

COMBINED COMMANDERS' CONFERENCE 2023

Why in news?

- The Prime Minister, Shri Narendra Modi participated in Combined Commanders' Conference in Bhopal, Madhya Pradesh.

What is Combined Commanders' Conference 2023?

- Combined Commanders' Conference is a **biennial event** where the country's top military brass come together to brainstorm on military matters and national security.
- This year, the three-day conference of Military Commanders had the **theme** 'Ready, Resurgent, Relevant'.
- During the Conference, deliberations were held over a varied spectrum of issues pertaining to national security, including jointness and **theaterisation in the Armed Forces**.
 - Theaterisation in the Armed Forces refers to the process of organizing military forces into functional commands or theaters, each with its own geographic area of responsibility.
 - This is done to improve the effectiveness and efficiency of military operations by enabling commanders to better focus their resources and expertise on specific regions and missions.
- Preparation of the Armed Forces and progress in defence ecosystem towards attaining 'Aatmanirbharta' was also reviewed.

India's defence exports reach all-time high



- India's defence exports have reached an all-time high of Rs 15,920 crore in financial year 2022-2023, a whopping 10-fold rise since 2016-17.
- The defence ministry targets to raise India's annual defence exports to \$5 billion by 2024-25.

What are the steps taken by the government to achieve self-reliance in defence?

- **Change in Defence Procurement Policy**
 - The policy increased the Indigenous Content stipulated in various categories of procurement by about 10% to support the 'Make in India' initiative.

- It added an additional category Buy (Indian-IDDMM) as the most preferred way of defence goods acquisition.
 - IDDMM - Indigenously Designed, Developed and Manufactured.
- Preference has been given to 'Buy (Indian)', 'Buy & Make (Indian)' & 'Make' categories of acquisition over 'Buy (Global)' category.
- **Budget 2023-24**
 - Government has earmarked 75 per cent of its defence capital budget for 2023-24 towards procurements from domestic sources.
- **Negative import list/positive indigenisation list**
 - So far, three positive indigenisation lists of 3,738 items have been released.
 - The items mentioned on the lists cannot be imported by the Services and should be sourced from within the country.
- **Defence industrial corridors**
 - Two defence industrial corridors are being set up in Uttar Pradesh and Tamil Nadu.
 - Also, there is an ongoing simplification of processes for ease of doing business aimed at boosting defence exports.
- **Defence research**
 - Steps to encourage defence research are also being undertaken.
 - Eg., earmarking 25 per cent of the defence research budget for the private sector in 2022-23, for newer innovation and developing niche technology.
- **Space created for private players**
 - Government has incentivised the private sector to invest in defence manufacturing.

WHAT IS A GAMMA RAY BURST (GRB)?

A gamma-ray burst that recently hit our solar system was so bright, it temporarily blinded gamma-ray instruments in space, according to a NASA release.



About Gamma Ray Burst (GRB):

- GRBs are short-lived bursts of gamma-ray light, the most energetic

form of light.

- GRB emits **more energy in a few seconds than our Sun will emit in its lifetime** and has two **distinct emission phases**:
 - The **short-lived prompt emission** (the initial burst phase that emits gamma-rays), **followed by a long-lived multi-wavelength afterglow phase**.
- The **shortest GRBs likely mark the collision of two compact stellar remnants called neutron stars**, and the **longest bursts** are thought to arise when a **massive, rapidly spinning star collapses to form a black hole**.
- When a GRB erupts, it is **briefly the brightest source of cosmic gamma-ray photons in the observable Universe**.

What are Gamma Rays?

- Gamma rays have the **smallest wavelengths** and the **most energy of any wave in the electromagnetic spectrum**.
- They are **produced by the hottest and most energetic objects in the universe**, such as neutron stars and pulsars, supernova explosions, and regions around black holes.
- On Earth, gamma waves are generated by nuclear explosions, lightning, and the less dramatic activity of radioactive decay.



WHAT IS THE BASTILLE DAY PARADE?

France has recently invited Indian Prime Minister Narendra to visit Paris as a guest at the annual Bastille Day parade.

About Bastille Day Parade:

- The Bastille Day military parade, also known as the **14 July military parade**, is a **French military parade** that has been held on the morning of 14 July each year in Paris since 1880.
- It is also **one of the oldest regular military parades** in the world.
- July 14 is the **anniversary of the storming of the infamous Bastille prison in 1789** - a turning point for the success of the French Revolution.
- This day is marked as the **National Day of France**.

