North American Energy Standards Board

Gas-Electric Harmonization Forum Report

*Presented to the NAESB Board of Directors on April 7, 2016*

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**I. Background**

Since the transformation of the Gas Industry Standards Board (“GISB”) to NAESB in 2002, NAESB has had substantive activities underway to support the requests of the Federal Energy Regulatory Commission (“FERC” or “Commission”) and the industry to improve coordination between the natural gas and electricity markets. NAESB’s involvement can be traced back to the formation of the NAESB Gas and Electric Coordination Task Force in December of 2003 and its efforts to investigate potential areas for standards development related to the transactions between the electric and the gas industry market participants.[[1]](#footnote-1) Their efforts, along with the urgings of FERC Chairman Patrick H. Wood[[2]](#footnote-2), led to the development of the NAESB Gas/Electric Coordination standards[[3]](#footnote-3) and the formation of the first NAESB Board of Directors committee dedicated to coordination efforts, the Gas-Electric Interdependency Committee. This committee furthered the progress made by the original task force by developing a report identifying obstacles to better gas and electric market coordination and highlighting six areas where standards development may benefit coordination if clarification of existing Commission policy was provided. Through FERC Order No. 698 issued in June 2007[[4]](#footnote-4), the Commission responded to this report by adopting the NAESB standards and challenging NAESB to consider standards development in three of the six areas included in the report; specifically, the development of standards to support the use of index-based capacity release transactions, increased flexibility of the receipt and delivery points for redirects of scheduled gas quantities and the addition of intra-day nomination periods. NAESB met that challenge by developing standards related to index-based capacity release and flexible receipt and deliverable points but was unable to come to consensus on revisions to the nomination timeline. The standards developed by NAESB were adopted by the Commission in March 2010 and the Commission recognized NAESB’s efforts to consider changes to the nomination cycles, but declined to take any action at that time.[[5]](#footnote-5)

NAESB continued its efforts to support gas and electric market coordination through the creation of a new NAESB board committee, the NAESB Gas-Electric Harmonization (“GEH”) Committee, created to respond to the National Petroleum Council’s “Prudent Development – Realizing the Potential of North America’s Abundant Natural Gas and Oil Resources” study published in September 2011.[[6]](#footnote-6) Through its report, the National Petroleum Council recommended that organizations such as the North American Electric Reliability Corporation, NAESB, FERC and the National Association of Regulatory Utility Commissioners take action to harmonize the interactions between the two markets. Over the course of eight months, the GEH Committee developed a report that was presented and adopted by the NAESB Board of Directors in September 2012. The report included a recommendation that NAESB revisit standards development in three specific areas including market timelines and coordination of scheduling, flexibility in scheduling and availability of information.[[7]](#footnote-7)  The NAESB Board of Directors took action to include provisional items on the wholesale electric quadrant (”WEQ”) and wholesale gas quadrant (“WGQ”) 2013 and 2014 annual plans, but did not initiate action on these items until the Commission issued a Notice of Proposed Rulemaking (“NOPR”) concerning the *Coordination of the Scheduling Processes of Interstate Natural Gas Pipelines and Public Utilities* on March 20, 2014.[[8]](#footnote-8) In the NOPR, the Commission proposed specific modifications to the existing nomination timeline and to the start of the gas day, and offered the industry, working through NAESB, an opportunity to present alternatives to the proposal through modifications to the existing standards.

In response to the NOPR, the NAESB Board of Directors convened the industry through a new platform, the NAESB GEH Forum (“Forum”), and asked the Forum participants to consider alternatives to the Commission’s proposals and submit a report of its findings to the Board of Directors. Through a series of four meetings the Forum discussed alternatives to the proposed nomination timeline and start of the gas offered by the Commission. While complete consensus on an alternative package was not garnered by the Forum participants, the information gathered through the discussions and the Forum process provided the Board of Directors with a basis to direct the NAESB WGQ Executive Committee to develop a set of recommended standards. These standards, representing an industry alternative to the proposal made by the Commission in the March 2014 NOPR, were submitted to the FERC in an informational filing on September 29, 2014.[[9]](#footnote-9) After an industry comment period, the Commission took action to adopt the standards developed by NAESB and not alter the existing start of the gas day through FERC Order No. 809.[[10]](#footnote-10)

