# A Daunting Task

## Expert view on Saubhagya roll-out

*Power Line* invited industry experts and consultants to share their views on the Saubhagya scheme, its implications for the sector, and the key issues that could impact its implementation. Excerpts...

**Is the target to electrify all households by 2018 too ambitious? Will the Saubhagya scheme help improve power demand from discoms? What are some of the major obstacles in meeting the proposed targets?**

### Piyush Goyal

Since Independence, every government has been striving to fulfil this dream. It does look difficult, if not impossible, to achieve the same in such a short span of time. However, we also know that wonders can happen with political will. Initially, the availability of power is likely to be limited. The domino effect of the creation of demand by demand (in terms of availability of power, spurring economic growth in rural areas and improving the standard of living) would start in the medium to long term.

The biggest obstacle is the gap between electrification and the actual supply of reliable power. The states are yet to improve their high voltage (HV) grid network. The existing semi-urban network is inadequate and overloaded. Even if last-mile connectivity is provided as envisaged, the supply from the connected network would be limited to households.

### Sabyasachi Majumdar

The implementation of the Saubhagya scheme will positively impact the power sector, as its execution is likely to improve energy demand. For instance, if 50 units are consumed per family, per month by the 40 million households that currently do not have power access, the incremental demand increase is estimated to be 24 billion units, which, after adjusting for distribution losses, corresponds to an increase of about 3 per cent in the all-India energy requirement. In addition, the capital goods industry, especially players in the distribution segment, will benefit from the implementation of this scheme.

The thrust of the scheme is on the rural sector. Along with providing electricity connections, the scheme should also emphasise the need to ensure reliable and quality power supply in order to achieve sustainable growth in energy demand and improve the quality of life of consumers. This, in turn, depends on the improvement in the financial profile of distribution utilities as envisaged under the Ujwal Discom Assurance Yojana (UDAY).

However, timely implementation of the Saubhagya scheme could face challenges, given its stringent deadline and the capability of state power utilities to execute the scheme at the local level. Moreover, the state distribution utilities may not be very keen to increase their exposure to consumers, given the challenges in billing and collection of monthly electricity charges from these consumers, partly due to their financial condition. Further, as most of these unelectrified consumers fall under the highly subsidised consumer category, this would increase the cross-subsdisation requirement for the utilities and may increase subsidy burden for the state governments.

### Rajesh Mokashi

Electricity access when introduced in a household usually leads to a rise in demand for appliances. An additional capacity of 28,000 MW (a rough figure calculated on the basis of an average load of 1 kW per household) will have to be installed to cater to this additional power demand. This could act as a major stimulus for the ailing generation sector.

Under the Saubhagya scheme, demand will be created for electricity by providing prepaid/smart meters, which will, in turn, force discoms to supply power to villages. It could boost the prospects of underutilised power generation plants as they currently operate at just about half their capacity. However, no subsidy on the cost of electricity consumption may encourage electricity theft. On the whole, the issue of the huge financial losses being incurred by discoms needs

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to be addressed, before they can be counted upon to provide reliable electricity supply to rural and urban areas.

The target to electrify all households by end-2018 is quite challenging. The government will have to electrify about 2.7 million households every month in order to cover around 40 million households in the next 15 months, as per the target set under the scheme. The current rate of electrification is just 0.47 million households per month, according to data available with the power ministry. The Saubhagya scheme will take at least a few months to kick off since the states will have to submit their detailed project reports (DPRs) to the centre. Projects under the scheme will be sanctioned on the basis of DPRs and there would be no upfront allocation of funds. Discoms are envisaged to benefit from this scheme, which is expected to increase the energy requirement by 28,000 MW per year. Considering a rough calculation, at an average rate of electricity of Rs 3 per unit, discoms can generate Rs 240 billion in additional revenues. There might be some infrastructural and financial challenges in the short term, but in the medium to long term, the scheme can prove to be beneficial for all power players.

