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India-EU Clean Energy and Climate Partnership (CECP)

India-EU Expert Seminar on the evolving role of gas for global low carbon energy security

15 March 2019, New Delhi

On 15 March 2019 an India-EU Expert Seminar took place under the India-EU Clean Energy and Climate Partnership, focusing on the possible role of gas in the energy transition towards a low carbon energy security in the EU and India and on possible areas for further cooperation. The seminar was organized in close cooperation with the Independent Energy Policy Institute and was supported by PwC India as contractor under the India-EU Clean Energy and Climate Partnership.

Natural gas plays an important role in the energy basket of the European Union, and has the potential to do the same in India. Some facts:

- India is moving towards a gas-based economy and it is working to increase the share of gas from 6% to 15 % in its energy basket.
- In India, 80 million households are provided LPG connection under the Ujjwala scheme (<http://www.pmujjwalayojana.com/about.html>), which is expected to substantially reduce the pollution from households.
- India caters to its gas demand partly from imports (~50%) and partly from domestic production (~50%).
- The EU remains the largest importer of gas, the Asia Pacific region accounts for some 85% of the growth in net imports, underpinning a shift in trade flows from the Atlantic basin to Asia.
- As part of an EU long-term strategy, it intends to reduce its energy import dependence that is currently at 3% of its GDP to 1% by 2050.
- India was the fourth-largest Liquefied Natural Gas (LNG) importer in 2017 after Japan, South Korea and China. LNG imports increased to 26.11 bcm in 2017-18 from 24.48 bcm in 2016-17.
- The gas pipeline infrastructure in India stood at 16,771 km at the beginning of September 2018.
- The fertilizer and power sectors still are the most important consumers with a combined share of about 57%.

The seminar focused on:

- The international energy architecture: the Indian and EU perspective on the evolving landscape;
- The EU regulatory framework and how it helped in developing transparent and fair gas markets;
- The potential role of gas in India's energy transition;
- EU gas interconnections and regional approaches to gas the role of the Agency for cooperation of Energy regulators (ACER) in market integration and gas trading hubs;
- Gas / LNG developments and initiatives in the Bay of Bengal - energy connectivity and energy security is a new paradigm of regional cooperation;
- India and EU in global LNG market - lessons from EU-Japan workshops on the global LNG market and the growing LNG market in India.

Short summary of the different sessions:

Session I

- The session was introduced by H.E. Mr Thomas Kozlowski, Ambassador of the European Union to India, welcoming the speakers and audience and stressing the importance of close cooperation between the EU and India in the area of clean energy and climate action. He referred to the Clean Energy and Climate Partnership that was agreed at the India-EU summit in 2016 and reemphasized at the EU-India summit in 2017. The objectives of the EU and India in the area of climate action and energy strongly converge, both



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aiming at becoming less dependent on energy import and ensuring clean, reliable and affordable energy and both committed to the implementation of the Paris Agreement. He welcomed the many energy and climate related activities and meetings in the week of 11-15 March, demonstrating the importance of the cooperation, and warmly thanked the Ministry of External Affairs and the Ministry of Petroleum and Natural Gas for joining him in opening the seminar.

