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Report on India BioEnergy and Tech Expo at Yashobhoomi IICC, Dwarka, New Delhi, 2024

September 2024

**INDIA
BIOENERGY
& TECH EXPO**

2-4 September, 2024
Yashobhoomi, IICC, Dwarka,
New Delhi

An International Conference & Exhibition on Bioenergy and Technologies

Exhibition

**International Conference
on Bioenergy**

The banner features a collage of images related to bioenergy: a young plant growing from a pile of corn cobs, a cornfield with industrial silos, a tractor in a field, and a red fuel nozzle next to corn cobs. The background is filled with icons representing various energy and technology concepts.

Conference Report





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1. About the Event

India Bio Energy & Tech Expo was organized from 2-4 September 2024 at Yashobhoomi, IICC, Dwarka, New Delhi. The Expo focused on Bio Energy and Technologies involved as the sector is picking pace in term of combating environmental externalities. The emerging sources of Bio Energy include Compressed Biogas (CBG), Biomass pellets and briquettes, Ethanol, Bio-Diesel, Waste to Energy, Bio-Mobility. The event was more than just an opportunity for companies in the Green Energy sector to showcase what they are doing. It was organized as a platform for giving policy feedback to the Indian central government. The plenary and parallel sessions, key notes and panels were designed to steer a debate on policy issues of concern for the government and IFGE members.

Several ministers delivered speeches during the opening, closing, and plenary sessions, including:

- The Hon'ble Minister for Petroleum and Natural Gas: Shri Hardeep Singh Puri,
- The Hon'ble Minister for Road Transport and Highways: Shri Nitin Gadkari
- The Hon'ble Minister of State for Power and New and Renewable Energy

Sessions were chaired by high level actors from government, industry and academia, including:

- Y. B. Ramakrishna Senior VP of the IFGE and former chair of the biofuel working group of the MoPNG
- George Thomas, Deputy Secretary in the MoPNG, responsible for international cooperation and the Global Biofuel Alliance, led by India, now with NNNN members
- Sangita Katsure, Scientist G for the MNRE, and former secretary of the Indian Innovation Mission.
- High level Industry representatives India, the US and the EU, including IOCL and Praj Industries of India, Lanza jet of the US, Verbio of Germany and Chempolis of Finland.



2. Goal of the activity

Building upon the “EU-India Roadmap for Cooperation on Sustainable Biofuels from Biomass for Aviation and Maritime Transport,” this activity aimed to address gaps in current efforts to accelerate the production of Sustainable Aviation Fuel (SAF) for the aviation sector. The goal was to enable compliance with mandates and other regulatory requirements, such as the EU Emissions Trading System (ETS) and related sustainability criteria.

Experts provided support for the organization of the India Bio Energy and Tech Expo 2024, conducted by the Indian Federation of Green Energy (IFGE) under the EU & India Clean Energy & Climate Partnership. The objectives were to:

- Validate the need for international action to monitor progress on upstream SAF supply chain development
- Discuss methods to achieve this
- Agree on next steps to be implemented, building on existing initiatives and utilizing available funding mechanisms.

The activity facilitated the participation of EU and Indian experts in the IBET Expo event to discuss:

- The availability of feedstock for conversion into SAF
- Upstream investment in feedstock supply chains to support provision to SAF refineries
- The status of Monitoring, Reporting, and Verification (MRV) infrastructure, compatible with the EU ETS and other relevant mechanisms, to meet regulatory requirements throughout the supply chain, including those of feedstock producers

After gathering intelligence on these issues, the plan was to organize a closed-door session with the European Commission. The purpose of this session would be to review the results, determine the necessary actions, and identify funding sources for implementation.



