

Keynote Paper

APPRAISAL OF THE INDIAN RENEWABLE ENERGY PROGRAMME

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Abstract Today, the Indian Renewable Energy Programme is making giant strides on various fronts. This paper takes a close look on some of the key aspects like the Policy, Planning, Technology, Program, Financing and Implementation aspects.

Keywords: Renewable, Energy, Policy, Implementation

THE BEGINNING OF THE RENEWABLE ENERGY MOVEMENT

The Oil shortage of early seventies mixed with the dwindling reserves of the fossil fuels prompted a search for alternate energy sources worldwide. Ideally suited to the exploitation of such resources like the sun, wind, hydro, biomass etc., India too joined the fray. The first logical step seemed to be to tap the hugely abundant solar energy both for thermal as well as lighting applications. In fact, the thermal applications had its roots in the traditional use of solar energy for heating and drying purposes. Likewise, the large biomass reserve had a crude use through direct burning in open hearths. No less traditional was the use of windmills for grinding of corn and water lifting. With such traditional experiences as a backdrop, began a full-fledged movement to befriend nature in all its glory. Thus was born the Indian Renewable Energy Technology development program.

ORGANIZATIONAL CUM INSTITUTIONAL ARRANGEMENTS

The relatively large repository of the academic institutions, research organizations, laboratories and technical centers of learning came in quite handy to orient the above-mentioned principal objectives, along the desired lines. This effort was channeled at the apex level through the formation of a separate department for the non-conventional sources, which was later on upgraded to the Ministry status. Alongwith were created the respective state nodal agencies for a successful implementation of the program on various fronts.

With the initiation of this program at the grassroots level, the participation of various other institutions like the NGO^s and Cooperative bodies became inevitable.

The whole organizational structure was further strengthened by creating a distinct entity for the financing of RE in its entirety. Thus evolved the Indian Renewable Energy Development Agency, better known as IREDA. It was entrusted with the key responsibility of market development/promotion through user-friendly means of financing. Next to join the bandwagon of financing arrangements were the selective few nationalized banks and cooperative rural banks.

Today, when we look back to find, as to how various organizations have helped shape up this program, two organizations namely MNES and IREDA stand out from the rest. It is through their persistent efforts and a broad vision that India is marching from strength to strength in this area. Following are the important broad based objectives of both MNES/IREDA.

MNES:

- Formulation of Policy, Planning, Program and Implementation aspects
- Support for R&D Projects/Socially Oriented Schemes/Institutional Networking
- Development of Product/System Specifications
- Testing, Evaluation and Standardization of Products
- Performance Evaluation cum Monitoring
- International Cooperation/Mutual Exchange

IREDA:

- Evolving of Financing Mechanisms vis a vis various programmes
- Financing for Manufacturing Initiatives
- Financing of Product/System Applications
- Business Development/Market Promotion

This does not however, negate the efforts made by the RE community in general, without, whose, support, nothing substantial could have been achieved.

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POLICY MEASURES

The prerogative of framing national level policies for the smooth implementation of the RE program as a whole rests mainly with the apex program implementation organizations like the MNES, IREDA etc. Quite often, these measures are evolved after deliberations at the national /state level seminars/workshops or business meetings etc. However, sometimes, the sudden withdrawal of some key concessions in the form of financial/fiscal incentives for example leads to market distortions. These can be in the form of slow market growth coupled with the diminished outlook for future. So, what is really required is to hold the flock of RE community together and make it look like one Green Block, committed to strengthen the overall objectives of the RE program as a whole.

PROGRAM DEMONSTRATION

The first natural choice of locating the end-users for various products/systems was dictated by sheer need in off-grid places. This meant a modest to a large-scale deployment in quite far off places. It was certainly a tall order, going by the inhospitable terrains, poor educational background of the users and importantly, the absence of an operation cum maintenance (O&M) structure at the village level. Initially, there was some sense of disbelief in the users mind about the actual functioning of such devices.

This was partially offset through a user awareness generation mechanism. However, initial experiences with the use of RE did not turn out to be too much satisfying. The major reason being the narrow outreach of the O&M network as also the lack of trained personnel for the purpose. No less important reason was the less-standardised use of various components in the design of a complete system. However, this problem was gradually redressed to a good extent, by setting up of product testing, evaluation cum certification facilities.

