

A-3: Staff Presentation:

Slide 1



“Good Morning, Mr. Chairman and Commissioners.

“The Office of Enforcement’s Division of Energy Market Oversight is pleased to present a summary of the 2017 State of the Markets report. This report is staff’s assessment of natural gas, electric, and other energy markets developments during the past year. The complete report will be posted on the Commission’s website, www.ferc.gov.

Slide 2

Natural Gas Highlights

- U.S. natural gas prices rose in 2017 relative to 2016 but remained comparatively low.
- Nearly 12 Bcfd and 773 miles of pipelines entered service in 2017.
- U.S. natural gas production rose 1% in 2017.
- Total U.S. natural gas demand fell slightly from 2016.

“Today we present highlights from the report starting with the 2017 natural gas markets.

“In 2017, average U.S. natural gas spot prices rose 21% from 2016. However, prices at the Henry Hub remain 7% below the average of the previous 5 years and 33% below the average of the previous 10 years. Cold weather and high winter heating load at both the beginning and the end of 2017 contributed to a 28% price increase in the East. Natural gas prices in the Marcellus Shale region rose 19% as new pipeline capacity allowed producers in the region to meet a larger share of demand in previously inaccessible market areas. In addition, pipeline and storage limitations in southern California continued to constrain the Los Angeles market area, where average prices rose 18%. Although, natural gas spot prices across the U.S. were higher in 2017, they remained relatively low compared to higher spot prices generally seen before 2015.

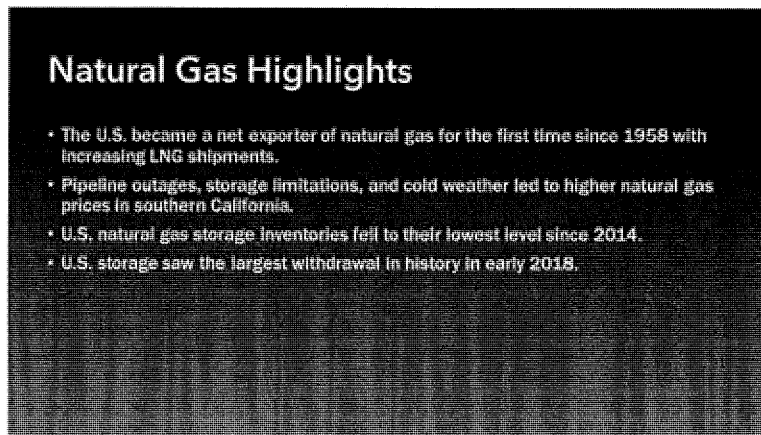
“Regarding natural gas infrastructure, nearly 12 Billion Cubic Feet per day (Bcfd) and 773 miles of Commission-jurisdictional natural gas pipeline capacity entered service in 2017. Many of the new projects connect Marcellus and Utica shale natural gas fields to markets in the Midwest and Northeast regions. However, only 20 miles of new pipeline and 0.3 Bcfd of capacity was built in New England. Several other new pipeline projects supply Liquefied Natural Gas (LNG) export locations. Additionally, new U.S./Mexico border-crossing pipelines in Texas also added export capacity.

“U.S. natural gas production rose 1%. Production remained mostly flat in the first half of the year; however, natural gas production strongly rebounded in the second half of the year. Improvements in drilling efficiencies allowed producers to expand operations, even as prices at major producing regions remained stable. New pipeline capacity out of the Marcellus and Utica shale plays allowed producers to meet demand in previously inaccessible markets. These shale plays demonstrated the largest U.S. natural gas production growth in 2017, with a 2.18 Bcfd

increase over 2016. Natural gas production from the Permian Basin of west Texas rose 1.38 Bcfd.

“Total U.S. natural gas demand was down slightly from 2016 demand levels. Natural gas used for power generation fell 6% as Cooling Degree Days in 2017 fell 3.5%, requiring less power generation for cooling load. The largest increase in demand for natural gas came from LNG exports, which more than tripled from 2016. Meanwhile, industrial natural gas demand rose 1% while residential/commercial natural gas demand remained flat.

Slide 3



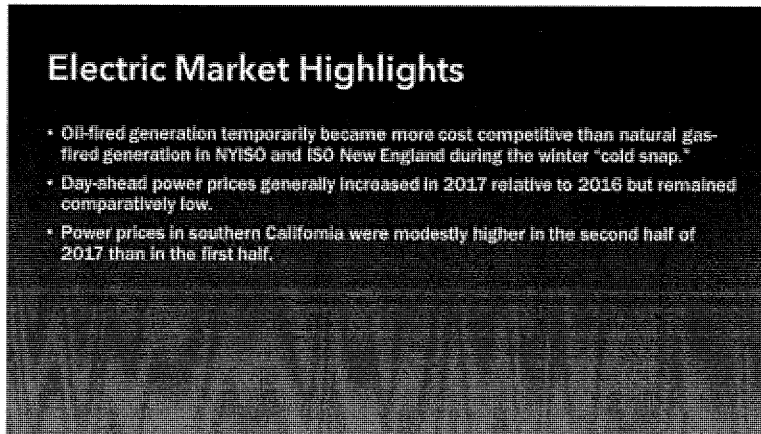
“The U.S. became a net exporter of natural gas for the first time since 1958, as increasing shipments of LNG to world markets and natural gas pipeline deliveries to Mexico exceeded imports from Canada and other countries.

“Regionally, southern California next-day natural gas prices measured at the SoCal Citygate remained within their five-year range for most of 2017. However, storage limitations at Aliso Canyon combined with pipeline issues along the SoCalGas system and colder than normal weather led prices to increase late in the year. The SoCal Citygate price set an all-time record of \$11.83/MMBtu on October 24.

