ExxonMobil commits US$10m as founding partner of SgEC

Singapore Energy Centre to co-develop early stage and near-term energy solutions for the manufacturing sector

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ExxonMobil has committed US$10 million in funding over five years as founding partner of the new Singapore Energy Centre (SgEC) led by Nanyang Technology University and National University of Singapore.

This is the first research centre partnership for the supermajor outside the US, and will focus on scaling up new energy solutions. It aims to overcome the dilemma of fuelling economic expansion and mitigating risks of climate change especially in fast-growing Asia.

The SgEC is a consortium funded by industry members which leverages the combined expertise and capabilities of the two universities to co-develop early stage and near-term energy solutions for the manufacturing sector.

ExxonMobil first signed up as a founding industry member of this initiative last November. Vice-president for research and development (R&D) Vijay Swarup told The Business Times that the partnership with the two leading universities brings together “academics who can provide the light of sight to prove concepts” with an industrial player that can take the solutions “to scale”.

He further explained that scalability is one hurdle to commercialising new energy solutions because the issue at hand is how to quench the hunger for energy of a population still growing by the billions as the world makes the lower carbon transition.

This is especially pertinent in Asia, the fastest-growing region in population and economy. Dr Swarup pointed out that Singapore as a gateway to Asia, can serve as a platform for ExxonMobil to bring new solutions to the region.

Broadly, the collaboration between ExxonMobil and the two universities is expected cover R&D in three areas:

■ Leverage on biodiversity, particularly in Asia, to discover novel materials and process designs resulting in lowering the carbon footprint of producing fuels and chemicals;

■ Explore technologies to either capture carbon emissions from industrial processes and applications for sequestration or conversion into useful products;

■ Explore technologies that reduce plastic waste, water and energy consumption during manufacturing.

Dr Swarup said that one key objective is to improve energy efficiency of the manufacturing value chain. The refining processes in the petrochemical industry traditionally take place in energy-intensive high-temperature and high-pressure environments. While the research pathways still need to be defined by the partners, one possible avenue to improve the carbon footprint of the refining sector is by drawing lessons from the adjacent water desalination industry. The membrane-focus reverse osmosis process can be far less energy-intensive, noted Dr Swarup.

To be clear, however, this energy efficiency drive is not new for ExxonMobil’s refining business here. It has already implemented a series of initiatives from 2002 till 2016 that led to a 25 per cent energy efficiency gain. It added that all in, its efforts towards this end have resulted in the avoidance of carbon dioxide emissions equivalent to taking more than 479,000 cars off Singapore’s roads over the last 15 years.

Some research bodies have touted energy efficiency as an important source of energy in the lower carbon future. Improving energy efficiency is even more important for the petrochemical industry, which the International Energy Agency said, is set to overtake power generation and transport to be the biggest driver for oil demand.

Dr Swarup said that insofar as a hydrocarbon source is still required to produce petrochemicals and plastics, the one renewable alternative that can replace oil as the feedstock in refining is biofuel.

ExxonMobil has made significant research breakthroughs in developing algae-based biofuel. But Dr Swarup suggested that it is likely that this “greener hydrocarbon” will first be used to fuel vehicles.

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