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

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Expert panel okays amendment of environment nod for power project

The Hindu: April 3, 2017

The Expert Appraisal Committee (EAC) on environmental impact assessment has recommended amending the environment clearance (EC) for downsizing the Udangudi 'super critical' imported coal-based thermal power plants from 2x800 MW to 2x660 MW.

The amendment to the EC has been allowed after the Tamil Nadu Generation and Distribution Corporation (Tangedco) paid a compensation of □64 crore and bought out shares held by Bharat Heavy Electricals Ltd (BHEL) in the project proponent, Udangudi Power Corporation Ltd (UPCL), a joint venture company.

"The government of Tamil Nadu decided to execute the project under State sector, and to terminate the joint venture. Tangedco has now decided to execute the project," the EAC noted.

Sole owner

The Environment Ministry had issued an EC in favour of UPCL on October 14, 2013, for setting up the 2x800 MW project. UPCL, on February 10, 2017, had submitted an application seeking amendments to the EC granted earlier for the 2x800 MW project and the transfer of the EC to Tangedco.

The EAC also noted that Tangedco had become the sole owner of the company and was continuing the project activities. "In view of this, the EC may be transferred to Tangedco," the EAC said.

Seeking uniformity

Tangedco had sought downsizing of the units from 800MW to 660 MW "to have uniformity in sizes and to have ease of managing spares."

With this downsizing, the projected pollution load is also expected to reduce, while the requirement of imported coal is set to reduce from 4.39 metric tonnes per annum to 3.83 metric tonnes per annum.

While asking UPCL to apply separately for transferring the EC to Tangedco, the committee also recommended amending the environment clearance for the downsizing of the project.

Drones check HT power lines

The Hindu: March 29, 2017

Insulators inspected in over 100 HT towers in north Chennai for 'Corona effect'

The residents would well remember the black Saturday last year on April 30 when many areas in the city plunged into darkness the whole night.

Coming in the backdrop of the State recording the highest demand of 15,343 MW and consumption of 345 million units (MU) on April 29, the officials of Tamil Nadu Generation and Distribution Corporation (Tangedco) had to firefight throughout the night to restore power supply.

Later, Tangedco officials found out that the damage to insulators on high tension lines, which conveyed power to various sub-stations, including Taramani and Tondiarpet, was the reason.

The insulators of high tension (HT) lines normally get damaged by electrical flash called 'Corona effect', a senior official of Tangedco said. "The 'Corona effect' is a colloquial term for insulator breakdown which is caused due to industrial pollution where chemical compounds smudge the

insulators. When these insulators are exposed to high temperatures combined with heavy load it leads to leakage of insulators causing electrical flash and power breakdown," he explained.

Normally, flashing or 'arc flash' happens on high voltage transmission power lines located on coastal belts because of various environmental factors, including fog, dew, humidity and heavy wind, he noted. According to Tangedco officials, flashing of insulators are a regular phenomenon as city's power supply is dependent on the several thermal power stations including North Chennai Thermal Power Station (NCTPS), Vallur and Ennore, being located on the coastal areas. Similarly, the transmission lines in Thoothukudi also experienced 'Corona effect' last February.

This year, the officials of Tangedco do not want a repeat of last year and so have taken several preventive measures, including use of drones, night patrolling and regular checking of the health of insulators.

Used for first time

Drones were used for the first time to check the health of insulators in over 100 HT towers feeding the sub-stations in north Chennai. They were also used to check weakness in jumpers and any hot spots in feeder lines, an official said.

In addition to drones, maintenance staff carried out night patrolling to identify any flashing on feeder lines, as arcing could be seen clearly during nights. Similarly, a boat was hired and deployed in Pallikaranai marshland to inspect the feeder lines transmitting power to KITS Park near Sholinganallur. Every year, 200 to 300 insulators would be replaced with new ones on the HT lines as part of maintenance work by the end of March. Even this year, insulators on six transmission lines of 400 kilo volt (KV) and eight distribution lines of 230 KV were replaced, a Tangedco official in the city said.

