National Electric Power Regulatory Authority

Islamic Rebublic of Pakistan

Registrar

2nd Floor, OPF Building, G-5/2, Islamabad
Ph: 051-9206500, 9207200, Fax: 9210215
E-mail: registrar@nepra.org.pk

No.NEPRA/TRF-WPT/2013/3942-3944
April 24, 2013

Subject: **Determination of National Electric Power Regulatory Authority in the Matter of Upfront Tariff for Wind Power Generation**
Intimation of Determination of Tariff pursuant to Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997)

Dear Sir,

Please find enclosed herewith the subject Determination of the Authority along with Annex-I, II & III (33 pages).

2. The Determination is being intimated to the Federal Government for the purpose of notification of the approved tariff in the official gazette pursuant to Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997) and Rule 16(11) of the National Electric Power Regulatory Authority Tariff (Standards and Procedure) Rules, 1998.

3. Please note that only Order of the Authority at para 51 of the Determination relating to the reference tariff, adjustments, indexations and terms and conditions along with Annex-I, II & III needs to be notified in the official Gazette.

Enclosure: As above

(Syed Safeer 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.

DETERMINATION OF NATIONAL ELECTRIC POWER REGULATORY AUTHORITY IN THE MATTER OF UPFRONT TARIFF FOR WIND POWER GENERATION

1. National Electric Power Regulatory Authority (hereinafter referred to as the "Authority") was established under section 3 of the 'Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997' (hereinafter referred to as the "Act") and its responsibilities under the Act include, inter alia, determination of tariff, rates, charges and other terms and conditions for supply of electric power services by the generation, transmission and distribution companies. In performing its functions, the Authority has to protect, as far as practicable, the interests of consumers and companies providing electric power services in accordance with the guidelines, not inconsistent with the provisions of the Act laid down by the Federal Government.

2. With a view to facilitate development of wind power generation, the Authority in the past has been determining upfront tariff for generation of electricity from wind power. The most recent upfront tariff for wind power generation was determined by the Authority on 06 October, 2011 (hereinafter referred to as the "up-front tariff of 2011") which has expired on December 31, 2012. Hence, the Authority in exercise of its powers under the Act read with rule 3 (1) of the National Electric Power Regulatory Authority (Tariff Standards and Procedure) Rules, 1998 (hereinafter referred to as the "tariff rules") and regulation 3 of the National Electric Power Regulatory Authority Upfront Tariff (Approval & Procedure) Regulations, 2011 (hereinafter referred to as the "upfront tariff regulations") has decided to determine a fresh upfront tariff for generation of electricity from wind power (hereinafter referred to as the "upfront tariff"). Accordingly a draft upfront tariff proposal was developed on the basis of data available with the Authority and information provided by the Alternative Energy Development Board (hereinafter referred to as "AEDB").

3. In line with the tariff setting process envisaged in the tariff rules, and with a view to arrive at a just and informed decision, notice of public hearing and salient features of the draft upfront tariff proposal were published in the national newspapers on February 07, 2013 inviting filing of intervention requests and comments. The Authority also served separate notices to various stakeholders for filing their comments, if any, on the draft upfront tariff proposal and its underlying terms and conditions.

4. In response to the notice of public hearing following parties filed intervention requests which were accepted by the Authority:

   i. AEDB - Intervener no. 1
   ii. Finergy (Pvt.) Limited – Intervener no. 2
   iii. Gul Ahmed Wind Power Limited – Intervener no. 3

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iv. Hawa Energy (Pvt.) Limited – Intervener no. 4
v. HydroChina Dawood Power (Pvt.) Limited – Intervener no. 5
vi. Master Wind Energy Limited – Intervener no. 6
vii. Metro Power Company Limited – Intervener no. 7
viii. NBT Wind Power Pakistan (Pvt.) Limited – Intervener no. 8
ix. Pakistan Wind Energy Generation (Pvt.) Limited – Intervener no. 9
x. Sapphire Wind Power Company Limited – Intervener no. 10
xi. Tapal Wind Energy (Pvt.) Limited – Intervener no. 11
xii. Tenaga Generasi Limited – Intervener no. 12
xiii. UEP Wind Power (Pvt.) Limited – Intervener no. 13
xiv. Wind Eagle Limited – Intervener no. 14
xv. Yunus Energy Limited – Intervener no. 15
xvi. Zephyr Power (Pvt.) Limited – Intervener no. 16

5. Public hearing in this regard was held on February 27, 2013 at Islamabad, which was attended by AEDB, Hyderabad Electric Supply Company Limited, Central Power Purchasing Agency, Karachi Electric Supply Company Limited, interveners and various other stakeholders.

6. In addition to the intervention requests, comments in writing were also received by the Authority from the following stakeholders:

i. Mr. Akhtar Ali
ii. Board Of Investment
iii. International Finance Corporation
iv. Punjab Power Development Board
v. Renewable Resources (Pvt.) Limited

7. Based on the intervention requests accepted by the Authority, comments of the stakeholders, tariffs for wind power generation companies already determined by the Authority, information otherwise available with the Authority and proceedings of the case, the Authority has deliberated in detail on the subject of determination of upfront tariff. The major issues deliberated by the Authority are as follows:

Energy/cap on capacity factor

8. The draft upfront tariff proposal provided that the upfront tariff will be limited to the extent of net annual energy generation supplied to the power purchaser upto 31% net annual plant capacity factor. Net annual energy generation supplied to the power purchaser in a year in excess of 31% net annual plant capacity factor will be charged at the following tariffs:

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Net annual plant capacity factor	% of the prevalent tariff
Above 31% to 43%	20%
Above 43%	10%

9. Intervener no. 1 to intervener no. 15 have opposed the draft upfront tariff proposal on this issue and majority of them have requested for removal of this clause, allowing the power producers to claim revenues at 100% of the tariff for energy generation in excess of the bench mark energy. Major arguments forwarded by the interveners are as follows:

- A better quality wind turbine will generate more electricity from the same wind speed than an inferior quality wind turbine. With energy upto 31% plant capacity factor to be sold at full tariff, the equipment evaluation favours price over performance and quality. There remains no incentive for the wind power generation companies to opt for better performing wind turbines and in fact it encourages them to buy suboptimal wind turbines. The goal should be to allow wind power generation companies to maximize wind power generation from the operational wind farms. Once the wind farm is built, the operator should be incentivized to operate at maximum available capacity at all times.

- While the wind power generation companies are proposed to take 100% of the wind risk, the power purchaser is proposed to receive 80% to 90% of the upside. Thus the wind power generation companies opting for the upfront tariff will be open to low wind speed hits, yet they will not be eligible for any benefit coming from the surplus power generated. This will result in significantly lower average revenues, which will reduce cash available for debt servicing and return on equity. Further, the average tariff that the wind power generation companies will receive over life of the project will be far lower than the published tariff. Effectively, the proposal has changed the previous policy with respect to the project risk/return profile in favour of the power purchaser.

- This proposal creates a discriminatory situation from the cost plus tariff regime, as under the cost plus tariff regime wind risk is borne by the power purchaser and then the energy above the benchmark is sold at 10% of the prevalent tariff. If the advertised draft upfront tariff proposal remains unchanged on this issue, the upfront tariff would rank below the existing cost plus tariff regime and will not remain bankable. The investors may be diverted towards cost plus tariff.

- The intricacies involved in implementing this concept on ground need to be reviewed by the Authority.