- In her introductory statement **Ms Megan Richards, Director Energy Policy, Directorate-General for Energy, European Commission**, addressed the partnership between India and the EU in more detail, referring to the importance of the different Joint Working Groups and the Energy Panel under the India-EU Clean Energy and Climate Partnership. India and the EU are both important energy importers which makes us natural partners to exchange on energy security challenges. The scenario's underpinning the EU long term strategy demonstrate that natural gas consumption will remain very important and remain more or less constant at least until +-2030-35, while gradually decreasing afterwards. On the one hand gas will be replaced by renewables (for both power production and for heating), but, on the other hand, it could itself replace 'dirtier' fossil fuels, and serve as back-up for the variability of renewable energy production.
- **Mr B. Balasubramanian, Joint Secretary Europe West, Ministry of External Affairs, Government of India**, in his introductory statement, stressed the importance of the strategic partnership between India and the EU, both committed to a rule based international order. As the EU, India is strongly depending on energy import and its energy demand is growing. It takes the Paris Agreement very seriously and has taken several steps and initiatives to broaden its energy basket with alternative fuels such as renewables. It promotes the use of domestic gas and a huge network of gas pipelines is being laid. Cooperation in the field of clean energy is pertinent for both India and the EU.
- In his introductory statement **Mr Amar Nath, Joint Secretary, Exploration, Ministry of Petroleum and Natural Gas, Government of India**, suggested that investments in clean energy could become viable if impact on health of human beings is considered. In order to meet the growing demand for energy, the Government of India has initiated many policies and initiatives, including in the area of gas. The use of LPG in rural areas and LNG in commercial areas can significantly contribute to the climate change objectives. For instance, the use of LPG under the Ujjwala scheme will reduce the indoor household pollution as well as the outdoor pollution. In order to boost domestic gas production, additional policies are formulated such as "no revenue sharing with the government" and favorable terms for exploration in areas with less prospects of discovery. There is a need for a gas trading hub that will support the fertilizer sector, agriculture sector etc. India can learn from the more mature European market of EU and can profit from further cooperating in further developing the gas market.
- In his keynote speech, **Mr D.K. Sarraf, Chairperson of Petroleum & Natural Gas Regulatory Board, Government of India**, stressed the importance of reducing carbon emissions and air pollution and referred to a study, according to which, out of 15 global most polluted cities, 14 are in India. He expressed the need to learn from EU gas markets in areas of gas trading reforms, regulations and trading exchange for natural gas. Such regulations could help in increasing the share of gas in India's energy mix.
- **Mr Deepak Mahurkar, Partner and Leader of Oil & Gas Industry Practice at PwC India**, set the background, providing inter alia the relevant statistics. He argued that government policies play an important role in the transition to a low carbon economy. The global outlook on energy shows that the energy demand will increase. The question is how to ensure that CO₂ emissions will reduce, without slowing down economic development. Renewables will play an important role, but also gas. There are however important challenges as regards the gas supply, trade transportation, infrastructure and regulatory framework.

Session II – International energy architecture for low-carbon energy security

- This session was moderated by **Mr Andris Piebalgs, European University Institute Florence, former European Commissioner for Energy and former European Commissioner for Development**. He welcomed the positive changes in the gas markets. New developments gave more liquidity to gas markets. Liquid markets and good price conversions have been game changers even in the politically complex environment in the EU. The changing energy landscape is both challenging and exciting. As the world population



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increases, the energy demand increases, while at the same time we have the challenge to implement the Paris Agreement. An energy revolution is taking place with new low prices for wind and solar energy. There are international institutions and initiatives to deal with the quickly changing landscape, but it proves difficult to reach consensus. He emphasised the need to get a better understanding of the challenges and opportunities and to engage the private sector.

