Powering the North East: Challenges & Opportunities

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All the states in the region except Sikkim are facing peaking and energy shortages much higher than the national average. This may appear paradoxical considering the fact that the region is bestowed with rich hydropower and other renewable energy (RE) resources, has high literacy rate and enjoys special category status for funding support. Sustainable development of the region's power sector merits special significance in this context

A vibrant power sector is crucial for the socio-economic development of a region in any part of the world. This is especially relevant in the case of North East Region, which is today lagging behind the rest of the country in terms of a number of socio-economic indicators like per-capita income, electricity consumption, industrialization etc. All the states in the region except Sikkim are facing peaking and energy shortages much higher than the national average. This may appear paradoxical considering the fact that the region is bestowed with rich hydropower and other renewable energy (RE) resources, has a high literacy rate and enjoys special category status for funding support. Sustainable development of the region's power sector merits special significance in this context. The country has also a lot to gain through this.

Ensuring energy sustainability is however not an easy task. A multi-pronged strategy based on a pragmatic appraisal of the opportunities and challenges is needed in this context. Some of the key areas to focus are accelerated development of exploitable untapped energy resources, assessment of the patterns of demand growth within the region and export potential, expansion of the transmission and distribution (T&D) system and control facilities, efficiency improvements, policy and regulatory framework, governance structure and human resources development

Accelerated Development of Hydropower

90 per cent of the region's estimated hydropower of over 56000 MW is yet to be tapped. Sustainable development of this energy cannot only help meet a large part of the region's energy requirements, but also the green and flexible power needs of the rest of the country. These projects depending on design can also help to meet flood control and irrigation needs.

The challenges often experienced in developing hydropower are high capital cost, long gestation period, concerns of modification of hydrological regions, impact on aquatic habitats, public health and earthquake related damages, resettlement and rehabilitation issues, etc. Law and order concerns and riparian issues and factors such as non-availability of land records resulting in difficulties

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in clearly identifying project affected people, delays in obtaining clearances, poor road communication are also often leading to time and cost overruns of projects. Investor interests also get adversely impacted in the process. A recent study done by TERI for one of the project developers had shown fear on the part of local people of losing their culture and traditions, concerns of change from semi-monetized to monetized economy, etc. which are often very sensitive issues. Viability of projects designed on the basis of available hydrology data is also a concern in the context of the hydro-meteorological changes that are being observed as a result of climate change phenomena.

The above challenges are complex and socio-politically sensitive. The strategy in this regard should focus on (a) formulation of basin wise plans and coordinated implementation; b) comprehensive resource vulnerability mapping; (c) sustainability assessment of projects at all relevant stages by suitably adopting the International Hydropower Association's protocol to local needs; (d) transparent and professional environment impact assessment studies; (e) streamlining and expediting of clearances; and (f) adopting a proactive approach for engagement with public and civil society. Politically acceptable solutions to federal and riparian issues should also receive upfront attention.

Development of other RE resources

The other RE resources like small hydropower (SHP), biomass, solar etc. also hold forth prospects of improving power availability and access to remote households. It is estimated that the region still has over 1000 small hydro projects with a potential of 2200 MW yet to be tapped. There is also rich biomass potential, which if tapped pragmatically, could greatly help in rural electrification. Utilization of solar power also offers bright prospects. Master plans have already been prepared for 8 cities as part of the solar city development program of the Ministry of New and Renewable Energy; Agartala and Aizwal are being developed as pilot solar cities.

The main impediments in speedy development of these resources are remote locations of the projects and associated evacuation problems, lack of investor interest and business models for implementation. A comprehensive assessment of the exploitable resources and pragmatic evaluation of the energy needs of local people is considered necessary in this context. The projects may be designed as off-grid or grid connected depending on the geography, population density and varying power needs and proximity/ access to grid. Development of appropriate business models should also merit attention.

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Transmission and T&D system

Evacuation of power from projects located in remote areas to the demand centers spread across and beyond the region would need massive expansion of the T&D system and large investments. It is also likely that utilization of the system is low in the initial years resulting in high upfront tariffs. Uncertainties in generation capacity addition, tough geographical terrain, getting right of way and duration of working seasons are also factors to be reckoned with.

T&D planning should therefore give special emphasis to (a) long-term generation expansion plans: (b) pattern of demand growth and market evolution trends; (c) development of basin-wise development plans; (d) right-of-way constraints; (e) loss reduction (f) technology up-gradation including induction of smart grid technologies; and (g) scenario based analysis. It would also be necessary to take note of the grid augmentation requirements likely in the context of grid integration of large scale RE. Establishment of well-equipped system control centers also assumes importance in this context.

Efficiency Improvements

Improving efficiency in the demand-supply chain is key to optimal development and performance of any power system. The Electricity Act, Energy Conservation Act and the National Mission on Enhanced Energy Efficiency provide requisite legislative mandate and support towards this. There is considerable scope for efficiency improvements in the region and hence, this would be a priority area for action. Development of suitable business models and creation of public awareness would be important in this context.

Policy and Regulatory Support

Supportive policies and regulations and a good governance mechanism are pre-requisite for sustainable development and hence need special focus in the multi-pronged strategy. The policies should facilitate private and public participation, where needed. This can help in mobilizing finance and improving management efficiencies. Periodic policy and regulatory impact assessment studies are also important to understand how the end objectives are being realized and to carry out modifications where necessary.

Human Resources Development

Availability of adequate skilled manpower is another area to focus on. Capacity-building in diverse engineering fields, project management and regulation aspects should merit attention.

Conclusions

Sustainable development of the power sector of North eastern region presents many opportunities as well as challenges. A multi-pronged strategy is required to address these. Some of the key areas to focus are accelerated development of hydropower and other renewable energy resources, large scale expansion of the T&D system keeping in view the market opportunities, efficiency improvements, creating conducive policy and regulatory framework and an efficient governance mechanism and human resources development. Sustainable development of the region's power sector is also important from the point of view of improving the energy security of the country, achieving greenhouse gas reduction targets and providing support to large-scale grid integration of solar and wind power. ❑

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Scheme for New Entrepreneurs

An Action Plan has been prepared for 22 sectors under 'Make in India' initiative to promote new entrepreneurs in the country. An Investor Facilitation Cell has been created in Invest India to assist and handhold investors. Further, a Startup Action Plan has been released by the Government to create a conducive environment for startups in India which includes:-

a. Simplification and Handholding: Simple Compliance Regime for startups based on Self-certification • Launch of Mobile app and Portal for compliance and information exchange • Startup India Hub to handhold startups during various phases of their development • Legal support and fast-tracking patent examination at reduced costs • Relaxed norms of public procurement for startups • Faster exit for startups.

b. Funding Support and Incentives • Providing funding support through a Fund of Funds with a corpus of Rupees 10,000 crore • Credit guarantee fund for startups • Tax exemption on capital gains invested in Fund of Funds • Tax exemption to startups for 3 years.

c. Industry-Academia Partnership and Incubation • Organizing Startup Fests to showcase the culture.

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