

# Can Wind Help NYISO Solve Congestion Seesaw?

## U.S. Power and Gas Weekly

**Morningstar Commodities Research**  
7 February 2018

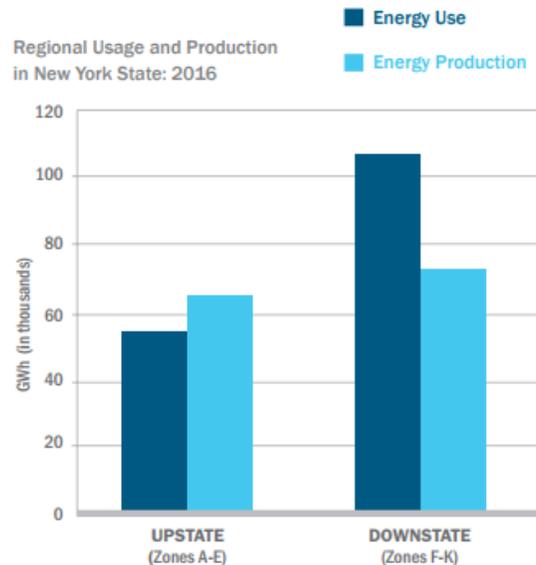
Dan Grunwald  
Associate, Power and Gas  
+1 312 244-7135  
daniel.grunwald@morningstar.com

**Data Sources Used in This Publication**  
NYISO

### Offshore Wind Master Plan

New York recently published its Offshore Wind Master Plan, which calls for a 2,400 MW offshore wind farm as part of its renewable portfolio. This project will help the state of New York toward its ambitious goal of generating 50% of the total state's electricity from renewable resources. In Governor Cuomo's State of the State address he announced there will be two Request for Proposals (RFP) for the first 800 MW of the 2,400 MW project in 2018 and 2019. The master plan included over 20 studies including impact studies, permitting, location, capacity, emission reductions, and more. Offshore wind projects typically experience higher costs in the range of 2.5 to 3.5 times in initial capital costs as well as 1.5 times the cost in maintenance, when compared with land-based wind projects. Even with additional costs and complexity, the location sets up likely grid savings in the form of reduced congestion costs because of the state's unique off-center load and generation profile (Exhibit 1).

