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No. NEPRA/TRF-297/OEPL-2015/4583-4585
April 6, 2016

Subject: **Determination of the Authority in the Matter of Tariff Petition filed by Olympus Energy (Pvt.) Ltd. for its 20 MW Lucky Hydropower Project [Case # NEPRA/TRF-297/OEPL-2015]**

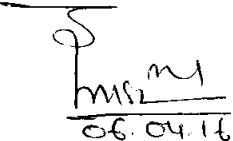
Dear Sir,

Please find enclosed herewith the subject Determination of the Authority along with Annex-I and Annex-II (22 pages) in Case No. NEPRA/TRF-297/OEPL-2015.

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

3. The Order of the Authority along with Reference Tariff Table (Annex-I) and Debt Service Schedule (Annex-II) of the Determination needs to be notified in the official Gazette.

Encl: 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, Islamabad.



**DETERMINATION OF THE AUTHORITY IN THE MATTER OF TARIFF
PETITION FILED BY OLYMPUS ENERGY (PVT.) LIMITED
FOR ITS 20MW LUCKY HYDROPOWER PROJECT**

1. BACKGROUND

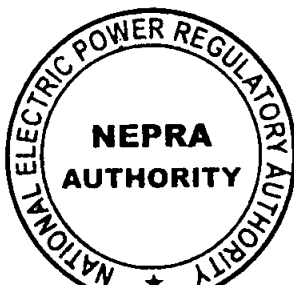
- 1.1 Olympus Energy (Pvt.) Ltd. (hereinafter to as "OEPL", or the "Petitioner") filed a tariff petition dated December 29, 2014 for determination of feasibility stage generation tariff pursuant to Rule 3 of the National Electric Power Regulatory Authority (Tariff Standards and Procedures) Rules, 1998 (hereinafter referred to as the "Tariff Rules") for its 20MW low head run-of-river Lucky Hydropower Project (the "Project") to be constructed on the right bank of Marala Barrage, District Gujrat, Punjab.
- 1.2 In accordance with sub-rule 3 of rule 4 of the Tariff Rules, the Petition was admitted by the Authority on March 10, 2015. Consequent to the admission, notice of admission/ Hearing was published in the national newspapers on April 29, 2015, inviting thereby all the stakeholders, interested/affected persons or parties to participate in the tariff setting process through filing of comments/ Intervention Requests. Further, in accordance with sub-rule 5 of rule 4 of the Tariff Rules, written notices were sent to the key stakeholders and parties, which in the opinion of the Authority were likely to be interested or affected or may be of assistance to the Authority in arriving at a just and informed determination, requesting for their participation in the tariff setting process. In accordance with section 7 (5) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, the Authority also sought recommendations of the Government of Punjab on this Petition.
- 1.3 In response to the Authority's notice of admission and Hearing comments were filed by the Federation of Pakistan Chamber of Commerce & Industry vide letter dated May 9, 2015 stating that it has no objection on admission/the hearing in the matter. However, neither any intervention request nor any other comments were filed by any other party in response to the Authority's notice of admission and the hearing.

2. SUBMISSIONS OF THE PETITIONER

2.1. Summary of the technical and financial information provided by OEPL is as follows:

a. Technical Specifications

Capacity (Gross)	20 MW
Type of facility	Low head run of the river hydropower project
Turbine type	Pit Type Kaplan (horizontal)
Number of units	6 (3.34 MW each)





Design discharge	580 cumecs
Head (rated)	4.7 meters
Plant factor	49.9%
Net annual energy generation	87.4 GWh

b. Financial Parameters

Cost Head	US\$ Million
Preliminary Works	2.20
Civil Works	21.70
Electrical & Mechanical Works	21.78
Engineering & Supervision	1.80
Transmission Line	0.62
Total EPC Cost	48.10
Land	0.46
Environmental & Other Cost	0.11
Custom Duty & Taxes @ 6.8% of E&M Works	1.48
Insurance During Construction	0.65
O&M Mobilization Cost	0.25
Development Costs	0.88
Independent Engineer	0.10
Permission & Approval Fee	0.15
Lender's Financing Fee & Charges	1.75
Pre-Financial Close Costs	2.00
Project Cost before IDC	55.93
Interest During Construction (IDC)	6.76
Total Project Cost	62.69

Debt Equity Ratio	80:20
Debt Financing	Local
Base Rate	6 Month KIBOR
Premium	3%
Repayment Period	12 Years
Return on Equity (IRR based)	17%
Construction Period	30 months
Tariff Control Period	30 Years
Proposed Levelized Tariff (1-30 Years)	Rs. 11.7500/kWh
Proposed Tariff (1-12 Years)	Rs. 14.3085
Proposed Tariff (13-30 Years)	Rs. 5.0791
USD/PKR Exchange Rate	100.56





3. PROCEEDINGS

- 3.1. The hearing on the matter was held on May 13, 2015 in Islamabad. The hearing was duly attended by representatives of the Petitioner. During the hearing, the Petitioner was questioned regarding various technical and financial parameters of the Project.
- 3.2. Pursuant to proceedings in the hearing, the Petitioner submitted additional information/ cost claims/ clarifications vide its letters No. OEL/2014/NEPRA/112 dated March 2, 2015, No. OEL/2015/NEPRA/113 dated July 14, 2015 and No. OEL/2015/NEPRA/115 dated August 21, 2015.

4. ISSUES

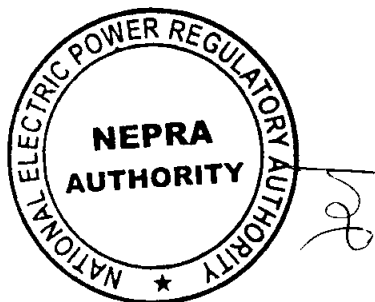
- 4.1. Based on the available information, proceedings of the case and information submitted by the Petitioner, the following main issues were framed for discussion and consideration by the Authority:

- Whether the shortcomings in the Petitioner's feasibility have been addressed?
- Whether the proposed installed capacity, auxiliary consumption, annual energy and plant factor are justified?
- Whether the power purchaser will bear the hydrological risk?
- Whether the power purchaser agrees with the cost and specification of the proposed interconnection line?
- Whether the proposed EPC cost of the Project is realistic and reasonable, given its design and technology?
- Whether Non-EPC costs claimed by the Petitioner are justified?
- Whether O&M costs claimed by the Petitioner are justified?
- Whether insurance during operations claimed by the Petitioner is justified?
- Whether construction period claimed by the Petitioner is justified?
- Whether the Return on Equity claimed by the Petitioner is justified?
- Whether the terms and conditions of debt claimed by the Petitioner are justified?

