

Energy Access Monitor

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Rural Electrification



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Rural electrification: Madhya Pradesh's discoms scout for community tie-ups.

In a first, after electrifying 100% villages, Madhya Pradesh's discoms are now looking for partners in villages of the state to electrify around 5,000 hamlets with a population below 100 that are still left out of electrification.

There are around 23,000 village panchayats in Madhya Pradesh and all of them are electrified. However, some hamlets having a population of less than or 100 are left behind in electrification. Given topography of the state, most of these hamlets are habitations, which have one to few houses and are situated faraway.

According to the sources the manpower is proving a major challenge to electrify these hamlets. There are five linemen to check complaints in 30 villages. Similarly, a significant manpower is required for meter reading in these hamlets and for collection of bills. As these hamlets are situated in remote areas and have few houses, it doesn't make economic sense for discoms to hire manpower for these hamlets.

Beautiful Satellite Visualisation Reveals Rural India's Electrification. As India expanded access to electricity over the last two decades, satellites were watching. A new interactive tool lets you explore the roll out.

The country of more than one billion has made a lot of progress with expanding access to electricity. A new visualisation called India Lights shows just how much India has changed. Researchers at the University of Michigan analysed satellite photos and converted the information into usable data. The interactive map, developed by the World Bank, lets you explore individual administrative areas in India over the past two decades and draws on night-time satellite images collected between 1993 and 2013.

Business Opportunities

More than 300 million people in India still lack electricity to power their households and businesses, and 90 per cent of them live in rural areas. This means they can't use modern appliances and tools, may have to close up shop early when it gets dark and can't power digital education tools.

The India Lights website makes it possible to monitor progress on the ground, allowing officials to adjust their policies based on

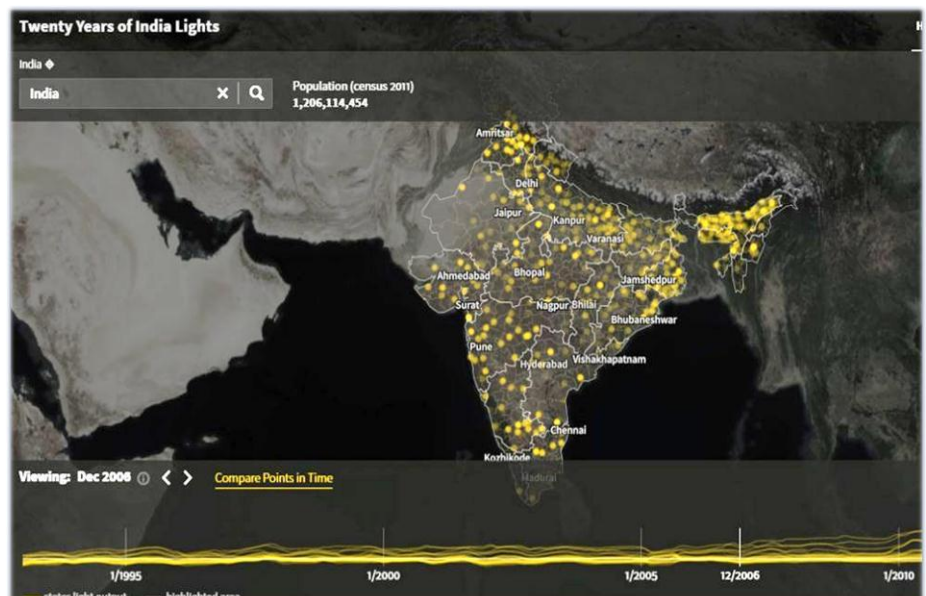


Figure 1: Screenshot of the India Lights website
Source: <http://india.nightlights.io/#/nation/2006/12>

evidence. But this type of information could also help identify business opportunities for start-ups that provide off-grid solutions to bring electricity to rural areas, bypassing the environmental and economic challenges associated with constructing large-scale fossil-fuel-powered electricity grids.

Nano-Grids

Rwanda is one of the other countries where researchers are gathering data about night lights. UK-headquartered MeshPower is one of the businesses already supplying solar-powered electricity services to rural communities in this African nation, installing small grids that power fifty families at a time. Supported by the European Union's climate innovators at Climate-KIC, the Imperial College London start-up combines nano-grids with smart load and metering systems to provide affordable electricity to villages day and night, even on rainy days.

Originally founded in London by a team of electrical engineers, the company's Rwanda subsidiary now employs dozens of people and serves thousands of customers in the country.

With the vast majority of growth in energy demand expected to come from developing countries, MeshPower is an example of how business success, economic development and climate change solutions often go hand in hand.

Status of Rural Electrification, Over 12000 Out of 18452 Villages In Rural India Stand Electrified. The pace of rural electrification in India continued unabated and out of a total of 18452 villages, as on February 6, 2017, as many as 12,033 villages have been electrified and 5,665 remains to be electrified.

