TATA POWER

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TPTCL'S E-NEWS LETTER

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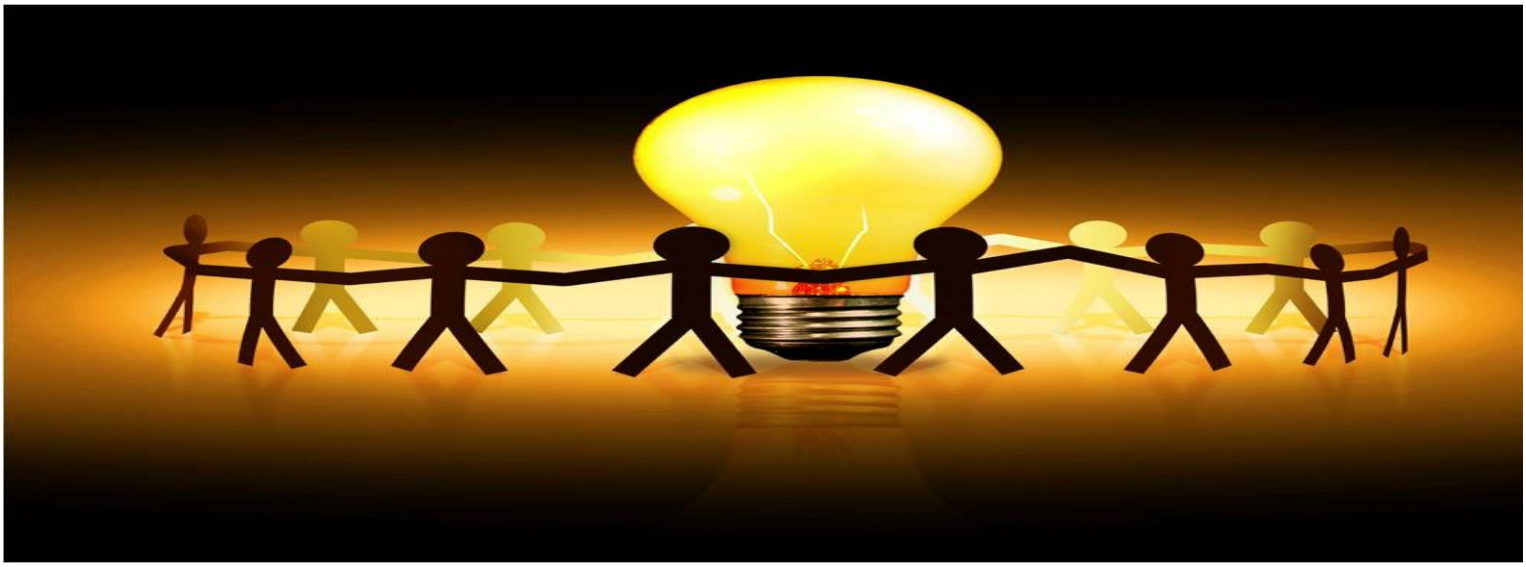
Tata Power Trading Company Limited (TPTCL)



Lighting up Lives!

Power Market News

IEX trading volume jumps 24% in December

The Indian Energy Exchange (IEX) reported a 24% year-on-year growth in the volume of electricity traded on the exchange in December at 9,035 million units (MU), indicating robust economic activity despite concerns over the new covid variant Omicron. IEX, the country's largest power exchange, recorded 27,677 MU volume and achieved 37% YoY growth across all its market segments for the third quarter of the fiscal year 2022.

Along with a pick-up in economic activity, competitive power prices, flexible procurement and a diverse spectrum of market segments have driven the electricity volume on the exchange. The exchange is also enabling participants to accrue significant financial savings by securing electricity from the platform. According to the power demand data published by the National Load Dispatch Center, the energy consumption was up 3.12 % YoY at 110.34 b billion units, while the national peak demand at 183.39 GW saw a mere 0.2 % YoY growth during December. During the month India's manufacturing PMI fell to 55.5 from 57.6 level of November, but still remained in the expansionary zone.

While the increase in power demand has been contributing to the electricity volume growth at IEX, the exchange's role as the most flexible, competitive and transparent platform for power procurement for the distribution utilities and industries has been the most key aspect towards its increasing role and impact. In December, the exchange registered the day-ahead market volume at 5423 MU, a 15% MoM increase and 3% YoY decline. The average market clearing price at ₹3.54 per unit in December, 2021 saw 15% MoM and 25% YoY increase.

On 1 January, Bhutan commenced trade in the day-ahead market through Druk Green Power Corporation. Besides Nepal and Bhutan, IEX has been working with stakeholders in Bangladesh to facilitate its participation towards reinforcing the cross-border electricity trade and building an integrated South-Asian regional power market.

The real-time electricity market saw 1,512 MU volume and a significant 34% YoY growth with the average monthly price at ₹3.61 per unit. The highest single-day volume of 67.5 MU was achieved on 3 December. For the third quarter, the market achieved a cumulative 4,822 MU volume and registered a robust 70% YoY growth.

During December, 557 participants transacted in the exchange's RTM market. The consistent growth in volumes in this market segment has been indicative of its significance for both distribution utilities and industries in balancing real-time power demand-supply requirements. ***Source***

R.K. Singh dedicates Automatic Generation Control to Nation

Minister of Power and New & Renewable Energy Shri R.K. Singh dedicated Automatic Generation Control (AGC) to the nation which will facilitate the target of achieving the government's ambitious target of 500 GW non-fossil fuel-based generation capacity by 2030. The AGC is being operated by Power System Operation Corporation (POSOCO) through National Load Despatch Centre.

While speaking on the 5th POSOCO Day, Shri R.K. Singh said, "I am happy that India is getting ready for integration of large-scale variable & intermittent renewable sources and one of the major tools for enabling the frequency control is AGC. Under the POSOCO's AGC project, till date 51 GW of generation

capacity across all five regions is operational. This is a significant milestone in improving the resilience of the Indian Power System manifolds."