“In the Mid-Atlantic and northeast, cold temperatures in late December 2017 and early January 2018 led to the largest storage withdrawal in history of 359 Bcf for the week ending on January 5, 2018. It surpassed the previous 2014 record withdrawal by nearly 25%. Large winter withdrawals helped push storage inventories to 1.35 Trillion Cubic Feet, the lowest end-of-winter storage figure since 2014.

“My colleague Alex will now present U.S. power market highlights from 2017.

Slide 4

A dark-themed slide with white text. The title "Electric Market Highlights" is at the top. Below it is a bulleted list of three points.

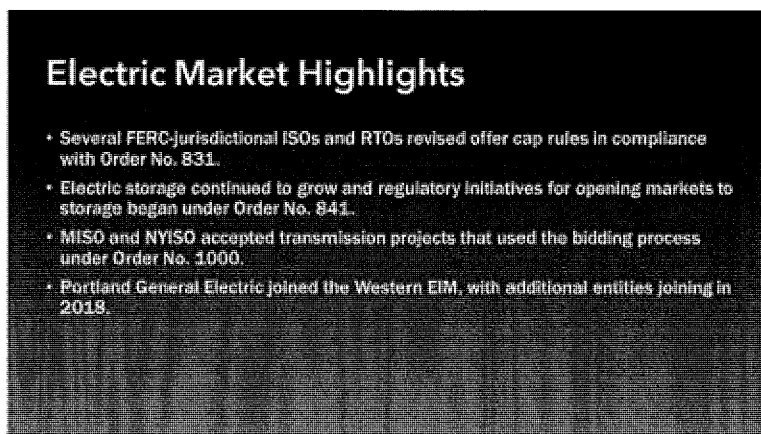
Electric Market Highlights

- Oil-fired generation temporarily became more cost competitive than natural gas-fired generation in NYISO and ISO New England during the winter "cold snap."
- Day-ahead power prices generally increased in 2017 relative to 2016 but remained comparatively low.
- Power prices in southern California were modestly higher in the second half of 2017 than in the first half.

"Continuing from where Eric left off, during the winter "cold snap" beginning on December 26, 2017, and ending on January 7, 2018, PJM, NYISO, and ISO New England experienced peak loads near but not above their respective all-time winter high levels. In NYISO and ISO New England, record high natural gas prices enhanced the competitiveness of oil-fired generation. Natural gas prices in New York City, New England, and the Mid-Atlantic all set all-time record highs, with next-day trades reaching as high as \$175/MMBtu in New York City on January 4.

"In 2017, average day-ahead on-peak locational marginal prices (LMPs) increased between 3 and 13 percent at the pricing nodes throughout the RTOs and ISOs. RTO/ISO and non-RTO/ISO trading hubs also experienced power price increases comparable to the nodal LMP increases, with the exception of PJM's Western hub, whose average day-ahead on-peak LMP was the lowest it has been since 2010. Despite these year-over-year price increases, power prices at the eastern trading hubs remained near their lowest average levels since 2010.

"In the summer, several heat events led to high power loads, which topped resource adequacy requirements and almost set a new demand record in the California ISO (CAISO). In addition to tight supply and demand conditions, growing renewable generation added to forecasting, supply, and demand uncertainty. Power prices rose modestly late in the year, as the natural gas issues discussed earlier elevated natural gas prices. Together, these conditions led to price spikes in the day-ahead and real-time markets in CAISO.



“In its price formation initiatives, the Commission, in Order No. 831, found that the ability of resources to exceed existing offer caps is required to promote efficiency in pricing and to provide an incentive to resources to offer their capacity when most needed. Order No. 831 placed a requirement on all RTOs and ISOs to file tariff provisions allowing offers above \$1,000/MWh when based on verified costs. The tariff provisions to meet the requirements of Order No. 831 have been accepted for ISO New England, SPP, PJM, and New York ISO. This is one of several price formation initiatives that the Commission has undertaken over the last several years.

“In 2017, electric storage capacity continued to grow across the Commission-jurisdictional RTOs and ISOs, as well as other regions. Battery storage capacity has seen the most rapid growth in recent years. Recognizing the technical capabilities of electric storage resources to participate in the capacity, energy, and ancillary service markets, the Commission issued Order No. 841 in February 2018, which requires the RTOs and ISOs to remove barriers to the participation of electric storage resources in their markets by creating a participation model, or a set of market rules, that acknowledges the physical and operational characteristics of electric storage resources

“Regarding infrastructure projects, over 680 miles of new transmission lines were added across the country in 2017, mostly in MISO and PJM. In addition to the transmission lines completed in 2017, several ISOs approved transmission projects using Order No. 1000 Commission-approved competitive bidding processes. MISO’s Board of Directors approved a transmission plan that included The West of the Atchafalaya Basin (or WOTAB) project, a 500-kV project in Entergy’s service territory in western Louisiana and eastern Texas. Similarly, NYISO’s Board of Directors approved a transmission project submitted by NextEra Energy to address congestion and deliverability constraints in the West Zone. This was the first transmission project in NYISO selected using their Order No. 1000 competitive bidding process.

“Finally, Portland General Electric Company joined the Western Energy Imbalance Market (EIM) in October 2017. Earlier this month, Idaho Power Company and Powerex joined the EIM. Seattle City Light, Salt River Project, and the Sacramento Municipal Utilities District, and the Los Angeles Department of Water and Power will likely join by 2020.

“Thank you. This concludes staff’s summary of the 2017 State of the Markets report. We would be happy to answer any questions you may have on the topics it covers.”