**Exhibit 1** NYISO Upstate Versus Downstate Load and Generation Profile

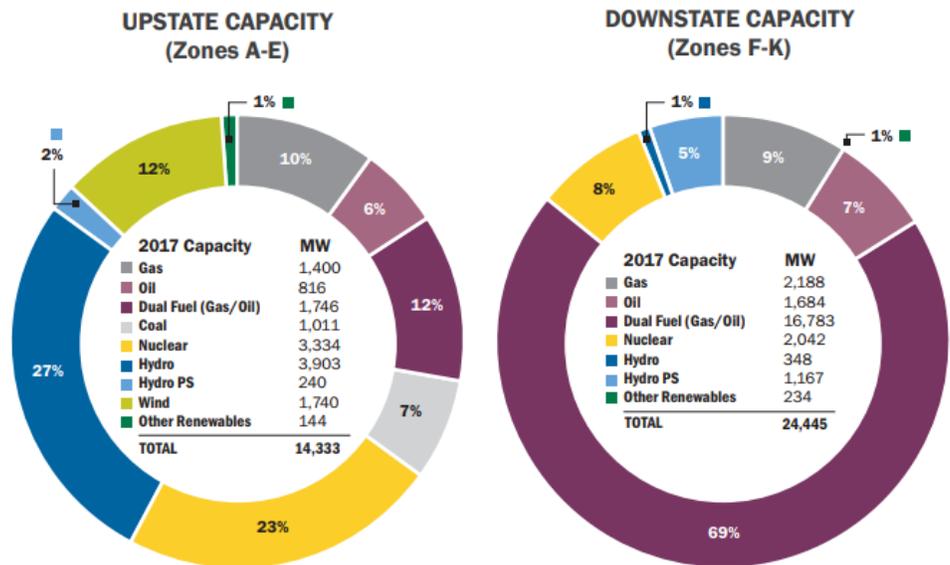


Source: NYISO

### New York Generation Profile

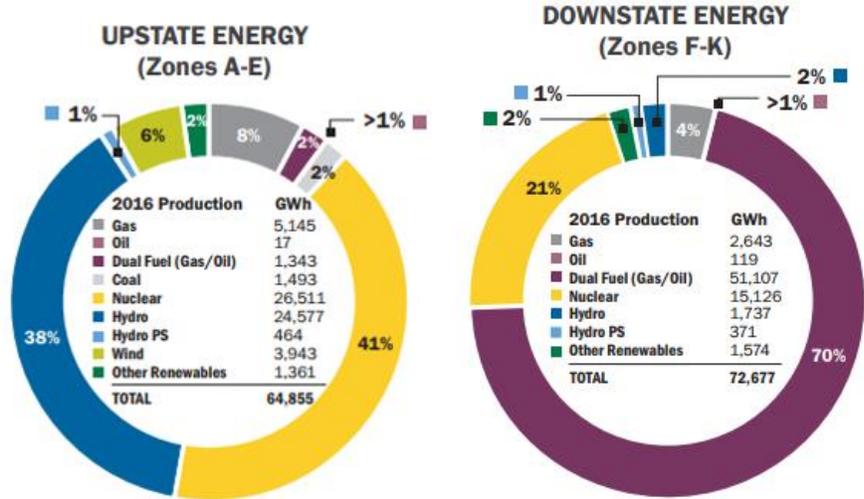
There are fundamental differences between upstate and downstate generation capacity profiles (Exhibit 2). While installed capacity is greater downstate, upstate New York has more nuclear, wind, and hydro generation that typically sits lower in the generation stack, which leads to higher energy generation (Exhibit 3). When the region experiences high cooling or heating degree days, the need to turn on more expensive fossil fuel units downstate manifests in additional congestion costs. This concern is well noted by recent discussion of the Indian Point Nuclear Plant retirement slated for 2021 and concerns of losing a generation buffer in the downstate portion of the grid. This could be a bullish scenario in and of itself as the higher cost oil units that get called on would shift lower in the stack and be called on more often. Yet, some additional efficient natural gas plants coming online downstate—678 MW Valley Energy Center in early 2018 and 1,020 MW Cricket Valley Energy Center in 2020—should backfill the missing nuclear generation. Keeping the bullish scenario alive, fierce environmental opposition against the Valley Lateral Pipeline expansion off Millennium Pipeline has caused delays. While the plant could run off diesel fuel, that will keep the generation in the high cost and dirty category which is what state is looking to reduce. When the offshore wind generation comes online it should give the downstate generation stack a much-needed lower cost generation option when the wind is blowing and help to reduce the instances and severity of Center-East congestion as the extra wind generation downstate pushes the stack closer to parity.

