Market-Based Economic Dispatch of Power

For Prelims: Market-Based Economic Dispatch (MBED) of Power, Electricity Act 2003, One Nation, One Grid, One Frequency, One Price Formula,Central Electricity Regulatory Commission (CERC), Power Sector DISCOMs

For Mains: Power Sector Reforms, Associated Challenges and the Way Forward

Why in News?

The **Market-Based Economic Dispatch (MBED) mechanism** envisages **centralised scheduling for dispatching the entire annual electricity consumption** of around 1,400 billion units.

What is the Centralised Model of MBED?

- **MBED mechanism** proposes **a centralised scheduling of power dispatches**, both inter-state and intra-state.
- It will mark a clear **shift from a decentralised model which** is backed by **Electricity Act, 2003.**
- MBED is a way forward to deepen power markets in line with the Centre's **'One Nation, One Grid, One Frequency, One Price'** formula.
    - It will ensure that the **cheapest electricity generating resources across the country are supplied to meet the overall system demand** and will therefore be a win-win for both the distribution companies and the generators and result in savings for consumers.
- The implementation of the first phase of MBED was **earlier planned to start with effect from April 1, 2022.**
    - However, it was **put off for later in 2022**, the date for which is yet to be announced.

What is the Electricity Act 2003?

- **The Electricity Act, 2003** is the **central law regulating the electricity sector.**
- The Act provides for **Electricity Regulatory Commissions at both the central and state levels** i.e., **Central Electricity Regulatory Commission (CERC)** and **State Electricity Regulatory Commissions (SERCs).**
    - **Functions of these Commissions include:**
        - Regulating and determining tariff
        - Issuing licenses for transmission
        - Distribution, and electricity trading
        - Adjudicating upon disputes, within their respective jurisdiction.

What is the Electricity (Amendment) Bill 2022?

- **About:**
    - **The Electricity Amendment Bill, 2022** aims at giving **multiple players open access to** distribution networks of power suppliers and also allowing **consumers to choose any**

service provider.

- **Implication:**
  - The Bill seeks to amend **Electricity Act 2003:**
    - To facilitate the **use of distribution networks** by all licensees, under provisions of **non-discriminatory "open access"** with the objective of **enabling competition, enhancing efficiency** of distribution licensees for improving services to consumers and **ensuring sustainability** of the power sector.
    - To facilitate **non-discriminatory open access to the distribution** network of a distribution licensee.
    - To make provisions vis-à-vis **graded revision in tariff** over a year besides **mandatory fixing of maximum ceiling and minimum tariff** by the appropriate commission.
    - To convert the rate of punishment **from imprisonment or fine to fine.**
    - To **strengthen functions** that will be discharged by the regulators.

What are the Concerns Associated with the Centralised Model of MBED?

- MBED will have **effect on the relative autonomy of states** in managing their electricity sector, including their own generating stations, and make the **Electricity Distribution Companies (DISCOMs)** (mostly state-owned) entirely dependent on the centralised mechanism.
- MBED is **inconsistent with the constitutional provisions, existing legislative framework and market structure**, and could end up creating more challenges than it resolves as it infringes on the autonomy of states.
- The **concerns regarding the viability of DISCOMs** really need to be tackled.
  - Currently, **power is in the** Concurrent List of the Constitution, with the **electricity grid being divided into** state-wise autonomous control areas managed by the **State Load Dispatch Centres (SLDCs)**, which in turn are supervised by **Regional Load Dispatch Centres (RLDCs)** and the **National Load Dispatch Centre (NLDC).**
    - Each control area is **responsible in real time for balancing its demand with generation resources.**
  - The new model will **narrow the multiple options currently available** under the voluntary market design with day-ahead contracts turning redundant.
  - For instance, the **DISCOMs and SLDC wouldn't be able to buy or sell power in the real-time market.**
- It could **potentially clash with emerging market trends** i.e., **increase in renewable energy** in the overall generation mix and the increasing numbers of **electric vehicles** plugging into the grid.
  - All of these actually **necessitate greater decentralisation of markets** and voluntary pools for efficient grid management and operations.
- India has a diversified electricity market ranging from **long-term power purchase agreements (PPAs), cross border PPAs, short and medium term bilaterals**, day-ahead power exchange, and a real-time online market.
  - Around 87% of the installed power is tied up under long term PPAs and the remaining is transacted in the power markets.
  - At present, **each control area or state follows merit-order dispatch (cheapest power dispatched first)** from the basket of intra-state and inter-state resources and buys or sells on the day-ahead power exchange. **The schedules under long-term PPAs can be revised.**
  - However, this feature of **pan-India visibility of the available tradable power on a daily basis** on the power exchange **will not be available as per the MBED model.**
- The **must-run status of somepower stations such as Trombay TPS, Mumbai or the Dadri TPS** in the NCR region **will come under question.**
  - These power stations are critical for security of supply to key cities such as Mumbai or Delhi and in islanding operations in the event of a grid failure.
- The proposed **Bilateral Contract Settlement (BCS) mechanism** under the scheme for refunding the difference between the Market Clearing Price and the contract price under the PPA,