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- There is no precedent for capping the tariff at a certain capacity factor. China, Canada, Germany and other European countries all have feed-in-tariffs that encourage generation of more electricity and do not penalize wind power because of the inherent variation of wind.

10. The Authority has noted that net annual plant capacity factor of 31% was considered in the draft upfront tariff proposal, on the basis of information provided by AEDB regarding average of projected generation on actual wind speeds, for 13 wind power generation companies that had received tariff from the Authority. AEDB had submitted that this information was based on calculations done by RISOE (independent international consultant hired by AEDB). Further, reduction in tariff for energy generation above 31% net annual plant capacity factor was proposed after taking into consideration the high probability (as indicated in the information provided by AEDB) that generation will exceed 31% net annual plant capacity factor. The Authority also noted that under the draft upfront tariff proposal, wind power generation companies were proposed to be earning 20% bonus for generation above the bench mark energy, upto net annual plant capacity factor of 43%, as against 10% under the cost plus tariff regime. Further, for project sites with higher capacity factors, the entire project cost was being allowed recovery at a lower generation level, enabling such companies to earn higher revenues.

11. The Authority has considered the arguments detailed in the preceding paragraph in conjunction with the arguments of the stakeholders and is of the opinion that for making the project risk/return profile fair, the draft upfront tariff proposal on this issue needs to be modified. Accordingly the Authority has decided that the upfront tariff will be limited to the extent of net annual energy generation supplied to the power purchaser upto 31% net annual plant capacity factor. Net annual energy generation supplied to the power purchaser in a year, in excess of 31% net annual plant capacity factor will be charged at the following tariffs:

Net annual plant capacity factor	% of the prevalent tariff
Above 31% to 32%	75%
Above 32% to 33%	50%
Above 33% to 34%	25%
Above 34% to 35%	20%
Above 35%	10%

12. Further, the Authority has decided that AEDB will be required to certify that new and efficient wind turbines of acceptable quality are proposed to be installed by the power producer and the power purchaser before signing the Energy Purchase Agreement (hereinafter referred to as "EPA") shall satisfy itself that the plant and machinery proposed

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to be installed is new, is of a quality acceptable to it and is the same as certified to be of acceptable quality by the AEDB.

Project cost

13. The draft upfront tariff proposal was based on the following per MW project costs:

	Foreign financing	Local financing
	US $ in million	
CAPEX	2.289	2.289
Interest during construction	0.112	0.281
Project cost	2.401	2.570

14. Intervener nos. 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14 and 15 have objected to project costs considered in the draft upfront tariff proposal. The interveners have contended that the proposed project costs are too low and have been reduced substantially from the project costs considered for the upfront tariff of 2011. Further, the proposed project costs are even lower than the same determined, after the upfront tariff of 2011, for some wind power generation companies under the cost plus tariff regime and are in particular lower compared to the most recent project cost determined by the Authority for a wind power generation company on January 03, 2013. Intervener no. 5 has contended that the cost of wind farm development has not changed significantly since the upfront tariff of 2011. Further, although LIBOR has declined but spread on loans has increased. Intervener no. 12 has referred to the upfront tariff regulations which require that while approving the upfront tariff, due regard needs to be given to the tariffs already determined. Various interveners have proposed different options regarding the project costs to be considered by the Authority for upfront tariff including for allowing the same project cost (excluding interest during construction) as was assumed for the upfront tariff of 2011.

15. The Authority has noted that CAPEX considered for the draft upfront tariff proposal was mainly based on CAPEX allowed to another wind power generation company under the cost plus tariff regime. The Authority further noted that it has determined tariffs under the cost plus tariff regime for number of wind power generation companies, since the upfront tariff of 2011, and average of the EPC costs determined for such companies, is lower than the EPC cost considered for the upfront tariff of 2011. Further, duties and taxes which are considered a part of the project cost under cost plus tariff regime and were a part of the project cost in the upfront tariff of 2011 have been considered as a pass through cost in the draft upfront tariff proposal. Moreover, the Authority had also accounted for reduction of interest rates i.e.

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reduction in KIBOR and LIBOR in the draft upfront tariff proposal while keeping the phasing of debt draw down unchanged from the upfront tariff of 2011.

16. The Authority has considered the arguments detailed in the preceding paragraph in conjunction with arguments of the stakeholders and has decided to work out the upfront tariff on the basis of component wise average of CAPEX/same basis for computing the relevant CAPEX component, as has been determined for wind power generation companies under the cost plus tariff regime, since the upfront tariff of 2011. The Authority has also decided to consider only those components of CAPEX for working out the upfront tariff, which were allowed under the cost plus tariff regime to majority of wind power generation companies. Further, the phasing of debt draw down will remain unchanged from the upfront tariff of 2011 and the interest rates i.e. KIBOR / LIBOR as considered in the draft upfront tariff proposal will be applied in the upfront tariff. The Authority has also decided to adjust other cost parameters in line with this decision.

<u>O & M costs</u>

17. Following O & M costs and indexations were proposed in the draft upfront tariff proposal:

	Rs./ kwh.	Indexation
Operations and maintenance costs	1.6040	PKR / US $ and US CPI
Insurance	0.7623	-

18. Intervener no. 2 to intervener no. 15 have objected to various provisions of this proposal. Main submissions of the interveners are as follows:

- The proposed O & M costs are too low and are also considerably lower than the O&M costs allowed under the upfront tariff of 2011. Unless the Authority has evidence showing that the operation and maintenance costs have decreased, reduction in the O & M costs is unjustifiable.
- Under the cost plus tariff regime, the insurance cost during operations is subject to adjustment on annual basis, based on actual, up to a maximum of 1.35% of the approved EPC cost; no such adjustment has been offered in the draft upfront tariff proposal.
- The upfront tariff of 2011 permitted indexation of insurance component with PKR / US$ and US CPI. However, these indexations have been completely removed from the proposed upfront tariff. No insurance company in Pakistan has the requisite experience

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or financial strength to maintain 100% of the insurance locally. All power sector projects have, in the past, been reinsured by local insurance companies through foreign reinsurers with local insurance companies maintaining just 5% of the exposure. There is no rationale to deny projects opting for upfront tariff the same benefits given to all other power projects operating in Pakistan.

19. Above mentioned interveners have proposed alternative options in this regard including:

- The O & M cost assumptions of upfront tariff of 2011 may be maintained.
- Insurance cost during operations be allowed at a rate of 1.35% of the EPC cost.
- The O&M component in the upfront tariff may also include insurance cost during operations based on actual.

20. The Authority has observed that except for the insurance cost which has been adjusted on the basis of estimates developed by the Authority, O & M costs have been maintained at the same level as considered for the upfront tariff of 2011. Further, the Authority has, after consideration of the comments of interveners and other relevant facts, decided to allow adjustment of insurance cost with PKR/US$ parity in accordance with the terms and conditions detailed in the order.

<u>Validity of upfront tariff and targeted maximum construction period</u>

21. The draft upfront tariff proposal stipulated that it will be valid for 365 days from the date of its determination by the Authority and the targeted maximum construction period after financial close would be 18 months. Further, it specified that the up-front tariff granted to any wind power generation company will no longer remain applicable/valid if financial close is not achieved by that wind power generation company by June 30, 2014 or within 365 days from the date of opting for upfront tariff whichever is earlier or the wind power generation company does not achieve COD within thirty months of award of upfront tariff.

