

# Power Chronicle

## Power System Overview & Analysis

- ❖ All India Demand Met Profile 2
- ❖ Region-wise Demand Met Profile 2
- ❖ All India Renewable Energy (RE) Generation Profile 3
- ❖ Short-term (ST) Energy Transactions 3
- ❖ Monthly Short-term (ST) Purchase and Sale Quantum across States 4

## Power Market Overview & Analysis

- ❖ DAM - Market Clearing Price (MCP) & Market Clearing Volume (MCV) 4
- ❖ Term-ahead Market (TAM) 5
- ❖ RTM - Market Clearing Price (MCP) & Market Clearing Volume (MCV) 5
- ❖ Green Term-ahead Market (G-TAM) 5

## Regulatory & Policy Perspective

- ❖ UERC (Deviation Settlement Mechanism and Related Matters (First Amendment) Regulations, 2022. 6
- ❖ CERC (Connectivity and General Network Access to the Inter-state Transmission System) Regulations, 2021 8

## EAL News

- ❖ e-Masters Programme 12
- ❖ I-AEE: India's Energy Transition – Aspirations, Preparedness and Way Forward 12
- ❖ Registrations Open for Regulatory Certification Programmes 12

## Editorial

Electricity demand is scaling new peaks, as all India peak demand reached 198 GW on 16<sup>th</sup> March 2022 and is expected to grow with the onset of summer. This is likely to compound with the WFH culture that increases demand.

Power market touched 'operational' ceiling of Rs. 20/kWh at the exchanges. While supply side gained sufficient attention, demand inflexibility is an ignored dimension, limited to the presence of ToD tariffs. Given its unprecedented rise, the demand side needs to play an important role in ensuring that market power vested on the supply side is curtailed. Time is appropriate for introduction of dynamic tariffs for large consumers and demand response (DR) programs. While dynamic tariffs would link retail tariff to market prices, ensuring price signals from the market are passed onto the consumers instantly, DR programs may pay qualified, signed-on consumers for reducing the baseline, and thus arrest short-term surge. The regulatory need is to design an efficient, effective program that ensures incentives to reveal the true baseline and encourages efforts to reduce demand that would qualify for payment of adequate compensation.

Intra-state DSM Regulations must be synchronous with those for the inter-state. Limited departure may be justified in line with the impact that VRE places on the intra-state system and the applicability of area specific price rather than the national average. The latter is important as participants in both intra-state supply and demand side need to respond to the correct price signals which are reflected in the area specific price, which may deviate only in case of congestion in the inter-state transmission system.

Emerging market merits changes in regulatory framework for network access. General network access (GNA) aims to support market evolution. Given the key role GNA would play in influencing market outcomes, greater data transparency through unique identifiers for NOAR and effective market monitoring, is necessary to ensure there is no GNA hoarding during favourable economics for such play. Rules for reallocation of unused transmission capacity and setting a low priority for such users would reduce incentives for such gaming.

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Founder & Coordinator, Energy Analytics Lab



Register at [eal.iitk.ac.in](http://eal.iitk.ac.in) to access data and resources

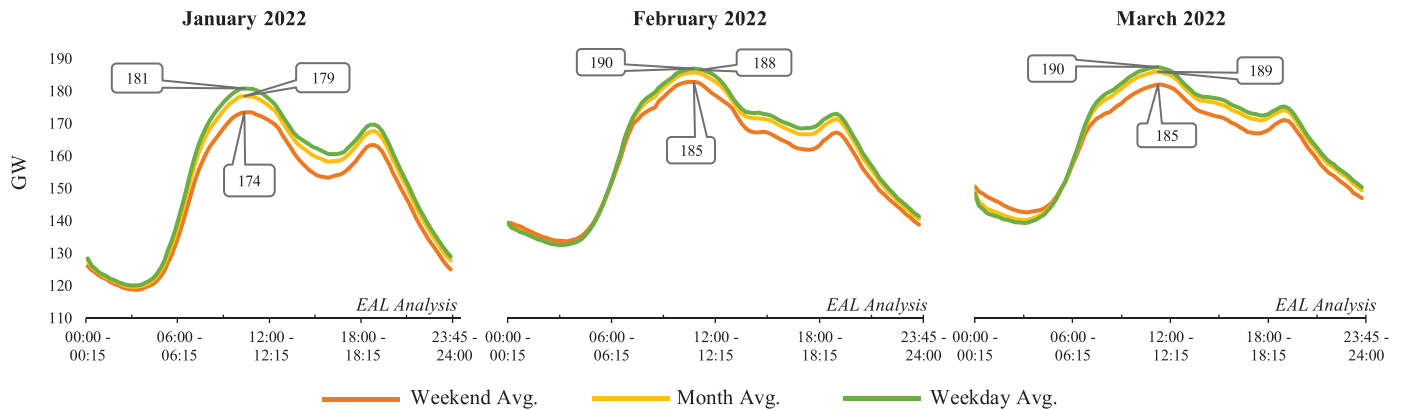
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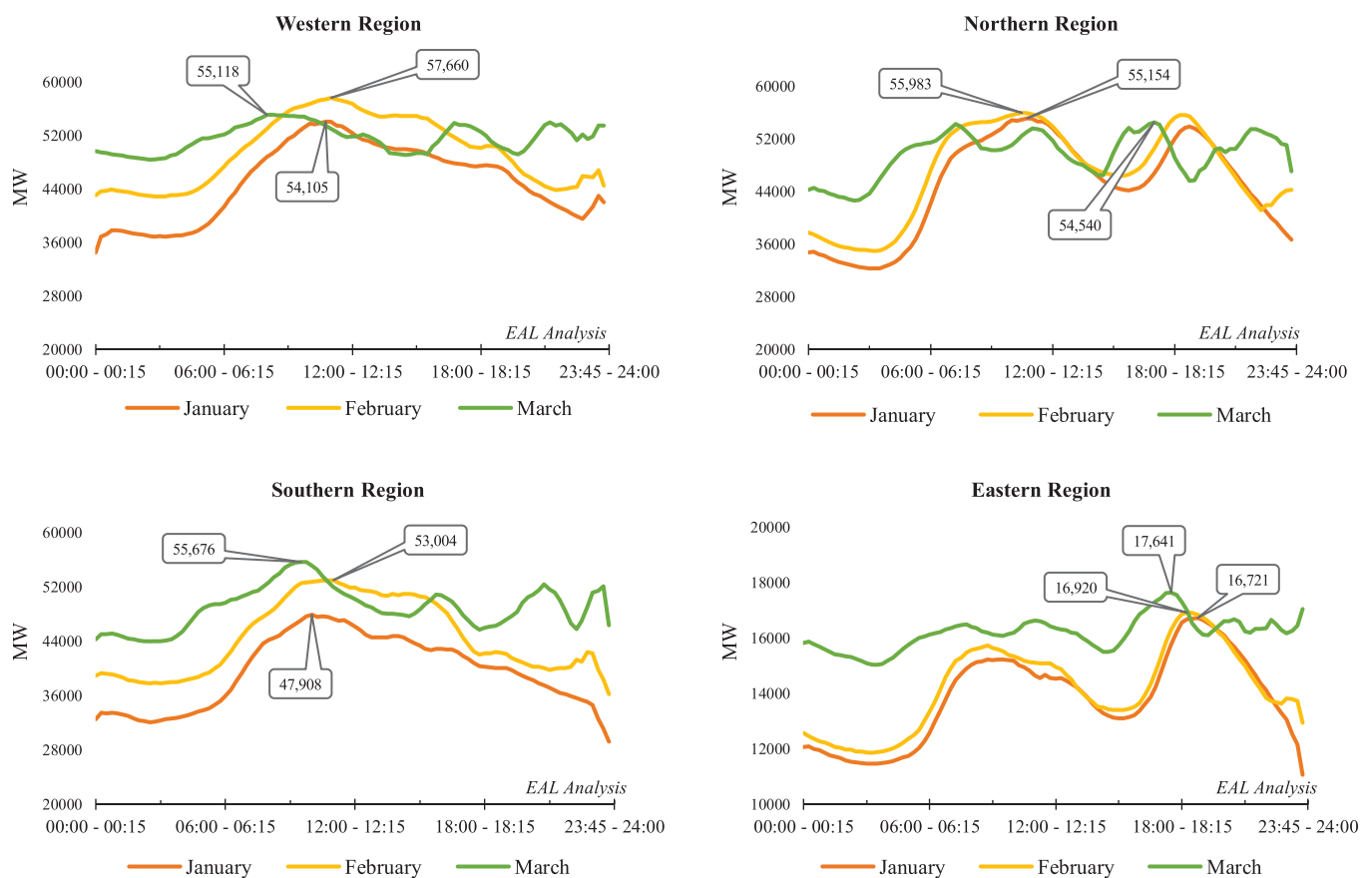
## Power System Overview & Analysis