Some of the biggest obstacles in meeting the targets are as follows:

- Lack of awareness: It is observed that the lack of awareness about the procedure to obtain an electricity connection, including the cost of connection, use of electricity, cost of use vis-à-vis kerosene and benefits of using electricity (direct and indirect) are the major reasons for the slow progress in household electrification under the past schemes. Therefore, the government needs to conduct multimedia (radio, print media, television, signboards) campaigns to make people aware of all aspects of the scheme. Discom officials should also organise camps in rural areas for creating awareness.
- No upfront allocation of funds to state discoms: There will not be any upfront allocation of funds under the scheme to state discoms. The funds must be sanctioned by an inter-ministerial monitoring committee headed by the secretary (Power), Government of India. Upfront allocation of funds could have encouraged the discoms to properly plan and execute the scheme considering the stringent timelines.
- Need for huge infrastructure development: The scheme is expected to increase energy requirement by 28,000 MW per year. Therefore, to cater to the demand, requisite infrastructure and investments would be required.
- Regular power supply: Providing connectivity to all households and ensuring 24x7 power supply in rural areas are crucial factors given the long power cuts and erratic supply. The financially stressed discoms need to be bailed out before they can be counted on to provide reliable power supply to rural and urban areas. In addition, with 8-10-hour-long power cuts, poor households continue to use kerosene, diesel and other fuels.
- Manpower constraints: Reading meters, generating bills, collecting revenues and servicing breakdowns are major challenges for power utilities, especially given the prevailing manpower constraints.
- Potential shortfall in funds: The government will spend Rs 163.2 billion towards this scheme, which comes to around Rs 4,080 per house. Including the cost of infrastructure to be built (electricity poles, wiring, meter installation at each house), it would be challenging to electrify all the targeted houses using the allocated funds.

### Kameswara Rao

Saubhagya has the potential to be transformational, not just for the power sector but also for the wider society and economy as a whole. The policy shift from village electrification, which has a limited impact, to individual households is the key to this.

Given the huge number of households that require electrification, the project deadline is quite ambitious. At the current rate, only 14 per cent of the target can be achieved. The executing agencies must adopt a radically different strategy; for example, the use of drones, through digital project management, standardised procurement, etc. to boost the run rate by seven times and achieve the ambitious target.

The scheme will certainly result in higher electricity demand from discoms. In many states, per capita power consumption in rural areas is growing faster compared to urban areas and, with reliable 24x7 supply, more households will switch to electric appliances. This narrowing of the rural-urban divide alone will add an estimated 22 GW of demand, in addition to the larger base demand from new consumers. Saubhagya comes at an opportune time when power generators are underutilised (with a plant load factor at 53 per cent) and unlike in the past, power utilities should not delay household electrification owing to power shortages.

The states will be concerned about the cost of operations because marginal households that are being connected will need subsidy (the cost of supply currently exceeds the average residential tariff by about Rs 2 per kWh). The impact is manageable at the current rate of electrification (nearly Rs 7 billion per annum) and can be met through higher cross-subsidy or better performance. As the programme picks up pace, substantive tariff reforms are necessary for the sustainability of 24x7 supply.

### Dr Rahul Tongia

The government's recently announced 100 per cent household electrification scheme, Saubhagya, aims to tackle the next link for "electrification", where until now, most of the efforts were focused on the village or hamlet level. The good news is that most of the villages and remote locations are connected or would be connected to the grid. However, the bad news is that connecting a household to the grid is only a part of the puzzle. What one really needs is a quality service (ideally 24x7) for meaningful electrification.

There were two main reasons why the utilities have not connected every home.

First, they did not have enough power to meet the demand, despite India being a power surplus country. Second, they did not have adequate money. Wiring the last set of (mostly rural) consumers is expensive, and these users have regulator-approved tariffs, well below the true costs.

Saubhagya provides capital support for wiring unconnected homes, a measurable fraction if not the majority of costs for serving new users. Today, most tariffs for wiring a new home rarely cover the upfront infrastructure costs. These tariffs also need to take into account the social costs of electrification. The costs will vary based on how far the user is from the grid, and unfortunately the most sparsely populated areas will be the last to be electrified. If one is farther than an electric pole's span, the costs approach Rs 0.2 million per km. Saubhagya averages only about Rs 4,000 per home, inclusive of a meter and limited in-home wiring.