4.2. **Whether the shortcomings in the Petitioner's feasibility have been addressed?**

4.2.1. The Petitioner submitted its first tariff petition vide letter dated May 24, 2010 for determination of feasibility stage reference tariff. The Authority considered the petition and dismissed the same due to lack of reliable information vide its decision dated January 3, 2011. However, the Petitioner was allowed to file petition afresh after completing all the information as required by the Authority.

4.2.2. Subsequently, the Petitioner submitted a fresh tariff petition on July 05, 2012. The Authority considered the petition and again dismissed the same vide its decision dated December 14, 2012, based on the grounds that, *"the feasibility study submitted by the Petitioner was substandard and therefore cannot form the basis for a tariff determination. In view thereof the petition does not merit further*





consideration and is therefore dismissed for lack of reliable information. The Petitioner may file a fresh tariff petition based on a complete and accurate feasibility study and complying with the requirements of law.”

4.2.3. The Petitioner vide letter no. OEL/2014/NEPRA/112 dated March 2, 2015 submitted the updated feasibility study dated 2013 with updated data related to hydrology, project cost and financial analysis. Further, the Petitioner submitted approval of revised financial portion of feasibility study with the tariff petition issued by Punjab Power Development Board (PPDB) dated May 6, 2014 wherein it is stated, *inter alia*, that:

“... The Sponsors have submitted updated Chapter No.11 ‘Economic & Financial Evaluation’ section of the feasibility study and POEs was satisfied with the updated section.”

4.2.4. The Authority has considered all fresh information and documentary evidences submitted by the Petitioner along with its instant Petition and has decided that the information and submissions of the Petitioner are now sufficient to decide the case.

4.3. Whether the proposed installed capacity, auxiliary consumption, annual energy and plant factor are justified?

4.3.1. The Petitioner proposed that, at the current stage i.e. at the feasibility design stage, the project capacity is 20 MW and net annual energy is 87.4 GWh based on 49.9% plant factor. During the hearing, the Petitioner submitted that, based on the maximum flow of the hydrology and head race of the Project the actual installed capacity of the Project works out as 20.04 MW. The Petitioner claimed that based on hydrology data pertaining to the years 1980 to 2013, probabilistic flows and turbine specs (6 x 3.34 MW), the installed capacity has been assumed as 20MW and annual generation has been taken as 87.4 GWh after incorporating auxiliary consumption of 1%.

4.3.2. The Authority has observed that the previous feasibility study of the Project included hydrological data up to year 2007. In the updated feasibility study dated 2013, hydrological data from 1980 to 2013 (33 years) has been included for analysis. The Petitioner, during the hearing, claimed that no change in any technical parameters and initial design parameters of the plant has been witnessed by the panel of experts after inclusion of additional hydrological data covering the period from 2007 to 2013.

4.3.3. During the proceedings, certain anomalies were observed regarding the proposed installed capacity and annual energy figures of the Project vis-à-vis the hydrological data presented in the feasibility study of the Project approved by PPDB. In this regard, the Petitioner was directed vide the Authority letter no. NEPRA/R/SAT-I/TRF-297/OEPL-2015/10170 dated July 06, 2015 to submit detailed justifications. The Petitioner submitted its clarification on the matter vide its letter no. OEL/2015/NEPRA/115 dated August 21, 2015. The Authority observed that the data provided by the Petitioner through the said letter showed that the highest possible power potential of 20MW will only be available for 10 days during a typical year, meaning that the full capacity of 20MW is likely to remain mostly idle/unutilized, considering the historical average of flows and net head. In view of the aforementioned facts,





the relatively low plant factor claimed by the Petitioner and the fact that the EPC cost claimed by the Petitioner is not firm at this stage and may possibly rise to an exorbitantly high level by the time the Project is actually commissioned, the Petitioner as well as the PPDB were directed to clarify on the project design characteristics.

4.3.4. The Petitioner vide its letter No. OEL/2015/NEPRA/116 dated December 28, 2015 affirmed that:

"1 - During the detailed design phase of the Project, the Company intends to optimize the capacity of the Project and shall adjust it accordingly to maximize the energy potential keeping in view the reasonability of the tariff.

2 - In connection with the above, the Company commits that at the EPC Stage the Company shall seek a tariff equal to or lesser than the Upfront Tariff for Small Hydropower Projects ("Upfront Tariff") as determined by NEPRA (vide determination No. NEPRA/UTH-01/15031-15033 dated October 14, 2015)."

4.3.5. The Authority aims to ensure that maximum potential of hydropower sites is utilized keeping in view the affordability of tariff. The Authority considers that the above commitments provided by the Petitioner will ensure that the consumer will be protected against undue increase in tariff of the Project at the COD stage.

4.3.6. The Petitioner is hereby directed to optimize the capacity of the Project at EPC stage, keeping in view the reasonability of the tariff and maximum utilization of the potential available at site based on historical hydrological data. Moreover, the Authority has decided that the Petitioner will only be allowed EPC stage tariff equal to or lesser than the levelized Upfront Tariff for Small Hydropower Projects based on low head as determined by NEPRA (vide determination No. NEPRA/UTH-01/15031-15033 dated October 14, 2015).

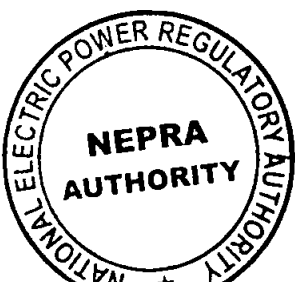
4.4. Whether the power purchaser will bear the hydrological risk?

4.4.1. The Petitioner has proposed that hydrological risk shall be borne by the power purchaser. The Power Purchaser has not provided any input on this matter. As per the policy, the risk of hydrology is the responsibility of the power purchaser.

4.4.2. The Authority's tariff determinations for comparable hydropower projects stipulate that the hydrological risk is to be borne by the power purchaser. The Authority after due consideration has decided that in the instant case, the power purchaser will bear hydrological risk of the Project. The Power Purchaser is directed to carry out proper due diligence of the historical average monthly hydrology and the same should be incorporated along with the monthly benchmark energy in the Power Purchase Agreement (PPA).