### All India Demand Met Profile

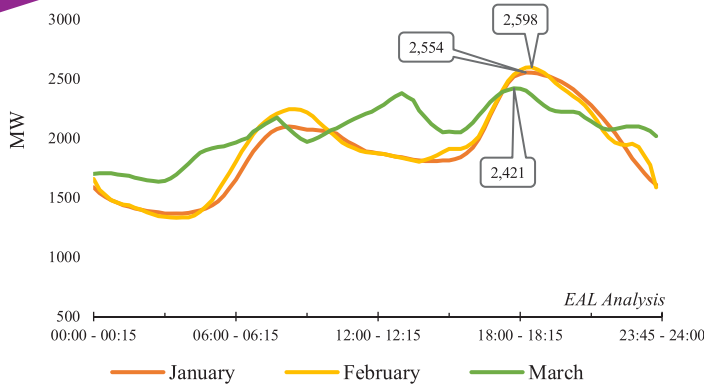


From January to March quarter, all India peak demand reached 198 GW (11:45 - 12:00) on 16<sup>th</sup> March 2022, about 4.21 percent higher than the previous year's peak demand recorded at 190 GW (10:30 - 10:45) on 30<sup>th</sup> January 2021, during the same quarter.

### Region-wise Demand Met Profile



## Northern Eastern Region



Significant increase in the demand profile can be seen in the month of March across all the regions as compared to month of January and February. Average demand is found to be higher in Western region as compared to the other regions in the month of February.

Significant rise in the demand during the evening time between 17:00 – 23:00 hours for North Eastern and Eastern regions in the same quarter (Jan to Mar).



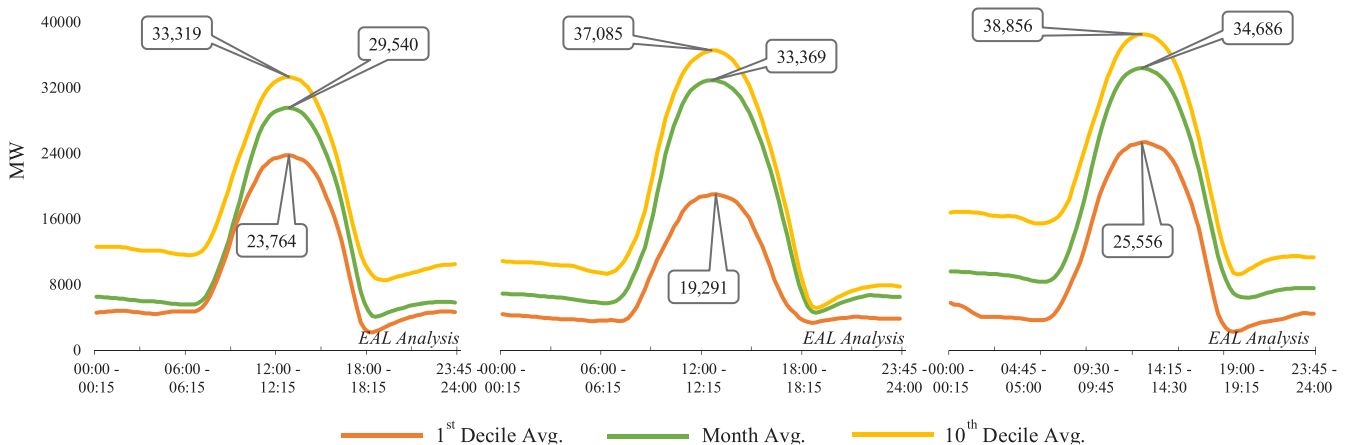
Demand and generation profiles at national, regional, and state-level can be accessed on EAL's web portal.