Through AGC, NLDC (National Load Despatch Centre) sends signals to more than 50 power plants in the country every 4 seconds to maintain the frequency and reliability of the Indian Power System. This will ensure more efficient and automatic frequency control for handling variable and intermittent renewable generation.

Shri R.K. Singh, also released a report titled "Assessment of Inertia in Indian Power System" which has been prepared by POSOCO in collaboration with IIT Bombay. Considering the aggressive target of integrating RE capacity in India, POSOCO instituted a study in collaboration with Indian Institute of Technology, Bombay, to review the global best practices in respect of estimation, measurement and monitoring of Power System inertia and evolve a methodology for the same in the context of Indian Power System.

Shri Singh said, "On the country's march towards achieving the renewable energy capacity of 175 GW in 2022, we have achieved an installed capacity of 150 GW of renewable energy, including large hydro projects. 63 GW of renewable energy capacity are under various phases of installation, which is expected to be completed by next year." Talking about challenges of Indian Power System, Shri Singh said, "POSOCO has to brace up for challenges of the future, in our national goal of transition to cleaner energy. The dynamics in the Indian Power Sector are multifold, ranging from the changing fuel mix, penetration of renewables, the proliferation of distributed energy resources, and the challenge to deepen system security and resilience."

"Power sector is transforming. There is a need of balancing grid operations as renewables are evolving as a greater challenge. We have penetration of solar even in agriculture sector. Substantial part of the consumption will be generated by consumers through renewables. We will see even industries switching to renewables as tariff of industries is higher than consumers'. We need to come up with mechanism to balance this all," he said.

Shri Singh said, "We together have changed the Power Sector. We have transformed our country from deficit to surplus. We have connected whole country to one grid. And now we can transfer 112 GW from one region to another. We connected whole country to one market. Now the power can be generated anywhere and consumed anywhere. Now there is no question of any area being power-deficit."

"As demand catches up with existing capacity, POSOCO won't have luxury to have surplus at hand, therefore POSOCO should have reserves through ancillary services." In respect of quality institution for system operation at State level, the Hon'ble Minister said that there has to be system of compulsory certification.

On this occasion, Shri Krishan Pal Gurjar, Minister of State for Power said, "POSOCO is contributing to the formation of the South Asian Grid for effective utilization of resources between neighbouring countries (Bhutan, Nepal, Bangladesh and Myanmar) under its jurisdiction. Over the years, POSOCO has successfully operated the Indian Electricity Grid with a focus on efficiency, reliability, safety and fairness, despite the challenges posed by the COVID-19 pandemic." "Various apps like Vidyut Pravah, Merit, etc. developed by POSOCO are being used for dissemination of real-time information about Indian Power System in public domain for bringing transparency in electricity market operation," he said.

The event was attended by various distinguished officials from the MOP, MNRE, RPC, NLDC, RLDCs and SLDCs through hybrid mode. POSOCO Day is observed on 3rd January to commemorate its

independent functioning that began on 3rd January 2017, under Ministry of Power as one of the Power PSUs after separating from POWERGRID as its subsidiary organization. It is responsible to ensure the integrated operation of the Grid in a reliable, efficient, and secure manner. It consists of 5 Regional Load Despatch Centres (RLDCs) and the National Load Despatch Centre (NLDC). ***Source***

Power demand up 1.7% y-o-y in November 2021

Energy demand increased on a pan-India basis, albeit marginally, by 1.7 per cent year-onyear (y-o-y), to 99.6 billion units (BU) in November 2021 as demand from north and south India declined due to onset of winters as well as lower generation, India Ratings and Research (Ind-Ra) said.

“The slowdown in the improvement was led by the onset of the winter season, impacting demand from the northern (up 2 per cent y-o-y) and southern region (down 5 per cent y-oy). Ind-Ra believes that reduction in the energy demand in November 2021 is also attributable to lower generation, as reflected in an increase in the power outages at thermal power plants due to coal shortages,” the ratings agency said.

Total all-India generation increased marginally by 2 per cent to 99.4 BU in November 2021. The overall increase in generation was however supported by a 16.4 per cent y-o-y increase in the generation from renewable sources and a 16 per cent y-o-y rise in generation from hydro power sources, whereas the generation from coal-based thermal power plants reduced by 0.3 per cent y-o-y, Ind-Ra pointed out.

Besides, the all-India energy demand for the first 25 days of December 2021 improved by 3.5 per cent y-o-y to 88.7 BU.

Coal production

Total production of coal by Coal India (CIL) and Singareni Collieries increased 5 per cent yo-y to 59.4 million tonnes (MT) (from October 2021: up 8 per cent month-on-month), owing to the improved all-India power demand. The same led to an 11 per cent y-o-y improvement in coal off-take to 56.8 MT and the coal inventory at thermal power stations declined 53.2 per cent y-o-y to 17.5 MT in November 2021 (from October 2021: up 62 per cent m-o-m).

The improvement in domestic coal production has led to an improvement in the coal inventory levels, with the number of thermal power plants with critical or sub-critical levels of coal stock as per technical criteria improving to 59 as of November 2021 (October 2021: 77 plants; September 2021: 102 plants). Led by slight improvement in coal-based power generation and capacity addition, the plant load factor (PLFs) of coal-based power plants improved only marginally to 53.5 per cent in November 2021 (November 2020: 53 per cent). Besides, the thermal sector’s PLFs across the Central, State and private sectors increased to 64.31 per cent in November 2021 (November 2020: 60.6 per cent), 52.35 per cent (November 2020: 44.82 per cent) and 61.55 per cent (November 2020: 53.96 per cent), respectively. Furthermore, the electricity generation from renewable sources improved 16.4 per cent y-o-y in November 2021 to 13.6 BU, led by a 13 per cent y-o-y improvement in the solar power generation to 4.8 BU, and a 4 per cent y-o-y improvement in the wind generation to 3.15 BU. ***Source***

Mumbai: Power distributing companies to get additional blanket to draw excess electricity at nominal rates in case of faults or outage

Mumbai never sees a power cut but then in extraordinary situations in case of emergency power plant outages or shutdown; power fluctuations do take place especially during summer season. However, for

the first time in years, one might have to not worry about these power fluctuations owing to unscheduled demand for electricity, as there is an additional blanket being provided to power distributing companies.

