

**BEFORE MAHARASHTRA ELECTRICITY REGULATORY COMMISSION,
MUMBAI**

**Comments / Suggestions on Small Hydro Projects – Rate of power purchase
23rd September 2005**

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1. This submission is in response to the public notice by the Commission dated 23rd August 2005 inviting comments on Maharashtra Government's proposed policy and rate of purchase of power etc for small hydel power plants. The submission mainly deals with the lacunae we observed in the GoMWRD's and MERC's tariff proposal.
2. Previous orders of the Commission regarding renewable energy projects: The commission has issued a number of orders till date giving a preferential treatment to the purchase of power from renewable energy sources such as wind, biomass and co-generation. The following table summarizes these orders and the GoMWRD's / MERC's proposal for SHP plants.

| MERC Order | MW | MU | 1st year tariff Rs/kWh | Yearly cost to utilities Rs Cr |
|-----------------------|-------------|-------------|---------------------------|--------------------------------------|
| Biomass | 250 | 1314 | 3.04 | 399 |
| Wind | 750 | 1314 | 3.5 | 460 |
| Bagasse Co-generation | 300 | 2102 | 3.05 | 641 |
| Proposed SHP | 200 | 525.6 | 2.82 | 148 |
| Total | 1500 | 5256 | | 1649 |

As shown in the above table, utilities are required to pay around Rs. 1650 Cr. every year on account of power purchase from renewable energy, which is quite significant. Unfortunately, in all these orders, the commission's approach towards power procurement from renewables has been piecemeal and ad hoc and there is no long-term, comprehensive and integrated strategy or approach on this issue.

3. Likely excessive profits to developers:

We find certain flaws and lacunae in the tariff proposal submitted by GoMWRD, and MERC which would result in excessive profits to the project developers.

- i. While determining the capital cost of the projects, GoMWRD has relied upon a very limited sample. The electro-mechanical cost is benchmarked based only on 2 projects while the civil costs are benchmarked based on 8 projects executed by GoMWRD.
- ii. The tariff proposal does not consider any reduction in the project cost per MW as the project size increases. On the contrary, in the tariff proposal, GoMWRD itself accepts that the project cost would reduce for higher capacity projects. It is mentioned on page 12 of the proposal that:

Quote

The cost based tariff structure is sensitive towards capital cost. The present proposal is prepared considering installation of about 2-3 MW. But the same

structure shall be valid for the installations up to 5 MW. For installations less than 1 MW, per MW cost shall be on higher side and on the contrary for installation more than 5 MW it shall be on lower side. Hence, such cases may be dealt with on individual basis.

Unquote.

Therefore, it is highly inappropriate to assume the same cost to be applicable for all projects from 0 to 25 MW.

- iii. In the additional information submitted by GoMWRD, capital subsidy structure available from MNES is mentioned on page 23. However, GoMWRD and the Commission as well have assumed a lower subsidy support than actually available. For example, a 1 MW SHP plant in plain area is entitled to a total capital subsidy of Rs 87.5 lakh; while GoMWRD in additional information submitted on 1st June 2005 and the Commission have taken it as Rs 50 lakh. Consideration of actual subsidy would significantly reduce the tariff.
- iv. As a result of all of the above, most of the higher capacity projects would accrue windfall profits and earn revenue much more than what is actually required for making the project financially viable.

4. Tariff Design:

- i. The tariff structure proposed by GoMWRD is heavily front loaded and should be discouraged to ensure optimum performance of the plant for long term. To keep the project financially attractive in later years as well, tariff structure should either be back loaded sensibly or should be flat. The tariff design proposed by the Commission seems in line with this philosophy.
- ii. The commission should determine a normative Capacity Utilisation Factor (CUF) for these projects (say 30% or 35%). This CUF should be used in all calculations for tariff determination. All units generated beyond the normative CUF should be compensated only at a nominal flat rate (say 25 paise/kWh) and full generation tariff should **not** be paid to such extra units. This would incentivise the optimum performance and design of the plant while preventing accrual of excessive profits by the project developers at the same time. For example, for everyone percentage point increase in CUF, promoters return on equity increases by as much as 2 percentage points! APERC in its order on the determination of tariff for mini-hydro plants has taken this approach.
- iii. Other SERCs have approved much lower tariffs than what is proposed by GoMWRD. A few are shown in the following table:

| Sr. No. | SERC | Tariff (Rs/kWh) | Remark |
|---------|-------|-----------------|--|
| 1. | KERC | 2.8 | Flat rate for 10 years |
| 2. | APERC | 2.3 | Levelised value for 10 years. Tariff for year 1 is Rs 2.6 /kWh, reducing at a constant rate to Rs 1.88/kWh in year 10. The tariff does not include water royalty and IT. |

5. Other Issues:

- i. As submitted by GoMWRD, average project capacity would be about 2 MW and total capacity addition envisaged is 200 MW. This implies that there is likely addition of more than 50-60 SHPs and most of these projects would be very small in size and in remote areas. Individual monitoring of these projects would be not be possible. Therefore, online real time metering and communication facilities should be an integral part of the project. Key data such as daily generation automatically communicated and updated daily on MSETCL's website. Creation of such central database would also help in benchmarking the performance of these projects. In the current scenario of significantly low cost metering equipment, this would not be any additional burden on the project, but is an essential measure for accountability and to prevent undue financial burden on consumers.

6. Prayers

In light of the above submission, we have following prayers to the commission:

1. Considering difference in capital cost, there need to be 2 different tariff structures for SHP projects viz. one for projects of capacity 0 to 5 MW and the other for project capacities higher than 5 MW up to 25 MW. Capital cost for higher capacity projects should be significantly lower and so should be the tariff. Moreover, actual subsidy support from MNES should be considered while calculating the tariff, which would lead to lower tariff.
2. For all units generated beyond the normative CUF, full generation tariff should **not** be paid for. Instead, a nominal incentive should be paid. This would incentivise efficient operation of the plant while preventing excessive profits.
3. Front-loaded tariff structure as suggested by GoMWRD should be discouraged to ensure optimum performance for long term. Instead, a back-loaded or flat tariff structure be used.
4. Online real time metering and communication facilities should be an integral part of the project for better monitoring. The data so collected should be updated on the utility's website daily.
5. We request the Commission to hear us in person during the public hearing on 27th September 2005 and allow us to make additional submission, if any.

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