## All India Renewable Energy (RE) Generation Profile

### January 2022

### February 2022

### March 2022

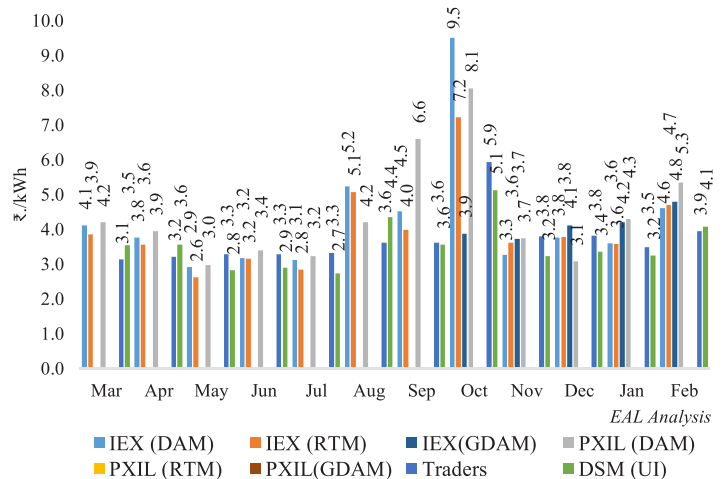
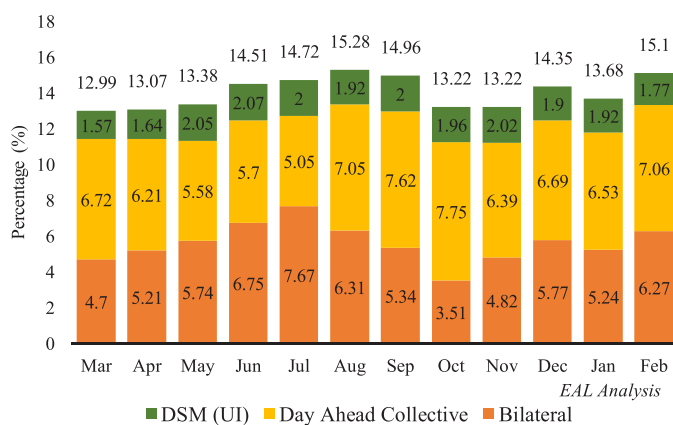


All India peak RE generation reached 41.09 GW (12:15 - 12:30) on 3<sup>rd</sup> March 2022, about 27.53 % higher than the previous year's peak of 32.22 GW (12:00 – 12:15) on 30<sup>th</sup> March, 2021 during the same quarter.

## Short-term (ST) Energy Transactions

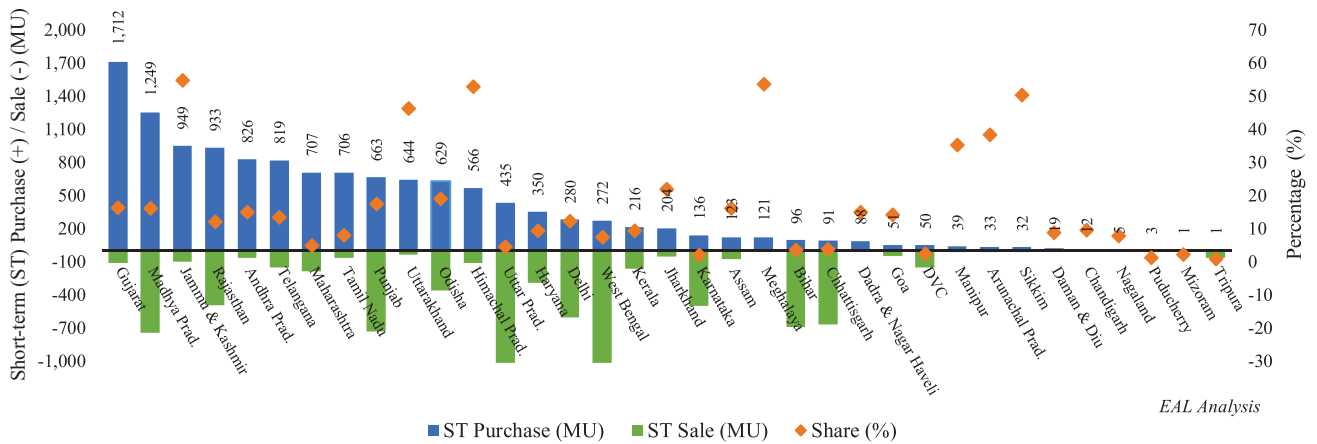
### Share of Short-term Energy Transaction of Total Electricity Generation (2021-22)

### Weighted Average Prices of Short-term Transactions (2021-22)

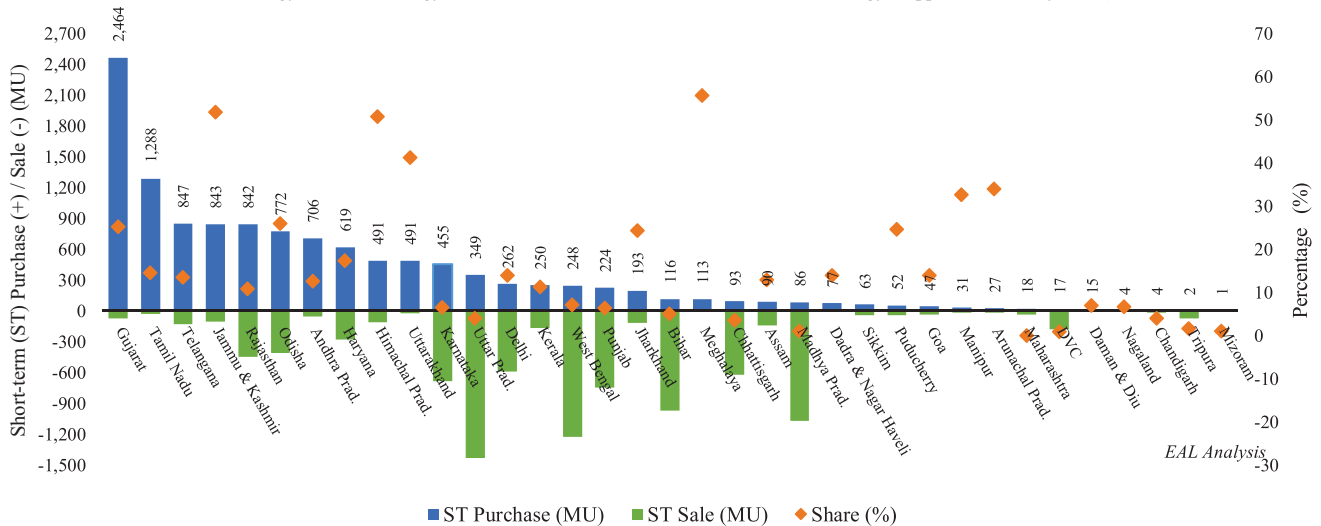


## Monthly Short-term (ST) Purchase and Sale Quantum across States

ST Energy Sale, ST Energy Purchase and share of ST Purchase in Total Energy Supplied (January 2022)