Presently, the market is brimming with the availability/use of the test certified products/systems. Annexure I shows the key product technologies, being used under this program. But, there is still some room for further improvement, by way of ensuring strict quality control checks at the time of both the product delivery as well as after its installation under the actual field operating conditions.

SUPPLEMENTARY NETWORKING ARRANGEMENTS

As the geographical outreach of various programmes increased, so did the need for having a sustainable O&M network. This brought into a sharp focus the role of non-governmental organizations, voluntary bodies

and similar other institutions. Incidentally, they were more than willing to lend a helping hand for a host of services like carrying out the energy surveys, performance monitoring, rectification of faults (to the extent possible).

So, ultimately, the area of programme implementation gained an added momentum. Likewise, the identification of the energy use patterns also became known in a much better manner. The lessons had been learnt towards having a participatory type of programme management for a better focus and need fulfillment. Till date, it continues to be along the same lines.

EVOLVING OF NEW PRODUCT SPECIFICATIONS

Results of various performance evaluation exercises highlighted a strong need for evolving the most suited product specifications, taking into the account the actual requirement of the end user. However, even then, it was not feasible to evolve the set of individual specifications suiting each individual region on the basis of site-specific characteristics, which otherwise would have been an ideal case. So, a uniform set of product specifications vis a vis each application had to be re-worked upon. The important consideration also being the energy efficiency requirements in a non-conventional energy domain.

EXPANDING INDUSTRY INFRASTRUCTURE

Renewable energy area was touted to be an area of immense entrepreneurial opportunities too. This was also substantiated by keeping in place a set of attractive financial cum fiscal incentives for technology manufacture as well as component development. However, the underlying reason for number of industrial units joining this area was a near assured market of govt. supplies. This is still a case with a few RE technology areas, where the duly certified products are disseminated on a subsidized basis to the end users through the state nodal agencies for RE via a competitive bidding mechanism. In other segments, where there is no such provision, the manufacturers are making their own efforts to woo the potential customers.

Presently, most of the manufacturing capacities are based in the small enterprises, which is exactly not a healthy trend. This is because of their restricted resource mobility to undertake the technology up gradation efforts. It also impacts their capacity to develop an extensive networking structure both for product delivery as well as maintenance purposes. To give the much-needed boost to such areas, it is quite prudent to enrich their strengths, which, may also go towards cost reduction as well. Failing which, they would continue to offer not so quality make products, besides operating at low profit margins.

TECHNOLOGY ASSESSMENT

Technology development in the country has more or less followed a less path-breaking path. By and large, it has been a steady technology growth in all the key sectors of RE. The industry has more or less followed a learning curve, which is a true representation of the presence of selective few breakthroughs oriented towards substantial cost reductions. The fact remains that bulk of the RE devices continue to have a high initial cost, which many feel is the major deterrent to promote the large-scale use of RE.

The mute question remains-is the indigenous industry in a position to spring any surprises in the above – mentioned context. If the answer is not so positive, then it must gear itself to absorb the relatively low-cost technology available elsewhere. Incidentally, this is not the first time to talk about such a change, but many joint ventures agreements in the past have simply vanished.

MARKET SEEDING TOWARDS COMMERCIALIZATION

Agreeably, no technology segment can sustain on subsidies on a long-term basis. Moreover, most of the end users do not seem to have a sense of loyalty to any subsidized product. With this in view, it is always meaningful to have suitable market mechanisms in place, which wean away the end users from the concept of subsidies. Equally true, it is an uphill task to erase the public perception vis a vis the subsidies, which had been the mainstay of the entire RE program for a long time. So, the next best thing, as is being followed by the concerned ministry is to phase out the withdrawal of subsidies, accompanied by attractive financial incentives.

This model is being adopted by many other countries as well and needs to be reinforced here too. Only then, we will see the emergence of a real commercial market, which is purely user driven.

MICRO-CREDIT FINANCING

The available financing arrangements for the RE products/systems are still largely tailored towards the bulk category users, barring a few exceptions. To influence an individual's choice for buying such products, it seems quite pertinent to have in place an easily available loan credit mechanism. If viewed ideally, the concept of Energy Service Companies or ESCO, s, as they are called has still not percolated to grassroots levels on a desired scale. Today, these One-stop-shop facilities can do wonders to promote the RE market, as these bring with them a tag of sustainable product operation. So, the micro-credit mechanisms need to be strengthened on a large scale. Quite encouragingly, selective few banks have joined hands with a few RE agencies to provide small-scale finance.

