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MAHARASHTRA SETS UP DEDICATED CELL FOR MERCY PETITIONS

In News

- The Maharashtra government formed a dedicated cell under the **Additional Secretary (Home)** for dealing with mercy petitions filed by death row convicts.
  - It was established on the direction of SC that all states set up such cells to avoid delays in the execution of death penalties, which it observed can have a **"dehumanising effect" on convicts.**

Mercy Petition

- **What is a Mercy Petition?**
  - A mercy petition is a formal request submitted by a **convict (especially on death row or serving a long sentence) to seek clemency**—in the form of pardon, commutation, or remission—from the President of India or the Governor of a State, as a last resort after all judicial remedies are exhausted.
  - **No fixed time limit** is prescribed for the President's decision on the mercy petition.
- **Constitutional & Legal Provisions:**
  - The Constitution granted the **President (Article 72) and Governor (Article 161)** the power to grant pardons or commute sentences.
  - In the **Supreme Court's ruling in Maru Ram vs. Union of India (1981)**, it was established that the President must act based on the **Council of Ministers' advice in mercy petitions.**
- **Philosophy Behind Mercy Petitions:**
  - **Right to Life (Article 21):** Everyone has the fundamental right to life and personal liberty, guaranteed by Article 21 of the Indian Constitution.
    - A mercy petition seeks to uphold this right by allowing for compassionate reconsideration.
  - **Rectification of Judicial Errors:** Offers recourse when the judiciary may have overlooked evidence or erred.
  - **International Norms and Human Rights:** Many global conventions, including the Universal Declaration of Human Rights, emphasize the right to life and human dignity.
    - Mercy powers help nations adhere to these humanitarian standards.

Types of Pardoning Powers in India

- Under **Article 72 (President) and Article 161 (Governor)**, the executive is empowered to grant clemency in various forms.

Type	What Changes?	Example
Pardon	Cancels both conviction & sentence	Full forgiveness; treated as not guilty
Commutation	Changes sentence to a lesser one	Death → Life imprisonment
Remission	Reduces sentence duration	10 years 6 years
Respite	Lesser punishment for valid reasons	A pregnant woman receives lighter punishment
Reprieve	Delays execution temporarily	Time granted to file mercy petition

Comparison of Pardoning Powers of President & Governor

Aspect	President (Article 72)	Governor (Article 161)
Authority	President of India	Governor of a State
Jurisdiction	Offenses under Union laws, court-martial cases, and death penalty	Offenses under State laws
Military Law (Court-Martial)	Can grant pardon or reduce sentence for military court convictions	No power in court-martial cases
Death Sentence	Can grant pardon and commute a death sentence	Can only commute death sentence; cannot pardon it
Binding Advice	Acts on the advice of the Council of Ministers at the Centre	Acts on the advice of the State Council of Ministers

Conclusion

- Mercy petitions and pardoning powers are essential checks and balances within India's justice system. They ensure that law is tempered with compassion, and justice doesn't turn blind to human rights.

Source: IE

ELON MUSK'S NEURALINK TO IMPLANT 'BLINDSIGHT' CHIP IN FIRST HUMAN BY 2025

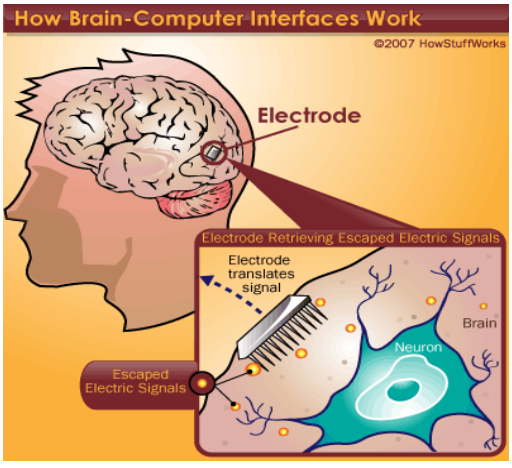
In News

- Elon Musk's brain-chip startup **Neuralink** has announced ambitious plans to begin **human trials** of its visual prosthesis device, "Blindsight" by the end of 2025.
  - This **brain-computer interface (BCI)** aims to restore vision in people who are completely blind.

What is Blindsight?

- Blindsight is an experimental **artificial vision device** that:
  - Uses a microelectrode array implanted in the visual cortex of the brain.
  - Bypasses the eyes and optic nerves entirely.
  - Processes visual data from a camera feed and stimulates neurons in the brain's visual center, enabling perception of images.

About Brain-Computer Interfaces (BCIs)



- A Brain-Computer Interface (BCI) is a computer-based system that:
  - Acquires brain signals
  - Analyzes them
  - Translates them into commands
  - Sends those commands to external devices to carry out a desired action
- Unlike traditional motor control (e.g., flipping a light switch), BCIs enable users to control devices directly using brain activity, bypassing the body's muscles and peripheral nerves.
- BCIs can be broadly categorized as:
  - **Invasive:** Electrodes are surgically implanted directly into the brain. These offer high signal quality but carry risks associated with surgery.
  - **Non-invasive:** Sensors are placed on the scalp (e.g., EEG headsets). These are safer but have lower signal quality.
  - **Partially invasive:** Electrodes are placed inside the skull but outside the brain tissue.

