

# Energy Access Monitor

January-February 2016

## Trending topics

### Rural Electrification



- Rural Agri Ventures aims to provide Solar lighting to 3,000 households across 427 villages in TN
- Nineteen lakh houses to get power connections by 2019
- Kolkata's first solar slum inaugurated in Kolkata's Topsia
- Under rural electrification scheme 5,537 villages got power so far in this fiscal: Power Ministry

### Renewable energy technology for energy access



- Mapping India's Electricity Deserts

### Cooking Energy Access



- Centre's new push to curb indoor pollution

### Financing energy access



- Financing green growth in India

### Women and Energy Access



- "Barefoot" Matriarchs Take On India's Electricity Gap



**Rural Agri Ventures aims to provide Solar lighting to 3,000 households across 427 villages in TN.** Most responsible citizens strive to contribute something to the country, but not all explore the difference they can make to the rural and agricultural ecosystem in India. Raakhe Kapoor Tandon (MBA in Entrepreneurial Management from The Wharton School, University of Pennsylvania, USA) wanted to invest in something that has a large socio-economic footprint. She launched [Rural Agri Ventures](#) in March 2014, a parent company of RAAS Capital.

Rural Agri Ventures is a Gurgaon-based business incubation firm that aims to cater to the under-served, yet critical rural and agribusiness industry. The company currently operates five business verticals:

- ✓ Renewable Energy
- ✓ LED Lighting
- ✓ Agro Logistics
- ✓ Agri Infrastructure
- ✓ Animal Feed

Segregation of business verticals:

- The LED business under the brand **'myWay'** sells affordable, superior quality LED lighting products.
- The Cattle Feed business has been launched recently for farmers to enhance milk productivity in the State of Punjab. It offers balanced and intelligent nutritious feeding solutions for animals under the brands **'Happy Cow' And 'Nu Feed'**.
- The Agro Logistics business offers customized reefer van solutions for perishables, at economical pricing. It serves customers across dairy, frozen food, organized retail and pharmaceutical industries.

**Nineteen lakh houses to get power connections by 2019.** The Cabinet has recently cleared MSEDCCL's (Maharashtra State Electricity Distribution Company Limited) two schemes, which will strength the company's power infrastructure in rural as well as urban areas.

- ✓ The government has set a target of providing electric connections to 19 lakh houses
- Under this scheme, union power ministry will provide 60% of the amount as grant. MSEDCCL will have to raise a loan for 30% of the amount while 10% will be its own contribution.
  - If the company executes the scheme on time following all rules and norms, the centre will provide another 15% grant. This will reduce the loan component to 15% from 30%.

in rural areas of the state by 2019.

- ✓ This will be done under centrally funded Deen Dayal Upadhyay Gram Jyoti Yojana (DDUGJY). The infrastructure in urban areas will be augmented under Integrated Power Development Scheme (IPDS); this scheme is also centrally funded.

**Kolkata's first solar slum inaugurated in Kolkata's Topsia.** Kolkata's first and country's second solar slum was inaugurated recently by state power minister Manish Gupta at Topsia's Majdoor Para area falling under ward number 66 of the Kolkata municipal corporation.

- ✓ Around 800 families living in the slum will be benefitted by this project.
- ✓ Under this project the solar domes will be installed at the houses, which have been conceptualized and developed by solar power expert S. P Gon Chaudhuri and his team.

- A total of 2,000 solar domes will be set up in the four cities (Kolkata, Mumbai, New Delhi, and Bangalore) out of which the first 200 solar domes have been installed in Topsia slum in Kolkata.

Prior in the planning, the NB Institute for Rural Technology (NBIRT) headed by Gon Chaudhuri was asked by the Centre to set up 500 solar domes for urban slums as well as rural areas in each of **Kolkata, Mumbai, New Delhi and Bangalore** with funds sanctioned by the science and technology ministry. According to plans, a total of 2,000 solar domes will be set up in the four cities out of which the first 200 solar domes have now been installed in the Topsia slums. The Centre has sanctioned Rs 21.65 lakh for the project to be monitored by a committee appointed by the science and technology ministry.

**Under rural electrification scheme 5,537 villages got power so far in this fiscal: Power Ministry.** In view of Prime Minister Narendra Modi's address to the nation on Independence Day last year, the government had decided to electrify 18,452 villages within 1,000 days i.e. by May 1, 2018. Recently, government said that 5,537 villages have been electrified in the current fiscal till date under the Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY).

- ✓ Out of these electrified villages, 120 belong to Odisha, 64 in Jharkhand, 41 in Assam, 19 in Madhya Pradesh, 8 in Rajasthan, and 6 in Chhattisgarh.

Out of 18,452 villages those are to be electrified till 2018, 5,537 are electrified in 2015-16 and the remaining 12,915 villages will be electrified later where 9,026 are to be electrified through grid and 3,381 through off-grid where grid solutions are out of reach due to geographical barriers, (among others).

