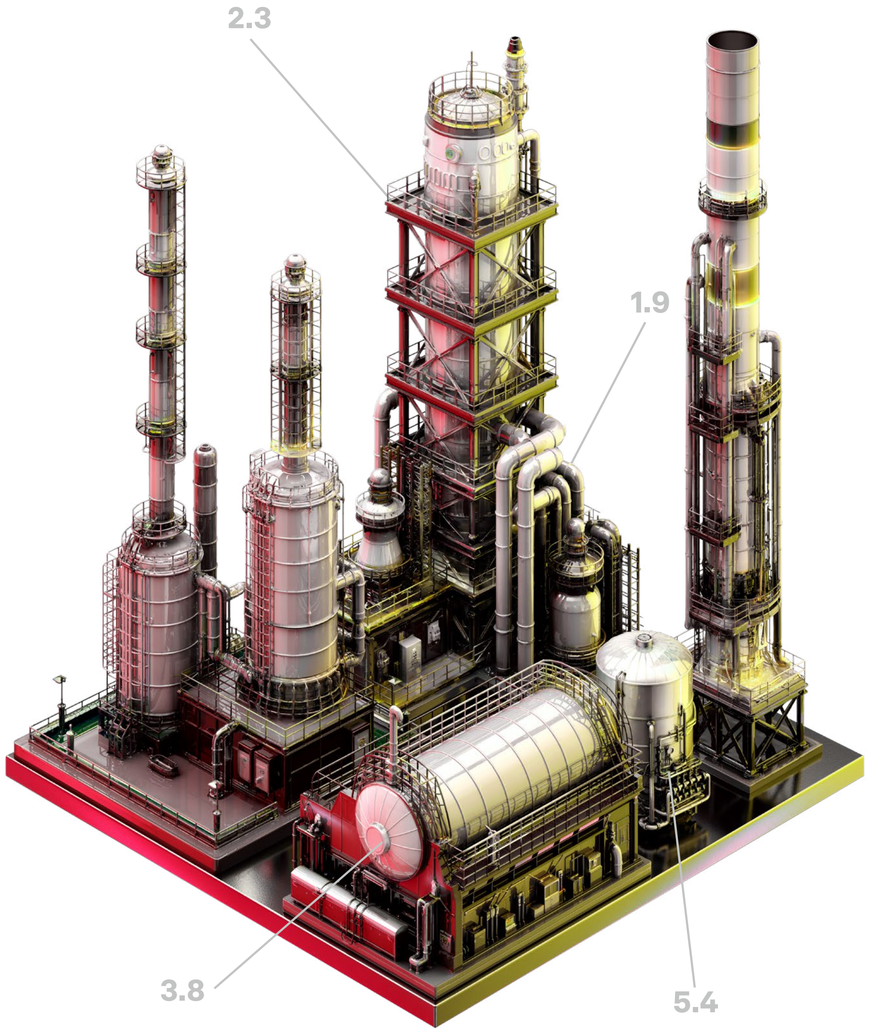
CERA

S&P Global
Energy

ENERGY
IS EVERYTHING

REFINING SCENARIO MANAGER

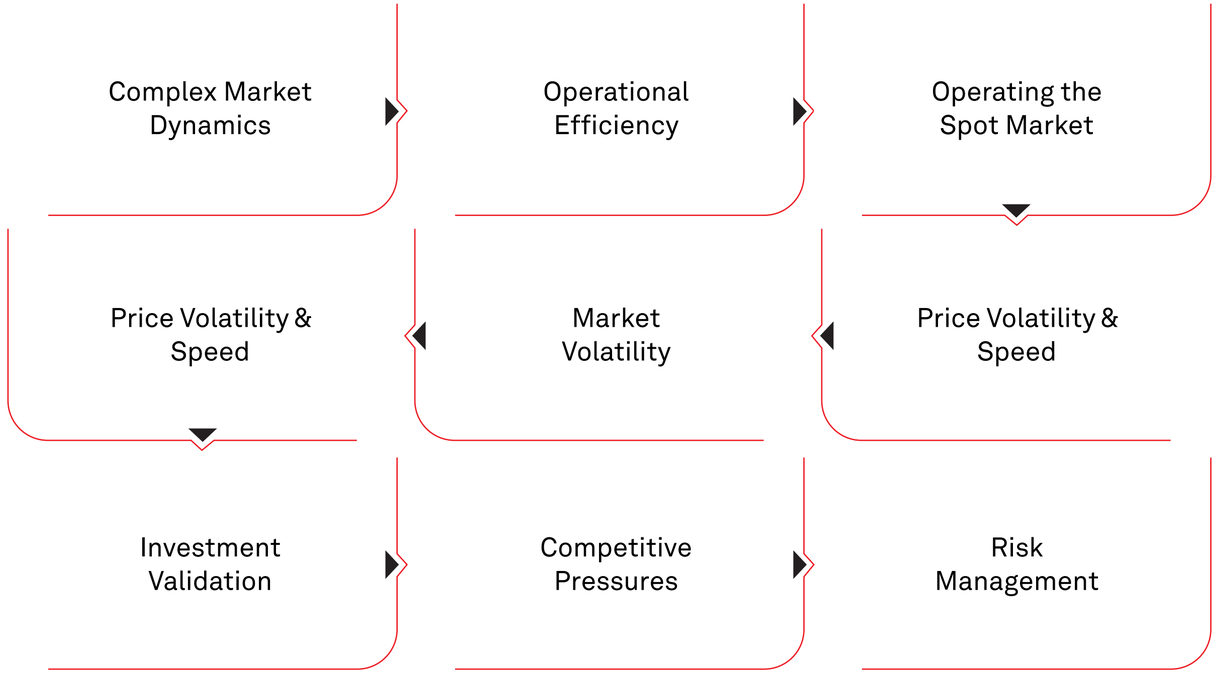
Explore use cases >



Start

Maximize Efficiency and Profits in a Dynamic Market

The Refining Scenario Manager (RSM) is a powerful tool to navigate the complexities of the oil market.



RSM delivers near real-time insights and scenario modeling to **optimize trading** and **refinery operations.**

Uncover opportunities to enhance efficiency and gain a competitive edge by simulating everything from crude pricing to unit-level utilization.

Maximize returns, analyze margins, and seize opportunities in a fast-paced oil market.

Explore the Following Use Cases

- Informed Trading Decision
- Complex Strategy Development
- Investment Opportunity Evaluation
- Capital Investment Justification
- Operational Downtime Management
- Regulatory Impact Analysis
- Risk Assessment for Insurers

Informed Trading Decision

Workspace About

Margin value of crudes

Refining Scenario Manager

Drag here to set row groups

Case Name	Refinery	Metric	Currency	UOM	Company Name	Value