4.5. Whether the power purchaser agrees with the specification and cost of the proposed interconnection line?

4.5.1. The Petitioner claimed US\$ 0.62 million on account of transmission line cost under the head of EPC cost. The length of transmission line is proposed as 3.5 Km. The Petitioner has stated





that the power purchaser will be responsible for procuring, financing, constructing, operating and maintenance of the interconnection on the power purchaser side, metering system and the power purchaser transmission facilities at project site.

4.5.2. In this regard, the Petitioner submitted no-objection letter of the proposed power purchaser i.e. Gujranwala Electric Power Company Ltd. (GEPCO). GEPCO vide letter No.72399 dated October 31, 2009 has stated that "GEPCO has no objection for the purchase of power from 20 MW Lucky Hydro Power Project at Marala subject to the condition that the tariff is to be determined by NEPRA, connectivity cost is to be borne by power producers and as per other terms and conditions of PEPCO/GOP."

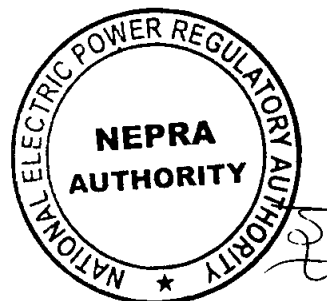
4.5.3. The Authority has noted that the construction of inter-connection and related works is the responsibility of the power purchaser, i.e. CPPA-G/ DISCO. However, during the proceedings the power purchaser has not provided input regarding the cost of transmission line claimed by the Petitioner. Moreover, the Petitioner has stated that the power purchaser will be responsible for financing of the transmission line. In view of the aforementioned, the Authority has decided to exclude the cost of transmission line from the project cost. The cost of transmission line will be considered at EPC/ COD stage of the Project subject to verification of transmission line cost by the power purchaser and terms of financing of transmission line agreeable to the project sponsor.

4.6. **Whether the proposed EPC cost of the Project is realistic and reasonable, given its design and technology?**

4.6.1. The Petitioner claimed EPC cost of US\$ 48.10 million. The breakup of EPC cost submitted by the Petitioner is as under:

EPC cost Break-up	Claimed (US\$ million)
Preliminary Works	2.20
Civil Works	21.70
Electrical & Mechanical Works	21.78
Engineering & Supervision	1.80
Transmission Line	0.62
Total EPC Cost	48.10

4.6.2. As detailed in para 4.5.3 of this determination, the cost of transmission line amounting to US\$ 0.62 has been excluded from the project cost. The Authority has considered the remaining components of EPC cost claimed by the Petitioner in light of the feasibility study of the Project and previous determinations for similar projects and has decided that the claimed EPC cost (excluding transmission line cost) amounting to US\$ 47.48 million is reasonable on overall basis, and the same is hereby allowed at this stage. The EPC cost of the Project will be firmed up at the EPC stage. The Petitioner is advised to carry out EPC bidding based on international best practices and maintain comprehensive documentary evidences in this regard to be submitted at the time of filing of EPC stage tariff petition for satisfaction of the Authority.





4.6.3. As detailed in paragraph 4.3.6, the Authority has decided that the Petitioner will only be allowed EPC stage tariff equal to or lesser than the levelized Upfront Tariff for Small Hydropower Projects. In this regard, in case the project cost and/or plant factor of the Project cause the tariff of the Project to rise above the aforementioned limit, the foreign and local components of the claimed EPC cost of the project will be adjusted proportionately to extent that the levelized EPC stage tariff of the project becomes equal to the levelized Upfront Tariff for Small Hydropower Projects for low head hydropower projects @ 65% plant factor.

4.7. Whether Non-EPC costs claimed by the Petitioner are justified?

4.7.1. The Petitioner has claimed the following non-EPC costs:

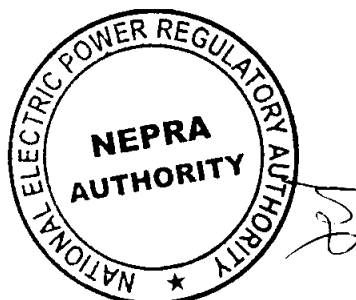
Sr. No.	Description	Non EPC cost (US\$ million)
1	Land	0.46
2	Environmental and other cost	0.11
3	Custom duty & taxes @ 6.8% of E&M works	1.48
4	Insurance during construction	0.65
5	O&M mobilization	0.25
6	Development cost	0.88
7	Permission and approval fee	0.15
8	Pre-financial close & construction period company costs	2.00
9	Independent Engineer	0.10
10	Lenders financing fee & charges	1.75
	Total Non-EPC cost	7.83

4.7.2. Land

The Petitioner claimed estimated cost of US\$ 0.457 million for acquisition of land measuring 77.71 acres. The Petitioner submitted that tariff at EPC Stage and on COD shall reflect the actual land acquisition and resettlement costs incurred by the Company for the purpose. The Authority considers that the estimate for land acquisition and resettlement is in line with the estimate presented in the feasibility study which is reasonable, therefore the cost of land amounting to US\$ 0.457 million is hereby allowed subject to adjustment as detailed in paragraph I (d) of the order.

4.7.3. Environmental and other cost

The Petitioner claimed US\$ 0.11 million on account of environmental and other cost management in the tariff petition. This cost includes environmental monitoring, and replenishment of plantation. The Authority consider that cost of US\$ 0.11 million claimed under this head is reasonable and is therefore allowed.





4.7.4. Custom duty & taxes

The Petitioner claimed US\$ 1.48 million on account of custom duty and taxes based on the current estimated import cost of electrical and mechanical works. The Petitioner stated that custom duty and taxes includes customs duty, import tax and Sindh infrastructure cess and applicable estimated at aggregate rate of 6.8% on import of plant and equipment. Moreover, the Petitioner stated that no withholding tax on supply and equipment has been assumed and that custom duty and taxes have been calculated as per the existing tax rates and will be adjusted for the tax rate changes as well as changes in prices of equipment at time of finalization of the EPC. The Petitioner requested for adjustment of this cost based on actual expense incurred under this head till the time of COD.

The Authority, in similar cases, has allowed duties and taxes at 5% of the cost of plant and machinery to be imported from abroad and has decided to allow duties and taxes to the Petitioner on similar lines. Accordingly the duties and taxes allowed by the Authority work out to US \$ 1.089 million, which will be subject to adjustment on actual at COD. Adjustment of duties and taxes on actual at COD stage, will be allowed for only those duties and taxes which are imposed on the Petitioner. Adjustment of taxes/duties payable on fees/charges, etc. of various third parties, not directly imposed on the Petitioner, will not be allowed. The mechanism for adjustment of duties and taxes at actual on COD is detailed in paragraph (I) (b) of the order.