3. Main Findings of the Event

The overall messaging was positive. The ministers focused on what has been achieved so far in **the Green transition and the new targets to be reached by 2030.**

- In road transport, India has a 10% by 2023 drop-in target for ethanol. It reached this ahead of schedule and raised the 2023 target to 12%. India has already exceeded 15%. Last year it set a new target to achieve 20% drop-in by 2030. This has now been escalated to 20% drop in by 2025. That is 5 years ahead of schedule.
- The national target for biodiesel blending is 5% by 2030.
- In terms of power generation, India already has reach achieved 300GW capacity from renewable sources. The new target is 500GW from renewables by 2030. India is very confident it can achieve this. Most of the new capacity will come from Solar, but progress is rapidly being made in wind. Some of the new capacity will come from direct waste-to-energy solutions and from biogas.
- There are already about 100 biogas refineries in operation. The goal is to reach 5000 by 2030, an increase by a factor of 50 in 6 years. The vision of central government is to achieve a higher level of local energy security and autonomy, create new jobs and replace imports of fuel from abroad. It is up to each state to see how to achieve this. Some states are more advanced in their thinking on this than others.
- India now has SAF mandates for international air travel: 1% drop-in by 2027, 2% by 2028 and 5% by 2030.
- Currently, there is no SAF available at Indian airports. This is expected to change by the end of the year, when an IOCL refinery will start commercial production of SAF based on A2J technology from Lanza jet of the US. Other refineries for SAF production are planned. The government and the oil companies such as IOCL seem very confident that they mandates can be met.
- The MNRE now has a written strategy for bio-commodities, supported by a program for research and innovation. This work is led by Sangita Katsure for the MNRE. It covers the production of solvents, lubricants, bioplastics, bio-fertilizers, sustainable textiles and dyes as well as green chemistry more generally.
- Various international initiatives were referred to, these included the Global Biofuel Alliance, and an Indo-German collaboration on finance for green energy, that targets not only, but the rest of the world.

These three subjects are all in the very early stages of development in India.



4. New and Emerging Issues

The event frequently highlighted key challenges in scaling up biofuel production. These challenges are widely recognized and include the high cost of second-generation (2G) biofuels based on existing technologies, limited production scale, financing for green energy projects, and the organization of feedstock supply chains.

A notable addition to the agenda was the Ministry of New and Renewable Energy (MNRE)'s strategy and program for bio commodities. This initiative is significant for two reasons:

- The creation of markets for bio commodities will increase demand for biomass, potentially competing with the biomass needed for fuel production.
- Some bio commodities can be produced using waste from biofuel production, which is essential for ensuring the commercial viability of biofuel operations.

Emerging issues in India also include:

- **Carbon Markets:** The Carbon Market Association of India (CMAI) views voluntary carbon markets and those established under Article 6.2 and Article 6.4 of the Paris Agreement as potential sources of financing for local energy projects.
- **Sustainability Reporting:** Although the EU Emissions Trading System (ETS) was not specifically mentioned, the issue of sustainability reporting is beginning to gain attention. The CMAI recognizes the need for credible sustainability reporting for the certification of carbon projects.
- **Sustainability Legislation:** There was brief mention of the Carbon Border Adjustment Mechanism (CBAM) and the role of sustainability reporting in international trade.



5. EU Expert and Speaker Interventions during the Event

Arrangements were made for the experts to serve as speakers in various sessions and panel discussions at the India BioEnergy and Tech Expo 2024. This approach targeted a larger audience, thereby facilitating broader dissemination of expert insights and key EU messages. Their contributions were as follows:

5.1. Day 1

9.00 to 9.45: CEOs Round Table with Hon'ble Minister Nitin Gadkari: Our experts Mr. Patrick Crehan and Mr. Poul V Jensen joined the session.

- The session was chaired by Minister Nitin Gadkari, and attended by 25 Chairmen and CEOs of industry, all operating in the biofuel sector. The experts had a 1 minute intervention, highlighting the need for Europe India collaboration on not only technology – 1G to 2G transition – but also on global standards and reporting systems.

12.00 to 13.30: Plenary Session 1 Evolving Policy Ecosystem in India: Global Biofuel Alliance Towards Globalization: Our speaker was:

- Poul V Jensen, MD EBTC - Speaking on Europe India collaboration on biofuels, the global challenges of having resilient supply chains (from farm to end user), harmonised standards and reporting systems to create a conducive environment for the proliferation of biofuels for aviation, maritime and transport.
- The session and panel discussion moderated by Atul Kharate, COO IndianOil Adani Ventures, also saw interventions by Ms Jennifer Holmgren, CEO, Lanzatech, Mr. Shishir Joshipura, CEO & MD, Praj Industries, Mr. Ashish Kumar, MD VERBIO India, all together providing ample ground and insights, highlighting industrial painpoints, for policy makers in India to continue developing the policy ecosystem in India, in global collaboration.

