"Gas-Electric System Interface Study"

Comments of the PP/TDU Sector - (July 12, 2013)

Overview

The Public Power / Transmission Dependent Utilities (PP/TDU) sector appreciates this opportunity to comment on the Department of Energy (DOE) Statement of Work (SOW) for the Gas-Electric Interface Study (the "Study"). We agree that it is wise to examine the capabilities of the natural gas transportation system and the cost to potentially expand that system. This is important given (i) the large amount of future natural gas-fired generation additions indicated in certain planning scenarios of the Eastern Interconnection Planning Collaborative (EIPC), and (ii) significant changes in the natural gas industry including the development of seemingly abundant quantities of reasonably-priced shale gas in the continental United States.

The PP/TDU sector believes, however, that the SOW should be more directly tied to the analysis performed in the EIPC work and should avoid duplication of previous efforts to project electric demand and production by natural gas-fired generation resources. The SOW should clearly state the purpose of the Study and how that is expected to supplement previous EIPC work.

At a high level, the Study should provide insights about the following questions:

1. What policies, facilities, and investments are needed to make the natural gas supply and transport system sufficiently reliable to deliver fuel for gas-fired electric generation in the Study Region? The gas demand from electric generation should include existing units plus the new gas-fired generating units indicated in resource plans corresponding to the three EIPC transmission build-out scenarios.

2. How does including the cost of necessary upgrades to the gas supply and transportation system affect the cost differentials between the three EIPC transmission build-out scenarios?

3. How sensitive are the results to the assumption of whether new gas-fired generating units are dependent on firm transport gas or backup fuel sources?

Specific Comments

1. The Study should provide a concise overview of how the natural gas production, transport and compression, storage, and local distribution system works and what issues they present for electric generators that are fueled by natural gas. Examples of issues that should be described include gas pressure, nomination practices, coordination of electric and gas scheduling, service options (firm, secondary, interruptible), storage and handling variances from predicted fuel needs, subscribing new pipeline capacity, etc.

2. The Study should provide a snapshot of current gas demand in the Study Region, classified in a logical fashion (perhaps by PPA or by major gas market region). The snapshot should identify the major end uses of natural gas, including the amount used as fuel for electric generation as a separate category. It would also be helpful to see a chart of the natural gas demand profile (for a year) and, on the same chart, the profile of natural gas used by electric generators.

3. The Study should make some "big picture" observations on the expected effect of the development of major shale gas fields (e.g., Marcellus and Utica). How has the introduction of these production regions affected pipeline capacity? Where are the pipelines now more constrained? Where are the pipelines now less constrained? How would one expect this to influence the siting of proposed new gas-fired electric generation and the retirement schedules of coal-fired generation? What will the emerging view that the availability of natural gas is growing and will remain low cost for the foreseeable future mean for the development of renewable energy projects and public policy concerning renewables and air quality regulations and enforcement timetables? How will this affect the ability and need to develop large multiregional transmission projects?

4. The Study should identify planned and projected pipeline expansion qualitatively and, where reasonably possible, quantitatively identify the factors affecting the likelihood and schedule of these expansions over the study period.

5. Why is this Study for 5 or 10 years into the future rather than synchronized with the time frame evaluated in the EIPC Study? It should be the same to avoid duplication of effort (e.g., use the generation resource plans and energy production indicated in the previous EIPC work to the extent possible).

6. Target #4 should include consideration of the ability to obtain air permits and Emission Reduction Credits as well as operational limitations related to dual fuel.

7. [Section 4.1] Why use a 100 MW threshold for units directly connected to a pipeline, but 50 MW for those connected to an LDC? The threshold should be the same for both.

8. [Section 5.2] Section 5.2.3.2 requires a tabulation of the type of gas service (NTS, FT, IT, etc.). Equally important, however, is how the pipeline's tariff and operational practices limit those services. A simple tabulation does not provide much insight. We suggest that the tabulation be combined with 5.2.2.3 to fully understand the gas supply limitation on the electric generation fleet. For example, some pipelines allow firm transportation customers to

begin consuming gas without a nomination in place, other pipelines require no-notice service to do so.

