Dastur Selected to Design and Evaluate Techno-Economic Feasibility of India’s Largest Carbon Capture and Utilization Project at IOCL’s Flagship Koyali Refinery

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Ridgewood, NJ based Dastur International, Inc., along with its Austin, TX based affiliate Dastur Energy Inc. and M. N. Dastur & Co (P) Ltd. (Dastur); Houston, TX based Air Liquide Global E&C Solutions (Air Liquide); and the Austin, TX based Bureau of Economic Geology (BEG) at the University of Texas at Austin, have been selected to carry out the design and feasibility for India’s largest industrial carbon capture and utilization (CCUS) project at the 13.7 million tons per annum (mtpa) Koyali refinery of Indian Oil Corporation Ltd. (IOCL). Dastur is the prime contractor and will lead the project.

According to the International Energy Agency (IEA), industrial greenhouse gases (GHG) from steel, cement, fertilizer plants and refineries make up more than a quarter of all GHGs and are practical targets for implementing CCUS. Enhanced oil recovery (EOR) is a major use of CO₂ to increase an oil field’s recovery from about 40% to 70% of original oil in place, while also storing the CO₂ permanently.
underground.

IOCL is India’s leading refiner, operating 11 of the country’s 23 refineries. The refinery at Koyali, near Vadodara, is its flagship refinery, and has the potential to capture over 5000 tonnes per day (tpd) or more than 1.5 mtpa of CO$_2$ for large scale EOR operations. The CO$_2$ captured from its hydrogen generation units will be primarily used for EOR at the Oil and Natural Gas Commission’s (ONGC) oilfield at Gandhar, Gujarat, near Koyali. The project will examine the technical viability, economic cost and feasibility of capturing CO$_2$; develop technical specifications, designs and plans; review and identify necessary approvals and permits required; and analyze the environmental benefits of the CCUS project. In addition to EOR and food and beverage applications, it will consider various alternative applications for the captured CO$_2$ to make the project technically and economically feasible.

Shri S.S.V. Ramakumar, Director (R&D) and Board member of IOCL said, "This sustainability initiative from IOCL is probably the first of its kind industrial scale carbon capture project in a large refinery in India. IOCL hopes to capture over 250-500 thousand tons of CO$_2$ in a year initially and to use the CO$_2$ for cost-effectively enhancing oil production from ONGC’s oil fields. In this ambitious and path breaking project, we were pleased to receive global interest from many global firms. We are happy that Dastur Energy along with Air Liquide and the UT Austin, Bureau of Economic Geology will help us analyse and design not only a state-of-the-art commercial scale capture system, but also an economically viable model of carbon capture that can be a fore runner for CCUS in India."

The project is funded by the United States Trade and Development Agency (USTDA), as part of its mission to promote the development of sustainable infrastructure projects and fostering economic growth in partner countries like India. "This project is an ideal example of the groundbreaking work USTDA supports and makes possible," said Todd Abrajano, Chief Operating Officer and Head of the Agency. "This innovative solution – the first of its kind in India – is showing how American technology..."
can help reduce GHG emissions in refinery operations while enhancing the energy security of India through EOR.”

Atanu Mukherjee, President and Chief Executive Officer of Dastur, said, “Close on the heels of our recent US Department of Energy win to implement industrial carbon capture at Arcelor Mittal Burns Harbor USA and a landmark project at a Middle East national oil major to implement carbon capture for the lowest cost EOR, I am delighted that Dastur will be able to apply its expertise along with Air Liquide and UT-BEG, to chart the path for the first CCUS project in India of this magnitude. Industrial scale carbon capture and utilization through EOR can be an economically attractive model for India in reducing carbon emissions, enhancing energy security and contributing to the vision of an Atma Nirbhar Bharat.”

Dastur will draw upon its Austin, TX based affiliate Dastur Energy's intellectual property and capabilities in the areas of energy engineering, carbon capture, EOR, energy supply chains, energy economics, and low-carbon fuels for conceiving and designing this project.

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