BEFORE THE

MAHARASHTRA ELECTRICITY REGULATORY COMMISSION

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Case No.17 (3), 3,4 & 5 of 2002

**IN THE MATTER OF
APPLICATION FILED BY THE (I) MAHARASHTRA STATE ELECTRICITY BOARD [MSEB], (II) SHRI PRATAP G. HOGADE, (III) RENEWABLE ENERGY DEVELOPERS ASSOCIATION OF MAHARASHTRA [REDAM], AND [IV] INDIAN WIND ENERGY ASSOCIATION [InWEA]
FOR
PROCUREMENT OF WIND ENERGY & WHEELING
FOR THIRD PARTY SALE AND OR SELF-USE**

**Shri P.Subramanyam, Chairman
Shri Jayant Deo, Member
Dr. Pramod Deo, Member**

Dated : 18th September 2003

ORDER

The Maharashtra Electricity Regulatory Commission, in exercise of the powers vested in it under section 22(1)(c) of the Electricity Regulatory Commissions (ERC) Act, 1998 and all other powers enabling it in this behalf, determines the power purchase and procurement process including the price for procurement of power by the MSEB, other Utilities and Licensees in the State from Wind Power Projects.

1.0 BACKGROUND

In 1996, the Government of Maharashtra announced its Policy for development of renewable energy projects. However, this policy failed to attract the private sector investment into the sector. Therefore, on March 12, 1998, the Government of Maharashtra issued revised policy based on Ministry of Non-Conventional Energy Sources (MNES), Government of India

(GoI) guidelines for the wind power projects. The highlights of the revised policy are given below:

- **Energy Purchase Rate:** All the delivered units would be purchased by MSEB @Rs.2.25 per unit base year 1994-95 and would escalate @5% every year thereafter. This escalation would be for the first 10 years of operation of the wind farm project. After 10th year, energy rate would remain constant for next three years (i.e. from 11th to 13th years) and would again escalate @5% every year from the 14th year for the next 7 years

- **Banking of Energy**: 100% delivered energy to MSEB grid from wind farm project could be banked for a period of 1 year. Any balance banked units will not be carried forward to the next year but these units would be purchased by MSEB at the prevailing power purchase rate

- **Transmission Losses**: The transmission losses from wind farm energy would be borne by MSEB for the first three years. From the fourth year MSEB would charge 1% of energy as transmission losses

- **Third party sale**: Sale of energy from the wind farm projects would be permitted by MSEB to any two industrial / commercial consumers per MW of installed capacity

- **Wheeling charges**: For the wheeled energy from the wind farm project MSEB would charge wheeling charges @2%

- **Power evacuation**: The expenses for creation of evacuation facilities at EHV / HV level would be borne by MSEB. Out of these expenses 50% of the expenses would be collected by Maharashtra Energy Development Agency (MEDA) from the wind farm developers and would pay to MSEB. From the sub-station to the project switchyard the expenses for the evacuation facilities would be borne by the Developer

- **Sales Tax benefit**: Sales tax deferral for 1/6th of qualifying amount would be permitted for the industry and its subsidiaries for the wind farm project developer

The MSEB revised its policy for power generation projects based on wind and solar energy vide its circular No.Co.ord/cell/CPP/Gen./NCSE/37702 dated 5th October 2001. This revised policy of MSEB deviated from the policy of GoM in many respects.

The Commission was set up in August 1999 and the Commission issued its Conduct of Business Regulations on 28th December 1999. The Conduct of Business Regulations mandated that all Power Purchase / Procurement transactions require approval of the Commission.

The MSEB by letter dated 4th March 2002 approached the Commission seeking approval of Energy Purchase from Wind/Solar Projects in line with their existing policy. The Commission advised them to file proper affidavit in fulfillment of section 22(1)(c) of the Act and regulations.

The MSEB stopped executing EPA/EWA and withheld payment/credit for the energy fed into the grid for sale to MSEB/self-use/sale to third party on the grounds that developers/owners have to obtain the approval of MERC under ERC Act 1998. As a result, the associations of Developers/Owners have approached the Commission by submitting applications praying for its intervention.

On 26th April 2002, Shri Pratap G.Hogade vide his Affidavit submitted petition requesting the Commission to look into the issues associated with the development of wind power projects. His application was registered as case Nos.3/2002. On 16th May 2002 MSEB under its Affidavit submitted two model drafts, namely (i) Energy Purchase Agreement [EPA], (ii) Energy Wheeling Agreement [EWA], for Commission's approval.

InWEA and REDAM submitted their affidavits on 3rd April 2002 and 8th May 2002 respectively and were registered as case Nos. 4/2002 and 5/2002. These applications were mainly for maintaining status quo in respect of providing

(a) energy credits to wind energy developers for supply to MSEB or wheeling for captive consumption/third party sale;
(b) for fixing of rate for third party sale of such energy and
(c) to look into the process of prevailing Govt. directives on procurement of such energy and thereby rationalizing the same.