Since October 2021, there is a provision made where a common pool of 20,000 Mw has been made. After the preliminary workings done until December, the power distribution companies' claim that the system of open pool will enable them to draw excess electricity at nominal rates of Rs 3.5-4 per unit in case of any unscheduled rise in demand comes in owing to faults or outage in power plants.

According to industry sources, there has been an ancillary service in place wherein power exchange pool has been created. This can be used by power distributing companies of Maharashtra Electricity Distribution Company Limited (MSEDCL), Tata Power, Adani Electricity Mumbai Limited (AEML) and Brihanmumbai Electricity Supply and Transport (BEST).

"This pool of electricity usually has a band up to 20000 Mw which these distribution companies can withdraw from and pay nominal tariffs not above Rs 4 per unit or so that has been well defined. In the last three months, the working has been smooth and power distribution companies have used from this pool of power in case there in a planned or unscheduled outage of a power plant that primarily sources supply to these distribution companies through MoUs," explained industry experts.

This will certainly come in handy during summer or month of October when temperatures soar. Usually in summers, Mumbai's demand touches 3500Mw or so while the supply is mere 1800Mw which includes 1300Mw or so from Tata Power Trombay power plants and 500Mw from AEML's Dahanu plants.

Meanwhile, independent power experts claim that if this pool system is so efficient then why the power distribution companies don't curtail their power purchase from open markets. These power distributing companies buy the remaining balance at open market rates from power exchanges that touches Rs 6-8 per unit as well if demand is more and keep fluctuating. In fact last year when there was an issue of coal shortage, the prices in power exchanges had touched a whooping Rs 15 per unit as well.

Now, with help of this pool, in case there is an outage in the power plant and whatever shortfall arises, Mumbai will get that electricity at nominal rates from this pool. This is apart from the regular process of buying electricity on 'day-ahead' basis where probable demand is informed prior, 'intraday' buying where shortfall is bought on the same day at market prevailing rates from energy exchange and even make arrangements for summer months in advance. ***Source***

Odisha govt invests in power infrastructure to provide 24x7 power supply

Odisha Chief Minister Naveen Patnaik said the state government is investing significantly in improving power infrastructure to provide 24x7 quality power to all. The Chief Minister said this at an orientation programme organized at the Convention Centre in Lok Seva Bhawan for the new recruits of Odisha Power Transmission Corporation Limited (OPTCL) on virtual mode, the Chief Minister's Office (CMO) release said.

According to the press release, as many as 60 Management Trainees and 175 Junior Technicians joined OPTCL. Patnaik said that electricity being the prime mover of the economy, the state government has given utmost thrust to building quality power infrastructure. For ensuring 24-7 quality and stable electricity supply to all, the government has been investing significantly in the power sector to enhance the generation capacity, strengthen the transmission and distribution infrastructure, and provide electricity to all.

The government's advance planning has brought the state from a power deficit to a surplus situation, he added. He further said, Rs 1800 crore has been sanctioned for the construction of 99 numbers of 33 KV primary substations to strengthen the distribution network of the State. Appreciating the role of new entrants in OPTCL, he said, "All of you will be playing a critical role in this crucial sector to ensure that our farmers, entrepreneurs and small scale industries get quality and reliable power uninterruptedly."

Stating that the government is committed to creating employment opportunities for the youth, Patnaik said that since 2010, Odisha Power Transmission Corporation Ltd has recruited more than 2000 young men and women. Joining the programme from Kalahandi, Minister for Energy, Industry and MSME Dibya Sankar Mishra advised the new recruits to work hard for realizing the Chief Minister's dream of providing electricity to all including the people of the remotest part of the State. Chief Secretary Suresh Chandra Mohapatra said that OPTCL has provided a robust transmission infrastructure in the state. He called upon the youngsters to remain committed, extremely vigilant while working in this excellent state PSU. ***Source***

Viewpoint: Cautious outlook for India's coal imports

Volatility in the thermal coal market in recent months has created uncertainty for Indian buyers as they brace for an unclear start to the new year.

Imported coal prices surged through 2021 to hit multi-year highs and then corrected sharply in the last two months. The volatility kept key consumers including some utilities and industrial users such as sponge iron and cement manufacturers on the sidelines for months.

The prices of the popular GAR 4,200 kcal/kg (NAR 3,800 kcal/kg) grade of coal was assessed by Argus at a historical high of $154.21/t on 22 October 2021 after a historical low of $22.40/t on 11 September 2020. The market was last assessed at $60.41/t fob Kalimantan on 31 December 2021.

The volatile market conditions were fuelled by a sharp increase in demand from China, while supply of coal broadly remained under pressure both in the Chinese mainland and from origins including Indonesia. The interventions by the Chinese government cooled the markets as 2021 came to an end.

Buyers from India are hoping for the market to soften further ahead of the lunar new year holiday beginning at the end of January. But the trajectory of prices will depend on Chinese peak winter demand and ongoing market interventions by Beijing, making it difficult for participants to predict the direction of the market. The Indonesian ban on coal exports for January to fix local shortages has fuelled prospects of tighter domestic market obligation norms in the country this year. The overall confusion underscores the pain point of several other coal importing nations in firming up procurement plans.

Besides activities in China as well as Indonesia, Indian market participants are also keeping an eye on the local coal supply trajectory, especially as dozens of utilities in India are still recovering from coal shortages, which has prompted the government to seek more imports into the country for blending. Meanwhile, any rise in Covid-19 cases, especially of the Omicron variant, could dent coal supply and demand.

India's total thermal coal imports in 2021 may have edged higher from 156.09mn t in 2020. India imported 116.57mn t of thermal coal in January-September 2021, according to customs data, and going by the average fourth-quarter imports in the last five years, the receipts could have been slightly over 160mn t in 2021. The thermal coal import outlook for 2022 would also depend on the needs of the specific coal-consuming industries.