Is the green edging out the black?

The Hindu: April 2, 2017

A few noteworthy events have happened in the energy sector since the beginning of this year. First, some time in January, renewable energy capacity in India crossed the 50-GW mark, doubling in just five years. And, solar power capacity, which was hardly anything five years back, reached 10 GW. Going by capacities awarded and live tenders, this number could well double in two years.

And then, in February, in two separate capacity auctions, solar and wind tariffs fell to historic lows — □3.30 and □3.46 a kWhr, respectively. Although no one can say for sure that the tariffs that the future bids would throw up would be as low, it is not in doubt that prices of wind and solar energy have begun gravitating towards the levels discovered in February auctions. The message is clear: the era of high prices of renewable energy is over.

Two factors have hindered the growth of renewable energy. The first has been the high cost of power generated by wind and solar. This issue now appears to be tamed. The February auctions have shown that if you assure those who put up wind and solar power plants what they produce will be duly purchased and they will get their due payments without much delay, the prices will drop. Allow them the freedom to put up their plants anywhere in the country and sell their energy to any customer, called "inter-state open access", prices will drop further. Since the country is moving in that direction, it is pretty much clear that wind and solar can compete with conventional power — mainly coal — on prices.

The second factor that has gone against renewable energy is that of 'intermittency'. Wind turbines and solar panels can generate power only when wind blows or the sun shines — unlike a coal or gas fired power station, which will produce a steady stream of electricity for weeks on end. But with the rapid strides that storage technology is making, coupled with the grid operator's growing ability to manage the intermittency with the use of software, the problem of fickleness of renewable energy is also coming under control. Like a tank that can catch water

whenever possible and release it steadily down a pipe, a storage system can help bring in smoothness of power supply.

The problem again has been the high cost of storage. 'Storage' comes in many forms, ranging from water pumped into reservoirs at a height for later release, to a plethora of battery technologies such as lithium-ion and flow batteries, but globally the costs of storage have been coming down. It wouldn't be long before large storage systems help Indian grid operators handle the on-off nature of wind and solar power. Further, software-aided smart grid management is coming into play. Very soon, the first contract for the establishment of a 'renewable energy management centre', will be awarded. The REMC is essentially a SCADA system designed specifically for wind and solar power, and will match the predicted supply of power with the demand elsewhere. The first REMC will come in Chennai, but soon a dozen of them will be set up across the country. Storage and smart grids together mean that the problem of intermittency of renewable energy is also won over.

Quo vadis, **coal?**

The big question emerging on the horizon, therefore, is this: if clean energy is both cheap and its supply smooth, what will happen to coal?

In the first 11 months of the current financial year, Indian power projects consumed 439.41 million tonnes of coal (including 60.66 million tonnes of imported coal.) The country has 124,785 MW of power plants designed to run on Indian coals and another 18,580 MW on imported. As such, coal is today India's energy mainstay.

However, the fuel is on its way out. In (say) fifteen years, coal power plants will at best be the 'Twelfth Man', chipping in to bridge a shortfall whenever called for. The mainstay is very likely to comprise wind, solar and hydro power plants.

"With the emergence of renewables as an alternative source of electricity, further investments in coal-based power plants are uncertain," said Salil Garg, a power sector expert at India Ratings and Research. Tightening of emission norms is making coal plants costlier, he said, noting that recent investments have not been remunerative for the investors.

It is not a coincidence that Tata Power Ltd., the country's largest private sector power company, has not added one MW of coal-based capacity in the last six years. Tata Power's CEO and Managing Director, Anil Sardana, said, very guardedly, that while the company has "not taken a vow" not to invest in coal power, one could not assume that new coal plants would be allowed to operate as long as Tata Power's Trombay plant, which has been generating electricity for 56 years.

