**via posting & email**

**TO:** NAESB Gas Electric Harmonization (GEH) Committee and posting for interested parties

**RE:** Draft Outline of Analysis of Standards Related Observations

**DATE:** June 1, 2012, edits applied on June 8, 2012

Dear NAESB GEH Committee,

At our last GEH meeting on May 16, we decided to review the results of the survey which was amended and posted on May 24. We agreed to look at the observations that were defined as of primary or secondary interest for policy items, commercial items or potential standards development.

The following report, drafted initially on June 1, 2012 and reviewed and edited by the group on June 8 in the Baltimore meeting, provides the observations that were defined as related to potential standards development. The standards related observations have been consolidated for ease of reading, and the consolidated items have been cursorily reviewed for:

* Relationship to other existing standards

and the template provides for:

* Observations that lead to a determination that there are no fundamental reasons why standards development could not go forward
* If there is fundamental disagreements for standards development, they are to be highlighted for consideration

This work paper, along with the work papers developed for policy and commercial issues, will provide the foundation for the recommendations to be presented to the Board of Directors in September.

**OPENING STATEMENT ITEMS:**

* Individual observations stand by themselves and are not considered positions endorsed by the committee as no votes are to be taken. They were provided from the documents listed as sources for the committee and from the discussions held in the committee meetings.
* We are not trying to solve all GEH issues with standards.
* Should additional capacity be needed, standards will not determine whether to build that capacity. Standards do not address the creation of capacity. Standards cannot solve infrastructure requirements when policy and or commercial decisions must be made first.
* If regional arrangements did not lend themselves to the broader uniformity provided when creating standards with regional differentiation, standards would not be appropriate.
* When policy clarifications are needed or new policy would be helpful in addressing GEH issues, the clarifications or new policy may or may not lead to standards development.
* Observations identified as either primarily or secondarily related to standards development were done so because the committee found no fundamental reasons why the industry should not consider developing standards to assist the market in addressing GEH issues.
* Where the committee has found fundamental reasons why standards should not be developed, they will be so stated.
* Standards developed to harmonize the two markets could impact not only power generation but all natural gas end use customers, and the terms of existing contracts that govern the services provided to the end use customers should not be adversely impacted.
* If a standard is to be developed and implemented that would shift costs from one segment to another, then policy direction will be needed before the standards development can take place -- as it is extremely unlikely that consensus in the industry could be reached.
* As observations are listed for each of the consolidated recommendations, it can be seen that there is an overlap across policy issues, commercial issues and standards development recommendations. These overlaps are to be expected as the observations are multi-faceted, in which there may be standards development recommended for part of an observation at the same time that there are considerations for policy direction or regional commercial practices for other parts of an observation.

**RECOMMENDATIONS THAT COULD LEAD TO STANDARDS DEVELOPMENT:**

1. Greater flexibility in scheduling gas transportation services and related requirements may lead to standards development or revisions of existing standards and should be considered by the NAESB organization.

* This recommendation incorporates observations noted for: 1.1, 1.2, 1.3, 1.4, 1.6, 1.7, 1.8, 1.10, 1.11, 2.15
* The recommendation is linked to similar NAESB standards that have been defined for intraday scheduling, scheduling and confirmations, and bumping rules. Those standards may require changes if standards development for this item in undertaken.
* Fundamental reasons why standards development in this area should be undertaken:
* This recommendation is linked to Recommendation 2 for market clearing times in day ahead markets, in identifying ways to improve the gas-electric interface to ensure daily gas availability for all end user customers, including gas-fired power generation, in the most reliable, economically rational way to benefit the largest number of commercial participants. In this instance, it is recommended that the existing rules governing the scheduling and holding of pipeline capacity be revised to allow for more flexible intraday nominations without penalties to enable a superior allocation of available capacity to generation customers dependent upon gas takes to meet their daily delivery requirements. As noted earlier in this paragraph, standards development supporting flexibility in scheduling goes hand in hand with the need to revise the pipeline capacity and market clearing timelines to harmonize the gas-electric interface.

