Proposed Scope and Design of Natural Gas Market Assessment

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Ross Miller
Electricity Analysis Office
Electricity Supply Analysis Division

Purposes for Which Natural Gas Market Assessments Are Used

Natural Gas Market Assessments and Forecasts support:

- Energy policy making and program implementation activities
- Relative economics of alternative electricity resource choices, such as
  - energy efficiency programs
  - distributed generation choices (e.g., photovoltaics, combined heat and power)
  - new gas-fired generation
- Energy costs for households and businesses
- Environmental impacts of natural gas market activity
- Electricity demand assessments
- Wholesale electricity and natural gas market procurement, including hedging
- Natural gas infrastructure requirements assessments

Electricity Analysis Office
Natural Gas Unit

Long-range assessments of the demand for natural gas evaluate drivers of:

- end use gas demand;
- gas demand to serve grid-delivered end use electric generation;
- generating resources (e.g., renewables, coal) which substitute for gas-fired generation (either utilization or construction) :
  - world, national, regional and state energy and environmental policies,
  - economic choices utilities make for generation capacity expansion.

Modeling World Gas Market

- World Gas Trade Model - simplified
  - general equilibrium model iterates world-wide regional natural gas demand & supplies, “investing” in new pipelines, if economic
  - perfect foresight in making return-on-investment decisions
  - resulting prices are those that would have to be sustained to make investments economic (under the assumed future conditions)
- Thousands of assumptions are made about future conditions of complex, interacting key drivers
- Provide insights on potential market outcomes under different plausible future conditions

Proposed Scope and Design of Natural Gas Market Assessment

Focus assessment on cases helpful to decisionmakers, rather than having a single point forecast be the primary product.

Part 1: Explore California's potential vulnerabilities, or opportunities, across a plausible range of conditions that could drive future wholesale gas market prices.

- High Gas Price Case - assumes a plausible combination US-policy-driven and market conditions that would lead to higher wholesale gas demand and higher gas prices
- Low Gas Price Case - assumes a plausible combination of US-policy-driven and market conditions that would lead to lower wholesale gas demand and lower gas prices

Proposed Scope and Design of Natural Gas Market Assessment (cont'd)

Part 2: Explore California's potential vulnerabilities, or opportunities, across a plausible range of conditions that could drive future California gas demand, costs, and infrastructure additions.

- High CA Gas Demand Case – assumes a plausible combination of CA-policy-driven conditions that would lead to high gas demand
- Low CA Gas Demand Case – assumes a plausible combination of CA-policy-driven conditions that would lead to low gas demand

Both cases will have a stressed sensitivity case that assumes low hydroelectricity conditions, high summer low winter temperatures, and robust economic conditions.

Proposed Scope and Design of Natural Gas Market Assessment (cont'd)

Part 3: Policy-relevant sensitivities to guard against one-side biases

Explore key uncertainties testing the claim that shale gas is a "game changer" for the U.S. gas market.

- Shale Environmental Mitigation Sensitivity Case – assumes high plausible combination of environmental mitigation costs or constraints on shale gas production

Explore potential market impacts of pipeline pressure limitations on transportation capacity.

- Reduced Pipeline Pressure Case – assumes reduced pipeline pressures/capacities associated with new public safety limitations

Uncertainty Analysis Helps Decisionmakers

- Policy decisions often seek to strike a balance between competing objectives.
- Decisions carry risk because the future is highly uncertain.
  - Accurate probability of complex future outcomes unachievable.
  - Even knowing what factors matter, and to what degree, is a challenge.
  - Consequences of actions based on one forecast are uncertain—another future can happen instead.
- Moderating the risks of decisionmaking requires understanding the ranges of forecasts and their consequences.
- Prudently selecting forecasts can moderate the risks of potential consequences of a specific decision.
  - Decisionmaker's risk tolerance is important