Campaigns against coal

Globally, environmentalists have launched a war against coal. Several funds and financial institutions (notably the investment fund of the Norwegian government) have decided not to put their money in coal-related projects, and to gradually pull out the investments already made. The Guardian newspaper is running a 'keep-it-in-the-ground' campaign, calling for a stop to production of coal. In Germany, green groups are onto a similar campaign, '*Ende Gelande*' ("thus far and no further"). These movements have been strengthened by renewable energy becoming cheap and handleable.

The effect of these is becoming evident. According to a recent report of the International Energy Agency, renewable energy catered to more than half of the incremental demand for electricity in 2016. "Demand for coal fell worldwide, but the drop was particularly sharp in the U.S., where the demand was down by 11%," the report said. Further, demand for coal fell in China in 2016, even as its economy expanded 6.7%, it said. Appetite for coal declined in Europe too, by 10% cent, though it was more natural gas than renewable energy that took coal's space.

What does all this mean for India? The shift from coal to renewables is tectonic, disruptive. It has major implications on the long-term prospects of companies such as Coal India, BHEL and NTPC.

Companies, like the Adanis', which are planning to make long-term investments in coal mines and coal-fired power plants will be forced to re-think their plans. True, coal will be still needed in the short run for energy security, but its need will diminish. The astonishing fall in the prices of renewable energy in February may have just rung-in the beginning of the end for coal.

Solar energy reaches another milestone

Business Line: March 30, 2017

Figures released by the Central Electricity Authority today show that the Indian solar energy sector crossed a milestone in January – generating over 10 billion units of electricity for the first time.

In the April 2016-Januray 2017 period, solar power plants in India generated more than 10,565 million kWhr of electricity—roughly twice (5,726 million kWhr) as much as it did in the corresponding period of last year, albeit on a higher installed capacity base.

It is pertinent to mention that the installed capacity of solar also crossed the 10,000 MW mark in January, and amounted to a fifth of the total renewable energy capacity in India, which, incidentally, also crossed the milestone of 50,000 MW in January.

But in the context of overall power generation in the country, which amounted to 1,038 billion kWhr in April '16 – January '17, solar's contribution was just a little above one per cent.

Wind power sector, which has 30,000 MW of capacity standing on Indian soil, produced 41,159 million units.

On the overall, the renewable energy sector, comprising mainly wind and solar but also a little of small hydro and biomass, generated 70 billion units of electricity—contributing 7 per cent to the country's total generation. Electricity generation from this sector grew 26.31 per cent, compared with the first ten months of last year.

Thermal power continues to dominate the country's energy sector, growing 31 per cent in terms of generation (968 billion units.)

India has total electricity generation capacity of 315,426 MW, of which 189,048 MW is coal-fired. Another 25,329 MW of natural gas fired plants also come under 'thermal'. Hydro capacity of 44,413 MW and nuclear of 5,780 MW come only after renewable energy's 50,018 MW.

It is also noteworthy that the 12th Plan target for power capacity addition of 88,537 MW has already been met—achievement in the Plan period, which ends this month, stood in January at 94,689 MW.

India adds record 5,400MW wind power in 2016-17

Livemint: April 3, 2017

Of about 50,018MW of installed renewable power across the country, over 55% is wind power

India added a record 5,400 megawatts (MW) of wind power in 2016-17, exceeding its 4,000MW target.

"This year's achievement surpassed the previous higher capacity addition of 3,423MW achieved in the previous year," the ministry of new renewable energy said a statement on Sunday.

Of about 50,018MW of installed renewable power across the country, over 55% is wind power.

In India, which is the biggest greenhouse gas emitter after the US and China, renewable energy currently accounts for about 16% of the total installed capacity of 315,426MW.

During 2016-17, the leading states in the wind power capacity addition were Andhra Pradesh at 2,190MW, followed by Gujarat at 1,275MW and Karnataka at 882MW.