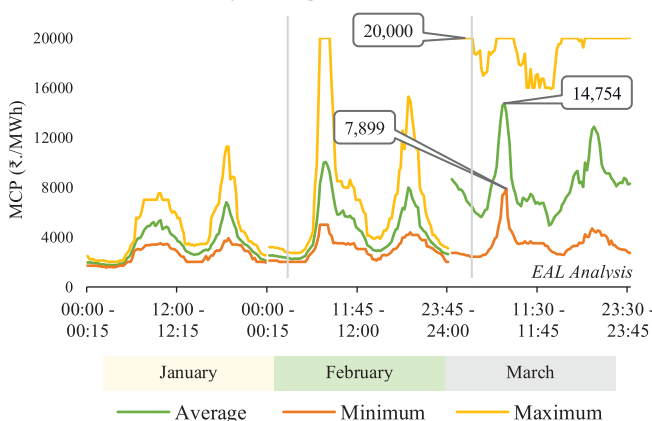
ST Energy Sale, ST Energy Purchase and share of ST Purchase in Total Energy Supplied (February 2022)



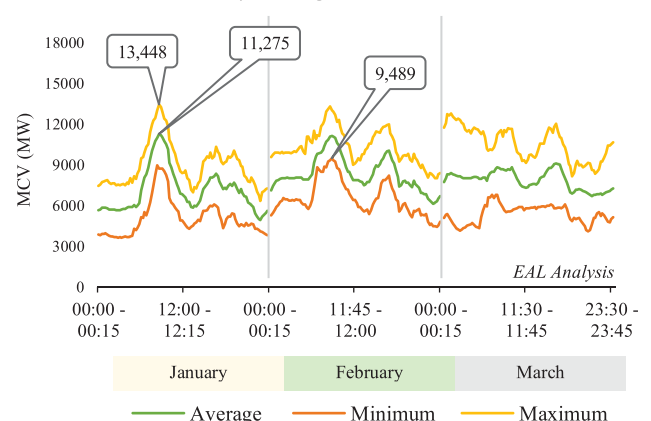
## Power Market Overview & Analysis

### DAM – Market Clearing Price (MCP) & Market Clearing Volume (MCV)

DAM Monthly Average, Maximum & Minimum MCP

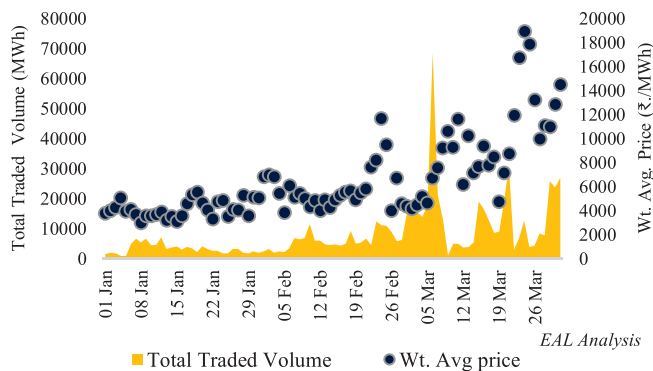


DAM Monthly Average, Maximum & Minimum MCV

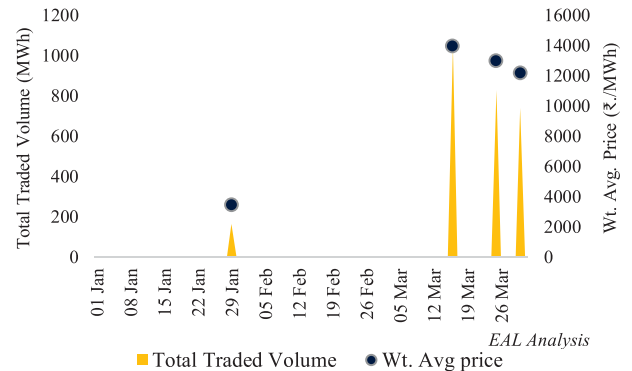


## Term-ahead Market (TAM)

Daily Day-Ahead Contingency Transactions



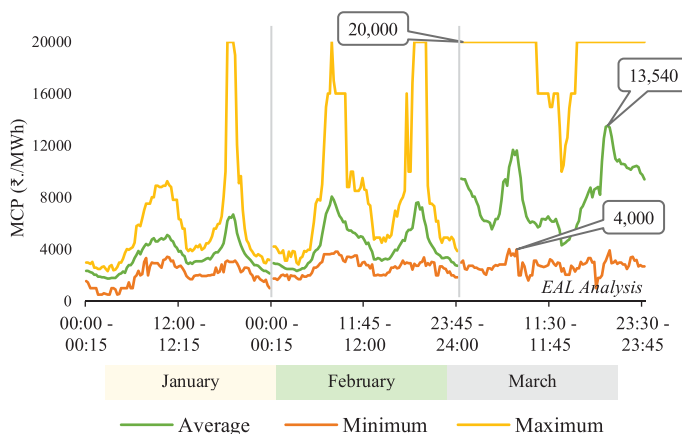
Daily Intra-Day Transactions



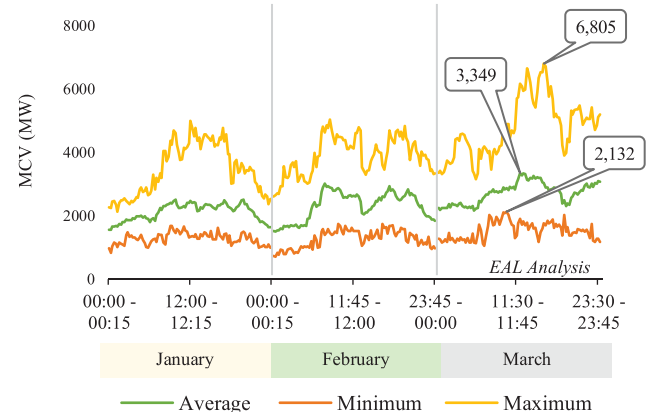
The total traded volume and weighted average clearing price in Day-Ahead Contingency is much higher than the Intra-Day transaction during January to March quarter.