2. Unsynchronized market clearing times for natural gas and electricity sometimes create challenges that may possibly require changes to market timelines. At a minimum, standards supporting schedule coordination and additional communications between the two markets may be needed.

* This recommendation incorporates observations noted for: 1.5, 1.6, 2.15
* The recommendation is linked to similar NAESB standards that have been defined for natural gas timelines -- which could impact capacity release program timelines, and communications between pipeline operators and generator facility operators. Those standards may require changes if standards development for this item in undertaken.
* Fundamental reasons why standards development in this area should be undertaken:
* This recommendation is linked to Recommendation 1 above. The unsynchronized timelines between the nomination periods for pipeline capacity, on the one hand, and the market clearing times for power dispatch in organized markets, on the other, are well known. If both the gas and electricity sectors want to ensure power reliability in a scenario of significantly higher gas dependency for power generation, this matter must be addressed to seek solutions broadly acceptable to as many commercial participants as possible, and to inquire whether standards should be developed.
  + Cautionary considerations to be taken into account if standards development is to be pursued:
  + Load profiles in both the natural gas and electricity markets present challenges to reaching more uniform market clearing times.
  + Convergence of natural gas and electricity delivery days may be achievable with policy guidance.

3. Standard development should be considered to further promote the availability of information to specific entities in order to assist in addressing GEH issues related to (1) the status of generation and pipeline capacity, (2) access to critical infrastructure information needed by electric service providers in curtailment conditions including information on gas fired generators, and (3) support of decision enabling tools related to contingency response and day-of-service operations. The communications protocols and effective means, by which communication would take place for situational awareness reporting, recognizing confidentiality constraints, are key components for consideration. Nuclear Power Plant Communications (Report 16, Nuclear Plant Interface Coordination – Standard NUC-001-2, NERC, April 2010, <http://www.nerc.com/files/NUC-001-2.pdf>) and other similar reports may be reviewed as potential reference points for standards development. NAESB communications protocol standards and security standards should be reviewed to ensure they are robust enough to support the sharing of information envisioned in this development.

* This recommendation incorporates observations noted for: 1.12, 3.3, 3.4, 3.5, 4.0, 4.1, 4.2, 4.4, 4.6, 4.7, 4.8
* The recommendation is linked to similar NAESB standards that have been defined for NAESB for scheduling and for communications between pipeline operators and generation facility operators. Those standards may require changes if standards development for this item in undertaken. The recommendation is linked to similar NAESB standards that have been defined for NAESB security standards and communication protocol standards. Those standards may require changes if standards development for this item is undertaken.
* Fundamental reasons why standards development in this area should be undertaken:
* This recommendation addresses the need for improved communications between the gas and electricity sectors to attain a higher degree of situational awareness to address instances of unforeseen capacity constraints or emergency conditions. It also is intended to ensure a higher quality of information for all commercial participants whether or not they participate in organized power markets. While this recommendation builds upon Recommendations 1 and 2, it is not dependent upon their adoption, and can be considered separately on its own merits for purposes of standards development.
* This recommendation is intended to complement the need for openness and transparency, with the possibility of creating a formalized structure of communications between the electricity and gas sectors. At the same time, this need for formalized, open communications needs to be tempered with adherence to the legal requirements prohibiting anticompetitive conduct, and refraining from placing into the public domain information that could jeopardize the safety and security of the system.
  + Cautionary considerations to be taken into account if standards development is to be pursued:
  + The communications noted cover both real-time and operational planning schedules.
  + Two levels of communication exchange should be addressed – public consumption and operator-to-operator communications.