**Exhibit 2** 2017 New York Generating Capacity



Source: NYISO

**Exhibit 3** 2016 New York Generation

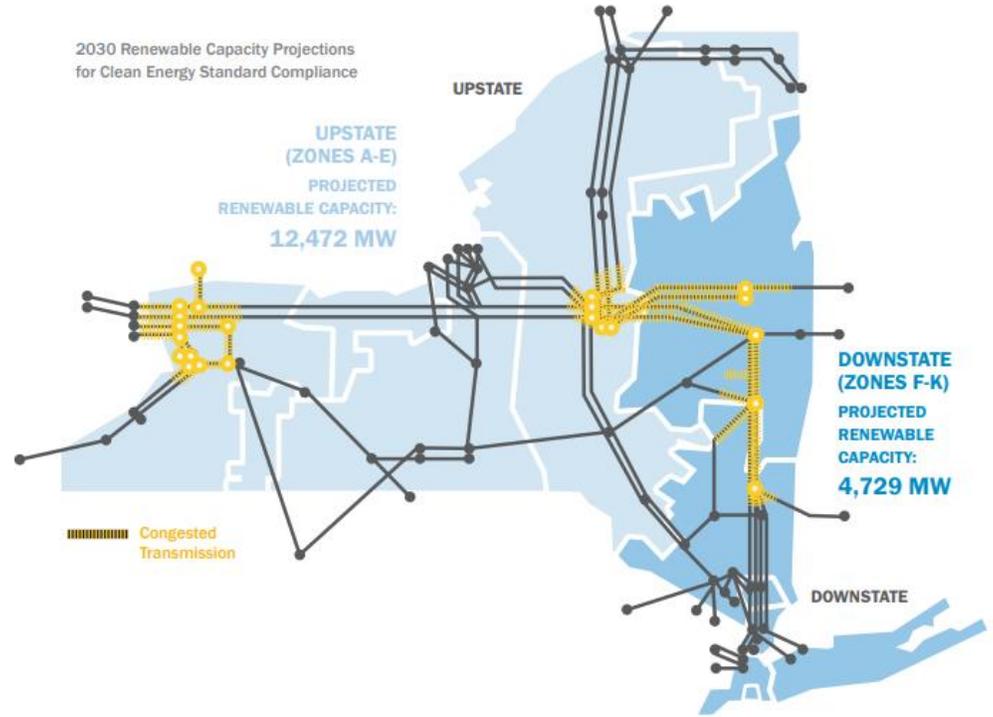


Source: NYISO

**New York Transmission Upgrades**

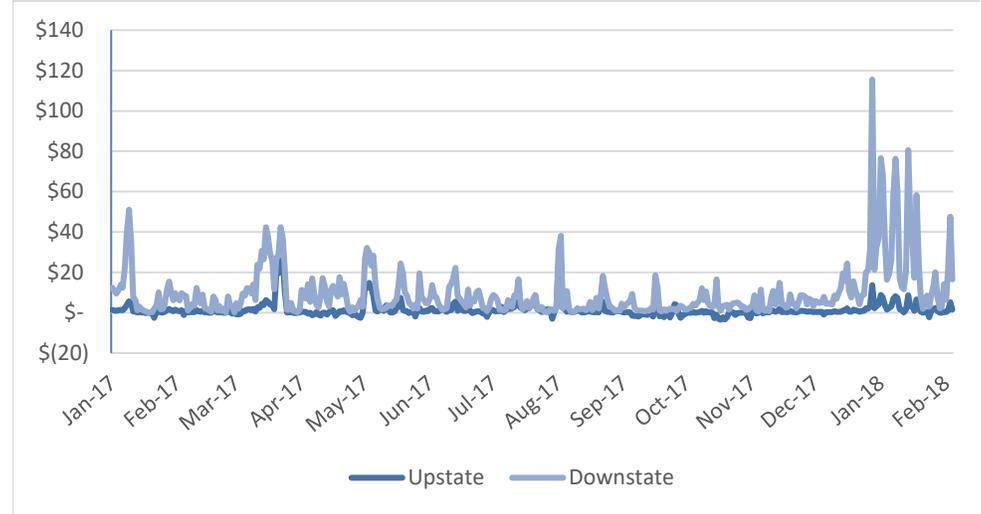
The first 800 MWs should help reduce the congestion we see downstate when it comes online. While this helps, it will not solve the state's off-center balance. Analyzing 2030 projected renewable capacity between upstate and downstate regions, upstate New York may see 7,743 MWs more than those downstate (Exhibit 4). Transmission improvements have also been identified in the 2015 Congestion Assessment and Resource Integration Study (CARIS), and several projects are currently in various stages in development on the grid, which should help transport upstate renewable generation downstate. Among these projects is the 320-kV line to bring 1,000 MW of renewable wind and hydro from Utica in central New York downstate by 2022. Another project in the works is the Champlain Hudson Power Express—a 1,000 MW north to south transmission line that should bring hydro power from Québec to New York City. Other smaller regional projects are currently proposed to meet transmission needs in the New York metro area. These improvements, when in operation, point to greater bearishness for downstate zonal congestion prices from alleviation of transmission constraints that exist today.