5.2. Day 2

10.30 to 12.00: Track 3 on potential in Sustainable Aviation Fuel: The session was presided by Dr S. S. V. Ramakumar of SAFE, the Sustainable Aviation Fuel Forum, also of TERI - He took part in the development of the EU-India roadmap. The moderator was Gaurav Goyal, VP or Praj Industries, business head of Sustainable Aviation Fuel. Our speaker were

- Santiago Haya-Leiva of EASA: Santiago was not able to attend due to flight delays. He was replaced by one of the experts (Patrick Crehan) who introduced the EU-India roadmap.
- Eric van den Heuvel, member of SGAB the Stakeholder Group for Advanced Biofuels. He outlined the work of the SGAB, identified challenges and recent findings.

12.00 to 13.30: Track 1 on potential in CBG sector: Our speaker was:

- Varun Karad CEO of RE Energy Dynamics - He was consulted on the EU-India roadmap on upstream supply chain issues. He spoke of the need for finance and the challenge of working with rural communities and farmer producer organisations.

14.30 to 16.00: Track 1 on potential in CBG sector: Our speakers were:

- Ashok Koshla of Development Alternatives - He and his staff were consulted on the EU-India roadmap on upstream supply chain issues. He spoke of the broader energy related economic development needs of the regions and the need to work with local governments to solve issues related to feedstock supply chains.
- S. Bharathan Executive Director of HPCL, Head of Refineries, and chair of the SGAB, was replaced by V. K. Maheshwari, Executive Director of R+D. He spoke of the need to reduce the cost of SAF production and develop markets for by-products such as fertilizers, bioplastics and green chemistry.

14.30 to 16.00: Track 3 on the possibilities of 2G Ethanol: The speaker was:

- Patrick Crehan took part in the panel discussion and spoke on the importance of sustainability reporting and certification, not only for SAF and the feedstock from which it is derived but the broader context of trade related reporting to satisfy the need for corporations with respect to legislation such as CBAM, CSRD, CSDDD, GCD and EUDR.



6. Conclusions

The main findings of EU-India roadmap were validated once again. Its recommendations remain timely and relevant.

In discussions with DG INPTA, more specifically with Pablo Mendoza Villafuerte, and Sarabjeet Hayer, the general consensus was that actions needed to implement the Roadmap could be funded under the annual budget of 2026, but that those actions would need to be ‘designed.’ This could be done using existing facilities such as the Support for Policy Dialogue.

The conclusions relating to SAF are that although progress is being made on the scaling of SAF production in India, there are grounds for concern over the following:

- Sustainable feedstock availability
- Sustainability reporting and certification
- Adequate availability of ETS compliant SAF at Indian airports
- Future proofing sustainability reporting
- Silos preventing effective dialogue

These are all issues which could be addressed in the soon to start ACT-SAF project involving ICAO and EASA, funded by and managed by DG INPTA. More specifically the concerns are as follows.

1. **Progress on SAF Production in India:** India recently announced SAF mandates for international flights:

- 1% drop-in by 2027
- 2% drop-in by 2028
- 5% drop-in by 2030

So far, there is no official publication. Nevertheless, it has been announced in international fora by Indian ministers and high-level government officials, reflecting a high level of confidence in India's ability to deliver on these mandates. The concern is that it is not clear what is meant by SAF, and if there is a distinction between ETS and CORSIA compliant SAF.

India is making significant progress. An IOCL refinery using American A2J technology is expected to start production by end of this year. Other refineries, some with European A2J technology, some with European HEFA technology, are expected to start production in time for the 2027 and subsequent SAF mandates. In recent international meetings in India, where SAF production was discussed, only CORSIA compliance was mentioned. No reference was made to the EU ETS, the need to recognize and accommodate both standards, and the impact this might have on pricing of SAF for offtake.