22. Intervener no. 1 to intervener no. 15 have objected to draft upfront tariff proposal on this matter. Major submissions of the interveners are as follows:

- Despite express directions given by the Authority in the upfront tariff of 2011, bankable concession documents i.e. the Implementation Agreement (hereinafter referred to as "IA") and EPA have still not been developed. Even after the finalization of IA and EPA, it will take wind power generation companies some time to seek approvals from other departments and ministries. In the absence of stakeholders' consultative and ECC

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approved templates of concession documents, the time to achieve financial close and commercial operations date (hereinafter referred to as "COD") cannot be locked.

- Delay in achievement of COD within the agreed time-frame is already covered in the EPA therefore there is no need for a further stipulation on this matter in the upfront tariff. The power purchaser is sufficiently protected in the EPA by way of liquidated damages due to delays and has termination rights after a certain period from the required COD.

- Under the draft upfront tariff proposal, the failure of a project to achieve the specified deadlines would invalidate the tariff granted to it, even where the delay is not attributable to the project or is outside its control. It is important for wind power generation companies to continue to have the up-front tariff even if COD is delayed beyond 30 months from the award of tariff as this is a risk that the banks, owners and EPC contractors will not be willing to take and will deter investments because of risk of complete loss of the entire investment. Further, this provision is unnecessary as the upfront tariff does not allow any true up at COD and incremental interest during construction plus other expenses on account of delay are to be borne by the power producer.

- There are steps and milestones, which are the pre-requisite of each other, while reaching at approval of feasibility and finalizing the concession documents. It would be better to recognize that these steps have their own timelines governed by the procedures of respective government departments. A unilateral timeline cap would shift the entire risk to the project developer.

- The timelines proposed in the upfront tariff may be aligned with the well-established timelines of government policies (Policy For Power Generation Projects 2002 and Policy For Development Of Renewable Energy For Power Generation 2006). Under the Policy For Power Generation Projects 2002 and Policy For Development Of Renewable Energy For Power Generation 2006, the timelines of financial close are determined by the letter of support. The achievement of COD is determined by EPA which becomes effective on the date of financial close. There should be no conflict between the policies (Authority policies and Government policies). The letter of support issued by AEDB and the EPA entered into by the power purchaser provide adequate sanctions on a project not achieving the financial close and COD within the agreed timelines.

- There is currently a ban imposed by the Supreme Court/High Court on transfer of land in Sindh. It is difficult to get sublease finalized therefore financing period not less than 18 months shall be granted to the sponsors.

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- The 18 months maximum construction time after financial close would be sufficient for a 50MW wind farm. A bigger wind farm will require more time for construction. The construction time for a 250 MW wind farm will be approximately 26 months from financial close.

23. Above mentioned interveners have made various alternative proposals in this regard including:

- The approach to deal with delays adopted in the upfront tariff of 2011 may be adopted for the new upfront tariff.

- The time limit to opt for upfront tariff should be removed altogether and the upfront tariff should be made available for the 1,500 MW of wind power generation companies.

- The timeline to achieve financial close and thereafter achieve commercial operations should be linked to the finalization of concession documents/outcome and pace of feasibility approval. The Authority may direct AEDB and other related institutions to urgently finalize all the concession documents. Day-to-day extension and consequential cost implications may be allowed, where the delay is not attributable to the project company.

- The Authority should issue directions to stakeholders to finalize all the consultative process four months before the last date for achieving financial close fixed in the upfront tariff.

- Fifteen months/one year should be provided to project companies from the approval of IA and EPA to achieve financial close.

- The Authority may consider retaining a cut-off date to opt for the upfront tariff by a company and should thereafter link it with subsequent milestones of the Policy For Development Of Renewable Energy For Power Generation 2006.

- Given the volatile situation in the country at the moment, the maximum construction time allowed for a 50MW project should be 24 months from the financial close instead of 18 months suggested in the draft upfront tariff proposal.

- In order to give incentives to bigger wind farms, the Authority should allow phased COD and should allow an extended deadline of 2 extra months for each 50MW installed capacity above the first 50 MW capacity installed. Alternatively the Authority should

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allow pre COD sale of electricity at a tariff, which includes the interest component of the upfront tariff, in addition to the existing O & M and return on equity components.

24. The Authority after consideration of submissions of the stakeholders and detailed deliberations has decided to remove the clause pertaining to inapplicability of upfront tariff on failure of a wind power generation company to achieve COD within thirty months of award of upfront tariff and the condition that the up-front tariff granted to any wind power generation company will no longer remain applicable/valid if financial close is not achieved by that wind power generation company within 365 days from the date of opting for upfront tariff. Further, the Authority considers that various parameters forming the basis of upfront tariff do not remain static, therefore while deciding the upfront tariff it has to fix a time limit for validity of upfront tariff and achievement of financial close. Accordingly terms and conditions decided by the Authority regarding validity of upfront tariff, etc. are detailed in the order.

25. The Authority has also noted with concern that despite its specific directions given in the upfront tariff of 2011, AEDB and other stake holders did not finalize the EPA thereby hampering investment in the wind power generation sector. The Authority hereby directs AEDB and other stake holders to finalize the EPA and IA for this upfront tariff at earliest.

26. The Authority has also considered the submissions of intervener no. 8 regarding issues faced by bigger wind farms. The Authority has noted that in the proceedings of upfront tariff of 2011, some of the stakeholders had submitted that allowing one tariff for a wide range of companies with the capacity of 5 MW to 250 MW is not justified as wind power generation companies with bigger size may make windfall profits. The Authority considered the issue while determining upfront tariff of 2011 and decided that by fixing the maximum construction period to 18 months, irrespective of the size of the project, within the approved capacity range of 5 MW to 250 MW, the impact of economies of scale will be largely offset. The Authority has reconsidered the issue and finds no reason to change its earlier decision on this issue.

<u>Debt equity ratio</u>

27. The draft upfront tariff proposal was based on the debt equity ratio of 80 : 20 as against 75 : 25 considered in the upfront tariff of 2011.

28. Intervener no. 2 to intervener no. 15 have objected to the debt equity ratio considered for the draft upfront tariff proposal. Main submissions of the interveners are as follows:

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- Majority of wind power generation companies, which had their tariff determined under the cost plus tariff regime, had their financing structure based on debt : equity ratio of 75 : 25 (70 : 30 in the case of Zorlu Enerji).

- Revisiting the debt equity ratio will delay the financing as it will totally change the project financial dynamics.

- Equity commitment of 25% from the project sponsors fulfils a basic requirement imposed by credit committees of majority of the financial institutions, increases the margin available to lenders in case of default by the wind developers and implies a higher resolve from the sponsors to ensure completion of the project.

- Lenders under the prevailing market conditions are unwilling to finance projects on 80 : 20 debt equity ratio. Developers can expect debt equity ratios in the range of 65 : 35 to 75 : 25 with 70 : 30 being the most common terms in the current market.

29. Abovementioned interveners have made various proposals regarding the debt equity ratio to be considered for the upfront tariff including:

    - The upfront tariff may allow a flexibility to have a debt to equity ratio within the range of 80 : 20 to 70 : 30.

    - Debt to equity ratio of 70 : 30 should be assumed for the upfront tariff.

    - Debt to equity ratio of 75 : 25, as was assumed in the upfront tariff of 2011, may be considered for the upfront tariff.

30. Board of investment as a commentator has submitted that the upfront tariff of 2011 was developed on a debt equity ratio of 75 : 25. Keeping in view the requirements and limitations of local/foreign financial institutions with regard to equity investment, the proposed change to 80 : 20 is not appropriate as the market conditions for lenders have not changed.

