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(Energy Conservation : It Doesn't Cost. It saves)

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Whither open access?

Business Line : February 26, 2018

The Electricity Act 2003 will soon complete 15 years, but it is still far away from its goal, writes M Ramesh

The end of this financial year marks a mini milestone in the history of India's power sector. Come next quarter, the landmark Electricity Act, 2003, would have completed 15 years of existence. When it came into force in June 2003, the Act was as much in importance and significance to the power sector as the economic reforms of 1991 were to the whole economy.

Much has happened in the Indian power sector in the last 15 years, not the least of which is the huge rise in installed capacity and the increase in the contribution of wind and solar in the energy mix. India's installed capacity today stands at 3,34,400 MW, three times as much as it was 15 years ago; renewable energy, practically non-existent then, now accounts for a third of the installed capacity.

Whether this handsome rise in the capacity base was due to the Act or not, is beside the point here, because capacity creation was not the principal aim of the legislation.

What it set out to do was the creation of a free market for electricity, in which any consumer could buy power from a supplier of their choice, and any power generator could install a plant anywhere and sell energy to any consumer at prices freely determined by the market. This essence is often captured in the phrase 'non-discriminatory open access'.

The sad truth is, such an open market has not come into being after so many years of the much-hailed legislation. Today, solar energy companies are prepared to sell their power at ₹2.44 a kWhr. True, such a low price is predicated upon a set of favourable conditions such as large capacity, assured payment and done-up infrastructure. But even if one were to put a value to the absence of such enabling factors elsewhere, solar power would cost less than ₹4. Can you and I, or for that matter, a factory, buy that power at that price?

Still expensive for consumers

While generation costs are coming down, consumers continue to pay a high price. It is pertinent to point out that the Central Electricity Regulatory Commission has recently calculated the average cost of power purchased by the utilities at Rs. 3.48. The reason electricity is still not cheap in the hands of consumers is that we pay for the utilities' inefficiencies, technical and administrative, and for the utilities' supplying subsidised power to several categories of consumers (by way of cross subsidy surcharges).

A free market for electricity exists for spot purchases, but few energy companies would dare to put down crores of rupees to create a plant whose generation is left open to the vagaries of the spot market. A relatively free market exists for the short term (less than three months) on the country's two electricity exchanges. But consumers prefer a stable price of electricity, use of short term only for contingencies. According to the Indian Energy Exchange (IEX), intra-day to 'up to three months' power purchases account for only 4 per cent of the Indian power market. Medium term (three months to three years) accounts for another 5 per cent, while 89 per cent of the market is only on long-term agreements.



But that is where the various State electricity distribution companies (discoms) are monopolies in their areas of operation. A plethora of charges (called open access charges), even if duly approved by the respective State electricity regulator, and regulatory restrictions hamper free market. In a presentation to IIT Kanpur last year, the IEX tellingly said, “open access charges are being set higher to restrict open access.”

Cross subsidy surcharge

Perhaps, the most hated of these charges is the ‘cross subsidy surcharge’ (CSS), which is levied to recover the cost of the utility providing subsidised power to certain categories of consumers, such as the poor, religious entities and agriculture. It is therefore an additional tax.

The two National Tariff Policies, of 2005 and 2016, that India has had, say that the tariff a discom charges its customers should not exceed 20 per cent of its ‘average power purchase cost’ (APPC), and the CSS should not exceed 20 per cent of the tariff. In practice, only the second is followed. For example, the CSS is Rs. 1.45 a kWhr, which is 20 per cent of the industrial tariff of Rs. 7.26. But the industrial tariff way exceeds the APPC of Rs. 3.29. Most States levy CSS of around ₹1.60. Again, while the energy regulations call for gradual phasing out of CSS, there is often an increase in the levy. For instance, Assam’s CSS went up from 54 paise in 2016-17 to Rs. 1.31 in 2017-18, Bihar’s from 79 paise to Rs. 1.79.