**Exhibit 4** Renewable Generation Addition



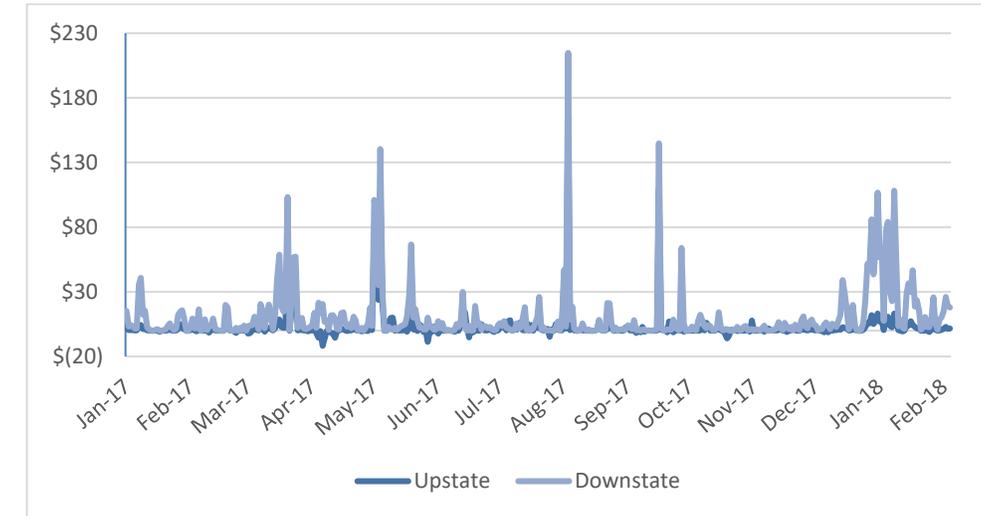
Source: NYISO

**Exhibit 5** NYISO Day Ahead Onpeak Congestion Price of Upstate (Zones A-E) and Downstate (Zones F-K)



Source: NYISO

**Exhibit 6** NYISO Real Time Onpeak Congestion Price of Upstate (Zones A-E) and Downstate (Zones F-K)



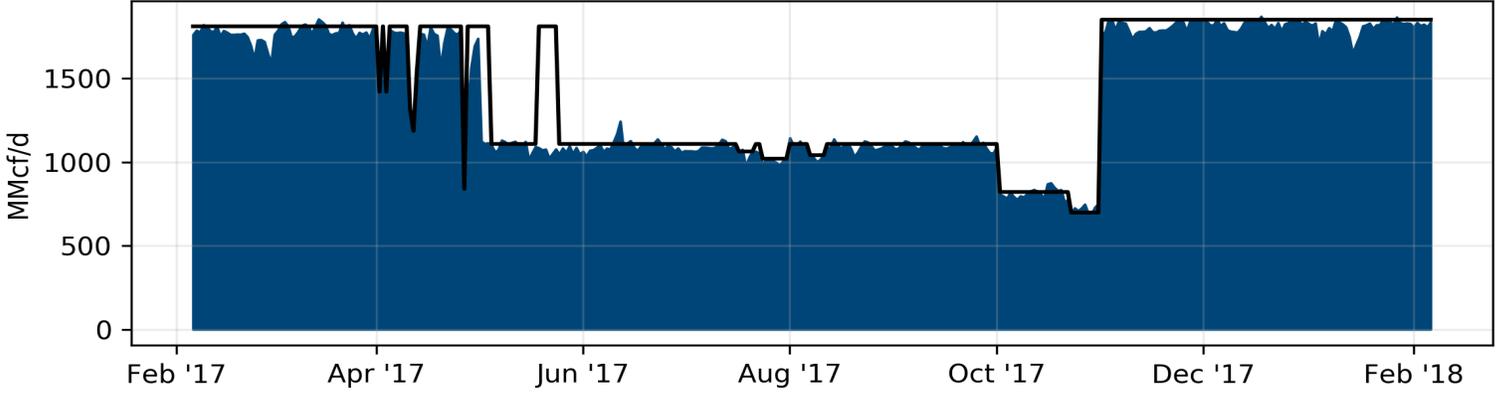
Source: NYISO

**Conclusion**

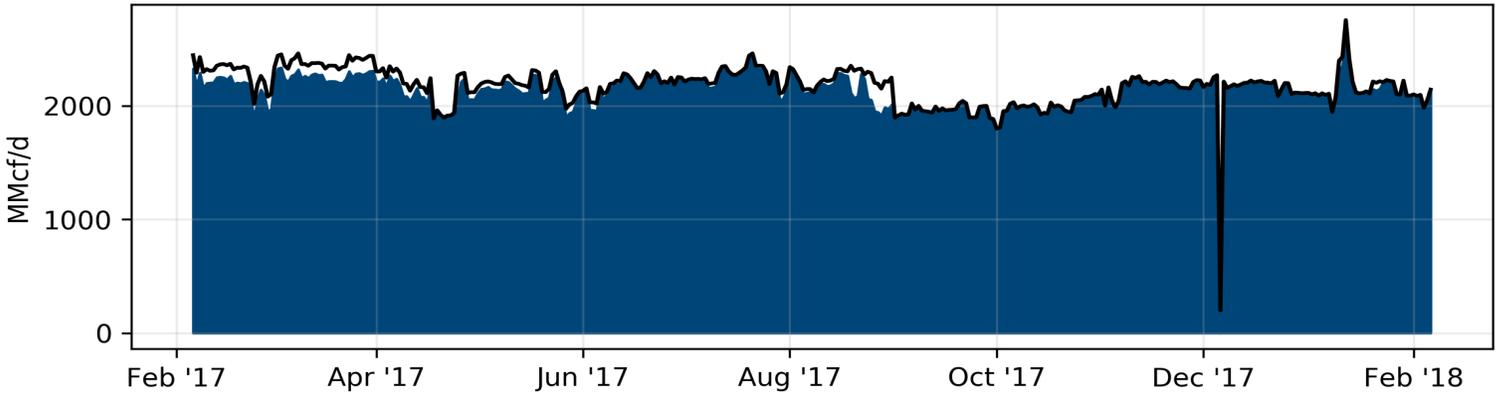
New York is headed in the right direction in alleviating an almost constant congestion cost downstate (Exhibits 5 & 6). Renewable wind generation off the coast of New York City will give NYISO increased flexibility in responding to the imbalance between generation and load seen in the state. Along with transmission upgrades in coming years the New York grid might finally see some semblance of balance. The addition of a lower cost generating source downstate should help grid balancing authorities manage the New York grid in the future, but unfortunately for them that is just not the case. These solutions will not take place soon enough. The next couple of years will see much of the same in downstate congestion and will likely exacerbate in 2020 with the retirement of Indian Point. Until these projects come on line in 2022, the New York congestion seesaw will likely continue. ■■

