



**GOVERNMENT POLICY AND THE ROLE OF THE FINANCIAL COMMUNITY IN
THE GROWTH OF RENEWABLE ENERGY**

INDIAN FEDERATION OF GREEN ENERGY

MONTHLY NEWSLETTER

AUGUST, 2017

Introduction

Indian federation of green energy (IFGE) is a partnership of committed groups of visionaries and stakeholders from diverse industries, business and services for creating a sustainable energy ecosystem and mitigate challenges and concerns. IFGE is an umbrella organization which represents the interests of the national renewable energy sector in its totality – bio energy, solar, wind, hydro, tidal, geothermal, etc. IFGE focuses on the area of green energy with the mission of promoting energy security in a sustainable manner in every sector of economic development through outreach activities bringing all the stakeholders associated to a common platform.

Recent event

The National Executive Committee (NEC) meeting was held on 3rd August, 2017. The meeting was attended by:

1. Hon'ble Chief Guest Shri Anand Kumar, Secretary, Ministry of New & Renewable Energy (MNRE), Government of India
2. Hon'ble Shri Vijay Sharma IAS Director, Ministry of Petroleum & Natural Gas (MoPNG), Government of India
3. Shri Annasaheb M K Patil, Vice Chairman, IFGE
4. Dr. Vidya Murkumbi, President, IFGE & Executive Chairperson, Shree Renuka Sugars Limited
5. Mr. Ramesh Kymal, Chairman & Managing Director, Siemens Gamesa Group
6. Mr. S. Ramakrishna, President – Group Public Affairs, Mahindra & Mahindra Ltd.
7. Mr. Anirban Ghosh, Chief Sustainability Officer, Mahindra & Mahindra Ltd.
8. Mr. Ravi Boratkar, Managing Director, MM Activ Sci Communication Pvt. Ltd.
9. Mr. Atul Mulay, Vice President, Praj Industries Ltd.
10. Mr. Venu Gopal Nair, Assistant Vice President, Praj Industries Ltd.

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11. Mr. C. K. Rao, Vice president, Bajaj Auto Limited
12. Mr. Pawan Kumar Agrawal, Senior President, Yes Bank Ltd.
13. Mr. K. N. V. Easwaran, Senior General Manager, Murugappa Group
14. Mr. Ravi Gupta, President, Shree Renuka Sugars Limited
15. Mr. Atul Kulkarni, Advisor, Indian Ports Association (IPA)
16. Mr. Prafulla Pathak, Advisor, IFGE
17. Mr. Sanjay Ganjoo, Honorary Director, IFGE
18. Mr. Sandeep Theng, Regional Director – West & Head Biomaterials, IFGE
19. Mrs. Mallika Bose, Deputy Director, IFGE



Dr Vidya Murkumbi (left); Shri Anand Kumar, Secretary, MNRE (middle); Shri Annasaheb M K Patil (right)



Dr Vidya Murkumbi (left); Shri Vijay Sharma (IAS), Director, MoPNG (middle); Shri Annasaheb M K Patil (right)

MESSAGE

Bio-diesel production is in rise on day-by-day basis in India as well as in foreign countries. New generation energy sources is very much essential in Indian and global context. The fast depleting reservoir of fossil fuel has already ringed the alarm bell. The economic growth of India in the range of 5-9% and that of China around 10% has raised question marks on longevity of fuel supply in international markets. If effective and forceful steps are not taken immediately, then in very near future the human society will back to the age of no technology system.

However, searching of alternates has been initiated for a very long-time now and recently has started yield positive results. Though, the results are not that much promising in many fields but are capable to provide sustained energy resources to the human kind. Under this scenario, extracting bio-fuel from the bio-waste is a feasible option environmentally also and is being used in the existing systems (automobiles, industries etc.) without altering the major components. In this context, bio-diesel gained quicker popularity as a source of renewed energy.

The central government is seeking to reduce fossil fuel imports by 10% by 2022 through a switch to domestic renewable fuels and removing the policies incoherent with this overall goal. On the occasion of World Biofuel day celebrated this month, we should work towards Green Environment and create awareness about non-fossil fuels (green fuels).

All the best!!

