula for indexation of Community Development Fund component will be as under:

$$\text{Community Development Fund Contribution (REV)} = \text{US Cents } 0.1000/\text{kWh} * \text{CPI (REV)}/236.916$$

Where:

$\text{CPI}_{(\text{REV})}$ = The revised US Consumer Price Index (All Urban Consumers)

$\text{CPI}_{(\text{Ref})}$ = Reference US Consumer Price Index (All Urban Consumers) of the reference 236.916 of January 2016





33. Indexation of AC Facilities Fee

33.1 The AC Facilities Fee will be adjusted using the COD year CPI as base year on account of Inflation (US CPI-All Urban Consumers) as per available information with respect to US CPI notified by the US Department of Labour (Bureau of Labour Statistics). The mode of indexation will be as under:

The formula for indexation of AC Facilities Fee component will be as under:

$$\text{AC Facilities Fee (REV)} = \text{US Cents } 0.1559/\text{kWh} * \text{CPI (REV)}/236.916$$

Where:

$\text{CPI}_{(\text{REV})}$ = The revised US Consumer Price Index (All Urban Consumers)

$\text{CPI}_{(\text{Ref})}$ = Reference US Consumer Price Index (All Urban Consumers) of the reference 236.916 of January 2016

34. Indexation of DC Operator

34.1 The DC Operator Charge will be adjusted after each three year period rate will be decided after bidding, whereas for second and third year after rate revision US CPI indexation will be allowed on account of Inflation (US CPI-All Urban Consumers) as per available information with respect to US CPI notified by the US Department of Labour (Bureau of Labour Statistics). The mode of indexation will be as under:

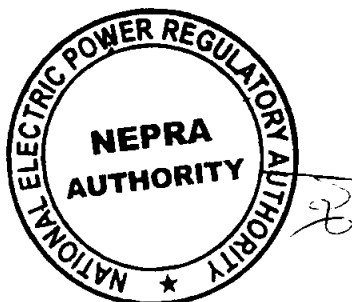
The formula for indexation of DC Operator component will be as under:

$$\text{DC Operator (REV)} = \text{US Cents } 0.6017/\text{kWh} * \text{CPI (REV)}/236.916$$

Where:

$\text{CPI}_{(\text{REV})}$ = The revised US Consumer Price Index (All Urban Consumers)

$\text{CPI}_{(\text{Ref})}$ = Reference US Consumer Price Index (All Urban Consumers) of the reference 236.916 of January 2016



35. Indexation of Operating Committee Costs for Account Bank, Executive and Auditor

35.1 The Operating Committee Costs for Account Bank, Executive and Auditor will be adjusted after each three year period rate will be revised by the Executive Committee, whereas for second and third year after rate revision US CPI indexation will be allowed on account of Inflation (US CPI-All Urban Consumers) as per available information with respect to US CPI notified by the US Department of Labour (Bureau of Labour Statistics). The mode of indexation will be as under:

The formula for indexation of Operating Committee Costs for Account Bank, Executive and Auditor component will be as under:

Operating Committee Costs for Account Bank, Executive and Auditor (REV) =
US Cents $0.0464/kWh * CPI (REV) / 236.916$

Where:

$CPI_{(REV)}$ = The revised US Consumer Price Index (All Urban Consumers)

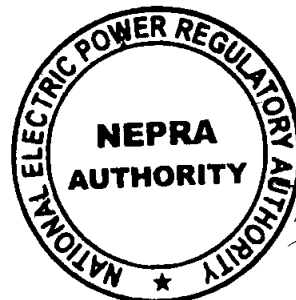
$CPI_{(Ref)}$ = Reference US Consumer Price Index (All Urban Consumers) of the reference 236.916 of January 2016

36. Adjustment in Insurance as per actual

36.1 The actual insurance cost for the minimum cover required under contractual obligations with the Power Purchaser will be treated as pass-through. Insurance component of reference tariff as included in O&M Costs shall be adjusted as per actual on yearly basis upon the production of authentic documentary evidence by Sellers Countries.

37. Terms and Conditions of Tariff:

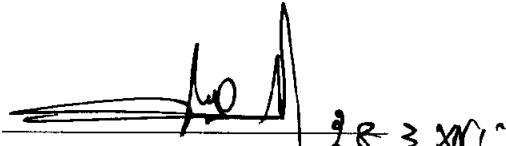
- i) The tariff is applicable for a period of 15 years commencing from the date of the Commercial Operation of the CASA Project.
- ii) All new equipment will be installed and the project will be of standard configuration.

