

Refinery Turnaround Planning & Data Transparency

PMAC Meeting

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Industry Background

- 31 year employee of Mobil, ExxonMobil, retired 2012
- 21 years in California, based in Torrance
- Various positions in Supply and Refining 1991-1997
- Feedstock and Product Trading 1998-2002
 - TransPacific Product movements, Local Intermediate Feedstocks
- Refinery Optimization 2003-2012
 - Planned and Managed Crude Oil, Intermediate Feedstocks, and Products inventories
 - Oversaw Refinery Economics
 - Coordinated Movements with other ExxonMobil locations
- Refinery Strategic Planning 2011-2012

Refinery Maintenance Planning

- Turnarounds are planned years in advance
 - Scope of work during a given turnaround is based on a planned run until the next turnaround
 - Contractors and Large Equipment lined up well in advance
- Major Drivers of Timing
 - Catalyst Life on Hydroprocessing Units
 - Can require outages between turnarounds
 - Vessel Internal Components on FCC Units
 - Major Compressors
- Typical Turnaround Intervals
 - Crude Units 4-7 years
 - Hydroprocessing Units 3-5 years
 - FCC Units 3-5 years

Turnaround Supply Planning

- Goal is to maintain continuous supply chain despite refinery outage
 - Store or sell excess crude oil, intermediates
 - Purchase/sell gasoline components to rebalance refinery gasoline pool
 - Purchase finished (CARBOB/CBOB) gasoline to meet anticipated commitments
 - Minimize terminal lifting disruptions
 - Buy and sell at competitive prices in the market
- Develop projected daily supply/demand balances for each stream, gather downtime duration from Refinery staff
 - Refiners can have 5-10 different gasoline components
- Assess availability of supply (or demand for any length) in local market

Turnaround Supply Planning

- Manage inventory ahead of planned outage
 - Build what will be needed, deplete what will be excess
 - Feasible inventory builds/draws pre outage are small relative to volume impact of many outages
 - Spare tankage likely limited, inventory which can be depleted pre turnaround also generally small.
- Contract for bulk purchase of needed volumes from 3rd parties
 - Contracts agreed upon in advance of outage
 - Terms include quality, quantity, timing, price, location, etc
 - Large quantities from a refiner or source with large inventory
 - Frequently purchased on “floating” price
 - Frequently batches are of odd size relative to spot market “pieces”
 - 3 day average price based on spot market quotations, month average price, etc

Turnaround Supply Planning

- Cargoes can be purchased at load or delivered
 - Frequently buyer will bear most of price risk
 - Hedging strategies vary between companies
 - Arrival timing targeted for inventory management
- Ensure supply is arranged for terminals with limited access
 - Alternatively, move demand to another location
- Contract for bulk sales of excess volumes to 3rd parties
 - Local sales frequently sold “on float”
 - Export cargoes to dispose of remaining length
 - Contract for tonnage for movements
 - Timing targeted for inventory management
- Adjust as Turnaround proceeds
 - Changes in schedule, demands, production

Turnaround Impacts - Data Transparency

- Sharing forward production plans is contrary to Legal Guidance due to Anti-Competition concerns
- Planned outages can become apparent to those who enter into purchase or sales agreements with the refiner having downtime
- Anyone with knowledge of impending outage can try to profit from such
 - Most traders in the market trade for profit as opposed to just trading to balance a system
 - Traders can take positions in the market
 - Service providers can increase their fees
- Publicizing planned outages ahead of time increases the number of entities that can potentially take actions to profit from the loss of production