**Below please find the list of observations where if noted in green indicate that they are primary, and in yellow indicate that they are secondary for standards related issues that could lead to standards development. These observations have been consolidated, and reviewed in regard to**

* Relationship to other existing standards
* Observations that lead to a determination that there are no fundamental reasons why standards development could not go forward
* If there is fundamental disagreements for standards development, they are to be highlighted for consideration

|  | |  | **STANDARDS - PRIMARY and SECONDARY CORE ISSUES & OBSERVATIONS** | Policy | Commercial | **Standards Primary** | **Standards Secondary** | Comment |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. OBSERVATIONS AND CORE ISSUES AS OF APRIL 24, 2012: • Scheduling and other inconsistencies in the interactions of the two markets impact the effectiveness of providing gas and electric service. • Core issue: Should NAESB examine: • The gas & electric scheduling timelines to create more certainty and flexibility in scheduling, recognizing that providing flexibility in one area may take away flexibility in another? | | | |  |  |  |  |  |
| 1 | | 1 | For day-of operations, intraday nomination flexibility is key in contingency response, load following, and in backing up renewables. | 10 | 14 | 22 |  | 5 |
| 1 | | 2 | As generation units sign up for firm transportation, the bumping rules in the tariff provisions may impede the benefit of holding firm gas transportation. Added flexibility and types of gas transportation services may be needed by gas-fired power generators to meet the clearing and reliability requirements of the electric market. | 15 | 19 |  | 17 | 3 |
| 1 | | 3 | If a gas-fired  generator submits a generation offer before scheduling gas and the generator is not informed as to whether its generation offer is accepted until after the deadline for a  timely gas nomination, it runs the risk of being considered secondary firm, if the generator holds firm transportation, or interruptible. This exposes the generator to the risk of an obligation to generate without gas supply. On the other hand, if the gas-fired generator submits a timely nom for transportation before knowing whether its generation offer has been accepted, it runs the risk of being caught long gas supply that must be dealt with in the intraday market exposing the generator to an economic loss or penalties. | 12 | 13 |  | 12 | 12 |
| 1 | | 4 | Scheduling flexibility can be introduced on a pipeline by pipeline basis to the pipeline’s customers. Natural gas market grid synchronization plays a role, as in multi-pipeline nominations which may cross multiple control areas, the least flexible pipeline in the chain of nominations will govern the timing of submittal and confirmation of transaction(s). | 9 | 12 | 21 |  | 11 |
| 1 | | 5 | If timelines were modified to reduce the gaps in the clearing of gas and electricity markets, a nine hour gap could be reduced to a one hour gap if the timelines were modified to an east and a west model. This would be a considerable change to the timelines supported by the pipelines – with a focus on synchronizing the clearing times and the economic day for both markets. | 22 | 7 | 24 |  | 2 |
| 1 | | 6 | Significant differences in both natural gas and electric markets day-of service and day-ahead scheduling procedures could lead to separate considerations in drafting recommendations for the day ahead and the intra-day scheduling of energy. .For example, the completion of the electric day ahead market (which is iterative and can take approximately four hours) could be synchronized with the natural gas timely nomination cycle for scheduling energy over a majority of the hours in the peak operating period of the electric day. Added intra-day flexibility in both the electric market offers and gas scheduling might improve scheduling coordination for those hours that are not common to the same gas and electric delivery days. | 15 | 9 | 23 |  | 5 |
| 1 | | 7 | The timely natural gas nomination process, which is iterative, can take from three to four hours. The hourly or intraday gas nomination process is considerably shorter as is the adjustments and changes at the margin to the decisions made in support of the timely nomination process. In some cases, gas fired generators could need to make changes in their usage more quickly than the current nomination processes or services allow. | 5 | 8 | 21 |  | 10 |