31. International Finance Corporation as a commentator has submitted that with a debt equity ratio of 80 : 20, the expected debt service coverage ratios would not be sufficient to provide comfort to lenders. With further downgrading of the country's risk ratings and the current power sector challenges, projects based on a debt to equity ratio of 80 : 20 are expected to face difficulty to raise finances.

32. The Authority has noted that debt equity ratio of 80 : 20 was considered in the draft upfront tariff proposal on the basis of stipulation of Policy For Development Of Renewable Energy

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For Power Generation 2006. The Authority has also noted that it has determined cost plus tariff for quite a few wind power generation companies on the basis of debt equity ratio of 80 : 20. The Authority however observed that arguments forwarded by various stakeholders need to be considered and is of the opinion that wind power generation companies might be required to raise finances with a higher equity component than 20% of the project cost considered in the draft upfront tariff proposal. The Authority has therefore decided to consider debt equity ratio of 75 : 25 in the upfront tariff, as was considered in the upfront tariff of 2011.

Separate upfront tariff for Gharo

33. The Authority in the draft upfront tariff proposal has specified a single uniform upfront tariff. Three interveners (intervener no. 5, 12 and 16) located in the Gharo area have not supported this aspect of the proposal and have requested for determination of a separate upfront tariff for Gharo area. Major submissions of the interveners are as follows:

- In the Gharo wind corridor land is inter-tidal in nature and sites are full of creeks and underground water. The civil costs in Gharo area are considerably higher, than in the Jhampir and other adjoining areas that have solid land. The turbine foundations in Gharo need to be deep pile foundations compared to spread/raft foundations for the Jhampir area.

- The annual maintenance cost in Gharo area is at least 25% higher than in the Jhampir area due to a very corrosive atmosphere that requires additional maintenance during life of the project. The additional cost is also attributable to high maintenance requirements of the access roads and the internal road network that are subject to the ebb and flow of tides and erode on a regular basis.

- The average wind speed in Gharo area is considerably lower than in the Jhampir area. In the recent years the average wind speed in Gharo area has ranged between 7.1 to 7.3 m/s whilst in Jhampir area the range is 7.5 to 7.7 m/s. Hence, the energy yield numbers can be much lower on a comparative basis. AEDB has installed three wind measuring masts, with the collaboration of UNDP, and a report has been published by them after evaluation of data for three years (2008 to 2010). The AEDB report has evaluated the average wind speed of their Keti-Bundar mast to be 6.9 m/s. Additionally the mean wind speed during any month does not exceed 9.4 m/s, whilst in the benchmark the mean wind speed during July is 11.3 m/s and in August it is specified as 10.3 m/s. This major difference in wind speed distribution substantially reduces the projected annual energy generation. In view of these contentions, the Authority should not base its evaluation on the RISOE approved generation of 157 GWh for the Tenaga project, which has been

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worked out on the bench mark wind speed of 7.3 m/s and the distribution as provided by AEDB.

- The Authority, in the upfront tariff of 2011, noted the importance of having site specific upfront tariff for Gharo. It directed AEDB to submit, at the earliest, a proposal for the development of site specific upfront tariff. Despite the Authority's directions, to date no Gharo specific upfront tariff has been developed.

- The upfront tariff regulations require that the upfront tariff shall be site/region specific.

34. In the upfront tariff of 2011, the Authority had noted that it was desirable that site specific upfront tariff be developed and determined. The Authority had directed AEDB in the said determination to develop and submit a proposal, for development of site specific upfront tariff for consideration of the Authority at earliest. However, AEDB has submitted that in most countries single upfront tariff is determined by the national regulator for the entire country and it is not possible for it or any other agency to account for all the factors like wind speed and corresponding energy output, cost of construction, nature of soil, foundation structures and their cost, transportation, access to the site, etc. in order to determine site specific upfront tariff. Further, on a specific query AEDB has suggested for determining a single uniform upfront tariff. The Authority has considered the matter and for the time being has decided to determine a single uniform upfront tariff.

<u>Duties and taxes</u>

35. Draft upfront tariff proposal provided that duties imposed up to COD on the wind power generation company, not being of refundable nature, will be allowed as a pass through cost upon production of verifiable documentary evidence.

36. Interveners no. 2, 3, 4, 7, 10, 11, 14 and 15 have objected to some aspects of the draft upfront tariff proposal on this issue and have submitted that all the duties and taxes may be allowed as a pass through cost. Major submissions of the interveners are as follows:

- Withholding tax on dividends was accounted for at the rate of 7.5% of return on equity component in the upfront tariff of 2011. This tariff was further subject to adjustment in case of any change in the tax rate applicable on dividends. Withholding tax on dividends has not been catered for under the draft upfront tariff proposal.

- The proposed draft upfront tariff proposal only takes into account duties imposed prior to COD. The upfront tariff of 2011 factored in all the duties applicable on the project

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companies. Moreover, income tax on project company's profits was also allowed as a pass-through cost.

37. The Authority has considered the submissions of the stakeholders. The terms and conditions allowed by the Authority, permitting duties and taxes as a pass through cost are detailed in paragraph xiii of the order.

Tentative opinion under rule 14 of the tariff rules

38. Intervener no. 1 has submitted that the tariff rules enable the Authority to issue a tentative opinion before a final tariff determination is issued. It has submitted that in order to avoid complications and ambiguities, and to avoid any reviews, the Authority may issue a tentative opinion under rule 14 of the tariff rules, giving all the stakeholders reasonable time to comment, and only then issue the final tariff determination of upfront tariff.

39. The Authority has considered the submissions of the intervener and has observed that in order to determine the upfront tariff, the Authority developed a draft upfront tariff proposal whose salient features along with notice of public hearing were published in the national newspapers, separate notices were also given to various stakeholders and a public hearing was held with the objective of obtaining input of the stakeholders on the proposed upfront tariff and its underlying terms and conditions. In view of the exhaustive measures already taken by the Authority to arrive at a just and informed decision, addition of another step i.e. issuance of a tentative opinion will only cause unnecessary delay in the determination of upfront tariff. The Authority has therefore decided not to accede to this request of the intervener.

Maximum aggregate capacity

40. Draft upfront tariff proposal provided that it will be available for the first 1,500 MW of wind power generation companies in Pakistan. Intervener no. 10 has submitted that the Authority might consider incorporating a tariff digression mechanism within the upfront tariff whereby the proposed tariff is reduced by Rs. X / kWh upon achievement of financial close/commercial operations by the first 1,000 MW of wind power generation companies and Rs. Y / kWh upon achievement of financial close / commercial operations by the next 500 MW of wind power generation companies and so on, with an option to review the proposal altogether based on petitions submitted by potential wind power generation companies.

41. The Authority after considering the stipulations of grid code regarding wind power plants, the fact that it has already issued tariff determinations for a number of wind power generation

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companies under the cost plus tariff regime and comments of the stakeholders, has decided that this upfront tariff will be available for 500 MW of wind power generation companies in Pakistan.

Carbon credits

42. The upfront tariff has not taken into account future proceeds with respect to certified emission reductions in tariff calculations. In case the companies opting for upfront tariff become entitled to receive carbon credits, the same shall be processed and obtained expeditiously and credited to the power purchaser as per Policy For Development Of Renewable Energy For Power Generation 2006, as amended from time to time.