Utility receipts

The Indian power sector's seaborne coal receipts during the first seven months of the April 2021-March 2022 financial year were down by 32pc to 18.1mn t, data from the Central Electricity Authority (CEA) show. Imports rebounded on the month in October 2021 amid a government push to replenish stocks at utilities. Inventories at power plants recovered to 14mn t from September 2021's multi-year low of 11.4mn t, helped by an uptick in supplies from state-controlled Coal India (CIL).

Local supplies may continue to rise in the coming months as well, given that January-March has historically been the highest quarter for coal output. This could further curb utilities' appetite for seaborne cargoes.

Also, the focus could shift to Covid-19-related disruptions to power demand and seasonal factors, such as high summer temperatures between April and June, followed by the monsoon in the subsequent months and its impact on local coal production and supplies.

"Demand from Indian utilities for imported coal should normalise [in 2022] with a focus on maintaining stocks," a market participant said. But the financial health of the industry needs to be ensured as electricity distributors have billions of dollars outstanding to generators, and utilities in turn have to clear their payments with CIL for local coal supplies.

Sponge iron manufacturers

Indian sponge iron makers, key consumers of high-grade thermal coal from South Africa, are pinning hopes on economic momentum to propel demand for their steel products. This could support demand for seaborne coal, especially as domestic coal supplies to the non-power sector remain tight. The industry's overall production is expected to grow to 37mn t in the 2021-22 financial year, up from 34mn t in 2020-21, Sponge Iron Manufacturers Association chairman Rahul Mittal told Argus.

Cement makers and other non-power industries

The cement industry's demand for imported coal in 2022 will be influenced by the supply and prices of seaborne coke. Indian buyers have demonstrated an ability to switch between the two fuels based on market supply and prices. Most cement firms have remained on the sidelines as buying interest was capped by high fuel inventories, a domestic coke surplus and slow cement sales.

Some industrial consumers including aluminium and metal producers, chemical and paper mills, continue to seek imported cargoes to ensure raw material security given the domestic supply squeeze. ***Source***

Fund utilization under IPDS stands at over 95 per cent

Utilization of funds by state governments under the Centrally-sponsored Integrated Power Development Scheme (IPDS) currently stands at a healthy 95.1 per cent, information tabled in Parliament suggests. According to information tabled in the Lok Sabha during the recently-concluded winter session of Parliament, states and Union territories were together able to use 95.1 per cent of the total funds allocated/released by the Central government under IPDS, taken cumulatively from the launch of the scheme up to November 30, 2021.

The total funds allocated under IPDS up to November 30, 2021, stood at Rs.16,477 crore, against which funds utilized stood at Rs.15667 crore – implying utilization of 95.1 per cent. (see table).

Integrated Power Development Scheme (IPDS): Funds sanctioned and utilized (Rs.crore)								
State/UT	Funds Allocated/Released						Funds	%
	2014-18	FY19	FY20	FY21	FY22*	Total	Utilized	used
Uttar Pradesh	1,352.43	1,007.97	111.02	302.73	112.38	2,886.53	2,761.17	95.7
West Bengal	495.89	44.87	607.38	422.39	2.20	1,572.73	1,563.84	99.4
Bihar	355.73	17.93	623.84	315.04	113.96	1,426.50	1,426.50	100.0
Maharashtra	357.27	81.34	740.14	110.04	10.67	1,299.46	1,298.47	99.9
Tamil Nadu	279.33	24.33	595.59	26.71	83.76	1,009.72	979.61	97.0
Madhya Pradesh	177.12	122.96	363.54	202.50	47.43	913.55	843.86	92.4
Rajasthan	228.76	0.00	416.75	96.18	40.72	782.41	776.23	99.2
Karnataka	198.66	349.62	48.72	91.49	28.35	716.84	692.79	96.6
Gujarat	333.47	119.68	112.36	84.26	0.00	649.77	643.66	99.1
Odisha	182.72	246.89	128.40	22.41	9.28	589.70	558.26	94.7
Top 10 states	3,961.38	2,015.59	3,747.74	1,673.75	448.75	11,847.21	11,544.39	97.4
Rest of India	1,177.61	697.01	851.84	1,536.23	367.17	4,629.86	4,122.25	89.0
Total	**5,138.99**	**2,712.60**	**4,599.58**	**3,209.98**	**815.92**	**16,477.07**	**15,666.64**	**95.1**
*Up to November 30, 2021								

In terms of funds allocated, Uttar Pradesh was the leading state with Rs.2886.53 crore, utilization of which stood at a remarkable 95.7 per cent. This northern state alone accounted for nearly one-fifth of the total funds released under IPDS. West Bengal, Bihar, Maharashtra and Tamil Nadu – in that order – followed Uttar Pradesh, in terms of cumulative funds released. These top five states accounted for nearly half of the total release of funds under the scheme.

States that came next in order were Madhya Pradesh, Rajasthan, Karnataka, Gujarat and Odisha. Fund utilization in the top 10 states was higher than the national average, and stood at 97.4 per cent. Rest of India had cumulative fund utilization of 89 per cent.

Bihar, Maharashtra, Rajasthan and Gujarat were among the top ten states that had fund utilization of very close to 100 per cent.

[Please note that funds allocated/released discussed above implies those granted by the Central Government. Generally, the Central government, under IPDS, releases 60 per cent of the total project cost. This percentage is higher for “special category states”. Also, there is provision for additional grant subject to discoms achieving project milestones.]

The Integrated Power Development Scheme (IPDS) was introduced by the present government when it came to power in 2014. Launched on December 3, 2014, IPDS replaced the erstwhile programmes – RAPDRP (Part A) and RAPDDRP (Part B). Power Finance Corporation (PFC) is the nodal agency for IPDS. All state government discoms are eligible for financing under IPDS.

