BENEVOLENT IAS ACADEMY

#1626-A,Sri Vinayaga Complex, Hope College,
Peelamedu (PO), Coimbatore – 641004.
Cell: +91-9787731607, 9787701067
Web: www.benevolentacademy.com. E-Mail: benevolentacademy@gmail.com

TODAY'S IMPORTANT CURRENT AFFAIRS
UPSC MAINS

Date: 09.05.2025

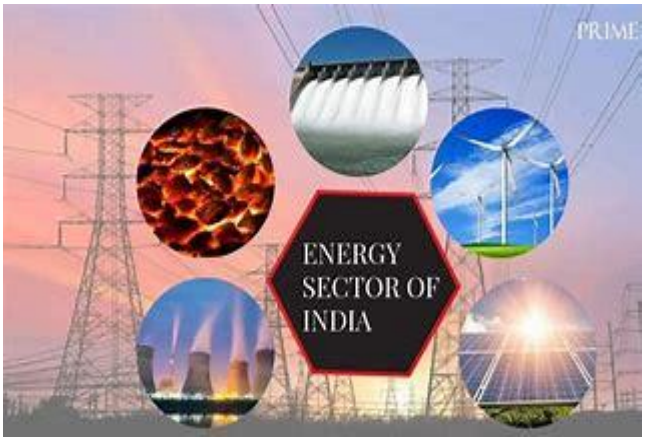
INDIA US ENERGY SECTOR

Source: The post is based on the article published in **"The Hindu"** on **08 .05.2025**

In News: The building block of an India US energy future

Syllabus: ***Mains – GS II (INTERNATIONAL RELATIONS)***

India and the United States Energy sector



India and the United States have developed a **multi-faceted energy partnership spanning civil nuclear cooperation, hydrocarbons trade, and clean energy innovation..** The partnership enhances energy security, diversifies supplies, and accelerates decarbonization, yet faces challenges in regulatory alignment, investment scales, and domestic priorities. Future steps include legal reforms, expanded clean energy manufacturing, and deeper engagement on emerging fuels.

Key Areas of Partnership

- **Civil Nuclear Energy**: Implementation of the U.S.-India 123 Civil Nuclear Agreement to build U.S.-designed reactors in India and facilitate fuel supplies under revised liability frameworks.

- **Oil and Gas:** Collaboration under the U.S.-India Energy Security Partnership to increase hydrocarbon production, strategic petroleum reserves coordination, and U.S. exports of LNG and crude oil to India.
- **Renewable Energy:** Joint efforts through the Renewable Energy pillar of SCEP to scale clean energy deployment, supporting India's non-fossil capacity target and grid integration of intermittent resources.
- **Power and Energy Efficiency:** Modernization of grid infrastructure, demand-side management, and deployment of high-efficiency cooling and storage systems under the Power & Energy Efficiency pillar.
- **Emerging Fuels and Technologies:** Research and commercialization of advanced technologies including green hydrogen, carbon capture, and sustainable biofuels under the Emerging Fuels & Technologies pillar.

Significant Initiatives

- **123 Civil Nuclear Agreement (2008)**: Establishes a framework for civil nuclear trade, reactor construction, and fuel supply between the two countries.
- **Strategic Clean Energy Partnership (2009–present):** Coordinates U.S.-India cooperation across five pillars-Renewable Energy; Power & Energy Efficiency; Responsible Oil & Gas; Emerging Fuels & Technologies; Sustainable Growth-facilitating policy dialogues and capacity building.
- **Partnership to Advance Clean Energy Research (PACE-R)**: Focuses on joint R&D, notably the UI-ASSIST consortium for smart distribution systems with energy storage.
- **U.S.-India Energy Dialogue (2005)**: Provides a platform for high-level discussions on energy security, market stability, and investment.
- **U.S.-India Climate and Clean Energy Agenda 2030 Partnership:** Aligns both nations on achieving ambitious 2030 targets across clean energy, led by the Strategic Clean Energy Partnership framework.

Benefits of the Partnership

- **Enhanced Energy Security**: Diversifies supply sources and builds strategic reserves to stabilize prices and ensure reliable access.
- **Technology Transfer and Innovation:** Accelerates adoption of smart grids, energy storage, and advanced nuclear technologies through joint R&D and demonstration projects.

- **Economic Growth and Job Creation**: Stimulates investment in manufacturing of clean energy equipment and infrastructure upgrades in both countries.
- **Climate Change Mitigation:** Supports decarbonization by scaling renewable energy deployment and developing low-carbon fuels.
- **Strengthened Geopolitical Ties**: Reinforces bilateral strategic relations and offers a model for clean energy cooperation in the Indo-Pacific region.

Challenges of the Partnership

- **Civil Liability and Regulatory Barriers: I**ndia's Civil Liability for Nuclear Damage Act poses constraints on U.S. nuclear industry participation until amended.
- **Investment Imbalances**: Overseas investors, including U.S. firms, account for less than 20% of India's renewable energy funding, limiting scale-up potential.
- **Infrastructure and Grid Constraints:** Modernizing aging transmission and distribution networks remains critical to integrating variable renewables.
- **Affordability versus Quality Trade-off**: High costs of advanced technologies can conflict with India's mandate for affordable energy for low-income populations.
- **Complex Commercial Environment:** Varied state-level regulations and procurement frameworks complicate bilateral project implementation.

Way Forward

- **Amend Nuclear Liability Laws:** Finalize revisions to the Civil Liability for Nuclear Damage Act to unlock U.S. reactor investments and technology transfers.
- **Scale Clean Energy Manufacturing**: Promote joint ventures and build manufacturing capacity in solar modules, transformers, and storage systems to localize supply chains.
- **Deepen SCEP Pillar Engagement:** Expand public-private dialogues, reverse trade missions, and task forces to accelerate deployment across all five technical areas.
- **Advance Emerging Fuel Collaboration**: Launch targeted programs for green hydrogen and carbon capture demonstration projects, leveraging U.S. expertise and Indian market scale.
- **Foster Inclusive Capacity Building:** Develop net-zero villages and state-level energy roadmaps, ensuring best practice dissemination and workforce skilling for a just transition.

By addressing regulatory hurdles and scaling up investment and technology co-development, the U.S.-India energy partnership can reinforce energy security, drive economic growth, and achieve shared clean energy and climate objectives.