Refineries of the Future: Impact on Petrochemicals

Dates: March 3 & 4; Start time: 7:30 am CST; End time: 11:00 am CST

Workshop Overview:

The Energy Transition is reshaping refining. Refiners are reducing portfolios, repurposing sites and reinventing what it means to be a refiner in the mid-21st century.

- This is live 2 half-day training course will be designed to be instructive, but interactive in order to engage in a dialog and feedback from the audience
- It will be comprised of 12 live virtual instructor-led training (V-ILT) segments of refining and petrochemical learning culmination in aspirational Net Zero refinery/petrochemical designs
- Each section will be taught by an industry expert

Moderator: Dan Evans Vice President IHS Markit Oil Midstream Downstream and Chemicals (OMDC)

Workshop Content

Day 1 - March 3, 2021

1) **Fundamentals of Refining** (60 minutes)
   a) Session 1: Refinery technical configuration and operations – Debnil Chowdhury (Houston)
   b) Session 2: Refinery economics and margin optimization – Premasish Das (Singapore)

2) **Energy Transition** (60 minutes)
   a) Session 1: Fundamentals – Dan Evans (Paris)
      i) What is the definition and scope of Energy Transition?
      ii) What are the drivers (e.g. ESG)?
   b) Session 2: Commercial Outlook – Stephen Jew (Houston)
      i) What is the industry response (e.g. electric vehicles, hydrogen economy, crude-oil-to-chemicals, etc.)?
      ii) What is the outlook, short, medium, and long term?

3) **Refining petrochemical interface/integration** (60 minutes)
   a) Session 1: Refined products as petrochemical feedstocks – Pablo Giorgi (Houston)
      i) Olefins and Aromatics
      ii) Regional balances and outlooks
   b) Session 2: Process Technology as a function of the percent of chemical feedstocks a.k.a. Crude-Oil-to-Chemicals (COTC) – Richard (Charlie) Charlesworth (Dubai)

Day 2- March 4, 2021

4) Refinery Flexibility (60 minutes)

What can refiners do with the configuration that they have to optimize/shift yields without making a major capital investment?

a) Session 1: to increase the percent of the barrel to chemical feedstocks (COTC) – Premasish Das (Singapore)
b) Session 2: bio conversion is (to include both co-processing of bio feedstocks and full bioconversions) – Hedi Grati (London)

5) Greener Refineries: Environmental Impact Overview (60 minutes)

a) Session 1: Quantification of Greenhouse Gases (GHGs) – Stephen Jew
b) Session 2: Use Greener power and hydrogen – Dan Evans

6) **Refineries of the Future; Aspirational Design to Net Zero** (60 minutes)

a) Session 1: Profile of refiner's aspirational designs and technical approaches to approach net zero designs - Rajiv Narang (Delhi/Gurgaon)
b) Session 2: Quantitative impact on a world-scale refinery carbon footprint of various technical configurations and product slate considerations e.g., inclusion of the bio diesel, chemical decarbonization, products, renewable power generation, and/or plastics recycling via chemical pyrolysis, etc. – Rajiv Narang