## RTM – Market Clearing Price (MCP) & Market Clearing Volume (MCV)

RTM Monthly Average, Maximum & Minimum MCP

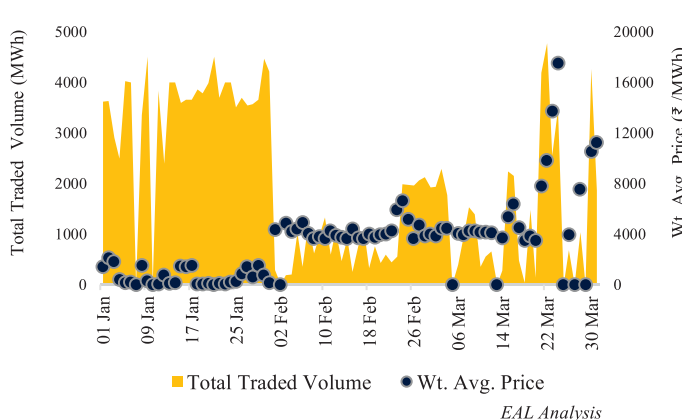


RTM Monthly Average, Maximum & Minimum MCV

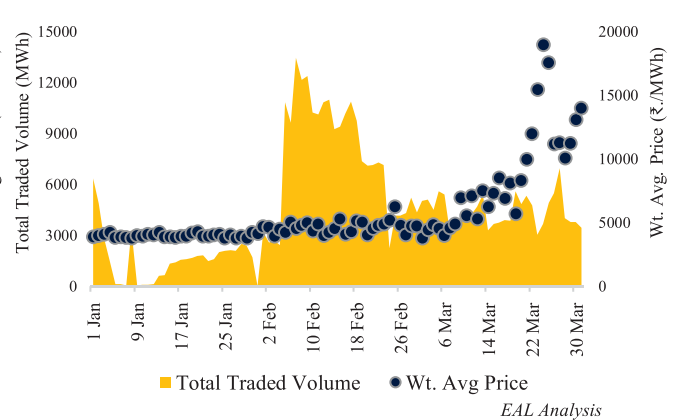


## Green Term-Ahead Market (G-TAM)

Day-Ahead Contingency Transaction - Solar



Day-Ahead Contingency Transaction - Non Solar



The total traded volume and weighted average clearing price of Non-Solar is higher in comparison to Solar in the Day-Ahead Contingency Transaction during January to March quarter.

Note: The above power market overview and analysis are based on the data from IEX Website

## Regulatory & Policy Perspective

### UERC (Deviation Settlement Mechanism and Related Matters) (First Amendment) Regulations, 2022

UERC notified a draft on "Deviation Settlement Mechanism and Related Matters (First Amendment) Regulations, 2022" on 21<sup>st</sup> March, 2022.

The key highlights of this draft Regulation are given below:

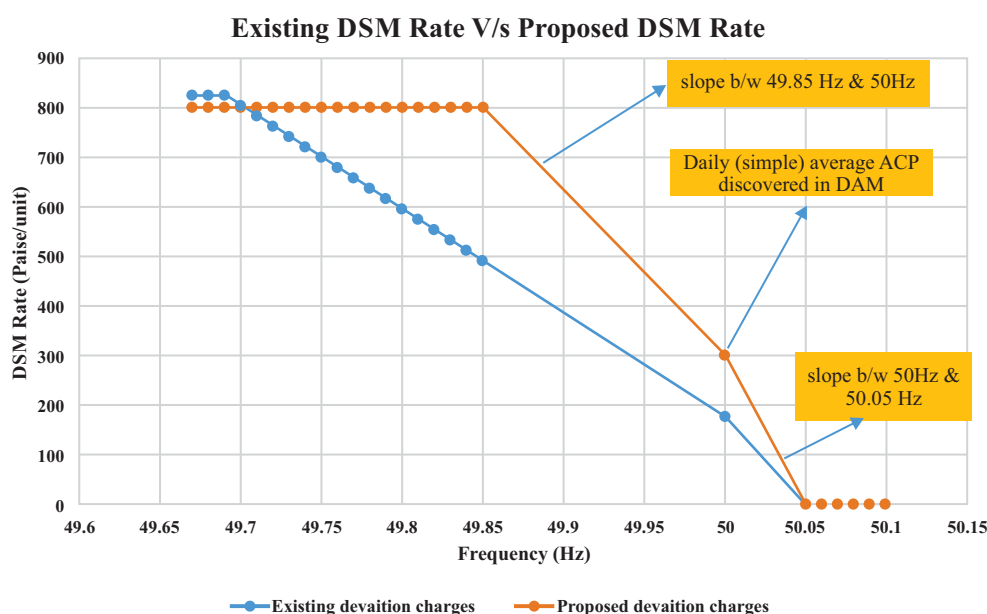
#### 1. Amendment of Regulation 2 of the Principal Regulation (Definitions and Interpretation):

- a) New Definition added after definition (d) of the Regulation 2 of the Principal Regulations: "(da) **Area Clearing Price (ACP)**" means the price of a time block electricity contract established on the Power Exchanges after considering all valid purchase and sale bids in particular area(s) after-market splitting, i.e., dividing the market across constrained transmission corridor(s)."
- b) New Definition added after definition (i) of the Regulation 2 of the Principal Regulations:
  - i. "(ia) **Daily Base DSM Charge**" means the sum of charges for deviations for all time blocks in a day payable or receivable as the case may be, excluding the additional charges under Regulation 8."
  - ii. "(ib) **Day Ahead Market (DAM)**" means a market where physical delivery of electricity occur on the next day (T+1) of the date of transaction (T) and is governed by the Central Electricity Regulatory Commission (Power Market) Regulation, 2010 (as amended from time to time), the Rules and Bye-Laws of the Power Exchanges as approved by the Central Commission."
- c) Definition (u) of the Regulation 2 of the Principal Regulations shall be substituted by the following:

Principal Regulation	Amendment
"(u) <b>Time Block</b> " means a time block of 15 minutes, for which specified electrical parameters and quantities are recorded by special energy meter, with first time block starting from 00.00 hrs"	"(u) <b>Time Block</b> " means a time block of 15 minutes, for which specified electrical parameters and quantities are recorded by special energy meter, with first time block starting from 00.00 hrs; subject to revision by the commission from time to time considering the provisions in CERC (Indian Electricity Grid Code) Regulation, 2010 and any amendments in this regard."

#### 2. Amendment of Regulation 5 of the Principal Regulation (Charges for Deviations):

- 1) In Sub-regulation (1) of the Regulation 5 of the Principal Regulations:





2) In Sub-regulation (3) of Regulation 5 of the Principal Regulations, the words "RLNG Rs. 8.24/kWh sent out" shall be substituted by "RLNG Rs. 8.00/kWh sent out".

**3) Amendment of Regulation 7 of the Principal Regulation (Limits on Deviation Volume):**

Frequency range has been changed from "49.70-50.10" Hz to "49.85-50.05" Hz.

**4) Amendment of Regulation 8 of the Principal Regulation (Additional charges for crossing Deviation volume limits):**

Sub-Regulation	Principal Regulation	Amendment
Sub-Regulation (7)	In the event of sustained deviation from schedule in one direction (positive or negative) by any state entity (buyer or seller), such entity shall have to make sign of their Deviation from scheduled charged, at least once after every 12 time blocks.	In the event of sustained deviation from schedule in one direction (positive or negative) by any state entity (buyer or seller), such entity shall correct its position in the manner as specified below:  If the sustained deviation from schedule continues in one direction (positive or negative) for 6 time blocks, the state entity (buyer or seller), shall correct its position, by making the sign of its deviation from schedule changed or by remaining in the range of +/- 2% with reference to its schedule, at least once, latest by 7th time block.