Case 1	Baytown	Arab_Medium	USD	BBL	ExxonMobil	8.69
Case 1	Baytown	Basrah_Heavy	USD	BBL	ExxonMobil	15.32
Case 1	Baytown	Basrah_Light	USD	BBL	ExxonMobil	12.17
Case 1	Baytown	Canadian_Heavy	USD	BBL	ExxonMobil	13.91
Case 1	Baytown	Cold_Lake	USD	BBL	ExxonMobil	12.1
Case 1	Baytown	Eagle_Ford_Crude	USD	BBL	ExxonMobil	20.19
Case 1	Baytown	Kuwait	USD	BBL	ExxonMobil	5.86
Case 1	Baytown	Maya	USD	BBL	ExxonMobil	15.51
Case 1	Baytown	Southern_Green_Canyon	USD	BBL	ExxonMobil	14.49
Case 1	Baytown	WestTI	USD	BBL	ExxonMobil	17.22
Case 1	Baytown	WTS	USD	BBL	ExxonMobil	16.41
Higher Price Crudes	Baytown	Arab_Heavy	USD	BBL	ExxonMobil	-86.82
Higher Price Crudes	Baytown	Arab_Medium	USD	BBL	ExxonMobil	-82.83
Higher Price Crudes	Baytown	Cold_Lake	USD	BBL	ExxonMobil	-95.7
Increased Hck Unit Capacity	Baytown	Arab_Heavy	USD	BBL	ExxonMobil	7.16
Increased Hck Unit Capacity	Baytown	Arabian_light	USD	BBL	ExxonMobil	11.98
Increased Hck Unit Capacity	Baytown	Arab_Medium	USD	BBL	ExxonMobil	8.69

Challenge

Traders are constantly navigating price fluctuations in the crude market. A sudden drop in crude prices can create both opportunities and risks that require swift analysis and decision-making.

