India has seen waves of power plant constructions. New renewable energy projects mainly benefit certain states, leaving others with financial strain. Solutions are needed to ensure all states benefit from the transition.

What is the history of the evolution of India's power sector?

- ❖ **First Wave (mid-1970s to mid-1990s):** Central Public Sector Undertakings (PSUs) took the lead.
  - ✎ **Notable creations include:** NTPC and Coal India.
  - ✎ Aimed to fix imbalances in state power supplies. The initial plants were strategically placed to serve multiple states.
- ❖ **Second Wave (2000-2015):** Triggered by the Electricity Act, 2003.
  - ✎ Private promoters played a major role.
  - ✎ New plants mostly located in central, western, and southern India.
  - ✎ Private investment in power centered around states with industrial demand and strong finances.

What is the significance of coal in India's energy mix?

- ❖ **Continued Use and Investment:** Coal remains a significant part of India's energy landscape.
- ❖ **New Power Plants:** The power minister has announced plans to build new coal power plants.
- ❖ **Addressing Peak Power Problems:** The reliance on coal is evident in efforts to manage seasonal demand surges in electricity.

What is Energy Transition?

In the present context, Energy Transition refers to the transformation of the energy sector from fossil-based systems of energy production and consumption to renewable energy sources. It involves a shift in the energy mix to reduce, if not eliminate, the carbon emissions (and other greenhouse gases).

In India's context, by 2030, solar and wind could account for 51% of generation capacity. Solar and wind's contribution might rise from 8.3% in 2019 to 31% by 2030.

What are the implications of the renewable energy transition?

❖ **Regional disparities in distribution:** As of August 2023, eight states generated 92.5% of all renewable energy.Mainly western and southern states are benefiting.

❖ **Challenges for RE-Po or States:** Coal royalties, a key revenue, will decrease. Power procurement costs will rise for these states leading to budget deficit.

❖ **State vs. Union Tensions:** Disagreements over revenues, power operations, and transition costs.State transmission companies bear the integration costs of RE projects.

What can ensure a balanced energy transition?

❖ **Support for RE-Poor States:** States with less renewable energy need more involvement in the transition.

❖ **Financial Assistance:** Offer preferential lending for RE projects in states with less renewable resources.

❖ **Increased Federal Negotiations:** Give RE-poor states a bigger voice in power discussions, possibly by reviving institutions like the Inter-State Council.

❖ **Financial Transfers:** The Finance Commission can provide explicit financial aid to RE-poor states.

❖ **Collaborative Policies:** Implement a just transition mechanisms and collaborative industrial policies.

❖ **Equitable Green Policy:** Ensure all states, not just the historically privileged ones, benefit from the green industrial policy.

Expected Question

Que. Consider the following statements with reference to renewable energy in India:

1. In the context of India, by 2030, solar and wind can account for 51% of the generation capacity.

2. By August 2023, eight states will produce 92.5% of all renewable energy.

    Which of the statements given above is/are correct?

(a) Only 1

(b) Only 2

(c) Both 1 and 2

(d) Neither 1 nor 2

Answer : c

Mains Expected Question & Format

Que.: What is the importance of coal in India's energy mix? What are the implications of the renewable energy transition in India?

Answer Format :

❖ In the first part of the answer, discuss the importance of coal in India's energy mix.

❖ In the second part, explain the implications of renewable energy transition in India.

❖ Finally give a conclusion showing the way forward.

Note: - The question of the main examination given for practice is designed keeping in mind the upcoming UPSC mains examination. Therefore, to get an answer to this question, you can take the help of this source as well as other sources related to this topic.