For section 5.2.2.3 we suggest the report focus on the tariff limits (non-force majeure – worst case on what pipelines can restrict), historical flexibility offered by pipelines and then a commentary on what generators in each region typically rely upon (firm balancing services or interruptible services), The areas of concern are:

- Can the generator come on-line prior to nominating natural gas?
- Can the generator consume gas on a non-uniform basis? What hourly restrictions, per the tariff, can the pipeline restrict generators to?
- What daily imbalance provisions apply? If a plant comes on when natural gas cannot be purchased, what volume or service can the generator rely upon to source after-hour dispatches?
- Secondarily the gas quality standards and pipeline pressure obligations could be discussed. If the pipeline began flowing at the higher limits on pipeline quality gas, how would this impact electric generation? If a generator does not have firm pressure guarantees they could be at risk. Pipelines are changing flow direction because of shale field developments and this could impact operating pressure.

Section 5.2.3 should include Firm Supplier (natural gas marketers) agreements for delivery of natural gas. Examining posted firm transportation agreements on the pipelines would not provide a complete picture. Some units may have a firm agreement with a natural gas marketer, who holds firm capacity, to deliver firm supplies to these plants.

Section 5.2.5 should include both forward haul and backhaul capacity. Often there may not appear to be any capacity available when only the forward haul route is considered. There typically can be capacity available on a backhaul basis and with the increasing market area supply there will be more opportunities to move gas from the northeast to the South and Midwest.

9. [Sections 6.3, 6.4, and 6.5] Rather than duplicate previous efforts, why not use work already done in the EIPC study to establish a reference gas demand case (perhaps "Business as Usual") and a high gas demand case (perhaps the scenario containing the largest natural gas-fired generation build-out or a sensitivity run associated with that scenario). A low gas demand case is not likely to be valuable for a study that seeks to test the strength of the gas supply and transportation system. It is important that the High Demand Case (and possibly the Base Demand Case in 6.3) include hourly consumption in the analysis. This information will be difficult to obtain, but a conclusion based on daily or monthly consumption could paint a false picture. For example, if a unit runs uniformly over 24 hours there may not be any restrictions but if the same unit is dispatched in a non-uniform manner there could be

restrictions from the pipeline. Perhaps it would be best to focus on the items listed above in Section 6.9 which focuses on Gas Sector Constraints.

10. [Section 6.5] In lieu of a low gas demand sensitivity case, a case should be considered that evaluates the economic and reliability impacts that increasing gas demand from sectors other than electric power generation could have on the capability of the gas delivery system. For example, if natural gas became a fuel of choice for vehicles, how would the delivery system be affected (probably most near population centers) … or if natural gas exports increased significantly, how would one expect available pipeline capacity to change in the regions of interest? To what extent will greater gas availability affect the demand and pricing of other fuels, including electricity? How will emerging expectations about an expansion of natural gas distribution and lower relative costs compared to oil and electricity affect industrial, commercial, and residential energy choices in ways not already considered in the prior EIPC study?

11. [Section 6.9 or 6.10] It will be important to include the potential constraints that could develop if pipelines begin to limit operational flexibilities. Many pipelines allow generators to come on-line without a prior nomination, run non-uniformly, or carry a daily imbalance. Many pipelines offer these services on a best efforts / interruptible basis. Since these services have been readily available and historically reliable, the potential to ignore the possibility that pipelines will change how these services are offered is probably. With increased generation, changing flow directions and potential for increased revenue, the operational flexibility available on a best efforts basis may diminish.

12. The Study assumes ample supply of natural gas. It would be useful to consider how changes in the availability of supply in various key locations would impact the results.

13. [Section 8.2] It would be useful to know what is required with respect to accrediting generation fueled by natural gas in each PPA within the Study Region. For example, can a generator without a backup fuel source be counted as capacity if it purchases interruptible transport for gas?