Likewise, States also levy an ‘additional surcharge’ on open access consumers. The principle behind this levy is, ‘if you start buying power from some other producer, how do I recover the cost of my assets?’ which is a monopolistic stance. Even so, the Electricity Act demands that the discom should “conclusively demonstrate” that its assets are stranded because its customers have gone out of its fold. In practice, no such conclusive demonstration takes place, and discoms levy additional surcharges, which have gone as high as ₹1.60 in some States. Over and above these charges, the industry complains of regulatory hurdles. These include delays in approval to be given by the State Load Despatch Centre for a consumer going ‘open access’, and States invoking Section 11 of the Act to disallow a power generator from selling the power outside the State.

Renewable energy

Today, there is a marked preference for clean energy. Large consumers have a green-bias and they also could benefit by falling prices of wind and solar. Many States have waived or reduced open access charges, but challenges remain.

For instance, though Tamil Nadu levies only 80 paise as CSS (50 per cent of the regular CSS) on wind and solar, it does not allow open access, except through ‘group captive model’— where the consumer necessarily has to become a shareholder in the generating company. Not many industrial consumers are interested.

Karnataka had waived all charges on green power, but the CSS of Rs. 1.59 is very likely to be brought back from April 1. Andhra Pradesh and Telangana waive all open access charges, but only for five years after commissioning the plants. Rajasthan does not allow third party sale.

“Bringing down CSS on open access solar would help faster roll-out of solar projects that could sell power directly to customers, in the spirit of the Electricity Act, 2003,” says Andrew Hines, Co-Founder, CleanMax Solar, a solar company that sells power directly to consumers.

In a completely free market, which the Act envisages, consumers (particularly industrial consumers who are paying high tariffs today) could be buying green, cheap power from wind and solar companies. Fifteen years after its promulgation, the Act is way adrift of its goal.

Tamil Nadu among world’s top 10 markets with high renewable energy

India Climate Dialogue : March 2, 2018

Solar and wind power represent more than a third of the installed electricity generation capacity in Tamil Nadu, a share that is expected to increase in the coming years



Even as India makes rapid strides in transitioning to renewable energy, the southern state of Tamil Nadu has outshone other provinces by being placed among the top 10 markets in the world in terms of renewable energy usage.

According to a new study by the Institute for Energy Economics and Financial Analysis (IEEFA), an international research agency, Tamil Nadu is ninth among global energy markets — countries, regions and states — that have achieved high use of renewable energy. Unsurprisingly, the list is topped by Denmark, with wind and solar comprising half its total power installations. South Australia comes a close second. Tamil Nadu is the only Asian market to make it to the top 10.

Tamil Nadu can double its wind energy capacity and increase its solar capacity six-fold by 2027, the IEEFA said in a report titled *Electricity Transformation in India: A Case Study of Tamil Nadu*, that was released a week earlier than the global survey.

Tamil Nadu operates the most diversified electricity generation fleet in India, with renewables representing 35% of installed capacity as of March 2017, nuclear 8% and hydroelectricity 7%. Coal-fired power capacity represents 45%, or 13.4 GW.

Asked whether disparate geographic locations could be compared in this manner, Gerard Wynn of IEEFA in London told *indiaclimatedialogue.net*, "We selected the nine countries and regions in the study according to wind and solar as a percentage of total net generation."

"First, we prioritised very high renewables markets with over 20% like Denmark, South Australia, etc. Below these, there are now several markets at around 15%," Wynn said. "Here we selected more pragmatically, for example, according to data availability, which favoured Tamil Nadu, and also to achieve some representation from non-OECD markets." The Organisation for Economic Co-operation and Development, or OECD, is a group of 35 mostly rich countries.

"They (IEEFA) have focused on studying (and calling these regions) markets. Tamil Nadu, Texas and California fit into this definition since they have the basic essentials for operating a market — producers, consumers, transmission operators, system operators," Deepak Krishnan of the World Resources Institute in Bengaluru told *indiaclimatedialogue.net*. "The authors are more likely to have excluded bigger markets like Nordic Pool and PJM (Pennsylvania, Jersey and Maryland in the US), etc., which encompass two or more states, rather than excluding smaller areas. Therefore, once the definition and criteria for market is established, if Tamil Nadu comes ninth as per the analysis, I'd have no reason to differ."

