**via posting & email**

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

**RE:** Draft Outline of Analysis of Policy Related Observations with edits from June 8, 2012

**DATE:** 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 is our first cut at the observations that were defined as related to policy issues. The observations have been consolidated for ease of reading, and the consolidated items have been cursorily reviewed for:

* Existing policy that may require changes to support more interactions between the gas and electric markets
* Policy that may be needed if the existing rights of parties shift due to interactions between gas and electric markets

and the template provides for:

* Observations that lead to a determination that policy issues are to be addressed first, which may or may not lead to standards development, and are to be addressed in lieu of standards development or commercial and regional practices, as they meet one or both of the above criteria
* Framing issues that put the recommendations in context

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

**OPENING STATEMENT ITEMS:**

* Anything earmarked as a possible policy consideration is a recognition that it is an issue that is outside NAESB's purview but has generated considerable discussion and concern. NAESB is not advocating that a policy be developed.
* In a perfect world the logical hierarchy of action would be a commercial resolution, a regional solution, and finally national policy development.
* But GEH advisory group also recognizes that many of these operational issues transcend regions or extend beyond gas and electric service territories or the jurisdiction of PUC’s, RTOs and ISOs.
* The GEH advisory group also recognizes that gas distributors and pipelines are not represented in RTOs or ISOs and that pipelines have other customers besides electric generators.
* One criteria for development of a policy would be a regulatory action or commercial arrangement affecting the balance of rights between two parties or someone is commercially disadvantaged.
* The observations that were identified as either primarily or secondarily related to policy development were done so presumably because there we no identified fundamental reasons given for why the industry should not consider standards development as helpful to the market in addressing GEH issues.
* If there are fundamental reasons that the committee identifies and supports for why policies should or *should not be* not be considered, they will be provided.
* It may be that the industry supports standards development in an area but is unable to reach consensus on the wording of the standards to be developed. This impasse does not necessarily mean that policy direction is called for, but that the market participants are not prepared to compromise to achieve consensus.
* As observations are listed for each of the consolidated issues, 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.

**POLICY RELATED ISSUES:**

1. Significant differences in both natural gas and electric markets day-of service and day-ahead scheduling procedures create the gaps in the clearing of gas and electricity markets and may require policy recommendations aimed at synchronizing the clearing times and the economic day for both markets.

* This recommendation incorporates observations noted for: 1.2, 1.5, 1.6, 1.7, 1.8, and 1.10.
* If an impasse by the parties participating in standards development for the natural gas and electric markets day of service and day ahead scheduling occurs, it may be resolved when gaps between the two markets are addressed – which could require policy guidance.

2. Recognizing that market design issues are regional and may be most appropriately addressed by the ISOs and RTOs directly, the economics surrounding the use and cost recovery for firm and interruptible capacity, including who holds and pays for the gas pipeline capacity needed to back up renewables or to serve normal electric load requirements is a core issue for both the day of and the day-ahead markets.

* This recommendation incorporates observations noted for: 2.2, 2.3 and 2.5.
* If alternate economic models for cost recovery are considered to address the use of natural gas in power generation including use of renewables, which may require use of firm natural gas capacity, policy guidance at the state and federal level will be needed. A cost-benefit analysis of the risk of curtailments and costs incurred by those curtailments compared to the costs for adequate capacity to avoid curtailments would be needed, possibly across systems and states to best understand the impacts.

3. State curtailment policies impact both natural gas and electric markets, and it should be recommended to policy makers that a review of those policies may be helpful to ensure that policies do not inadvertently lead to interruption of service, depending on the priorities outlined in the state curtailment policies. More structured communications and availability of information for decision making in stress conditions could also require an examination that would lead to possible policy changes and standards changes to support the movement of natural gas to electric generation.

* This recommendation incorporates observations noted for: 3.1, 3.3, 3.4, 3.5, 3.6, and 3.7.
* In addition to policy guidance, NAESB Standard No. 1.3.80 could be considered for revisions to add flexibility in addressing movement of natural gas to other delivery points. To consider changes to standards such as 1.3.80 could require policy guidance.
  + Policy guidance may be needed to allow for structured communications and information available for decision making in times of stress which could lead to implementing curtailment plans would status of dispatchable generation and available pipeline capacity, pipeline outages (only three possibilities: supply failure, equipment failure, or loss of electric compression due to generation outages), Generation outages impacting pipelines and LDCs.

4. The increasing interdependency of the natural gas and electric markets will require more timely information to enhance market operability. Mechanisms (standards, rules, tools and products) should be in place to provide the confidentiality required to insure competitive markets and to prevent unintended anti competitive behavior. Adequate security measures will be needed to ensure the protection and integrity of the information made available, including restricting receipt of some information.

* This recommendation incorporates observations noted under 4.0, 4.4, 4.5, and 4.7
* Policy guidance may be needed to compel a uniform delivery and accessibility to information so that decision making is not impeded.
* Existing policies supporting protection of cyber-assets and addressing data privacy, as well a protection of the sound operation of competitive markets should be reviewed to ensure that the rules are robust enough to support enhanced and increased information sharing.
* If an impasse by the parties participating in standards development for the natural gas and electric markets for the availability of more timely information to enhance market operability occurs, it may require policy guidance.