Cost plus basis vs. upfront tariff regime

43. The terms and conditions of upfront tariff vary from the terms and conditions of tariffs determined by the Authority under cost plus tariff regime, therefore reference to any individual upfront tariff component or any of its terms/conditions will not be considered as a valid ground for any tariff petition filed before the Authority.

Package deal

44. The upfront tariff is a take it or leave it package deal. Any request for modification in upfront tariff or any of its terms/conditions, to meet the specific or unique requirements of any of the wind power generation companies, shall not be considered by the Authority whatsoever. Further, the Authority is of the opinion that investors instead of seeking further details regarding the underlying methodology adopted by the Authority for arriving at the upfront tariff, which will be of little use to them for making investment decisions for any particular project, should instead make their own calculations and develop their own business models to make their projects viable within the total approved upfront tariff.

Others

45. Upfront tariff of 2011 allowed pre COD sale of electricity. Interveners no. 2, 3, 4, 6, 7, 9, 10, 12, 14 and 15 have submitted that pre COD sale of electricity to power purchaser may be allowed under the new upfront tariff. Further, an intervener has submitted that relevant language under the upfront tariff of 2011 has been interpreted by the power purchaser as not obligating it to pay the return on equity component of tariff to the power producer. The Authority has considered the issue and has decided that pre COD sale of electricity should be allowed to the power producer, subject to the terms and conditions of EPA, at the applicable tariff excluding principal repayment of debt component and interest component. The

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Authority further clarifies that tariff for pre COD sale of electricity should include the applicable return on equity component of tariff.

46. Mr. Akthar Ali a commentator has submitted that in nearby India, with a considerably lower wind resource quality, the wind power tariff is under 8 cents and is in most places non-escalable. The reason is lower capital cost and lower interest rates. Mr. Akthar Ali has also submitted that wind power purchase agreements should be auctioned and bids invited from the international companies. The Authority is aware regarding the costs of wind power generation in its neighboring countries and is also conscious that in those countries wind power generation is a well established industry. The Authority considers that each country has its own dynamics. Wind power tariff is dependent on a variety of aspects including the extent of availability of indigenous plant, machinery and related infrastructure, incentives/subsidies being offered by the governments for wind power generation, stage of development of wind power generation market, macroeconomic situation of the country, technical knowhow available in the country, etc. In view of the aforementioned factors and nascent stage of development of wind power generation in Pakistan, the Authority considers that its wind power generation costs are not comparable to those of its neighboring countries. Further, the proposal regarding auctioning of wind power generation sites needs to be considered by AEDB.

47. Intervener no. 1 has submitted that the notice of hearing states that the draft upfront tariff proposal is based on the information provided by AEDB. However, the workings, methodology and the basis employed by the Authority for the proposed upfront tariff and its terms are not apparent to it. The Authority has noted that AEDB was required to submit its proposal for site specific upfront tariff on November 15, 2012 however the same was not submitted by it. Resultantly the Authority itself developed the draft upfront tariff proposal and published salient features of the same in the national newspapers. Interveners and other stakeholders have commented in detail about various aspects of the draft upfront tariff proposal therefore it is surprising that AEDB, the national facilitating agency for the development of renewable energy, remained unaware of the basis employed by the Authority for the draft upfront tariff proposal. The Authority also noted that AEDB was directed during the public hearing to provide within 10 days the detailed working/analysis on the basis of presumptions, assumptions, comments and the data provided by an intervener. However, AEDB did not provide its comments despite specific directions of the Authority.

48. Majority of interveners after making other submissions have requested for extension in the validity of upfront tariff of 2011, with some of the interveners requesting for modification of some of its terms. The Authority has already decided in principle that upfront tariff of 2011 needs to be revised and has accordingly gone ahead with the entire process of determining

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the fresh upfront tariff. The Authority considers that granting extension in the validity of upfront tariff of 2011, without considering the implications of latest information that is available with it is not prudent.

49. Some of the interveners have submitted that under the upfront tariff of 2011, the power purchaser while negotiating EPA did not agree to allow payments when it was unable to evacuate energy with no fault of the seller. They have submitted that such payments have been allowed to wind power generation companies who have signed EPA under the cost plus tariff regime. Further, no project will take the risk of non-evacuation of power, where seller is not at fault. The Authority has considered the issue and hereby directs the power purchaser to allow, after commencement of commercial operations, in principle the same terms and conditions to companies opting for the upfront tariff, with due alteration of details, regarding payments due to non-evacuation of electricity due to fault of the power purchaser, as are being allowed to wind power generation companies under the cost plus tariff regime. Further, the Authority has also decided that upfront tariff will be granted to any applicant only when the power purchaser along with its consent for procurement of electricity certifies that it will have the necessary infrastructure ready and in place to evacuate all the power supplied by the applicant.

50. Other issues raised by the interveners/stakeholders included that rate of return on equity and spread over LIBOR allowed for foreign debt should be further enhanced, fixed rate equivalent of LIBOR instead of a floating rate benchmark should be considered, adjustments for variation in capital cost based on actual draw downs and dollar/rupee parity during construction period may be allowed, indexation for companies under local financing should:

- Not be restricted to 270 days but should be extended upto 18 months
- The Rupee Dollar parity for 20% of cost under local financing should be fixed at financial closing date
- Foreign exchange rate to be used should be the relevant exchange rate at the time of true up and not the average exchange rate during the 270 days after financial closing.
- Projects under local financing may be allowed one-time indexation at COD against fluctuations in PKR/USD exchange rate.

The Authority has considered all the aforementioned and other submissions made by the stakeholders and has decided not to allow changes as proposed by the stakeholders in the basis/mechanisms of upfront tariff.

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51. ORDER

The Authority hereby determines and approves the following upfront tariff for wind power generation, for delivery of electricity to the power purchaser:

REFERENCE TARIFF ON BOO BASIS

Years	O & M	Insurance	Return on equity	Principal repayment of debt	Interest	Total tariff
1	1.6040	0.7833	4.6902	5.2331	3.2496	15.5602
2	1.6040	0.7833	4.6902	5.5025	2.9802	15.5602
3	1.6040	0.7833	4.6902	5.7857	2.6970	15.5602
4	1.6040	0.7833	4.6902	6.0836	2.3991	15.5602
5	1.6040	0.7833	4.6902	6.3967	2.0860	15.5602
6	1.6040	0.7833	4.6902	6.7260	1.7567	15.5602
7	1.6040	0.7833	4.6902	7.0722	1.4105	15.5602
8	1.6040	0.7833	4.6902	7.4362	1.0465	15.5602
9	1.6040	0.7833	4.6902	7.8190	0.6637	15.5602
10	1.6040	0.7833	4.6902	8.2215	0.2612	15.5602
11 to 20	1.6040	0.7833	4.6902	-	-	7.0775
Levelized – Rs./kWh.						13.1998
Indexation	PKR/US $ & US CPI	PKR/US $	PKR/US $	PKR/US $	PKR/US $ & LIBOR	

Levelized tariff discounted at 10% per annum works out to US cents 13.5244/kWh.

i) This tariff is applicable for wind power generation only.

ii) This tariff will be limited to the extent of net annual energy generation supplied to the power purchaser upto 31% net annual plant capacity factor. Net annual energy generation supplied to the power purchaser in a year, in excess of 31% net annual plant capacity factor will be charged at the following tariffs:

Net annual plant capacity factor	% of the prevalent tariff
Above 31% to 32%	75%
Above 32% to 33%	50%
Above 33% to 34%	25%
Above 34% to 35%	20%
Above 35%	10%