In paragraph 107 of FERC Order No. 809, issued on April 15, 2015, the Commission requested “…that the gas and electric industries, through NAESB, explore the potential for computerized scheduling when shippers and confirming parties all submit electronic nominations and confirmations, including a streamlined confirmation process if necessary.” As done in the past, the NAESB Board of Directors took immediate action to consider the request of the Commission and held a special working session on June 1, 2015 to discuss potential revisions to the 2015 WEQ[[11]](#footnote-11) and WGQ[[12]](#footnote-12) annual plans to address the item.[[13]](#footnote-13) Through a notational ballot distributed after the meeting, the board determined that NAESB’s path forward should be similar to the action taken in 2014 and that the Forum should initiate the project by considering the issue before any standards development is pursued. The board also determined that the Forum’s activities should not begin until 2016, as wholesale gas market participants would be occupied implementing the modifications to the timeline adopted in FERC Order No. 809 and Version 3.0 of the NAESB WGQ Standards per FERC Order No. 587-W.[[14]](#footnote-14)  These decisions were communicated to the Commission through an informational filing submitted on August 4, 2015.[[15]](#footnote-15)

On September 17, 2015, the Commission issued an Order on Rehearing in response to the May 18, 2015 request of the Desert Southwest Pipeline Stakeholders (“DSPS”).[[16]](#footnote-16) Through the Order, the Commission denied the DSPS request for rehearing and, again, requested “…that the natural gas and electric industries, through NAESB, begin considering the development of standards related to faster, computerized scheduling and file such standards, or a report on the development of such standards, with the Commission by October 17, 2016.” This request was made by the Commission with the recognition of the time commitments in implementing the revised nomination timeline. In consideration of the deadline set by the Commission, the Board of Directors held a single-topic conference call to discuss the request of the Commission and consider modifications to the timeline established in the 2015 WEQ and WGQ annual plans. Through a subsequent notational ballot, the plans were modified to remove the language prohibiting the initiation of activities by the Forum until 2016.[[17]](#footnote-17)

During the December 10, 2015 meeting, the Board of Directors, once again, reviewed the WEQ and WGQ annual plan items developed to respond to FERC Order No. 809 and determined that additional guidance should be provided to the Forum prior to the initiation of their efforts. Specifically, the board recommended the Forum take the following steps in responding to the WEQ and WGQ annual plan items.

1. Provide a forum for industry education from both the natural gas and electric industries regarding gas-electric coordination specific to computerized scheduling, and confirmations including a streamlined confirmation process, if necessary ([FERC Order No. 809 Order on Rehearing, Docket No. RM14-2-001](https://www.naesb.org/pdf4/ferc091715_order809_order_on_rehearing.docx))
2. Identify potential issues specific to computerized scheduling, and confirmations including a streamlined confirmation process, if necessary, which could be based on the education provided in step 1
3. Identify potential solutions to the issues identified in step 2
4. Identify potential schedules for standards development including status and progress reports to the board

The additional guidance adopted by the board was developed through the recommendations of board members participating in the December 9, 2015 board leadership meetings, and is intended to reflect their concerns about the scope of the Forum effort and the use of voting to achieve consensus on specific recommendations that may impact the final board directives. The board requested that the Forum provide a report or a status update of the Forum’s efforts during the April 7, 2016 board meeting to inform any decisions the board determines necessary to respond to the Commission’s request included the September 17, 2015 Order on Rehearing on FERC Order No. 809.[[18]](#footnote-18) This direction was communicated to the Commission through an informational filing submitted to the Commission on December 22, 2015.[[19]](#footnote-19)

**II. Process Followed by the Forum**

To respond to the directive of the Board of Directors, NAESB solicited the support of Dr. Susan Tierney and Terry Thorn to serve as the co-chairs of the Forum and facilitate the development of this report for presentation to the board during the April 7, 2016 meeting. To initiate the effort and address all administrative issues prior to discussion on substantive matters, the co-chairs scheduled a conference call for January 25, 2016 and distributed a request for presentations on January 13, 2016.[[20]](#footnote-20)  In the call for presentations, the co-chairs asked that all interested parties submit a notice of intent to develop a presentation to the NAESB office by February 1, 2016 and that all presentations be submitted to NAESB by February 8, 2016.[[21]](#footnote-21) Presenters were directed to respond directly to the request of the Commission in paragraph 107 of FERC Order No. 809 and focus on providing the following information.

