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1. Rafale-M to be procured for Navy

Why now?



India has inked a Rs 63,000 crore deal with France to procure 26 Rafale-Marine (Rafale-M) fighter jets for the Navy. The order includes 22 single-seater jets that can operate from aircraft carriers, and four twin-seater trainer jets, that are not carrier compatible. The delivery will begin in 2028-29, and is set to be completed by 2030.

Why the Rafale?

The Rafale, designed and built by Dassault Aviation, is a French twin-engine, "omnirole" fighter aircraft most hailed for its versatility. According to Dassault's website, the Rafale's mission capabilities include:

- * Air-defence & air-superiority;
- * Reconnaissance;
- * Nuclear deterrence;
- * Air-to-ground precision strike;
- * Close air support;
- * Anti-ship attacks; and
- * Buddy-buddy refuelling.

What makes the Rafale special is its ability to carry out a diverse range of missions in a single sortie, something that has prompted analysts to liken the aircraft to a Swiss Army Knife. And although it is not a 5th generation stealth aircraft, the Rafale incorporates multiple features to reduce its radar signature (making it a 4.5th generation fighter aircraft, as per most military analysts), and comes at a fraction of the cost of an American F-35.

How is Rafale-M different?

The Rafale-M is specifically designed for carrier-based operations. Unlike on land, where runways are many kilometres long, carriers offer only hundreds of metres for aircraft to take off and land. This necessitates some specific modifications.

FOR TAKEOFF: All fixed-wing aircraft achieve liftoff by reaching a certain speed. On the confines of a carrier deck, aircraft require some help to take off.

Indian carriers use ski-jumps for this purpose. The ramp adjusts an aircraft's angle of attack for a safe climb away from the front of the ship. But such a system restricts takeoff weights, meaning carrier-based aircraft, in general, are lighter than their land-based counterparts. In addition, they come with specific design features to the nose of the aircraft (to allow a more nose-up angle of attack), and are more compact in size.

FOR LANDING: As such, the braking power of aircraft alone is insufficient for landings on a carrier's short landing deck. This necessitates the use of tailhooks, attached to an aircraft's

undercarriage. While landing on a carrier, an aircraft essentially latches on to arresting wires on the flight deck which bring it to a halt almost immediately.

This process, however, puts immense strain on the airframe. All carrier-based aircraft, thus, come with reinforced airframes and strengthened undercarriages, capable of withstanding the stresses of repeated carrier landings. In absence of this, these aircraft might literally fall apart over time.

OTHER FEATURES: Carrier-based aircraft also are more resistant to corrosion from seawater (and sea breeze), and carry specific sensors and armaments to engage with enemy ships and submarines, and carry marine operations.

The Rafale-M has been operational with the French Navy, aboard its nuclear-powered Charles de Gaulle aircraft carrier, since 2004.

Relevance: GS Prelims & Mains Paper II; International Relations Source: Indian Express

2. National Investigation Agency or NIA in News

Why Now?



The National Investigation Agency (NIA) recently began the process of taking over the investigation of the Pahalgam terror attack that killed 26 people last week, following orders from the Union Ministry of Home Affairs (MHA).

What is the NIA?

Following several terror attacks in India over the years, various expert committees have recommended a specialised Central agency to investigate these cases. Notably, the other key central agency, the Central Bureau of Investigation (CBI), mainly investigates corruption cases, economic offences and other serious organised crimes.

The NIA Act was thus enacted in 2008, the year of the deadly 26/11 terror attacks on Mumbai. It created an agency to "investigate and prosecute offences affecting the sovereignty, security and integrity of India, security of State, friendly relations with foreign States", and actions violating existing Acts and international treaties.

What is the Jurisdiction of NIA?

The NIA Act, amended in 2019, lists the offences the agency is empowered to investigate under a schedule. These include offences covered under sections of the criminal code, the Information Technology Act and the Arms Act, the Anti-Hijacking Act, among others.

NIA cases are tried at NIA courts. Under the Act, "The Central Government shall, in consultation with the Chief Justice of the High Court, by notification in the Official Gazette, for the trial of Scheduled Offences, designate one or more Courts of Session as Special Court for such area or areas, or for such case or class or group of cases, as may be specified in the notification."

