India's Energy Conservation Building Code, 2017

For Prelims: India’s Energy Conservation Building Code, 2017, **International Energy Agency (IEA),** World Energy Outlook 2023, Strategic Partnership Agreement with the IEA**,** IEA Clean Coal Centre.

For Mains: India’s Energy Conservation Building Code, 2017, Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

Source: IE

Why in News?

Recently, the **International Energy Agency (IEA),** in its **World Energy Outlook 2023**, report has highlighted that **India’s Energy Conservation Building Code (ECBC), 2017** sets it apart from other developing economies.

- The IEA stated that India is unique among developing countries because its rules for energy efficiency in commercial buildings are strong, whereas in many other developing countries, energy efficiency **in buildings is not as advanced as India.**

What is the International Energy Agency?

- The International Energy Agency is **an autonomous Intergovernmental Organisation** established in **1974 in Paris, France.**
- IEA mainly focuses on its energy policies which include economic development, energy security and environmental protection. These policies are also known as the 3 E’s of IEA.
- India became an **Associate member of IEA in March 2017** but it was in engagement with IEA long before its association with the organization.
    - Recently, India has inked a **Strategic Partnership Agreement with the IEA** to strengthen cooperation in global energy security, stability and sustainability.
- The World Energy Outlook Report is released by the IEA annually.
- **IEA Clean Coal Centre** is dedicated to providing independent information and analysis on how coal can become a cleaner source of energy, compatible with the UN Sustainable Development Goals.

What is India’s Energy Conservation Building Code (ECBC), 2017?

- **About:**
    - The ECBC was first released by the **Ministry of Power’s Bureau of Energy Efficiency (BEE) in 2007**, followed by an update in 2017.
        - Currently, 23 states have notified **rules to enforce ECBC compliance**, while large

states like Maharashtra and Gujarat **are still in the process of drafting rules.**
    - ECBC sets minimum energy standards for commercial buildings, with the objective of enabling energy savings of between 25 and 50% in compliant buildings.
    - The code is **applicable to commercial buildings like hospitals**, hotels, schools, shopping complexes, and multiplexes which have a connected load of 100 kW or more, or contract demand of 120 kVA or more.
- **Focus:**
    - The ECBC in India **focuses on six key components** of building design, including the envelope (walls, roofs, windows), lighting systems, HVAC (Heating, ventilation, and air conditioning) systems, and electrical power systems.
    - These components **have both mandatory and prescriptive requirements.** The code applies to both new constructions and retrofitting existing buildings.
    - Compliant **buildings are assigned one of three tags in ascending order** of efficiency, namely ECBC, ECBC Plus, and Super ECBC.
- **Need for ECBC:**
    - Implementation of energy efficiency building codes like ECBC is important as **buildings in India account for 30% of total electricity consumption**, a figure that is expected to touch 50% by 2042.
    - Furthermore, BEE notes that 40% of buildings that will exist in the next twenty years are yet to be built, which gives **policymakers and builders a unique opportunity to ensure that they are built in a sustainable** manner.
- **Evolution from 2007 to 2017:**
    - The 2017 update of ECBC **introduces additional priorities**, such as renewable energy integration, ease of compliance, and the **inclusion of passive building design strategies.**
    - It also **emphasizes flexibility for designers.** This marks **a significant shift from the 2007 version** and aligns with **global trends towards sustainable and energy-efficient practices.**

Where Do States Stand In ECBC Implementation?

- Out of 28 states, only 15, including Uttar Pradesh, Punjab, Karnataka, Andhra Pradesh, Telangana, and Kerala, **have adopted the latest 2017 (ECBC) rules.**
- However, Gujarat, Maharashtra, J&K, Ladakh, and Manipur are **yet to implement these rules,** missing out on potential energy savings.
    - The National Research Development Corporation estimates that Gujarat alone could save 83 terawatt-hours of energy by 2030 with effective **ECBC compliance.**
- The **State Energy Efficiency Index (SEEI) of 2022** ranked **Karnataka as the top state for energy efficiency in buildings,** followed by Telangana, Haryana, Andhra Pradesh, and Punjab.
    - On the flip side, **Bihar scored the lowest, and along with Odisha**, West Bengal, Tamil Nadu, and Jharkhand, ranked as the five worst states for energy efficiency in buildings.

What are the Government Initiatives to Promote Energy Conservation and Energy Efficiency?

- **PAT Scheme:**
    - **Perform Achieve and Trade Scheme (PAT)** is a market based mechanism to enhance the cost effectiveness in improving the Energy Efficiency in Energy Intensive industries through certification of energy saving which can be traded.
    - It is a part of the National Mission for Enhanced Energy Efficiency (NMEEE), which is one of the eight missions under the **National Action Plan on Climate Change (NAPCC).**
- **Standards and Labeling:**
    - The scheme was launched in 2006 and is currently invoked for equipments/appliances Room Air Conditioner (Fixed/VariableSpeed), Ceiling Fan, Colour Television, Computer, Direct Cool Refrigerator, Distribution Transformer, Domestic Gas Stove, General Purpose Industrial Motor, LED Lamps, Agricultural Pumpset, etc.
- **Demand Side Management (DSM):**
    - DSM is the selection, planning, and implementation of measures intended to have an

influence on the demand or customer-side of the electric meter.

Way Forward

- The IEA recognises India is among the few developing countries that have building codes for commercial and residential buildings, and the uniform enforcement of it can lead to significant energy savings in the sector.
- India also passed the **Energy Conservation (Amendment) Act in 2022**, which further expands the ambit of building codes in the country.
    - Energy Conservation (Amendment) Act, 2022 provides for the transitioning of ECBC into Energy Conservation and Sustainability Building Code by incorporating measures relating to embedded carbon, net zero emissions, materials and resource efficiency, deployment of clean energy, and circularity.