Rapid expansion

IEEFA believes Tamil Nadu can raise its wind-generation capacity to reach 15 GW in less than 10 years with solar totalling 13.8 GW.

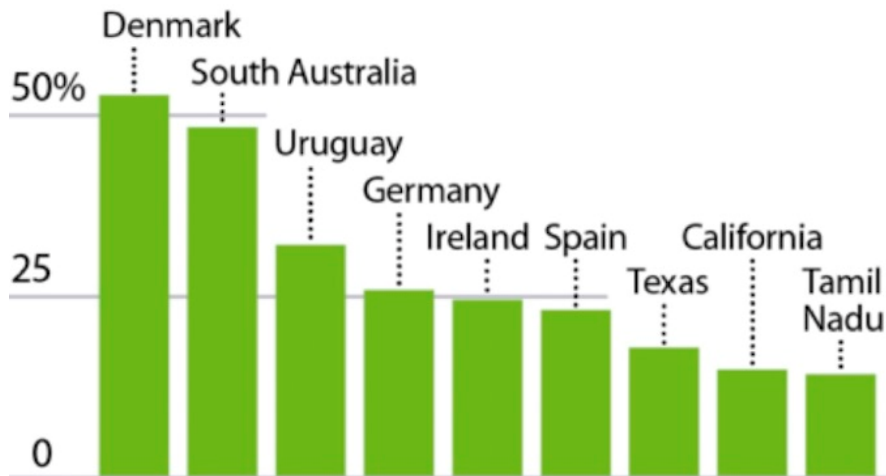
"The upshot is cheaper electricity for customers and a return to profitability for TANGEDCO (Tamil Nadu Generation and Distribution Corporation)," Tim Buckley, IEEFA's director of energy finance studies, Australasia, and lead author of the report, told *indiaclimatedialogue.net*.

TANGEDCO reported a loss of INR 139.85 billion (USD 2.1 billion) in 2013-14. Subsequent reforms have reduced its losses to INR 37.83 billion in 2016-17 and lower its energy deficit from 12.3% in 2011-12 to a record low of 0.6% in 2015-16. IEEFA expects it to break even in the next financial year and record a net profit for the first time in two decades.

"IEEFA bases its forecast on a clear tipping point achieved in 2017: new renewable investments are being underwritten at tariffs of Rs 2.43-3.00/kilowatt-hour (kWh), below the average paid to the National Thermal Power Corporation for thermal power in 2016/17 of Rs 3.20/kWh," the report says.

It notes that Tamil Nadu accounted for nearly one-fifth of the 15.15 terawatt-hours (TWh) of the country's total renewable energy in 2016-17. It is well known that the southern state was one of the pioneers in wind energy, with some plants over 25 years old.

2017 Wind and Solar Net Generation Share



Source: Institute for Energy Economics and Financial Analysis

Tamil Nadu is followed by Maharashtra, Karnataka and Gujarat in wind power capacity. It features third in solar energy after Andhra Pradesh and Rajasthan, despite having the world's second-largest single-site solar farm with an installed capacity of 648 MW.

"With on-going production issues at the Kudankulam nuclear facility and significant coal availability limits due to the distance from the northeast Indian coal fields, renewables and hydro have both provided important grid diversification and peak demand support in 2017," says IEEFA.

In his 2016 e-book, *Tamil Nadu's Electricity Demand-Supply by 2050*, Mysuru-based energy analyst Shankar Sharma observes, "Various studies reveal that the state possesses a huge potential (of about 810,000 MW) from renewable energy sources as a comparison to a projected demand of less than 55,000 MW at an average compounded annual growth rate of six per cent between now and 2050. This clearly indicates the huge and as yet untapped natural resource that can readily replace conventional forms of energy generation and also supplement environmental upgradation and societal well-being."

