

Strategy for Rural Electrification

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The electricity situation in India is really precarious. In Maharashtra alone there is a shortfall of about 4000 MW (peak) and without any additional generation capacity being added it will become worse in coming years. The worst affected are the rural areas where electricity outages of 12-16 hours are the norm. This has affected the whole agricultural industry besides bringing untold misery to the lives of rural population.

Government of Maharashtra which has been the main provider of electricity in the state has no money to install additional capacity. However the new Electricity Act of 2003 provides a mechanism to address the electricity shortages in India. Thus a private company can produce, distribute and sell electricity. Nevertheless it seems that most of the major players like Tata Power, Reliance etc. are interested in supplying electric power to big cities and to industrial clusters and not to rural areas.

In this context the author of this article has recently suggested an alternative strategy for rural electrification of Maharashtra to Maharashtra Electricity Regulatory Commission (MERC). The suggestion is under active consideration of the MERC.

The basic tenet of the strategy is to supply 500 kW electric power to each village. This can be done by setting up a microutility company (MC) for supply of electricity based upon the infrastructure of existing MSEB grid. The basic components of the strategy are as follows :

1. **Electricity supply** : It is envisaged that electricity will be produced by a 500 kW genset powered by any fuel. This could be either biogas, producer gas, diesel, petrol, kerosene or ethanol. Besides, the microutility may also utilize Solar PV, thermal or wind generators to produce 500 kW. The idea is to produce reasonably priced electricity from any fuel but preferably renewables. The 500 kW generation allows enough electricity for a village of 2000-3000 population during night and during the day time the electricity will be mostly used for irrigation purposes.

The use of a 500 kW genset can also allow the use of flue gases for producing pure drinking water. Thus a suitably designed system attached to the genset can use the flue gases at 300-400⁰C for either boiling or distilling contaminated water. The water could either be from a rainwater harvesting tank, river, canal or any other source. Thus the MC can sell both electricity and clean drinking water to the villages.

By becoming a dual-purpose plant for producing electricity and water, the overall efficiency of the 500 kW genset can be doubled to about 65%. This will help in energy conservation, besides providing two most essential things to rural areas – reliable electricity and clean water.

2. **Distribution and sale of electricity** : It is envisaged that the microutility company (MC) will lease the village grid from existing state electricity distribution company (MSDCL) at a “social cost”. This is the cost taken into consideration by the Government of Maharashtra when supplying power to the rural areas. The leasing of existing infrastructure by MC offers two advantages. One it provides backup power for the utility, so that at the time of its maintenance and in case of breakdown it can draw upon state electricity board (SEB’s) power. Secondly the existing MSDCL infrastructure which is lying almost idle since there is hardly any electricity flowing through it, can start earning money for itself.

The sale of electricity by MC will follow the same norms as those of the existing MSDCL. The costing however will have to be worked out based upon the actual conditions.

3. **Stakeholders** : There will be three stakeholders in this project. Firstly the promoters who will set up the MC. The second is the state electricity distribution company, which owns the infrastructure of electric lines, poles, transformers etc. and third are the villagers who are the consumers.

It is envisaged that the first (the promoters) and the third (the consumers) stakeholders will own the company. Government of India has recently proposed a new policy of rural electrification in which they have mooted the idea of panchayats and zilla parishads to run and own such microuilities. This suggestion is fraught with danger since neither the zilla parishads nor the panchayats have the knowledge or the training to run such utility services.

Similarly there is also a suggestion in some quarters that the model should be based on a cooperative. However the cooperative model especially in the sugar sector has been thoroughly discredited and hence may not be a fit model to emulate.

The author has proposed that the major corporate leaders in the electricity area like Tata Power, Reliance etc. should enter this field. They have the managerial and technical expertise required in running such MCs. They can take a lead in initiating few projects with the help of local NGOs so that the corporate, NGO and Government partnership can be fostered. If a few projects are successful, then they can be replicated all over the country by a franchising mechanism.

For existing private power companies the MC concept also makes good business sense. Each MC will cost about Rs. 35,00,000 and with about 20000 villages being identified by Government of India as totally unelectrified, a business of about Rs. 7000 crores for these companies can be generated.

4. **Policy issues** : To foster corporate, NGO and government partnership, the following issues have to be addressed :
- a) The capital cost of the plant should be either heavily subsidized or loan for it should be available on very soft terms. Government of India has recently started a scheme called Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) which provides 90% capital subsidy only for villages which are not electrified. However for real rural electrification to take place it is necessary that this subsidy should also be provided in

villages which get equal to or less than 8 hours of electricity. After all the capital cost of such projects is about 1/6th that of the big power projects (500-1000 MW capacity) and hence the capital subsidy can really help the government's efforts in rural electrification.

- b) Depending upon the fuel used the cost of electricity from such MCs may vary from Rs. 5-20/kWhr. For fixing tariffs, all such utility companies are supposed to approach MERC as per 2003 Electricity Act. We feel that a blanket policy should be made by MERC that all such MCs, which are going to produce power, equal to or less than 500 kW in rural Maharashtra should be exempt from tariff structure of MERC. The local NGO, villagers, and the promoter can fix this tariff in an amicable way. Few initial projects may however be able to operationalize this concept.
- c) If the MCs use only renewable energy for generating electricity then they may be given further soft credit for leasing MSDCL infrastructure.

Finally it should be pointed out that India Inc cannot prosper if rural India lags behind. Without economically viable rural industries, the whole country will remain backward and electrification of rural India is the first step in that direction. Thus this provides an excellent opportunity for Indian corporate sector to participate in nation building by building the rural electricity infrastructure. That was the dream of Mahatma Gandhi and I am sure that is the dream of every Indian.

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