The main objectives of IPDS are:

• Strengthening of sub-transmission and distribution networks in the urban areas
• Metering of distribution transformers / feeders / consumers in the urban areas

• IT-enablement of power distribution sector and strengthening of distribution network under R-APDRP for XII and XIII Plan periods, by carrying forward the approved outlay for RAPDRP to IPDS.

Schemes for Enterprise Resource Planning (ERP) and IT-enablement of balance urban towns are also included under IPDS. Scope of IT enablement has been extended to all 4,041 towns as per Census 2011.

Outlay

According to the official IPDS website, the estimated cost of IPDS with the components of strengthening of sub-transmission and distribution networks, including metering of consumers in the urban areas is Rs.32,612 crore which includes the requirement of budgetary support from Government of India of Rs.25,354 crore over the entire implementation period.

The component of IT-enablement of distribution sector and strengthening of distribution network approved by CCEA in June, 2013 in the form of R-APDRP for 12th and 13th Plans (enumerated in #3 above) will get subsumed in this scheme. The CCEA-approved scheme outlay of Rs.44,011 crore including a budgetary support of Rs.22,727 crore will be carried over to the scheme of IPDS. ***Source***

High coal prices to intensify India's efforts to curb imports

High seaborne prices for coal will push India to lift domestic supplies and accelerate efforts to curb imports, according to a top government official.

The country's miners, including state-run Coal India Ltd., are preparing to meet the entire coal demand from grid-connected power plants in the fiscal year starting in April, federal Coal Secretary Anil Kumar Jain said in a phone interview. The government expects a sharp rise in production from Coal India's mines as well as from captive producers -- companies that produce coal for their own use.

Some Indian power producers have sought to secure coal imports after supply disruptions and rising demand left the country grappling with shortages last year, although consistently high seaborne prices may limit such purchases. Those prices have swung wildly this month after Indonesia, the world's biggest thermal coal exporter, put restrictions on exports and then recently started to ease them.

High import prices present India's domestic miners with an opportunity to expand their market share while forcing users to depend heavily on domestic supplies, Jain said. "The Indonesia situation is a favourable development for Coal India and other domestic miners," Jain said. "If the international prices remain high, it will give impetus to our plan to eliminate substitutable coal imports."

Prices at Australia's Newcastle port, considered an Asian benchmark, have almost doubled over the past year, even after retreating almost 40% from a record in October. Kolkata-based Coal India is expected to produce 640 million tons in the current fiscal year, and increase output to 700 million tons in the next year, Jain said. The miner will likely start the fiscal year in April with an inventory of 50 million tons. Production from captive mines is seen rising by a third to 120 million tons, he said.

Coastal power plants, which run mainly on imported coal, continue to run at low capacities. To make up for the lost generation, the ministry plans to send more coal to plants that rely on domestic supply to help them produce more, Jain said. Coal inventories at power plants have more than tripled since early October, when they slumped to a seven-year low, according to data compiled by Bloomberg. India consumed 906 million tons of coal in the year ended last March, about a quarter of which came from imports, according to data from the coal ministry. ***Source***

The challenges ahead for India

Benjamin Franklin's 1752 kite experiment, which ushered an understanding of the potential of electricity, had a revolutionary impact on the development of modern society. Extensive electrification of applications has been the new strategy, and decarbonising it, is the new mantra. The fundamental challenge for India then—unlike developed economies, and critical for its climate action—is how to significantly increase its electricity production, widening usage across the board, while simultaneously decarbonising it.

Clearly, we are talking eventually of several thousands GW of solar and wind power. This is, arguably, also the easiest pathway to Net Zero, with an array of commercialised RE technologies and dramatic reduction in costs. However, there are several constraints in the short term. There are also significant long-term challenges in terms of deployment of this huge quantum of variable RE power, besides the requirement of enhanced flexibility of grids to absorb it as also ensuring schedule-able and dispatch-able power for long periods through multiple energy storage solutions.

A holistic and objective analysis is required of supply and demand forecasts, indigenous manufacturing capacity vis a vis imports, phasing out of coal and its consequences, deployment of huge RE power and impact on grid stability and infrastructure, economic viability of discoms vs electoral populism. Public comments, with near universal optimism, take as a given that our Glasgow NDCs with enhanced ambition will be achieved. Andy Grove famously said "Only the paranoid will survive". In the same spirit, we express worries and briefly suggest realistic pathways.

First, demand has tended to be overestimated, with correspondingly excessive capacity creation plans. Today, the PLF of thermal plants is at an inefficient low of ~52%, with RE power also being curtailed; 500GW of non-fossil power by 2030, along with increase in thermal capacity, will lead to considerable over-supply leading to stranded assets and NPAs becoming the norm. More analytical rigour in demand-side management and realistic 2030 forecasts of scale-up in energy storage and hydro/nuclear power may suggest revisiting the 450GW target.

Second, post 2030, new coal-based thermal plants construction will face headwinds, necessitating additional capacity creation within this decade itself. The CEA's optimum mix study suggested about 80GW net increases, after retiring 30-40GW of inefficient plants. This is sensible. Plants must be retired immediately, and older ones obligated to expeditiously comply with emissions standards. Both are getting repeatedly postponed. New plants must be highly efficient. Coal production must match planned thermal power capacity; the target of 1 billion tonnes (earlier 1.5) by 2025 may be excessive. Detailed mapping and planning is essential, involving closure of some old mines, shelving some new mine proposals, overall efficiency improvement in coal mining, accompanied with enhanced afforestation and biodiversity.

Third, there has been inadequate debate on how the 300GW solar targets will be achieved. The enhanced target of 100GW by 2022 meant annual capacity addition of 12-13GW, but we have achieved only 7-8GW with nearly 90% import dependency. We will now require annual capacity creation at the rate of 30GW. Currently, we have nil manufacturing capacity for silicon ingots/wafers, about 2GW for cells and about 12GW for modules, with considerable shortfall for other components such as glass/inverters, etc. Will we continue imports, and from China? We must first build domestic capacity aiming for, by 2030, ~25GW for all items in the value-chain. The current PLI scheme will at best create 10GW. Furthermore, aspirations must translate to projects on the ground. This requires large-scale funds and technology transfer, for which prerequisite is an investor-friendly, risks-mitigated ecosystem.