Equally challenging are the usage or energy charges. For a new user consuming, say, 30 kWh per month, the full cost of service may be Rs 150-Rs 200 per month, but the tariffs set by the regulators are often far lower for the first tier of residential users.

Mandating a meter is a welcome step, wherein the key consumers are meant to pay notified tariffs, which is important even if the tariff is low and embeds a cross-subsidy by other users. This creates a mindset of paying, and provides visibility to the utility regarding consumption. This can also help limit subsidised or free consumption to a lifeline level, if so desired. The first need is to connect physical wires to homes. Hopefully, there are enough skilled contractors to handle the enormity of the task. India's 40 million unconnected homes are roughly triple those in Nigeria and Ethiopia. Insufficient capital outlay can be supplemented by state budgetary support or special central grants. Instead of subsidising kerosene, the same money could be re-allocated for rural electrification, a greater amount annually than the Saubhagya budget.

Discoms have historically been wary of adding "expensive" and non-remunerative consumers. Their worries can be addressed in several ways. Retail tariffs for residential users should be updated to meet the marginal cost of supply, to cover the incremental (mainly fuel) cost of generation procured by discoms. Even with new coal-based plants, on an average, this would only be some Rs 2.30-Rs 2.50 per kWh, inclusive of technical losses. Even if this is deemed too expensive, states are free to offer usage subsidies over and above the regulator-approved cross-subsidies. If other consumers (excluding agriculture and marginal households) had to cross-subsidise the entire 30 kWh per month consumption for these 40 million homes, the burden would be under 2 per cent. This is without any tariff increase at an average subsidy of Rs 4 per kWh, a level that even covers the fixed costs of new generation capacity.

Importantly, will such consumers only use lifeline supply? Discoms are understandably wary of over-usage, especially at the peak. If we want to ensure that heavily subsidised or free household power is only for lifeline consumption, a meter helps; but it manages energy only, not capacity. However, a smart meter can do far more, allowing for capped peak usage (say, limited to 300 watts), beyond which the consumer could either choose to be current-limited or pay a "higher" (rather, non-subsidised) tariff. Feeder separation helps improve supply but only at an aggregate level – smart systems can do so with far better granularity.

Under Saubhagya, microgrids are perhaps the biggest theoretical loser, but better coordination can reduce such conflicts – they can be complementary instead of competitive, especially for remote locations. This requires serious discussions on microgrid designs. Top-down pushes have been the norm for electrification worldwide, since we cannot rely on the market to chase such consumers. Saubhagya addresses upfront costs, but we also cannot expect such users to immediately pay the full cost of service. We need new mechanisms and frameworks to ensure quality supply. Below-cost model of service provision, even for a public good, risk inefficient consumption, not to mention limit the provider's ability to scale and sustain. Getting the wire to the home should only be a matter of time – it is now time to deal with other challenges in the ecosystem.

**Nitin Zamre**

The target to electrify all households by 2018 is extremely ambitious. First, to be considered as an "electrified village" only 10 per cent of the households need to be connected to the grid. If "electrification" is interpreted as making electricity available to the consumer 24x7, it will be a huge task for the utilities. In fact, it will be more of a challenge commercially, as this supply will mostly be for consumers whom the utilities are unlikely to charge for the cost of supply. Therefore, utilities will not have any commercial incentive to meet this target unless specifically supported by the government. In addition, most of them are financially weak, short of funds and unlikely to be able to raise funds (being just out of the debt trap through UDAY).

The power demand from discoms is unlikely to increase significantly. Even if these consumers bring an additional demand of 200 units per capita, one could see an average increase of about 10 GW peak demand, which is just about 3 per cent of the total installed capacity.

The biggest obstacle in meeting this proposed target will be the financial/commercial position of the utilities. The fact that they will have no incentive to cater to this demand clearly implies that they will try to delay such electrification or seek special funds. If this leads to further increase in the cross-subsidy by other consumer categories, it will be disastrous. Unless the tariffs are made cost reflective, these consumers are unlikely to get electricity supply even if they are connected to the grid. Therefore, the challenge is not just in getting connected but also in getting supply subsequently. ■

*(The views expressed by Piyush Goyal are his personal views.)*