



## Pradhan Mantri JI-VAN Yojana

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Recently, the Cabinet Committee on Economic Affairs (CCEA) has approved **Pradhan Mantri JI-VAN (Jaiv Indhan- Vatavaran Anukool fasal awashesh Nivaran) Yojana**.

The scheme will be supported financially by Viability Gap Funding (VGF) to Second Generation (2G) Integrated Bioethanol Projects using lignocellulosic biomass and other renewable feedstock.

### Key Terms

- **Viability Gap Funding (VGF)** means a grant one-time or deferred, provided to support infrastructure projects that are economically justified but fall short of financial viability.
- **Lignocellulosic biomass** (or LC biomass) refers to plant biomass that is composed of cellulose, hemicellulose, and lignin. For examples: cereal straw, bagasse, forest residues, and purpose-grown energy crops such as vegetative grasses.

### Features

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- The objective of the scheme is to **create an ecosystem for setting up commercial projects** and boost to **Research and Development in 2G Ethanol sector**.
- Under the scheme funds have been allocated for supporting 12 Commercial projects, 10 Demonstration Projects:
  - **Phase-I (2018-19 to 2022-23)** 6 Commercial and 5 demonstration projects will be supported.
  - **Phase-II (2018-19 to 2022-23)** Remaining 6 Commercial and 5 demonstration projects will be supported.
- The ethanol produced by the scheme beneficiaries **will be mandatorily supplied to Oil Marketing Companies (OMCs)** to further enhance the blending percentage under Ethanol Blending Programme (EBP).
- **Centre for High Technology (CHT), a technical body under the aegis of MoP&NG, will be the implementation Agency for the scheme.**

## Benefits

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- This scheme is **promoting Second Generation (2G) Biofuels Technology moving away from food crops used in First Generation(1G)** to feedstocks, nonfood crops agricultural residues or waste.
- Making progressive **Blending/Substitution of fossil fuels for achieving Green House Gas emission reduction targets.**
- Stopping burning of biomass/ crop residues & improve the health of citizens and improving farmer income.
- Creating Employment opportunities in 2G Ethanol projects and Biomass supply chain.
- Contributing towards Swacch Bharat Mission by disposing of nonfood biofuel feedstocks such as waste biomass and urban waste.
- Development of Second Generation Biomass to Ethanol technologies in the country by promoting Research & Development.

## Background

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- **The government of India launched Ethanol Blended Petrol (EBP) programme in 2003 for undertaking blending of ethanol in Petrol to address environmental concerns due to fossil fuel burning, provide remuneration to farmers, subsidize crude imports and achieve forex savings.**
- Presently, EBP is being run in 21 States and 4 UTs of the country. Under the EBP programme, OMCs (Oil Marketing Companies) are to blend up to 10% of ethanol in Petrol.
- Despite efforts of the Government such as higher ethanol prices and simplification of ethanol purchase system, the highest ever ethanol procurement stands around 150 crore liters during Ethanol supply year 2017-18 which is hardly sufficient for around 4.22% blending on Pan India basis.
- To enhance blending up to 10% of ethanol in Petrol, an alternate route viz. Second Generation (2G) Ethanol from biomass and other wastes is being explored by MoP&NG to bridge the supply gap for EBP programme.
- **Therefore, "Pradhan Mantri JI-VAN Yojana" is being launched as a tool to create 2G Ethanol capacity in the country and attract investments in this new sector.**

## Biofuels

- Biofuels are fuels manufactured from biomass.
- Biomass resources are the biodegradable fraction of products, wastes, and residues from agriculture, forestry and related industries as well as the biodegradable fraction of industrial and municipal wastes.

GENERATION	CHARACTERISTICS	REMARKS
FIRST	Produced from food crops like maize, corn, sugar cane, rapeseed, palm, and soybean into ethanol and biodiesel, using a similar process to that used in beer and wine-making.	Impose significant costs on food security by demanding a share of staple crops, traditionally used solely for food and feed. Resulting in a conflict between fuel and food security. At the same time, lift the price of staple crops
SECOND	Produced from non-food crops and organic agricultural waste, which contain cellulose.	Grasses like switchgrass, non-edible oil seeds like Jatropha, castor seed can be transformed into biofuels.
THIRD	Derived from algae. Also known as green hydrocarbons	The list of fuels that can be derived from algae includes: Bio-diesel, Ethanol, and Jet-fuel.
FOURTH	Produce sustainable energy as well as capture and store CO <sub>2</sub> by converting biomass materials, which have absorbed CO <sub>2</sub> while growing, into fuel.	At all stages of production, the CO <sub>2</sub> is captured using various processes.  Rather than simply being carbon neutral, the fourth generation biofuel production is carbon negative, since it 'locks' away more carbon than it produces and also lowers CO <sub>2</sub> emissions by substituting fossil fuels.

### **Key Advantages of Biofuel**

- Renewable Energy source.
- Non-toxic & Biodegradable.
- Contains no sulfur that causes acid rain.
- Environment friendly-less emissions.
- Has rural employment potential.