The Commission conducted a hearing on 24th May 2002 to consider these applications. All the three applicants and officials of MSEB and MEDA were present. After hearing the views expressed by all concerned, the Commission observed that the purpose of hearing was limited to admissibility of applications for maintaining status quo as on December 1999. Detailed discussions on EPA/EWA and on determination of tariff could take place when the proposal will be put up for public hearing for which a notice inviting objections would be published in News Papers in due course. The Commission further observed that an interim Order on following lines could be considered.

(a) In case of sale to the MSEB, 70% of the payment to be released against valid NOCs and balance 30% shall be adjusted and released as per the final Order of the MERC as and when issued.

(b) To give credit for 85% of energy received for wheeling in the cases where credit is yet to be given and balance 15% after final Order of the MERC as and when issued.

(c) Credit for the energy fed to the grid between the period from the date of commissioning of the project and the identification of the third party, the MSEB to give adhoc credit for 70% of energy received.

(d) The MSEB to maintain status quo only for projects which were granted NOC before establishment of MERC or for projects whose NOC is only for self use of power and not for any combination of self use and third party sale or sale to the MSEB.

(e) The MSEB to submit detailed calculations and data/information/ proposal regarding (i) break-up of all NOCs issued for different purposes, (ii) impact of these NOCs on MSEB's revenue in the next five years assuming the tariff mentioned in the NOC at the prevailing HT tariff and (iii) to what extent the MSEB would buy energy/power from non-conventional energy projects considering least cost power purchase plan, impact on MSEB's finances etc.

(f) The wind energy developers to submit detailed financial evaluation of the projects with various depreciation, tax & other benefits along with the MS Excel worksheet of these calculations.

Accordingly, on 3rd June 2002, the Commission issued an interim Order in Case Nos. 3,4 & 5 of 2002.

The third meeting of the State Advisory Committee was held on 17th June 2002. This meeting was specifically called to discuss the issues related to the approval of Bagasse based captive/ cogeneration PPAs. During the meeting, the participants also expressed their views on policy support to be provided for power generation from Non-conventional energy sources in general. The Commission has taken into consideration their views while finalising this Order.

The Commission vide its letter dated 6th June 2002 had directed the Government of Maharashtra to submit the copies of the various policy decisions taken by the Government with regard to wind power generation. Accordingly, OSD, Inustries, Energy & Labour Department submitted vide its letter dated 19th June 2002 copies of GoM policies on wind power generation.

Neither the two associations nor individual developers were able to submit detailed project reports to the Commission. However, REDAM submitted two more applications; one vide Affidavit dated 28th June 2002 containing comments on GoM/MSEB policies, Model draft EWA of MSEB and the second vide Affidavit dated 27th August 2002 containing comments on model draft EPA of MSEB. It also submitted a letter dated 13th August 2002 providing information on the cost of a typical windfarm project, cost of generation and its further comments on GoM/MSEB policies and model draft EPA/EWA.

MSEB vide its Affidavit dated 5th July 2002 submitted the information required by the Commission vide its interim Order dated 3rd June 2002. The MSEB also provided revised impact analysis on its revenue due to purchase of wind power, wind power for self-use and sale to third party.

MEDA vide its letter dated 8th August 2002 submitted to the Commission data in respect of project cost and cash-flow statement for two of the demonstration projects taken up by themselves.

1.1 <u>Technical Validation Sessions</u>

<u>Session - I</u>

A technical validation session was held on 14th August 2002 which was attended by (i) the representatives of Wind Power Project Developers Association like REDAM and InWEA, (ii) consumer representatives u/s 26, (iii) Director General, MEDA, (iv) Advisor and Head of Power Group, MNES, Govt. of India, (v) Objectors - Shri Pratap G. Hogade and Shri Pradyumna Kaul and (vi) representative of MSEB. After hearing the views expressed by all concerned, the Commission concluded the session with the following observations:

(i) The Applicant (MSEB) shall submit within ten days, all the relevant data/DPR/ information on affidavit to the Commission with a copy each to (i) respondent developers, (ii) consumer representatives u/s 26 of the ERC Act, 1998, (iii) objectors.

(ii) The Respondents (developers i.e. REDAM and InWEA) shall submit within ten days, all the relevant data/DPR/information on affidavit including its consultant's reports duly signed, to the Commission with a copy each to (i) MSEB (ii) consumer representatives u/s 26 of the ERC Act, 1998, (iii) objectors.

(iii) The Government of Maharashtra shall forward within ten days the copy of affidavit submitted to the Commission to (i) MSEB (ii) consumer representatives u/s 26 of the ERC Act, 1998, (iii) objectors.

(iv) The objectors and consumer representatives u/s 26 of the ERC Act, 1998 shall submit, within ten days from the date of receipt, their rejoinder, if any, to the Commission with a copy to the Applicant and the Respondents, for their perusal.

