

## BIO FUELS IN INDIA



### SECTOR OVERVIEW

The Government of India has emphasized on achieving energy security of the Country with a target of reducing usage of fossil fuels and non-renewable energy resources. The growing concern about the import dependence for fuel requirement in tandem with environmental pollution issues have driven the need for alternative fuels that have superior environment benefits and are economically competitive with fossil fuel. This envisages a strategic role for biofuels in the Indian Energy basket. These resources include agriculture and forest residue, Municipal Solid Waste (MSW), cow dung etc, which can be used to convert into biofuels. The Government is committed to encourage utilization of renewable energy resources, provide better remuneration to the farmers with a view to double their income, address growing environment issues owing to the use of fossil fuels and burning of biomass/ waste, address the challenges of waste management/ agri-residues management in line with *Swachh Bharat Abhiyan* and promote “Make in India” Campaign. This would help to reduce the dependence on import of crude oil.

There are various biomass conversion program/technologies being promoted and/or developed in India and the same are listed as follows:

#### ***A) Ethanol Blended Petrol (EBP) Program***

1. The National Policy on Biofuel (NPB) – 2018 provides a target of 10% ethanol blending in petrol for 2021-22, and progressively increase to 20% by 2030.
2. Thus, the Government has been implementing Ethanol Blended Petrol (EBP) Program throughout the Country (except the Union Territories of Andaman Nicobar and Lakshadweep islands) whereby, the Public Sector Oil Marketing Companies (OMCs) sell petrol blended with 10% ethanol.
3. To increase indigenous production of ethanol, the Government since 2014 has taken multiple interventions as listed below:-
  - ❖ Re-introduction of administered price mechanism;
  - ❖ Reduction in Goods and Service Tax (GST) on ethanol meant for blending under the EBP Program from 18% to 5%;

- ❖ Differential ethanol price based on raw material utilized for ethanol production, for instance, prices of ethanol derived from different sugarcane based raw materials under the EBP Programme have been increased, for the sugar season of 2022-23 for the period of 01.12.2022 to 31.10.2023:
- ❖ Extension of EBP Program to the whole of India except islands of Andaman Nicobar and Lakshadweep w.e.f. 01.04.2019, to promote the use of alternative and environment friendly fuel.



### ***B) Second Generation (2G) Ethanol***

With an objective to augment ethanol supplies, the Government allowed procurement of ethanol produced from other non-food feedstock besides molasses, like cellulosic and lignocellulose materials including petrochemical route. Oil Public Sector Undertakings (PSUs) have planned to establish 2G ethanol bio-refineries in various parts of the country.

Further, the Government has launched “Pradhan Mantri JI-VAN (Jaiv Indhan- Vatavaran Anukool Fasal Awashesh Nivaran) Yojana” for providing viability gap funding as an initial thrust to create 2G ethanol capacity in the Country and attract investment in this Sector. In this Scheme, the Government had announced a financial support to 12 Integrated Bio-ethanol Projects using lignocellulose biomass and other renewable feedstock with a total financial outlay of Rs. 1969.50 Crore (USD 239 Million as on 29.03.2023) for the period 2018-19 to 2023-24.

### ***C) Bio Diesel***

- The Ministry of Petroleum and Natural Gas announced a Biodiesel Purchase Policy, which became effective 01.01.2006. On 10.08.2015, the Government allowed direct sale of Biodiesel (B100) for blending with diesel to bulk consumers such as Railways, State Road Transport Corporations, etc. On 29.06.2017, the Government allowed sale of biodiesel to all consumers for blending with diesel.
- The Government has notified Guidelines for sale of biodiesel for blending with High Speed Diesel for transportation purposes on 30.4.2019.
- The Government is also promoting domestically available Used Cooking Oil (UCO) as a potential raw material for biodiesel production. UCO i.e. waste cooking oil, can be collected from bulk consumers such as hotels, restaurants, canteens, etc.



### **D) Compressed Bio Gas**

(i) Sustainable Alternative Towards Affordable Transportation (SATAT) was launched on 1st October 2018 aiming to establish an ecosystem for production of Compressed Bio Gas (CBG) from various waste/ biomass sources in the country.

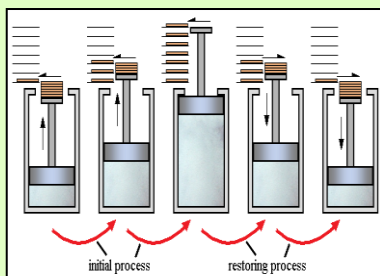


(ii) Under SATAT, Oil and Gas Marketing Companies Indian Oil Corporation Ltd. (IOCL), Bharath Petroleum Corporation Ltd. (BPCL), Hindustan Petroleum Corporation Limited (HPCL), Gas Authority of India Ltd. (GAIL) and Indraprashta Gas Ltd. (IGL) have invited Expression of Interest (EoI) to procure CBG from potential entrepreneurs for further marketing.