**Regards,
Annasaheb M K Patil
Former Minister, GOI,
& Honorary Vice Chairman IFGE**

FROM IFGE`S DESK

The solar industry in India is facing turbulence from the last year as a result of the ruling out of India's policy of domestic content requirement (DCR) in solar panel manufacturing sector by WTO in response to a case file against India by USA. Before the ruling, power producers from India used to source a portion of their panels from domestic manufacturers. This support was there to give a boost to the nascent local industry which was otherwise not been able to compete on its own. The shelving of the DCR policy has resulted into availing low cost supply of photovoltaic (PV) panel from China, which has further an impact on the solar tariff of India, which has dropped from INR. 17.5/ kWh in 2011 to as low as INR. 2.44 as per an auction in May, 2017.

Experts from these sectors like Vikram Solar, Jupiter Solar, KPMG and others are very much anxious and have expressed their concerns on long term sustainability of the industry in the current scenario. As per the facts shared by the experts in this sector, some of them are winding up their production up to 50% to 25% of their operating capacity. Even Chinese companies are facing problems with this kind of price variation.

Bridge to India has released a report in June with the same assessment. To more of a solution approach, the anti-dumping duty as applied is at best a short term life support which will stabilize the market for the players on short term basis only. The anti-dumping duty is being pleaded by the domestic industry through the Indian Solar Manufacturer's Association (ISMA) to impose a duty on the imports as it is leading to a considerable damage to the indigenous sector.

Companies like Trina Solar (Chinese owned), US based first solar are of much bigger size compared to the Indian companies. Lack of capital investment in new technologies and to further scale up their facilities are already a challenge to the Indian companies. Whereas, in country like China, it controls as much as 90% of the market for rare earth minerals, several of which are used in the production of thin film solar panels. Therefore, as per experts, over dependence on the country like China in this scenario could disrupt the availability of such products due to the interruptions like geo-political forces and market fluctuations, which could further give a hitch to the country's renewable target of 175 MW by 2022.

**Regards,
Mallika Bose
Deputy Director**

Ethanol
Blending
Program -
Government
Policy &
Present
Status

August, 2017

The document highlights present status of ethanol blending program in India and government policies on first and second-generation ethanol in India

Praj
Industries
Limited

EXECUTIVE SUMMARY

Biofuels have received global attention recently as governments across the world seek to address fuel efficiency, air quality and energy security. Biofuels are produced from renewable biological sources and are considered viable alternatives or supplements to fossil-fuels. In order to support a broader shift towards biofuels, governments have introduced various policy measures; some of these include mandatory fuel blending programs, incentives for flex-fuel vehicles and agricultural subsidies for farmers. The Government of India in January 2003 launched its Ethanol Blended Petrol (EBP) Programme for 5% ethanol blended petrol. India's EBP Programme sought to improve fuel efficiency and ensure protection from the price shocks of the global crude market. In 2009, the Government of India introduced a National Policy on Biofuels. The Policy focussed on further encouraging biofuel usage and reducing the prevailing dependence on fossil fuels, while it sought to mitigate environmental and fuel efficiency concerns. The Policy also recognised the significant opportunity that biofuels offer to India's agricultural and industrial sectors.

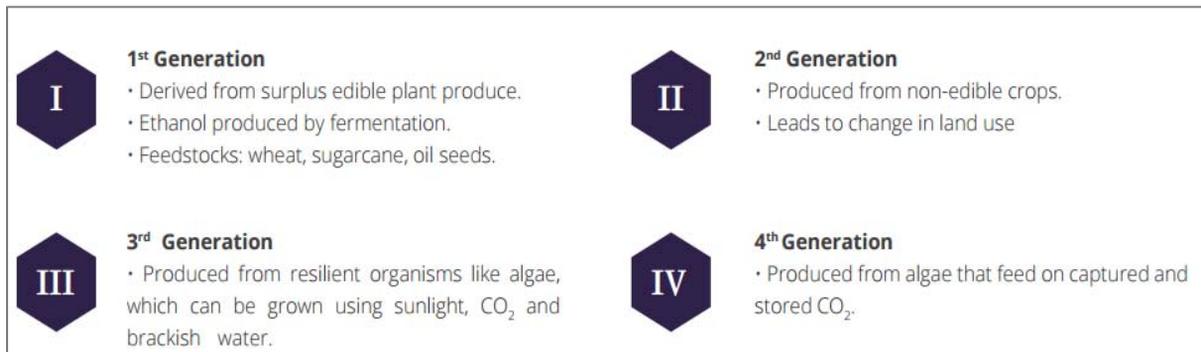
The policy has received fresh impetus with the recent initiative of the government to expand domestic capacity. In the past year (2015-16), the Government of India has made significant investments in improving storage and blending infrastructure. Further public investments (to the tune of INR 7000 crore) are being made in supporting second generation biofuels processing and production. This alone is expected to generate an additional 350 million litres of ethanol by 2019.

