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ADVANCES IN RENEWABLE ENERGY AT RELIANCE INDUSTRIES

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Innovations in life sciences, photosynthesis and engineering advances are creating opportunities to resolve the challenges human civilization is facing today. Human population is growing and climbing the prosperity ladder, resulting in a continued increase in demand for food, clean water, energy, and nutrition and health solutions. With urbanisation and industrialisation, there is a loss of forest cover in many countries and continued reliance on fossil fuels is increasing CO₂, resulting in climate change. Reliance on fossil energy will continue in the near term. Therefore, fulfilling future energy demand with renewable energy will be one of the biggest challenges to combat climate change. Reliance Industries has committed a significant R&D effort on renewable bio-energy. The current focus at RIL is in three separate areas of bio-energy: 1) Algae to bio-crude and other high value products 2) Jatropa to bio-diesel and 3) Agri-residue and other organic waste to liquid hydrocarbons. This presentation will cover learnings from our research to develop competitive technology. Amalgamation of advances in engineering and synthetic biology are making a significant contribution to the renewable bio-energy. Our algae cultivation and conversion program is one of the largest R&D programs. We have been operating on a 60 acre facility for more than 4 years. Our strains are very stable and we have operated outdoor facilities without crashes for more than two years. Furthermore, we have developed proprietary technology for all the downstream operations and de-risked the commercial design based on the operating pilot plant. We have developed a basic engineering design for a large scale facility which will be cost competitive with conventional crude at historic prices, without any subsidy or carbon tax. The hydrocarbons produced from algae will be converted mostly to jet fuel and diesel. As a by-product of the algae conversion project, we have developed a proprietary catalytic hydrothermal technology (RCAT-HTL) that can convert any organic material to hydrocarbons, a stored energy. This technology has highest energy conversion from feed to products compared to all other competing technologies such as making electricity, biogas, ethanol, or other thermal processes. We can process, agri residue, lignin, food, dairy and paper waste and organic material separated from MSW.



Biography

Ajit has more than 35 years of experience in the petroleum refining and petrochemicals business, technology development and management. He received his PhD from the University of Delaware and MBA from Cornell University. His experience includes technical and managerial assignments in research, engineering, licensing, business, manufacturing units and corporate planning. Ajit has strong management and technical background in refining, petrochemicals processes development, catalyst development, chemical reaction engineering, optimization technologies, computer integrated manufacturing and intellectual asset management. He has experience in upstream, downstream (refining, petrochemicals, polyester, lubes) and renewable energy sectors. He has published more than 100 technical papers, one book and has more than 45 U.S. patents to his credit.

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