NATIONAL ELECTRICITY PLAN (2022-27): COAL-FIRED PROJECTS BACK ON, MEGA LITHIUM BATTERY STORAGE PUSH

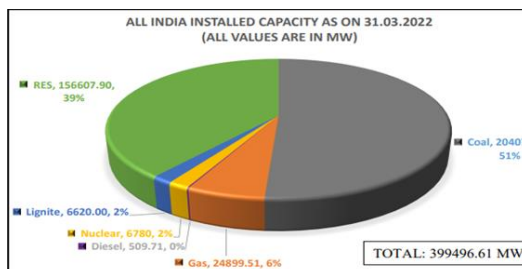
Why in News?

- A new blueprint for the country's power sector planners - **the National Electricity Plan (NEP) 2022-27** - marks a discernible reversal in the policy thrust from its last edition.
- Earlier the focus was almost **entirely on renewable energy** for incremental capacity addition and **fresh coal-fired capacity was virtually ruled out**.

What is the National Electricity Plan?

- **The Electricity Act 2003** stipulates that the **Central Electricity Authority (CEA)** shall prepare a National Electricity Plan in accordance with the **National Electricity Policy** and **notify such plan once in 5 years**.
- This is -
 - To **formulate short-term (5-year) and perspective plans (15-year)** to assess the demand for planning capacity addition
 - To **coordinate the activities** of various planning agencies for the optimal utilization of resources
 - To sub serve the interests of the national economy.
- The first Plan was notified in 2007, 2nd in 2013 and the **third National Electricity Plan** (notified in 2018) covers the detailed Plan for 2017-22 and perspective Plan for 2022-27.

What are the Key Highlights of the National Electricity Plan 2022-27?



- **The coal energy thrust:** The fresh draft, in a tacit admission of the ground realities, cites the **need for fresh coal-based capacity** ranging from 17 GW to nearly 28 GW till 2031-32.
- This would be over and above an under-construction coal-based capacity of 25GW (1 giga watt or GW is equal to 1000 megawatts or MW).

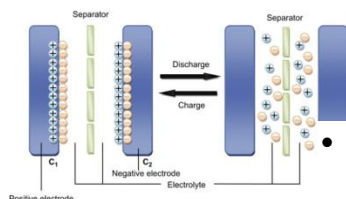
- An increase in the **plant load factor** (PLF) of coal fired plants from 55% up to 2026-27 to 62% in 2031-32
- **The renewable energy thrust:** A projected battery storage requirement in 2031-32 of between 51 GW to 84GW with a daily usage rate of 5-hours.
- Estimated to be Rs 10 crore per MW, this could translate into **investments into battery storage between Rs 5 - 8 lakh crore** over the next ten years as backup for renewable capacity.

What are the Challenges Ahead?

- **The continued reliance on old, inflexible coal-fired plants** for base load capacity.
 - India's vast fleet of coal-fired thermal power plants of 200 MW series are more than 25 years old, run-on old technology and do not promise robust reliability.
- **Lack of clarity** on how the renewables-dominated grid will be actually managed, despite a pronounced reliance on renewable generation for meeting capacity additions.
- **The inertia**, which imparts stability to the grid, has been declining due to poor progress of hydro power and zero inertia solar generators.
- **There is also no assessment** of ramping rate for thermal plants under various scenarios of solar generation going out.
- If battery storage is to be relied on, the total fund requirement for the period 2022-27 is estimated to be **14.30 lakh crore**.
- However, the CEA report has given a budget of 8 lakhs crore for BESS for a 10 year period.

SUPERCAPACITOR

Recently, researchers at the Indian Institute of Science (IISc) have designed a novel, ultra-micro supercapacitor capable of storing an enormous amount of electric charge



Why in news?

- The researchers from IISc's Department of Instrumentation and Applied Physics (IAP), fabricated their supercapacitor using 'Field

Effect Transistors' or FETs as the charge collectors, instead of the metallic electrodes that are used in existing capacitors.

- Current capacitors typically use metal oxide-based electrodes, but they are limited by poor electron mobility.
- The team built hybrid FETs consisting of alternating few-atoms-thick layers of **molybdenum disulfide (MoS₂) and graphene** – to increase electron mobility – which are then connected to gold contacts.
- This news device can potentially be used in many appliances ranging from streetlights to consumer electronics, electric cars, etc.

What are supercapacitors?

