

**NAESB Report on WEQ and WGQ Business Practice Standards for
Transmission Service Provider-Power Plant Operator Communications
and the Gas and Electric Interdependency Report**

GAS-ELECTRIC INTERDEPENDENCY ISSUES

In addition to the organization developing business practices, the Board of Directors of NAESB determined that the issue of gas-electric coordination was of sufficient strategic interest that they formed a board committee. Over the past six months, the board committee – Gas-Electric Interdependency (GEIC) – met to identify issues that warranted additional industry attention, but that may not necessarily result in standards development activities by NAESB. Their findings are noted below, along with the basis for developing the issues list and the link to work that had been undertaken by NERC.

Basis for Issues Development

Fundamentally the differences between the natural gas and electric industries pose inherent challenges to the interaction of the industries. These differences include but are not limited to the following.

- Load fluctuation response time for natural gas is slower than the time required by electricity.
- Due to the necessary response time of the electric industry, instrumentation is necessarily much more precise both as to placement and timing than is the instrumentation in the natural gas industry.
- The electric industry is required to maintain a reserve margin to manage peak loads which depends on location but is generally 20%. Natural gas pipelines build capacity to match firm contractual commitments which in many cases include peaking needs of their customers. Conversely, natural gas pipelines have no cost recovery mechanism for capacity not supported by contracts.
- In balancing the “utility model” and the “market-driven model”¹⁰ the interstate gas industry and FERC have fully adopted a market-driven model wherein capacity is built to fulfill request of contract customers. The power industry is still managing a balance between the two models, wherein utility reliability is maintained while accommodating and supporting market-driven transactions. This difference in models underlies the differences in capacity construction decisions.
- Load curtailment prioritization is not consistent between industries for peak day accommodation.

Issues Identified

Following is a chart showing the issues identified along with a category as noted: (1) indicating policy direction and decisions from federal, state or provincial regulatory agencies or other groups, including issues between contractual parties, (2) appropriate for review for NAESB standards development, (3) appropriate to be forwarded to NERC for consideration for reliability standards development, (4) appropriate for review as regional issues, and (5) a national infrastructure concern. There can be more than one category assigned to a given issue.

¹⁰ For purposes of this discussion, “utility model” is one wherein capacity is built for anticipated requirements and all users are required to pay for all capacity. The “market-driven model” is one in which capacity is built only for discrete customers who have requested and contracted for that capacity, and in which customers pay only for the capacity for which they have contracted. By way of example, in the power industry, transmission and local distribution tend to follow the “utility model”, while generation and the sale of the electric commodity in wholesale markets tend to follow the “market-driven model”.

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#	Cat.	Description/Notes
1	2	<p><i>Issue:</i> Gas-fired generators are not communicating well with the pipelines, which may result in gas-fired power generation coming online and taking natural gas without the prior nomination of pipeline capacity or taking natural gas but not taken evenly across the 24 hour period for which the gas was nominated – which may cause operational issues for the natural gas pipelines.</p> <p><i>Note:</i> NAESB is addressing part of this issue through the communication standards contained within this report, and as related to Request No. R04021.</p>
2	1-3-4	<p><i>Issue:</i> Some gas fired generators will come online although they have been informed by the pipeline that the pipeline cannot support their burn rates.</p> <p><i>Note:</i> This is a contractual and regulatory issue and may indicate that a monitor and/or “hotline” for violations is warranted. Incentives and/or penalties for load management/balancing could be a potential remedy.</p>
3	1	<p><i>Issue:</i> Generally speaking, burning gas without authorization and/or replacing the gas back into the pipeline timely is an issue.</p> <p><i>Note:</i> Terms are typically addressed in the contracts between the parties, thus making this issue a commercial one. The note as addressed in item 2 above is also applicable.</p>
4	1-4-5	<p><i>Issue:</i> The electric market designs allow generators to earn "capacity" credit without contracting for firm gas transportation and actually provides a financial incentive for them NOT to buy firm transportation - yet the political and regulatory realities do not take into account that this may result in fuel transportation unavailability. Many new independent power plants cannot be economically justified with firm pipeline capacity costs. In addition, many gas-fired plants were assumed to be available to serve in contra-seasonal peaks. This assumption may no longer be valid.</p> <p><i>Note:</i> The infrastructure was initially designed for gas to be delivered to a city gate and is now being used to support the requirements of power generators but not providing enough new capacity in some parts of the country to support generation in conditions of extreme unanticipated demand.</p>
5	1-2-3-4	<p><i>Issue:</i> The relative timelines of RTO markets and gas nominations creates a situation in which a generator can actually pay for FIRM gas transportation and yet only get lower-quality secondary service.</p> <p><i>Note:</i> Because of the mismatches in timelines, the benefits of firm gas transportation service may not be achieved by the power generator. NAESB has a request, R04020 assigned which addresses the electric timelines and a energy day request that addresses some of the mismatch between the two markets. Work has not begun on either request to date, although both requests have been processed and assigned, including processing through the Joint Interface Committee for assignment to NAESB.</p> <p>However, this is also a regulatory concern -- the gas timelines are embedded in FERC regulations and both a regional and reliability concern because the reliability of the power grid depends on the electric schedules and the regional groups such as the ISOs and RTOs oversee the implementation of their respective market designs.</p>