In pursuance of the requirements indicated in the technical validation session held on 14th August 2002, following applications were submitted by the developers associations and others.

i) REDAM vide its letter dated 23.08.2002

ii) InWEA vide its Affidavit dated 26.08.2002

iii) REDAM's letter dated 09.08.2002 enclosing a copy of project report of M/s. Karma Engineering Ltd and a copy of the project report of Liberty Oil Mills.

iv) REDAM's application on Affidavit dated 28.11.2002 clarifying their views.

v) MSEB's letter dated 19.09.2002 submitting additional information.

vi) Comments of Janata Dal Secular on draft EPA/EWA of MSEB vide its letter dated 18.09.2002.

InWEA vide its application on Affidavit dated 29th August 2002 sought extension of applicability of the commission's interim Order dated 03.06.2002. This application was listed as case No.20/2002 and a hearing for its admissibility was held on 13th September 2002. The hearing was attended by the representative of InWEA who is the applicant, representative of Respondent MSEB, representative of REDAM, representative of Mumbai Grahak Panchayat, Objectors Shri Pratap G. Hogade and Shri Pradyumna Kaul and representative of MEDA. After hearing the views of all concerned, the Commission reserved the matter for Order.

The Commission, vide its letter dated 3rd October 2002 directed the MSEB to submit the basis of extending the interim relief to a few developers which were not included in Commission's interim Order. The MSEB clarified its position vide its letter dated 10th October 2002.

Session - II

Second technical validation session was held on 6th January 2003 for validation of the data/information provided by the stakeholders. Representatives of developers like REDAM and InWEA, consumer representatives u/s 26, objectors Shri Pratap G. Hogade and Shri Pradyumna Kaul, Director General MEDA, Advisor and Head of Power Group MNES Govt. of India and representative of MSEB attended this session. After hearing the views of all concerned, the Commission observed that no developer came up with relevant data as was required and also that developers or their representative associations failed to bring in transparency as mandated under the ERC Act 1998 in the whole process by refusing to divulge details.

In pursuance of the proceedings of the technical validation session held on 06.01.2003, further information on cost data, project-wise details, was provided by the following:

i) REDAM vide its application on affidavit dated 31.01.2003
ii) InWEA vide its application on affidavit-dated 07.01.2003.

However, no detailed project report as required by the Commission and other stakeholders were provided. Thus the Commission was constrained to proceed without adequate data and financial information.

1.2 PUBLIC HEARING PROCESS

Notice dated 10th March 2003 for public hearing to be held on 22nd April 2003 was published in English and Marathi News Papers. Summary of the Tariff Proposal under consideration was provided free of cost which was also available on the Commission's website. Detailed tariff proposal was provided for inspection and also for sale. Initially, comments/ objections were required to be submitted on or before 25th March 2003 upto 1700 Hrs.

Considering the representations of Prayas Pune, Shri Pratap G. Hogade and Shri S.R.Paranjpe, additional documents were provided for perusal as Supplementary Public Documents and the last date for submission of comments/objections was extended up to 1700 Hrs on 16th April, 2003 vide notice dated 29th March, 2003.

The public hearing was finally held on 22nd April, 2003. Subsequently, to facilitate the analysis of Capacity Utilisation Factor [CUF] based on operational wind generators, the Commission vide its letter dated 28th May, 2003 directed MSEB to submit sample data that was complied by MSEB vide its letter 21704 dated 1st July, 2003.

1.3 TARIFF PHILOSOPHY

The Commission derives its powers to determine tariffs for generation projects from Section 22(1)(c), which reads as follows:

"c) to regulate power purchase and procurement process of the transmission utilities and distribution utilities including the price at which the power shall be procured from the generating companies, generating stations or from other sources for transmission, sale, distribution and supply in the State;"

Further, Section 29 of the ERC Act prescribes the specific principles of tariff fixation. Relevant principles, which shall guide the Commission, are reproduced below:

"c) that the tariff progressively reflects the cost of supply of electricity at an adequate and improving level of efficiency;
d) the factors which would encourage efficiency, economical use of the resources, good performance, optimum investments, and other matters which the State Commission considers appropriate for the purpose of this Act;
e) the interest of the consumers are safeguarded and at the same time, the consumers pay for the use of electricity in a reasonable manner based on the average cost of supply of energy;
f) the electricity generation, transmission, distribution and supply are conducted on commercial principles"
g) national power plans formulated by the Central Government."