- The moderator first gave the floor to **Mr Narendra Taneja, Chairman, Independent Energy Policy Institute**, who gave an overview of the current global energy architecture, which does not reflect the current world order and the current needs. He stressed the need for a new international energy architecture and questioned the fact that with the UNFCCC and the Paris Agreement there is an international governance structure for climate change, while for energy there is not such a structure. There are several regulatory bodies / institutions/ independent agencies that address different energy related issues, but they often operate in isolation. He explained that climate change policy is energy policy and the other way around. Narendra Taneja underlined the fact that democracies such as the EU and India should go for more comprehensive and deeper cooperation in the area of natural gas since their challenges in terms of the energy transition, security and consumer economics are quite similar. Mr Taneja explained that authoritarian countries may probably be handling the energy transition, security and consumer economics more swiftly than democracies due to the very nature of their political system - unlike democracies which must follow a democratic process of decision-making and carry various key stakeholders along in a transparent manner.
- **Mr Luca Franza, Clingendael International Energy Programme**, elaborated on the evolving energy architecture landscape, stressing that the current international energy governance regime is fragmented and multi-layered. While some global dossiers should be dealt with in inclusive settings, it is better to pragmatically promote cooperation on other dossiers among like-minded countries. He argued that it is in the interest of the EU and India to cooperate, as there are many important similarities: both are democracies, sizeable markets, major energy importers, and passive spectators of a rise in neo-mercantilism. He explained why being a democracy affects a country's posture in international energy issues. Market size matters for a number of reasons (leverage, ability to kickstart domestic value chains, attractiveness for investors, etc.). Both the EU and India are located at the border of an 'arc of instability' that holds 75% of global gas and 50% of oil reserves. Finally, they are both 'united in diversity'. He introduced the concept of 'Energy Import Dependent Democracy' (EIDD). Four major EIDDs (EU, India, Japan and South Korea) account for 84% of the world's net gas imports, 54% of net oil imports, and 24% of renewable energy investment. He concluded that the IEA and G20 are particularly suitable settings in which EU-India energy cooperation should take shape.
- The discussant **Ms Megan Richards** stressed that the renewable energy revolution is very important. Access to energy for all and the resulting transformation of the living conditions is most important. The impacts on health and life transformations, though quantifiable, are not always taken into consideration during investments decisions.
- The discussant **Mr Pradeep Parera, Energy Head, South Asian Development, ADB**, shared his perspective from a commercial point of view. He suggested that reducing energy CO₂ emissions by 35% in 2030, will require increased energy efficiency and structural changes in the economy. Natural gas can facilitate renewable electricity, as coal based electricity is not climate friendly. He argued for low carbon electricity with a high degree of renewables and to use gas for counterbalancing fluctuations.

Session III – Developments in India and the EU's domestic gas systems to ensure secure and affordable gas supplies to consumers

- This session was moderated by **Mr. Deepak Mahurkar**. The moderator first gave the floor to **Ms Ilse Guedens, Fluxys, Belgian gas transmission system operator**, who presented the evolution of the EU regulations integrating the European markets and promoting competition, lower prices and better access to affordable gas and energy security. The directives resulted in a progressive opening of the market, separate accounting for the production / supply and infrastructure activities, and later on the legal unbundling of



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production/supply and infrastructure, the right to choose the supplier, increased inter-TSO cooperation, the creation of ENTSO (European Network of Transmission System Operators for Gas) and ACER (Agency for the Cooperation of Energy Regulators).

- **Mr Sunjoy Joshi, Chairman, Observer Research Foundation (ORF)**, talked about the role of natural gas as a clean fuel that will help in the required transition. There are however many challenges such as the availability of gas in difficult accessible areas, the high costs of production and other severe pricing issues. These have hampered domestic gas production. Gas prices are regulated to support end-users, the demand in India is inelastic because of the distorted market. There is a lack of infrastructure. Currently India has 17000KM of gas pipelines, 13000KM additional pipelines are envisaged. Infrastructure investments, BASEL norms affect sector lendings, LNG importers also want assurances in terms of long-term contracts and these don't exist now.
- The discussant **Dr. A K Balyan, Former MD & CEO, Petronet LNG Limited** informed that Indian gas players have signed long term contracts with suppliers to ensure gas security. There are challenges in terms of infrastructure, transportation, pricing. To bring gas to end users is another challenge. Many regions in the country are not connected via pipelines. Market distortions exist with respect to demand. There is a sincere need for discussing pricing, unbundling and the different infrastructure issues.
- The discussant **Mr NK Bansal, Director, Federation of Indian Petroleum Industry (FIPI)**, reinstated the growth of Gas in the Indian energy mix. There are indeed concerns related to incentives, prices, and infrastructure. The Indian energy sector will be in a transition phase for another 10 years. He suggested that policy makers and the industry both should work together for the gas market to blossom.
- The discussant **Mr Amit Wankhede, General Manager, India Gas Solutions Limited (IGS)** acknowledged the progressive government policies that facilitated gas explorations. He highlighted challenges such as taxation, cost of production, market distortions, and infrastructure. He referred to China with 500,000 heavy-duty LNG trucks and 5000 standalone LNG stations. We can learn from these developments to upgrade the entire gas ecosystem.
- The session concluded with final remarks by **Mr Dennis Hesseling, Head of the Gas Department, EU Agency for the Cooperation of Energy Regulators (ACER)**, stressing the need for liberalization of the supply activities and regulation of the network activities. The wish of some governments to ensure prices below the actual costs is not a sustainable strategy. In the end it kills the market. It is advisable to instead formulate special measures for consumer groups that cannot afford market prices. The EU gas target model has shown that it is possible to transfer from a classical pipe-to-pipe system to a hub-based system with gas-on-gas price formation.

