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Abstract Title: Capturing the Maximum Value From The Bottom Of The Barrel

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For most refiners, finding ways to reduce their exposure to the fuel oil market has become a strategic imperative. Their future competitiveness is at stake. Although there is a wide range of potential responses, the capital investment required and the economic case for each can vary enormously.

Shell Global Solutions has conducted numerous investment studies to help identify the best responses for Shell refineries and for those of its customers around the world. These evaluations are highly complex. There is certainly no one-size-fits-all solution, as a range of factors has an influence, including the refiner's existing configuration and the amount of capital available.

Often, Shell finds that the technologies providing the highest residue conversion, which include slurry-phase residue hydrocracking and flexicoking, may not be the smartest investments. Their capital expenditure can be extremely high. Better returns can often be achieved with less capital-intensive integrated solutions. These include, for example, installing:

• A solvent deasphalting (SDA) unit and revamping the hydrocracker to increase the conversion of fuel oil to distillates
• An SDA unit and modifying the residue gasification unit to handle the heavier stream
• Deep-flash technology in the vacuum-distillation unit to lift more and better-quality vacuum gas oil and reduce high-sulphur fuel oil production

This presentation will describe how refiners can evaluate which response option will offer the most compelling economic case for their specific situation. Real-world case studies will illustrate the approach. The presentation will also explain why refiners should consider the impact that each solution would have on their crude flexibility. Being able to process a flexible crude diet can lift a refiner's margin by up to $1/bbl but some technologies, such as SDA, can enhance crude flexibility, whereas others, such as delayed coking, can restrict it.