However, we also need to ensure that the end-users do not have to shell out more money, on account of the higher rate of interest, than what is sometimes applicable in case of various multi-lateral funding schemes

PROGRAM LIMITATIONS AS A WHOLE

Beyond doubt, India has a massive demonstration program spread over a vast geographical region and broad product application range. Lately, it is showing some signs of change towards a gradual commercialization. But, the hard fact is that most of the attention of the policy planners as well as the program implementation agencies has gone on highlighting the quantitative achievements alone. The purpose is not to de-value such estimates, but that alone is not enough to push up the market further. As such, it would be in the fitness of things to blend the quantitative achievements with fair qualitative assessments, so that the net gain from RE program seems more visible. Annexure II outlines the key barriers of the program as a whole, from several important considerations.

Secondly, the outdoor field performance reliability, though having improved over the last decade or so is still not unto the mark, barring case-specific makes/regions. After all, what matters is the sheer public perception, which can only be molded towards an increased use of RE devices, by ensuring quality component selection/engineering.

Thirdly, the practice of overshooting the market expectations through setting up of highly ambitious targets should be followed with proper checks and balances. That is to say, the set targets should lie as close to the actual realization levels as possible, failing which, the comparison between the set targets and the physical achievements will also look quite absurd. True, the program size has registered a definite increase, since its inception, but it is quite important to monitor all the major dimensions of the program correctly.

Fourthly, it may be more realistic to work out the economically viable potential of various RET, s instead of pointing out the mere physical potential. This is because; the estimation of the gross potential estimates may not be exactly worthwhile to bank upon. There will still be a sizable number of sites, which may offer a very high level of economic non-viability.

ROLE OF MULTI-LATERAL FINANCING ARRANGEMENTS

Agreeably, it is much beyond the means of a developing country like India to sustain such a large program without the financial interventions of the multi-lateral funding agencies. It would not be wrong to say that the national RE program received a shot in the arm, when premier world bodies like the World Bank, GEF

and UNDP etc. Committed some large scale funding for technology promotion as well as market development.

Like for example, the World Bank supported SPV project on market development provided the much-needed thrust for commercialization. Till then, this program was making little headway, relying more on subsidies as ever. More or less was the case with the small hydro/microhydel power development, which got going with UNDP-GEF funding. Several other technologies too actually benefited through such linkages, thus pushing up the market and sagging morale of the connected industries. However, there is a word of caution too, in the sense that such arrangements cannot exist on a long-term basis always.

So, it is quite imperative to have a right mix of localized parameters, which can be more suited to the existing needs. However, at the same time, it does not augur well for a developing economy like India to wait for such new opportunities to come through. This also calls for taking a holistic look at the cumulative requirements of such broad based program as RE.

THE PATH FORWARD

There seems to be no quick-fix solution to increase the market penetration of the RET, as a whole. The remedy lies more in bringing to fore various problems/limitations and not shy away from them. For example, in this age of liberated market economy, it is quite essential to use all possible mediums for product awareness generation, moreso, through the electronic medium. However, the fact remains that RE industry at large ill affords such a requirement. Consequently, various products remain far removed from the public eye. The practice of making cost-shared arrangements within the industry itself has not matured in a real sense, till date. So, the onus really lies on the Govt. agencies to

highlight the long-term benefits of utilizing RET products/systems.

Secondly, there should be some fine-tuning of the product specifications. The potential end-users should have a choice to get the system customized, based on their actual requirements. Thirdly, the O&M structure should be greatly strengthened via an active involvement of the community right from the very beginning.

Further, a cluster of RET facilities within the specified limits should be entrusted to the care of a trained technician, who should be treated as a regular employee of the concerned dep't. Very often, a member from the village community itself is picked up and paid a measly remuneration. Other officials at some regular expense always supplement his presence.

CONCLUSIONS

The national program is already embarking on a path of both immense challenges and opportunities. Having proved its efficacy to a large extent, it should assume a more user-friendly appearance. That typically means not only taking the RE community in its fold, but quite importantly, the potential end users too. Only then, will a real market focus emerge, where the key is just not the number of products sold, but the way, they have been sold and maintained.