Applications & Challenges of BCIs

Category	Applications	Challenges
Medical & Rehab	Assistive technology for paralysis, ALS, etc.; Stroke & spinal injury rehab; Communication aids	Signal noise in non-invasive methods; Biocompatibility issues with implants
Mental Health & Cognitive	Neurofeedback for ADHD, PTSD, etc.; Memory & attention enhancement	Requires brain training; Ethical issues in cognitive manipulation
Education	Monitor engagement & cognitive load; Adaptive learning systems	Data privacy in learning settings; Standardization of tools
Military & Defense	Thought-controlled drones & devices; Cognitive monitoring of soldiers	Ethical use in combat; Risk of misuse or surveillance
Smart Home & IoT	Control devices using brain signals	Latency and reliability issues; Cost and integration complexity
Neuroscience Research	Brain mapping; Understanding cognition and neural links	Requires high-precision data; Long development cycles
General	Enhancement of brain functions and overall efficiency in functionality.	High costs; Lack of trained experts; Regulatory and legal uncertainty; Brain data security

Source: IE

VIBE CODING

In Context

- In February 2025, OpenAI co-founder Andrej Karpathy coined a new term called **"Vibe Coding".**

What is Vibe Coding?

- **Definition:** Vibe coding is an intuitive, prompt-driven approach to software development, where users interact with **LLMs (Large Language Models)** like ChatGPT, Cursor, or Sonnet to generate and debug code without deep programming expertise.
  - **Vibe coding** emphasizes **'feeling the vibes'** over structured programming logic, making it especially suited for **low-risk, creative, or personal projects** where precision isn't the primary concern.
- **Working:** The user types a plain-language prompt describing the feature or tool they want.
  - The AI generates code and suggests improvements or fixes.
  - The user copies, pastes, and runs the code with minimal engagement in debugging or understanding.

Advantages of Vibe Coding

- **Accessibility for Non-Programmers:** Allows creatives, entrepreneurs, and students to build apps or websites without formal training.
- **Boosts Creativity & Experimentation:** Encourages rapid prototyping and iterative testing.
  - Exposes new users to different programming languages and concepts.
- **Time-Saving for Developers:** Helps seasoned developers automate repetitive tasks, debug small issues, or draft boilerplate code quickly.
- **Gateway to Learning:** Serves as a stepping stone for beginners to transition into serious coding by sparking curiosity.

Disadvantages and Concerns

- **Code Quality & Efficiency:** AI may generate bloated, inefficient, or redundant code.
  - Results often lack optimization, making maintenance harder and more expensive.
- **Security Risks:** AI-generated code might introduce vulnerabilities, especially if users don't review it.
- **Loss of Understanding:** Vibe coders often don't understand the code they use, making future editing or scaling difficult.
  - "Accept All" culture (blindly accepting changes) increases risk.
- **Ethical and Legal Issues:** Raises concerns of plagiarism, especially in hackathons or job applications.
- **Unsuitable for Critical Applications:** Not fit for enterprise, medical, financial, or industrial-grade systems that require precision and reliability.

Will Vibe Coding Replace Traditional Programming?

- Though, AI coding tools are advancing rapidly, they:
  - Lack deep contextual understanding
  - Struggle with long-term maintainability
  - Are still experimental and error-prone

Source: TH

INDIA, US TO JOINTLY DESIGN, MANUFACTURE NUCLEAR REACTORS IN INDIA

Context

- The **US Department of Energy (DoE)** has granted **final approval for a US company to design and build nuclear power plants in India.**

About

- The **India-US civil nuclear agreement was signed in 2007** but took **20 years of negotiations,** legal clearances, and regulatory approvals to reach this stage.
  - India had insisted on **local design and manufacturing of nuclear plants**, which the US has now agreed to.
- **Amendments to the Atomic Energy Act 1962** also have to be initiated to enable **private companies to enter nuclear generation as operators,** which is currently restricted to only state-owned companies.

Highlights of the Deal

- **Regulatory Approval:** The DoE approved **Holtec International's proposal as an American Company,** allowing it to **transfer SMR technology** to three Indian firms: Larsen & Toubro, Tata Consulting Engineers, and Holtec Asia.
- **SMR Technology:** US and Indian firms will jointly manufacture **Small Modular Reactors (SMRs) and co-produce all parts.**
- **US Condition:** The US has placed a condition that the jointly-designed nuclear plants cannot be transferred to other entities or countries without prior written consent.

Significance

- **Diplomatic Achievement:** The deal strengthens US-India relations and gives India access to

advanced PWR (Pressurized Water Reactor) technology, previously limited to government corporations.

- **China Competition:** The agreement comes as China expands its Small Modular Reactor (SMR) plans, with India and China competing for leadership in the Global South with affordable nuclear technology.
- **Private Sector:** The deal is also being seen as a major win for India's private sector, which will gain specialisation and expertise in designing and manufacturing nuclear power plants.

Small Modular Reactors (SMR)

- These are advanced nuclear reactors that have a power capacity of up to **300 MW(e) per unit,** which is about one-third of the generating capacity of traditional nuclear power reactors.
- SMRs, which can produce a large amount of low-carbon electricity, are:
  - **Small** – physically a fraction of the size of a conventional nuclear power reactor.
  - **Modular** – making it possible for systems and components to be factory-assembled and transported as a unit to a location for installation.
  - **Reactors** – harnessing nuclear fission to generate heat to produce energy.
- **Significance:** Advanced SMRs offer many advantages, such as relatively small physical footprints, reduced capital investment, ability to be sited in locations not possible for larger nuclear plants, and provisions for incremental power additions.
  - SMRs also offer distinct safeguards, security and nonproliferation advantages.

Need for Private Players in Nuclear Sector

- **Nuclear Capacity:** India's plans to increase its nuclear power capacity from the current 8,180 MW to 22,480 MW by 2031-32 and eventually 100 GW by 2047.
- **Energy Demand Growth:** India's electricity demand is expected to increase 4-5 times by 2047, and nuclear power will help meet base-load demand alongside renewables.
- **India's Targets:** To reduce the emission intensity of its GDP by 44% by 2030 from the 2005 level.
  - To achieve 50% cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030.
- **Roadmap for 100 GW:** A roadmap is being developed with stakeholders, and while challenges remain, achieving the 100 GW target is seen as both ambitious and achievable

Governance

- Recently, **Nuclear Power Corporation of India Ltd (NPCIL)** has invited requests for proposals (RFPs) from private players to set up Bharat Small Reactors (BSRs).
- **NPCIL:** India's nuclear sector is governed by the Atomic Energy Act, 1962, under which only government-owned entities such as NPCIL can generate and supply nuclear energy.
  - There has been no private sector involvement in India's nuclear power sector so far.