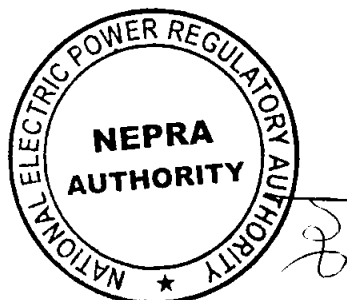
4.7.5. Insurance During Construction

The Petitioner claimed insurance during construction amounting to US\$ 0.65 million estimated at 1.35% of the claimed EPC price. The Petitioner submitted that this cost covers all risks, machinery breakdowns, business interruptions and third party liability.

The Authority has noted that the insurance during construction claimed by the Petitioner on the basis of 1.35% of EPC cost is in line with the Authority's decisions for similar hydropower projects. The Authority has therefore decided to allow US\$ 0.641 million on account of insurance during construction worked out at 1.35% of approved EPC cost. Insurance during construction will be subject to adjustment on the basis of actual up to a maximum of 1.35% of the EPC cost, to be allowed at COD on production of verifiable documentary evidence by the Petitioner.

4.7.6. O&M mobilization

The Petitioner claimed an amount of US\$ 0.25 million on account of O&M mobilization which relates to operator activities during construction phase. The Petitioner stated that this cost is necessary for a smooth handover of the plant and include mobilization costs, staff costs during such period, overview of plant testing & commissioning, development of manuals etc. According to the Petitioner the mobilization period will last between 4 to 6 months prior to COD, however, the same will be firmed up based on the terms of the O&M contract to be finalized by the Petitioner at the EPC stage.





The Authority has not allowed this cost component to feasibility stage hydropower projects due to the reason that such cost is to be reimbursed by the power purchaser based on energy delivered to it during project testing and commissioning phase at mutually agreed rates in accordance with the standardized provisions of the Power Purchase Agreement to be signed between the parties. Therefore, O&M mobilization cost claimed by the Petitioner is disallowed.

4.7.7. Project Development cost

The Petitioner claimed project development related costs under following separate heads:

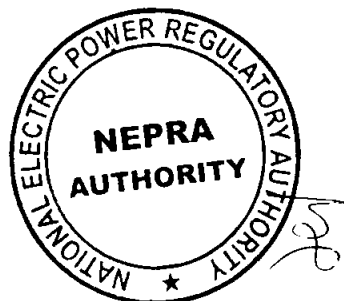
	Cost (US\$ million)
Development cost	0.88
Permission and approval fees	0.15
Pre-financial close & construction period company costs	2.00
Total Development Cost	3.03

The Petitioner submitted that development cost of US\$ 0.88 million covers costs related to the feasibility & other studies and advisor costs typically incurred in the development of hydropower projects including owner's engineers, financial advisors, legal advisors, tax & corporate advisors, insurance advisors and costs related environmental study. Additionally, the Petitioner claimed US\$ 0.15 million on account of fees payable to PPDB, NEPRA, SECP and other regulatory/ government bodies for permissions and consents. Moreover, the Petitioner has claimed another US\$ 2.00 million on account of pre-financial close & construction period company costs, that include corporate and administrative costs incurred or to be incurred by the Petitioner for a period of approximately 5 years including a 30 month construction period.

Since the abovementioned costs are all interrelated, they have been clubbed together and considered as "project development cost" for the purpose of determination of tariff. The Authority has considered the aforementioned claimed costs in light of previously established benchmarks, and has decided to allow US\$ 2.594 million to the Petitioner on account of project development cost as against aggregate amount of US\$ 3.03 million claimed by the Petitioner under three separate heads.

4.7.8. Independent Engineer

The Petitioner claimed US\$ 0.10 million on account of independent engineer to be appointed jointly by the Petitioner and the power purchaser to verify the changes in the tunnel rock type (if any) encountered during construction and any related project cost adjustments. The Authority considers that the cost of US\$ 0.10 million claimed by the Petitioner under this head is reasonable and is therefore allowed.





4.7.9. Financial Charges (Lenders financing fee & charges)

The Petitioner claimed US\$ 1.75 million based on 3.5% of total debt for lenders arrangement fees, legal fees, technical advisor fee, insurance advisor fee, monitoring fees, travel costs etc. The Petitioner has requested to adjust this amount based on actual cost to be stated in the lenders term sheets.

The Authority considers that the claimed cost of US\$ 1.75 million which is based on 3.5% the total debt amount is high compared to costs allowed under this head to similar hydropower projects. In view thereof, the Authority has decided to allow US\$ 1.469 million based on 3.5% of the allowed debt amount (excluding the impact of interest during construction and financial charges). The Authority has further decided that these financial charges will be subject to adjustment at COD on the basis of actual expense, up to a maximum of 3.5% of the allowed debt (excluding the impact of interest during construction and financial charges), on production of authentic documentary evidence.

4.7.10. Interest During Construction

4.7.11. The Petitioner claimed interest during construction (hereinafter referred to as "IDC") amounting to US\$ 6.76 million, based on 30 months construction period and debt terms as detailed in paragraph 4.12.1. The Petitioner submitted that, for simplicity, IDC has been calculated by the Petitioner based on 30 equal monthly disbursements over the construction period. The Authority has observed that due to the approach followed by the Petitioner to estimate IDC, the IDC has been considerably understated in the project cost, resulting in an artificially low tariff. The Authority considers that IDC needs to be assessed based on realistic assumptions in order to reflect the true cost of electricity from projects at feasibility stage. In view of the aforementioned, the Authority has assessed IDC as US\$ 10.059 million based on 5 equal semi-annual disbursements and debt terms discussed in paragraph 4.12.1, and the same is hereby allowed. The IDC will be adjusted at COD on the basis of actual debt draw downs (within the overall debt terms allowed by the Authority).