Provided that violation of the requirement under this Sub-regulation shall attract an additional charge as specified in the table below:

No. of violations in day	Additional charge payable
From first to fifth violation	For each violation, an additional charge @ 3% of daily base DSM charge payable or receivable
From sixth to tenth violation	For each violation, an additional charge @ 5% of daily base DSM charge payable or receivable
From eleventh violation onwards	For each violation, an additional charge @ 10% of daily base DSM charge payable or receivable

Payment of additional charge for failure to adhere to sign change requirement as specified under this Sub-regulation shall not be applicable to:

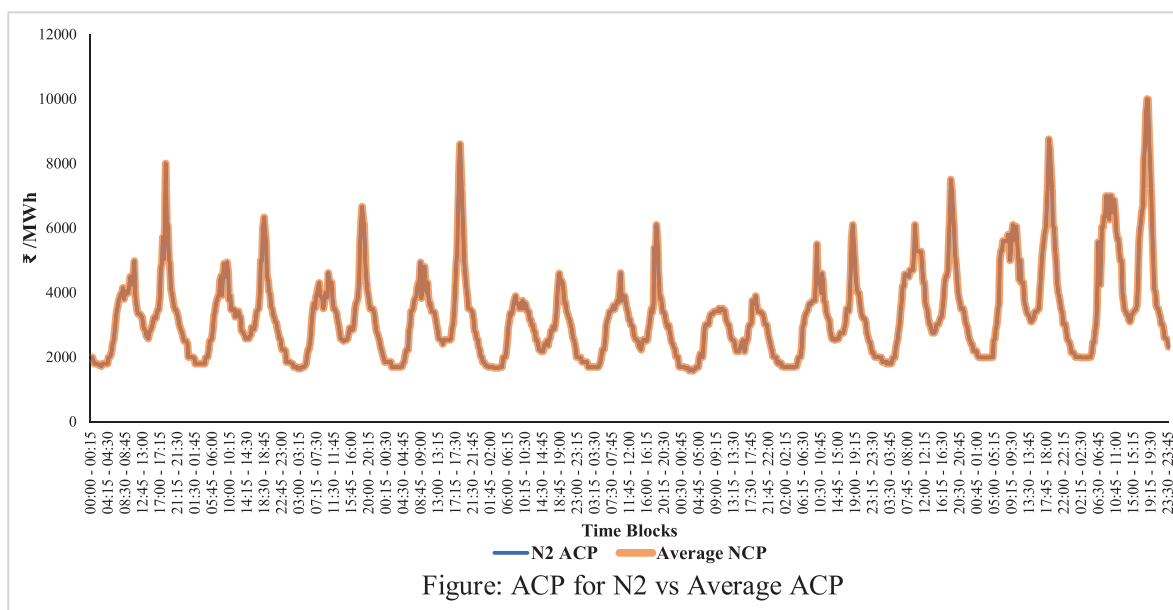
- Renewable energy generators which are State entities
- Run of river projects without pondage
- Any infirm injection of power by a generating station prior to CoD of a unit during testing and commissioning activities.
- Any drawal of power by a generating station for the start-up activities of a unit.

## EAL Opinion

✎ The broader alignment of the UERC DSM regulations to those applicable at the inter-state level (i.e. by CERC) is necessary to ensure that there is overall harmony the treatment of deviations. However, there are two important points that would justify departure of intra-state DSM regulations from those applicable for the inter-state level. These are – (i) applicability of DSM regulations in line with the impact of variable RE to the state's power system i.e. that handled by the respective SLDC; and (ii) the adoption of 'local price' signal rather than a national average area clearing price (ACP). The second one is discussed below.

✎ Area Clearing Price (ACP) for N2 Region rather than Average ACP: The Deviation Settlement Mechanism (DSM) Regulation for inter-state scheduling takes into account average of the ACPs across the country. Given that the

applicability of the UERC Deviation Settlement Mechanism (DSM) Regulations are with reference to the intra-state system within the state of Uttarakhand, the applicable ACP should that pertaining to the N2 Region (as per Power Exchange (PXs)). This will provide the correct economic signal to the entities participating in the intra-state system of the respective state. This would also reduce 'arbitrage' between the 'economic values' of deviation at the state level and the applicable ACP. While average ACP and that for the N2 Region may currently be the same across most of the time blocks (See figure below) due to absence of transmission congestion, the regulatory framework should provide correct economic signals so that it is able to address the divergence in ACP for N2 Region and the average ACP as and when such a case arises in future.



## CERC (Connectivity and General Network Access to the Inter-state Transmission System) Regulations, 2021 [Draft]

CERC notified a draft on "Connectivity and General Network Access to the Inter-state Transmission System Regulations, 2021" on 16<sup>th</sup> December, 2021. The key highlights of the draft are given below:

**Objective:** These Regulations aim to facilitate non-discriminatory open access to licensees, generating companies and consumers for the use of Inter-state transmission system (ISTS) through General Network Access and to consolidate the Regulations on the subject.

### Connectivity: Eligibility for Connectivity to ISTS

Following entities are eligible to apply for grant of Connectivity or for enhancement of the quantum of Connectivity:

- Generating station(s), including REGS(s), with or without ESS, Standalone ESS with an individual/ aggregate installed capacity of 50 MW and above through a Lead Generator or a Lead ESS;
- Captive generating plant with capacity for injection to ISTS of 50 MW and above;
- Renewable Power Park Developer;
- REGS or standalone ESS having an installed capacity of 5 MW and more, and applying for grant of Connectivity to ISTS through the electrical system of a generating station already having connectivity to ISTS.

An Applicant may apply for grant of Connectivity at

- A terminal bay of an ISTS sub-station already allocated to another Connectivity grantee or
- Switchyard of a generating station having Connectivity to ISTS.

Two or more Applicants may apply for grant of Connectivity at a common terminal bay with an agreement duly signed by such Applicants for sharing the dedicated transmission lines and the terminal bay(s).



**Connectivity Bank Guarantee:** Connectivity Bank Guarantee to be submitted by an applicant in three parts:-

- 1) Conn-BG1 amounting to Rs. 50 lakhs
- 2) Conn-BG2 (per terminal bay) - Rs. 2Cr (132 kV)/ 3Cr (220/ 230 kV)/ 6Cr (400 kV)/ 12Cr (765 kV)
- 3) Conn-BG3 of Rs. 2 lakh/MW, for the existing ISTS

Conn-BG1, Conn-BG2 and Conn-BG3 shall be issued by any scheduled commercial bank recognised by the Reserve Bank of India, in favour of CTU.