Arguments in Favour of Private Sector Participation in Nuclear Power

- **Improved Efficiency and Innovation:** Private companies bring technological advancements, operational efficiency, and innovation, reducing costs and improving safety standards.
- **Increased Investment:** Private players attract more capital, helping to address the financial challenges of large nuclear projects.
- **Faster Project Execution:** Driven by competition and profit incentives, they can complete nuclear projects faster and more effectively compared to government processes.
- **Expertise and Global Standards:** Private companies will bring global best practices, cutting-edge technology, and expertise to the nuclear industry, improving overall standards.
- **Job Creation:** It will lead to increased employment opportunities in the nuclear sector, from construction to operations.

Arguments Against

- **Safety and Security Risks:** Private players prioritize cost-cutting over rigorous safety measures, potentially risking catastrophic accidents.
- **Lack of Transparency:** They may not be as transparent as public institutions, leading to a lack of accountability in the management of sensitive nuclear technologies.
- **National Security Concerns:** Involving private entities in nuclear power generation raises concerns about the potential for foreign ownership, control, or influence over critical national infrastructure.
- **Limited Regulatory Control:** Ensuring strict regulatory oversight of private companies might be challenging, potentially leading to lapses in compliance with safety, environmental, and operational standards.

- **Profit Motive Over Public Welfare:** Private companies prioritize profitability over public welfare, potentially compromising on environmental protections, worker safety, and the long-term sustainability of nuclear energy.

Way Ahead

- **Clear Regulatory Framework:** Establish a robust regulatory environment to ensure safety, compliance, and transparency, addressing concerns about accountability and national security.
- **Public-Private Partnerships (PPPs)**: Promote partnerships where the government maintains oversight, while private players handle operations, innovation, and investment, ensuring a balance of interests.
- **Gradual Implementation:** Start with pilot projects and small-scale initiatives to test private sector involvement, ensuring risk management before large-scale implementation.