Session IV – Gas interconnections and regional approaches to gas connectivity

- This session was moderated by **Mr Narendra Taneja, Chairman**, Independent Energy Policy Institute.
- The moderator first gave the floor to **Mr Dennis Hesseling, Head of the Gas Department, EU Agency for the Cooperation of Energy Regulators (ACER)**, who shared the experience and working of EU regulations in developing the integrated gas markets and hub developments. The prerequisite is infrastructure, market opening and unbundling. ACER has developed EU access rules, in order to encourage competition and market entry. These rules concern capacity allocation management, congestion management, gas transportation tariffs, gas network balancing, and interoperability and data exchange. Hub development is progressive and heterogeneous & varies with different markets. Market transparency is required. The same set of rules may not always give the same results. The rules need to be market and region specific.
- **Mr Aniket Dasgupta, Principal Consultant, PwC** talked about regional energy connectivity and energy security in the Bay of Bengal, focusing on Myanmar and Bangladesh. Both Bangladesh and Myanmar have been gas-based economies with high availability of gas. Recent trends show decline in the domestic gas production in Bangladesh. The Government formulated the Power Sector Master Plan for 2040, wherein the contribution of gas to power generation is expected to be 35% in 2040. There are new policies for private players to import and market LNG. It is on the path of gas pricing reforms, gradually moving towards market based pricing. Myanmar is expected to become a net gas importer by 2022. It has exported 80% of



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produced gas under long term contracts to secure foreign exchange. The domestic gas demand is expected to double in the next 20 years, driven by demand from the power sector, industries and city gas distribution (CGDs). The government's energy strategy is to prioritize large-scale LNG based power over large-scale hydropower projects.

- The discussant **Mr Anindya Chowdhury, Country Manager Energy Transition, Shell India**, explained the reasons for non-materialisation of cross border pipelines. India trade borders are hard which make these projects geopolitical. There can be cooperation among South Asian countries on common interest in terms of having cleaner air.
- The discussant **Mr Sidarth Bali, Energy Business Group, Mitsubishi Corporation** explained that the gas market is a complicated market with huge entry barriers for private companies. He suggested that virtual pipelines could be a solution, and the creation of a hub. The pipeline infrastructure can be developed based on demand.
- The discussant **Mr Andris Piebalgs** concluded the session by citing EU examples of managing interconnections and referring to the regional cooperation between the Baltic countries. He explained that regional politics play a role to drive markets. Integration of EU energy market is the result of a series of concrete and ambitious decisions by policy makers.

