Analyzing the Role of Natural Gas in Future Energy Markets

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Source: Analysis Group, November 2017, data from Energy Information Administration.
The State of U.S. Shale Gas

Source: Analysis Group, November 2017, maps from EIA, 2011
U.S. Power Supply Capacity Additions by Fuel Type, Cumulative, 1995-2017

Source: Analysis Group, November 2017, data from SNL Financial. Notes: Only additions beginning in 1995 forward are displayed; Renewables/Other includes wind (83,927.7 MW added as of 2017); solar (23,633.7 MW), biomass (6,368.3 MW), water (4,236 MW), geothermal (1,032.7 MW), and other nonrenewable (3,715 MW).
Approved Major U.S. Pipeline Projects (Number) vs. Capacity Added (MMcf/d), 1997-2016

Source: Analysis Group, November 2017. Includes approved applications and projects’ associated capacity additions in approval year. Does not represent capacity in service or capacity coming online in a given year.
States Deny and Approve Pipelines

New York denies gas pipeline permit for CPV power plant over climate concerns

NC officials reject environmental plan for Atlantic Coast Pipeline
U.S. Natural Gas Pipeline Systems

Pipelines as of 2009

Pipelines as of mid-2017

Source: Analysis Group, November 2017, maps from Energy Information Administration.
U.S. Annual Natural Gas Consumption by End User, 1997-2016

Source: Analysis Group, November 2017; data from EIA. Consumption is indexed to 1997.
New England’s Changing Fuel Mix

Source: ISO New England [Net Energy and Peak Load by Source](#)
Other renewables include landfill gas, biomass, other biomass gas, wind, solar, municipal solid waste, and miscellaneous fuels
Constrained Pipeline Capacity?

Overscheduling Gas Market Impacts

Impact of overscheduling capacity on the wholesale gas market on warmer days when the pipeline is uncongested (left panel) and on colder days when it is fully scheduled (right panel)

Overscheduling Electricity Market Impacts

Impact of overscheduling capacity on the wholesale electricity market on warmer days when the pipeline is uncongested (left panel) and on colder days when it is fully scheduled (right panel).

Impacts of Capacity Withholding

Study shows strongest during winters of 2013-14 and 2014-15

Henry Hub Spot Price vs. Production

Source: Analysis Group, November 2017, data from EIA.
Historic Natural Gas Wellhead Price Projections (in Color Each Year) and Actual (in Black)
Gas Consumption, Actual vs. Forecast

Source: Analysis Group, November 2017, data from EIA.
LNG Imports and Exports, 1997-2017

Source: Analysis Group, November 2017, data from EIA.
Australia’s LNG Export Boom

Source: EIA with data from Australia Energy Market Operator
Eastern Australia Gas Spot Prices (in U.S. dollars per mBtu)

Source: EIA with data from Australia Energy Market Operator Gas Bulletin Board and IHS
Spot Market vs. LNG Exports

Source: EIA with data from Australia Energy Market Operator
The Gas Market: Australia vs. U.S.


Note: Australia natural gas production/consumption balance includes 0.7 Bcf/d of natural gas imports.
About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org