



Eastern Interconnection Planning Collaborative

Eastern Interconnection Transmission Studies Project

Target 2 Sensitivities: Discussion and Prioritization

SSC Webinar
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Outline

- Recall the three scenarios
- Review the sensitivities presented during the previous SSC webinar
- Review additional sensitivity ideas developed by the Planning Authorities
- Review Stakeholder sensitivity suggestions
- Feedback and discussion on those sensitivities that look to be higher priority

Recall there are Three Scenarios

1. Reference Gas Demand Scenario
 - a. Continuation of current market conditions with reasonably expected changes consistent with PPA resource planning
2. High Gas Demand Scenario
 - a. Lower delivered gas prices, increased coal plant attrition
 - b. Represents a plausible maximum gas demand
3. Low Gas Demand Scenario
 - a. Higher delivered gas prices, slower electricity demand growth, higher-than-expected growth in renewables
 - b. Represents a plausible minimum gas demand

Fundamental Sensitivity Cases

- For each of the three scenarios a price sensitivity is needed and will be preformed. This sensitivity would adjust the basis adder for the natural gas prices in each scenario to reflect market pricing on a peak day.

Potential Reference Gas Demand Sensitivities

1. Significant substitution of renewable energy technology for conventional gas-fired additions
2. Significant substitution of renewables and electric and/or gas DR/EE for conventional gas-fired additions
3. Significant substitution of different renewable technologies and locations for conventional gas-fired additions, including energy storage
4. Significantly higher or lower delivered natural gas prices (2 separate runs)
5. Expected deactivation of coal plants and the retirement and/or the delayed restart of nuclear units

Potential High Gas Demand Sensitivities

1. Additional coal retirements + retirement of Indian Point 2/3 + significant delay in the restart of nuclear units in Ontario
2. Additional coal and nuclear retirements + oil retirements in New England + the postponement / cancellation of certain proposed transmission projects including Northern Pass Transmission
3. Increased LDC load growth attributable to increased oil-to-gas conversions (including transportation fleet conversions)
4. Substantially lower delivered commodity gas prices due to exploration and production technology progress and shale gas economics
5. Greater economic activity over the 5- or 10-year period

Potential Low Gas Demand Sensitivities

1. ~25% or ~ 50% substitution of wind / other renewables for newly-proposed gas-fired combined cycle or gas turbine plants
2. Increased electric and gas EE/DR, including potential increase in dispatchable gas-side DR during the Peak Heating Season
3. Increased renewables penetration, including 1,000 MW of hydro imports from Quebec to Ontario and additional hydro-by-wire into New York and/or New England
4. Combination of #2 + #3
5. New environmental restrictions that materially increase wellhead natural gas prices in shale producing basins
6. Increased LNG exports, e.g., along the Gulf of Mexico or Atlantic Seaboard
7. Prolonged economic stagnation over the 5- or 10-year period

Sensitivities of Interest to IESO

1. Reference Gas Scenario – Energy East pipeline does not proceed (assumed to be completed in the Reference Scenario base assumptions).
2. High Gas Scenario – Delayed restart of Ontario nuclear units and no nuclear refurbishment. The nuclear units reach end of life and are retired.

Sensitivities of Interest to PJM

1. Reference Gas Demand Scenario:

- a. Significantly higher gas price (Potential #4)
- b. Increased infrastructure to enable additional Marcellus/Utica flows to neighboring PPAs
- c. Increased gas storage availability
- d. Increased electric storage availability

2. High Gas Demand Scenario:

- a. Additional coal and nuclear unit retirement (Potential #2)
- b. Increased LDC load growth (Potential #3)

3. Low Gas Demand Scenario:

- a. Increased EE/DR (Potential #2)
- b. Increased LNG exports (Potential #6)
- c. Extended nuclear licenses

Sensitivities Suggested by Stakeholders

Regional Input –

New England stakeholders request a sensitivity that would reflect increased LNG deliveries to Canaport and Distagas LNG import terminals.

Sensitivities Suggested by Stakeholders

TO-TD Sector Input –

1. Include any/all electric transmission infrastructure meeting the Section 2.5 inclusion criteria of the Non-DOE Funded Roll-up Report in the base case as an additional baseline for all scenarios and sensitivities being run
2. High generator retirement sensitivity
3. Backup fuel inventory sensitivity (applicable to dual fuel units), high and low (e.g. 30-day backup fuel inventory, 5-day backup fuel inventory)
4. High penetration of renewable generation sensitivity
5. High electric load growth

Sensitivities Suggested by Stakeholders

Gas Sector Input –

1. Reference Gas Demand Scenario – with high LNG export assumptions. The EIPC should assume LNG export levels as noted in the Energy Information Administration (EIA) Annual Energy Outlook (AEO) 2014 Early Release as opposed to the EIA AEO 2013.
2. Reference Gas Demand Scenario – with high industrial demand assumptions. The sensitivity reflects the notion that high industrial demand could impact the amount of currently unsubscribed pipeline capacity should industrials contract for firm transportation. Further, the sensitivity should reflect the potential for industrials to support pipeline expansions, both mainline and lateral only, to support increased demand. The sensitivity further should consider the impact of additional demand competing with generators for interruptible pipeline transportation and capacity release.
3. High Gas Demand Scenario – assumptions with no change in gas price from the reference case. The sensitivity reflects the notion that high gas demand very well could be driven by dynamics outside of gas price.
4. Low Gas Demand Scenario – assumptions with no change in gas price from the reference case. The sensitivity reflects the notion that low gas demand very well could be driven by dynamics outside of gas price.

SSC and Stakeholder Input

Additional Sensitivities for Discussion

- Additional Thermal “Retirements” (Nuclear/Coal/Oil)
 - Region-wide or Region Specific (e.g. New York only)?
 - Combined or separate sensitivities?
 - Basis for retirements and selection/location of replacement capacity?
 - Sensitivity off High Gas Demand Scenario?

Additional Sensitivities for Discussion

- Additional Electric Transmission Build-Out
 - Basis for assumption?
 - Detailed transmission analysis is outside project scope
 - Generic assumption (e.g. could propose a nominal increase in transfer capability between zones)
 - Include HVDC from Canada?
 - Sensitivity off Reference Case or High Gas Demand Scenario ?

Additional Sensitivities for Discussion

- Extreme Weather Conditions
 - Increase in both electric and natural gas demand?
 - Summer or winter conditions?
 - Basis for assumption (historic data/January cold snap)?
 - Sensitivity off High Gas Demand Scenario?
- High Electric Demand Response
 - Basis for assumption – policy or price driven?
 - Sensitivity off High Gas Demand Scenario or Low Gas Demand Scenario?

Prioritization Discussion

1. This page will be completed during the webinar as the discussion occurs to capture SSC and stakeholder comments.
- 2.

Questions and Discussion

