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to cleaner energy

# Where do we go from here?

NGA 2019 Regional Market Trends Forum

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# Millennium Successes Since Last Year's Conference

- Successfully completed the Valley Lateral
  - Connects the Millennium mainline to the CPV Valley Energy Center
  - Up to 127,200 Dth/d of new on-system demand
  - Lateral placed in-service July 9, 2018
- Successfully completed the Eastern System Upgrade (ESU)
  - Project delivers 223,000 Dth/d to Ramapo and Orange & Rockland meters (O&R)
  - Up to 15,500 Dth/d of new on-system demand - O&R
  - Interim service, 196,500 Dth, was placed in-service January 4, 2019
  - Remaining capacity was placed in-service March 11, 2019

# Millennium flows - Winter 2018-19

- Millennium is generally a “supply header”
  - However with the completion of the Valley Lateral and ESU projects, more supply will be staying on the system to meet on-system demand
  - ~85% of this winter’s deliveries were to interconnecting pipelines or storage facilities
    - Compared to ~94% during winter of 2017-2018

ESU and Valley Lateral have increased on-system demand

# Millennium Pipeline Flows

- During the winter of 2018-19 (No ESU November/December)
  - Total Deliveries averaged 1.49 Bcf
    - Winter 2017-18 averaged in excess of 1.5 Bcf
    - Post-ESU (Jan 4 – Mar 31) averaged in excess of 1.5 Bcf
  - Peak day delivery 1.66 Bcf – February 9, 2019
    - Winter 2017-18 peak day delivery 1.67 Bcf – December 27, 2017

June 30, 2018 – 1.68 BCF (Pre ESU and Valley Lateral)  
So what does this tell us?

# Millennium Capacity Utilization Analysis

- Millennium receives supply in the “middle” of the pipeline and then delivers to both the west and the east
- January – September 2018, western capacity utilization averaged 539,665 Dth/d or ~79%
- October 2018 - March 2019, western capacity utilization averaged 395,623 Dth/d or ~49%
- January 10-31, 2019 – Wagoner East segment was ~96% utilized
  - Eight of the 81 days (January 10 - March 31) the Wagoner East segment was 99% utilized

Focusing on total system deliveries as a percentage of total pipeline capacity does not tell the entire story

# Implications for System Operations & Reliability

- Generally system load factor is increasing
  - However shippers should be careful to examine segment
- Flexibility is diminishing as load factor increases
  - Little new capacity is being built in area
  - Primary Firm is a valuable asset
    - “Secondary Firm” provides additional value, but it is not guaranteed to flow
- Millennium does not own or operate storage
  - Interruptions from supply points must be restored quickly

