

EIPC Gas-Electric System Interface Study: Comments of the Transmission Owners and Developers on Draft Scope of Work

I. Introduction

The Transmission Owners and Developers (TO/TD) sector of the Stakeholder Steering Committee (SSC) appreciates the focus of the Gas-Electric System Interface Study (Gas-Electric Study) - the evaluation of the interaction between natural gas and electricity infrastructure from a planning perspective. This additional analysis should serve as a supplement to the previous work performed by the Eastern Interconnection Planning Collaborative (EIPC), and the results of the Phase I and Phase II electric transmission planning reports. As proposed, the Gas-Electric Study will evaluate a shorter-term planning horizon, five to ten years, rather than the twenty-year study horizon of the EIPC electric transmission studies completed in Phase II.

The June 6, 2013, draft Statement of Work (SOW) is intended to detail the focus of the Gas-Electric Study. Broadly, it outlines four targets for the analysis: (1) baseline assessment and description of the natural gas and electric system interfaces and how they impact each other; (2) high and reference gas case capability evaluation for each participating planning authority (PPA); (3) contingency analysis for each PPA; and (4) review of operational and planning issues impacting the availability of dual fuel capability for electric generating units. Below, the TO/TD sector provides comments on the draft SOW.

II. Comments

The Gas-Electric Study should seek to provide analysis that regional stakeholder processes can utilize to develop appropriate means to maintain electric and gas system

reliability cost-effectively as interdependence between the industries continues to grow. To that end, the draft SOW should be revised to: (i) explain the interrelationship between the Gas-Electric Study and the electric transmission analysis of the Phase I and Phase II reports; (ii) specify that the Gas-Electric Study is intended to provide a fact-based assessment, leaving it to regional stakeholder processes to effectuate relevant changes to address any identified issues at the conclusion of the study; and (iii) evaluate credible scenarios with sufficient granularity so that the conclusions of the study will aid the regional stakeholder processes. In addition, the TO/TD sector requests additional progress reports throughout the development of the Gas-Electric Study to increase vital stakeholder involvement. These specifics are discussed in detail below.

A. A Clear Introduction Should be Added to Explain the Interrelationship Between the Gas-Electric Study and the Phase I and Phase II Electric Transmission Studies

The SOW describes in detail the tasks and analyses that the consultant should perform as part of the Gas-Electric Study, but provides little insight into the intent of the study and its relationship with the Phase II EIPC study. The draft SOW should be modified to provide a high-level introduction providing focus and outlining the intended interrelationship between the Gas-Electric Study and the Phase I and Phase II electric transmission planning reports. This will provide greater clarity for the consultant that will perform the study and participating stakeholders.

As the TO/TD sector understands it, the intent of the Gas-Electric Study is to evaluate whether expected gas infrastructure will be sufficient in the short and medium-term (*i.e.*, five to ten years) to support the additional increase in gas-fired generation anticipated under the Phase II study scenarios. Specifically, the Phase II report stated “it was assumed that new

natural gas plants would be placed at the site of deactivated coal plants, reducing the need for transmission; the locations and capacities of natural gas pipelines were not taken into account.” As a result, the U.S. Department of Energy (DOE) requested that the EIPC continue its work, and examine the interaction between natural gas and electricity infrastructure from a planning perspective. The study will evaluate what gas or electricity infrastructure modifications must be made in order to meet the pre-conditions for the scenarios presented in the Phase II study.

B. The Gas-Electric Study Should Provide a Fact-Based Assessment to Aid Regional Stakeholder Processes

The principal purpose of the Gas-Electric Study should be to produce a fact-based assessment of potential gas capacity shortfalls and gas system vulnerabilities that could affect future electric system reliability. The consultant’s analyses will provide much-needed information for stakeholders to assess and address these possible reliability threats. However, the range of options available to address any identified vulnerability, and the preferences of stakeholders, will vary among participating the regions and even within those regions. Therefore, the study should avoid making policy recommendations that are best left to regional processes (*e.g.*, changes in market rules, reliability requirements, or cost allocation). This preference should be clearly articulated in the SOW.

The TO/TD sector also recommends removing all tasks from the SOW that are not relevant to providing a forward-looking assessment of the potential reliability of gas and electric infrastructure. In particular, we urge the PPAs to eliminate the evaluation of scheduling and nomination procedures included in the draft SOW. Changes to gas and/or electric scheduling practices may or may not be a worthy undertaking, but they are only

peripherally related, at best, to an assessment of system capacity. The resources and time associated with this evaluation are best devoted to other tasks more central to the Gas-Electric Study's principal focus, as detailed below.

