Market Dynamics & Supply Infrastructure Status
2018-2019 New York State Winter Fuels Outlook Meeting

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Joseph Osso, Jr
NYSERDA
Agenda

- Summary of the New York State petroleum fuel supply system
- 2018 Atlantic hurricane season summary
  - Hurricane Florence and Hurricane Michael east coast petroleum fuels infrastructure impact
  - Comparison to previous hurricane seasons
- U.S. Department of Homeland Security Regional Resiliency Assessment Program (RRAP)
  - Program description
  - Summary of 2018 activities
- New York State natural gas liquids Infrastructure
- Residual fuel oils discussion
Summary of the New York State Petroleum Fuel Supply System
National Petroleum Fuels Supply

Infographic Source: American Fuel & Petrochemical Manufacturers (AFPM 2018)

- Source-to-consumer
- Importance of the arrows between the major facilities
- Driven by supply and demand
Petroleum Administration for Defense Districts (PADDs)

- National petroleum districts
- Dataset awareness
- PADD 1 highlights

Infographic Source: U.S. Energy Information Administration (USEIA 2018a)
East Coast Petroleum Supply System

- General product flow
- Multiple modes of delivery
- Importance of east coast pipelines

Infographic Source: USEIA 2018b
East Coast Petroleum Supply System

- New York is dependent on transport and delivery
  - Pipelines
  - Marine
  - Local/Regional Transport

- Major petroleum distribution points for New York:
  - Linden, NJ
  - NY/NJ Harbor and Hudson River
  - Macungie, PA
East Coast Petroleum Supply System

Data source: USEIA (2018d,e)
Data Analysis and Visualization by NYSERDA

Legend:
- Petroleum terminal
- Petroleum refinery
- Petroleum port
- Liquids border crossing

Mapping source: USEIA (2018c)
Data source: USEIA (2018d,e)
New York Petroleum Supply System

- Overall system highlights
- New York Petroleum Regions
  - Southern/Central/Western
  - Hudson Valley/Northern
  - Downstate (NYC/Long Island)
- Importance of the regional distribution
  - Truck
  - Rail

Legend:
- Pipelines (Crude, LNG/NGL, Refined Products)
- Terminals (Storage, Berth, Diesel, Gasoline, Other)

2018 Atlantic Hurricane Season Summary

*thus far…
2018 Atlantic Hurricanes (thus far…)

- Very active September
- 15 Named Storms
  - 1 Tropical Depression (unnamed-not on map)
  - 7 Tropical/Subtropical Storms
  - 8 Hurricanes
    - 2 Major Hurricane (Florence, Michael)
- Northeast/New York
  - No direct landfalls
  - Impacts from remnants have resulted in flooding

Mapping source: National Oceanic and Atmospheric Administration (NOAA 2018a)
2018 Hurricane Season Compared to Recent History

Data Source: NOAA (2018b);
Data Analysis and Visualization by NYSERDA

Average Number of Named Storms (1980-1999) = 14
Average Number of Named Storms (2000-2017) = 17
Average Number of Named Storms (1980-2017) = 15
Hurricane Florence

- Maximum winds 140 miles per hour (sustained)
- “Slow mover” once landfall was made
- Devastating flooding along North Carolina Coast
- Petroleum infrastructure considerations
  - Damage
  - Port status
  - Supply chain interruptions

Mapping source: NOAA 2018c
Hurricane Michael

- Rapidly intensified through the Gulf of Mexico
- Landfall as Category 4
  - Winds near 150+ miles per hour
- “Quick hit” with very strong winds
- Gulf platform evacuations and product shut-ins at peak of storm:
  - 13% of manned Gulf Platforms evacuated
  - 812 MMcf/d (32% Gulf production) natural gas
  - 719,000 b/d (42% Gulf output) crude
- On-shore pipelines monitoring and preparing for emergency response

Mapping and Information source: S&P Global Platts (2018a, b)
2018 Atlantic Hurricanes (thus far…)

- 15 Named Storms
  - 1 Tropical Depression (not named)
  - 7 Tropical/Subtropical Storms
  - 8 Hurricanes
    - 2 Major Hurricane (Florence, Michael)

Mapping source: National Oceanic and Atmospheric Administration (NOAA 2018d)
U.S. Department of Homeland Security

Regional Resiliency Assessment Program (RRAP)
RRAP Program Highlights

- Cooperative assessment
  - Federal
  - State
  - Local
  - Private Industry
- Emergency preparation
  - Partnership between public and private sectors
  - Enhance emergency management planning
  - Strengthen the resiliency of critical infrastructure
- Data/information collection and analyses
- Tabletop workshops
RRAP Next Steps

- Current status
  - Final review by USDHS
  - Anticipated to be released late fall
- Application of the data/information
- Maintaining the network and communication

Facility Location/Elevation
Facility Highlights
Facility Description
Petroleum Transportation Modes
Electricity Service
Backup Power
Primary Hazards/Issues
Mitigation Measures
Response Agencies
Facility Points of Contact

Source: USDHS (2018)
New York State Natural Gas Liquids (NGL) Infrastructure
New York State NGL Infrastructure

- NGL (propane and butane) pipelines
  - Enterprise Texas Eastern (formerly TEPPCO)
  - Mariner East (1,2)
- Regional distribution
- Ground transportation is

Legend:
- Pipelines (NGL, propane, butane)
- Terminals (NGL, propane, butane)

Mariner East Pipeline Summary

- Transports NGL
- Moves production from Marcellus/Utica shale
- Expansion underway
  - 345,000 b/d (Total)
  - Temporary bypass
- Ends at Marcus Hook Industrial Complex
Mariner East: NY Supply Influence

- Supplement to the Enterprise Texas Eastern pipeline (Enterprise Products Partners, LP)
- Todhunter Storage Cavern (Ohio) closure along Enterprise Texas Eastern pipeline
Mariner East Pipeline Terminus: Marcus Hook Industrial Complex

- Originally built in 1902 as a petroleum processing refinery; idled early 2010s.
- Repurposed as a natural gas liquids storage and export facility (ethane, propane, butane)
- Local, regional, and international market distribution
- Multiple transportation options:
  - Port access for marine transport
  - Pipeline access (Mariner East)
  - Truck distribution

Source: Energy Transfer Partners, LP (2017)
Regional Propane/Propylene Stocks

- Growing stocks over the summer
- Supporting the export operations out of Marcus Hook
- International demand
  - Drives the prices

Data Source: USEIA (2018c);
Data Analysis and Visualization by NYSERDA
Residual Fuel Oils Discussion
Residual Fuel Oil Historic Consumption

- Primary Uses
  - Vessel Bunkering
  - Electric Power
  - Industrial/Commercial
- New technology with newer, cheaper fuel types
- Environmental regulations

Data and Information Source: USEIA (2018f); Data Analysis and Visualization by NYSERDA
Residual Fuel Oil Historic Consumption

Data and Information Source: USEIA (2018f); Data Analysis and Visualization by NYSERDA

- **Primary Uses**
  - Vessel Bunkering
  - Electric Power
  - Industrial/Commercial

- **New technology with newer, cheaper fuel types**

- **Environmental regulations**
Residual Fuel Oil Stocks

- Current stocks status
- Declining demand
  - Now the backup fuel
- Challenges obtaining supply
- Winter season
  - “interruptible” customers

Data Source: USEIA (2018f); Data Analysis and Visualization by NYSERDA
Questions?
References


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