| 1 | | 8 | There are a number of options offered by some pipelines that introduce flexibility through the use of hourly firm non-ratable takes. Ratable takes are taken on a uniform hourly basis over the day. Non-ratable takes may be spread over a shorter period. There is a tension between the timely/intraday nomination schedule as outlined in NAESB WGQ Standard No. 1.3.1 and the hourly flexibility provided by non-ratable deliveries on some pipelines and/or by use of hourly nominations, which comes into play when bumping is to be applied to preserve firm transportation service priority. Following the schedule outlined in the NAESB standards, the interruptible transportation service may have already been used to deliver the volume by the time it is determined that bumping is to be enacted to provide firm service for hourly nominations. A recent opinion issued in FERC RP11-2569-002, et al, (http://elibrary.ferc.gov/idmws/file\_list.asp?accession\_num=20120315-3006), provides some background for this observation. | 13 | 8 | 24 |  | 9 |
| 1 | | 10 | a) Incentives could be designed into the natural gas scheduling and confirmation process for a wholly electronic process that would require less time to complete than the existing process which includes communications that are not fully electronic. (This could incorporate the thoughts in observation 1-2). b) If a fully electronic expedited process for natural gas nominations were implemented, it may be prudent to re-examine the bumping rules for the market participants who follow the fully electronic expedited process. The existing combination of manual and electronic process for natural gas nominations could exist as is. | 18 | 9 | 24 |  | 5 |
| 1 | 11 | Using natural gas-fired generation to back up renewables could require enhanced and additional flexibility in day-of nominations and/or no-notice service or similar services. | 16 | 14 |  | 14 | 12 |
| 1 | 12 | The transparency provided through posting of scheduling and capacity information by major non-interstate natural gas pipelines could be helpful, if the impact of the intrastates market on the interstate market is deemed significant. | 17 | 5 |  | 14 | 11 |
| 1 | 13 | Deleted. Added to Observation 1-8. |  |  |  |  |  |
| 2. Observations and Core Issues as of April 24, 2012: Capacity issues including the availability and determination to use firm and interruptible capacity to support load requirements is a core issue in the interdependencies of the two markets, for both the day of and the day-ahead markets. Core Issue: Recognizing the interdependency of the gas and electric markets in both the day of and day ahead operations, should NAESB examine: • the relationship of pipeline service options and the electric capacity equivalent, (i.e. the character and quality of firmness of natural gas service and generator service selections is consistent with the service obligation/expectation of the generators and system operators/RTOs), and • the structure of communications to make for a better utilization of existing infrastructure and capacity. | | |  |  |  |  |  |
| 2 | 15 | NAESB WGQ Standard 1.3.80 may be extended to better facilitate the quick movement of gas and/or capacity between shippers and generators downstream of a pipeline constraint, and in doing so, provide more effective use of existing infrastructure, and more liquidity to the market in an ICE like market: 1.3.80 To the extent the Transportation Service Provider's (TSP) other scheduling requirements are met, a TSP should support the ability of a Service Requester to redirect scheduled quantities to other receipt points upstream of a constraint point or delivery points downstream of a constraint point at any of the TSP’s subsequent nomination cycle(s) for the subject gas day, at least under the same contract, without a requirement that the quantities be rescheduled through the point of constraint. | 8 | 11 | 31 |  | 0 |
| 3. Curtailment policies and practices are components of the interdependency of the two markets that impacts harmonization. Curtailment is interruption of service that has been scheduled. Core Issue: Should NAESB examine its existing or new standards (NAESB Std. No. 1.3.80 as an example) to support the movement of natural gas to support electric generation, and conversely, electricity needed by natural gas pipelines, to better respond in situations of potential curtailment and involuntary interruption of service, (improving capacity release program is an example)? | | |  |  |  |  |  |
| 3 | 3 | Knowing the status on dispatchable generation and pipeline capacity can be important in decisions to modify planned outages scheduled for gas-fired facilities, transmission, and pipelines.   The information is also crucial in addressing unplanned outages.  However, it is not clear how this impacts gas-electric market harmonization, Entities responsible for balancing electricity supply and demand need improved overall situational awareness of the potential impacts of pipeline operations. This includes ensuring sufficient notice of scheduled outages on natural gas pipelines; balancing authority knowledge regarding those entities that can be impacted by pipeline outages; and understanding between the balancing authority and the generator regarding the impact of a pipeline outage to generator operations.  Similarly, pipeline and storage operators as well as LDC with gas generation behind their citygate need improved overall situational awareness of the potential impacts on their operations from planned or unplanned generation or transmission outages, expected changes in electricity demand, and expected changes is renewable generation and the potential impact on gas generation requirements. This includes ensuring sufficient notice of likely impacts on gas generation served by the pipeline, storage or LDC. Nonetheless, public disclosure of information of this type could have unintended anti-competitive inter-fuel impacts. | 19 | 5 | 26 |  | 4 |