Village electrification is much ahead of the Prime Minister target of electrification of all villages in 1000 days on 15th August 2015 i.e till 1st May 2018. Union Minister said recently that he is confident of accomplishing this target much before the stipulated time except few villages in Jharkhand and Chhattisgarh that are Maoist. According to official figures, nearly one third of villages are left (5665) of the total 18452 villages. Time left is nearly 460 days. So 2/3rd of the villages remain to be electrified in nearly 460 days.

The three things being done to speed up rural electrification are:

- ✓ Village electrification broken down to 12 milestones
- ✓ Nearly 400 Gram Vidyut Abhiyantas appointed to facilitate States
- ✓ Live updation of status through GARV App

The remaining villages (3968- 70%) are now mainly in 4 states including Arunachal Pradesh (1229); Assam (972); Jharkhand (892) and Odisha (875)). The remaining villages are mostly in naxal areas, forest areas, riverine areas, flood affected area & hilly/remote areas. Many of these villages do not have access through road and in many cases electrification would be the first major programme to be implemented.

PM's flagship rural electrification hits a roadblock in Karnataka. In February, the Rural Electrification Corporation Ltd (REC), a wholly owned subsidiary of the central government, signed a whopping Rs 39,000 crore loan deal with KPCL and Bescom for the rural electrification project.

The loan term, spread over five years, will see KPCL get Rs 27,121 crore and the Bescom Rs 12,000 crore for rural electrification projects. However, the energy department annual report of 2015-16 shows that the ground situation is not favourable.

In 2015, Prime Minister Narendra Modi launched the Deena Dayal Upadhyaya Grama Jyothi Yojana (DDUGJY) hoping to electrify the hinterlands of the nation. But in Karnataka, the tenders floated for the scheme has no takers. The report states that with Bescom alone, tenders for DDUGJY were floated for seven districts. But there response was dismal, with Kolar and Chikkaballapura receiving only two bids and a single bidder for the entire of Davangere, Chitradurga, Tumakuru and Anekal taluk of Bengaluru Urban district. Besides, for Ramanagara and Bengaluru Rural districts, no bids were recieved.

The net result is that Bescom decided to scrap the tenders and recall them for all districts. In the other four Escoms, the DDUGJY appears to have not even begun materialising.

Energy minister D K Shivakumar said the scheme has run into rough weather with little response from companies. He said the primary cause for the problem is land acquisition. According to him the farmers in rural areas are not ready to part with land for the right of way to place the transmission lines and due to this many companies has to reconsider the bidding for the project.

DVC signs MoU with Rural Electrification Corporation. Damodar Valley Corporation (DVC) on 22 March signed an MoU with Rural Electrification Company (REC) for financing ongoing and future projects. The MoU was signed between DVC chairman Andrew W K Langstieh and REC chairman and managing director P V Ramesh in the presence of senior officials.

According to a DVC official the MoU will ensure financing of ongoing and upcoming projects of DVC on the most competitive terms for the next five years.

Times of India, 8 January 2017 | dailyplanet.climate-kic.org, 2 February 2017 | energyinfrapost.com, 6 February 2017 | The Times of India, 15 March 2017 | dnaindia.com, 22 March 2017



Coverage of clean cooking fuel, LPG in India increases to 72%. In line with the government's vision to make India a gas based economy, all-out efforts are being made to provide access of **LPG** (clean cooking gas) to all **rural kitchens** and rural women who have been fighting the menace of smoke by using wood in their kitchens.

Moving with the aim of eradicating the misdirected subsidies (going to the rich and upper middle class) and providing access of clean cooking fuel to homes in rural India , the government in the past two years initiated various schemes like **PAHAL, Ujjwala, "Give it up" and "Give back"** that have together yielded notable results.

According to the Union minister of state for petroleum and natural gas **Shri Dharmendra Pradhan**, the concerted efforts of the government, the LPG coverage in India has now increased to 72%. The success of PAHAL is evident from the fact it made it to the Guinness Book of World Records as the world's

largest cash benefit transfer scheme. The scheme is benefitting over 176 million consumers and over Rs. 40,000 crore or \$6.5 billion of subsidy has been transferred directly to the beneficiaries' bank accounts in the last two years. It has also resulted in estimated saving of over Rs. 21,000 crore or USD 3.2 billion in two years to the government.

An intensive exercise was also carried out for identifying duplicate/ fake/ ghost/ inactive domestic LPG connections and as on 1 April 2015, 33.4 million connections were identified.

Using PAHAL, the oil marketing companies blocked these connections and saved Rs 210 billion subsidy in 2014-15 and 2015-16. Commercial LPG sales increased by 40% in period April 2015 – March 2016 in contrast to pre-PAHAL when these sales were not growing at all, showing how the subsidized residential supply was earlier diverted to commercial.

After Pahal, another scheme was launched called the “Give it up” and “Give back” –a voluntary scheme where affluent consumers who could afford to buy LPG at the market price, were encouraged to give up their entitlement to subsidy, so that the same could be used to provide more connections to poorest of poor.

