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Use of Catalytic Technologies for Reaching Sustainable Development Goals

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Abstract

The catalyst industry is a US$ 31 billion industrial growth engine which enjoys above GDP growth, and facilitates modern societal innovations worth some US$ 15 trillion annually. It has over the last century facilitated every industrial revolution and has been instrumental in developing what are now very mature and profitable economies. It is estimated that catalysis is required for the production of >95% of all manufactured goods. Catalysis is an accepted enabler of profitable chemicals, materials and energy production processes, greener than if they were not used at all, but still form part of production schemes which increase the output of global warming gases including both carbon dioxide and methane. As a result of rising temperatures, humidity and climate-related adverse weather, people are migrating out of the worst hit areas at an increasing rate and people who remain may find it harder to live and work productively. So, even though in the first instance, generation of equitable wealth through capacity building may help the otherwise deprived populations of the world's poorest countries, installation of fossil-fuel based chemicals and energy facilities in these areas may well turn out to be a false economy. This presentation sets out what could be done so that meeting Sustainable Development Goals (SDG) could be achieved simultaneously with decarbonization. This presentation looks at the policies, technologies, investment tools and social change required for this to be possible. Case studies for catalysis in energy transition process schemes such as Power-To-X and E-fuels, as well as future carbon neutral/negative plant configurations will be set out. The role of Catalyst Centres of Excellence (CCOE), individual catalyst suppliers, process licensors and Engineering Procurement Construction (EPC) will be examined with some thoughts as to how they can collectively build towards accelerated, yet profitable deployment of decarbonized technologies in developing nations and on a global level.

Biography

Michelle Lynch is a PhD in Chemicals and Catalysis and Fellow of the Royal Society of Chemistry (FRSC). Her 23 years of post-doctoral experience span catalyst R&D, precious metals market research, patent analysis and consulting. She is currently the Managing Director of Enabled Future Limited (EFL) – a consultancy she set up to help chemical, catalyst and materials manufacturers to maintain profitable and sustainable optimised technology portfolios. Prior to setting up EFL, Michelle worked with IHS-Markit, Nexant and Johnson Matthey. She is passionate about sustainability, pollution abatement and helping to create high impact solutions to tackle climate change.

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