- A supercapacitor is a next-generation energy storage device which is also known as an ultracapacitor.
- It has advantages such as **high-power density, long durability, and ultrafast charging** characteristics as compared to conventional capacitors and Lithium-Ion batteries (LIB).
- The main components of supercapacitors include an **electrode, electrolyte, separator, and current collector**.
- The fabrication cost of electrode materials, as well as electrolytes, should be reduced because these two components account for a major portion of the device manufacturing cost.
- An **electrode** is a solid electric conductor that carries electric current into non-metallic solids, liquids, gases, plasmas, or vacuums.
- An **electrolyte** is a substance that produces an electrically conducting solution when dissolved in a polar solvent, such as water.

[CAN COUNTRIES BE SUED OVER CLIMATE CHANGE?](#)

Why in news?

- The International Court of Justice (ICJ) has been asked to provide an opinion on what kind of obligations countries have towards climate change reduction, based on the promises they have made to the UNFCCC.
- The United Nations General Assembly (UNGA) passed a resolution in this regard and posed these questions to the ICJ.

What is UN Framework Convention on Climate Change (UNFCCC)?

- UNFCCC is an intergovernmental treaty developed to address the problem of climate change.
- The Convention has near universal membership (197 Parties).
- The Convention was opened for signature at the June 1992 UN Conference on Environment and Development (UNCED) — also known as the Rio Earth Summit.
- The UNFCCC entered into force on 21 March 1994.
- The original secretariat was in Geneva.
- Since 1995, the secretariat has been located in Bonn, Germany.

UNFCCC	
• International treaty to address challenges of cli change	•
• Entered into force on 21 March 1994	• UNFCCC is the parent treaty of the 2015 Paris Agreement.
The Convention:	
• Recognizes the global, shared problem	○ The main aim of the Paris Agreement is to keep the global average
• Provides a framework for discussion	temperature rise this century as close as possible to 1.5 degrees
• Supports first steps: reporting, assessment, planning	
• Establishes principle of "common but differentiated responsibilities"	
• Covers mitigation & adaptation	

Celsius above pre-industrial levels.

- The UNFCCC is also the parent treaty of the 1997 Kyoto Protocol.

What does the resolution seek?

- **Asked the ICJ to deliberate on two questions**
- These questions are:
 - What are the obligations of states under international law to ensure the protection of the climate system for present and future generations?
 - What are the legal consequences under these obligations for states where they, by their acts and omissions, have caused significant harm to the climate system.

- The resolution refers to several international protocols including the Paris Agreement (2015), the United Nations Convention on the Law of the Sea and even the Universal Declaration of Human Rights.
- The entire process is expected to take about 18 months for the ICJ to deliberate and deliver its opinion.

What is India's position?

- **Cautiously silent about the move**
 - India has thus far been cautiously silent about the move, although it is generally supportive of the need for climate justice.
 - India is also vocal in holding the developed world accountable for global warming.
 - It has referred the resolution to legal authorities in the country who will look into the implications and international ramifications of the ICJ opinion.
- **India did not co-sponsor the draft resolution**
 - India did not join the overwhelming majority of countries that co-sponsored the draft resolution.
- **Wait and watch mode**
 - India is watching how global powers like the U.S. and China respond to the resolution, as without their support, it will be hard to implement.
- **India does not want top-down approach in climate change discussion**
 - India was among the countries which voiced concerns about whether launching a judicial process was the best way to reach shared goals.
 - Successfully tackling the climate crisis is best achieved via diplomatic efforts.
 - As per India, top-down approach is not needed in the discussion around climate change.

BANDIPUR TIGER RESERVE

Bandipur Tiger Reserve recently completed 50 years as a Project Tiger Reserve.



About Bandipur Tiger Reserve:

- It was established in the 1930s as a wildlife sanctuary,

which became a tiger reserve in 1973 under Project tiger.

- It is situated in two contiguous districts (Mysore and Chamarajanagar) of Karnataka and located at the tri-junction area of the States of Karnataka, Tamil Nadu and Kerala.
 - **Bandipur Tiger Reserve is surrounded by:**
 - **Nagarahole Tiger Reserve** (Tamil Nadu) in the North West (Kabini Reservoir separates the two).
 - **Mudumalai Tiger Reserve** (Tamil Nadu) in the South.
 - **Wayanad Wildlife Sanctuary** (Kerala) in the South West.
 - This area has the **River Kabini** in its north and **River Moyar** in its south.
 - **Flora:** It comprises diverse vegetation of dry **deciduous to tropical mixed deciduous**. It includes **rosewood, Indian kino tree, sandalwood, Indian laurel**, clumping bamboo and giant clumping bamboo etc.
 - **Fauna:** It is a shelter for the **largest population of wild Asian elephants in South Asia**. It comprises other mammals such as **Bengal tiger, gaur, sloth bear, golden jackal, dhole** and four-horned antelope etc.
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