Session V – India and the EU in the global market for LNG

- This session was moderated by **Mr Matthieu Craye, International Relations Officer, European Commission, Directorate-General for Energy**. He explained that the global LNG market is changing through the emergence of new suppliers and consuming countries with the market showing a tendency towards supply overhang. LNG supply and purchase practices are also undergoing change from long-term rigid contracts towards shorter term and spot trade contracts, contracts with more destination flexibility and pricing formulae linked to gas price indexes rather than oil prices index. Both India and the EU are major importers of LNG and have an interest to support these changes.
- The moderator then gave the floor to **Mr Gunnar Steck, Founder, Enquidity**, who shared the learnings of a recent EU-Japan workshop series on the functioning of LNG markets. Involving a broad range of stakeholders, the workshops facilitated the exchange of experiences and spread of best practices to improve the functioning of the Global LNG market and its capacity to respond to demand signals. The four workshops dealt with flexibility in contracts for LNG sale and purchase, the organization of gas hubs in consumer markets, price transparency and reporting and how to sustain a robust investment climate. The workshops concluded that the key drivers for a well-functioning gas market are liquidity, transparency and flexibility. For instance, the trading hubs of the EU use prices based on multiple transactions between multiple counterparties in multiple products which enables market participants to discover fair, transparent and robust prices. The workshops also resulted in a standard clause on destination restriction in LNG sale and purchase agreements aiming at compliance with anti-trust laws in different jurisdictions.
- **Mr S K Sharma, Executive Director-Gas, Indian Oil Corporation Limited (IOCL)**, provided a perspective on the LNG market in India from a consumer point of view. The IOCL has recently commissioned its own LNG terminal. He reinstated the need for sufficient infrastructure to meet the Indian gas target of 15%. India currently caters to its demand by importing 50% LNG and producing the remaining 50% domestically. Fertilizers and refineries are two sectors that hugely depend on Gas.
- The discussant **Mr R S Sharma, Former Chairman of the Oil and Natural Gas Corporation (ONGC)**, talked about the latent demand of gas from petrochemical plants and refineries. He sees a challenge in moving CGD prices to LNG prices. He suggested creating awareness among consumers for gas usage and viability funding by the government for the development of the required infrastructure.
- The discussant **Mr PPG Sarma, CEO, AG&P Gas**, talked about challenges such as the pipeline connectivity, the unavailability of "right of ways". He suggested virtual pipelines for LNG transport. India and EU can learn from each other in the areas of transport and network development.



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- The discussant **Mr Sidharth Jain, MD, MEC** talked about the disparity in the shipping transformation in Europe. He also stated that there are many government policies for the gas sector; but that they should better take into account the whole Gas ecosystem.
- The discussant **Mr L Franza** highlighted challenges to the full commoditization of LNG within the current investment cycle and the emergence of a truly global LNG market. He also emphasized that project developers and buyers have somewhat incompatible interests at the moment. Portfolio players play an increasingly crucial role for security of supply by bridging the project developers' need for long-term guarantees and the buyers' need for flexibility. They should therefore be involved in discussions.

Closing remarks

- **Mr Matthieu Craye** considered this seminar to be very topical and concluded that there is a need for more detailed workshops on issues such as unbundling, demand fluctuations, trading and financing of the required infrastructure.
- **Ms Megan Richards** welcomed the very rich and successful discussions and is looking forward to further EU-India cooperation on energy security, including in the context of the Joint Working Group on Energy Security, the Energy Panel and the EU-India Summit.
- **Mr Narendra Taneja** closed the event by thanking all the participants and reiterating the need to have follow-up workshops.

Conclusions and recommendations

The seminar addressed the role of natural gas in the current and future Indian and EU energy landscape, the current gas systems, the existing infrastructure, the regulatory environment in India and Europe, the way states and Member States are interconnected and possible areas of further collaboration between India and the EU.

Some of the concrete recommendations and conclusions are listed below:

Gas security: India plans to increase its share of gas from 6% to 15% in the energy mix by 2030. It was stressed several times that this would require major initiatives in terms of policy and programs to increase the security, reliability and affordability of natural gas. It requires investments in boosting the production and development of the infrastructure. To ensure that gas is considered a greener fossil fuel, it is important to ensure that the production and infrastructure is developed in an environment friendly way.

In India, the share of gas in energy market has reduced in contrast to other countries. It is important for consumers to be assured of gas availability and to experience the benefits of a cleaner fuel.

Climate change and air pollution: it was argued several times that gas has a role to play in the required energy transition towards renewable energy, resulting in a less carbon intensive economy and in less air pollution. In addition gas can be used as back-up for the variability of renewable energy production. As India is a growing market and EU is a mature market, there can be a dialogue on how to scale and decarbonize the energy systems.

Energy access and affordability: access to reliable and affordable energy is crucial in the EU and even more so in India. There is a need to create an energy architecture that is fair and just. Both the EU and India are large democracies, which entails specific challenges for ensuring such an energy architecture.