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6	1-2-3-4	<p><i>Issue:</i> The ISO/RTO Council (IRC) has expressed concern that NAESB should not alter their market timelines through standard development as this is a regional implementation – not a national concern.</p> <p><i>Note:</i> The issue raised by the IRC is addressed in part though NAESB Request No. R04020 on electric schedule timelines. It is also a regulatory concern because of the OASIS FERC regulations, and is both a NERC and RTO issue because reliability of the power grid depends on the electric schedules and the regional groups such as the ISOs and RTOs oversee the implementation of their market designs.</p>
7	1-5	<p><i>Issue:</i> On cold days (i.e. on peak gas consumption days) there is not enough interruptible transportation (unused firm capacity of the contract holder) to meet the gas demand served through that type of transportation.</p> <p><i>Note:</i> The infrastructure was initially designed for gas to be delivered to a city gate determined by the LDCs with a corresponding firm contractual commitment. Today the decision has been marginally decentralized from just LDCs to all end users including power generators which may compromise gas supply reliability without firm contractual pipeline commitments or other services that would address this issue. The services should not have a negative impact on existing LDC services provided by the pipelines nor should the services compromise the reliability of the gas system.</p>
8	1-5	<p><i>Issue:</i> By statutory design, the gas industry builds pipelines and capacity based on FIRM contracts only.</p> <p><i>Note:</i> See issue 7. Power generators holding firm transportation agreements to meet peak demand would necessarily have unused capacity on pipelines when demand requirements are not at peak levels. LDCs have similar periods where capacity is not needed to meet their demand requirements.</p>
9	1-5	<p><i>Issue:</i> Pipelines cannot create pipeline reserve without contracts because: (a) no cost recovery, (b) dilutes the value of firm transportation market, and (c) further encourages use of interruptible service (thus sending the wrong price signals to the market).</p> <p><i>Note:</i> See issue 7.</p>
10	1-5	<p><i>Issue:</i> Gas LDCs purchase their own "reserve" capacity in the form of additional FIRM pipeline service, but electric regulators have not been willing to give electric utilities cost recovery for the same level of "reserve" transportation for a peaking generator.</p> <p><i>Note:</i> The infrastructure was initially designed for gas to be delivered to a city gate and is now being used to support the requirements of power generators. Purchasing firm service for peak day demand may lead to overbuilding¹¹ the infrastructure where it can be expanded – so other services may be required.</p>

¹¹ Overbuilding can occur when the customer need for capacity is only intermittent or short-term (such as a peaking generator), thus creating significant amounts of empty space for the rest of the year. In that instance other services are needed to fill the gap in order to finance the cost of new capacity. In the case of electric generation typically the empty new capacity would be available at times when other firm capacity is also available meaning both would be discounted by the market. This would seriously undermine the financing of the new capacity.

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11	1-5	<p><i>Issue:</i> Where voluntary arrangements between pipeline shippers could accommodate the real-time generation market (e.g. instantaneous diversion of gas from an LDC to an adjacent market) pipeline tariff conditions are too rigid to allow such arrangements to work. Additionally, neither the pipeline nor releasers of capacity are allowed to charge short-term rates that would match the instantaneous market value of capacity to a peaking generator. <i>(We may want to split this item into two parts –(1) business practices to support the swapping of gas from an LDC to an adjacent market, and (2) modifications to charge short tem rates to peaking generators.)</i></p> <p><i>Note:</i> Historically, pipelines have used a combination of firm pipeline capacity, pipeline contracts, storage, balancing, parking services and curtailment priorities to mitigate fluctuating load requirements. Pipeline tariffs are designed to insure reliable service to all customers, so any accommodation of such voluntary arrangements would require a process to be certain there was no adverse impact on other customers. As for rate flexibility, in the past the Commission has experimented with market based pricing for released capacity. Short-term monetizing load price fluctuation hourly, daily, weekly and seasonally as well as daily and hourly volume accommodation may be appropriate for consideration.</p>
12	1	<p><i>Issue:</i> If society is not willing to pay for firm transportation for peaking capacity, then regulators may want to consider, at the state and local level, an emergency response program that determines whether - at times of peak gas demand - it is better to curtail electric demand or perhaps curtail other gas customers so that gas generators can be served for the "better social good."</p> <p><i>Note:</i> This action would require regulatory changes and is a key aspect of the coordination difficulties between the gas and electric markets.</p>
13	1-2	<p><i>Issue:</i> Some pipelines may not break down the volumes at meters where there is more than one contract volume due to the confidential nature and market sensitivity of the information. This information may be necessary for grid operations where the gas is used for power generation.</p> <p><i>Note:</i> Business practices can be written to report volume breakdowns after the confidential nature of the market data has been addressed.</p>
14	2-3	<p><i>Issue:</i> In CAISO's California ISO's comments to NAESB regarding its development of business practices for Request No. R04021, they discussed a network of informed contacts available as coordination issues arise. This contact approach may be applicable on other than a regional basis, such that all operating areas should have "HOT LINES" between key offices within that that operating area and possibly adjoining connected areas to support informed and timely decision making.</p> <p><i>Note:</i> Business practice standards can be written to implement a "hot line" that would respect any needed regional differences.</p>