Source: IE

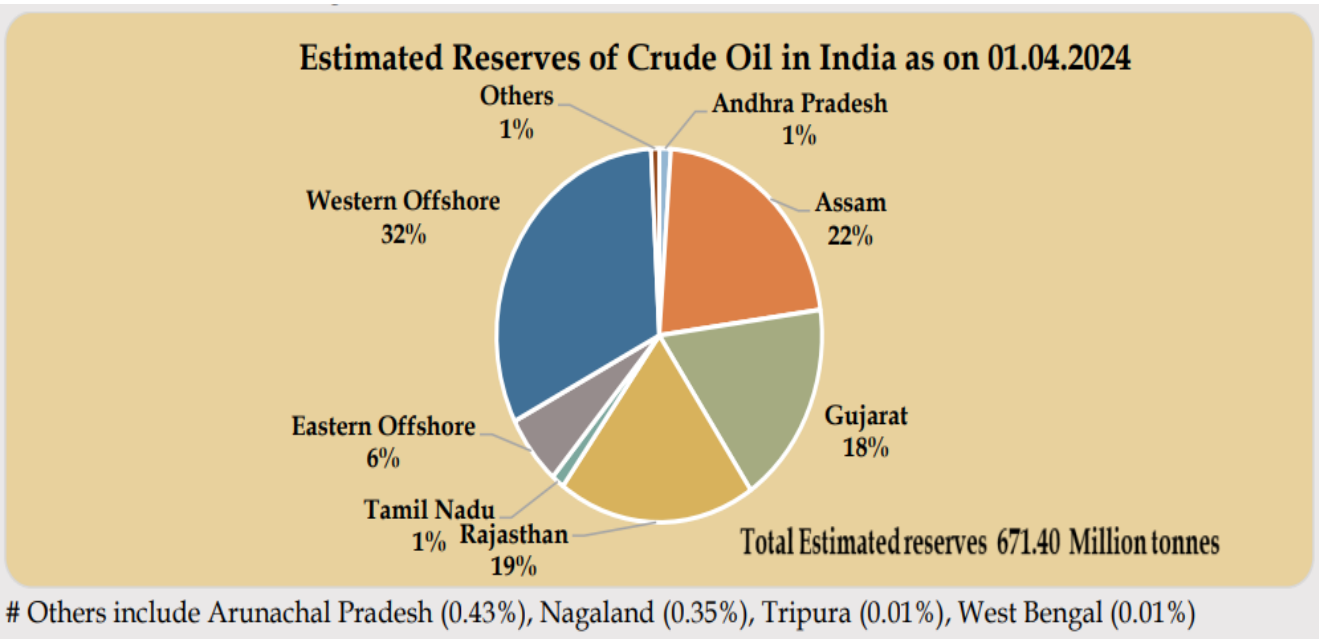
ENERGY STATISTICS INDIA 2025

Context

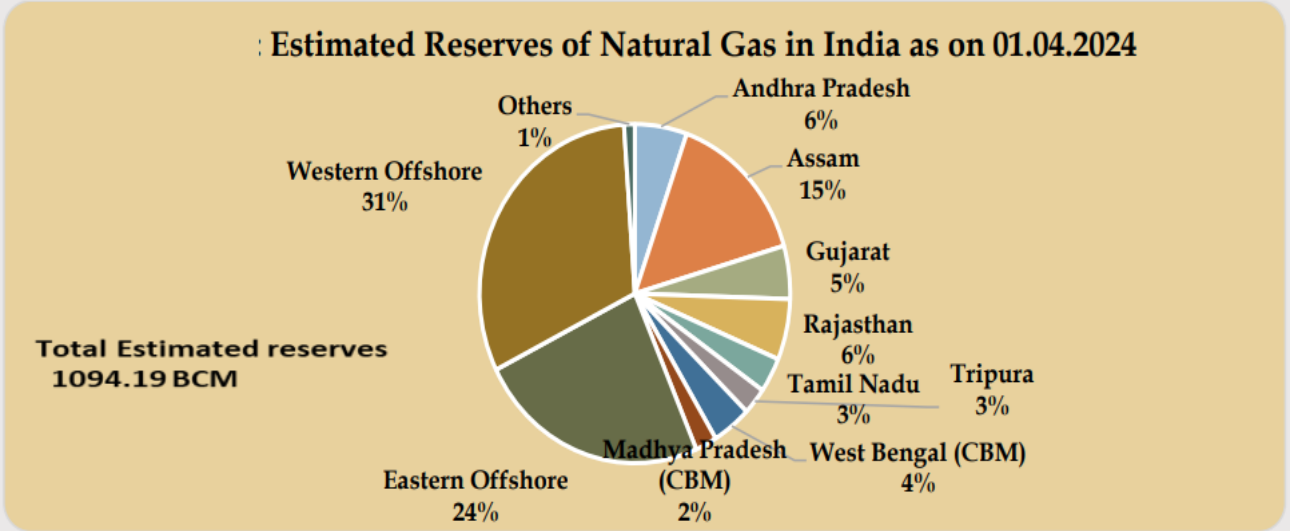
- Recently, the Ministry of Statistics and Programme Implementation (MoSPI) has unveiled its annual publication, 'Energy Statistics India 2025', through the National Statistics Office (NSO).

India's Energy Scenario in 2025

- **Total Energy Supply and Demand:**
  - **Supply:** Approximately 1,800 Million Tonnes of Oil Equivalent (MToE), reflecting an **annual increase of 4.5%** compared to 2024.
  - **Demand:** It is driven primarily by industrial growth (40%), transportation (25%), and residential consumption (20%).
- **Energy Mix (Sources and Shares):**
  - Coal: 48%
  - Oil: 28%
  - Natural Gas: 8%
  - Renewables (Solar, Wind, Hydro, Biomass): 12%
  - Nuclear: 4%
- **Fossil Fuel Reserves and Production** (Total coal reserves: 320 billion tonnes):
  - **Coal Reserves and Production:** The distribution of coal reserves in India is concentrated in a few states like **Odisha (25.47%), Jharkhand (23.58%), Chhattisgarh (21.23%), West Bengal (8.72%) and Madhya Pradesh (8.43%).**
    - These states account for **approximately 85% of the total coal reserves** in India.
  - Total estimated reserves of **lignite** as on 01-04-2024 stood at **47.30 billion tonnes.** The **highest reserves of lignite** are located in the **state of Tamil Nadu (79%).**
    - **Annual coal production:** 950 million tonnes, meeting 85% of domestic demand.
    - India remains the second-largest coal producer globally, after China.
  - **Crude Oil:** Geographically, the **maximum** crude oil reserves in India are **concentrated in the Western Offshore region** (32% of the total crude oil reserves). It is **followed by the Assam region** (22% of the country's crude oil reserves).

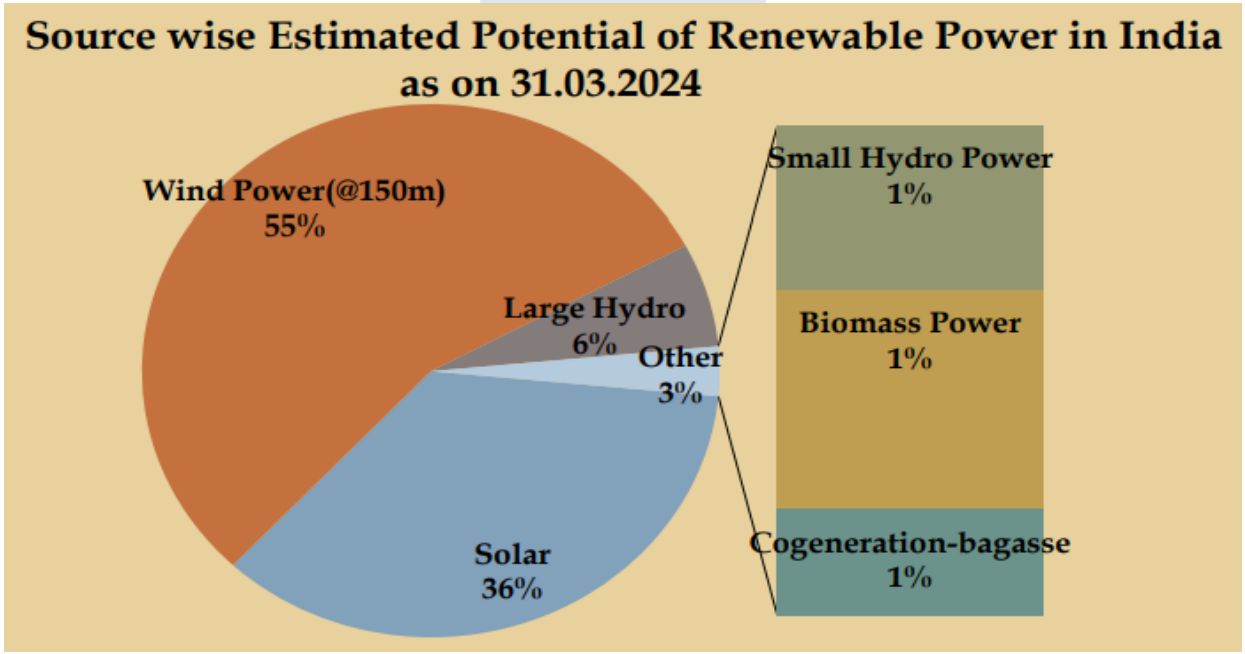


- **Natural Gas Reserves**: **Largest** reserves of natural gas in India are located in the **Western Offshore region** (approximately 31% of the total natural gas reserves). It is **followed by the Eastern Offshore** (approx 24% of the reserves).