As a result of this scheme, over 12 million consumers have given up their LPG subsidy which has helped in ensuring access to LPG connections to the under-privileged people.

The third is the most ambitious scheme to ensure access of clean cooking fuel LPG to the poorest of the poor —or the Pradhan Mantri Ujjwala Yojana.

Under Ujjwala programme which was launched in May 2016, a target has been set to provide 50 million LPG connections over a period of three years for the poor households, with the budgetary support of Rs 8000 crore or \$1.5 billion and according to the minister the target of 15 million connections fixed for the current financial year 2016-17 has been achieved within a span of less than 8 months.

Mini-Grids to End Energy Poverty. Over the past few decades, solar energy has become increasingly relevant due to its reducing costs and social acceptability. Successive Governments have given a solid push to making solar energy a well-regarded reality. Energy poverty is a recurring chronic problem in India today, and this is being made worse by the ever-increasing pace of development that is unable to keep a balance between the need to improve human development indicators and the necessity to prevent environmental pollution and ecological destruction.

- ✓ About two-third of the Indian population is still deprived of modern energy services; according to official estimates nearly 300 million people have no access to electricity and in addition to this, if the three-fourth of rural households connected to the grid that have erratic and less than six hours of electricity supply is included, then about 700 million people in the country suffering from energy poverty.
- ✓ With this 700 million population, looking for alternative sources of energy such as biomass as the primary energy source for cooking, the risk to health of the people and environmental pollution is suddenly increased manifold. In fact, the estimated economic burden of using traditional fuels, including health and ecological costs is expected to be Rs 30,000 crore.

In these trying circumstances, India's predominant dependence on thermal energy is only making a bad situation worse. Currently, coal meets more than 50 per cent of the current commercial energy needs and generates more than 70 per cent of our electricity. India is the third largest producer of coal in the world, after China and the US. But this form of energy comes at a huge environmental and health cost and cannot (also must not) be a long-term sustainable solution to India's energy needs.

Given these challenges, India must quickly chalk out a strategy to sustainably cater to its burgeoning energy demand in an ecologically safe manner that is also in conformity to the health requirements of the people. Over the past few decades, solar energy has become more and more relevant due to its reducing costs and social acceptability. Successive Governments have given a solid push to making solar energy a widely accepted reality making the cost of solar energy come down by nearly two-thirds. For instance, in Delhi, while the power distribution companies charge eight rupees per unit of conventional power, solar photovoltaic are able to supply renewable and green energy for a compelling five rupees per unit.

- ✓ This can set a sound base for developing solar power as the energy resource that can power a cleaner future. But for this to become a reality, the efforts will have to be concentrated in the rural and peri-urban areas first, as these regions currently suffer the most on account of severe energy deficiency.
- ✓ The initiative to introduce renewable power grids must inspire confidence and enthusiasm in the target region and its population and for that to happen, the planned grids must be efficient, successful and easier to manage. Therefore, the size of the grids is of paramount importance — the smaller it is, easier it is to manage and run. In order to achieve this in a systematic and time-bound manner, there is an express need convey the Central policy and guidelines on mini-grids to various State Governments, enabling them to set up their own initiatives.

For instance, Uttar Pradesh became the first State in February 2016, to announce its own mini-grid policy under which private players were encouraged to set up mini grids that could generate up to 500 kW of energy and supply the same to households in a particular geographical area. However, the initiative has not been able to capture the imagination of other states, as many more states in India with far better capability and availability of social entrepreneurship have failed to create an environment conducive to the growth of mini-grids.

energyinfrapost.com, 6 February 2017 | [The Pioneer](#), 16 February 2017



India's First Women's Mosque Blazes another Trail by Switching to Solar Energy. The Ambar Mosque in Lucknow has been making history for nearly two decades now. It was the first mosque in India constructed exclusively for women back in 1997 and now, it is also ensuring that it does not contribute to the historic city's pollution levels by operating on renewable energy.

Since air pollution has been on the

rise in cities and towns across India, the founder of the mosque, Shaista Ambar, decided to add solar panels on the roof of the mosque and make it completely self-sustainable.

The founder hopes that this switch to solar energy inspires others in the city and the pollution levels decrease. Since it has made the shift to renewable energy, the mosque will now be able to offset 1 metric tonne of carbon dioxide on a yearly basis.

The founder said in an interview that over the last few years, air quality in the city has become worse while rural areas of Uttar Pradesh have been suffering frequent power cuts. Everybody should have access to clean air and clean electricity. Electricity produced from solar energy does not cause air pollution like coal power plants do. If everyone starts using solar energy then Lucknow's air quality will start to improve as well as reduce power cuts.

While the mosque was started for women 20 years ago, it preaches inclusivity, with Shaista noting that both men and women are welcome to find spiritual solace here. And now, apart from standing up against patriarchy, it is also standing up Mother Earth.

thebetterindia.com, 9 February 2017



Figure 2: Solar panels installed in Ambar Mosque in Lucknow, Uttar Pradesh to reduce air pollution