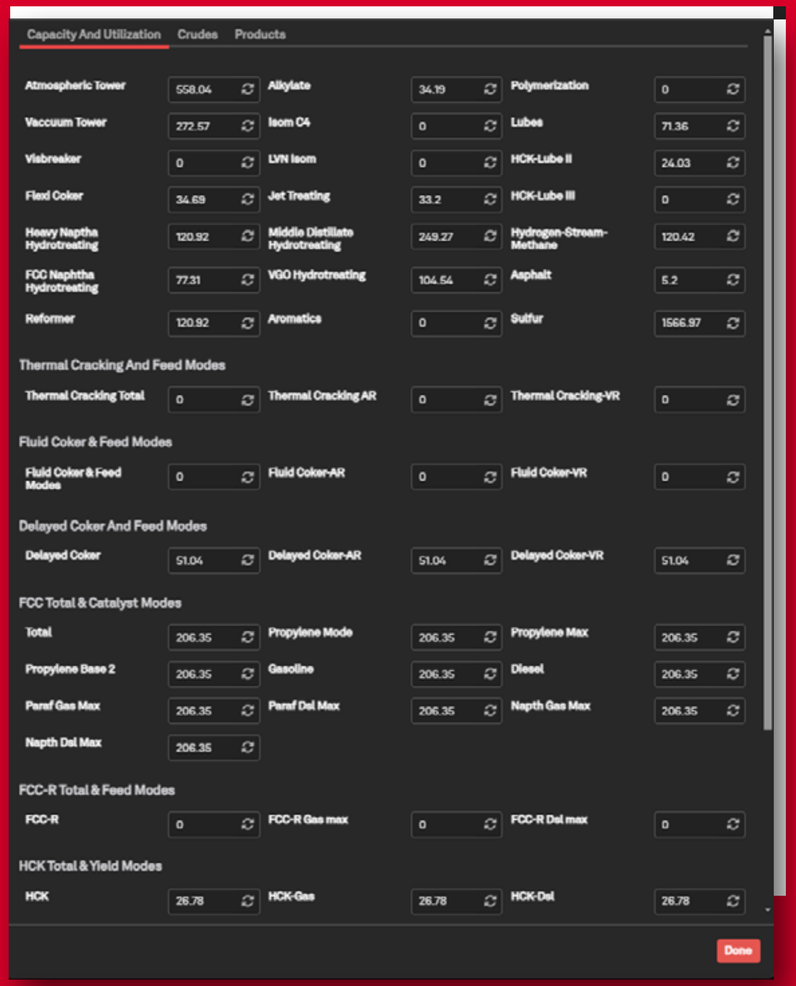
Need

Traders need fast insights into the economic value of crude types to inform buying and selling decisions confidently.

How RSM Helps

Near Real-Time Crude Performance Simulations: RSM allows traders to simulate how specific crude types perform across different refineries, providing critical economic insights that guide buying or selling decisions based in near real-time.

Complex Strategy Development



Challenge

Strategic planners often face pressure to develop detailed medium and long-term strategies that link operational efficiency to financial metrics. The need for robust data-driven insights is paramount in a highly competitive market with fluctuating crude prices and changing regulations.

Need

Planners require a comprehensive understanding of market dynamics, competitor positioning, and the potential financial impacts of various refining strategies.

How RSM Helps

Enhanced Scenario Outputs: RSM delivers in-depth scenario analysis that enables users to evaluate the effects of varying capacity, crude, and refined product assumptions on financial results. These insights are presented through dynamic and user-friendly dashboards, empowering planners to make informed strategic decisions that directly enhance profitability.

Investment Opportunity Evaluation

Refinery yields

Refining Scenario Manager

Drag here to set row groups

Case Name	Refinery	Metric	UOM	Company Name	Value
Base Case	Baytown	Diesel	MBD	ExxonMobil	138.21
Base Case	Baytown	Diesel Sour	MBD	ExxonMobil	0
Base Case	Baytown	Ethylene	MBD	ExxonMobil	0
Base Case	Baytown	Fuel Oil (0.3%)	MBD	ExxonMobil	0
Base Case	Baytown	Fuels Coke	MBD	ExxonMobil	3.27
Base Case	Baytown	Gasoil	MBD	ExxonMobil	0
Base Case	Baytown	Gasoline Premium	MBD	ExxonMobil	0
Base Case	Baytown	Gasoline Regular	MBD	ExxonMobil	188.44
Base Case	Baytown	Heavy Naphtha	MBD	ExxonMobil	15.04
Base Case	Baytown	Heavy Naphtha Sour	MBD	ExxonMobil	0
Base Case	Baytown	High Sulfur Fuel Oil	MBD	ExxonMobil	20.03
Base Case	Baytown	HSVGO	MBD	ExxonMobil	0
Base Case	Baytown	Isomerate	MBD	ExxonMobil	0
Base Case	Baytown	Jet Fuel	MBD	ExxonMobil	39.86
Base Case	Baytown	Kero Sour	MBD	ExxonMobil	43.78
Base Case	Baytown	Light Naphtha	MBD	ExxonMobil	53.97
Base Case	Baytown	Low Sulfur Fuel Oil (0.5%)	MBD	ExxonMobil	0

Challenge

When assessing potential refinery investments, analysts must consider the impact of volatile crude prices on profitability and operational efficiency, making it challenging to establish accurate valuations.