(iii) A list of the recent initiatives taken by the Ministry to promote SATAT are as under:

- ✓ Bio manure produced from CBG plants has been included as “Fermented Organic Manure” under Fertilizer Control Order 1985 vide Gazette Notification dated 13.07.2020.
- ✓ The State Bank of India (SBI) has developed a new loan product for financing of CBG projects, whereby the Bank would provide part-finance for setting up of CBG plants under Sole Banking Arrangement with SBI.
- ✓ The Ministry of New and Renewable Energy has extended Central Financial Assistance (CFA) Scheme in 2023 for the implementation of major renewable energy schemes such as Grid Connected Rooftop Solar Photovoltaic (PV) Power Projects, Green Energy Corridor Scheme, Waste to Energy Programme, Biogas Programme and Biomass Programme, etc.
- ✓ The Ministry is also in discussion with Multilateral Financial Institutions like World Bank, Asian Development Bank (ADB) etc. for enabling financing options via line of credit for CBG developers.

(iv) Further, the Ministry has also engaged with various Authorities for the following purposes:



- **The State Government-** to create enabling mechanism for establishing biomass supply chain to ensure sustainable supply of biomass at a stable price for at least a period of 10 years.
- **The Ministry of Agriculture and Farmers Welfare-** to include Digested Bio Gas Slurry (DBGS) produced from CBG projects under Fertilizer Control Order (FCO), to be used as organic fertilizer in agricultural production.

- **The Central Pollution Control Board-** to categorize CBG Projects under ‘White Category’ industrial sector having a Pollution Index score including and up to 20.
- **The Department of Fertilizer-** to direct fertilizer companies and marketing entities to co-market Fermented Organic Manure (FOM) with fertilizers.
- **The Department of Economic Affairs-** to facilitate creation of line of funding from multilateral financial institutions for CBG projects.

- **The Department of Food and Public Distribution-** to provide suitable financial incentives for setting up of 1G ethanol distilleries from various feed stocks.

## INDIAN LAWS AND POLICIES

### 1. Ministry of New and Renewable Energy (MNRE)-

- MNRE is the key Ministry responsible for supporting research and development, and the promotion and coordination of renewable energy sources, including bioenergy. MNRE has a non-banking financial company, viz., the Indian Renewable Energy Development Agency (IREDA), which provides loans for setting up biomass power and bagasse cogeneration projects.
- MNRE has implemented the following key programs:

- ❖ **Biomass Power/Cogeneration Program** - for financial and fiscal incentives to manufacture and install Gasifier Systems.
- ❖ **Biomass Gasifier Program** - for installations of power plants and power systems in rural areas.
- ❖ **National Biomass Resource Assessment Program (NBRAP)**- for developing biomass assessments.
- ❖ **National Biogas and Manure Management Program (NBMMP)**- for setting up family-type biogas plants for providing biogas as clean cooking fuel and a source of lighting.



2. **Energy Conservation Act, 2001** provides for a legal framework, institutional arrangements and a regulatory mechanism at the Central and State levels to promote energy efficiency drive in the Country.

### 3. National Policy on Biofuels-2018 Amendment, 2022:

- The said Policy provides that the Oil Companies shall sell Ethanol Blended Petrol (EBP) with percentage of ethanol up to 20% throughout the Country w.e.f. 01.04.2023. However, the blending of ethanol would gradually increase in the coming years.
- A target of 20% blending of ethanol in **petrol** is proposed by 2025-26 and 5% blending of biodiesel in **diesel** /direct sale of biodiesel is proposed by 2030.
- iii) In order to achieve the said goal, the Government has planned to do as follows
  - Reinforce ongoing ethanol/biodiesel supplies through increasing domestic production
  - Set up 2G bio refineries
  - Develop new feedstock for biofuels
  - Develop new technologies for conversion to biofuels
  - Create suitable environment for biofuels and its integration with the main fuels.

## INVESTMENT AREAS

- ✓ The Tamil Nadu Government has recently published its 'Ethanol Blending Policy 2023' in March 2023 in order to be self-sufficient and meet the estimated Ethanol blending requirement of 130 Crore Litres and to attract investments worth Rs. 5000 Crore in molasses/grain-based Ethanol production capacity in the State.
- ✓ The Government-run OMCs i.e. Indian Oil Corporation, Bharat Petroleum Corporation Ltd. (**BPCL**), Hindustan Petroleum Corporation Ltd. (**HPCL**) had entered into long term purchase agreements with various banks and other project proponents for ethanol plant projects. As per the said agreements, ethanol produced by these plants would be purchased by the OMCs for blending with petrol under EBP Programme.

## WAY FORWARD



India is one of the fastest growing economies and the third largest consumer of primary energy in the world after the US and China. India's fuel energy security will remain vulnerable until alternative fuels are developed based on renewable feed stocks such as C and B- Heavy Molasses, sugarcane juice, sugar, biomass, etc. The Government of India has aimed at reducing the country's carbon footprint by 30-35% by the year 2030. These targets will be achieved through a five-pronged strategy, which includes: (a) Increasing domestic production, (b) adopting biofuels and renewables, (c) implementing energy efficiency norms, (d) improving refinery processes and (e) achieving demand substitution.

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