As one will notice that these sections do not mandate the Commission to use any particular methodology for determination of tariffs for either generation projects or for retail consumers. The Commission has generally been guided by the prudent practices of tariff determination which it has consistently used since its first major tariff Order in year 2000 for determination of tariff for the MSEB consumers. These principles are:

- No tariff shock to any class of consumers
- Consistency in principles and its applications
- Minimise Regulatory Uncertainty
- Uniform Principles for tariff setting
- Transparency
- Compliance of regulatory and judicial procedures

As mentioned earlier, the Commission had wide choice of methodologies to choose from while determining the tariffs for wind power projects. These methodologies and their relative merits have been discussed below:

a. <u>Long Run Marginal Cost</u>

The marginal cost is the cost incurred to supply an additional unit at a particular time, and it represents the cost to society for meeting that incremental demand. At times of peak demand, when additional or marginal capacity is likely to be called for, marginal cost will often exceed average cost; at other times, marginal costs is likely to be less than average cost.

The Short Run Marginal Cost typically includes only costs associated with generation of additional unit of electricity i.e. means only variable costs of generation while Long Run Marginal Costs [LRMC] also include a component of capacity charge or fixed charge component. However, as per classical economic principles this capacity charge component should reflect the cost advantages due to technological improvements, general trends in equipment and erection market. This results in subjectivity in determination of LRMC. Further, one will appreciate that since LRMC is function of the load, factors such as change in the load profile of the consumers, any new interconnection with other grid, type of generation added would have substantial impact on the LRMC at any particular point.

b. <u>Avoided Cost of Generation</u>

It is the fact that the power flows by displacement and therefore in economic terms the cost of the new power could be the cost of the power being replaced by new power. This cost is referred to as "Avoided Cost of Generation".

The Avoided Cost of Generation could be derived by identifying the generation, which is being replaced by the new generation project. This could be done by network analysis for various system conditions such as peak, off peak, and for seasonal and geographical variations of the demand. On identification of the generation being displaced, cost for that source of generation could be determined followed by cost of transmitting the same to the place of new generation. The new generation project could be awarded the addition of the two costs as tariff. This method is akin to Location Based Marginal Pricing methodology.

As one would expect, in any complex system, new generation would displace different generation during different systemic conditions. Further, the cost of generation depends on various parameters such as loading of the unit, weather, type and quality of fuel etc. Also, the cost of transmission varies depending on the loading of the lines, weather, actual transmission path followed etc. This makes it nearly impossible to determine the avoided cost of generation, which could be used as a proxy for determination of wind tariffs.

c. <u>Tariff prescribed by MNES</u>

The Commission notes that the MNES had prescribed the tariffs for purchase of power from various renewable sources of energy. Various state governments and utilities while purchasing the power have used these tariff guidelines. The utilities generally and in our specific case, the MSEB has argued that these prices are unrealistically high and provide windfall profits to developers which is against prudent principles of utility regulation.

The Commission had asked the MNES to clarify its position and submit rationale for these tariffs. The representative of the MNES during the course of proceedings has confirmed that the tariffs prescribed were essentially based on the tariffs of Independent Power Producers (IPP) Projects in the base year of 1994-95 and adopted to promote the non-conventional sources of energy and had not taken into account some of the benefits such as sales tax benefit offered by the State Governments subsequently. The MSEB as well as many other stakeholders had argued that these benefits have made these projects hugely profitable and therefore these benefits should be factored into the costs while developing tariffs.

d. <u>Tariffs based on the costs</u>

Another widely used methodology is calculation of tariffs by actually scrutinizing the costs of the project. While scrutinizing the costs, any concessions / tax exemptions availed by the promoters are factored into the costs. This method is used by Central Electricity Authority to accord the Techno-Economic Clearance to any power project. Since this method involves scrutiny of all aspects of the project such as costs, concessions, generation pattern, displacement etc, the tariffs so arrived provide equitable financial return to the developers while avoiding unsustainable burden on the consumers.

The Commission has analysed these options carefully and is inclined to use “Cost Plus” methodology for determination of tariff of wind projects. The factors, which have contributed to the Commission’s decision, are as follows:

- While Long Run Marginal Cost and Avoided Cost of Generation are likely to give correct economic signals, it is not possible in today’s context to arrive at the correct estimates for these numbers.

- Wind and other renewable technologies are operating at fringe i.e. generation from these technologies is insignificant as compared to that of conventional energy sources. Any change in generation price based on economic principles is unlikely to have impact on generation market, as price of large portion of generation is not giving any economic signals.

- Cost plus methodology will allow the investors to earn reasonable return commensurate to the risks borne by them

- This methodology will provide certainty of revenue to the investors, which in turn will make financing of these projects feasible.

- When the technology is evolving, rapid reduction in prices of the equipment is likely. Periodic review under the "Cost plus methodology" will allow the Commission to review cost elements at regular intervals and factor in the cost advantage of newer technology while deciding the tariffs for new projects.

- Lastly promotion of renewable energy to ensure that its share in energy mix reaches 10% over a period of time is part of the guidelines issued by the Ministry of Non-Conventional Energy Sources [MNES], Government of India. Thus, these guidelines are an integral part of the national power plans formulated by the Central Government - Section 29(1)(g) referred to above.