"The literature from around the world indicates that the aggressive penetration of REs in electricity networks similar to that of Tamil Nadu to the extent of 90% to 95% of the power capacity is techno-economically feasible by 2050. However, a simulation study of Tamil Nadu system by 2050 with 100% renewable energy by the state government will be of great assistance to move forward with a high degree of confidence."

After the IEEFA report, Sharma notes, "My study of Tamil Nadu's overall electricity demand and supply scenario for the year 2050 had come to a similar conclusion. But what is needed is a good combination of highest possible efficiency, optimal demand side management, and responsible energy conservation efforts while effectively deploying distributed type of renewable energy sources all over the state."

Coal caveat

The IEEFA report, however, has a caveat. It points out that Tamil Nadu is simultaneously constructing 22 GW of expensive coal-fired power plants, which is almost double the existing coal-fired capacity in the state, in spite of the favourable investment climate for renewables and lower tariffs for wind and solar energy.

"Building more non-pithead coal-based plants at a time when existing plants are only being used 62% of the time as opposed to the optimal 80% makes no sense," IEEFA says. "This will be borne



out in time with the cancellation of many new, costly coal-based plant proposals such as the 4,000 MW Cheyyur Ultra Mega Power Project."

"There are many factors that could undermine the continued transformation of the Tamil Nadu electricity base," Buckley told *indiaclimatedialogue.net*. "The first amongst these risks are the thermal power plants under construction or planning across the state. Should these plans come to fruition, this would crowd out alternatives and create a material economic barrier to Tamil Nadu pursuing renewable energy opportunities to their full potential."

"The second obstacle is the dire financial profile of TANGEDCO, including Aggregate Technical and Commercial (AT&C) loss rates of above 20%," he said. "This is a major financial barrier to transition, given renewable energy requires policy clarity and certainty, plus secure long term power purchase agreements (PPAs) with viable, bankable counterparties."

Manu Aggarwal of the Council on Energy, Environment and Water (CEEW), a think tank based in New Delhi, elaborated the problems that wind generation faces. "Good wind resources attracted significant deployment of capacity in Tamil Nadu, the highest among all states," he told *indiaclimatedialogue.net*. "But reasons such as transmission infrastructure not keeping pace with the deployment of wind capacity and seasonal wind generation (mostly in June to September) make Tamil Nadu a natural candidate for relatively higher curtailment of wind energy use as compared to other states."

"Overall, the quantum of wind energy loss was 5,000 million units (MUs) in 2015-16, 3,420 MUs in 2013-14 and 1,155 MUs in FY 2012-13. These numbers are relatively old and the situation has improved much since then," Aggarwal said. "However, grid operations need to be made much more transparent in Tamil Nadu, to estimate the true quantum of curtailment. Till that happens, true estimation of curtailment is anyone's guess."

Strong state support

The IEEFA cites strong government support as being responsible for the state's success. Some 20 years ago, to meet the deficit in supply for its burgeoning industries, the state government introduced a favourable feed-in tariff for wind. It encouraged industries to set up their own units. As a result, the Tamil Nadu Spinning Mills Association owns around 3,000 MW of wind farms, nearly 40% of the state's total capacity. When solar followed in the second burst of renewable energy, there were favourable tariffs again.

Asked about his prognosis of the future of renewable energy in Tamil Nadu, S. Nagalsamy, a retired member of the *Tamil Nadu Electricity Regulatory Commission*, told *indiaclimatedialogue.net*, "I am optimistic, provided the grid management is carefully handled. Wind and solar generate power at different times of the day and different seasons. It isn't possible to have these 24 hours a day. They need to be supplemented, to meet the deficit, by hydel and gas."