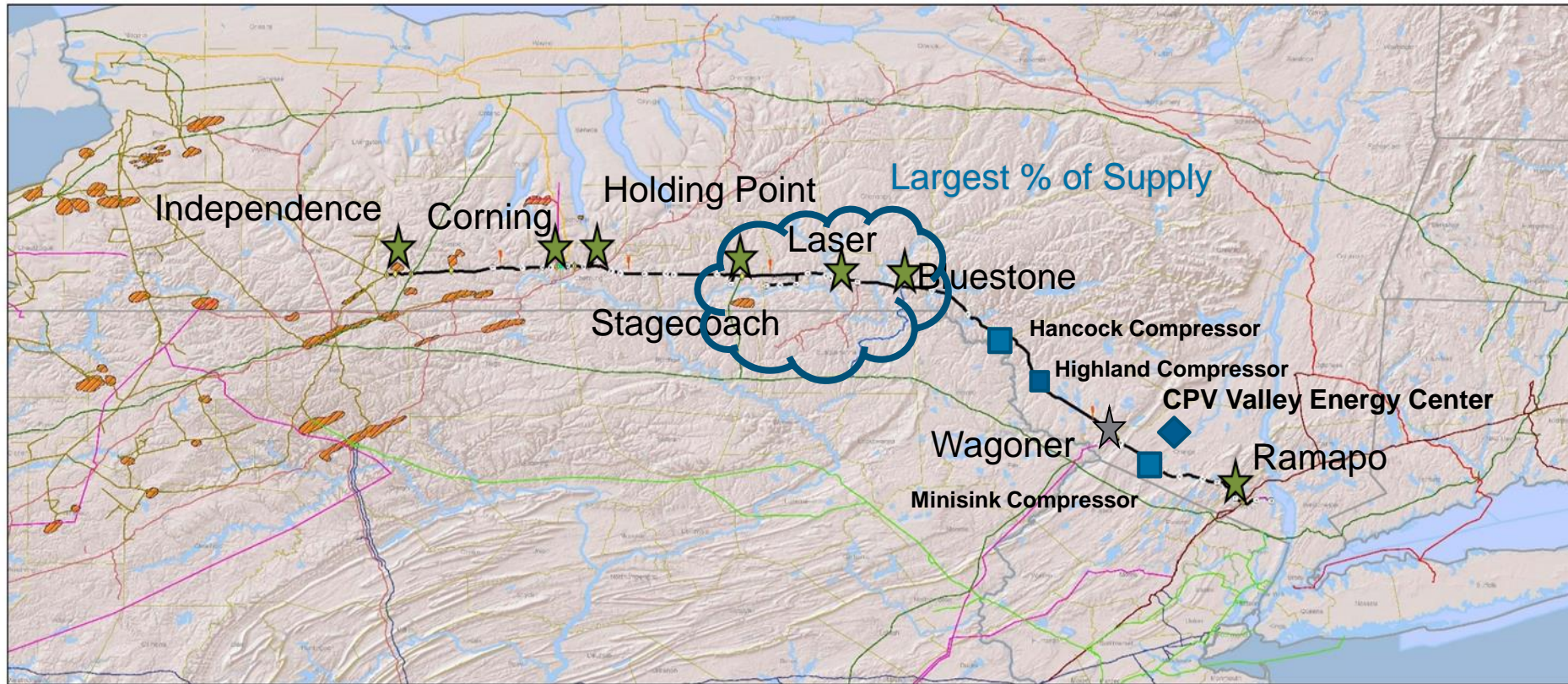
# What is next for Millennium?

- Millennium is uniquely situated to support new natural gas-fired electric generation on its system
  - As a supply header, mainline expansions are not necessarily required
- Laterals to new generation, CNG facilities, and/or microgrids can be accommodated
- Mainline expansion would require a downstream pipeline to expand
- Millennium mainline expansion:
  - Could be small in scale/ minimal pipeline looping/ remain in “footprint”
  - Electric compression would be used if feasible
- Support by utility shippers would create best chance for permit approvals

# **2018-2019 Project Successes**



# Millennium Pipeline



- Millennium Pipeline interconnects with:**
- Empire Pipeline
  - Dominion Transmission
  - National Fuel
  - Algonquin
  - Columbia Gas Transmission
  - Stagecoach Storage
  - Laser
  - Bluestone