4.7.12. Recapitulating, the approved project cost under various cost heads is given hereunder:

	Equivalent Total (US\$ Million)
EPC Cost	47.480
Land	0.457
Environmental and other cost	0.109
Custom duty & taxes	1.089
Insurance during construction	0.641
Project Development	2.594
Independent Engineer	0.100
Lenders financing fee & charges	1.469
Interest during construction	10.059
Total Project cost	63.999





4.8. Whether O&M costs claimed by the Petitioner are justified?

4.8.1. The Petitioner has claimed US\$ 1.078 million per annum on account of O&M. The following variable and fixed O&M costs have been claimed:

	O&M (Rs. /kWh)
Fixed O&M	0.0885/kWh
Variable O&M	1.1506/kWh
Total O&M	1.2391/kWh

4.8.2. The Petitioner submitted that variable O&M has been assumed as US cents 0.89/kWh or PKR 0.0885 per kWh. The Petitioner further stated that variable O&M cost and relevant indexation will be firmed up at the time of EPC Stage Tariff filing based on the O&M contract finalized by the Company.

4.8.3. The Petitioner claimed Fixed O&M costs of USD 1.0 million per annum. Moreover, the Petitioner requested that 50% of the fixed O&M component be allowed as foreign cost, and the remaining 50% of the fixed O&M component be allowed as local cost.

4.8.4. The Authority considers that the overall O&M cost claimed by the Petitioner is higher in comparison to O&M cost allowed to similar hydropower projects. In view thereof, the Authority has decided to allow total O&M cost of US\$ 0.971 million (1.1171/kWh) based on 1.8% of project cost (excluding IDC). Moreover, the Authority has decided that the total O&M cost shall be split into 25% variable cost and 75% fixed cost. Further, based on O&M component allowed to similar hydropower projects, the Authority hereby allows variable O&M cost as 100% local component, whereas fixed O&M cost is allowed as 80% local and 20% foreign component.

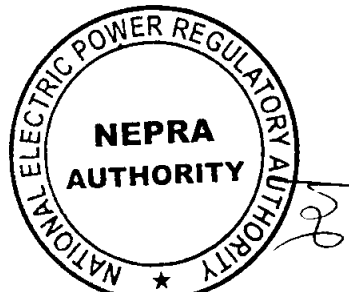
4.8.5. The breakup of allowed O&M cost of the Petitioner is given hereunder:

	Foreign (US\$ Million)	Local (Rs. Million)	Total (Rs. Million)
Fixed O&M costs	0.146	58.581	73.227
Variable O&M costs	-	24.409	24.409
Total O&M	0.146	82.99	97.636

4.9. Whether insurance during operations claimed by the Petitioner is justified?

4.9.1. The Petitioner has claimed cost of insurance during operations on the basis of 1.35% of the claimed EPC cost.

4.9.2. The Authority has decided to allow to the Petitioner, insurance during operations up to 1.35% of the allowed EPC cost, in accordance with the established benchmark. In case of insurance denominated in US \$, insurance cost component of tariff will be adjusted on account of US\$/PKR exchange rate variation on annual basis. Further, insurance component of the reference tariff will be adjusted as per actually incurred prudent costs,





subject to maximum of 1.35% of the EPC cost, on annual basis upon production of authentic documentary evidence by the Petitioner.

4.10. Whether construction period claimed by the Petitioner is justified?

4.10.1. The Petitioner has requested for approval of 30 months construction period. The Authority has observed that it has allowed construction period of 30 months to hydropower projects of similar size and nature. Therefore, the Authority hereby allows the Petitioner maximum project construction period of 30 months.

4.11. Whether return on equity claimed by the Petitioner is justified?

4.11.1. The Petitioner has requested for allowing 17% return (IRR based) on invested equity, which is in line with return already being allowed to hydropower generation sector by the Authority.

4.11.2. Further, the Petitioner has assumed Redemption of Equity in its tariff calculations. The Authority observed that this project is being developed in the private sector and therefore it is to be transferred to the Govt. / Power Purchaser at the end of the tariff control period at a notional price of Rs. 1. In view thereof, the Authority finds that redemption of equity claimed by the Petitioner is justified, and is hereby allowed.

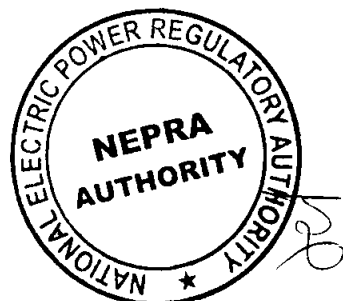
4.11.3. The Authority has assessed return on equity after COD (hereinafter referred to as "ROE") and return on equity during construction (hereinafter referred to as "ROEDC") on the basis of terms and conditions allowed to the Petitioner, as detailed in this determination and equity draw down schedule claimed by the Petitioner. The return on equity will be adjusted at COD on the basis of actual equity injections (within the overall equity allowed by the Authority at COD) during the project construction period allowed by the Authority.

4.12. Whether the terms and conditions of debt claimed by the Petitioner are justified?

4.12.1. The Petitioner has requested for allowing the following terms for its 100% local debt:

Debt as % of project cost	80%
Debt Servicing	Bi-annual
Premium	6-month KIBOR + 3.00%
Debt servicing period	12 Years

4.12.2. The Authority has considered terms of debt claimed by the Petitioner as detailed above and has noted that these terms are comparable with the debt terms allowed to some other hydropower projects. The Authority has therefore decided to allow the debt terms detailed at paragraph 4.12.1 above to the Petitioner.



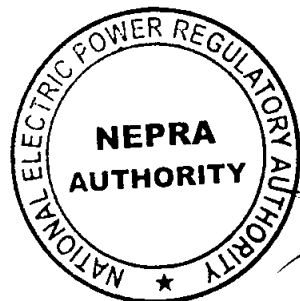


ORDER

Pursuant to Rule 6 of the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000, read with Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, Olympus Energy (Pvt.) Limited (the Petitioner) is allowed to charge, for its Lucky Hydropower Project, the following specified/approved tariff for delivery of electricity to the power purchaser:

Tariff Components	Years 1-12 Rs./kWh	Years 13-30 Rs./kWh	Indexation
Fixed charges			
Fixed O & M			
- Local	0.6703	0.6703	CPI - General
- Foreign	0.1676	0.1676	US\$/PKR & US CPI
Insurance	0.7375	0.7375	US\$/PKR
Debt service	9.4223	-	KIBOR
Return on equity	2.5036	2.6613	US\$/PKR
Return on equity during construction	0.5446	0.5446	US\$/PKR
Variable charges			
Variable O & M - Local	0.2793	0.2793	CPI - General
Water Use Charge	0.1500	0.1500	CPI - General
Total			

- i) The reference tariff has been calculated on the basis of net annual benchmark energy generation of 87.4 GWh for installed capacity of 20 MW.
- ii) The above charges will be limited to the extent of net annual energy generation of 87.4 GWh. Net annual generation supplied during a year to the power purchaser in excess of benchmark energy of 87.4 GWh, will be charged at 10% of the prevalent approved tariff.
- iii) In the above tariff no adjustment for carbon emission reduction receipts, has been accounted for. However, upon actual realization of carbon emission reduction receipts, the same shall be distributed between the power purchaser and the Petitioner in accordance with the approved mechanism given in the applicable government policy.
- iv) The reference US\$/PKR rate has been taken as 100.56.