Need

Comprehensive financial modeling tools are essential for understanding how various factors influence refinery performance under different scenarios.

How RSM Helps

Dynamic Financial Modeling: RSM helps analysts evaluate investment opportunities by modeling the fluctuations in refinery financials under varying market conditions such as changing crude prices and operational efficiencies. This allows for precise refining asset valuations and provides valuable insights to inform merger and acquisition (M&A) activities.

Capital Investment Justification

Financial & operating metrics

Refining Scenario Manager

Drag here to set row groups

Case Name	Refinery	Metric	Currency	UOM	Company Name	Value
Base Case	Baytown	Carbon Cost	USD	BBL	ExxonMobil	0
Base Case	Baytown	Cash Cost of Light Product	USD	BBL	ExxonMobil	84.76
Base Case	Baytown	Catalyst and Chemical	USD	BBL	ExxonMobil	0.1
Base Case	Baytown	Cost of Goods Sold	USD	BBL	ExxonMobil	77.5
Base Case	Baytown	Crude transport	USD	BBL	ExxonMobil	0.22
Base Case	Baytown	Electricity	USD	BBL	ExxonMobil	0.23
Base Case	Baytown	Fixed Cost	USD	BBL	ExxonMobil	3.85
Base Case	Baytown	Fuel Cost	USD	BBL	ExxonMobil	0
Base Case	Baytown	Gross Margin	USD	BBL	ExxonMobil	19.53
Base Case	Baytown	Net Margin	USD	BBL	ExxonMobil	15.17
Base Case	Baytown	Operating cost	USD	BBL	ExxonMobil	3.85
Base Case	Baytown	Purch Fuel	USD	BBL	ExxonMobil	0.17
Base Case	Baytown	Revenue	USD	BBL	ExxonMobil	97.03
Base Case	Baytown	RINS Costs	USD	BBL	ExxonMobil	0.85
Base Case	Baytown	Steam	USD	BBL	ExxonMobil	0
Base Case	Baytown	Variable Cost	USD	BBL	ExxonMobil	0.5
Base Case	Baytown	Water	USD	BBL	ExxonMobil	0

Challenge

Evaluating whether significant upgrades, such as a $15 million investment in a desulfurization unit, will yield sufficient returns can be complex due to uncertainties surrounding crude price fluctuations and demand variability.