Relevance: GS Prelims; Governance Source: The Hindu

3. Draft Greenhouse Gases Emissions Intensity (GEI) Target Rules

Emissions intensity targets

Draft Greenhouse Gases Emission Intensity Target Rules proposes GEI targets for Obligated Entities specified in the Schedule; Environmental Compensation to be levied in case of Non-compliance



The government has notified draft Rules introducing targets for the reduction of greenhouse gas (GHG) emissions by "obligated entities" in energy-intensive sectors and industries.

The Draft Greenhouse Gases Emissions Intensity (GEI) Target Rules, 2025, notified by the Ministry of Environment, Forest

and Climate Change, puts in place a compliance mechanism for the Carbon Credit Trading Scheme, 2023 (CCTS).

The CCTS was launched to create a framework for the trading of carbon credits, to facilitate the reduction of emissions in energy intensive industries, and to support India's climate commitments under the Paris Climate Agreement of 2015.

The draft Rules are open for objections and suggestions in a 60-day window from the date of their notification.

What is meant by greenhouse gases emissions intensity (GEI)?

GHGs are gases that trap heat in the atmosphere and contribute to the "greenhouse effect" that raises surface temperature on Earth.

GHG emissions intensity, or GEI, is the amount of GHGs that are emitted per unit of product output — the amount of GHGs that are released in the production of, say, 1 tonne of cement, aluminium, or paper, etc.

The draft Rules define GEI as "greenhouse gases emission intensity in tCO2e/ equivalent output or product". tCO2e, or tonnes of carbon dioxide equivalent, is the standard unit used to measure the impact of all GHGs, not just CO2, based on their potential to warm the planet.

So what do the draft GEI target Rules say?

The Rules set forth baseline emissions for 2023-24 and define gradual reduction targets for the years 2025-26 and 2026-27 as part of the mechanism to make India's Carbon Credits Trading Scheme, 2023, operational.

GHG intensity reduction targets and benchmarks have been set for the highly energy-intensive aluminium, chlor-alkali, pulp and paper, and cement industries.

These targets, for a two-year period starting 2025-26, cover 282 entities or industrial units in these industries — 13 aluminium plants, 186 cement plants, 53 pulp and paper plants, and 30 chlor-alkali plants.

Among the large corporations that have been assigned targets under the Rules are Vedanta, Hindalco, Bharat Aluminium, JSW Cement, Ultratech, Nalco, JK Cement, Dalmia Cement, Shree Cement, Grasim Industries, and JK Paper.

The Rules also lay down the mechanism for industries to comply with these targets, and specify penalties for their failure to do so.

Why is it important to have the targets?

The introduction of industry-specific targets is crucial to meet India's climate goals. The ultimate objective is to push industries towards a low-carbon growth trajectory through reduction, removal or avoidance of GHG emissions.

A cement plant can, for example, reduce its GEI by adopting cleaner and greener processes in the various stages of production. It could replace the use of coal with biomass, and adopt cleaner, more energy-efficient kilns.

More importantly, the Rules aim to help India meet a key commitment made under the Paris Agreement — to reduce the emissions intensity of its gross domestic product (the amount of energy used per unit of GDP) by 45% by 2030 compared to 2005 levels.

Not all of this is entirely new. While targets have been set for the reduction of GHG emissions intensity for the first time, a scheme to improve energy efficiency, known as PAT — Perform, Achieve, Trade — has been running since 2012.

And how do these draft Rules tie into India's carbon credit trading scheme?

The CCTS established a framework for generating, trading, and using carbon credit certificates.

With the introduction of the GEI targets, industries will know what exactly to achieve in order to earn carbon credits. They will also have to create action plans towards achieving those goals.

Industries will be issued carbon credits for cutting emissions intensity, which they can trade on India's carbon market. Industries that fail to meet their obligations under the carbon trading scheme would have to buy credits to meet their compliance shortfall, or be penalised by the Central Pollution Control Board, as per the Rules.

Carbon credits are traded through the Indian Carbon Market platform, with oversight of the Bureau of Energy Efficiency under the Union Ministry of Power.

The availability of credits provide industries with the incentive to decarbonise. Industries with resources to adopt clean technology can use their credits to earn profits, while those with fewer resources can make the shift gradually by buying carbon credits.

Similar carbon credit markets have been operational elsewhere in the world — in Europe and China since 2005 and 2021 respectively.

Relevance: GS Prelims & Mains Paper III; Environment Source: Indian Express

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