- ### 2. **Concern over Feedstock Availability:** Simple estimates of Indian “biomass potential” or “agricultural waste production” do not reflect the availability of feedstock for SAF. Sustainable biofuels are also needed for maritime transport. Shipping is currently lobbying for preferential access to sustainable biofuel. They mainly refer to methanol and ammonia. This should include biodiesel and biogas. All of which can be produced from agricultural waste. Railways also need biodiesel in their transition to electric. Demand from shipping and rail will compete with demand for SAF. MNRE now has a biocommodities strategy. These too will compete with demand for biofuels. Each state and region of India has its own needs concerning energy security. They need to decouple cost of energy from international markets to drive growth locally. The local energy transition will be met in part by use of agricultural waste in direct waste-to-heat solutions for industry. Farmers won't accept to be compelled to provide waste for SAF. They understandably seek the best deal to improve their livelihoods.
- ### 3. **Concern over Cost of Sustainability Reporting and Certification:** It is not yet clear how sustainability reporting on Indian SAF will work. There may be a need for a faith-based transition period. But then a transition towards what? Although off-take mandates are clear, there is uncertainty over what qualifies as SAF. In particular over what feedstocks qualify as suitable for SAF production. It is clearly desirable to avoid double cost of certification, created by the distinction between CORSIA and EU ETS compliance. But these are not the only issues at stake. Aside from discussions about the possible application of CBAM to SAF, feedstock producers are also producers of food and agricultural commodities. In many cases for export to the EU. As exporters of food and other goods to the EU, they may be subject to reporting requirements created by CBAM (Carbon Border Adjustment Mechanism) and the GCD (Green Claims Directive). The corresponding importers into Europe, are subject to ESG reporting requirements



needed for their compliance with the CSRD (Corporate Sustainability Reporting Directive), and the CSDDD (Corporate Supply Chain Due Diligence Directive). Indeed any EU based entity doing business with India and using air transport, will also related sustainability reporting needs. All of this adds up to a burden of compliance that goes beyond feedstock sustainability and could add to the costs imposed on SAF feedstock producers. If the total burden of compliance becomes excessive for small producers, they may deny provision of feedstock to SAF refineries. In this way the total burden of certification creates a further layer of uncertainty as to the availability of SAF for offtake by airlines flying from India to the EU.

4. **Availability of ETS Compliant SAF at Indian Airports:** Flights destined for the EU must be EU ETS compliant. Flights destined for other countries must be CORSIA compliant. The mandates refer to SAF for international flights. They do not distinguish between CORSIA or EU ETS compliant SAF. There is room to doubt that the Indian mandates can be reached in compliance with EU ETS requirements, which differ in important ways from those of CORSIA. Compliance with two standards could mean a double cost of certification. Furthermore, if Indian producers are unable to meet EU ETS requirements, Indian SAF producers will simply sell their product to markets that require only CORSIA compliance. This could setback EU efforts to decarbonize aviation.
5. **Future Proofing Sustainability Reporting:** For now, the EU agrees to work with the CORSIA standard for flights out of the EU. This reflects a compromise with respect to its earlier position, for example on the application of the EUDR, which is opposed by many countries including India and Brazil, founding partners of the Global Biofuel Alliance. It is likely that issues related to impact on the environment will become more important in future, in particular impact on biodiversity and water. We should anticipate what comes after CORSIA. In particular what it will require in terms of an MRV infrastructure, and what measures need to be taken now in anticipation of the update. Without such future proofing, further delays are inevitable.
6. **Siloes Blocking Effective Dialogue:** One reason for the slow progress in SAF adoption is a consistent failure to recognise the need for a 'whole supply chain' approach the problem of scaling up SAF production. This was pointed out by Helene Burger of Airbus at Future Energy Asia, held in Bangkok in May of this year. Aviation in India is governed by the Ministry for Civil Aviation. Nevertheless, SAF production at bio-refineries is governed by the Ministry of Petroleum and Natural Gas. It is managed by state run oil companies, and private oil companies. Including those run by foreign and domestic investors. However, feedstock supply-chains are governed by the states. Not by a central government department. The activities and livelihoods of farmers are shaped by rural development banks under organisations such as NABARD, agricultural advisors and a wide range of other actors in local government. There are many technical issues concerning the development of feedstock supply chains, upstream of refineries. But these can only be solved with the full cooperation of appropriate ministries and agencies at state level.