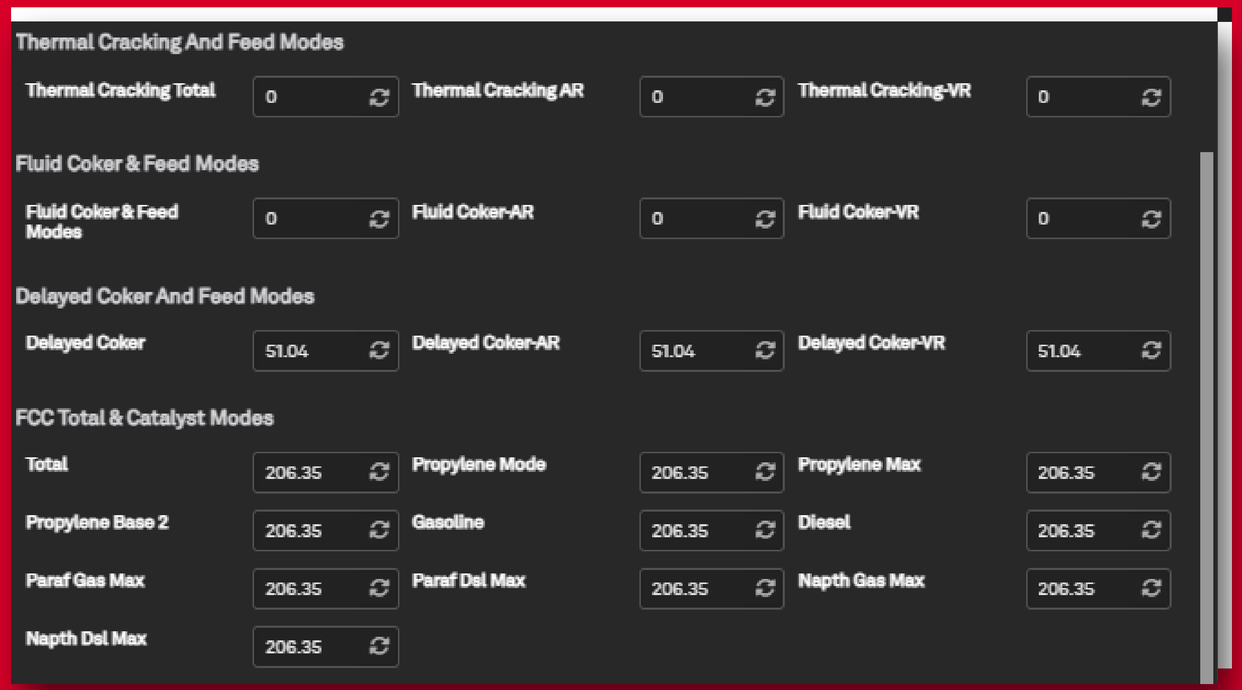
Need

Clear insights into potential ROI and margin improvements are essential to justify large capital expenditures to stakeholders.

How RSM Helps

RSM helps planners to evaluate the potential return on investment (ROI) from capital projects by analyzing profitability and changes in refined product yields based on various unit capacity assumptions. By simulating a range of conditions, planners can accurately quantify expected margin improvements, facilitating better decision-making that directly enhances profitability.

Operational Downtime Management



Challenge

Unexpected outages can lead to significant financial losses, especially if they impact key processing units like hydrocrackers. Analysts need to understand the ramifications of such downtime quickly.

Need

Rapid assessments of production impacts and margin adjustments are necessary to minimize financial exposure during outages.

How RSM Helps

Turnaround Impact Modeling: Strategic planners and analysts can simulate the effects of planned or unplanned downtimes on production and margins, allowing for rapid decision-making to mitigate losses and create robust operational responses.

Regulatory Impact Analysis

Financial & operating metrics

Refining Scenario Manager

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Case Name	Refinery	Metric	Currency	UOM	Company Name	Value
Base Case	Baytown	Carbon Cost	USD	BBL	ExxonMobil	0
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Base Case	Baytown	Catalyst and Chemical	USD	BBL	ExxonMobil	0.1
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Base Case	Baytown	Revenue	USD	BBL	ExxonMobil	97.03
Base Case	Baytown	RINS Costs	USD	BBL	ExxonMobil	0.85
Base Case	Baytown	Steam	USD	BBL	ExxonMobil	0
Base Case	Baytown	Variable Cost	USD	BBL	ExxonMobil	0.5
Base Case	Baytown	Water	USD	BBL	ExxonMobil	0

Challenge

New taxes on crude, transportation, and emissions can significantly affect refining margins. Understanding the implications for both their operations and those of competitors is crucial for adapting strategies.

