BusinessLine

Companies

Dastur completes feasibility study of carbon capture and utilization project at IOC Koyali refinery

Shobha Roy
605 words
20 March 2022
BusinessLine Online
BSNLNO
English

Dastur International, Inc. (Dastur) and Dastur Energy have completed the techno-economic feasibility of the Indian Oil Corporation Ltd's (IOC) Carbon Capture and Utilization Project at the 13.7 mtpa Koyali refinery in Gujarat. The project was funded by a grant from the United States Trade and Development Agency (USTDA).

According to Atanu Mukherjee, President and Chief Executive Officer of Dastur, the project would provide IOC with a technically and economically viable solution for capturing up to almost 0.7 mtpa (million tonnes per annum) of carbon dioxide from its Steam Methane Reforming (SMR) based Hydrogen Generation Units (HGU) at a very competitive cost structure.

The captured CO2 will be primarily used at ONGC's Gandhar oilfields for enhanced oil recovery from its maturing oil wells. A part of the captured CO2 is also expected to be liquified and purified to 99.9 per cent for supply to food and beverage sectors. These applications would allow IOC to identify various uses for the captured CO_2 and offset the costs associated with carbon capture technologies at its refinery.

"The carbon capture solution designed by Dastur would allow IOC to substantially decarbonize its HGU operations and supports IOC's strategy of producing clean hydrogen. The project also supports the government's mandate of decarbonizing the oil and gas sector. The use of captured carbon dioxide to increase oil production through EOR helps increase the nation's energy security in volatile and undertain energy markets," Mukherjee told BusinessLine.

Carbon capture, utilization and storage (CCUS) involves capturing CO_2 generated in flue gases from various refinery operations and diverting it to other applications or sequestration (long-term storage) to prevent release into the atmosphere. .

In 2019, IOC signed a Memorandum of Understanding (MoU) with the Oil and Natural Gas Corporation (ONGC) on a combined CCUS and Enhanced Oil Recovery (EOR) system. EOR refers to the process by which CO_2 is transported and injected into a depleting oilfield to increase oil production. As per the MoU, CO_2 that is captured at IOC's Koyali refinery would be transported by pipeline to the nearby ONGC Gandhar oilfield in Gujarat. Additionally, IOC has also signed a similar MoU with Oil India Ltd (OIL) Oil India Ltd (OIL) for IOC's Digboi refinery to provide CO_2 for EOR at OIL's Naharkatiya and Dikom oilfields in Assam, as per information available on the USTDA website.

Integrated solution

The carbon capture system designed by Dastur would provide IOC with an integrated solution across the carbon value chain, enabling industrial-scale carbon capture and disposition.

The project would bring together the collective expertise of Dastur (as the prime contractor) and its partners namely Austin, Texas based Dastur Energy's know how and capabilities in the areas of energy engineering, gas processing, carbon capture technologies, energy supply chains and economics; Houston, Texas based Air Liquide's carbon capture technology offerings; the University of Texas at Austin's **Bureau of Economic**

Geology's (BEG) experience in research and development in EOR; and India based M N Dastur & Co's engineering and capital project delivery capabilities, he said.

The project and Dastur's work would provide a blueprint for IOC and ONGC to pursue the goal of combining industrial-scale carbon capture with CO2 EOR in India. The novel use of advanced gas processing would provide an extremely competitive cost of carbon capture which would bode well for the future success of the project.

"Carbon capture and utilization are important components for enabling the future transition to net zero," he added.

Document BSNLNO0020220320ei3k0008g