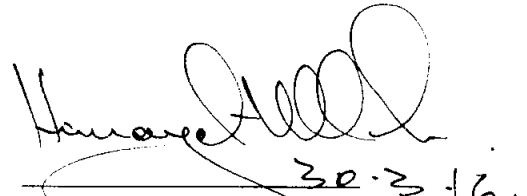


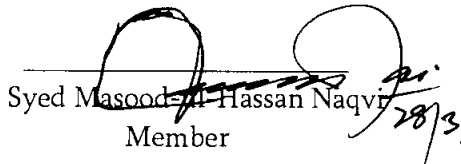


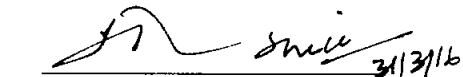
- iii) All invoicing and payment terms shall be in accordance with the standardized PPA.
- iv) If there is any change in any assumption that may lead to change in the tariff shall be referred to NEPRA for approval.


AUTHORITY


Khawaja Muhammad Naeem
Member

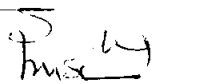

Himayat Ullah Khan
Member


Syed Masood-ul-Hassan Naqvi
Member


Maj (R) Haroon Rashid
Member


Brig (R) Tariq Saddozai
Chairman

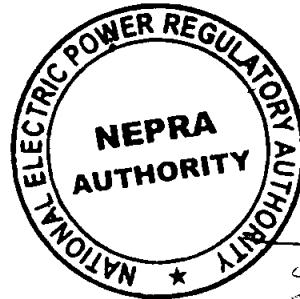



21.06.16

**CASA-1000
Reference Tariff Table**

Year	Project Cost (Total all countries)	AC Facilities Fee	DC Operator	Operating Committee Costs for Account Bank, Executive Auditor	Community Development Fund Contribution	Reserve Fund Contribution	Transmission Charge (Total)	TJ Wheeling Chage	AF Transit Fee	Energy Component	Total Tariff
	Cents/kWh	Cents/kWh	Cents/kWh	Cents/kWh	Cents/kWh	Cents/kWh	Cents/kWh	Cents/kWh	Cents/kWh	Cents/kWh	Cents/kWh
1	1.8404	0.1559	0.6017	0.0464	0.1000	0.1615	2.9059	0.1000	1.2500	5.1500	9.41
2	1.8404	0.1559	0.6017	0.0464	0.1000	0.1615	2.9059	0.1000	1.2500	5.1500	9.41
3	1.8404	0.1559	0.6017	0.0464	0.1000	0.1615	2.9059	0.1000	1.2500	5.1500	9.41
4	1.8404	0.1559	0.6017	0.0464	0.1000	0.1615	2.9059	0.1000	1.2500	5.1500	9.41
5	1.8404	0.1559	0.6017	0.0464	0.1000	0.1615	2.9059	0.1000	1.2500	5.1500	9.41
6	1.8404	0.1559	0.6017	0.0464	0.1000	0.1615	2.9059	0.1000	1.2500	5.1500	9.41
7	1.8404	0.1559	0.6017	0.0464	0.1000	0.1615	2.9059	0.1000	1.2500	5.1500	9.41
8	1.8404	0.1559	0.6017	0.0464	0.1000	0.1615	2.9059	0.1000	1.2500	5.1500	9.41
9	1.8404	0.1559	0.6017	0.0464	0.1000	0.1615	2.9059	0.1000	1.2500	5.1500	9.41
10	1.8404	0.1559	0.6017	0.0464	0.1000	0.1615	2.9059	0.1000	1.2500	5.1500	9.41
11	1.8404	0.1559	0.6017	0.0464	0.1000	0.1615	2.9059	0.1000	1.2500	5.1500	9.41
12	1.8404	0.1559	0.6017	0.0464	0.1000	0.1615	2.9059	0.1000	1.2500	5.1500	9.41
13	1.8404	0.1559	0.6017	0.0464	0.1000	0.1615	2.9059	0.1000	1.2500	5.1500	9.41
14	1.8404	0.1559	0.6017	0.0464	0.1000	0.1615	2.9059	0.1000	1.2500	5.1500	9.41
15	1.8404	0.1559	0.6017	0.0464	0.1000	0.1615	2.9059	0.1000	1.2500	5.1500	9.41

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