

## **EMPOWERING BIHAR: POLICY PATHWAY FOR ENERGY ACCESS**

### **Summary**

Energy is a prerequisite for the economic development of any country or state. The case is no different for the North Indian state of Bihar. The state has witnessed a promising growth in the recent years and is set to march for significant economic advancement in the years to come. At this juncture what Bihar needs to propel its growth further is to meet the electricity requirement and possess a political will to do so.

The bifurcation of the state in the year 2000 resulted in major power stations going to Jharkhand state. It left Bihar with only two old thermal generating stations. As a result, the state today lags behind other states in the country in terms of availability of power. It needs to purchase 90 percent of power from central utilities to meet its requirement. This is not an ideal scenario for any state, especially for a budding economy like Bihar as it leaves the state on the mercy of the central government for allocation of its share, besides the state ends up paying a much higher price for every extra unit.

The per capita power consumption in Bihar is around 100 units against an all India average of 717 units. In last 25 years no new generation unit has been set up in the state resulting in extremely poor power supply with an ever-increasing deficit during peak hours. The total installed capacity, including hydro power, is about 600 MW in the state whereas the demand in peak hours is 3,000 MW. The deficit was around 17 percent in 2006-07 but increased to 31 percent in 2007-08 and 40 percent in 2009-10. For the year 2010-11, the deficit was estimated to be around 45 percent\* (the figures were available only up to October 2010).

Given the power situation in Bihar, the best option for the state government is to tap the renewable energy resources available locally in the form of solar, wind, small hydroelectric-power and bio-energy.

A report *Empowering Bihar: Policy pathway for energy access* by *Greenpeace*, illustrates the changes needed both in institutional and government policies to enable the state in meeting the energy requirement for its rural areas.

About 89 per cent of the state population (12.6 million households) resides in the rural areas and almost 95 per cent of these households are dependent on kerosene as a source for lighting. Providing electricity to this population is the first step towards a significant economic growth.

The present government in Bihar has taken several positive steps to bridge the gap between electricity demand and supply in the rural area. However, it still faces several economic, technological and financial constraints in achieving its goal. The impediments include poor infrastructure in the rural areas, low credit ratings, limited finances, ever-increasing gap in demand and supply and poor performance of the state power agencies due to their internal constraints.

Nevertheless, Bihar has several natural and strategic advantages in terms of its location, climate and geographical conditions. The state has high potential of solar power, which could be the main source of energy for the state in the coming days. Being a predominantly agrarian society, the state also has high potential of agricultural residue to be used as raw material for energy generation. Besides, the state has great potential for small-scale hydro and wind power generation in its northern parts.

*These inherent natural strengths of the state create conducive environment for the establishment of decentralised energy systems based on renewable sources of energy all across the state to provide electricity to its rural populace.*

In this context the above mentioned report extends some suggestions, which are aligned with the needs of the state to increase its investment capacity, generate developmental benefits and minimise environmental damages.

The vision that has emerged for an overall energy-led development of Bihar is as follows:

*“A state-wide network of decentralised energy plants, based on renewable sources of energy (stand alone and micro-grids), developed with support from state government agencies, and in collaboration with private entrepreneurs for an effective and accelerated economic development of the state”.*

In order to achieve the said vision following changes are **recommended**:

Immediate steps: Composition and Institutional Changes:

- Integrated energy planning: state-wide natural resources and appropriate technology.
- State-incentivised emergence of a new private business model, particularly for setting up energy services companies (ESCOs) to decentralise power generation. The focus should be on promotion of alternative business opportunities in the electricity sector.
- Empower relevant government agencies to promote decentralised energy generation.
- Showcase Bihar nation/world-wide as an evolved market for decentralised energy.

Lon-term planning: Governance Structures and Policy Changes:

- Policy to facilitate decentralised energy use to improve power supply and state economy.
- Create supportive institutional avenues for micro-grids.
- Institutionalise supportive regulatory structures and encourage governance support through the Electricity Regulatory Commission.
- Evolve energy pricing models through a mix of regulation and competition.

Decentralised energy systems based on renewable sources of energy offer opportunities to Bihar to transform its rural areas and enhance their economic capacities, significantly. Some of the *challenges* that must be confronted in achieving this goal are:-

- a) Institutional and governance design to facilitate technology-led progress.
- b) More detailed study into the potential of renewable energy resources and related data base, readily available for enterprises.
- c) The government debate on missed opportunities, like not using natural resources, such as abundant solar radiation, which could have been tapped and converted into potential energy. Bihar is lagging behind in capitalising the opportunity that the National Solar Mission has to offer. For this the government has to show inclination and try getting a fair share from the incentives on offer from the central government to develop solar projects. The state should devise schemes and mechanisms to adopt solar applications in the agricultural sector, such as solar powered pump sets, solar powered irrigation etc. Besides, it should ensure the availability of fertile soil that can produce large amounts of biomass. This would generate abundant useable natural waste material for energy conversion. The state does receive a fair share of rainfall and has the potential for tapping hydrological power through small hydro systems.
- d) Strong political will and a fresh white paper on decentralised energy development based on renewable sources of energy.

Renewable energy systems are modular and can be rapidly deployed as they start to yield benefits in a short duration. Besides, for a state like Bihar with a high population density, a decentralised approach for energy distribution is an ideal choice. However, the role of policy and institution is most pronounced to ensure that a desirable direction of sustainable development based on sustainable source of energy, is pioneered.