Therefore, the Commission decided to adopt the Cost Plus Methodology for determination of tariffs for wind energy projects.

The Commission had to make a choice between analysis of each individual wind project followed by tariff determination and analysis of the sample project and determination of tariff for that sample project. The Commission is aware of the fact that large number of the wind turbines are owned by individual/ small owners and thus each wind turbine is potentially a different project. Tariff determination for each project would have not only been impossible task for the Commission, it would not have also been economical for these wind turbine owners to pursue their cases. Also, this would have lead to different tariff for each project, which would have been very difficult for the MSEB to manage.

While analyzing sample projects, which were commissioned in last three years the Commission found wide variation in capacity utilisation factor (CUF) at same sites. Operational performance data suggest that wind power technology per se and its Operation and Maintenance (O&M) in Maharashtra are yet to fully stabilise. This suggested that "Cost Plus" approach if adopted mechanically might do injustice to developers who have taken the risk of investing in a technology, which is new to local conditions. The need to make an allowance for this uncertainty to protect investors' interest has to be recognized.

1.4 TARIFF PROPOSAL

In view of the considerations explained in earlier section, the Commission decided that it would analyse only representative cases and determine the tariffs for all wind turbines based on the analysis of these cases. However, the Commission noted that in terms of legal jurisdiction as well as policy application, three distinct types of wind projects exist.

Therefore, the Commission in its 33rd Meeting held on 23rd January 2003 decided that while dealing with approval of EPA/EWA with respect to wind energy projects submitted by the MSEB, broadly three groups shall be considered as follows:-

i) Projects, which were commissioned before the Commission framed its regulations i.e. 27th December 1999, under the then prevailing policy guide lines. Referred to as first group of projects. - **Group I**

ii) Projects, which will come up after 1st April 2003 under the policy guide lines to be formulated and suggested by the Commission. Referred to as future projects. - **Group III**

iii) Projects that have been commissioned during intervening period i.e. after 27th December 1999 and before 1st April 2003. Referred to as second group of projects. - **Group II**

Basic formulations approved by the Commission for finalization of the tariff proposal are as follows:-

a) For the first group of projects:- Since the Respondent as well as nodal agencies are not in a position to provide any data regarding these projects and since the number of projects under this category is small, it is not possible to determine the tariff. Further, these projects have been commissioned prior to the formulation of CBR by the Commission. Commission's jurisdiction over tariff for such projects is not clear. Therefore the Commission decided that then prevailing Government policy should continue to apply to such projects.

b) The future projects could be offered Front Loaded Tariff with a suggestion to the GoM to provide infrastructural support to promote the environment friendly power.

c) For the second group of projects, the tariff may be decided as per policy guidelines to be formulated by the Commission. However, benefits such as sales tax, accelerated depreciation, CDM etc. availed shall be shared by the developer with the MSEB. A formula to share these benefits to be worked out.

d) To determine T&D loss at local level, a study should be conducted by the Consultant. The Commission also decided that public hearing need not wait for completion of such a study.

Based on the above decisions of the Commission, the draft tariff proposals were prepared which were made available to public as a part of the documents for the public hearing process. These tariff proposals were essentially loud thinking of the Commission on how it could proceed in this matter.

Some of the issues faced by the Commission are as follows:

1) ***Should power be produced using only fastly depleting resources like coal thereby denying natural resources share to future generations?***

2) ***Who should share the higher cost for such environmentally benign power till the technology is matured?*** The power produced by renewable technology like wind/solar is more expensive in the initial years as the technology for the same is still new and not matured like for conventional coal based generation. Untill critical mass is created in this sector, the cost is unlikely to come down.

3) ***Should consumer support this promotions or only the government?*** Due to globalization the tax rates have moved southwards thereby reducing the government's ability to provide fiscal incentives for the promotion of such power. To what extent consumers can support these promotions, through higher energy charges? 1 paise, 5 paise, per kilowatt-hour, or any other amount.

Salient features of the Tariff Proposal (Given For Public Hearing):

The Commission believes that it is essential to encourage private sector capital investment in wind power projects in the State by enabling a remunerative return on the investment through tariffs. The Commission notes that this is the universal principle applied by the economic regulators all over the world to promote any particular technology. The Commission also wanted to ensure that undue burden on the electricity consumer in the State is not caused.

The Commission notes that in Cost Plus Approach, which the Commission has adopted, rate per unit charged by such projects during initial period of 10 years is bound to be higher as during this period the project has various debt related obligations. However, it is essential that the consumer is able to enjoy the benefit of cheaper power once all debt related obligations are paid off and project has virtually no variable costs.