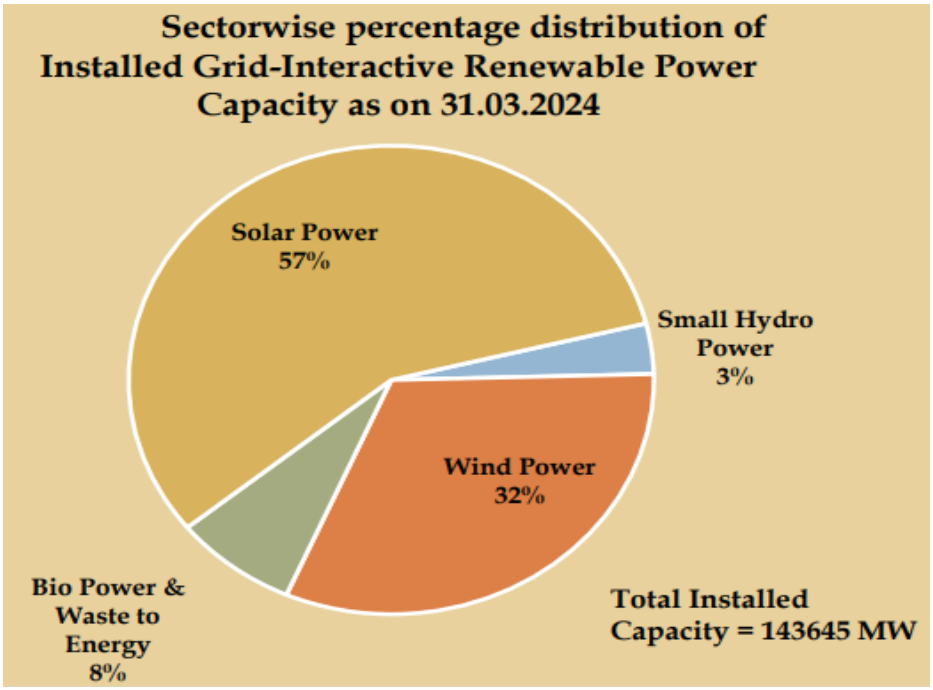


Renewable Energy Growth

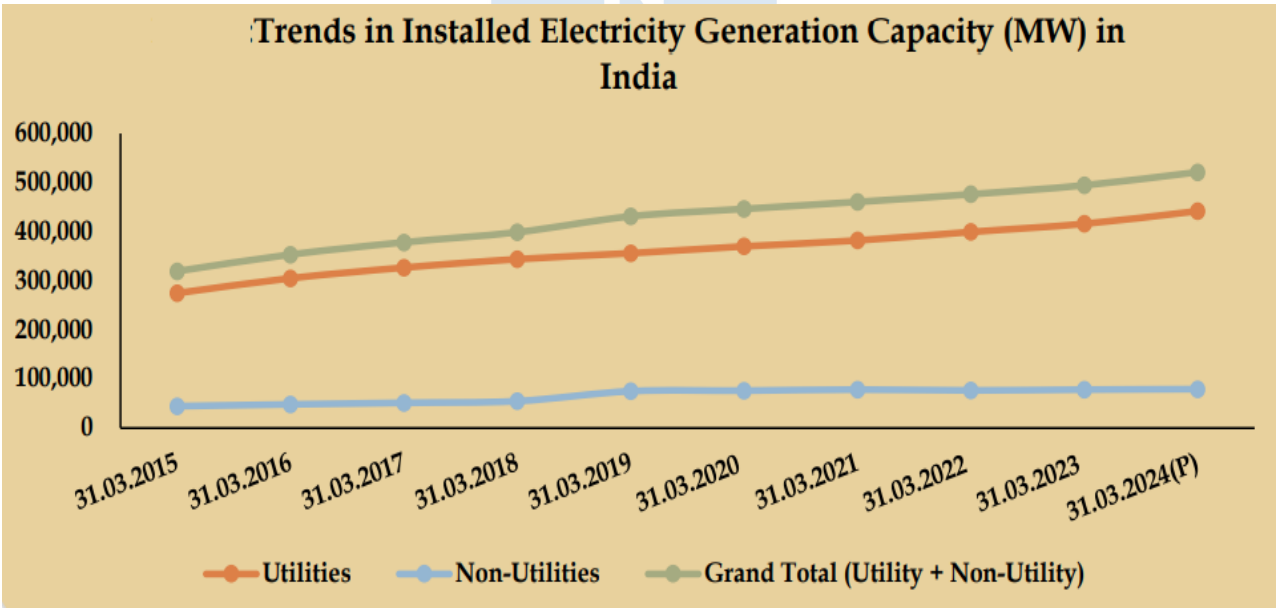
- **Potentials: Wind Power dominates share (around 55%),** followed by Solar Energy and Large Hydro.
  - **Geographical Distribution of Renewable Energy Potential: More than half** of the potential for generation of renewable energy has been **concentrated within the four States** of India viz. Rajasthan (20.3%), Maharashtra (11.8%), Gujarat (10.5%) and Karnataka (9.8%).