[Yourstory.com](#), 7 January 2016 | [Times of India](#), 27 January 2016 | [dnaindia.com](#), 22 February 2016 | [Times of India](#), 23rd February 2016



**Mapping India's Electricity Deserts.** Cow dung and a Kerosene lamp, that's how many of the 200 million-plus Indians who live without electricity, generate light and heat in their homes. The number of such households has decreased during the last 20 years, but large swathes of rural land in the country remain stuck in darkness, a mapping project by the University of Michigan and the World Bank shows the present scenario.

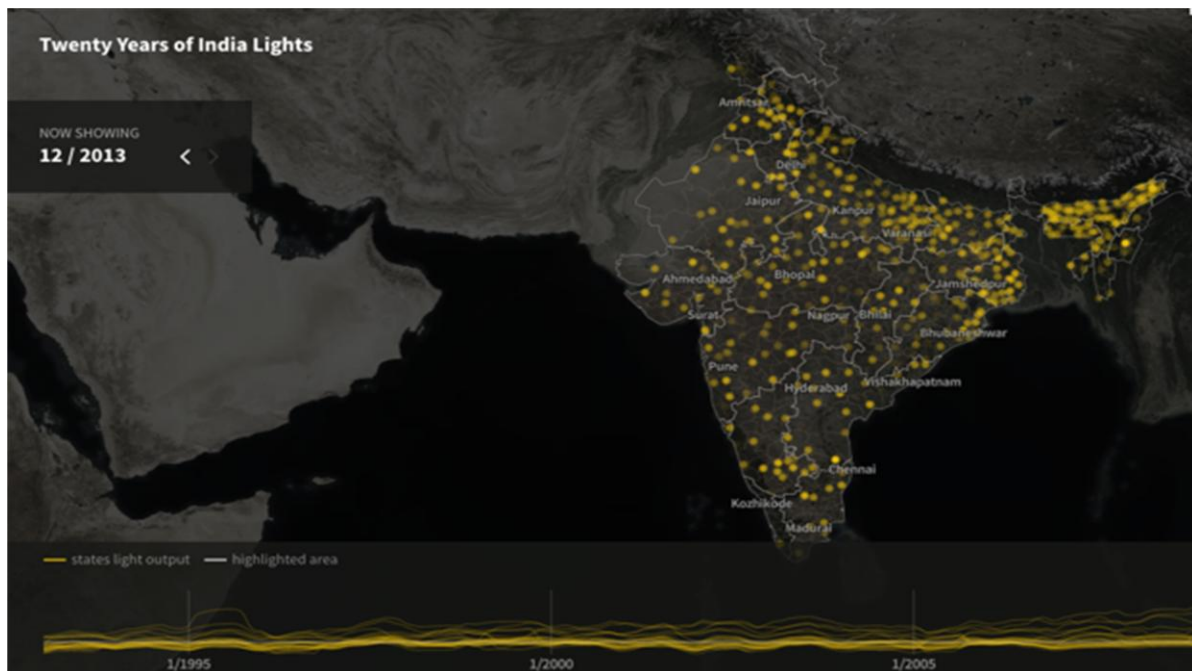


Figure1: India light map showing how much light a particular village was giving out at a point on the timeline.

In this mapping project, researchers used data from satellite images of the country taken every night from 1993 to 2013 to visualize the light emitted by 600,000 villages in India. Each yellow spot on the map shows how much light a particular village was giving out at a point on the timeline.

- ✓ The India lights map also lets users zoom in on the state and district levels, where you can see median monthly aggregates of light output expressed on a 0-to-63-point scale.
- ✓ The graphs at the bottom of the map show how these values have changed for each state, district, and village over time.

The detailed maps also give a sense of how some of the villages selected to participate in the government's national electrification program, launched in 2005, are doing.

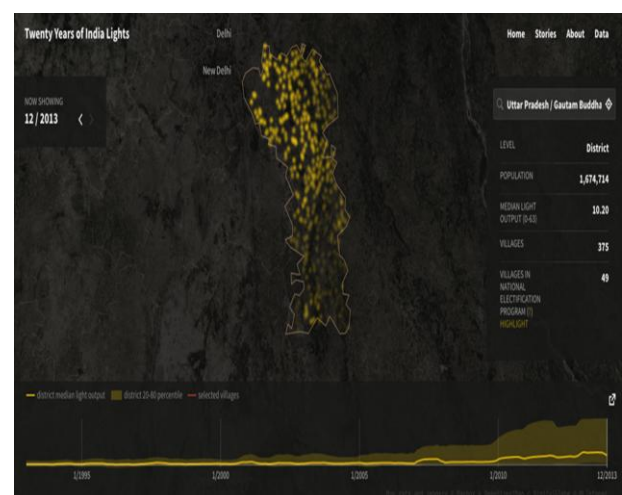


Figure2: Light Map of Gautam Buddha Nagar district in Uttar Pradesh

For example, Gautam Buddha Nagar, one district neighboring within Uttar Pradesh had 49 participating villages, in general, data show that light output in most of the participating villages increased since the program, but it's not completely clear whether that's directly a result of the program or of the general shift towards electrification happening in the country.

Nevertheless, the map shows progress. It also shows how urgent demand is for electricity in the many unlit parts of the country. Although the country has vowed to shift to renewable energy to meet it, that shift may still be a long way off into the future.

