

## The Future of Petrochemicals

The session was chaired by Mr. Ajay Shankar, Distinguished Fellow, TERI and former Secretary, DIPP, GOI. Dr. Ajay Mathur set the tone of the session by stating that there is a huge demand of Petrochemical sector in the country and he demand is growing. Petrochemicals are also source of GHG emission and local air pollution. The challenge it to meet this growing demand with concerns of emission. “The petrochemical industry plays a vital role in economic growth, and offers one of the highest value additions in the manufacturing sector”, he said.

This was followed by the address of Mr. P. Raghavendra Rao, Secretary (Chemicals & Petrochemicals), MoCF, Government of India. He mentioned that in order to meet the growing demand of Chemical and Petrochemicals, the country needs five (5) world scale cracker units by 2025 and fourteen (14) units by 2040. The growth of the petrochemical sector is always more than the GDP growth of country. The average estimated growth for the next 5 to 7 years is about 9.3% against the world average of 5.2%. The main reasons for the high growth rate are:

- Second largest populous country with about 1/3<sup>rd</sup> population residing in urban areas, which is expected to increase to 50% by 2030.
- Increase in per-capita income and reduction in poverty levels

In order to boost domestic production capacities as a part of PCPIRs (Petroleum, Chemical and Petrochemical Investment Region) policy, a perspective planning for the petrochemical industry has been initiated to study demand supply scenario keeping in view the existing and under execution capacities. “The petrochemical industry should follow a sustainable growth path. The government of India is taking a coherent and effective approach to meet the country’s growing petrochemical demand in a sustainable manner.

To meet the growing demand of Petrochemicals, the country needs 5 cracker units by 2025 and 14 units by 2040.

Next up was Mr. Peter Levi, Energy Analyst, with the International Energy Agency (IEA).

He mentioned that our everyday lives depend on products made from petrochemicals. Many products needed for the clean energy transition also rely on petrochemicals. Demand for plastic has grown faster than for any other bulk material, nearly doubling since the millennium. Today, petrochemicals account for 14% of oil demand and 8% of natural gas demand. The feedstock accounts for half of the chemical sector’s energy inputs, of which oil and gas account for more than 90%. Petrochemicals are the fastest growing sector of oil demand, accounting over a third of growth to 2030, and nearly half to 2050. Policy recommendations were also highlighted for sustainable production, use and disposal of chemicals. “Petrochemicals are the fastest growing sector of oil demand, accounting for over a third of growth to 2030, and nearly half to 2050. Petrochemicals are all around us”

The next speaker, Lord Adair Turner, Chair, Energy Transition Commission (ETC), London, UK, expressed the possibility to achieve net-zero CO<sub>2</sub> emissions from harder-to-abate sectors by mid-century (Cement, Steel, Plastics, Heavy road transport, Aviation and Shipping). “It is absolutely possible to achieve zero-carbon pathways in energy intensive industry sector”, he said. He mentioned that Biomass could play a key role in decarbonizing these sectors. The future of Petrochemical sector depends upon the Oil and Gas industry. At present, 60% of the oil is used in the transport sector and 40% of the gas is used for

production of power. Improved material circularity can occur with increased coordination among various stakeholders, Petrochemical industry and its value chain. New approaches to product design along with end-of-life dismantling and material separation are required for high quality re-cycling.

Mr. Nikhil Deshpande, Senior Vice President, RIL, said, "Practicing circular economy in Petrochemical sector should be way of life."

He mentioned that the Indian economy is growing and the use of materials including plastics will grow exponentially. Use of circular economy in Petrochemical sector focus toward less consumption and more reuse – produce, use, recover, recycle and reuse. Circular economy needs champions- Leadership from all stakeholder groups at different levels is necessary. Policy makers, visionaries, industry and end-users needs to work together to make a perfect eco-system towards sustainable use and re-use. It is important to improve the recycling economics, which again will be a critical element of the petrochemicals value chain.

Mr. Milind Deore, Director, Bureau of Energy Efficiency, Government of India, said, "Eight cracker units have been covered under the Perform, Achieve and Trade (PAT) scheme." He highlighted the Perform Achieve and Trade (PAT) scheme, which is a flagship programme of Bureau of Energy Efficiency under the National Mission for Enhanced Energy Efficiency (NMEEE). It is a regulatory instrument to reduce specific energy consumption in energy intensive industries, with an associated market-based mechanism to enhance the cost effectiveness through certification of excess energy saving which can be traded. So far the PAT scheme has covered more than 11 sectors and PAT-IV cycle notified in March 2018 has included Petrochemicals sector. Eight cracker units have been covered and target of 6% reduction in energy consumption has been given to these units. In the coming PAT cycles, downstream Petrochemical units will also be included.

The concluding speaker for the session was Mr. Ravi Kumar Aggarwal, Patron, All India Plastic Industries Association. He said, "Plastic waste handling, recovery, recycle and re-use is responsibility of each stakeholder."

The plastic industry is facing challenge in collection and segregation of waste for recycling. At present Municipal Solid Waste (MSW) contains about 10% plastic and 5% of this plastic find its way to landfill site. It is required to explore use of the pyrolysis process for extraction of oil from the used plastic. It is equally important to enhance the quality of recycling by improving end use collection practices. The All India Plastic Industry Association (AIPIA) is assisting urban local bodies in segregation of the plastic from MSW to avoid its dumping in landfills. It was also suggested to work on methane from MSW to plastic manufacturing route.