Fourth, the presumption of land availability for 1,000GW of solar is seriously misplaced. Many land problems are already being encountered in states. The Supreme Court Order on the Great Indian Bustard

alone will take away vast tracts of land in Rajasthan. There must be a rational, long-term solar deployment strategy based on immediate identification of large land-banks, planned transmission network and logistics requirements, etc. Thousands of decentralised solar plants, with energy storage and evacuation into distribution grids, including agri-solar and village-level solar mini-grids, should become the pan-India norm, along with cogent policy for pushing rooftop solar and building-integrated photovoltaics (BIPV) to saturation levels.

Solarisation of all rural railway stations, and, later, highways (for decentralised hydrogen production) must be pursued. The hurdles to the KUSUM scheme need to be resolved and all electric irrigation pump-sets should be solarised. These are illustrative, but criticallyimportant pathways that the green-economy framework requires. They will have positive externalities and additional benefits—like lowering transmission load, improving quality of supply, increasing farmer's incomes, reducing discom losses, providing rural employment to millions.

Fifth, the discoms' financial solvency is critical, and needs a permanent structural solution, enforceable by appropriate legislation. Political populism on low tariffs is playing havoc on discoms' financials and efficiency. There should be no free electricity, though some subsidy may be desirable. Their dues to power suppliers are currently Rs 113,227 crores, including Rs 19,712 crores for RE, and these are growing by the month, in spite of schemes like UDAY. Constantly reiterating that the tariff of solar is Rs 2/ KWh creates the wrong perceptions and consumer expectations. In the medium term, indigenisation as well as imports, with enhanced customs duties, will increase costs.

Delivered costs of RE power, with storage for peak and balancing, will go down in the long term, perhaps only by the next decade. Meanwhile, we should avoid getting locked into high storage costs. Rational tariffs are necessary and PPAs must be deemed sacrosanct, with renegotiation and cancellation being made legally untenable.

Sixth, there are calls for green hydrogen mandates and rapid electricity storage development. In either case, we are not factoring in the time required for further technological advancement and cost reduction through economies of scale, both necessary for large-scale deployment. It augurs well that indigenous manufacturing of electrolysers is being prioritised by industry, which, hopefully, will be replicated for energy storage batteries—including those of chemistries based on domestic research and locally available materials. Battery raw materials are likely to become a big constraint globally. Therefore, this decade's focus should be on catalysing demand while facilitating scale-up in local manufacturing. Thereafter, both sectors will witness exponential growth, driven by market dynamics.

Finally, we need a comprehensive, multi-sectoral and continuous effort on energy conservation and efficiency and demand-side management, encompassing industry, buildings, and white goods consumption, with time-of-day tariffs to lower peak demand. This is simply not getting the attention it deserves. Deep decarbonisation is a very complex and challenging process and will have costs. Each action of a dynamic, rational and measured response requires constant engagement with all stakeholders and intense public discussion. ***Source***

Transmission charges payable by DICs for the billing month of Jan'21

The Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses), Regulations 2020 came into force with effect from 1.11.2020. In these New Regulations, STOA charges will be determined based on monthly state transmission charges and there shall not be any separate injection and drawl PoC charges, for STOA. Further, DISCOMs having long term Access are not required to make any payment against POC charges for STOA transaction.

Transmission Charges for Short Term Open Access (STOA)			
Sl. No.	**State**	**Region**	**STOA rate (paise/kWh)**
1	Delhi	NR	39.64
2	UP	NR	45.31
3	Punjab	NR	40.78
4	Haryana	NR	50.82
5	Chandigarh	NR	37.41
6	Rajasthan	NR	59.54
7	HP	NR	38.08
8	J&K	NR	39.03
9	Uttarakhand	NR	46.91
10	Gujarat	WR	47.11
11	Madhya Pradesh	WR	44.85
12	Maharashtra	WR	51.26
13	Chhattisgarh	WR	35.53
14	Goa	WR	44.57
15	Daman Diu	WR	43.67
16	Dadra Nagar Haveli	WR	48.84
17	Andhra Pradesh	SR	58.96
18	Telangana	SR	39.24
19	Tamil Nadu	SR	44.08
20	Kerala	SR	41.38
21	Karnataka	SR	45.05
22	Pondicherry	SR	37.76
23	Goa-SR	SR	29.75
24	West Bengal	ER	39.36
25	Odisha	ER	46.18
26	Bihar	ER	41.47
27	Jharkhand	ER	43.07
28	Sikkim	ER	35.98
29	DVC	ER	40.75
30	Bangladesh	ER	33.32

31	Arunachal Pradesh	NER	39.55
32	Assam	NER	41.41
33	Manipur	NER	40.31
34	Meghalaya	NER	40.81
35	Mizoram	NER	38.98
36	Nagaland	NER	56.79
37	Tripura	NER	42.52