To refer to the meeting minutes, voting records and comments regarding the issues list above, please access Appendix 4 of this report. Appendix 4 also lists the relevant transcripts and committee work papers.

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Coordination with NERC

On June 15, 2004, the NERC Board of Trustees approved several recommendations related to gas-electric coordination¹² are shown below, and many of the actions taken by the NAESB Business Practices Subcommittees in drafting the coordination standards and the discussions held by the NAESB Gas-Electric Interdependency Committee are supportive of those NERC recommendations. In particular, the NAESB efforts address, in part, recommendations 2, 5, and 7:

- Recommendation 2 NERC reliability coordinators or their delegates, subject to appropriate treatment of commercially sensitive information, should develop regular, real-time communications with pipeline operators about disturbances that could adversely impact the reliability of either the electric systems or the gas pipeline.
- Recommendation 5 NERC should include analysis of fuel infrastructure contingencies that could adversely impact the reliability of the electric systems in the NERC planning standards.
- Recommendation 7 NERC should, in concert with other energy industry organizations, formalize communications between the electric industry and the gas transportation industry for the purposes of education, planning, and emergency response.

NAESB has a strong working relationship with NERC and will continue to coordinate its standards development efforts with NERC to meet the needs of the two markets.

CONCLUSIONS AND SUMMARY

NAESB appreciates the support of the FERC in providing Mr. Miles to facilitate the NAESB standards drafting sessions. Through very aggressive meeting schedules, and with Mr. Miles' facilitation, the WEQ and WGQ prepared joint business practices in a very short time frame. We hope these business practices will prove helpful to the two industries.

Similarly, the issues list provided with the categories indicates that action may be needed if further progress is to be made in improving the coordination of the gas and electric industries. We hope that the issues list will spur the needed entities to consider actions they may take to improve coordination.

Adding emphasis to the need for better coordination is the Department of Energy's statistics projections that the ~~current~~ use of natural gas to generate electricity at ~~PUT % HERE~~ ranges from 5,206 Bcf in 2000 to 5,352 Bcf in 2004. From 2003 to 2004, the use of natural gas to generate electricity saw an increase of 4.2%, while the overall consumption of natural gas stayed relatively flat – less than a 0.3% change.¹³ ~~is expected to grow over the next PUT YRS HERE to PUT NEW % HERE.~~

Extraordinary coordination among regulators, NERC, NAESB and industry participants of both the natural gas and electric wholesale markets is crucial if the issues identified are to be resolved. As the issues list demonstrates, many of the items require the attention of more than one of the groups. Also evidenced by the issues list, resolution of most of the items will be based on decisions that would not be made by NAESB, actions that would not be taken by

¹² The NERC recommendations may be accessed from ftp://www.nerc.com/pub/sys/all_updl/docs/bot/Agenda-Items-0604/Item3-Attach1.pdf.

¹³ In 2003, 5,135 Bcf were used to generate electricity compared to 2004 figures of 5,352 Bcf. Figures provided by the Energy Information Administration, Natural Gas Month April 2005.

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NAESB, nor would they necessarily result in standards development once the policy directions are determined and industry guidance given.

Specific to NAESB, before NAESB can move further in developing business practice standards to address the coordination of the two industries, policy direction and industry willingness for change is required – otherwise, we may be in the position of developing business practices and striving to achieve industry consensus for standards that the industry is not convinced are needed. This collaboration will require that the parties put aside parochial interests and look to solutions that benefit the industries as a whole.

For the two outstanding requests R04016 (Energy Day assigned to both the wholesale gas and wholesale electric quadrants) and R04020 (Electric Market Timelines assigned to the wholesale electric quadrant), industry guidance is needed to determine if these efforts are warranted at this time. The requests have already been assigned to NAESB for action both by the NAESB Executive Committee and by the Joint Interface Committee, and the Board of Directors are moving towards providing counsel to the organization.

(Comments were received that this section should be more strongly worded but we need to walk a fine line so that we are not advocating. Remarks were made that we should note what we are asking regulators to do, when we should expect something from them and when we should address our commitments – specifically we probably need to say something about the two outstanding requests for energy day and market timelines).