**Transfer of Connectivity:** A Connectivity grantee shall not, transfer, assign or pledge its Connectivity and the associated rights and obligations, either in full or in parts, to any person. Provided that the Connectivity granted to a parent company may be utilised by its subsidiary and the Connectivity granted to a subsidiary may be utilised by its parent company.

## **General Network Access (GNA): Eligibility for GNA**

The entities listed below are eligible as Applicants to apply for grant of GNA or for enhancement of the quantum of GNA:

- State Transmission Utility on behalf of distribution licensees connected to Intra-state transmission system and other Intra-state entities;
- A buying entity connected to Intra-state transmission system;
- A distribution licensee or a Bulk consumer, seeking to connect to ISTS, directly, with a load of 50 MW and above;
- Trading licensees engaged in cross border trade of electricity in terms of the Cross Border Regulations;
- Transmission licensee connected to ISTS for drawal of auxiliary power.

**Deemed Grant of GNA:** GNA for (i) a State including Intra-state entity(ies) and (ii) other drawee entities, shall be the average of 'A' for the financial years 2018-19, 2019-20 and 2020-21,

where, 'A' =  $\{0.5 \times \text{maximum ISTS drawal in a time block during the year}\} + \{0.5 \times [\text{average of (maximum ISTS drawal in a time block in a day) during the year}]\}$

**Relinquishment of Connectivity and GNA:** Connectivity and GNA granted can be relinquished, in full or in part:

- (a) In case of relinquishment of full/ part quantum of Connectivity, (i) subsisting Conn-BG1 shall be encashed, (ii) subsisting Conn-BG2 shall be encashed if the terminal bay(s) are already developed or construction of which has already been awarded for implementation, and (iii) subsisting Conn-BG3 shall be encashed in proportion to the relinquished quantum of Connectivity.
- (b) STU may relinquish GNA on behalf of identified Intra-state entity. The relinquishment charges shall be equal to 60 times (provided that, if the balance period of GNA is less than 60 months, it shall be equal to the number of balance months times) the transmission charges paid by such Intra-state entity for the last billing month under the Sharing Regulations, corresponding to the relinquished quantum.

Relinquishment charges shall be used for reducing Monthly Transmission Charges.

**Temporary General Network Access (T-GNA):** The following entities shall be eligible as Applicants to apply for T-GNA to ISTS:-

- As buyers : Distribution licensee and Bulk consumer directly connected to ISTS; A buying entity connected to Intra-State transmission system; Generating station including REGS for meeting its auxiliary consumption or start-up power or for meeting its supply obligations; Captive generating plant; Standalone ESS.
- Trading licensee (i) on behalf of buyer(s), and (ii) engaged in cross border trade of electricity for injection into or drawal from the Indian grid.
- Power exchange for collective transactions or bilateral transactions on behalf of (i) buyer(s), and (ii) trading licensee(s) engaged in cross border trade of electricity for injection into or drawal from the Indian grid.

- A grantee shall be eligible to apply for T-GNA over and above the GNA granted to it.

T-GNA may be applied for any period from 1 (one) time block and up to 11 (eleven) months. Application for grant of T-GNA may be for bilateral and collective transactions. The T-GNA applications shall be applied and processed through single window electronic platform, namely, National Open Access Registry (NOAR). NLDC shall be responsible for developing and maintaining the NOAR.

## EAL Opinion

✍ **Relinquishment of GNA (Regulation No. 25.1 (a)):** The draft Regulation states *"For an entity covered under Regulation (i) of Regulation 17.1 of these Regulations, STU may relinquish GNA on behalf of identified intra-State entity. The relinquishment charges shall be equal to 60 times the transmission charges paid by such intra-State entity for the last billing month under the Sharing Regulations, corresponding to the relinquished quantum."* **Although this Regulation aids in the recovery of transmission charges, it entails relinquishment charges equal to five (5) years of the transmission charges paid by the Intra-state entity which is unreasonably high, since in case the entity goes bankrupt, they will not be able to pay the charges as specified in this Regulation.**

✍ **National Open Access Registry (NOAR) (Regulation No. 27.1 (v)):** The draft Regulation states *"Provide Dash Board facility with real time information to RLDCs and SLDCs and act as a repository of information related to T-GNA including standing clearance issued by RLDCs and SLDCs, availability of transmission corridor, pending applications, and T-GNA granted and rejected."* It is necessary to provide data to stake holders other than RLDCs and SLDCs. Since the dashboard facility provides real time data only to the RLDCs and SLDCs, it will be difficult for other stakeholders to get information regarding the same. **It is suggested that the relevant data of NOAR providing details of access requested, granted and denied, and details about the quantum of Open-access (OA) requested/ granted across time blocks, be made available in the public domain, possibly enabled through Application Programming Interface (API) to assist further analytics and research.**

As per the Regulation 27.1(vi), *"NOAR shall facilitate generation of periodic reports for market monitoring and surveillance."* **Periodicity of such reports should at least be on a monthly basis so that the gap in information flow and analysis is minimised.**

✍ **Market Monitoring and Unique Identification on the NOAR:** An entity, who has been granted GNA, participates in the Power Exchanges, as well and subsequently interferes in the market by engaging in activities, with or without a consortium, which tends to compromise the competitive nature of the market, either by "playing with the available transmission capacity, or by controlling the demand/ supply bids". Market manipulation may not only involve energy market but also the associated allocation of transmission capacity (including that through OA). **To ensure identification of market manipulation/ gaming, unique identifiers should be defined and used across all market platforms/ contracts as well as for allocation of transmission capacity including those in NOAR.**

✍ **Exigency and Application for grant of T-GNA (Regulation No. 28.4 (b)):** The draft Regulation states *"Exigency application for grant of T-GNA: Application made on (D) day for grant of T-GNA with scheduling for (S) day, which may be (D) day or (D+1) day or (D+2) day, with a minimum start time of 7 (seven) time blocks unless specified otherwise in the Grid Code:"*

*Provided that the Exigency application for grant of T-GNA shall be made for any time block(s) between 00:00 hrs to 24:00 hrs of the (S) day."* The term "Exigency" should be defined outlining its scope, especially as it is neither defined in the **Indian Electricity Grid Code** nor defined in these Regulations. **Load Dispatch Centres (LDCs) may be offered certain amount of flexibility in taking a final call on the applications under the 'exigency' criteria.**

**A limit on the quantum of OA to be granted under exigency should be defined to ensure that such applications are not an outcome of complacency on part of the applicant and also that these do not make an adverse impact on the market outcome.**