[citylab.com](http://citylab.com), 27 January 2016



**Centre's new push to curb indoor pollution.** Use of traditional chulahs or cook stoves results in indoor air pollution which has emerged as a leading cause of disease and death in India causing about 5,00,000 premature deaths annually.

Perturbed by indoor air pollution caused by the conventional methods of cooking in rural areas, Ministry of New and Renewable energy (MNRE) has proposed to link biogas programmes with other developmental

schemes under the Union Health Ministry at the panchayat level to help rural people adopt clean cooking energy solutions. Nearly 150 million Indian households use biomass (firewood and agro waste) and cattle dung as primary cooking fuel.

- To improve the access to clean cooking energy, MNRE is implementing Unnat Chulha Abhiyan program that seeks to move Indian households from traditional to modern cooking solutions by 2030.

- ✓ In order to improve access to clean cooking energy, MNRE is implementing [Unnat Chulha Abhiyan](#) program that seeks to move Indian households from traditional to modern cooking solutions by 2030.
- ✓ The Ministry of Panchayati Raj has suggested that each gram panchayat may be given the target of adopting 100 advanced stoves by households as there is only biomass-based cooking technology presently available that comes close to the World Health Organization (WHO) emission guidelines are forced draft pellet cook stoves. Additionally pellets can easily be produced out of renewable biomass (like crop residues, rice husk and saw dust) making the stoves climate neutral.

[Indiatoday.in](http://indiatoday.in), 19 January 2016



**Financing green growth in India.** The climate change talks of the 21st Conference of Parties at Paris in December, though seemingly promising, are not legally binding. The meet has only culminated in discussions on financing climate change initiatives, especially for developing nations. In its Intended Nationally Determined Contribution (INDC) India has proposed to reduce the emissions intensity of its GDP

by 33-35 per cent by 2030 (from 2005 levels). To achieve these goals, India has to rely on external funds. The role of Indian banks and development financial institutions (DFIs) as a facilitator of green growth is critical.

There are three ways in which they can contribute to green growth.

- ✓ Revamp their internal systems and processes to enhance energy and material efficiency by encouraging e-transactions and e-statements and converting their premises to 'green' buildings.
- ✓ They must assess environmental, social and governance (ESG) risks while appraising projects for financing.
- ✓ There is a need to introduce financial products.

#### **Risk assessment**

- Environmental liabilities of projects are threats to bankers and financiers since lawsuits and heavy fines levied by courts — due to overlooking environmental or pollution control laws, emission benchmarks — eventually lead to reduction of projected cash flows.
- Hence, ESG risk assessment is quintessential to enhancing the asset quality of banks and to reduce the probability of loans getting converted into non-performing assets.
- Projects not adhering to industry standards in respect of emissions or process benchmarks can be eliminated outright — thereby, indirectly contributing to sustainable development.

#### **Green financial products**

- India needs about \$200 billion to attain a target of 100 GW of solar power and 60 GW of wind power installation by 2022, according to Bloomberg.
- The government has approached lenders such as Rural Electrification Corporation, Power Finance Corporation, Indian Renewable Energy Development Agency and Yes Bank for low-cost, long-term funds.
- To meet green financing need, DFIs and banks are expected to float 'green bonds' both in the domestic and international markets. For example, YES Bank has already raised Rs. 1,000 crore by floating green infra bonds and Exim Bank has obtained \$500 million through the issue of green dollar bonds.

#### **Meeting global standards**

- The UN supported Principles for Responsible Investment and the Equator Principles are internationally accepted frameworks for identifying and managing environmental and social risks in project finance.
- Currently, 81 Equator Principles Financial Institutions in 36 countries have adopted the principles, covering 70 per cent of international project finance debt in emerging markets. Only one Indian financial institution — the Infrastructure Development Finance Company — is a signatory to the same.



**“Barefoot” Matriarchs Take On India’s Electricity Gap.** The women wielding soldering irons in a solar engineering workshop (Figure 3) may not know how to read or write, but they know their way around their circuit boards.

The technical words like shunt rod, eight-pin connector, etc. were not in their vocabulary, they belong to those parts of India which doesn’t get electricity from the national power grid. Many of them do their housework by the light of a kerosene lantern and candles. But their situation changed when ‘[Barefoot College](#)’ came into picture. Barefoot College, a nonprofit school that trains “barefoot solar engineers”, using color-coded parts and hands-on lessons.

- ✓ Their idea is to train these women for six months, and after six months at the peaceful campus in the northwestern state of Rajasthan, the new technicians returns to their home villages, bringing with them solar power equipment and know-how.
- ✓ After their training, they install solar panels, charging stations, and small LED lights in houses, and they’ll stand ready to deal with breakdowns.



Figure 3: Women technician receiving training from the Barefoot Officials

Initially, this training programme was made for men but these students proved disinclined to return to their villages once they had marketable skills however, when the school began recruiting grandmothers instead, the program took off. As of 2015, according to a Barefoot administrator the college’s graduates have brought light to some 20,000 houses in more than 300 villages across India.

[spectrum.ieee.org](http://spectrum.ieee.org), 23 February 2016