

Going Green

On Budget 2023's and India's net-zero com-

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Paper - III
(Environment & Ecology)

New budget may help India overcome dependence on fossil fuels.

Finance Minister Nirmala Sitharaman's latest Budget is noteworthy for the emphasis she has laid on the government's commitment to move towards net-zero carbon emission by 2070. As an article presented at the World Economic Forum's Annual Meeting in Davos last month notes, India holds the key to hitting global climate change targets given its sizeable and growing energy needs.

Promote Green Energy

With the country's population set to overtake China's some time this year, India's appetite for energy to propel the economy is set to surge exponentially. The transition to green alternatives from the current reliance on fossil fuels is therefore an urgent imperative and an opportunity to leverage this move to catalyze new industries, generate jobs on a sizeable scale, and add to overall economic output. In a nod to this, Budget 2023-24 devoted a fair amount of space to the green industrial and economic transition needed.

Role of Electric Vehicles (EV)

With the electric vehicle (EV) revolution poised to take off as every automobile major rolls out new EV models to tap demand, the availability of indigenously produced lithium-ion batteries has become a necessity, especially to lower the cost of EVs. The Budget hearteningly proposes to exempt customs duty on the import of capital goods and machinery required to manufacture lithium-ion cells used in EV batteries. This ought to give a fillip to local companies looking to set up EV battery plants.

Battery Energy Storage Systems

Another key proposal relates to the establishment of a viability gap funding mechanism to support the creation of battery energy storage systems with a capacity of 4,000 MWh. Energy storage systems are crucial in power grid stabilisation and essential as India increases its reliance on alternative sources of power generation including solar and wind.

With wind turbine farms and solar photovoltaic projects characteristically producers of variable electric supply, battery storage systems become enablers of ensuring the electricity these generators produce at their peak output is stored and then supplied to match the demand arriving at the grid from household or industrial consumers.

Ladakh as an ideal destination for Solar Energy.

Ms. Sitharaman also set aside a vital ₹8,300 crore towards a ₹20,700 crore project for building an inter-State transmission system for the evacuation and grid integration of 13 GW of renewable energy from Ladakh. With its vast stretches of barren land and one of the country's highest levels of sunlight availability, Ladakh is considered an ideal location to site photovoltaic arrays for producing a substantial capacity of solar power. The transmission line will help address what had so far been the hurdle in setting up solar capacity in the region, given its remoteness from India's main power grid.

What are Electric Vehicles (EV)?

An EV is defined as a vehicle that can be powered by an electric motor that draws power from a battery and is capable of charging from an external source.

An electric vehicle can be powered by means of a self-contained battery, solar panels, or an electric generator to convert fuel into electricity.

Efforts on electric vehicles (EV) in India

- ❖ To create a sustainable EV ecosystem initiative – National Electric Mobility Mission Plan (NEMMP) and Faster Adoption and Manufacturing of Electric Vehicles in India (FAME India) have been launched by India.
- ❖ NEMMP: It was launched in 2013 with the objective of achieving national fuel security by promoting hybrid and electric vehicles in the country. An ambitious target has been set to achieve 6-7 million sales of hybrid and electric vehicles year-on-year from 2020.
- ❖ FAME: The FAME India scheme (Faster Adoption and Manufacturing of Electric Vehicles in India) was launched in 2015 with an aim to support the market development and manufacturing ecosystem for hybrid/electric vehicles. The scheme has 4 focus areas namely technology development, demand generation, pilot projects, and charging infrastructure.
- ❖ The objective of the FAME-India Scheme Phase-II is to promote electric mobility and increase the number of electric vehicles in the commercial fleet.
- ❖ An outlay of Rs 10,000 crore has been made for the FAME 2 scheme for three years till 2022. The government has offered incentives for electric buses, three-wheelers, and four-wheelers used for commercial purposes.
- ❖ Plug-in hybrid vehicles and vehicles with large lithium-ion batteries and electric motors will also be included in the scheme and financial assistance will be offered depending on the size of the battery.

Electric Vehicles and Net Zero Emissions

- ❖ India is the fourth largest emitter of carbon dioxide globally and has pledged to reduce its carbon emissions to net zero by the year 2070 at the recently concluded COP26. India's advocacy of five elements for climate change - "Panchamrit" at COP26 in Glasgow is a commitment towards the same.
- ❖ Various ideas were endorsed by India at the Glasgow summit, such as renewable energy to meet 50% of India's energy needs, reducing carbon emissions by 1 billion tonnes by 2030, and achieving net zero by 2070.
- ❖ India aims to achieve EV sales accounting for 30% of private cars, 70% of commercial vehicles, and 80% of two and three-wheelers by the year 2030. India, therefore, is aggressively promoting the adoption of electric vehicles in the country by offering various incentives to buyers and manufacturers, both at the central and state levels.
- ❖ India is among the few countries that support the global EV30@30 campaign, which aims for at least 30% of new vehicle sales to be electric by 2030.

Expected Questions

Q.: With reference to 'fuel cells' in which hydrogen-rich fuel and oxygen are used to generate electricity, consider the following statements: (UPSC 2015)

1. If pure hydrogen is used as a fuel, the fuel cell emits heat and water as by-products.
2. Fuel cells can be used for powering buildings and not for small devices like laptop computers.
3. Fuel cells produce electricity in the form of Alternating Current (AC).

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

Answer : A

Expected Questions & Format

Que.: What do you understand by electric vehicles? How can it help India achieve its goal of net zero emissions? discuss

Answer Format :

- ❖ Write about Electric Vehicle.
- ❖ Mention steps that help India to achieve its goal of net zero emissions.
- ❖ Conclude accordingly.

Note - The question of the main examination given for practice is designed keeping in mind the upcoming UPSC main 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.