Gas trading hub: In order to have a proper market for gas, several speakers considered that there is a need for a gas trading hub in India. India and the EU can exchange experiences to further develop the gas ecosystem and can cooperate on designing an access model, keeping in mind the existing infrastructure limitations. The regulatory framework of the EU demonstrated the need for a transparent integrated market model. The following possible actions were identified for the development of a gas trading hub:



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- Avoid gas allocation regimes;
- Establish a GST regime for gas;
- Ensure unbundling;
- Allow for third party access;
- Avoid monopolistic infrastructure;
- Facilitate gas swapping;
- Develop the framework / methodology on how to set gas prices;
- Ensure transparency;
- Ensure a mechanism that can address supply and demand fluctuations.

Biofuel manufacturing: more cooperation could take place between EU and Indian technology developers in the area of bio fuel manufacturing.

Govt. Policies and Programs: for a more mature gas market in the coming decades, a continuous policy making process would be required. The supply chain and operational excellence should be developed as per international level. The production and logistics would need to become more efficient. The EU and India could exchange experiences on how to make the market more efficient.

Regional cooperation and LNG initiatives: India needs to take initiatives in regional cooperation among the neighbouring gas producing countries with focus on availability and accessibility of clean, affordable energy in the region. Identify the important interconnections and government shall intervene to support the stalled projects. It is important to utilize the existing LNG terminals to full capacity before investing in additional infrastructure. LNG demand and supply needs to be assessed to avoid market distortions. Micro LNG capsule is another alternative for transportation.

Common areas of Interest: the participants identified the following areas for further cooperation:

- technology and innovation;
- regulatory and governance framework;
- interconnections;
- regional cooperation;
- coordination / cooperation in multilateral organizations, as gas importers and as leading parties under the Paris Agreement

A possible concrete way ahead for the India-EU exchanges and cooperation on gas could include:

1. An India-EU workshop that looks at gas infrastructure (policy) starting from the two themes of ‘unbundling’ and ‘financing’. This should start from an analysis (short paper) of the state-of-play in India and the EU and the current challenges to extend the gas infrastructure network to bring gas to demand centres (India) or to ensure proper market functioning (in the EU). On the basis of this short analysis a workshop programme can be tuned focused on knowledge sharing and learning regarding the identified challenges. The workshop discussions could benefit from a focus on a number of concrete projects.
2. An India-EU workshop that looks at gas market regulatory reform from the two themes of ‘establishing and developing a gas trading hub in India’ and ‘gas pricing’. This should start from an analysis (short paper) of state-of-play of current discussions in India on the development of a hub and on the issue of pricing. From the EU side, a short analysis should be brought in regarding which practices of hub development have proven to work and which others were problematic or failed (or led to hubs with insufficient liquidity). On the basis of this short analysis a workshop programme can be tuned focused on knowledge sharing and learning regarding the identified challenges.



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3. An India –EU/ Bay of Bengal workshop looking at inter-connections and regional market integration, taking as starting point some concrete projects (from the EU side, the experience that could for instance be brought in can be ‘the integration of the gas markets in the Baltic region’). Such workshop could dive deeper into regulatory and market issues of relevance to such regional integration projects (underpinning cost benefit analyses, distribution of costs and benefits, how to recover cost of infrastructure, how to organize the use of the inter-connecting capacity and eventually couple the markets, etc.)
4. With respect to LNG, and specifically the issue of destination flexibility, Indian legal experts specialized in antitrust law and energy trade, could be brought in touch with a group of EU and Japanese legal experts that developed a model contract clause on ‘cargo diversion’ which they believe is compliant with EU and Japanese anti-trust law. If this model clause can be made compatible with anti-trust law in other jurisdictions this could facilitate its uptake in global LNG trade.
5. Close involvement of India in the next series of workshops on the global LNG market that the EU co-organises with Japan. A workshop dedicated to Asian LNG price benchmark(s) can be organized which will explore the possibilities for co-existence (and/or inter-dependence) of different regional LNG price benchmarks in Asia (Japan – Korea Marker JKM; China; Singapore LNG; Bay of Bengal/SAARC). The role of LNG in maritime transport (bunkering) can also be looked at from this perspective.