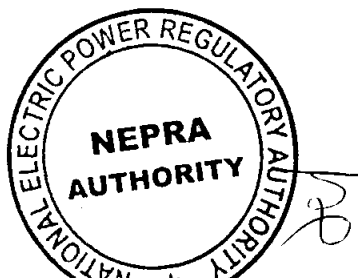


- v) The above tariff is applicable for a period of thirty years commencing from the commercial operations date (COD).
- vi) The Petitioner will only be allowed EPC stage tariff equal to or lesser than the Levelized Upfront Tariff for Small Hydropower Projects ("Upfront Tariff") as determined by NEPRA (vide determination No. NEPRA/UTH-01/15031-15033 dated October 14, 2015).
- vii) The component wise tariff is indicated at Annex-I.
- viii) Debt Servicing Schedule is attached as Annex-II.

I. One Time Adjustments

The following onetime adjustments shall be applicable to the reference tariff:

- a. The specific items of project cost to be paid in allowed foreign currency will be adjusted at COD on account of actual variation in exchange rate over the reference US\$/PKR exchange rate of Rs. 100.56 on production of verifiable documentary evidence by the Petitioner. For all project costs payable in PKR, the amounts allowed in US\$ will be converted into PKR using the reference US\$/PKR exchange rate of Rs.100.56.
- b. Duties and/or taxes, not being of refundable nature, imposed on the Petitioner up to the commencement of its commercial operations will be subject to adjustment at actual on COD, as against US \$ 1.089 million allowed now, upon production of verifiable documentary evidence to the satisfaction of the Authority.
- c. Adjustment of the interconnection cost to be borne by the Petitioner, if any, will be allowed at COD upon submission of a detailed plan duly endorsed by the power purchaser and authentic verifiable documents, to the satisfaction of the Authority.
- d. Land and Resettlement costs will be allowed as per actual, as against US\$ 0.457 Million allowed now, upon production of verifiable documentary evidence. The initial schedule of rates and variation in them shall be certified by the Provincial government and approved by NEPRA.
- e. Financial charges will be adjusted at COD on the basis of actual expense, up to a maximum ceiling of 3.5% of the total debt allowed (excluding the impact of interest during construction and financial charges), on production of authentic documentary evidence.
- f. The interest during construction will be adjusted at COD on the basis of actual debt draw downs (within the overall debt allowed by the Authority at COD), actual exchange rate variation in case of foreign loan denominated in allowed currencies and actual interest rates not exceeding the limit of 6 months KIBOR plus 3.00%, during the project construction period allowed by the Authority.
- g. The return on equity (including return on equity during construction) will be adjusted at COD on the basis of actual equity injections (within the overall equity allowed by the Authority at COD), during the project construction period allowed by the Authority.





- h. The return on equity (including return on equity during construction) will be adjusted at COD on the basis of US\$/PKR exchange rate variation.
- i. Any liquidated damages, penalties, etc. (by whatever name called), actually recoverable by the Petitioner from the EPC contractor(s), pertaining to the construction period allowed by the Authority, will be adjusted in the project cost at COD.
- j. The reference tariff table shall be revised at COD while taking into account the above adjustments. The Petitioner shall submit its request to the Authority within 90 days of COD for necessary adjustments in tariff.

II. Pass-Through Items

No provision for income tax has been accounted for in the tariff. If any tax is imposed on the Petitioner, the exact amount paid by the power producer shall be reimbursed by the power purchaser to the Petitioner on production of original receipts. This payment will be considered as a pass-through payment spread over a 12 months period. Furthermore, in such a scenario, the Petitioner shall also submit to the power purchaser details of any tax shield savings and the power purchaser shall deduct the amount of these savings from its payment to the Petitioner on account of taxation.

III. Hydrological Risk

Hydrological Risk shall be borne by the Power Purchaser in accordance with the Punjab Power Generation Policy 2006.

IV. Indexations:

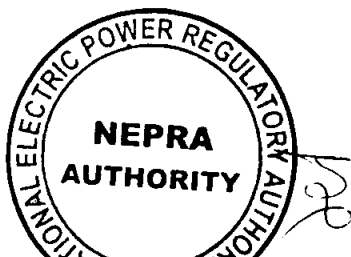
The following indexation shall be applicable to the reference tariff:

i) Indexation applicable to O&M

The local part of O&M cost will be adjusted on account of local inflation and O&M foreign component will be adjusted on account of variation in dollar/rupee exchange rate and US CPI. Quarterly adjustments for inflation and exchange rate variation will be made on 1st July, 1st October, 1st January and 1st April respectively on the basis of latest available information with respect to CPI - General (notified by the Pakistan Bureau of Statistics), US CPI (notified by US Bureau of Labor Statistics) and revised TT & OD selling rate of US Dollar as notified by the National Bank of Pakistan. The mode of indexations will be as follows:

$$F O\&M_{(LREV)} = F O\&M_{(LREF)} * CPI_{(REV)} / CPI_{(REF)}$$

$$F O\&M_{(FREV)} = F O\&M_{(FREF)} * US CPI_{(REV)} / US CPI_{(REF)} * ER_{(REV)} / ER_{(REF)}$$





$$V O \& M_{(LREV)} = V O \& M_{(LREF)} * CPI_{(REV)} / CPI_{(REF)}$$

Where;

F O&M_(LREV) = The revised applicable fixed O&M local component of tariff

F O&M_(FREV) = The revised applicable fixed O&M foreign component of tariff

V O&M_(LREV) = The revised applicable variable O&M local component of tariff

FO&M_(LREF) = The reference fixed O&M local component of tariff for the relevant period

FO&M_(FREF) = The reference fixed O&M foreign component of tariff for the relevant period

VO&M_(LREF) = The reference variable O&M local component of tariff for the relevant period