The Commission notes that the tariff of wind power projects is likely to be substantially higher than the average cost of power purchase of the utility during initial ten-year period of the life of the project. This may cause marginal increase in the average cost of supply of the power by the Utility. If large numbers of wind power projects are developed during a very short period of time, there could be substantial impact on the average cost of supply of the utility, which will result in increase in tariffs. In Order that the electricity consumer in the State is not unduly burdened with a high tariff on this account, wind power capacity to be developed for sale to Utility in the remaining four years of the 10th Five Year Plan period from 01.04.2003 to 31.03.2007 shall be limited to 400 MW. No such limit has however been specified for projects to be developed for self-use or third party sale.

Wind power projects in the State have been classified into three groups for tariff determination;

Group I

The Commission notes that as per the information placed before the Commission, very few wind projects were commissioned before 27.12.1999. Very little or practically no data could be made available to the Commission either by the developers of the projects or by the nodal agency in the State. Moreover, investment in these projects was based on GoM's existing policy. Therefore, the Commission felt that these projects should be dealt with as per the policies of Govt. of Maharashtra prevailing then.

Group II

The Government of Maharashtra had offered sales tax benefit to wind power project developers during this period. All projects developed during this period availed this benefit except one. The developers of the project had claimed that the projects have been developed based on the guidelines of Ministry of Non Conventional Energy Sources (MNES), Govt. of India as adopted by the Govt. of Maharashtra (GoM). The GoM policy on wind power generation provided that rate payable shall be Rs.2.25 per unit in the base year 1994-95 with 5% escalation every year for the first 10 years. With 5% escalation on base year rate (simple escalation) every year, rate per unit payable with effect from 01.04.2003 works out to Rs.3.24.

Group III

The sales tax benefit offered by the Government of Maharashtra was available for projects commissioned before 31.03.2003. Therefore, any project commissioned after this date will not have any sales tax benefit.

The Commission has considered that no such sales tax benefit will be offered to the developers while developing the Tariff Proposal for this group of projects. While developing tariff for this category of projects, benefits due to improved technical specification such as lower cost per MW / Kwh, higher hub height, higher efficiency turbines have been taken into account.

While preparing Tariff Proposals for Group II and Group III following factors were taken into account:-

- Income Tax benefit is available through accelerated depreciation
- Tax exemption for ten year is available under section 80IA
- Maximum debt period is ten years
- Investors earn 16% Return on Equity as per national policy
- Capital investment is related to performance and better efficiency and reduction in cost is ensured.

The Commission gave wide publicity to tariff proposals so prepared and had wide discussion through public process already described.

The Commission has taken into account views expressed by various organizations, corporate, utilities, individuals, consumer representatives, and developers of the wind projects while taking decision on this important matter. The Commission has described its decision in the following paragraphs.

I.5 <u>TARIFF RATE AND TARIFF STRUCTURE</u>

The Commission determines that the tariff rate for energy delivered by wind power projects shall be as follows:

1.5.1 <u>Group I</u>

Wind power projects commissioned before 27.12.1999 i.e. before the Commission notified its regulations.

<u>For Sale to MSEB and other Utilities/ Licensees in the State</u>

The purchase price shall be as notified by the Government of Maharashtra vide its Order No. NPC/1097/CR-57/URJA-7 dated 12.03.1998, which is as follows:

Rs. 2.25 per unit in the base year 1994-95

The purchase rate shall be increased at 5% every year for the first ten years from the date of commissioning, no increase in rate for the next three years and 5% increase in rate every year for the next 7 years.

The Govt. of Maharashtra vide its Order No.NCP2000/PRA.KRA.775/ URJA-7 dated 07.01.2002 has decided that the 5% increase per year in the rate of purchase shall be on the compounded basis.

Adjustment for Self-use and Sale to Third Party

For the period ending 31.03.2003, credit shall be given as per the policy of GoM in force as on 27.12.1999.

From 01.04.2003 onwards, net energy delivered to the grid for self-use or for sale to third party shall be adjusted at the rate of prevailing base HT energy tariff.

1.5.2 **Group II**

Wind power projects commissioned after 27.12.1999 but before 01.04.2003 the tariff prescribed by the Commission is as follows:

For Sale to MSEB and other Utilities/ Licensees in the State

The Purchase rate shall be as notified by the GoM vides its Order No. NCP 1097/CR-75/NRG-7 dated 12th March 1998, i.e. Rs.2.25 per unit in the base year 1994-95. The purchase rate shall be increased at 5% per year (simple rate). The validity of EPA shall be only 8 years from the date of Commissioning in departure from GoM/MSEB policy. Reasons for this variation are discussed below:

While determining tariff for this group of projects

- Sales tax and accelerated depreciation benefits were factored in.
- Loan repayment period being 6 years it was envisaged that by giving a grace period of 4 years a wind farm developer will be able to repay the loan and earn 16% return on equity (RoE).
- In the 11th year investors will have the balance of equity and freedom to earn RoE determined by the market.

The results were : Rs. 2.50 per unit for the first year from the date of commissioning of the project. The purchase rate was to be increased at 10 paise per unit every year for a period of ten years from the date of commissioning of the project.