All of these issues have been discussed with Pablo Mendoza-Villa Fuente of DG INTPA, manager of the EU-ICAO ACT-SAF contract, over a series of meetings described in the following section.



7. The Closed-Door and Other Meetings

Initially, a single closed-door meeting was planned to follow the IBET Expo 2024 organized by the IFGE, intended to include key stakeholders from India and the EU, such as Airbus, EASA, EC policy officers, and donors like the EIB. However, the scope was adjusted to focus on EC policy officers and EASA to address the EU-ICAO ACT-SAF project, funded by DG-INTPA and involving ICAO and EASA. Consequently, multiple meetings were conducted in India, Brussels, and online.

The meetings were as follows:

- **15:30 IST (09.09.2024):** In-person meeting at the EU delegation in New Delhi with Patrick Crehan and Poul Jensen of the EBTC, Smita Singh, Bartosz Przywara, Johanna Mansson-Delerce, and Pierrick Fillon-Ashida. To debrief on the IBETEX event and discuss the next steps.
- **18:30 IST (10.09.2024):** Webex on preliminary findings with EC officers from Delhi, Montreal, and Brussels, along with EASA and the EBTC. Present were Patrick Crehan and Poul Jensen of the EBTC, Pablo Mendoza-Villafuerte and Sarabjeet Hayer of INTPA, Delphine Micheaux-Naudet of the EC delegation in Montreal, Santiago Haya-Leiva of EASA, and Fillon-Ashida of the EC delegation in New Delhi.
- **14:00 IST (13.09.2024):** In-person meeting at the EU delegation in New Delhi. Present were Patrick Crehan and Poul V Jensen of the EBTC, Smita Singh, Bartosz Przywara, Johanna Mansson-Delerce, and Fillon-Ashida of the EC delegation in New Delhi, Santiago Haya-Leiva of EASA. The purpose was to share conclusions of the mission with Santiago and solicit his inputs on the next steps.
- **08:00 CEST (23.09.2024):** In-person meeting in Brussels. Present were Patrick Crehan with Pierrick Fillon-Ashida and Vivek Dham of the EU Delegation in New Delhi to review progress, follow-up on EU-India Roadmap and EU-ICAO ACT-SAF project.
- **09:00 CEST (27.09.2024):** In-person meeting at DG INTPA. Present were Patrick Crehan, Pierrick Fillon-Ashida of the EU Delegation in New Delhi, to meet Pablo Mendoza-Villafuerte and Sarabjeet Hayer of DG INTPA.
- **15:00 CEST (10.10.2024):** Zoom meeting to consider expert inputs to the project steering committee meeting of the EU-ICAO ACT-SAF project steering committee meeting to take place on October 17. Present were Patrick Crehan, Pierrick Fillon-Ashida of the EU delegation in New Delhi, Pablo Mendoza-Villafuerte and Sarabjeet Hayer of INTPA in Brussels, Delphine Micheaux-Naudet of the EC delegation in Montreal, and Santiago Haya-Leiva of EASA.

The six considerations outlined in the ‘conclusions’ above, have all been taken on board and will be addressed in the course of the EU-ICAO ACT-SAF contract.

Following the IBET Expo meeting in New Delhi, Mr. Patrick Crehan, an expert deeply invested in advancing the biofuel agenda, engaged in a series of strategic one-on-one meetings with key stakeholders at two significant events. From September 11 to 13, he participated in the International Conference on Green Hydrogen in New Delhi. Subsequently, he attended the RE Invest Summit in Gandhinagar from September 16 to 18.

At the RE Invest Summit, Mr. Crehan delivered a presentation on the critical topics of Sustainable Aviation Fuel (SAF) availability and sustainability reporting. Additionally, he contributed to a panel discussion on the third day, participating in the parallel session G2 titled "Strategic Investment in Bioenergy – A Way for Sustainability." During his intervention, Mr. Crehan shared insights from the EU-India Roadmap and provided updates on SAF availability, drawing from his recent engagements at the IBET Expo.

About EU-India CECP

The EU-India CECP aims to reinforce cooperation between the EU and India on climate change and energy with a view to ensure a secure, clean, affordable and reliable energy supply for all and to progress in the implementation of the Paris Agreement.

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