# Natural Gas Important Points

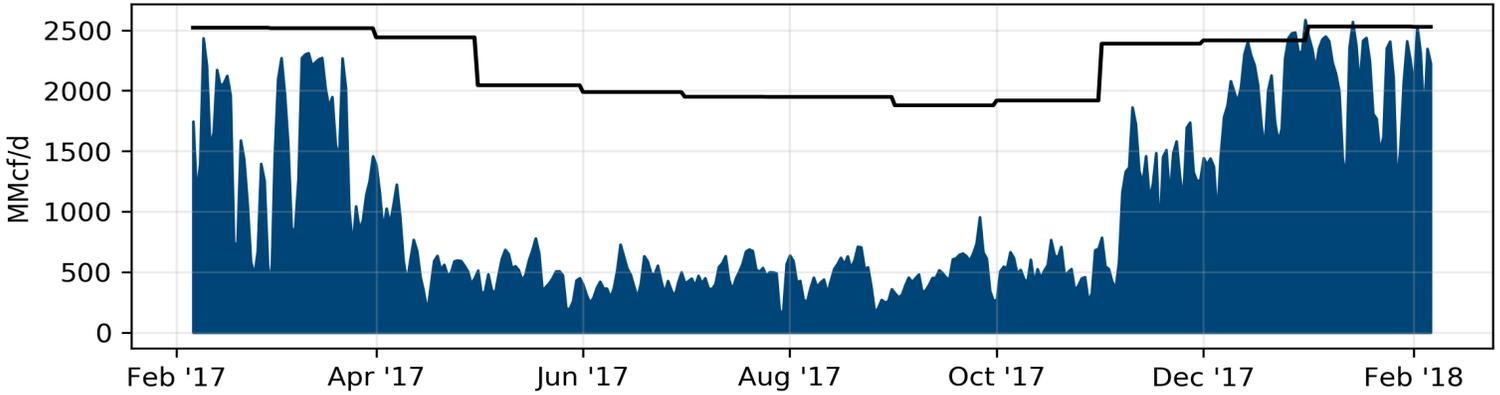
Algonquin: Stony point Compressor



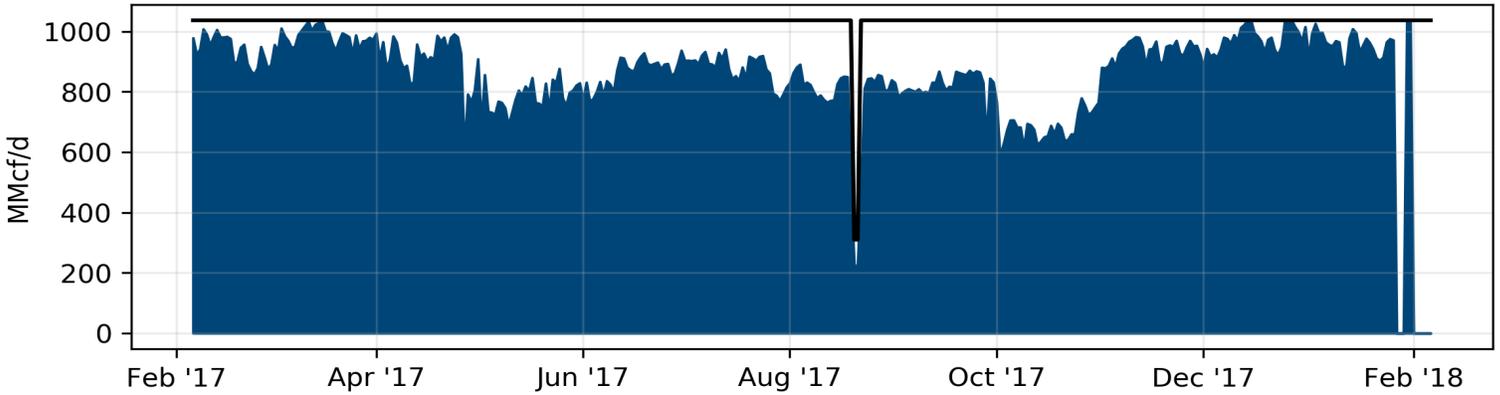
Transcontinental: Leidy Line Station 505