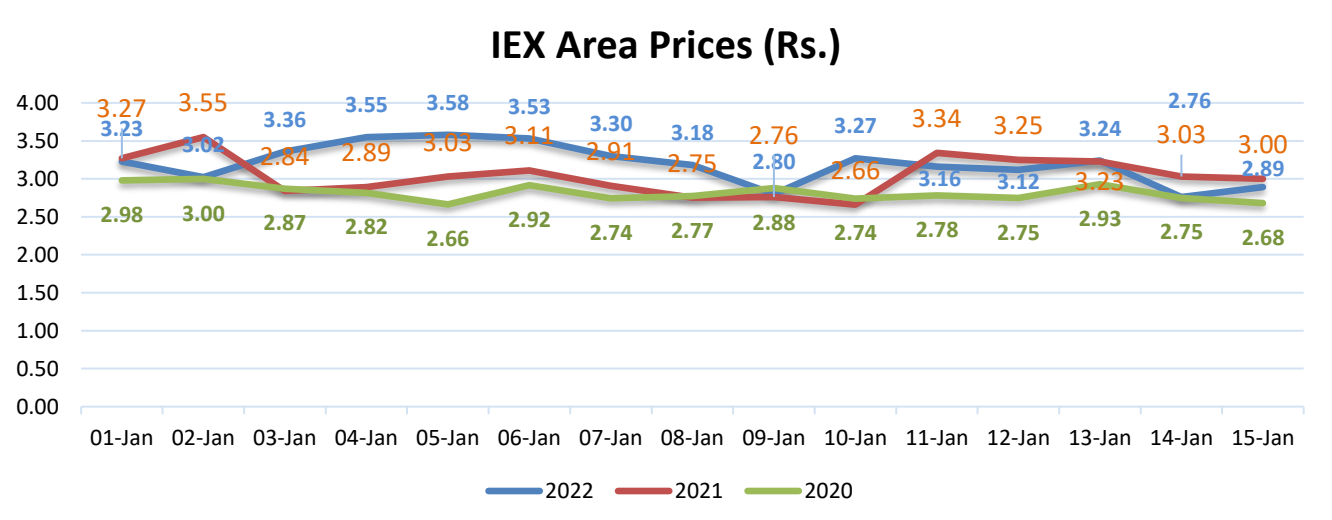
Bilateral Tender Results: -

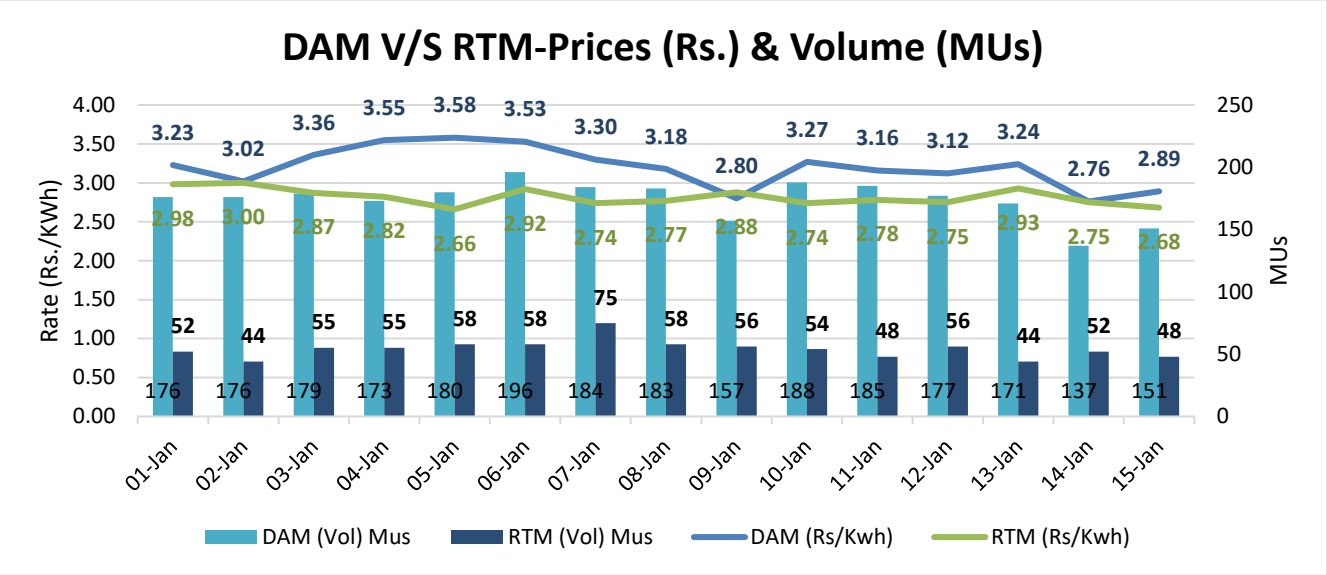
Noida Power Company Limited/Short/21-22/RA/84				
1	50	01.05.2022 to 31.05.2022	00:00 to 07:00	5.2
2	50	10.06.2022 to 30.06.2022	00:00 to 07:00	5.2
3	50	01.07.2022 to 31.07.2022	00:00 to 07:00	5.1-5.2
4	50	01.08.2022 to 31.08.2022	00:00 to 07:00	5.2
5	50	01.09.2022 to 30.09.2022	00:00 to 07:00	5.2
6	50	01.05.2022 to 31.05.2022	10:00 to 24:00	5.2
7	50	10.06.2022 to 30.06.2022	00:00 to 24:00	5.2
8	50	01.07.2022 to 31.07.2022	10:00 to 24:00	5.1-5.2
9	50	01.08.2022 to 31.08.2022	10:00 to 24:00	5.2
10	50	01.09.2022 to 30.09.2022	10:00 to 24:00	5.2
PFC Consulting Limited/Short/21-22/RA/83				
1	40	01.04.2022 to 30.04.2022	00:00 to 24:00	5.61
2	40	01.05.2022 to 31.05.2022	00:00 to 24:00	5.61
3	40	10.06.2022 to 30.06.2022	00:00 to 24:00	5.61
4	40	01.07.2022 to 31.07.2022	00:00 to 24:00	5.61
5	40	01.08.2022 to 31.08.2022	00:00 to 24:00	5.61
6	40	01.09.2022 to 30.09.2022	00:00 to 24:00	5.61
7	40	01.10.2022 to 31.10.2022	00:00 to 24:00	5.61
8	40	01.11.2022 to 30.11.2022	00:00 to 24:00	5.61
9	40	01.04.2023 to 30.04.2023	00:00 to 24:00	5.61
10	40	01.05.2023 to 31.05.2023	00:00 to 24:00	5.61
11	40	10.06.2023 to 30.06.2023	00:00 to 24:00	5.61
12	40	01.07.2023 to 31.07.2023	00:00 to 24:00	5.61
13	40	01.08.2023 to 31.08.2023	00:00 to 24:00	5.61
14	40	01.09.2023 to 30.09.2023	00:00 to 24:00	5.61
15	40	01.10.2023 to 31.10.2023	00:00 to 24:00	5.61
16	40	01.11.2023 to 30.11.2023	00:00 to 24:00	5.61