primarily to keep the PPA prices intact, is **another challenge.**
    - This will **dilute the objective of "market-driven prices"** while complicating the entire accounting and settlement process.
    - Further, it will **erode the sanctity of time tested PPAs and create a volatile wholesale market.**

What can be the Way Forward?

- Being a subject of **Concurrent List of Indian Constitution, recommendations from states should be taken into consideration** for effective implementation of the provisions of the bill.
- **Security Constrained Economic Dispatch (SCED)**, an algorithm developed by the NLDC **can be the potential solution**, which is aimed at **assisting regulators in making informed calls on scheduling decisions on a nationwide basis.**

UPSC Civil Services Examination, Previous Year Question (PYQ)

Q. Consider the following statements: (2019)

1. Petroleum and Natural Gas Regulatory Board (PNGRB) is the first regulatory body set up by the Government of India.
2. One of the tasks of PNGRB is to ensure competitive markets for gas.
3. Appeals against the decisions of PNGRB go before the Appellate Tribunals for Electricity.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Ans: (b)

Exp:

- The Petroleum and Natural Gas Regulatory Board (PNGRB) was constituted under the Petroleum and Natural Gas Regulatory Board Act, 2006. The independent regulator, Telecom Regulatory Authority of India (TRAI), set up under TRAI Act of 1997, was the first independent regulator in India. Hence, statement 1 is not correct.
- PNGRB is tasked to protect the interests of consumers and entities engaged in specified activities relating to petroleum, petroleum products and natural gas and to promote competitive markets and for matters connected therewith or incidental thereto. Hence, statement 2 is correct.
- The Appellate Tribunal established under Section 110 of the Electricity Act, 2003 (Central Act 36 of
- 2003) shall be the Appellate Tribunal to appeal against the decisions of the PNGRB. Hence, statement 3 is correct.
- **Therefore, option B is the correct answer.**

Q. Which one of the following is a purpose of 'UDAY', a scheme of the Government? (2016)

(a) Providing technical and financial assistance to start-up entrepreneurs in the field of renewable sources of energy
(b) Providing electricity to every household in the country by 2018
(c) Replacing the coal-based power plants with natural gas, nuclear, solar, wind and tidal power plants over a period of time
(d) Providing for financial turnaround and revival of power distribution companies

Ans: (d)

Exp:

- Ujwal DISCOM Assurance Yojana (UDAY) was launched by the Ministry of Power. It aimed to help to make state electricity distribution companies (DISCOMS) financially and operationally healthy so that they can supply adequate power at affordable rates.
- It envisages financial turnaround; operational improvement; reduction of the cost of generation of power; development of renewable energy; energy efficiency and conservation.
- The scheme seeks to impact financially and operationally sound DISCOMs; increased demand for power; improvement in Plant Load Factor (PLF) of generating plants; reduction in stressed assets; availability of cheaper funds; increased capital investment; development of renewable energy sector.
- **Therefore, option D is the correct answer.**

Source: IE