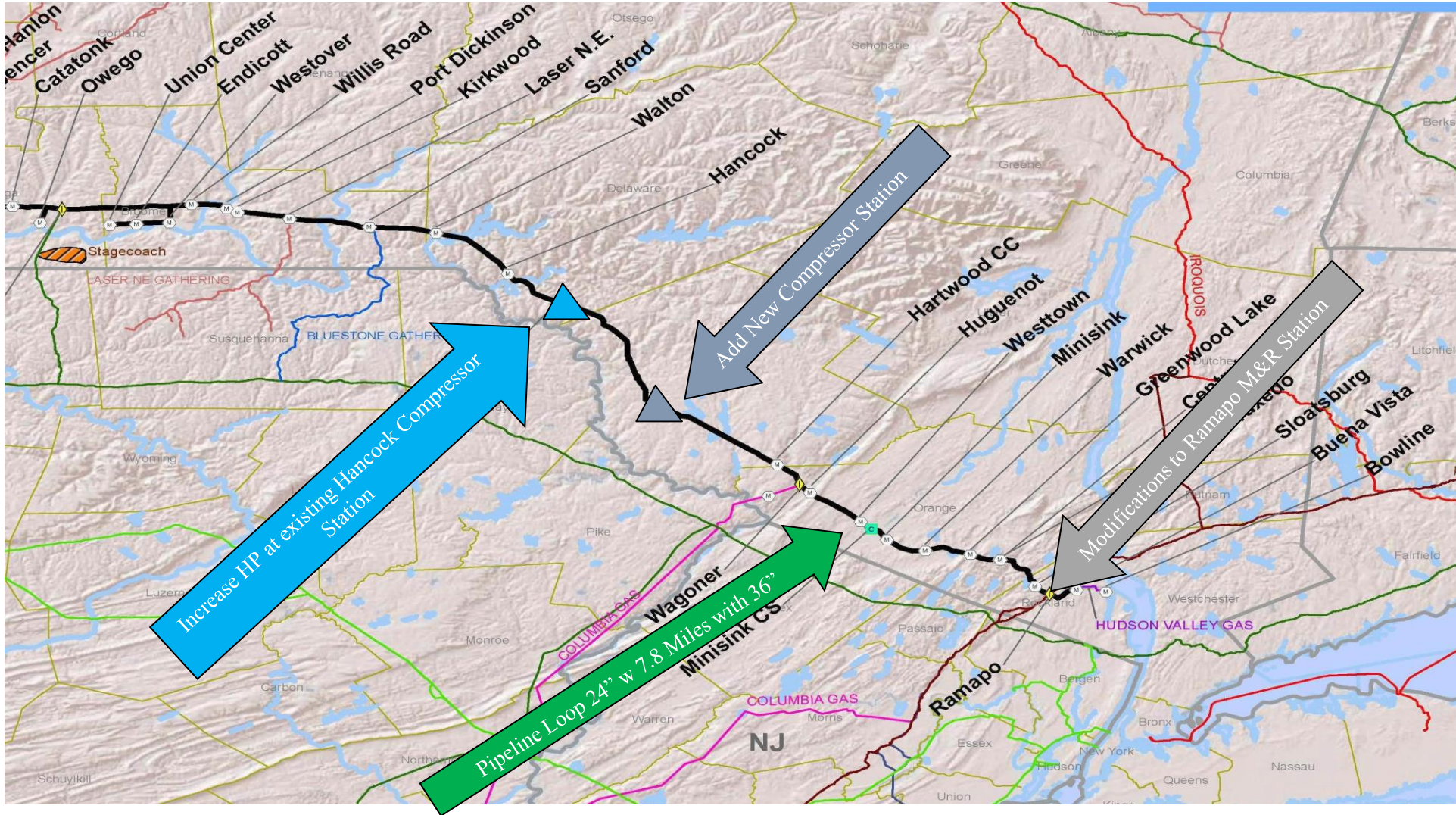
# Eastern System Upgrade (ESU)

- Provides 223,000 Dth/day to eastern end of system
  - 218,000 Dth/d contracted by utilities
- Project was placed into service in phases
  - All capacity was available March 11, 2019
- Doubled compression horsepower on the system
- 7.8 miles of looping





# ESU Project Overview





# Valley Lateral Project Description

- 7.8 Mile 16” Lateral to CPV’s 650 MW Combined Cycle Power Plant
  - Placed into service July 9, 2018
  - Reduces regional dependency on older less efficient power plants
  - Supports the retirement of Indian Point generation
  - Improves electric pricing for New York energy consumers



New market directly attached to Millennium – up to 127,200 Dt/d

# We ALL need to be proactive in messaging

- Opposition to natural gas infrastructure has filled the internet and regulatory filings with statements that pipeline operations and compressor stations emit Volatile Organic Compounds, “VOCs”
  - Benzene, Ethylbenzene, Formaldehyde, Toluene, Xylene
- Opposition fails to mention that ***MANY EVERYDAY*** activities emit VOCs
- Millennium invites you to review a report on the Millennium web site created by Gradient of Cambridge MA
  - [http://www.millenniumpipeline.com/wp-content/uploads/2017/04/Gradient-VOC\\_memo\\_final.pdf](http://www.millenniumpipeline.com/wp-content/uploads/2017/04/Gradient-VOC_memo_final.pdf)