Texas Eastern: Lambertville Compressor

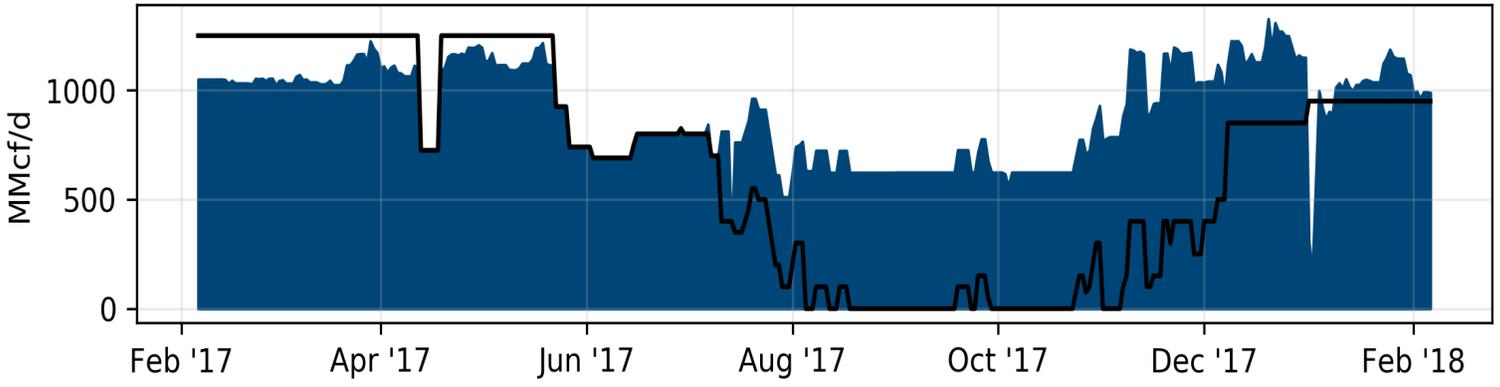


Millennium: Wagner West Compressor

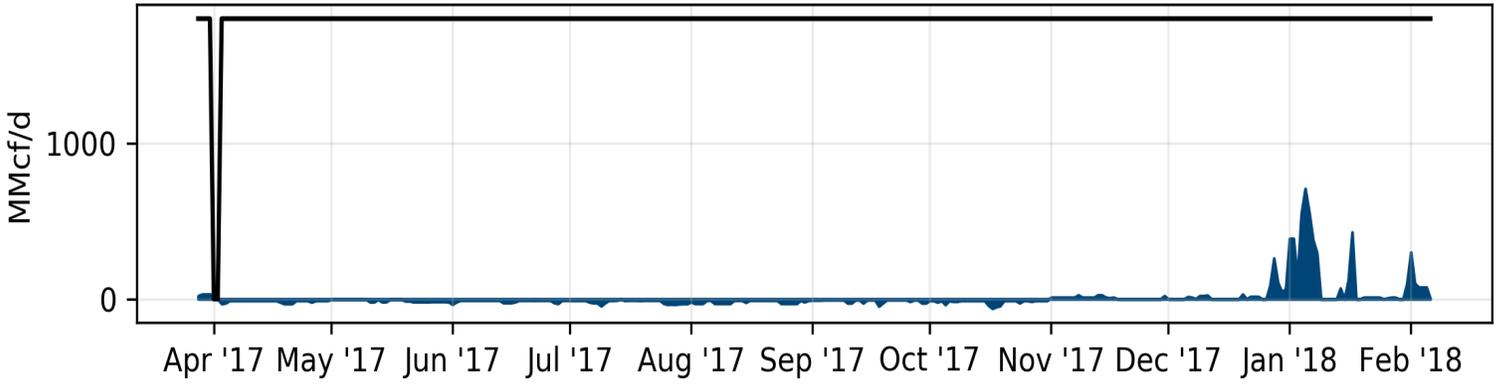


■ Volume — Capacity

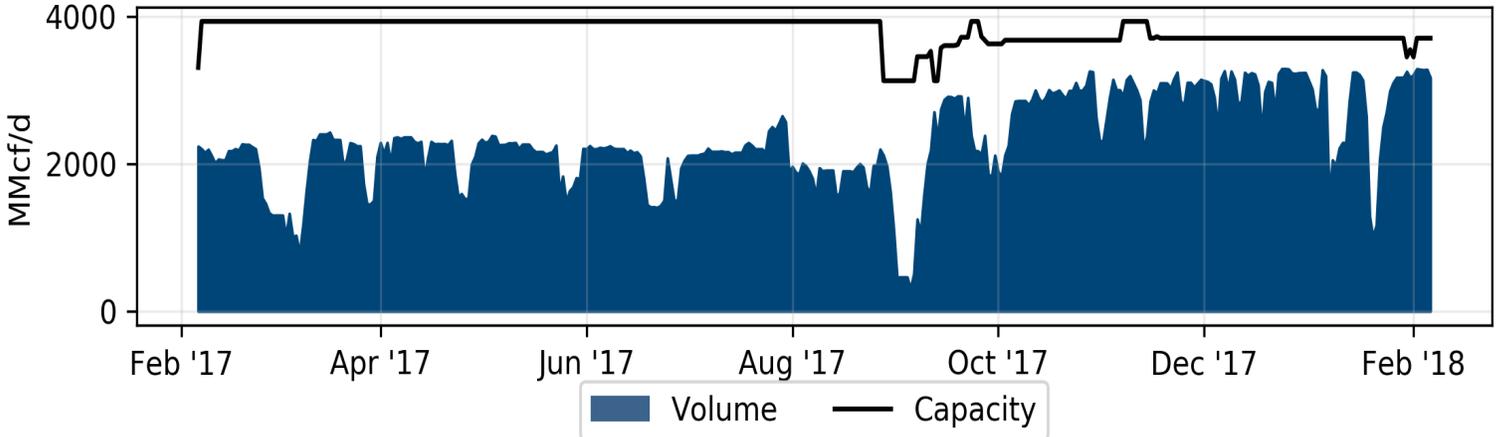
Columbia Gas Trans: Braxton-Stonewall



LNG: Cove Point



LNG: Sabine



### **About Morningstar® Commodities Research**

Morningstar Commodities Research provides independent, fundamental research differentiated by a consistent focus on the competitive dynamics in worldwide commodities markets. This joint effort between Morningstar's Research and Commodities & Energy groups leverages the expertise of Morningstar's 23 energy, utilities, basic materials, and commodities analysts as well as Morningstar's extensive data platform. Morningstar Commodities Research initially will focus on North American power and natural gas markets with plans to expand coverage of other markets worldwide.

Morningstar, Inc. is a leading provider of independent investment research in North America, Europe, Australia, and Asia. The company offers an extensive line of products and services for individuals, financial advisors, and institutions. Morningstar's Commodities & Energy group provides superior quality market data and analytical products for energy data management systems, financial and agricultural data management, historical analysis, trading, risk management, and forecasting.

For More Information

+1 800 546-9646 North America  
+44 20 3194 1455 Europe  
[commoditydata-sales@morningstar.com](mailto:commoditydata-sales@morningstar.com)



22 West Washington Street  
Chicago, IL 60602 USA

© Morningstar 2014. All Rights Reserved. The information, data, analyses and opinions presented herein do not constitute investment advice; are provided solely for informational purposes and therefore are not an offer to buy or sell a security; and are not warranted to be correct, complete or accurate. The opinions expressed are as of the date written and are subject to change without notice. Except as otherwise required by law, Morningstar shall not be responsible for any trading decisions, damages or other losses resulting from, or related to, the information, data, analyses or opinions or their use. The information contained herein is the proprietary property of Morningstar and may not be reproduced, in whole or in part, or used in any manner, without the prior written consent of Morningstar. To order reprints, call +1 312-696-6100. To license the research, call +1 312-696-6869.