The National Policy on Biofuels has set a target of 20% blending of biofuels, both for bio-diesel and bioethanol. However, India has managed to achieve an average blending rate of close to 5% for the first time only in 2016. Our nation's domestic ethanol capacity stands at approximately 2240 million litres annually. It is projected that there will be a supply deficit of 822 million litres (27%) when demand for chemicals and potable alcohol is taken into account. In addition to this supply deficit, certain market and regulatory hurdles also contribute to limiting the potential of the country's EBP Programme. To succeed, the EBP Programme requires an integrated approach across its value chain. The varied administrative and duty requirements by each of the different states needs to be addressed. These requirements, in conjunction with a disjointed pricing framework has in the past dissuaded sugar mills from directing their supplies towards blending. Of significance is the difficulty in sourcing domestically produced ethanol. Existing domestic ethanol supplies are closely linked to the cyclical nature of sugarcane harvests in the country, which results in market uncertainty. Biofuels offer significant economic and environmental benefits. For example, there are substantial environmental emissions savings of CO₂ and local pollutants from the use of blended fuel. It is projected that CO₂ emissions can be reduced up to 10.41 million ton CO₂e by 2021-2022 at a 20% blending rate for ethanol. Successful implementation of the government's EBP Programme will also result in considerable foreign exchange savings. India could reduce its import bill by up to 39, 812.5 crore rupees by 2021-22 when ethanol blending is factored in.

Different Kinds of Biofuels

Biofuels, either in liquid form or gaseous form, are transportation fuels derived from renewable biological sources (International Energy Agency, 2004). Biofuels are commonly divided into first, second, third, and fourth generation biofuels. First-generation biofuels are produced predominantly from food crops such as

grains, sugar beet, and oil seeds. Some of the most common examples of first generation biofuels include sugarcane ethanol in India and Brazil, corn ethanol in the USA, rapeseed oil biodiesel in Germany, and palm biodiesel in Malaysia (Taylor, 2008). Advanced biofuels, i.e., the second, third and fourth generation biofuels, include biofuels based on feedstock like lignocellulosic biomass, which include cellulosic ethanol, biomass-to-liquid diesel, and biosynthetic gas (International Energy Agency (IEA), 2011).



Second-generation biofuels are produced from lignocellulosic biomass, enabling the use of non-edible feedstocks, thereby limiting direct competition between resources necessary for food and those required for energy security. Second-generation biofuels can be further classified into biochemical or thermochemical based on the process used to convert the biomass into fuel. Second-generation ethanol or butanol is produced using biochemical processing. However, as explained subsequently in this paper, the commercial viability of second generation biofuels is still being debated. Third-generation biofuels are high energy renewable feedstocks engineered from algae, which grow on nonarable land with limited water base, sunlight and carbon dioxide (CO₂). Fourth-generation biofuels produce sustainable energy by utilising captured and stored CO₂. This carbon capture makes the biofuel production carbon negative rather than simply carbon neutral, as it is 'locks' away more carbon than it produces.

