

Gas-Electric Coordination

Presentation by
Hess Energy Marketing, LLC
(A Direct Energy Company)

Direct Energy

- One of the largest Gas and Electric Marketer/Manager in the U.S.
 - Financially dependent on the markets
 - Efficient operating markets essential
 - Direct Energy operates in 46 US states plus the District of Columbia
 - Natural gas and electricity sales to small, medium and large sized businesses, public institutions and government
 - Sales in 2013
 - 85 TWh Retail Power sold (Rank #2)
 - 12 TWh Wholesale Power sold
 - 550 Bcf Retail Gas sold (Rank #1)
 - 250 Bcf Wholesale Gas sold

Issues

- Extraordinary winter conditions caused spikes in gas price and delivery challenges
- Exponential growth of generation that relies solely on natural gas
 - Lack of fuel diversity and back up fuel in the electric markets
- FERC and many in the gas and electric communities believe the cause of high prices and scarcity conditions can be attributed to a disconnect in timing between the electric and gas markets, and lack of “firm” rights on the pipeline

HESS/DE POSITION

- Our position is based on our experience in the Eastern RTOs
- NEED TO BE CONCERNED THAT WE DO NOT CREATE UNINTENDED CONSEQUENCES TO ADDRESS A FAIRLY RARE EVENT (GREATER THAN 1 IN 10 YEARS)
- Concerned that the purported “fixes” will not solve what is primarily a problem in the electric industry and at the LDC level
 - Most of the interruptions of gas delivery occurred on LDC systems and the states, not FERC, has jurisdiction over the way they manage their gas supply and delivery
- Proposed solutions do not address the real problem (clearing of bids in the RTOs) and will just create different challenges in the gas industry

HESS/DE Position cont'd

- Concerned that there is not a good understanding of how the gas markets work and there are misperceptions about weekend and holiday gas availability
- We believe the gas markets worked very well given the stress placed on the system:
 - Very few interruptions of gas on the interstate pipelines (other than a force majeure event on TETCO)
- Gas was available past winter at **market** prices
- Scheduling can/does occur 7 days a week
 - ICE provides for physical gas & electric trading every day (dependent on market participants)
 - Can and do schedule on weekends and holidays

Gas-Electric Markets Differences

Gas

- *100+ Pipelines*
- Involves multiple gas sellers & buyers requiring complex coordination across network of pipelines, producers, marketers and burner tip operators
- Point to Point scheduling of gas with limitations based on contract(s) and physical pipeline(s) flows.
- Gas storage is possible and available on-site or up-stream

Electric

- 6 RTOs/ISOs
- Central Operator matches generation and load
- Electricity flows not contract path and delivered instantaneously
- Electricity storage is practically non-existent
- Balancing differences?

Gas-Electric Market Similarities

- Both industries recognize operational limits
 - RTO rules accommodate generator flexibility by allowing generators' bids to reflect min and max run times, ramping, etc.
 - Ironically, the electric market participants maintain that the gas industry is inflexible, while failing to acknowledge operational realities that are recognized in the electric world (different rules for generation, renewables, demand response) and other operational constraints exist in the gas industry

Problems to be Addressed

- Generators do not know the hours nor quantity of MWs to procure if their bids are cleared after the close of the gas market
- RTOs must clear their markets prior to the close of the gas day if they want to ensure least cost procurement of gas
 - This includes reliability runs, where generation is committed well after the gas markets are closed
- Lack of fuel diversity
- Lack of storage

Solutions

- Reduce clearing times for RTOs (including Reliability runs) to one hour prior to close of gas nominations [e.g. 11am EST]
 - Clearing times for RTO should be reduced to approximately one hour after bids are submitted and mid-morning is preferred
- Allow generators to submit two sets of cost data to reflect that the electric market crosses two gas days or submit hourly cost data (i.e., NYISO)
 - Ensure penalties really match failure to perform on peak days
 - Reward dual fuel generation
 - Encourage diversity of fuel sources
- Use electric capacity markets to drive electric reliability
- Expand pipeline flexibility that currently exists only on some pipelines

Solution 1: Reduce RTO Clearing Times

- Would allow generators price discovery prior to bidding
- Would allow generators to then lock up their gas supply during the periods when gas procurement is liquid
- Generators would have their full dispatch schedule and should not run into ramping issues because they procured the wrong amount of gas
- Would require enhancement of RTOs IT, but the costs are probably negligible compared to the costs of paying generators to procure gas after the markets have closed
 - Example: In PJM, there was about \$100m of up-lift costs for the month of January. Would \$100m cover the costs to upgrade PJM's system?

Why is this the Best Solution

- Generators needs will match gas trading markets – creating economic efficiencies.
 - Price premium created when time spread exists between bids and offers (i.e., larger time spread = greater premium)
 - Supply risk (market conditions change over time and supply may become unavailable)

Solution 2: Allow Flexible Generation Bidding

- Allow generators bidding into the Day Ahead market to submit two sets of cost data to reflect that the electric market crosses two gas days
- Allow generators to submit hourly cost data in the Real Time (i.e., NYISO)
 - Eliminates the need to move gas day, which would have unintended consequences
 - Somewhat ironic that all the RTOs say change the gas day yet each of them closes at a different time so changing the gas day for one would not “solve” the problems in another RTO

Solution 3: Use Capacity Markets

- Use electric capacity markets to drive electric reliability
- Need state or federal policy to determine what type of resource portfolio is good for the RTO
- RTO can then:
 - run its capacity markets to procure resource diversity
 - run auction to procure additional dual fuel plants
 - run auction to procure storage
 - create rights incentives and penalties for peak performance

Expand Pipeline Flexibility

- Consider how Elapsed Prorata Scheduled Quantity rules unnecessarily restrict flexibility
- Require all pipelines to adopt the flexibility that some pipelines now offer:
 - No Notice swing storage
 - Retro/post cycles
 - production/pool imbalance tolerances
 - batch nominations

What are Less Optimal Solutions

- Changing the Gas Day (RTOs cannot agree on what is “right” time; West doesn’t like linking electric day to gas day
 - New Gas Day could negatively impact gas balancing which now generally occurs between 7-9 am CCT
- Requiring generation owners to contract for firm gas transportation
 - Expensive solution
 - Primary receipt to primary delivery point nominations on the pipeline are firm (will be delivered) subject to Force Majeure events; secondary points often flow as well
 - Notwithstanding that a generator contracts for firm transportation the LDC level may not deliver the gas if the generator behind the LDC does not have firm service with the LDC

What are Less Optimal Solutions

- Changing the gas day to match the electric day
 - In theory this is attractive, but what works for the east (midnight to midnight) does not work for the west
- Building more pipeline where other solutions may be more efficient
 - Will simply encourage more reliance on gas and not solve the problem
 - Will exacerbate storage issues
 - Use the least cost solutions: is it more efficient to build a pipeline, add or upgrade transmission, or build a generating facility
- Increasing the amount of nominations during the day
 - Still dependent on changes in the patterns of liquidity of the gas market
- Creating an “RTO-like” structure for the gas industry (the “Sipes” proposal)
 - Already have ICE
 - Not like the electric world, where cannot change the flows of gas, have metering issues

Gas-Electric Coordination

- NAESB's role:
 - Facilitate coordination of change in RTO deadlines to meet gas trading and pipeline nomination timelines
 - Facilitate standardization of pipeline rules

Gas-Electric Coordination

Discussion/Questions?