**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 policy related issues. These observations have been consolidated, and reviewed in regard to**

* Relationship to other existing standards
* Observations that lead to a determination that there are fundamental reasons why policy decisions re needed to address gas-electric harmonization issues.
* Fundamental disagreements by market participants that, to be addressed, would require policy decisions or guidance

|  | |  | **POLICY - PRIMARY and SECONDARY CORE ISSUES & OBSERVATIONS** | **Primary Policy** | **Secondary Policy** | Commercial | Standards | 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 | | 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 | | 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 | | 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 | | 9 | As more efficiencies and flexibility can be introduced into the scheduling for both markets, an outcome may be an increased market reliance on natural gas fired generation over other fuels used for electricity generation. |  | 8 | 5 | 2 | 23 |
| 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 |
| 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 | | 2 | A better understanding of the electric installed capacity and production requirements would take into account: (1) conditions under which generators determine to use firm fuel and capacity, (2) the capacity needed to support must serve loads, and (3) the barriers or economic forces that impede generators from contracting for services to meet must serve loads. |  | 12 | 12 | 8 | 18 |
| 2 | | 3 | In RTO/ISO markets, with consideration for how plants are dispatched, the cost differentials between firm service and interruptible service should be examined, which may highlight the need for customer education and the definition of reasonable costs to support reliable service. | 25 |  | 21 | 3 | 8 |
| 2 | | 5 | In RTO/ISO markets, ISOs and RTOs are not fuel biased in reviewing the generators’ ability to provide electricity. The generators’ fuel neutral requirements to meet load on a peak day would be helpful in avoiding or reducing curtailments. Some states may have policies in place that identify a preferred loading order to generation. | 26 |  | 6 | 5 | 12 |
| 2 | | 6 | Market design issues are regional and may be most appropriately addressed by the ISOs and RTOs directly – an example of which could be the coordination issues for long term forward capacity electric markets. Gas service fixed cost recovery should be considered, including who holds and pays for the gas pipeline capacity needed to back up renewables or to serve normal load requirements. Product definition requirements and the form of firm service appropriate to the operational obligations may need to align with those regional requirements, although there may be common elements that would facilitate defining the service characteristics and scheduling rights needed to serve the electric sector. | 25 |  | 23 | 15 | 3 |
| 2 | | 12 | It is a given in the energy markets that adequate lead time is needed to secure any required replacement capacity and address any associated stress when the decision is made to: (1) retire a generating unit; or (2) decommit (e.g., take offline) a generating unit. |  | 12 | 9 | 3 | 17 |
| 2 | 13 | Adequate lead times to secure the replacement capacity and energy is needed in order to reliably address any stress that is introduced when generation units are retired or taken offline. | 14 |  | 13 | 7 | 14 |
| 2 | 14 | Intermittent wind and solar generation have an impact on pipeline capacity when gas-fired generation is used as a backstop to balance the system. ERCOT provides the data related to such generation in 15 minute increments to support planning. Weather conditions upwind of wind generation can be monitored to better plan for the requirements to be placed on all supply/demand responsive sources, which would include gas-fired generators and their pipelines. |  | 11 | 13 | 11 | 14 |
| 2 | 16 | What economic decisions should be made regarding the costs assumed by the gas fired generators to back up the variable energy resources used? (Would this be similar to costs assumed for providing net load following service needed, (weather variability affecting consumption in conjunction with output of variable energy resources?) | 20 |  | 19 | 2 | 7 |
| 2 | 17 | Optimizing and servicing the growing electricity and natural gas capacity markets, and adding capacity to the markets may point to process improvement measures and structured communications, among other actions – which would necessarily involve all segments of the markets. Both natural gas and electricity capacity products in the future may need to divide into sub product characteristics, which for the electricity products, may impact the fuel service requirements- e.g. contingency reserves or peaking, net load following and the like. |  | 14 | 18 | 12 | 13 |
| 2 | 18 | To the extent that gas storage is sought to enhance reliability, need to address areas of the country where storage is geologically infeasible (perhaps via innovative above-ground storage technology for power plants or LNG needle peaking facilities or alternate fuel requirement). |  | 14 | 20 | 2 | 14 |
| 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 | 1 | Generators can introduce flexibility through the use of reserves and ancillary services, which is determined through regionally based decisions and considered part of market design. |  | 11 | 17 | 7 | 11 |
| 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 |
| 3 | 6 | The decisions made as the two markets work together should focus on how best to serve the customer and balance the cost of delivered power against the assurance that firm service is not interrupted on days experiencing peak day conditions or other stress conditions. | 16 |  | 11 | 8 | 14 |
| 3 | 7 | Supply curtailment policies at the state level may need review, as well as state commissions’ use of base gas instead of operational capacity to address shortages. Some generators may purchase gas from LDCs, and even those that purchase their own gas may be behind an LDC citygate and its transportation policies. LDCs may use end use curtailment to support residential demand. Storage factors into curtailment policies if it is behind the city gate, and may relieve constraints that could occur during peak periods. | 30 |  | 6 | 5 | 5 |
| 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 | 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 | 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 |