C. The Gas-Electric Study Should Provide Sufficient Detail to Permit Regional Entities to Develop Policy or Procedural Changes to Address Identified Issues

The draft SOW requires the consultant to evaluate potential gas system constraints (Section 6) and contingencies (Section 7), and the costs and benefits of dual fuel capability in each PPA area. To best aid the regional stakeholder processes, the SOW should assure that study analyses and results will be sufficiently detailed and disaggregated that regional stakeholder processes will be able to act upon them. In particular, the SOW should require the consultant to identify and recognize in its analyses the major electric and gas system constraints within each participating planning authority (PPA) and to disaggregate analyses and results according to those constraints. The study should not simply report the sum total of available gas system capacity into and out of each PPA. Such an analysis would not provide a meaningful basis for regional stakeholder processes to act at the conclusion of the study. Therefore, the draft SOW should be revised to reflect that the study will evaluate major system constraints, both electric and gas, within each PPA region.

D. The Analysis Should Represent All Reasonably Possible Future Conditions

The draft SOW should recognize that the natural gas infrastructure and market conditions will continue to evolve in the next five to ten years. To best aid regional stakeholder processes at the conclusion of the study, it should represent all reasonable possible future conditions, not just projects already under development. For example, Section 5 – Target 1 of the draft SOW (Baseline the Existing Natural Gas-Electric System

Interfaces) requires an analysis of existing gas resources and those under development, but it is not clear whether the consultant will be required to make reasonable judgments about which additional gas resources may exist five and ten years in the future. To produce credible conclusions, the study must recognize that gas (and electric) infrastructure enhancements will be developed in order to reliably serve firm residential, commercial and industrial gas (and electric) load. Therefore, the draft SOW should be revised to make clear that the consultant should include gas (and electric) system expansions that are both already in process and additional generic upgrades that will be developed to meet this gas (and electric) firm load. In addition, the draft SOW should be clarified to allow the consultant to assume that some gas infrastructure upgrades in early stages of development may not be completed.

Moreover, the degree to which DOE will permit natural gas exports and the global market's ability to absorb those exports remains uncertain. Depending upon the magnitude and location of these exports, it is possible that gas supplies to the PPAs could be affected significantly. The study should not only consider the status-quo scenario of no gas exports from the U.S., but also should consider the possibility that significant changes in gas supply and demand characteristics could occur if gas exports substantially rise.

E. The Gas-Electric Study Should Recognize Additional Options Available to Address Gas System Constraints and Contingencies

Where constraints or contingency risks are identified, as discussed in the draft SOW, the study will evaluate whether those constraints or contingency risks can be resolved economically by natural gas system upgrades or dual fuel capability. The TO/TD sector support a high-level evaluation of these alternatives, and suggest that the consultant develop

suggestions about the circumstances in which each approach is most appropriate and generic cost estimates for their implementation. However, the SOW should not limit the consultant to proposing only natural gas system upgrades or dual fuel capability. Rather, the study should consider all reasonable alternatives at a high-level, including electric demand response, electric transmission expansion, less reliance on a particular gas pipeline for fuel and/or greater generation fuel diversity. At the very least, the consultant should be instructed to flag circumstances where analysis of alternatives beyond gas system enhancements and expanded use of dual fuel capable generation may be appropriate.

F. The Analysis Should Evaluate The LOLE Impact of Gas System Constraints and Contingencies

Section 6 – Target 2 of the SOW (Evaluate the Capability of the Natural Gas Systems to Satisfy the Needs of the Electric Systems) requires the consultant to assess the gas requirements of all gas capable generators and the capability of the gas system to fulfill those requirements, considering the needs of firm gas customers, such as gas local distribution companies (LDCs) serving residential and commercial load. However, it is not clear how the needs of the electric system will be quantified. Given that generation capacity is designed to meet electric load and a reserve margin, simply summing the needs of all gas capable generators will likely overstate the electric industry’s gas needs.

In addition, Section 6 – Target 2 of the draft SOW currently mentions the consideration of seasonal (both summer and winter) demand for natural gas for the electric sector (see, Section 6.3, Develop a Reference Gas Demand Case that Identifies the Fuel Requirements for all Gas Capable Units). This evaluation should be a probabilistic analysis by season of the gas transportation system’s ability to meet peak demands under the analyzed

conditions, including a calculation of the loss of load expectation (LOLE) for the bulk electric system associated with any gas supply deficiencies in each gas transportation category. In addition, the assumed level of renewables, electric demand response and energy efficiency associated with State or Federal policies, as referenced in Section 6.3, should be realistic projections. Similarly, the analysis of gas system contingencies performed under Section 7.4 (Identify Severe Gas Sector Contingencies) should quantify the LOLE impacts of particular contingency scenarios. These specifications will more effectively recognize the industry's potential gas needs and the relative reliability impact of any gas system contingencies or shortfalls in gas system capacity.