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iii) The power purchaser will not take the wind risk; relevant wind power generation company (hereinafter referred to as the "company") will be required to account for this risk.

iv) Only wind power generation companies (hereinafter referred to as the "companies") meeting the following conditions will be eligible for this tariff:
- Companies recommended by the Alternative Energy Development Board for the grant of upfront tariff.
- Companies whose proposed plant and machinery is confirmed to be new and of acceptable quality by the Alternative Energy Development Board.
- Companies with installed capacity in the range of 05 MW to 250 MW.
- Companies who have the consent of the power purchaser for procurement of electricity, along with a certificate from the power purchaser that it will have the necessary infrastructure ready and in place to evacuate all the power supplied by the applicant.

v) The choice to opt for this tariff will only be available upto 365 days from the date of its determination by the Authority. Further, this tariff will only be valid for approvals given for the first 500 MW of companies.

vi) The companies opting for this tariff will have to achieve financial close by September 30, 2014. The up-front tariff granted to any company will no longer remain applicable/valid, if financial close is not achieved by the relevant company by September 30, 2014 or a generation license is declined to that company.

vii) The decision to opt for upfront tariff once exercised will be irrevocable.

viii) In the above tariff no adjustment for certified emission reductions has been accounted for. However, upon actual realization of carbon credits, the same shall be distributed between the power purchaser and the power producer in accordance with the Policy For Development Of Renewable Energy For Power Generation 2006, as amended from time to time.

ix) The targeted maximum construction period after financial close is 18 months. No adjustment will be allowed in this tariff to account for financial impact of any delay in project construction. However, the failure of a project to complete construction within 18 months of financial close will not invalidate the tariff granted to it.

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x) This tariff will be applicable for a period of twenty years (20) from the commencement of commercial operations.

xi) The terms and conditions specified here in form an integral part of this tariff.

xii) <u>Adjustment for loan structure</u>

<u>100% foreign loan(s)</u>

This tariff has been calculated on the basis of project financing structure of equity plus 100% foreign loan. All companies are eligible to apply for this tariff, irrespective of their actual financing structure.

Indexations/adjustment in this case will be allowed in accordance with the mechanism for indexations/ adjustment applicable for tariff calculated on the basis of project financing structure of equity plus 100% foreign loan as detailed in xiv (A) below.

<u>100% local loan(s) and mixed loans i.e. mixture of foreign and local loans</u>

In view of material variations between the cost of local and foreign financing, companies with the proposed loan composition other than the one mentioned above i.e. 100% foreign, have the one time option to make an irrevocable request for allowing a tariff computed in accordance with their proposed loan composition. In such cases, the Authority after consideration will allow a two part tariff (in case of 100% local loan part 1 will be nil) on the basis of request as follows:

Part 1	=	Tariff calculated on the basis of project financing structure of equity plus 100% foreign loan x Foreign debt of the relevant company as a percentage of its total debt
Part 2	=	Tariff calculated on the basis of project financing structure of equity plus 100% local loan (Note 1) x Local debt of the relevant company as a percentage of its total debt

Note 1 : Upfront tariff calculated on the basis of project financing structure of equity plus 100% local loan, along with its applicable onetime adjustment, is attached as Annex–I.

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All the terms and conditions detailed in this order will, with due alteration of details, also apply to two part tariff allowed to any company.

In case of two part tariff, part 2 initially granted, will be subsequently adjusted, after 270 days of financial close of the relevant company, in accordance with the onetime adjustment mechanism stipulated in **Annex-I**. The relevant company shall make a request for allowing onetime adjustment within 15 days of adjustment becoming due i.e. after 270 days of its financial close.

Indexations/adjustment for part 1 will be allowed in accordance with the mechanism for indexations/ adjustment applicable for tariff calculated on the basis of project financing structure of equity plus 100% foreign loan as detailed in xiv (A) below.

Indexations/adjustment for part 2 will be allowed in accordance with the mechanism for indexations/adjustment for tariff calculated on the basis of project financing structure of equity plus 100% local loan as detailed in xiv (B) below.

General

The tariff once allowed (i.e. on the basis of 100% foreign loan, 100% local loan or mixture of foreign and local loan) will not be subject to any further change, regardless of any subsequent change(s) in the financing structure, etc., except for the adjustment in accordance with the onetime adjustment mechanism detailed in **Annex-I**, where applicable, and the application of relevant indexations/adjustments as detailed in this order.

xiii) Pass-Through Items

If the company is obligated to pay any tax on its income from generation of electricity from wind, or any duties and/or taxes, not being of refundable nature, are imposed on the company upto the commencement of its commercial operations for import of its plant, machinery and equipment, the exact amount paid by the company on these accounts shall be reimbursed by the power purchaser on production of original receipts. This payment should be considered as a pass-through payment spread over a twelve months period. Furthermore, in such a scenario, the company shall

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also submit to the power purchaser details of any tax savings and the power purchaser shall deduct the amount of these savings from its payment to the company on account of taxation.

The adjustment for duties and/or taxes will be restricted only to the extent of duties and/or taxes directly imposed on the company. No adjustment for duties and/or taxes imposed on third parties such as contractors, suppliers, consultants, etc., excluding adjustment for taxes imposed on dividend as stated below, will be allowed.

Withholding tax on dividends will also be allowed as a pass through item just like other taxes. The power purchaser shall make payment on account of withholding tax at the time of actual payment of dividend, on production of original receipts, subject to maximum of 7.5% of return on equity. In case the company does not declare a dividend in a particular year or only declares a partial dividend, then the difference in the withholding tax amount (between what is paid in that year and the total entitlement as per the net return on equity) would be carried forward and accumulated so that the company is able to recover the same as a pass through from the power purchaser in future on the basis of the total dividend payout. Adjustment for variation in tax rate on dividend from 7.5% shall also be allowed as a pass through item by the power purchaser, after satisfying itself that tax rates have actually varied. The company shall also submit to the power purchaser details of any tax savings and the power purchaser shall deduct the amount of these savings from its payment to the company on account of taxation.

xiv) <u>Indexations/adjustment</u>

The tariff allowed to any company, after onetime adjustment where applicable, will remain unchanged throughout the tariff control period, except for the adjustments due to indexations/adjustment detailed in this order. The indexations of O & M, return on equity, principal repayment of debt and interest will be allowed on quarterly basis on 1st July, 1st October, 1st January and 1st April. Insurance component will be adjusted annually. The mode of indexations/adjustment will be as under:

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A) INDEXATIONS/ADJUSTMENT APPLICABLE FOR TARIFF CALCULATED ON THE BASIS OF PROJECT FINANCING STRUCTURE OF EQUITY PLUS 100% FOREIGN LOAN

a) Indexations applicable to O & M:

$OM_{(FREV)} = OM_{(FREF)} * US\ CPI_{(REV)} / US\ CPI_{(REF)} * ER_{(REV)} / ER_{(REF)}$

Where:

$OM_{(FREV)}$	=	The revised applicable O & M tariff component indexed with US CPI and exchange rate parity
$OM_{(FREF)}$	=	The reference O & M tariff component for the relevant period
$US\ CPI_{(REV)}$	=	The revised US CPI (all urban consumers) based on latest available information with respect to US CPI (notified by US Bureau of Labor Statistics)
$US\ CPI_{(REF)}$	=	Reference US CPI (all urban consumers) – Current reference 229.601 US CPI (all urban consumers) for the month of December 2012 as notified by the US Bureau of Labor Statistics
$ER_{(REV)}$	=	Revised TT & OD selling rate of US Dollar as notified by the National Bank of Pakistan as at the last day of the preceding quarter
$ER_{(REF)}$	=	Reference TT & OD selling rate of US dollar – current reference 97.60

b) Adjustment of insurance component

In case of insurance denominated in US $, insurance cost component of tariff will be adjusted only on account of US $/PKR exchange rate variation annually, not exceeding the insurance cost actually incurred. For availing this adjustment, relevant company will have to

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substantiate through authentic documentary evidence that the insurance cost allowed to it (from COD to date) does not exceed the insurance cost actually incurred.

c) Indexations applicable to return on equity

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

Where:

$ROE_{(FREV)}$ = The revised applicable return on equity tariff component indexed with exchange rate parity

$ROE_{(FREF)}$ = The reference return on equity tariff component for the relevant period

$ER_{(REV)}$ = Revised TT & OD selling rate of US Dollar as notified by the National Bank of Pakistan as at the last day of the preceding quarter

$ER_{(REF)}$ = Reference TT & OD selling rate of US dollar – current reference 97.60

d) Indexations applicable to principal repayment of debt

$$P_{(FREV)} = P_{(FREF)} * ER_{(REV)} / ER_{(REF)}$$

Where:

$P_{(FREV)}$ = The revised applicable principal repayment of debt tariff component indexed with exchange rate parity

$P_{(FREF)}$ = The reference principal repayment of debt tariff component for the relevant period

$ER_{(REV)}$ = Revised TT & OD selling rate of US Dollar as notified by the National Bank of Pakistan as at the last day of the

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preceding quarter

$ER_{(REF)}$ = Reference TT & OD selling rate of US dollar – current reference 97.60

e) <u>Indexations applicable to interest after achieving COD</u>

$$I_{(FREV)} = [\, I_{(FREF)} * ER_{(REV)} / ER_{(REF)}] + [\, B_{(FREF)} * ER_{(REV)} * (LIBOR_{(REV)} - 0.301\%)/135{,}780{,}000]$$

Where:

$I_{(FREV)}$ = The revised applicable interest tariff component indexed with 3 months LIBOR and exchange rate parity

$I_{(FREF)}$ = The reference interest tariff component for the relevant period

$ER_{(REV)}$ = Revised TT & OD selling rate of US Dollar as notified by the National Bank of Pakistan as at the last day of the preceding quarter

$ER_{(REF)}$ = Reference TT & OD selling rate of US dollar – current reference 97.60

$B_{(FREF)}$ = The base amount (as indicated in Annex – II) on a quarterly basis. Quarter 1 shall commence on the commercial operations date (i.e. the first figure will be used for calculation purposes of interest for the first quarter after COD)

$LIBOR_{(REV)}$ = Revised 3 months LIBOR rate as at the last day of the preceding quarter

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B) INDEXATIONS/ADJUSTMENT APPLICABLE FOR TARIFF CALCULATED ON THE BASIS OF PROJECT FINANCING STRUCTURE OF EQUITY PLUS 100% LOCAL LOAN

a) Indexations applicable to O & M:

$OM_{(LREV)} = OM_{(LREF)} * US\ CPI_{(REV)} / US\ CPI_{(REF)} * ER_{(REV)} / ER_{(REF)}$

Where:

$OM_{(LREV)}$	=	The revised applicable O & M tariff component indexed with US CPI and exchange rate parity
$OM_{(LREF)}$	=	The reference O & M tariff component for the relevant period
$US\ CPI_{(REV)}$	=	The revised US CPI (all urban consumers) based on latest available information with respect to US CPI (notified by US Bureau of Labor Statistics)
$US\ CPI_{(REF)}$	=	Reference US CPI (all urban consumers) – Current reference 229.601 US CPI (all urban consumers) for the month of December 2012 as notified by the US Bureau of Labor Statistics
$ER_{(REV)}$	=	Revised TT & OD selling rate of US Dollar as notified by the National Bank of Pakistan as at the last day of the preceding quarter
$ER_{(REF)}$	=	Reference TT & OD selling rate of US dollar – current reference 97.60

b) Adjustment of insurance component

In case of insurance denominated in US $, insurance cost component of tariff will be adjusted only on account of US $/PKR exchange rate variation annually, not exceeding the insurance cost actually incurred. For availing this adjustment, relevant company will have to

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substantiate through authentic documentary evidence that the insurance cost allowed to it (from COD to date) does not exceed the insurance cost actually incurred.

c) Indexations applicable to return on equity

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

Where:

$ROE_{(LREV)}$	=	The revised applicable return on equity tariff component indexed with exchange rate parity
$ROE_{(LREF)}$	=	The reference return on equity tariff component for the relevant period
$ER_{(REV)}$	=	Revised TT & OD selling rate of US Dollar as notified by the National Bank of Pakistan as at the last day of the preceding quarter
$ER_{(REF)}$	=	Reference TT & OD selling rate of US dollar – current reference 97.60

d) Indexations applicable to interest

$$I_{(LREV)} = I_{(LFIN)} + [B_{(LFIN)} * (KIBOR_{(REV)} - 9.29\%)/135{,}780{,}000]$$

Where:

$I_{(LREV)}$	=	The revised applicable interest tariff component indexed with 3 months KIBOR
$I_{(LFIN)}$	=	The interest tariff component after allowing onetime adjustment for exchange rate parity
$B_{(LFIN)}$	=	The revised base amount (as indicated in Annex – III) on quarterly basis after allowing onetime adjustment for

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		exchange rate parity. Quarter 1 shall commence on the commercial operations date (i.e. the first figure will be used for calculation purposes of interest for the first quarter after COD)
KIBOR (REV)	=	Revised 3 months KIBOR as at the last day of the preceding quarter

Note:
Above described indexations/adjustments will be approved and announced by the Authority within fifteen days of the petitioner's request for indexations/adjustments in tariff in accordance with the requisite mechanisms stipulated herein.

xv) Other Terms and Conditions of Tariff:

a. Design & Manufacturing Standards:

Wind turbine 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.

b. Emissions Trading/Carbon Credits:

The company granted this tariff shall process and obtain emissions/carbon credits expeditiously and credit the proceeds to the power purchaser in accordance with the Policy For Development Of Renewable Energy For Power Generation 2006, as amended from time to time.

c. General:

- The power purchaser before signing the Energy Purchase Agreement shall satisfy itself that the plant and machinery proposed to be installed is new, is of a quality acceptable to it and is the same as certified to be of acceptable quality by the AEDB.
- The Energy Purchase Agreement should stipulate terms and conditions, regarding periodic physical inspection of plant and machinery, ensuring that the power plant of the company allowed this

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tariff is properly maintained and continues to supply energy for the entire tariff control period of 20 years.

- Pre COD sale of electricity is allowed to the power producer, subject to the terms and conditions of EPA, at the applicable tariff excluding principal repayment of debt component and interest component. However, pre COD sale will not alter the required commercial operations date stipulated by the Energy Purchase Agreement in any manner.

- General assumptions, which are not covered in this determination and National Electric Power Regulatory Authority Upfront Tariff (Approval & Procedure) Regulations, 2011, may be dealt with as per the standard terms of the Energy Purchase Agreement.