History of Ethanol Blending In India

Maharashtra, Gujarat, Goa, Uttar Pradesh, Haryana, Punjab, Karnataka, Andhra Pradesh, Tamil Nadu, and four Union Territories - Chandigarh, Puducherry, Dadra & Nagar Haveli, Daman and Diu (Saon Ray, 2011). In 2003, however, the Planning Commission's report recommended a phased implementation programme to blend biofuels with petrol and diesel. During 2004-05, due to a supply shortage, the ethanol-blending mandate was made optional. However, it was resumed in 2006, and was further extended to Uttaranchal, Delhi, Himachal Pradesh, Madhya Pradesh, Chhattisgarh, Kerala, Rajasthan, West Bengal, Odisha, Bihar, and Jharkhand (Saon Ray, 2011) The entire north-eastern region, Jammu and Kashmir, and Andaman and Nicobar Islands were left out of the EBP Programme (Ministry of Petroleum & Natural Gas, 2015). In 2009, the National Biofuel Policy was announced, which mandated a phased implementation of ethanol blending in petrol in various states. The blending level of bioethanol at 5% with petrol was made mandatory from October 2008, and the National Biofuel Policy set out an indicative target of 20% blending of biofuels, both for bio-diesel and bioethanol, by 2017 (Saon Ray, 2011).

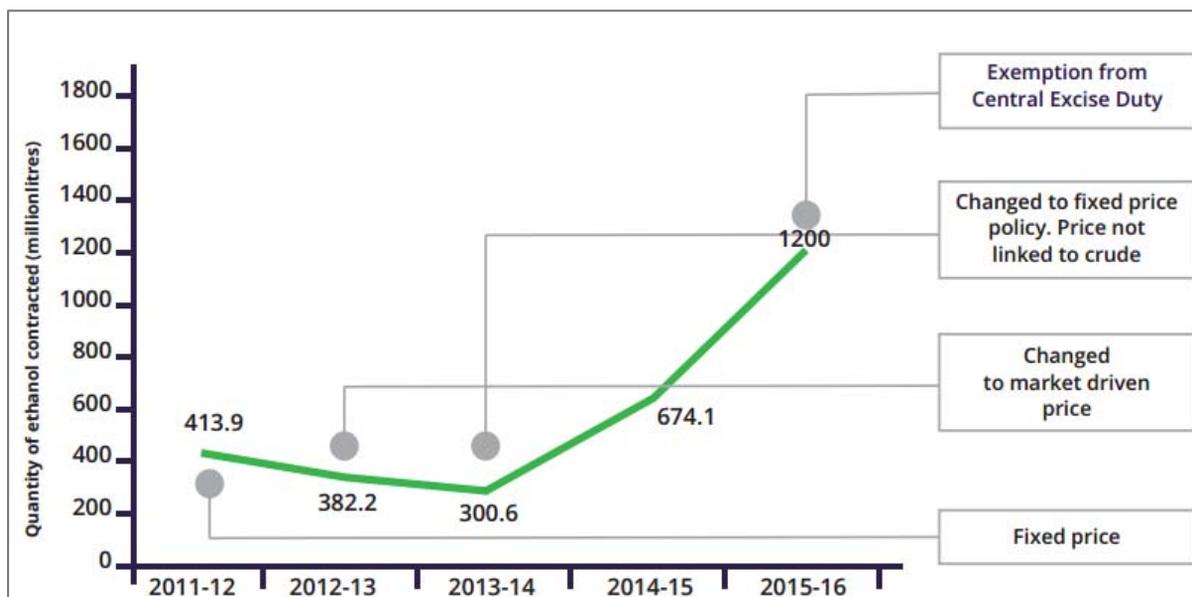
Amongst other things, the National Policy on Biofuels set out the following objectives:

- To meet the energy needs of India's rural population and create employment opportunities;
- To address global concerns by tightening automotive vehicle emission standards to curb air pollution;
- To reduce the dependence on import of fossil fuels, providing a higher degree of National Energy Security;
- To derive biofuels from non-edible feedstock on degraded soils or wastelands unsuited to agriculture, avoiding a possible conflict between food and fuel;

- Optimum development of indigenous biomass and promotion of next generation biofuels (Ministry of New & Renewable Energy, 2009).