G. The Gas-Electric Study Should Recognize that the Duration of Capacity Shortfalls May Impact Which Solution is the Appropriate Response

Section 7 – Target 3 of the draft SOW (Identify Natural Gas System Contingencies that Could Impact Electric System Reliability and Vice Versa) currently omits consideration of the frequency and duration of gas system constraints and contingencies from its assessment. As a practical matter, the duration and frequency of a constraint or contingency identified by the study will greatly impact reliability impacts of the constraint or contingency as well as the costs and benefits of potential solutions intended to maintain the reliability of the electric system. For example, a constraint likely to exist one day per year may potentially be addressed by increasing dual fuel capability or demand response participation, while a constraint that exists 100 days per year may be effectively resolved with gas infrastructure upgrades or electric transmission upgrades. Therefore, the draft SOW should be revised to specify that all analysis performed during the study will quantify the duration and frequency

of identified constraints, including those constraints caused by contingencies, which will help regional stakeholder groups in identifying the appropriate solutions.

H. The Contingency Analysis Should Evaluate Both Five and Ten Year Horizons

In addition, as proposed in Section 7 – Target 3 of the draft SOW, contingencies identified, and their impact on electric system reliability, will initially only be evaluated for a scenario five years into the future, with the possibility of an additional scenario looking ahead ten years as optional tasks. However, the evaluation of both a five and ten year periods is necessary in order to determine which contingencies are temporary concerns, and which may be more significant concerns further into the future. Different solutions may be appropriate, depending on whether the problem is expected to persist for a short or long period of time. Moreover, given the extended timeline for completing the Gas-Electric Study (with a target completion date in early 2015), the analysis and results should look sufficiently far into the future so that the study results will not be stale upon completion. The SOW should accordingly be revised to specify that the contingency analysis will evaluate both a five year and ten year horizon during the study.

I. The Study Should Seek to Represent Generation and Transmission Conditions Consistent with Those Represented in the Phase II Business As Usual Baseline

The Gas-Electric Study period of five to ten years does not match the study period for the transmission study in the Phase II report, which was twenty years. The proposed five to ten year study horizon is appropriate since the gas-electric interface issues are likely to occur in the short- and medium-term, due to the retirement of large amounts of generation, especially coal-fired generation, and the transition to gas-fired generation. However, the Gas-Electric Study should also seek to represent generation and transmission conditions that

are consistent with those represented in the Phase II baseline (Business As Usual) scenario as much as possible. For example, the Gas-Electric Study should not assume greater retirements of coal-fired generation than the Phase II baseline or more additions to transmission than presumed in the Phase II baseline.

J. The Study Should Evaluate the Increased Reliance on Gas-Fired Generation for System Restoration

Thousands of megawatts of uneconomic generation are in the process of being retired or mothballed, potentially reducing the adequacy of black-start service in some regions. These closures will therefore have an impact on regional plans and procedures for procuring electric system restoration services. Presumably, as the industry increases its reliance on gas-fired generation these units will become a larger percentage of the overall black-start capable units.

Section 6 – Target 2 of the draft SOW (Evaluate the Capability of the Natural Gas Systems to Satisfy the Needs of the Electric Systems) should be revised to reflect this evolution. In addition to the language regarding mitigation of constraints in Section 6.10.1, the SOW should specify that the Gas-Electric Study will evaluate the extent to which the industry’s increasing reliance on gas-fired generation for emergency system restoration may affect the existing black-start capabilities of the electric system.

K. Periodic Progress Reports to Stakeholders Should be Made

The results of the Gas-Electric Study must be credible in order to provide meaningful guidance to the industry as it continues to examine gas-electric interface issues. Adequate stakeholder evaluation and input will aid in assuring that the study results are, indeed, credible. However, the draft SOW appears to limit opportunities for stakeholders to review

and provide input to brief comment periods near the conclusion of each study stage. The TO/TD sector suggests that the consultant also hold periodic webinars solicit input from stakeholders on analytical methodologies and assumptions prior to the execution of analysis. Given the extended timeline for completing this study, the TO/TD sector believes that this level of stakeholder participation in the study can be accommodated without impacting the target completion in early 2015.

III. Conclusion

The TO/TD sector appreciates the opportunity to provide comments on the draft SOW and look forward to ongoing participation in the development of the Gas-Electric Study. The recommended revisions and additions detailed above will assist in ensuring that the ultimate conclusions of the Gas-Electric Study are credible as well as useful to the regional stakeholder processes.

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