Rent on electricity meter comes under GST, move may draw criticism

Business Standard : March 5, 2018

Indirect tax department has clarified that rent on electricity meter draws goods and service tax (GST), a development which is likely to draw criticism from the industry. The Central Board of Excise and Customs (CBEC) said even though electricity is exempted from GST, rent on electricity meter is not. Pratik Jain, partner PwC, said there was a contrary circular under the service tax laws. "Industry is likely to pitch in for an exemption on these ancillary charges else consumers will have to bear the additional burden," he said. He said industry view is that it should not be taxable and should be treated as an incidental to transmission and distribution of electricity. Besides, GST will also be imposed on application fee for releasing connection of electricity; testing fee for meters, transformers, capacitors; labour charges from customers for shifting meters or shifting service lines.



India's green energy generation grew 22 per cent in April-December current fiscal

The Economic Times : February 28, 2018

Electricity generation through renewable sources -- including wind, solar, biomass, small hydro and bagasse – stood at 78,256 million units (MUs) between April 2017 and December 2017 as compared to 64,042 MUs generated in the same period last fiscal (2016-17).

New Delhi: India registered a 22 per cent growth in power generation from renewable energy sources in the first ten months (April-December 2017) of the current financial year, thanks largely to the recent massive ramp up in solar capacity addition, according to fresh data released by Central Electricity Authority (CEA).

Electricity generation through renewable sources -- including wind, solar, biomass, small hydro and bagasse – stood at 78,256 million units (MUs) between April 2017 and December 2017 as compared to 64,042 MUs generated in the same period last fiscal (2016-17).

Electricity Generation From Renewable (source wise)
April- Dec, 2017 vis-à-vis April- Dec, 2016

| Source-Wise All India Generation from Renewables | For the Month of | | Cumulative value for the period | |
|--|------------------|---------------|---------------------------------|-----------------|
| | Dec, 2017 | Dec, 2016 | Dec, 2017 | Dec, 2016 |
| | Wind | 3099.88 | 1779.89 | 45474.88 |
| Solar | 2228.17 | 1158.81 | 17312.31 | 9289.51 |
| Biomass | 292.25 | 352.72 | 2571.01 | 3095.28 |
| Bagasse | 2010.37 | 1790.83 | 5873.45 | 6175.51 |
| Small Hydro | 481.25 | 388.48 | 6410.57 | 6490.26 |
| Others | 32.24 | 16.07 | 614.32 | 137.66 |
| Total | 8122.14 | 5462.8 | 78256.54 | 64042.18 |

All Figure in MU

(Source: Power Ministry)

A month-wise analysis of the CEA data shows December registered the highest rate of growth in renewable generation at 48 per cent, followed by 37 per cent in November and 36 per cent in April. Generation dipped only in one month, September, by 9 per cent (see table).

Power generation from conventional energy sources – including thermal, hydro and nuclear resources – grew 4.12 per cent to 1,003 Billion Units (BUs) during April-January period of the current fiscal (2017-18) as compared to the same period last fiscal year. Month-wise data shows May 2017 registered the highest growth in conventional generation at 7.4 per cent while August 2017 witnessed a decline of 0.6 per cent.

The data points at the rising share of renewables in India's energy basket. Renewable energy's share in total generation stood at 8 per cent in the ten months period between April and December 2017 as compared to 6.8 per cent in the corresponding period last fiscal. The government is working on a target to increase India's green energy generation capacity to 175,000 Mw by 2022.

Why India needs a robust energy policy

The Economic Times : February 26, 2018

Aligned to an overarching theme of energy security and sustainability, the DNEP has identified key areas of supply-side intervention and presented viable proposals such as enhancing oil and gas exploration and production, enhancing capacity, and enhancing transmission and distribution.

The last few years have seen many rapid transformations in the global and local energy space. While the Indian government has begun work on integrating global energy trends in its sectoral energy policies, the nation now needs to draft a sharply defined forward-looking roadmap of India's long-term energy agenda, with consensus among industry stakeholders.



Considering India imports 80 percent of its oil needs, the fall in crude oil prices in 2014 was deemed a sign that India would meet its fiscal deficit targets. However, a now-anticipated crude price rally necessitates a more resilient energy basket.

