

Chemical Engineering: Building the basics of profitability through refining and petrochemical technology

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The refining and petrochemicals industries are facing many challenges. The quality of crude oil is declining and new feedstocks such as bitumen and renewable fuels are being adopted. Product specifications are being tightened to improve environmental impact. Capital costs for new projects have increased dramatically in recent years. Demand growth for petrochemicals is forecasted to remain strong, but the industry will continue to experience economic cycles. Historically, chemical engineers have responded to these challenges by improving the technology used for fuels and chemicals production. Many refiners are investing in increased conversion capacity for heavy oils. Residue cracking, coking and solvent deasphalting processes are being added to refineries to improve the conversion of residue oil and allow heavier crudes to be handled. At the same time, refineries are becoming increasingly integrated with petrochemicals production. Sometimes this can lead to great synergies. Finding renewable feedstocks for fuels and petrochemicals is one of the greatest challenges that we will face in this century. This is a very exciting time to be working in the fuels and petrochemicals industry. The work we do as chemical engineers is helping to build a cleaner, safer and more prosperous future for all society.