In addition, Madhya Pradesh, Rajasthan, Tamil Nadu, Maharashtra, Telangana and Kerala reported 357MW, 288MW, 262MW, 118MW, 23MW and 8MW wind power capacity addition respectively during the same period.

At the Paris Climate Summit in December, India promised to achieve 175GW of renewable energy capacity by 2022. This includes 60GW from wind power, 100GW from solar power, 10GW from biomass and 5GW from small hydro projects.

It also promised to achieve 40% of its electricity generation capacity from non-fossil fuel based energy resources by 2030.

In the last couple of years, India has not only seen record low tariffs for solar power but wind power too has seen a significant drop in tariffs. In February, **solar power tariffs** hit a record low of Rs2.97 per kilowatt hour (kWh)and **wind power tariff** reached Rs3.46 kWh.

Even though wind leads India's renewable power sector, it has huge growth potential. According to government estimates, the onshore wind power potential alone is about 302GW. But there are several problems plaguing the sector.

For instance, the government has been concerned about squatters blocking good wind potential sites, inordinate delays in signing of power purchase agreements, timely payments and distribution firms shying away from procuring electricity generated from wind energy projects. In January, the ministry held a **meeting with the states** to sort out these issues.

The ministry has also taken several other policy initiatives, including introducing bidding in the wind energy sector and drafting a wind-solar hybrid policy.

It has also come out with a 'National Offshore Wind Energy Policy', aiming to harness wind power along India's 7,600 km coastline. Preliminary estimates show the Gujarat coastline has the potential to generate around 106,000MW of offshore wind energy and Tamil Nadu about 60,000MW.

Hot weather powers IEX volumes to all-time high; average trade price rises to Rs 3 kwh

Financial Express : April 3, 2017

The current heat wave conditions in North, West, and Central India has taken the trade volumes on the Indian Energy Exchange to an all- time high.

The current heat wave conditions in North, West, and Central India has taken the trade volumes on the Indian Energy Exchange to an all- time high as discoms across states are resorting to the spot market to meet shortfalls, a senior exchange official told FE. The total volumes traded on the IEX has increased to 147 million units (MU) per day in the last five days as against an average of 120 MU per day earlier, Rajesh Kumar Mediratta, director Business Development at IEX told FE on Friday. "This time summer like conditions have come at least 15 days early. Last year we saw similar conditions in April. The average traded price has also increased to `3 per kwh compared with `2.20 to `2.40 in January-February," Mediratta said.

States like Gujarat and West Bengal are buying in large quantities of spot-market power, both to support shortages due to heat wave conditions and also to meet the shortfall due to shutdown of plants. Gujarat and West Bengal are at present buying around 1000 MW each from the exchange, while Maharashtra, and Southern States of Telangana, Karnataka and Tamil Nadu are buying between 100-200 MW of electricity.

Erratic temperature transition might also explain the sudden surge in exchange prices. The sudden change in temperatures has led to abrupt surge in electricity consumption. Temperature during the last week of March was 4-6 degrees above normal, constituting heat wave conditions in many areas of the country. The rise in consumption from government policies has also brought a lot of people into the electricity grid, leading to surge in power demand especially in the summer.

Sambitosh Mohapatra, partner, energy and utilities at PwC told FE that the state discoms reaping the benefits of the Ujwal Discom Assurance Yojana (Uday) scheme are partly responsible for the increase in spot electricity trading from the energy exchanges. Discoms across the participating states have saved `11,989 crore in interest costs till December 2016 after joining the scheme. Better liquidity has improved their ability to procure power.

Off late, state discoms were signing long term power purchase agreements (PPAs) at a much lower rate. The power generators without any PPAs from the states would gain from the surge in spot market prices. That would indirectly benefit the banks and the financial institutions who funded these projects, as surge in spot market trade might help some power plants become operating assets from NPAs.

