

Is clean electricity a reality?

When will countries like India stop burning coal to generate electricity and adopt clean forms of electricity? Is this even possible? Yes it is. Until a few years ago, we could not say with confidence that clean forms of electricity were available at a household level. One of the utility level case studies that I came across was in the village of Mantana, Gujarat. In 2006, the village had a solar panel, a windmill and a biogas plant to produce gas that was used as fuel to run a 25KVA generator, and this was in 2006! The resort was celebrated and awarded globally. In 2015, I say that it is immensely more possible today to generate electricity using clean technologies like solar and wind. Much has changed in these two sectors. Tech innovation, large-scale adoption, a drastic reduction in costs and widespread awareness to sustainability concepts.

In 2000, it was predicted that worldwide wind capacity would reach 30 GW by 2010. By 2013 that goal was exceeded by 10x. What used to cost just above \$200 per mw hour in 1974, came down to less than \$50 by 2012. Global wind energy capacity increased from around 50,000 mw hour in 2005 to over 3,00,000 mw in 2014. The world's largest offshore wind farm, the London Array, powers 4,70,000 homes. From Mexico to Morocco, China to Chile, including India, are building wind farms

to harness clean electricity. It is even bigger and optimistic when we look at solar. The projection in 2012 was that solar energy market will grow 1 GW per year by 2010. That was exceeded by 17x in 2012 and 48x in 2014. Worldwide solar PV installations increased from around 50,000 mw hour in 2008-09 to more than 3,00,000 mw hour in 2013. This was fuelled by the fall in costs of Crystalline Silicon Solar Cells from \$76 per watt in 2008 to \$7.74 in 2013. Gujarat, Karnataka, Tamil Nadu, Andhra Pradesh and Telangana are all investing in large-scale solar initiatives. In 2014, more than a million residential properties in Australia, one in seven homes, had solar systems. In the first half of 2014, 56% of new US energy generation came from renewable sources.

Nature has been generous. Wind can supply worldwide electricity consumption 40 times over. Enough solar energy reaches Earth every hour to meet the power needs of the entire world for a full year. India receives 300 days of sun per year, more than any other country in the G20. Now do we accept this grace from nature and commit fully to clean energy generation, or do we continue to use environment-degrading coal burning technologies to generate electricity and continue to discharge large quantities of GHG. The choice is for us to make.

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Scientists talk GREEN
CB Ramkumar

Nuclear pact, trip to Varanasi on cards during Abe's visit

Both of which didn't... Mr. Modi's... while there... confirmation that the... will be signed... any positive... will be a big... India's ambition to... international nu... including the... MTCR.

Strident position

Japan has always taken a strident position on India's refusal to sign the non-proliferation treaty, and its approval for a civil nuclear agreement will be a major signal of India's position on the world stage.

During the meeting of the big leaders in Paris, Mr. Abe had said that India, which is a main emitter, is a key for the success of COP21. Japan is a key donor to help India fight pollution, and its contribution to cleaning up the Ganga will be highlighted during his visit to Varanasi.

While the two Prime Ministers are expected to discuss Japan's considerable outlay in Indian infrastructure, including the \$100-billion rail project in Mumbai, India's nuclear projects, a slew of other agreements that have been delayed since their last summit in August 2014, are on the agenda. At the top of the list are the Indo-Japan nuclear cooperation agreement and a deal for India to buy U-2 amphibian aircraft.

Not enough segregated waste, processing units

FROM P1

Another biogas unit run by Ashoka Biogreen at Yediyur Ward in Pattabhiramanagar also gets only three to three-and-a-half tonnes of wet waste from markets, hotels and individual houses. "Streetlights on six roads around South End Circle are lit by electricity generated here. If we get five tonnes, the unit can provide six continuous hours of electricity to the lights," an employee told Express.

The biogas unit at KR Market generates electricity that lights 100 bulbs within the premises. "They are not getting enough raw material to work with. Ashoka Biogreen is not maintaining the unit well either," alleged Diwakar of KR Market Vendors' Association.

Another unit that is operational and generating electricity is located in Singapura Layout in Kuvempunagar Ward of Byatarayanapura constituency. The unit of BBMP, which is located close to Aveksha Hospital, has both dry and wet waste segregation

Where are the biogas units?