Andhra Pradesh Power Co-ordination Committee (APPCC)/Short/21-22/RA/82				
1	400	17.01.2022 to 31.01.2022	00:00 to 24:00	4.35-5
2	400	01.02.2022 to 28.02.2022	00:00 to 24:00	4.82
3	400	01.03.2022 to 31.03.2022	00:00 to 24:00	4.82-5
4	400	01.04.2022 to 30.04.2022	00:00 to 24:00	5.74
5	400	01.05.2022 to 31.05.2022	00:00 to 24:00	5.74
6	950	17.01.2022 to 31.01.2022	17:00 to 23:00	11.5-14.95
7	950	01.02.2022 to 28.02.2022	17:00 to 23:00	11.5
8	950	01.03.2022 to 31.03.2022	17:00 to 23:00	11.5
9	950	01.04.2022 to 30.04.2022	17:00 to 23:00	11.5
10	950	01.05.2022 to 31.05.2022	17:00 to 23:00	11.5
BSES/Short/21-22/RA/95				
1	25	01.04.2022 to 15.04.2022	00:00 to 03:00	5.5
2	25	01.04.2022 to 15.04.2022	18:00 to 24:00	5.49
3	100	01.04.2022 to 15.04.2022	00:00 to 24:00	4.47-4.5
4	25	16.04.2022 to 30.04.2022	00:00 to 03:00	5.5
5	25	16.04.2022 to 30.04.2022	18:00 to 24:00	5.49
6	100	16.04.2022 to 30.04.2022	00:00 to 24:00	4.47-4.5
7	150	01.05.2022 to 15.05.2022	00:00 to 03:00	4.91-5.5
8	50	01.05.2022 to 15.05.2022	18:00 to 24:00	5.46-5.5
9	150	01.05.2022 to 15.05.2022	00:00 to 24:00	4.57
10	150	16.05.2022 to 31.05.2022	00:00 to 01:00	4.91-5.5
11	50	16.05.2022 to 31.05.2022	18:00 to 24:00	5.46-5.5
12	150	16.05.2022 to 31.05.2022	00:00 to 24:00	4.57-4.6
13	300	01.06.2022 to 15.06.2022	00:00 to 03:00	5.5-5.56
14	100	01.06.2022 to 15.06.2022	18:00 to 24:00	5.5-8
15	350	01.06.2022 to 15.06.2022	00:00 to 24:00	4.49-4.65
16	150	16.06.2022 to 30.06.2022	00:00 to 03:00	5.41-5.5
17	50	16.06.2022 to 30.06.2022	18:00 to 24:00	5.5
18	350	16.06.2022 to 30.06.2022	00:00 to 24:00	4.49-4.65
19	325	01.07.2022 to 15.07.2022	00:00 to 03:00	4.96-5.5
20	200	01.07.2022 to 15.07.2022	18:00 to 24:00	5.49-8.5
21	250	01.07.2022 to 15.07.2022	00:00 to 24:00	4.49-4.6
22	200	16.07.2022 to 31.07.2022	00:00 to 24:00	4.49
23	150	01.08.2022 to 15.08.2022	00:00 to 03:00	5.13-5.14
24	150	01.08.2022 to 15.08.2022	18:00 to 24:00	5.5-8
25	75	01.08.2022 to 15.08.2022	00:00 to 24:00	4.64
26	150	16.08.2022 to 31.08.2022	00:00 to 03:00	4.97-5.13
27	150	16.08.2022 to 31.08.2022	18:00 to 24:00	5.8-8

28	75	16.08.2022 to 31.08.2022	00:00 to 24:00	4.36
29	250	01.09.2022 to 15.09.2022	00:00 to 03:00	5.13-5.5
30	250	01.09.2022 to 15.09.2022	18:00 to 24:00	5.5-9.58
31	200	01.09.2022 to 15.09.2022	00:00 to 24:00	4.49-4.52
32	200	16.09.2022 to 30.09.2022	00:00 to 24:00	4.49-4.52
Torrent Power Limited/Short/21-22/RA/96				
1	150	01.04.2022 to 30.04.2022	00:00 to 24:00	4.49
2	300	01.04.2022 to 30.04.2022	09:00 to 24:00	5.75-6.25
3	150	01.05.2022 to 31.05.2022	00:00 to 24:00	4.49
4	400	01.05.2022 to 31.05.2022	09:00 to 24:00	5.75-6.25
5	350	01.06.2022 to 30.06.2022	00:00 to 24:00	4.61-4.65
6	400	01.06.2022 to 30.06.2022	09:00 to 24:00	5.98-6.25
7	150	01.07.2022 to 31.07.2022	00:00 to 24:00	4.6
8	300	01.07.2022 to 31.07.2022	09:00 to 24:00	6.65-7
9	250	01.10.2022 to 31.10.2022	00:00 to 24:00	4.72-4.73
10	50	01.11.2022 to 30.11.2022	07:00 to 22:00	5.59
EON KHARADI INFRASTRUCTURE PVT LTD/Short/21-22/RA/87				
1	6	01.03.2022 to 28.02.2023	00:00 to 24:00	5.25
TAMILNADU ELECTRICITY BOARD/Short/21-22/RA/86				
1	400	01.03.2022 to 31.03.2022	00:00 to 24:00	5.02
PSPCL/Short/21-22/RA/91				
1	500	01.02.2022 to 28.02.2022	00:00 to 24:00	4.98-6.95
2	500	01.03.2022 to 31.03.2022	00:00 to 24:00	5.47-6.95
3	500	01.04.2022 to 30.04.2022	00:00 to 24:00	4.44-6.95

IEX Price Trends





Weather (Estimated for next fortnight)

City	Max Temp	Min Temp	Precipitation (Probability)
DELHI	20	11	6%
MUMBAI	31	20	0%
KOLKATA	25	15	12%
CHENNAI	30	22	0%

(Source - Accuweather)

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