✍ **Processing of applications for grant of T-GNA by Nodal Agency (Regulation No. 29.3):** The draft Regulation states *"Advance applications for T-GNA shall be considered on first-come-first- served basis and shall be processed*

latest by 23.59 hrs of the (D+1) day, 'D' being the date of making the application." The draft cause may be amended as **"Advance applications for T-GNA shall be accorded priority in grant of GNA."**

- ✍ As per draft Regulation "Advance applications for T-GNA shall be considered on first-come-first-served basis .....". It is important to elaborate 'consideration' of an application. Does it mean that the system operator would run its model sequentially after each application, treating each one on an incremental basis? Alternative approach would be to accord priority in granting OA once the system operator undertakes network analysis, and in case of any congestion, prior applications would be given priority in grant of OA. To implement the rule of "first-come first-served" on a practical basis, there is also a need to define granularity of time stamping of the applications and also an approach to break a tie.
- ✍ Regulation No. 29.4 (a): "Applications received till 1300 hrs of (S-1) day shall be processed after 1300 hrs on (S-1) day on first-come-first-served basis, and shall be finalised by 1400 hrs of (S-1) day." The result publication date must be mentioned in these Regulations as well.
- ✍ Market Monitoring and Unutilised Transmission capacity: Gains from hoarding of transmission capacity, especially during periods of shortage that witness price spike in the market, would outstrip the cost of hoarding the transmission capacity on account of liability to pay transmission charges.  
In this context, the mandate to surrender unused capacity is included in the Regulation. It is also important to identify hoarding of transmission capacity that remains utilised i.e. a schedule for the same is given, say on a day-ahead basis, but the users do not honour the schedule and pay deviation charges thereof. The economics of deviation charges, partially related to market prices, may still be attractive in such cases, particularly for OA granted to RE based generation (due to lower applicability of deviation charges). A market monitoring mechanism should identify such cases and, the regulatory framework should penalise such recurring cases to ensure that arbitrage opportunities are not used to the detriment of the market outcome.
- ✍ Under any contract (Regulation No. 36.1, 36.2 and 36.6): The phrase "under any contract" may be rewritten as 'under any contract (excluding those arrived through collective transactions, which are dealt with separately)'.
- ✍ Provision for Unused GNA (Regulation 33.3): A priority for reallocation of unused transmission capacity may be incorporated in the Regulation. The said Regulation may be suitably modified as:-  
*Provided that in case such T-GNA grantee does not schedule power up to its T-GNA quantum at the time of making scheduling request, the unutilised quantum of T-GNA shall be released, as per priority mentioned herein, for collective transactions under day ahead market, schedule revision by GNA grantees, Exigency applications for T-GNA and collective transactions under real time market in terms of Regulation 36 of these Regulations."*
- ✍ Submission of Conn-BG3 (Regulation No. 8.3): The amount and timeline for submission of Conn-BG3 has not been specified under this Regulation for cases covered under Regulation 7.2 of these Regulations.

## EAL News

### Long-term Demand Forecasting: Modelling Approach for DISCOMs

EAL, IIT Kanpur is pleased to announce the Training and Capacity Building Programme for Power Sector Institutions on "Long-term Demand Forecasting: Modelling Approach for DISCOMs", in association with Bask Research and CUTS International on 28<sup>th</sup> April, 2022.

The programme was suitably designed for Officers of Electricity Regulatory Commissions (ERCs), relevant Ministry and Government Departments, Stakeholders from Power Generating Companies, Licensees (Transmission, Distribution, and Trading), Power Exchanges, Open Access Consumers, Load Dispatch Centers, Financial Institutions and Investors, Consultants, Faculty, Researchers, and Students from Academic Institutions, Consumer Organisations, NGOs and other stakeholders who want to enhance their knowledge and understanding of this multi-disciplinary area. For further details regarding this programme, please visit [https://cer.iitk.ac.in/cer/OLET\\_CBP\\_LTDF](https://cer.iitk.ac.in/cer/OLET_CBP_LTDF).

## EAL News

## e-Masters Programme

IIT Kanpur has introduced the eMasters programme on "Power Sector Regulation, Economics and Management" under the aegis of the Department of Industrial and Management Engineering (IME). This multi-disciplinary programme aims to provide a conceptual and applied understanding of power sector regulation from economic and regulatory perspectives. The modules currently being covered include Power Sector Regulation in Practice: MYT Framework for Generation, Transmission & Distribution, Competition and Power Market Development and Smart Grid Technologies and Implementation. For more details please visit <https://emasters.iitk.ac.in/powersector>

## I-AEE: India's Energy Transition – Aspirations, Preparedness and Way Forward

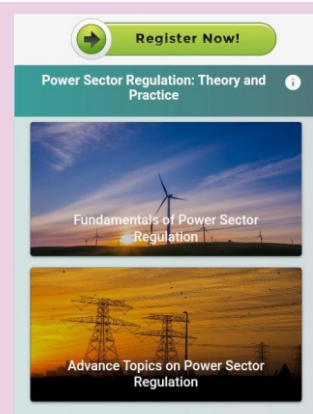
Dr. Anoop Singh (Prof. IIT Kanpur, Founder & Coordinator CER & Vice President, I-AEE) moderated the 2<sup>nd</sup> online debate of the Indian Association of Energy Economics (I-AEE) on "India's Energy Transition – Aspirations, Preparedness and Way Forward" which was conducted on 16<sup>th</sup> March, 2022. The key speakers included Dr. R. B. Grover (Padma Shri, Emeritus Professor, HBNI, Fellow of the Indian National Academy of Engineering, Member of Indian Atomic Energy Commission), and Mr. Partha.S. Bhattacharya (Former Chairman, Coal India Ltd, & Former MD, Haldia Petrochemicals Ltd.), Dr. Winfried Damm, (Head of Indo-German Energy programme, (GIZ) GmbH) and Mr. Anurag Pandey, Reliance, (Group Lead, Hydrogen Economy, R&D, Reliance Industries Ltd.).

## Registrations Open for Regulatory Certification Programmes

EAL, IIT Kanpur is pleased to announce that registrations for Regulatory Certification Programmes on "Power Sector Regulation: Theory and Practice" and "Power Market Economics and Operation" is now open.

The programme on "Power Sector Regulation: Theory & Practice" will help in understanding and analysing key issues in the power sector from the economic, legal, and regulatory perspectives. "Power Market Economics and Operation" provides insights into the economics and operational aspects of power market, its products, and their role in the Indian power market. These two programmes will be conducted under the aegis of the Centre for Continuing Education (CCE), IIT Kanpur.

For further programme details including key topics, registration fee, resource persons, please visit <https://cer.iitk.ac.in/olet/rcp>



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## Other Initiatives



Centre for Energy Regulation



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