Kuvempu Nagar (Byatarayanapura constituency), Aramane Nagar (Malleswaram), Gandhinagar (Gandhinagar), Pattabhiramanagar (Jayanagar), Begur (Bengaluru South), Nagapura (Mahalakshmi layout), Yediyur (Padmanabhanagar), Domlur (Shanthinagar), Hemmigeppura (Yeshwantapura), Singasandra (Anekal), Varthur (Mahadevapura).

units.

Wet waste is used for the generation of biogas near the plant. Five tonnes of wet waste from local hotels and choultries is collected by BBMP contractors. "Since waste is generally not segregated at homes, we have an agreement with hotels and other establishments who provide us," said an employee at the plant. The biogas produced is used to power a generator, which supplies power to 50 sodium lamps.

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ROB that lit up in 2014 now in darkness

Residents say streetlights never turned on since launch; BBMP, SWR refuse taking charge

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A railway overbridge (ROB) was constructed at the Carmelaram station off Sarjapur Road and it was inaugurated with much fanfare almost two years ago. The ROB and the services roads were completely illuminated, but only during the inauguration. Since then, the area has plunged into darkness and the complaints of residents have fallen on deaf ears.

The residents of Suncity Gloria Apartments and neighbouring areas of Carmelaram, on Sarjapur-main road, saw street lights fully-lit on the ROB and the service roads the day former railway minister, Mallikarjun Kharge inaugurated it. Since then, neither the residents, nor the regular commuters of the vicinity, have seen the street lights function. However, the South Western Railways (SWR) and Bruhat Bengaluru Mahanagara Palike (BBMP), who jointly constructed the ROB, are passing the buck between them saying maintenance is the other's responsibility.

A resident of Suncity Gloria Apartment, Rashmikanth Nayal, a techie says, "We have seen streetlights on ROB, as



Within two years of its opening, the railway overbridge at Carmelaram has plunged into darkness. Street lights here don't function anymore

well as service roads, turned on twice during the minister's visit two years ago. Later, the lights were switched off and the area is in total darkness. It is a nightmare for us to travel on this road. Even after several complaints to the concerned authorities they have failed to provide a functional streetlight. The concerned authorities are pointing at each other for taking the charge of streetlight maintenance."

Around 3,000 people residing in the vicinity have no pro-

vision of footpath on the bridge to walk and since below the bridge, railway track is present there is no other alternative to cross. Another resident, Vikas Bhat, an IT consultant says, "The original ROB tender says that this is a joint venture between SWR and BBMP, with BBMP's stake of ₹1,077 lakh and SWR's stake of ₹1,064 lakh. As a major stakeholder, the BBMP does not want to take the responsibility of maintaining the street lights. But they are

ready to collect the property tax on time from public. During night time, it is very dangerous to walk on this road."

"Many times, I approached the BBMP but they said the responsibility falls under the purview of the Railways Department. One BBMP official said that the railways had not handed the charge over to them officially, so they could not maintain it. If they won't turn on the street lights soon, there will be more accidents," Bhat said.

One of the senior citizens said, "I really don't understand what is the purpose of fitting these street lights? The lights are not functioning from years but there is a streetlight pole everywhere. The only light we get to see is from moving vehicles, or else we need a torch when we walk across the street."

Ward 150 (Bellandur), corporator, Asha Suresh said, "Without streetlights it is difficult for people to commute and I know the problem faced by the residents. The BBMP claims that the railways have not handed over the responsibility. I will discuss with the BBMP and also write a letter to SWR to look into the matter at the earliest. I will ensure that the street lights are fixed soon."

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LETTERS TO THE EDITOR

Modi's call on climate relevant and laudable

Sir, The editorial, "Paris shows rich and poor divide" exposes the hypocritical attitude of the developed countries, especially the US, towards the problem of global warming. Its promise of creating a corpus of \$100 billion to help developing countries tackle the problem still remains a distant dream. India, however, has taken the initiative of setting targets on production of solar and wind power and reduction in emission of pollutant gases, that is worthy of emulation.

Prime Minister Narendra Modi's initiative to launch International Solar Alliance is laudable. He has also rightly pointed out that there can be no uniform formula for industrially advanced nations and developing ones. It is hoped that COP21 will bring out concrete plans to contain emission of green house gases - a major factor causing global warming - and the consequent climate changes.

S V VENKATAKRISHNAN, Bengaluru