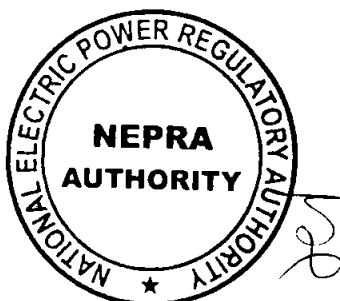
CPI_(REV) = The revised Consumer Price Index (General) as notified by the Pakistan Bureau of Statistics

CPI_(REF) = 196.79 Consumer Price Index (General) of December 2014 notified by the Pakistan Bureau of Statistics

US CPI_(REV) = The revised US CPI (all urban consumers)

US CPI_(REF) = 234.812 US CPI (all urban consumers) for the month of December 2014 as notified by the US Bureau of Labor Statistics

ER_(REV) = The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan





$ER_{(REF)}$ = The reference TT & OD selling rate of US dollar as notified by the National Bank of Pakistan - Current reference PKR 100.56

ii) Water Use Charges

Water Use Charges will be paid on units delivered basis and will be indexed with Consumer Price Index (CPI) annually. The indexed component of water use charges shall not exceed the actual expense. The first such adjustment shall be due after one year of COD, according to the following formula:

$$WUC_{(REV)} = Rs. 0.1500 * CPI_{(REV)} / CPI_{(REF)}$$

Where;

$WUC_{(REV)}$ = The revised Water Use Charge component indexed with Consumer Price Index (CPI)

$CPI_{(REV)}$ = The revised Consumer Price Index (General) as notified by the Pakistan Bureau of Statistics

$CPI_{(REF)}$ = Reference Consumer Price Index (General) of the latest available month preceding the date of COD as notified by the Pakistan Bureau of Statistics

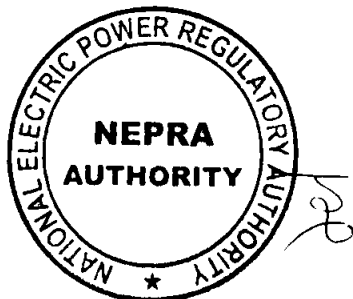
iii) Adjustment of insurance component

In case of insurance denominated in US \$, insurance cost component of tariff will be adjusted on account of US\$/PKR exchange rate variation on actual basis. Further, insurance component of the reference tariff will be adjusted as per actually incurred prudent costs, subject to the maximum ceiling of 1.35% of the approved EPC cost, on annual basis upon production of authentic documentary evidence by the Petitioner.

iv) Return on equity

The return on equity component of tariff including return on equity during construction will be adjusted on the basis of revised TT & OD selling rate of US Dollar as notified by the National Bank of Pakistan according to the following formula:

$$ROE_{(REV)} = ROE_{(REF)} * ER_{(REV)} / ER_{(REF)}$$





$$ROEDC_{(REV)} = ROEDC_{(REF)} \times ER_{(REV)} / ER_{(REF)}$$

Where:

$ROE_{(REV)}$ = Revised return on equity component of tariff expressed in Rs/kWh.

$ROE_{(REF)}$ = Reference return on equity component of tariff expressed in Rs/kWh.

$ROEDC_{(REV)}$ = Revised return on equity during construction component of tariff expressed in Rs/kWh.

$ROEDC_{(REF)}$ = Reference return on equity during construction component of tariff expressed in Rs/kWh.

$ER_{(REV)}$ = The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

$ER_{(REF)}$ = The reference TT & OD selling rate of US dollar of PKR 100.56

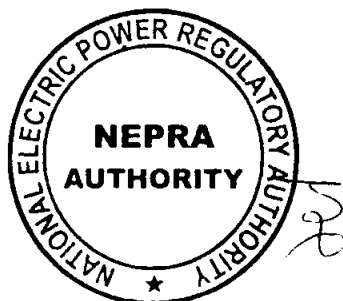
v) Adjustment for KIBOR variation

The interest part of debt service component will remain unchanged throughout the term except for the adjustment due to variation in 6 months KIBOR, while spread of 3.00% on 6 months KIBOR remaining the same, according to the following formula:

$$\Delta I = P_{(REV)} * (KIBOR_{(REV)} - 9.08\%) / 2$$

Where:

ΔI = the variation in interest charges applicable corresponding to variation in 6 months KIBOR. ΔI can be positive or negative depending upon whether 6 months KIBOR_(REV) per annum > or < 9.08 %. The interest payment obligation





will be enhanced or reduced to the extent of ΔI for each half year under adjustment.

$P_{(REV)}$ = is the outstanding principal (as indicated in the attached debt service schedule to this order at Annex-II) on a bi-annual basis at the relevant calculations date.

Note:

Adjustments on account of inflation, foreign exchange rate variation, KIBOR variation and actual insurance will be approved and announced by the Authority within fifteen working days after receipt of the Petitioner's request for adjustment in tariff in accordance with the requisite indexation mechanism stipulated herein.

V. Terms and Conditions of Tariff:

Design & Manufacturing Standards:

Hydro power generation system shall be designed, manufactured and tested in accordance with the latest IEC standards or other equivalent standards. All plant and equipment shall be new.

Emissions Trading/ Carbon Credits:

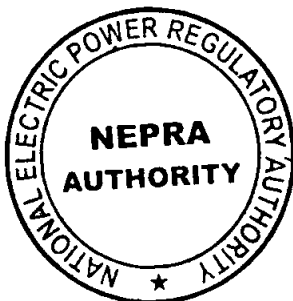
The Petitioner shall process and obtain emissions/carbon credits expeditiously and credit the proceeds to the power purchaser as per the applicable government policy and the terms and conditions agreed between the Petitioner and the power purchaser.

Power Curve of the Hydel Power Complex:

The power curve of the Hydel Power plant shall be verified by the Power Purchaser, as part of the Commissioning tests according to the latest IEC standards and shall be used to measure the performance of the hydel generating units.

Others:

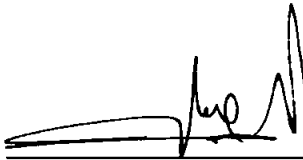
- i. The Authority has allowed/approved only those cost(s), term(s), condition(s), provision(s), etc. which have been specifically approved in this tariff determination. Any cost(s), term(s), condition(s), provision(s), etc. contained in the tariff petition or any other document which are not specifically allowed/approved in this tariff determination, should not be implied to be approved, if not adjudicated upon in this tariff determination.