| 3 | 4 | When determining actions to be taken by electric service providers in curtailment conditions, the information on critical infrastructure is needed. That information includes electric compressor locations for those interstate and intrastate pipelines’ that use electric compressors, electric compressor locations for those LDCs that use electric compressors, gas processors’ locations that use grid or utility provided electricity to maintain operations, storage operators locations that use grid or utility provided electricity to maintain operations, other locations that require electricity to maintain flow measurement and flow management/control would be helpful. | 20 | 9 | 21 |  | 5 |
| 3 | 5 | In imminent stress conditions leading to possible curtailments of firm service or interruption of balance of power deliveries, identification of the gas-fired generators to run, when they are going to run, and the contractual rights for needed capacity is information that is helpful to the decision making entities in both markets. | 14 | 11 | 22 |  | 8 |
| 4. Additional and more formal structure for communications of the parties in the gas and electric markets is needed, particularly for unanticipated demand situations. Core Issue: Should NAESB examine a more comprehensive approach to communications between the two markets and among participants in each of the markets as the communications impact the interdependency of the markets? | | |  |  |  |  |  |
| 4 | 0 | As information is made available to support market transparency and decision making that enhances market interoperability, care should be taken that the needed confidentiality is preserved so that anti-competitive aspects are not introduced. The purpose of the information, who provides the information, who accesses the information, and how the information is presented, should be analyzed to ensure that the needed confidentiality is preserved. | 22 | 5 | 23 |  | 7 |
| 4 | 1 | Communication and associated procedures may support the development of decision enabling tools with respect to day-of service, that may support efforts for contingency response. | 4 | 5 | 24 |  | 9 |
| 4 | 2 | Nuclear Power Plant Communications (Report 16, Nuclear Plant Interface Coordination – Standard NUC-001-2, NERC, April 2010, http://www.nerc.com/files/NUC-001-2.pdf) could be used as a template for a more formal structure for communications. | 8 | 1 |  | 13 | 19 |
| 4 | 4 | An information clearinghouse may be considered as a mechanism for accessing posted information and providing information to be posted, as not all electric utilities are represented by ISOs and RTOs, who as regional entities can provide a similar function to their stakeholders. | 14 | 10 | 19 |  | 7 |
| 4 | 5 | Under FERC Order No. 698, mechanisms are in place to provide information between the pipelines and gas operations group of the generators. Additional information needed is managed on an informal basis. It may be that a more formal structure would be advisable on the state of the electric system and the availability of gas from the pipelines. On peak days, notifications are sent when there are issues. It may be reasonable to provide additional structure on the communications. (Referenced also in item no. 3-8) | 13 | 4 | 28 |  | 3 |
| 4 | 6 | With an increased focus on safety and integrity management issues in both natural gas and electric markets, as infrastructure ages there may be an increase in the number of planned outages due to maintenance, which emphasizes the importance of communication process in notifications to affected parties to ensure that appropriate planning occurs. | 5 | 6 | 19 |  | 15 |
| 4 | 7 | More formalized structure for communication should extend past pipeline and plant operators to any segment of the two markets that is impacted by or makes decisions that affects the interdependency of the two markets. This broader accessibility is tempered by the protection of and limited access to commercially or operationally sensitive data. | 19 | 6 | 27 |  | 3 |
| 4 | 8 | Communications protocols may reflect the technology that was common when the protocols were adopted such that both now need updating in order to support provision of greater flexibility. | 3 | 4 | 29 |  | 8 |