While considering taking crude price movements, the Draft National Energy Policy (DNEP) has acknowledged the need to strengthen renewables, and support the government's rural electrification mission. Aligned to an overarching theme of energy security and sustainability, the DNEP has identified key areas of supply-side intervention and presented viable proposals such as enhancing oil and gas exploration and production, enhancing capacity, and enhancing transmission and distribution.

The draft policy should have also considered an analysis of diverse requirements across India's states. Instead of a "one-solution-fits-all" approach, India's energy policy must use a state-specific bottom-up approach.

Further, the high electricity generation and sustainable energy pathway outlined in the NITI Ambition Scenario (NAS) 2040 indicates the government's willingness towards environmentally clean outcomes. However, the high volume of coal-fired power generation required to meet India's energy needs offsets this. In this context, meeting India's Nationally Determined Contribution targets of 175 GW of renewable electricity by 2022 will need suitable short-term incentives. Many, such as deferral of tax, renewable purchase obligations, capital subsidy, and tariff guideline are already in place.

However, their implementation requires extra coordination amongst various ministries, which will only be possible with an Inter-Ministerial Committee with representation from the Centre, states, and the local government bodies. India also needs a single window clearance and regular check on the policy implementation. Over time, this can lead to adoption of autonomous uptake of renewable energy.

However, before setting out to make India's electricity generation and distribution capabilities future-ready, the power generation sector must face its existing concerns. Despite India's heavy and often unmet demand for electricity, our generation capacity remains grossly underutilised. This gap arises because generation companies are often wary to enter PPAs with financially stressed discoms, and vice-versa. With revenue shortfalls covered by public sector banks, discoms have no incentive for growth.

Power sector reforms must therefore include discom privatisation. Taking cue from the telecom sector, where customers choose a service provider based on the best value proposition, discoms must also give open access to private distributors to sell electricity on the grid. Private agents will demand transmission of electricity without undue losses along the T&D grid, enforcing efficiency. Enabling this necessitates significant policy overhaul to encourage an entrepreneurial mindset in electricity distribution, while navigating discoms out of their current financial distress.

An open market should also be implemented for India's industrial consumers, who are levied some of the world's highest electricity prices, to pay for cross-subsidies. These subsidies ensure that agriculture sector and consumers receive electricity at zero, or often below-cost prices. The DNEP's recommendation of taxing the industrial customer electricity purchases, using the tax proceeds to subsidize vulnerable customers, can bring transparency and efficiency through electricity distributor competition. However, this must be implemented in a phased manner to avoid a chaotic scenario.

The energy sector also needs a uniform, 'one nation one policy' approach, ending artificial state barriers between states caused by differing state regulations. This can open the power value chain to market forces. The roadmap to a truly sustainable future energy mix cannot be an abrupt switch to renewables, but requires a phased approach. Gaseous fuel can be the bridge, its use steadily increased to displace coal, thus reducing carbon emissions.



To begin, India can replace coal plants with natural gas-based plants, which emit half the pollutants compared to coal plants. Gas can also become the fuel of choice for rural India - It is versatile enough to support micro and mini-grids, while biogas-based technologies can provide clean cooking fuel in the remotest of areas.

With its flexibility as a versatile fuel, biogas can supplement the power and transportation sector's energy requirements. Upgraded forms of biogas, i.e. Bio-CNG, or Bio-PNG further opens new possibilities, for utilization of locally available organic waste.

As a matter of fact, India's power sector consumed less than 32 million standard cubic metres per day (mmscmd) of domestically produced gas and imported LNG, of a total volume of 139.37 mmscmd. Modern gas-fired power plants can be the perfect fit for fueling, transport, and heating and lighting homes, and powering industries. A coal-to-gas transition gives India the time to onboard the technologies that can renewable power's shortcoming, such as intermittency.

The NEP's recommendations for Oil & Gas - a robust regulatory regime, enhancing infrastructure for refining and distribution, and market determination of fuel prices – underpin this uptake. The draft provides a good head-start towards setting up a positive tone towards providing the much-needed impetus to clean and sustainable energy.