AUTHORITY

16 4 XIII
(Khawaja Muhammad Naeem)
Member

(Maj. (R) Haroon Rashid)
Member

18/4/2013
(Habibullah Khilji)
Member

(Shaukat Ali Kundi) 22.04.13
Vice Chairman

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UPFRONT TARIFF CALCULATED ON THE BASIS OF PROJECT FINANCING STRUCTURE OF EQUITY PLUS 100% LOCAL LOAN ALONG WITH ITS APPLICABLE ONETIME ADJUSTMENT

1. Reference tariff on BOO Basis

Years	O & M	Insurance	Return on equity	Principal repayment of debt	Interest	Total tariff
1	1.6040	0.7833	4.9780	3.8600	8.5091	19.7344
2	1.6040	0.7833	4.9780	4.3567	8.0124	19.7344
3	1.6040	0.7833	4.9780	4.9174	7.4517	19.7344
4	1.6040	0.7833	4.9780	5.5501	6.8190	19.7344
5	1.6040	0.7833	4.9780	6.2643	6.1048	19.7344
6	1.6040	0.7833	4.9780	7.0704	5.2987	19.7344
7	1.6040	0.7833	4.9780	7.9803	4.3888	19.7344
8	1.6040	0.7833	4.9780	9.0072	3.3619	19.7344
9	1.6040	0.7833	4.9780	10.1662	2.2029	19.7344
10	1.6040	0.7833	4.9780	11.4744	0.8947	19.7344
11 to 20	1.6040	0.7833	4.9780	-	-	7.3653
Levelized – Rs./kWh.						16.2926
Indexation	PKR/US $ & US CPI	PKR/US $	PKR/US $	-	KIBOR	

2. This tariff is calculated on the basis of project financing structure of equity plus 100% local loan.

3. Onetime adjustment for PKR / US $ exchange rate variation

The base amount for quarter 1 (as indicated in Annex-III) will be adjusted for exchange rate variation, after 270 days of the financial close of the relevant company, in accordance with the onetime adjustment mechanism stipulated below:

$$B_{(LFIN)} = (B_{(LREF)} \times 20\%) + (B_{(LREF)} \times 80\% \times ER_{(REV)} / ER_{(REF)})$$

Where:

$B_{(LFIN)}$ = The revised base amount for the first quarter after allowing onetime adjustment for exchange rate parity

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$B_{(LREF)}$	=	The reference base amount (as indicated in Annex – III) for the first quarter
$ER_{(REV)}$	=	The average, for a period of 270 days after financial close, of TT & OD selling rate of US dollar as notified by the National Bank of Pakistan
$ER_{(REF)}$	=	Reference TT & OD selling rate of US dollar i.e. 97.60

Note: After the revision of base amount of quarter 1, in accordance with the onetime adjustment mechanism stipulated above, the debt service schedule at Annex – III will be recalculated, on the same computation basis as already adopted, and revised principal repayment of debt and interest tariff components will be worked out for subsequent indexations, where applicable.

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Annex -II

Table for Base amount (Foreign Financing)

Relevant quarter	Base amount (in million US $)
1	92,203,119
2	90,417,168
3	88,608,666
4	86,777,326
5	84,922,861
6	83,044,979
7	81,143,383
8	79,217,776
9	77,267,853
10	75,293,307
11	73,293,827
12	71,269,099
13	69,218,804
14	67,142,619
15	65,040,217
16	62,911,266
17	60,755,433
18	58,572,376
19	56,361,753
20	54,123,216
21	51,856,411
22	49,560,982
23	47,236,568
24	44,882,802
25	42,499,314
26	40,085,728
27	37,641,665
28	35,166,739
29	32,660,562
30	30,122,737
31	27,552,867
32	24,950,545
33	22,315,362
34	19,646,904
35	16,944,749
36	14,208,473
37	11,437,645
38	8,631,828
39	5,790,581
40	2,913,456

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Annex - III

UPFRONT TARIFF WIND BASED PROJECTS
Debt Servicing Schedule For Indexations Only (Local Loan)

Relevant Quarter	Base amount	Repayment	Interest @ 9.29% + 3% spread	Closing Balance	Principal Repayment of debt Rs./kwh.	Interest Rs./kwh.
1	9,592,482,030	125,142,165	294,729,010	9,467,339,864	3.8600	8.5091
2	9,467,339,864	128,987,159	290,884,017	9,338,352,706		
3	9,338,352,706	132,950,289	286,920,887	9,205,402,417		
4	9,205,402,417	137,035,187	282,835,989	9,068,367,230		
5	9,068,367,230	141,245,593	278,625,583	8,927,121,637	4.3567	8.0124
6	8,927,121,637	145,585,364	274,285,812	8,781,536,274		
7	8,781,536,274	150,058,474	269,812,702	8,631,477,800		
8	8,631,477,800	154,669,020	265,202,155	8,476,808,779		
9	8,476,808,779	159,421,226	260,449,950	8,317,387,553	4.9174	7.4517
10	8,317,387,553	164,319,443	255,551,733	8,153,068,110		
11	8,153,068,110	169,368,158	250,503,018	7,983,699,952		
12	7,983,699,952	174,571,995	245,299,181	7,809,127,957		
13	7,809,127,957	179,935,719	239,935,456	7,629,192,238	5.5501	6.8190
14	7,629,192,238	185,464,244	234,406,932	7,443,727,993		
15	7,443,727,993	191,162,633	228,708,543	7,252,565,360		
16	7,252,565,360	197,036,105	222,835,071	7,055,529,255		
17	7,055,529,255	203,090,039	216,781,136	6,852,439,215	6.2643	6.1048
18	6,852,439,215	209,329,981	210,541,195	6,643,109,234		
19	6,643,109,234	215,761,645	204,109,531	6,427,347,590		
20	6,427,347,590	222,390,921	197,480,255	6,204,956,669		
21	6,204,956,669	229,223,882	190,647,294	5,975,732,786	7.0704	5.2987
22	5,975,732,786	236,266,786	183,604,390	5,739,466,000		
23	5,739,466,000	243,526,083	176,345,093	5,495,939,917		
24	5,495,939,917	251,008,422	168,862,754	5,244,931,496		
25	5,244,931,496	258,720,656	161,150,520	4,986,210,840	7.9803	4.3888
26	4,986,210,840	266,669,848	153,201,328	4,719,540,992		
27	4,719,540,992	274,863,279	145,007,897	4,444,677,713		
28	4,444,677,713	283,308,453	136,562,723	4,161,369,260		
29	4,161,369,260	292,013,105	127,858,071	3,869,356,155	9.0072	3.3619
30	3,869,356,155	300,985,208	118,885,968	3,568,370,947		
31	3,568,370,947	310,232,979	109,638,197	3,258,137,968		
32	3,258,137,968	319,764,887	100,106,289	2,938,373,082		
33	2,938,373,082	329,589,663	90,281,513	2,608,783,419	10.1662	2.2029
34	2,608,783,419	339,716,305	80,154,871	2,269,067,113		
35	2,269,067,113	350,154,089	69,717,087	1,918,913,024		
36	1,918,913,024	360,912,573	58,958,603	1,558,000,451		
37	1,558,000,451	372,001,612	47,869,564	1,185,998,839	11.4744	0.8947
38	1,185,998,839	383,431,362	36,439,814	802,567,478		
39	802,567,478	395,212,290	24,658,886	407,355,188		
40	407,355,188	407,355,188	12,515,988	(0)		

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

24-4-13

Denominator for tariff component calculation : 135,780,000