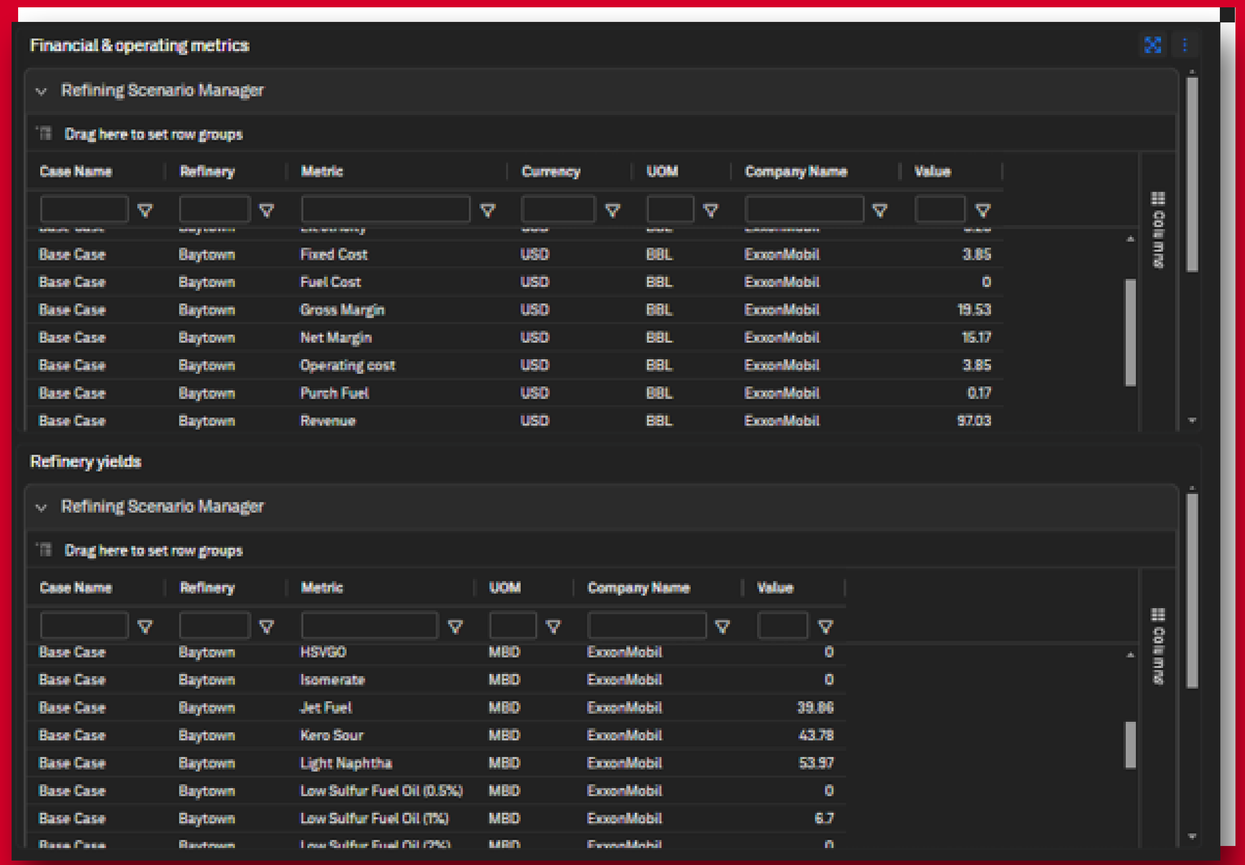
Need

Planners require tools to simulate various regulatory scenarios to assess impacts on profitability and operational viability.

How RSM Helps

Regulatory Impact Simulation: RSM empowers planners to model the effects of external events such as new taxes and regulations on refinery operations. This offers asset-level insights and supports effective adaptations and responses for refiners; ensuring the continued success of refining operations.

Risk Assessment for Insurers



Financial & operating metrics

Refining Scenario Manager

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Case Name	Refinery	Metric	Currency	UOM	Company Name	Value
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Base Case	Baytown	Fuel Cost	USD	BBL	ExxonMobil	0
Base Case	Baytown	Gross Margin	USD	BBL	ExxonMobil	19.53
Base Case	Baytown	Net Margin	USD	BBL	ExxonMobil	15.17
Base Case	Baytown	Operating cost	USD	BBL	ExxonMobil	3.85
Base Case	Baytown	Purch Fuel	USD	BBL	ExxonMobil	0.17
Base Case	Baytown	Revenue	USD	BBL	ExxonMobil	97.03

Refinery yields

Refining Scenario Manager

Drag here to set row groups

Case Name	Refinery	Metric	UOM	Company Name	Value
Base Case	Baytown	HSVGO	MBD	ExxonMobil	0
Base Case	Baytown	Isomerate	MBD	ExxonMobil	0
Base Case	Baytown	Jet Fuel	MBD	ExxonMobil	39.86
Base Case	Baytown	Kero Sour	MBD	ExxonMobil	43.78
Base Case	Baytown	Light Naphtha	MBD	ExxonMobil	53.97
Base Case	Baytown	Low Sulfur Fuel Oil (0.5%)	MBD	ExxonMobil	0
Base Case	Baytown	Low Sulfur Fuel Oil (1%)	MBD	ExxonMobil	6.7

Challenge

Insurers need to accurately evaluate the potential liabilities associated with refining operations, especially concerning downtime and its financial repercussions.

Need

Detailed analyses of financial and operational impacts during planned or unplanned downtimes are required to set appropriate insurance premiums.

How RSM Helps

Liability Calculations for Insurers: RSM calculates the financial and operational costs associated with downtime at a granular level, enabling insurers to understand potential liabilities and risks accurately. This ensures that premium pricing reflects the true risk profile of a refinery.