- **Solar and Wind Power Expansion:** The **National Solar Mission and Wind Energy Development Programme** have played a crucial role in achieving these milestones:
  - **Solar Power Capacity:** 175 GW (up from 150 GW in 2024)
  - **Wind Power Capacity:** 50 GW (up from 45 GW in 2024)
- **Hydro and Biomass Energy:**
  - **Hydropower:** 52 GW, providing 12% of total electricity generation.
  - **Biomass and Waste-to-Energy:** 15 GW, contributing to sustainable energy practices in rural areas.



- **Electricity Generation and Consumption Trends:**
  - **Installed Capacity and Generation:** India's total installed power generation capacity stands at 450 GW, an increase from 420 GW in 2024.
  - **Total electricity generation:** 1,700 TWh (terawatt-hours).
  - **Per capita electricity consumption:** 1,500 kWh per year, reflecting economic growth and urbanization.



- **Distribution and Transmission:**
  - **Transmission losses** have **reduced to around 17%** during FY 2023-24 (23% during FY 2014-15) due to **Smart Grid Initiatives.**

Energy Efficiency and Sustainability Measures

- **Government Policies and Initiatives:**
  - **National Hydrogen Mission**: Promoting Green Hydrogen production for industrial use.
  - **Perform, Achieve, and Trade (PAT) Scheme:** Encouraging industries to adopt energy-efficient technologies.
  - **Faster Adoption of Electric Vehicles (FAME-III):** Boosting EV sales and charging infrastructure.

- **Carbon Emissions and Climate Targets:**
  - India's carbon emissions in 2025 are projected at 2.9 billion tonnes CO_2, a 4% decline due to increased renewable energy usage.
  - Commitment to net-zero emissions by 2070 remains a long-term goal.

Future Outlook

- **Future Energy Projections (2026-2030):**
  - Renewable energy share is expected **to reach 25% by 2030.**
  - Energy demand will continue **growing at 5% annually,** driven by economic expansion.

Challenges Ahead

- **Dependence on Fossil Fuels:** India still relies heavily on coal and imported crude oil.
- **Energy Security Risks:** Geopolitical uncertainties affect oil and gas imports.
- **Infrastructure Bottlenecks:** Need for grid modernization and storage solutions for renewables.

Source: PIB

WHY ARE TENSIONS HIGH IN THE ARCTIC?

Context

- The Arctic has become a **geopolitical hotspot** due to climate change, resource competition, and strategic rivalries among major powers.

About Arctic Region

- It is one of the most fragile and crucial ecosystems on Earth, covering the northernmost parts of the planet.
- It includes the **Arctic Ocean, parts of Canada, Russia, Greenland, Norway, Sweden, Finland, Iceland, and the United States (Alaska).**
- The Arctic is **warming at nearly four times the global average**, causing environmental and economic shifts that influence policies and territorial claims.

Key Factors Driving Geopolitical Tensions in Arctic Region

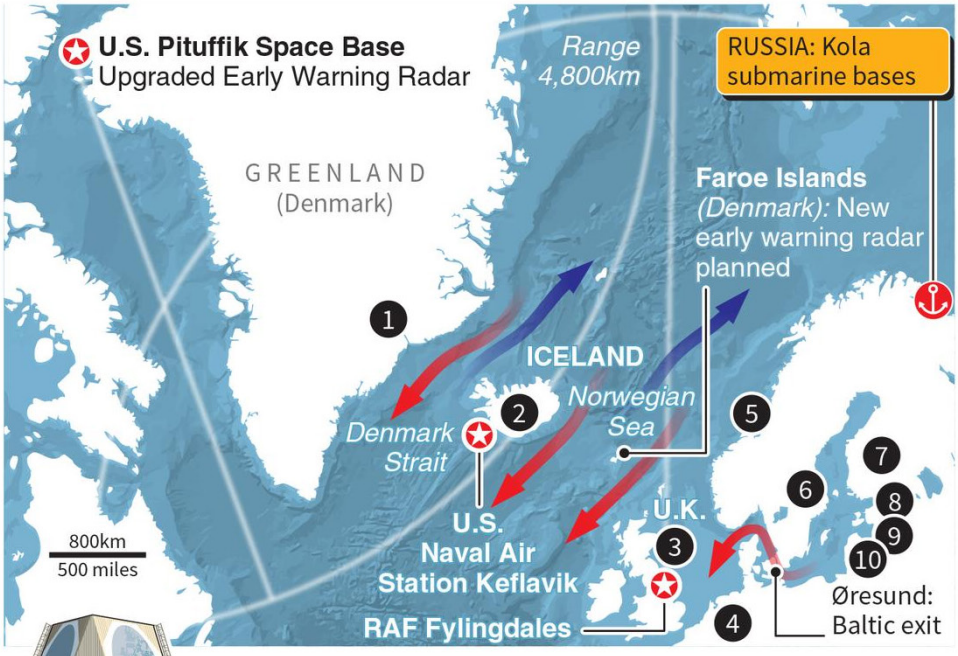
- **Natural Resources:** According to the U.S. Geological Survey, the region holds about **13% of the world's undiscovered oil and 30% of its natural gas.**
  - With ice caps retreating, these resources are becoming increasingly accessible, fueling competition among nations seeking to exploit them.
- **New Navigational Routes:** These include routes such as the **Northern Sea Route (NSR)** and the **Northwest Passage** are becoming viable alternatives to the Suez and Panama Canals.
  - The **Northeast Passage** along Russia's Arctic coast could **shorten trade routes between Asia and Europe** by 8,000 km, reducing costs significantly.
  - **Northwest Passage**, a potential shipping route through Canada's Arctic archipelago, remains a flashpoint.
    - Canada asserts it as internal waters, while the US insists it is an **international strait with freedom of navigation**.