However, as mentioned in section1.3 this mechanistic approach of cost plus tariff fixation would not cover all the risks taken by the investor in a new technology which is still in the process of taking roots in the State. Moreover, these investors had developed their projects based on the guidelines of GoM. Though they could not be given GoM tariff for 20 years period, they should be allowed to sell energy to MSEB/Utilities at the rate indicated in that policy till loans taken by them were fully discharged. Comparison of two cash flow models suggests that loan repayment period after factoring in Sales tax and other benefits will be less than 5 years. Hence, by giving a grace period of 3 years these developers will be able to earn market return on their investments; they would have had more than 16% RoE during loan repayment period. This approach will also facilitate technology upgradation.

Adjustment for Self-use and Sale to Third Party

For the period ending 31.03.2003, credit shall be given as per the policy of GoM/MSEB in force as on 27.12.1999

From 01.04.2003 onwards, net energy delivered to the grid for self-use or for sale to third party shall be adjusted against the consumption made as per the TOD tariff time slots.

For projects not provided with TOD meters, the energy wheeled for self-use/ sale to third party shall be adjusted against the consumption made at lowest energy tariff slab/ time slot first and then at next higher slab and so on till such time appropriate meters are installed.

1.5.3 **Group III**

For wind power projects to be commissioned after 01.04. 2003 during the balance period of10th plan ending 31.03.2007, the tariff prescribed by the Commission is as follows:

For Sale to MSEB and other Utilities/ Licensees in the State

Rs. 3.50 per unit for the first year from the date of commissioning of the project.

The purchase rate shall be increased at 15 paise per unit every year for a period of thirteen years from the date of commissioning of the project.

Adjustment for Self-use and Sale to Third Party

Net energy delivered to the grid for self use or for sale to third party shall be adjusted against the consumption made as per the TOD tariff time slots. For projects not provided with TOD meters, the energy wheeled for self-use/ sale to third party shall be adjusted against the consumption made at lowest energy tariff slab/ time slot first and then at next higher slab and so on till such time appropriate meters are installed.

1.5.4 **Special Condition**

New wind power capacities to be permitted for sale to Utilities shall not be more than 750 MW during the balance period of 4 years of 10th Plan Period ending 31.03.2007. This ceiling is based on the target for wind power for the State of Maharashtra indicated by Director General, MEDA and urgent need for capacity addition through short gestation power projects. The Commission is of the view Maharashtra should reach more than 1000 MW of installed capacity during this plan period so that economies of scale and cost reduction would bring wind power on par with conventional power in terms of cost.

1.5.5 **Review of the Tariff Rate and Tariff Structure**

The Commission shall review the tariff rate and the tariff structure for wind power projects after 31.03.2007 or on addition of 750 MW of additional wind capacity after 01.04.2003 whichever is earlier.

During this review the Commission will not revisit any old projects.

The tariff rates for wind projects, which have already been commissioned or will be commissioned before the next review are linked to the year of operation of wind project and not to the fiscal year.

1.6 TARIFF RELATED OTHER ISSUES

The Commission determines that the tariff related other issues, which are common to the projects under Group II & III shall be as follows:

I.6.1 **Energy Purchase Agreement (EPA) & Energy Wheeling Agreement (EWA)**

It is not the intention of the Commission to approve the EPA/EWA for each wind project individually. The Commission however has formulated the principles of EPA/EWA, which have been elaborated in the Order. The Commission directs the MSEB and other utilities/ licensees to modify Draft EPA/EWA to reflect the tariff provisions and principles of EPA / EWA as approved in the Order before executing the EPA/EWA with developers. The Commission further directs the MSEB and other utilities/ licensees to make all EPAs/EWAs public.

1.6.2 **Evacuation Facilities**

The developer shall bear the cost of project switchyard and interconnection facilities at the project site upto the point of energy metering. The MSEB/utilities/licensees will bear the cost of transmission lines and associated facilities beyond the point of energy metering for the evacuation of power. The Developer(s) shall provide an inerest free advance to the MSEB/utilities/licensees equivalent to an amount of 50% of the cost of works to be carried out by the MSEB/utilities/licensees for power evacuation purposes. In case there is more than one Developer sharing the transmission line/evacuation facilities to be set up by the MSEB/utilities/licensees, the advance amount shall be shared amongst the Developer(s) in equal proportion. The MSEB/utilities/licensees shall refund the above interest free advance to the Developer(s), in five equal instalments, spread over the period of five years, commencing from one year after the date of commissioning of the respective projects.

1.6.3 **<u>Tenure of EPA</u>**

Old projects under **Group I**, for which EPA/EWA have already been executed; the tenure of EPA/EWA shall be as per the agreements in force.

For **Group II** projects, tenure of EPA/EWA shall be 8 years.