Some analysts believe that thermal capacity of around 8,100 MW in North India was lying idle due to feasibility factor. These may come on-stream as demand for power surges in the coming months. “This would keep the increase in price on IEX under check,” said analysts. This is the first summer when the Indian power infrastructure is witnessing the combined effect of all these phenomena. The power ministry on Friday took a review of power supply position, and preparedness of various power utilities during the forthcoming summer. It noted that peak demand during the summer is expected to be of the order of 165 GW.

“We see atleast 10% increase in solar power generation during the year if the trend continues in April,” said Gangadhar Rao, an independent solar power consultant based out of Bengaluru. However, Mytrah Energy, a developer of solar and wind energy plants, has a different outlook. The company noted that solar generation tends to be a little lower in summer as the heat affects the performance of the modules.

Govt gives 25 mega power producers extra time for tax breaks

Livemint: April 1, 2017

Extension of incentives to ink deals would increase power availability and ensure consumers do not have to pay more, says government statement

The Union cabinet on Friday gave a five-year extension to 25 large power projects to ink long-term power purchase deals and avail the promised customs and excise duty benefits on equipment procured under the Mega Power Policy of 2009.

An official statement issued after the cabinet meeting chaired by Prime Minister Narendra Modi said that the extension of incentives to ink deals would increase power availability and ensure that consumers did not have to pay more.

The statement said projects will get tax breaks on a pro rata basis against the quantum of power purchase deals they sign with utilities.

The 25 projects were given provisional mega power project status in 2011 and had five years to sign power sale deals, which they failed to do. Now, they have another five years to do so.

Former power secretary Anil Razdan said supporting these projects is necessary in view of the expected power demand increase on account of the Make in India drive, rural electrification and the shift to electricity from fossil fuels for transportation and cooking.

The move will provide about Rs10,000 crore of benefits to the 25 projects with about 32,000 megawatts (MW) in capacity and help ease the stress some of them pose to the banking sector. Only 11,000 MW in capacity has been commissioned, with the remaining in various stages of implementation. The total cost of these projects is estimated to be about Rs1.5 trillion.

GMR Chhattisgarh Energy Ltd, Monnet Power Corp. Ltd, Lanco Power Ltd, Essar Power Jharkhand Ltd, Jindal India Thermal Power Ltd, Hinduja National Power Corp. Ltd, IL&FS Tamil Nadu Power Co. Ltd and Torrent Energy Ltd are among companies that are eligible for the benefits.

Further, in a bid to promote organic farming among farmers and augment their incomes, the cabinet approved unrestricted export of organic farm produce. It also enhanced the ceiling on export of organic pulses from 10,000 tonnes a year currently to 50,000 tonnes.

In a move to boost indigenous production of urea, the cabinet cleared an amendment to the New Urea Policy, 2015 which will enable companies to produce beyond the re-assessed capacity. The move is expected to boost local production of the plant nutrient, the statement said.

The cabinet also approved a new air services agreement between India and Serbia.

In another decision, it approved extension of grant-in-aid support to the network of 12 Agro Economic Research Centres and three agro economic research units for another year (2017-18).

Further, to eradicate child labour, the cabinet approved ratification of the Minimum Age Convention, 1973 and Worst Forms of Child Labour Convention, 1999 of the International Labour Organization (ILO).

The cabinet also cleared an understanding between the forum of state electricity regulators and the National Association of Regulatory Utility Commissioners on large-scale integration of clean energy into the electricity grid.

Govt to extend sops for Mega Power Policy projects by five years

Livemint: March 29, 2017

The government is planning to extend by five years customs and excise duty benefits to projects under the Mega Power Policy

The government is set to extend by up to five years the benefits of the Mega Power Policy which promised customs and excise duty benefits to power projects of 1,000 megawatt (MW) or more capacity that sign long-term power purchase deals.

The move will provide about Rs10,000 crore of benefits to two dozen projects with about 32,000 MW capacity and help ease the stress some of them inflict on the banking sector. Only 11,000 MW of these projects are commissioned, while the remaining are under various stages of implementation. Generally, 70% of the project cost is financed through debt. The total cost of these projects is estimated to be about Rs1.5 trillion.