In 2010, the government fixed an ad-hoc provisional procurement price of INR 27 per litre for ethanol by Oil Marketing Companies (OMCs). A decision was taken to constitute an expert committee to determine the formula or principle for fixing the price of ethanol (Government of India-Ministry of Petroleum & Natural Gas, 2010). In 2012, the Cabinet Committee on Economic Affairs (CCEA) decided that a stable EBP Programme would ensure sustainable benefits for sugarcane farmers across the nation, and the 5% mandatory ethanol blending with petrol should be implemented across the country and that the purchase price of ethanol would be decided between OMCs and the suppliers of ethanol (Aradhey, 2013). A Gazette Notification was issued, directing OMCs to sell ethanol blended petrol with percentage of ethanol up to 10% and as per the Bureau of Indian Standard (BIS) specifications (Ministry of Petroleum and Natural Gas, 2015).

In 2014, in order to offer OMCs and suppliers clear signals, the CCEA fixed ethanol prices based on the distance of the mill/distillery from the OMC depot/installation (Cabinet Committee on Economic Affairs (CCEA), 2014). In April 2015, the 12.36% central excise duty levied on ethanol supplied for blending with petrol for the upcoming season (October-September) was removed, and the price benefit for the same was to be passed on to the sugar mills/distilleries (Economic Times, 2015). In August 2016, this excise duty concession was withdrawn (Mukherjee, 2016). In October 2016, the CCEA revised the pricing policy for the period 2016-2017 wherein the administered price of ethanol was revised to INR 39 per litre (Cabinet Committee on Economic Affairs (CCEA), 2016). Figure below shows the change in pricing decisions with respect to the EBP Programme and corresponding ethanol supply for the programme by members of the Indian Sugar Mills Association (ISMA) (Shree Renuka Sugars, 2015). It is clear that the exemption from central excise duty is reflected in the substantial increase in quantity contracted.



The Government of India has also prioritized second generation Biofuels produced from agricultural residues like bagasse, rice and wheat straw, bamboo, cotton stalk, corn Stover and wood chips. However, their viability and potential for scaling needs to be analyzed further (Ministry of Petroleum & Natural Gas, 2014).

Current ethanol scenario in India:

- GOI emphasizing on achieving energy security of the country with a target of reducing import dependence by 10% by the year 2022. As a key initiative to achieve this objective GOI aims to increase ethanol blending up to 20% by 2022. Existing first-generation ethanol is produced from Molasses – C. The ethanol produced from Molasses-C can achieve maximum 5% EBP.
- In order to meet 20% EBP across country there is huge ethanol deficit of 700 Crorelitres. This deficit can be met through second generation non-food feedstock such as rice straw, corn cobs, cotton stalk, bagasse, cane trash, etc. Total surplus biomass available in India is 140 million MT. Only 30% of surplus biomass is sufficient to produce 1000 Crore liters of ethanol.
- According to NASA staggering amount of 32million MT of agricultural residues were burnt in Punjab & Haryana, adversely affecting air quality. Approximately 6 billion litres of ethanol could have been produced from these residues. MoPNG instructed OMC's to invest in second generation ethanol plants in India by installing 10-11 projects.
- The Government of India (GOI) approved the National Policy on Biofuels on December 24, 2009. Govt. of India emphasizing on achieving energy security of the country with a target of reducing import dependence by 10% by the year 2022.
- MoP&NG instructed OMC's to invest in second generation ethanol plants in India by installing 10-11 projects.
- MoP&NG (Ministry of Petroleum & Natural Gas) is working on biofuel scheme for supporting investment in biomass to ethanol projects through Viability Gap Funding

Second generation ethanol align with Government of India Initiatives:

- Second generation ethanol is made preliminary from agricultural residues such as rice straw, wheat straw, cotton stalk, corn cobs, corn stover, sugarcane trash, bagasse, etc.
- The major objectives envisaged for the biomass to bioethanol projects are as follows:
 - Reduce crude oil import dependency and enhance national energy security by leveraging upon locally available bio-resources for production of ligno-cellulosic ethanol
 - Boost rural prosperity through consistency in additional income to farmers
 - Addressing climate change issue by enhanced use of ethanol blended petrol and reduced crop burning in North India

PROPOSED FISCAL INCENTIVES AVAILED BY RENEWABLE ENERGY PROJECTS WHICH MAY ALSO APPLY TO 2ND GEN BIO-ETHANOL PRODUCTION PROJECTS:

1. Financial Support by way of Viability Gap Funding (VGF) in the form of Capital Grants and Interest Subvention support (soft loans) from MNRE for developers / Technology partners for setting up projects
2. Financial Support by way of Viability Gap Funding (VGF) in the form of Capital Grants and Working capital support from MNRE for Biomass Supply Chain set up by the project developers / biomass suppliers
3. Differential pricing (higher than 1st Generation ethanol) for Cellulosic (2nd Generation) ethanol due to the techno-socio-economic benefits for the Country
4. Exemption from customs duty, excise duty, GST for machinery and components during the setting up of the project
5. Exemption from customs duty, excise duty, GST for 2nd Generation ethanol, BioCNG, yeast & enzymes for a period of 10 years
6. A 10-year Income tax holiday
7. Accelerated depreciation: a claim of 40% depreciation in the first year
8. A payment security mechanism to cover the risk of default by OMCs / off takers

Taxation

- Removal of State Levies on the inter-state movement of the bio-fuel
- Administrative reforms at the state level, including digitizing the excise permit processes easing transportation and logistical requirements

Policy Certainty:

1. Assurance of Off take of Products and Co-products from 2G Bio refinery

- Long term 2nd Generation Ethanol Purchase Guarantee Agreement (EPA) by OMC's for a period of 15~20 Years period.
- Indexation of Bio-Ethanol & Bio-CNG Prices – Escalation in line with the Biomass Prices / Brent Crude Prices for the period of EPA.
- Inclusion of power produced from 2nd Generation bio-refinery complex in waste-to-energy category. Tariff of Power should be same as waste-to-energy tariffs.
- Recognition of BioCNG as transport fuel and release of its Specifications.

2. Environmental Clearance for 2nd Gen Bio ethanol Projects

- Classification of 2nd Gen Bio ethanol projects under the “Orange Category”
- Single window clearances for 2nd Gen Bio ethanol projects
- Waiver of EIA / EMP studies and Public hearing

3. Biomass Collection

- Allocation of Catchment area of 60 – 80 km radius for 100 KLPD , 2nd Gen Bio ethanol projects by the State Governments to ensure that the Project gets sustainable supply of feed stock on long term basis
- Allocation of Land for Biomass storage depots on long term lease basis

Article on Solar
By
Prafulla Pathak
Expert, Solar Energy & Advisor – IFGE

The renewable sector in India had a boost in last couple of years. This is when India power sector was struggling to fulfill needs of the country. Naturally the government policies in those days were aimed at or with an objective to boost the use of renewables. Which in turn conserve the conventional energy. Which in other ways reduces the burden of power supply. This was well received by business community and installation of wind energy initially and in windy zones and later part by solar energy installation of MW and GW scale in sunny zones. This attracted the Indian industry initially and followed by international industry as well as financial institutions globally.

The result of this concentrated efforts are the drop in tariffs offered. Which are obviously the result of drop in technology cost, infrastructure cost, financial rate cutting. As such , the distribution sector, which was looking at renewable input as a burden of kind of organic food, otherwise were looking at as parasites and inevitable once. The same distribution sector now will be ready to offer red carpet at power tariff and reliable or more precise scheduled supply. The conventional fossil fuel stations, which were once a base load to power sector may become the peak load bandwidth minimizing tools. The cheapest and reliable source is the priority of every business. Wherein a commodity is in trading. Energy sector is no different. The share and quantum of renewables is growing, so is the role of renewables is becoming important. Obviously, the technology, which is making renewables presence in grid as reliable is most important sector.

At all such background, the land use otherwise going waste is given priority and use of this for some productive use is the matter of concern to the leaders. E.g. green house for plant cultivation or small scale industrial units below the solar panels is need of hour. Wherein otherwise unutilized land will be an advantageous.

With all good wishes!!

Announcement

- “International Conference on Green Initiative & Railway Electrification” on 27th -28th October, 2017 at Le Meridian Hotel, New Delhi
- Green Energy Awards in the month of December, 2017 in New Delhi
- Conference on Ethanol in Pune, Maharashtra

Green Days



**World Biofuel Day -
10th August, 2017**

**water quality
month!**

August - Water Quality Month