1. Education on the current practices and processes in both the natural gas and electric industries regarding gas-electric coordination and computerized scheduling
2. Identification of issues related to computerized scheduling
3. Potential solutions to the issues identified

The meeting announcement and request for presentations was distributed to the NAESB Advisory Council, all NAESB members and the Forum distribution list developed during the 2014 effort. Additionally, NAESB contacted interested trade organizations to solicit their participation and contacted FERC staff to make them aware of the activities.

January 25, 2016 Conference Call

During the January 25, 2016 conference call the co-chairs reviewed the requests of the Commission and the charge of the Forum as provided by the Board of Directors, announced the schedule of meetings and expected deliverables from each meeting[[22]](#footnote-22) and answered questions concerning the January 13, 2016 request for presentations. The co-chairs explained that the goal of the Forum’s activities is to develop a record and report that can be considered by the Board of Directors and not vote on any specific recommendations for action. They also encouraged robust and meaningful participation and noted the importance of having representatives from all segments of the industry involved in the process. [[23]](#footnote-23)

February 18-19, 2016 Meeting

The Forum held its first face-to-face meeting at the Double Tree Hotel in downtown Houston, Texas on February 18-19, 2016. The purpose of the meeting was to review each of the presentations submitted by the interested industry participants and give the participants an opportunity to ask questions and seek clarification of the points made by the presenters. Presenters were given 20-30 minutes to make their presentations and an equal amount of time was allocated to questions and answers. Over the course of two days, the participants heard presentations from the eight submitting parties and discussed relevant points from each.[[24]](#footnote-24)

March 7-8, 2016 Meeting

The second meeting took place on March 7-8, 2016 at the Hilton Americas in downtown Houston, Texas. Included in the agenda for the meeting was a list of 48 issues taken directly from the presentations and discussion provided during the February 18-19, 2016 meeting.[[25]](#footnote-25) The participants were asked to review each of the identified issues in the context of the five specific questions listed below. During the meeting, the participants reviewed the five questions included in the materials and made modifications to add clarity to the questions and better define their scope. Additionally, a sixth item was added to identify issues in the list as factual points. The questions, as modified during the meeting, follow.

1. Is a discussion of this issue within the scope of the Commission’s request that “… gas and electric industries, through NAESB, explore the potential for faster, computerized scheduling when shippers and confirming parties all submit electronic nominations and confirmations, including a streamlined confirmation process if necessary?” and “… natural gas and electric industries, through NAESB, begin considering the development of standards related to faster, computerized scheduling”?
2. Is it an issue that could be pursued where more uniformity or streamlining would meet the Commission’s request?  Would it be economical and efficient to do so?  Should consideration of this issue be postponed until we have more experience and a better understanding of the impact of changing the nominations timeline which is to be implemented April 1?
3. Is this an issue where a national standard is not helpful, and is best addressed by services individually tailored to customer’s needs and reflecting individual inherent operational requirements? Is this an issue (non FERC policy related) where something stands in the way of resolving it? Is this an operational issue or some other matter that falls outside of NAESB’s purview?
4. Other Miscellaneous Topics: Is this issue a topic where tools can be used to address the Commission’s request and uniformity is not helpful or is more detrimental than beneficial?
5. Is it an issue that NAESB cannot take action on in the absence of FERC taking prior action? Is this an issue where the Commission itself could consider addressing the issue (without presuming a conclusion that the Commission would actually decide to introduce policy changes, but still entertaining the possibility that additional action may be warranted after a full record is developed)?
6. This is a factual point.

After the participants expanded upon the questions, they reviewed each of the issues identified in the presentations and made modifications to more clearly explore the intent of the statement included in the presentation. The participants were also given an opportunity to add issues to the list that were not originally included in the agenda. The participants also placed each issue with a category as defined by the questions. No votes were taken on the questions, issues or modifications made to either. Accordingly, nothing in the list represents a consensus of the group, rather a record of comments provided by the participants. Upon conclusion of the review, the participants discussed generalized comments that were recommended for inclusion in the report to be submitted to the Board of Directors. Specifically, the participants asked that the following points be noted in the report.