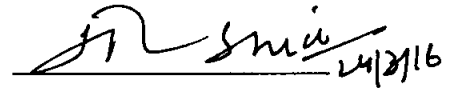






- ii. The above tariff and terms and conditions shall be incorporated as the specified tariff approved by the Authority pursuant to Rule 6 of the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000 in the power purchase agreement between the Petitioner and the power purchaser.
- iii. The order along with reference tariff table and debt service schedule as attached thereto are recommended for notification by the Federal Government in the official gazette in accordance with Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

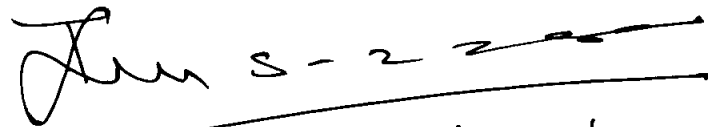
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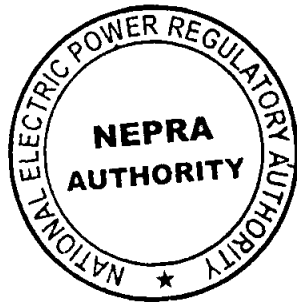

(Khawaja Muhammad Naeem)
Member

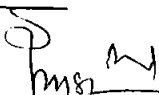

(Maj. (R) Haroon Rashid)
Member


(Himayat Ullah Khan)
Member


(Syed Masood ul Hassan Naqvi)
Member


(Brig. (R) Tariq Saddozai)
Chairman




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**OLYMPUS HYDROPOWER (PVT.) LIMITED
20 MW LUCKY HYDROPOWER PROJECT
REFERENCE TARIFF TABLE**

Annex - I

Year	Energy Purchase Price		Capacity Purchase Price							
	Variable O&M Rs. / kWh	Water Use Charge Rs. / kWh	Fixed O&M		Insurance Rs. / kWh	Return on Equity Rs. / kWh	ROE During Construction Rs. / kWh	Loan Repayment Rs. / kWh	Interest Charges Rs. / kWh	Tariff * Rs. / kWh
			Local Rs. / kWh	Foreign Rs. / kWh						
1	0.2793	0.1500	0.6703	0.1676	0.7375	2.5036	0.5446	2.3758	7.0465	14.4751
2	0.2793	0.1500	0.6703	0.1676	0.7375	2.5036	0.5446	2.6714	6.7508	14.4751
3	0.2793	0.1500	0.6703	0.1676	0.7375	2.5036	0.5446	3.0039	6.4184	14.4751
4	0.2793	0.1500	0.6703	0.1676	0.7375	2.5036	0.5446	3.3777	6.0446	14.4751
5	0.2793	0.1500	0.6703	0.1676	0.7375	2.5036	0.5446	3.7981	5.6242	14.4751
6	0.2793	0.1500	0.6703	0.1676	0.7375	2.5036	0.5446	4.2707	5.1515	14.4751
7	0.2793	0.1500	0.6703	0.1676	0.7375	2.5036	0.5446	4.8022	4.6201	14.4751
8	0.2793	0.1500	0.6703	0.1676	0.7375	2.5036	0.5446	5.3998	4.0224	14.4751
9	0.2793	0.1500	0.6703	0.1676	0.7375	2.5036	0.5446	6.0718	3.3504	14.4751
10	0.2793	0.1500	0.6703	0.1676	0.7375	2.5036	0.5446	6.8274	2.5948	14.4751
11	0.2793	0.1500	0.6703	0.1676	0.7375	2.5036	0.5446	7.6771	1.7452	14.4751
12	0.2793	0.1500	0.6703	0.1676	0.7375	2.5036	0.5446	8.6325	0.7897	14.4751
13	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
14	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
15	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
16	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
17	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
18	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
19	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
20	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
21	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
22	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
23	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
24	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
25	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
26	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
27	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
28	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
29	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
30	0.2793	0.1500	0.6703	0.1676	0.7375	2.6613	0.5446	-	-	5.2105
Levelized Tariff	0.2793	0.1500	0.6703	0.1676	0.7375	2.5473	0.5446	3.1116	3.6988	11.9068

* The above rate is limited to an annual energy production up to 87.4 GWh. Any generated energy beyond 87.4 GWh in a year will be charged at 10% of the Tariff for that year.



OLYMPUS HYDROPOWER (PVT.) LIMITED
Debt Servicing Schedule

Annex - II

Period	Local Debt					Annual Principal Repayment Rs./kWh	Annual Interest Rs./kWh	Annual Debt Servicing Rs./kWh
	Principal Rupees Million	Repayment Rupees Million	Mark-Up Rupees Million	Balance Rupees Million	Total Debt Service Rupees Million			
	5,149	101	311	5,048	412			
	5,048	107	305	4,941	412			
1	5,149	208	616	4,941	824	2.3758	7.0465	9.4223
	4,941	113	298	4,828	412			
	4,828	120	292	4,707	412			
2	4,941	233	590	4,707	824	2.6714	6.7508	9.4223
	4,707	127	284	4,580	412			
	4,580	135	277	4,445	412			
3	4,707	263	561	4,445	824	3.0039	6.4184	9.4223
	4,445	143	268	4,302	412			
	4,302	152	260	4,150	412			
4	4,445	295	528	4,150	824	3.3777	6.0446	9.4223
	4,150	161	251	3,989	412			
	3,989	171	241	3,818	412			
5	4,150	332	492	3,818	824	3.7981	5.6242	9.4223
	3,818	181	231	3,637	412			
	3,637	192	220	3,445	412			
6	3,818	373	450	3,445	824	4.2707	5.1515	9.4223
	3,445	204	208	3,241	412			
	3,241	216	196	3,025	412			
7	3,445	420	404	3,025	824	4.8022	4.6201	9.4223
	3,025	229	183	2,796	412			
	2,796	243	169	2,553	412			
8	3,025	472	352	2,553	824	5.3998	4.0224	9.4223
	2,553	258	154	2,295	412			
	2,295	273	139	2,022	412			
9	2,553	531	293	2,022	824	6.0718	3.3504	9.4223
	2,022	290	122	1,733	412			
	1,733	307	105	1,425	412			
10	2,022	597	227	1,425	824	6.8274	2.5948	9.4223
	1,425	326	86	1,100	412			
	1,100	345	66	754	412			
11	1,425	671	153	754	824	7.6771	1.7452	9.4223
	754	366	46	388	412			
	388	388	23	0	412			
	754	754	69	0	824	8.6325	0.7897	9.4223