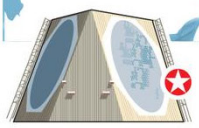
Key Concerns/Challenges

- **Russia's Expansion in the Arctic:** Russia, which **controls nearly half of the Arctic coastline,** has been actively increasing its military presence in the region.
  - It has reopened Soviet-era military bases, deployed nuclear-powered icebreakers, and modernized its Arctic military infrastructure.
  - Russia conducted regular military drills, signaling its determination to assert control over Arctic waters.
- **NATO's Response and Western Concerns:** In response to Russia, the United States and NATO have ramped up their presence in the region.
  - **Finland and Sweden's decision to join NATO** is partly due to concerns over Russian aggression, particularly after its invasion of Ukraine.
  - The US has increased Arctic military exercises, deployed submarines, and strengthened ties with Norway and Canada to counter Russian influence.
  - The United Kingdom, for instance, has repeatedly emphasised the strategic importance of the **Greenland-Iceland-U.K. (GIUK) gap**, a critical **choke point for NATO's naval defences.**
- **China's Growing Arctic Ambitions:** China, despite being a non-Arctic nation, has declared itself a **'near-Arctic state'** and is investing heavily in Arctic infrastructure.
  - It has proposed a **'Polar Silk Road' as part of its Belt and Road Initiative,** aiming to establish economic and scientific footholds in the region.
- **Legal Disputes and Territorial Claims:** Several Arctic nations have competing territorial claims in the region, particularly over the continental shelf.

Ice cold war

The melting of Arctic sea ice has prompted renewed interest in the region. The U.K. has repeatedly emphasised the strategic importance of the Greenland-Iceland-U.K. (GIUK) gap, a critical choke point for NATO's naval defences





UEWRs: Solid-state, phased-array, all-weather, long-range radar, operating in Ultra High Frequency Band

Boeing P-8A Poseidon: Maritime patrol and reconnaissance for Anti-Submarine Warfare (ASW), based out of Keflavik

Jan 2025: Russian spy vessel Yantar in U.K. waters

NORDIC WARDEN NATO Joint Expeditionary Force			
1	Denmark	6	Sweden
2	Iceland	7	Finland
3	U.K.	8	Estonia
4	Netherlands	9	Latvia
5	Norway	10	Lithuania

Geopolitical Implications

- **UN Convention on the Law of the Sea (UNCLOS):** Nations can extend their claims to the seabed **beyond the 200-nautical-mile EEZ** if they can prove that the area is a natural prolongation of their continental shelf.
  - Russia, Canada, and Denmark (via Greenland) have all submitted claims to extend their seabed sovereignty under the **UNCLOS.**
  - The **US, which has not ratified UNCLOS,** faces limitations in asserting its claims. Meanwhile, Russia has used legal maneuvers and strategic military positioning to reinforce its claims, challenging Western interests.
- **Arctic Council:** It is composed of eight nations (U.S., Canada, Russia, Denmark, Norway, Sweden, Finland, and Iceland), and aims to promote environmental protection and scientific cooperation.
  - It was formally established in 1996 through the **Ottawa Declaration.**
  - India is an Observer in the Arctic Council.

India's Role in Arctic Research

- India, despite being a **non-Arctic nation**, plays an active role in Arctic research.

- **National Centre for Polar and Ocean Research (NCPOR):** India conducts scientific studies on climate patterns, marine biodiversity, and glacial dynamics.
- **India's Arctic Policy**, titled 'India and the Arctic' by the **Ministry of Earth Science** for building a partnership for sustainable development.
- India established **Himadri (in 2008)**, its research station in **Svalbard, Norway,** to study Arctic climate systems and their global impact.

Source: TH

NEWS IN SHORT

BODH GAYA TEMPLE

In News

- Since February 2025, Buddhist monks and organisations across India and abroad have been protesting the **Bodh Gaya Temple Act (BTA), 1949**.

More about the News

- They are demanding **exclusive control of the Mahabodhi Temple**—the holiest site in Buddhism where Lord Buddha is believed to have attained enlightenment.
- Under the Bodh Gaya Temple Act (BTA), 1949, Bodhgaya Temple Management Committee (BTMC) was established with the District Magistrate of Gaya as the ex-officio Chairperson.
- Buddhist Monks demand the dissolution of the current BTMC & establish a Buddhist-only management committee.

Mahabodhi Temple

- Built by **Emperor Ashoka in 260 BCE** after his conversion to Buddhism.
- The present structure of the Mahabodhi Temple dates back to the **5th or 6th century A.D.**, reflecting the architectural style of the Gupta period.
- Located in **Bodh Gaya, Bihar**, the site is believed to be where Buddha attained enlightenment under the Bodhi Tree.
- Recognised as a **UNESCO World Heritage Site.**
- Historically managed by Buddhists until the 13th century invasion by Bakhtiyar Khilji.
- In the late 16th century, Hindu monk **Ghamandi Giri established the Bodh Gaya Math at the site.**
- **Post-Independence (1949):** Bihar government enacted the Bodh Gaya Temple Act, transferring management to a joint committee.

Source: TH

TRIBHUVANDAS PATEL

Context

- The Lok Sabha has passed a Bill to set up the **Tribhuvan Sahkari University in Anand, Gujarat,** that is named after **Tribhuvanda Patel.**

About

- **Tribhuvandas Kishibhai Patel** is Known as the **"father of the cooperative movement"** in India, who played a key role in the development of **dairy cooperatives.**
- **Kaira Cooperative Union**: In **1946**, Patel, urged by Morarji Desai, founded Kaira District Cooperative Milk Producers' Union (KDCMPUL).
- **His collaboration with Verghese Kurien,** who was appointed as the mechanical engineer at the Kaira Union, led to the **White Revolution**. Patel played a pivotal role in the **establishment of Amul.**
- **Legacy:** Patel's contributions were vital in the creation of the National Dairy Development Board (NDDB), Gujarat Cooperative Milk Marketing Federation (GCMMF), and the Institute of Rural Management Anand (IRMA).
- **Recognition:** Awarded the **Ramon Magsaysay Award** in 1963 and **Padma Bhushan** in 1964 for his community leadership.