Tenure of EPA/EWA for new projects under **Group III** (Projects commissioned after 01.04.2003) shall be 13 years.

I.6.4 **<u>Purchase of Energy</u>**

Purchase of energy from wind power projects by the MSEB and other utilities/ licensees shall be in the nature of infirm purchase of energy. As regards supply of energy by wind power projects to the MSEB/ Utilities/ licensees is concerned, there shall be no limitation, except for force majeure, on the maximum or minimum quantum of energy to be supplied by wind power projects. However, wind power projects must follow grid discipline.

1.6.5. **<u>Metering</u>**

Real time ToD meters with online reading feature are required to be installed at entry and exit point of each transaction.

I.6.6 **<u>Rate/Unit of Reactive Energy (kVArh) Consumption from the Grid</u>**

The Commission determines that charges for kVArh consumption from the grid shall be 25 paise/unit which may be revised from time to time subject to the condition that escalation in rate per unit shall not be more than 5% per year from the date of commissioning for reactive energy consumption upto 10% of the energy delivered to the grid by the developer. The reactive energy consumption in excess of 10% shall be payable at the prevailing rate.

Reactive energy charges shall be recovered from the bill of the developer for energy sold to Utility; in case of self-use, these charges shall be added to the monthly electricity bill of the developer; incase of sale to third party, these charges shall be added to the monthly electricity bill of the consumer (third party purchaser to whose premises energy is wheeled). For the period when wheeling is discontinued, it will be recovered from the developer.

I.6.7 **<u>Billing and Payment</u>**

The Developer shall raise a monthly energy bill based on the joint meter reading taken by the Developer and the MSEB/Utility at the end of each month. The due date for the payment by the Utility shall be 45 days from the date of the bill. In case of delay in payment beyond the due date, the Developer shall be entitled for an interest on delayed payment @2% above the State Bank of India, short term lending rates.

I.6.8 **Payment Security**

The MSEB/ Utility at the cost of and option of the developer shall open a Revolving Irrevocable Letter of Credit in favour of the Developer for an amount equivalent to the average monthly bill.

I.6.9 **Change in Third Party Purchaser and Change of Option**

Change in Third Party Purchaser will be permissible subject to installation of proper ToD meters as per Para 1.6.5. Owners/Producers can also switch over to the option of sale to MSEB/Utility subsequently subject to the conditions to be laid down by the Commission.

I.6.10 **Banking**

Banking of energy delivered to the grid for self-use and or sale to third party shall be allowed any time of the day and night subject to the condition that surplus energy (energy delivered into the grid but not consumed) at the end of the financial year shall not be carried over to the next year.

Surplus energy at the end of the year, limited to 10% of the net energy delivered by the developer to the grid during the year shall be purchased by the Utility at the lowest TOD slab rate for HT energy tariff applicable on the 31st March of the financial year in which the power was generated.

In the event of unforeseen and force majeure conditions, surplus energy at the end of the year in excess of the 10% limit specified above shall be purchased by the Utility at a rate equivalent to the weighted average fuel cost for the year as determined by the Commission in the Tariff Order.

The payment of surplus energy shall be made to the developer/owner and not to consumer in case of third party sale.

I.6.11 **Wheeling**

Pending determination of Wheeling charges by the Commission those charges would be levied at the rate of 2% of energy wheeled.

I.6.12 **Transmission Loss Charges**

The Commission has decided that a study should be conducted to determine the T&D loss at local level. Based on the results of the study, T&D loss charges to be levied on energy supplied by wind power projects shall be determined by the Commission. Till then, uniform transmission losses at the rate of 5% shall be applicable.

1.7 MERIT ORDER DESPATCH

Merit Order dispatch shall not be applicable to purchase of energy by the MSEB/ Utilities from wind power projects.

1.8 FORMULATION AND SANCTION OF WIND POWER PROJECTS

The Commission has designed the tariff rate and tariff structure to facilitate private capital investment in development of wind power projects to promote such projects while at the same time keeping in view the interests of other stakeholders, and development and maturation of wind technology in Maharashtra.

1.9 UTILITIES TO FURNISH DETAILS OF ENERGY PROCURED FROM WIND POWER PROJECTS

MSEB/Utilities/Licensees should provide every month details in respect of quantum of energy purchased, source from which procured and the cost paid on their web-sites.

1.10 APPLICABILITY OF THE ORDER

The Order shall be applicable for energy purchase from wind power projects by the MSEB/Utilities/Licensees in the State of Maharashtra and for wheeling of energy delivered by wind power projects through the grid of MSEB/Utilities/Licensees for self-use/sale to third party within the State of Maharashtra.

Detailed Order will follow.

Sd/-	Sd/-	Sd/-
(Jayant Deo)	(Pramod Deo)	(P.Subrahmanyam)
Member	Member	Chairman, MERC

Sd/-(Date:18-09-2003)
(A.M.Khan)
Secretary, MERC