The proposal for extending the mega power policy scheme is likely to be taken up by the Union cabinet chaired by Prime Minister Narendra Modi shortly, a person privy to the development said on condition of anonymity.

Most of these projects could not sign power purchase deals with distribution firms as shortage of domestic coal and high import price for the fuel during the commodity boom in the early years of this decade kept generation cost high, which discouraged utilities from signing long-term purchase pacts. Extending the mega power policy is the latest in a series of steps being taken to revive the electricity sector including coal linkage rationalisation and debt restructure of distribution firms.

“Revival of these projects will bring benefits to the banking system and the overall economy. Since new plants would be efficient, it will also enable lowering of the power tariff for the distribution firms and the consumers,” explained the person. Reviving these high performance projects with lesser emissions will also improve investments into the power sector, the person said further.

Under the Mega Power Policy of 2009, 25 projects have been given provisional mega power project status. But to avail incentives such as lower customs duty and excise duty exemption for equipment, they are required to sign long-term power purchase agreements of eight years for 85% of the power generated, for which they were given five years from the date of the import of equipment. However, only projects accounting for 1,320 MW managed to achieve this. Extending extra time will enable the remaining projects too to take advantage of the scheme.

Anil Razdan, former power secretary, said, “It is extremely necessary to support these projects in view of factors like energy requirement for the Make in India drive, village electrification and increase in power demand resulting from reforms in the distribution sector. Going forward, I expect power demand to go further up from greater use of electric vehicles”.

GMR Chhattisgarh Energy Ltd, Monnet Power Corp. Ltd, Lanco Power Ltd, Essar Power Jharkhand Ltd, Jindal India Thermal Power Ltd, Hinduja National Power Corp. Ltd, IL&FS Tamil Nadu Power Co. Ltd and Torrent Energy Ltd are among companies that are eligible for the benefits.

While the proposal currently being discussed among ministries is to give extra five years to projects for meeting the requirement, a call on this will be taken by the cabinet

India becomes net exporter of power for the first time

Livemint: March 29, 2017

India has become a net exporter of electricity during the April-February period this fiscal for the first time, power ministry said on Wednesday.

“As per Central Electricity Authority (CEA), the designated authority of government of India for cross border trade of electricity, first time India has turned around from a net importer of electricity to net exporter of electricity,” power ministry said in a statement.

According to the statement, during the current year 2016-17 (April-February), India has exported around 5,798 million units to Nepal, Bangladesh and Myanmar which is 213 million units more than the import of around 5,585 million units from Bhutan.

Export to Nepal and Bangladesh increased 2.5 and 2.8 times respectively in the last three years. Ever since the cross border trade of electricity started in mid-80s, India has been importing power from Bhutan and marginally exporting to Nepal in radial mode at 33 kV and 132 kV from Bihar and Uttar Pradesh respectively.

On an average, Bhutan has been supplying around 5,000-5,500 million units to India, it said. India had also been exporting around 190 MW power to Nepal over 12 cross border interconnections at 11kV, 33kV and 132 kV level. The export of power to Nepal further increased by around 145 MW with commissioning of Muzaffarpur (India)– Dhalkhebar (Nepal) 400kV line (being operated at 132 kV) in 2016, it added.

The export of power to Bangladesh from India got further boost with commissioning of the first cross border interconnection between Baharampur in India and Bheramara in Bangladesh at 400kV in September 2013. It was further augmented by commissioning of second cross border Interconnection between Surjyamaninagar (Tripura) in India and South Comilla in Bangladesh.

At present, around 600 MW power is being exported to Bangladesh. The export of power to Nepal is expected to increase by around 145 MW shortly over 132 kV Katiya (Bihar)– Kusaha (Nepal) and 132 kV Raxaul (Bihar)– Parwanipur (Nepal). A few more cross border links with neighbouring countries are in the pipeline which would further increase export of power.

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