Source: IE

SARHUL FESTIVAL

Context

- **Adivasis in Jharkhand** and the **larger Chhotanagpur region** will welcome the new year and the spring season with the **Sarhul festival.**

About

- Sarhul, meaning **"worship of the Sal tree,"** celebrates the union of the Sun (male priest) and the Earth (priest's wife), symbolizing life's cycles.
  - It marks the **beginning of agricultural activities after rituals.**
  - **Sal trees (Shorea robusta)** are venerated in Adivasi tradition as the abode of Sarna Maa, the deity who protects villages from natural forces.
- **Festival Duration:** The festival lasts for three days.
- **The main rituals happen on day two at Sarna Sthals.**
  - These communally protected "sacred groves" can be found near villages across Chhotanagpur, which includes Jharkhand, parts of Chhattisgarh, Odisha, and Bihar.

- **Cultural Significance:** Sarhul is celebrated by tribes like Oraon, Munda, Santal, Khadia, and Ho, with each having unique ways of celebrating.
  - The festival has evolved from a hunting tradition to one focused on agriculture.
- **Spread of Sarhul:** The festival spread beyond Chhotanagpur with tribes migrating as indentured labor, now celebrated in places like Assam, Andaman and Nicobar Islands, Nepal, Bangladesh, and Bhutan.

Source: IE

NANKAI TROUGH MEGAQUAKE WARNING

In News

- Japan has been alarmed over a long-anticipated **megaquake** in the **Nankai Trough,** warning that such an event could trigger **devastating tsunamis.**

What is a megaquake?

- A megaquake (or megathrust earthquake) is a massive seismic event with a magnitude of 8.0 or higher, capable of causing extreme destruction, tsunamis, and widespread loss of life and infrastructure.

What is the Nankai Trough?

- The Nankai Trough is a **subduction zone**—an **undersea trench where the Philippine Sea Plate is being forced under the Eurasian Plate**.
- This trench stretches about 800 km along Japan's Pacific coastline, from Suruga Bay near central Japan to the Hyuganada Sea near Kyushu.

Why the Concern?

- The Japanese government estimates a 70–80% chance of a magnitude 8–9 earthquake in the Nankai Trough within the next 30 years which could kill up to 300,000 people
- Historical data shows major quakes in this region every 100–150 years.

Source: Firstpost

P4 INITIATIVE

Context

- **Andhra Pradesh Chief Minister** launched the **'Zero Poverty - P4' initiative** under **Swarnadra 2047 vision.**

About

- **Aim:** To ensure poverty-free Andhra Pradesh by **2029**.
- **'P4' stands for 'Public, Private, People Partnership', and achieving 'zero poverty'** is one of the (10 principles) of Swarna Andhra-2047.
- **Key Benefits:**
  - House sites and house construction.
  - Sanitation facilities and 100% tap water connections.
  - LPG connections, reliable power supply, and rooftop solar incentives.
  - High-speed internet for all households.
  - Promotion of entrepreneurship in every family.
- **Target Beneficiaries:** Economically weaker families, termed 'Bangaru Kutumbam' (golden families).
- **Supporters:** Well-off contributors, called 'Margadarsis' (guides).
  - Priority is given to the 20 lakh most deprived families for adoption by the top 10% wealthier families.
- **Role of 'Margadarsis':**
  - Provide financial support or mentorship (e.g., education, career guidance, business support).
  - Engage in long-term support beyond financial help.
  - Contributions can include funding for education, medical expenses, and community development.
- **Expected Outcome:** Mobilize public-private participation, foster inclusive economic growth, and create a new poverty alleviation model in India.

Source: IE

ASBESTOS

In News

- The **Global Asbestos Awareness Week (GAAW)** is observed annually during the first week of April.

About Asbestos

- Asbestos refers to a group of six naturally occurring fibrous minerals known for their resistance to heat, fire, and chemicals, and their durability.
- Asbestos was widely used in numerous industrial, residential, and commercial applications due to its unique physical properties.
- When asbestos fibers are inhaled or ingested, they can lodge in the lungs and tissues, leading to chronic health conditions like Asbestosis, Mesothelioma etc.

Source: TH

DEFENCE EXERCISES IN NEWS

Exercise Tiger Triumph

- The 4th edition of **Exercise Tiger Triumph,** the bilateral Tri-Service India-US Humanitarian Assistance and Disaster Relief (HADR) Exercise, has commenced at **Visakhapatnam (India)**.

About

- Launched in **2019**, the exercise is aimed at developing interoperability for conducting HADR operations and for the formulation of Standard Operating Procedures (SOPs) to establish a Combined Coordination Center (CCC).
- This would enable rapid and smooth coordination between Indian and US Joint Task Forces (JTF) during exercises and in times of crises or contingencies.

Exercise INIOCHOS-25

- The Indian Air Force (IAF) is participating in the **Exercise INIOCHOS-25**, a prestigious multi-national air exercise hosted by **Greece's Hellenic Air Force**.

About

- It is a **biennial** multinational air exercise that integrates multiple air and surface assets from **fifteen countries** under realistic combat scenarios. The exercise is designed to simulate modern-day air warfare challenges.

Source: PIB

NAINI LAKE

Context

- The Naini Lake has recorded a **water level of 4.7 feet — marking a five-year low.**
  - The lake has reached its **zero level more than 10 times since 2000,** compared to **just twice in the 1900s.**

About

- It is a natural freshwater lake**, tectonic in origin** and crescent-shaped due to repeated landslides.
- Situated in the Kumaon region of Uttarakhand.
- **Third largest lake** in the state by surface area.

Source: IE