Power plants face coal shortage, says report

The Hindu : February 26, 2018

'As many as 46 plants reported stocks of less than a week'

The power sector seems to be facing coal shortage again as 46 coal-fired power plants reported stocks of less than a week, according to official data.

According to the daily coal stock report of 113 power plants monitored by Central Electricity Authority (CEA), six plants have coal stocks for zero day and eight plants have stocks of just one day to generate electricity as on February 22, 2018.

'No improvement'

Industry sources said coal supplies have not improved since the monsoon season last year when some of the coal-fired power plants had faced acute shortage.

Power, coal and railway ministries had taken a series of measures to improve coal supplies to power plants after power prices crossed ₹11 per unit at energy exchanges in September last.

The CEA report stated that there are 12 non-pithead power plants facing super critical coal stock situation, or in other words, have coal stocks for less than four days.

Besides, there are six such plants that have coal stock of less than seven days. Of these 46 plants with stocks of less than a week, Badarpur, Bhatinda and Panki plants are shut down.

The government, in January-end, had decided on various steps, including the use of dedicated rail transportation and setting up of power projects only within 500 km from coal mines, to boost coal supplies to power plants.

World's largest solar park Shakti Sthala launched in Karnataka

Live Mint : March 2, 2018

The world's largest solar park, Shakti Sthala, has a capacity of 2,000 MW and has set up at an investment of Rs16,500 crore at Pavagada in Karnataka's Tumakuru district

The Karnataka government on Thursday inaugurated the first phase of a 2,000 megawatts (MW) solar park in the drought-prone Pavagada region of Tumkur district, about 180km from Bengaluru.



The first phase of the Rs16,500 crore park called "Shakti Sthala" will generate 600MW, while the balance 1,400MW is expected to be commissioned by the end of this year, the government said in a statement.

The solar project, touted as the largest in the world, is spread over 13,000 acres and five villages. It is part of the "Karnataka Solar Policy 2014-2021" which aims to decrease dependence on traditional power sources and move to environmentally friendly ones to meet the growing power needs of the state.

The solar park is also part of the Siddaramaiah-led Congress government's "Nava Karnataka Nirmana" (building a new Karnataka) campaign, used extensively by the party in the run-up to the 2018 assembly elections to highlight its economic development and job creation efforts as well as to attract big ticket, high investment projects to the state.

The park ties in with the centre's scheme to generate 100 gigawatts (GW) of solar power by 2020.

The land for the solar park has been taken on a 25-year lease by the government from around 2,300 farmers, and in return, they are paid an annual rental of Rs21,000 per acre, with scope for a 5% increase every two years.

The move was intended to curb the mass migration of people from the region which has been declared drought-hit in 54 of the last 60 years.

"Development and economic growth of a nation occurs when its people become partners in the development process," Siddaramaiah said in a statement on Thursday. He said the state was the third-largest renewable energy producer in the country and has set a target of sourcing at least 20% from renewable sources in the future.

The park's development was initiated with the creation of the Karnataka Solar Power Development Corp. Ltd (KSPDCL) in March 2015 as a joint venture between Karnataka Renewable Energy Development Ltd (KREDL) and Solar Energy Corp. of India (SECI).

NTPC Ltd pulled out of the project a month ago saying it was unable to supply procured power at the agreed cost, *The Hindu* reported on 25 January. According to the agreement, NTPC was to buy 600MW from six developers at Rs4.80, and supply it to state electricity supply companies at a bundled tariff of Rs3.30 per unit. The move left the state government looking for fresh bids. Other setbacks include the postponing of auctions for 1,200MW capacity and legal complications with another 860MW.

KSPDCL uses the "plug and play" model, under which it acquires and develops land as blocks for solar power generation, embedded with the required government approvals, and gives it out to solar power developers (SPDs) through auctions.

Karnataka, which continues to face power shortage, increased its capacity from 14,030MW in 2012-13 to 23,379MW in January this year, through all sources including hydel, thermal, nuclear and biomass.

Energy saved is energy produced
Practice conservation of energy for the future generation