* Because no votes were taken by the Forum participants (by design), nothing in the report reflects a consensus view of the participants.
* Because changes will be introduced after April 2016, it would be useful to gain insights from that new experience before considering what, if any, changes are needed.
* Regarding questions on whether an issue is or is not in scope:
  + By definition, if we’re reporting on an issue someone thought it was in scope
  + But the scope from FERC and the Board may be narrower.
* The list of issues originated in individuals’ presentations, but the subsequent summary phrasing and discussion of those issues does not necessarily reflect the original presenter’s point of view.
* The meeting notes for each day’s session reflect the summary as prepared by the NAESB staff. Because no votes were taken on any matters during these meetings, the meeting notes should not be viewed as consensus statements. Participants have had the opportunity to provide comments on the sessions’ meeting notes, and any comments should be considered part of the record of discussions. The white board notes from the February session were the facilitator’s notes and do not reflect consensus from the meeting participants.

The information provided by the participants was captured in a working document and the participant asked that the list of issues and comments included in the working document be categorized by topic.[[26]](#footnote-26)

March 21-22, 2016 Meeting

The final meeting of the Forum was held at the Hilton Americas in downtown Houston, Texas on March 21-22, 2016.[[27]](#footnote-27) As requested after the March 7-8, 2016 meeting, the list of issues and questions associated with each issue in the working document were categorized by issue topic and provided as work paper for the meeting. The following twelve categories were identified.

1. No-notice Service Offerings - Issues and discussion items pertaining to no-notice service offerings
2. Non-ratable Takes - Issues and discussions specific to non-ratable takes and best-efforts nominations
3. Observations - Facts or observations noted in the discussions on the presentations
4. Support for Multiple Versions of Standards - Issues and discussion items pertaining to support for multiple versions of NAESB standards, even though only one version is mandated by the FERC
5. Levels of Confirmations - Issues and discussion items pertaining to types and levels of confirmations, synchronization of processes and number of iterations, including those supporting best-efforts nominations
6. Additional Nomination Cycles - Issues and discussion items pertaining to the introduction of additional cycles for nominations and scheduling for a variety of services and the corresponding shorter processing time frames along with potential scheduling flexibility. This category may also address best-efforts processes and addressing changes to support renewable energy.
7. Scheduling Issues Surrounding Interconnects - Issues and discussion items pertaining to electronic scheduling and impacts at interconnect points
8. Access to Scheduling During Non-business Hours - Issues and discussion items pertaining to access to services during non-traditional business hours
9. Communications - Issues and discussion items pertaining to terminology used between trading partners and communication protocols
10. Inconsistencies in Electric-Industry Day-Ahead Markets - Issues and discussion items pertaining to different timing and processing of day-ahead electric markets and its impact on electronic scheduling
11. Data Issues, Data-Transfer Issues, Field Testing and Modeling - Issues and discussion items pertaining to the application of technology to electronic scheduling
12. New Service Offerings - Issues and discussion items that identified possible new service offerings that could enhance the electronic scheduling process and introduce flexibility

In conjunction with information provided in comments submitted by the NAESB WGQ Pipeline Segment[[28]](#footnote-28) and Fidelity National Information Services,[[29]](#footnote-29) the participants, again, reviewed each issue by category and discussed whether a proposed solution was something that was actionable or not actionable by NAESB. All items fell into one or more of the following categories.

* Not actionable
* Not actionable, but if there are actions, they should occur through FERC and /or pipeline service offerings
* Not actionable, because this is an observation
* Actionable by NAESB in the current environment for those pipelines offering such services
* Actionable by NAESB in the current environment
* Actionable by NAESB after sufficient experience has been gained and analyzed after April 2016
* Actionable by NAESB to the extent FERC Orders and/or pipelines offer the provision of enhanced scheduling services
* A better industry understanding is needed to determine if there are applicable/relevant lessons for improving the gas scheduling process.
* A better industry understanding is needed to determine if there are issues that could be identified for later policy review

Again, as no votes were taken on the categorizations, nothing in the work paper represents a consensus of the group, rather a record of comments provided by the participants. As such, several of the items received multiple, and sometimes conflicting, categorizations.[[30]](#footnote-30)

Generalized support was given for the NAESB office to distribute a survey to the Forum distribution list soliciting input on the identified issues in the context of the six specific questions reviewed during March 7-8, 2016 meeting. The language of the questions was modified and questions one and two were broken into multiple parts. The participants requested that the responses be in a “yes” or “no” format and all blank responses be treated as a “no opinion” response. The participants also requested that the scoping questions concerning the Commission’s request, the board’s directive to the Forum and scope of the organization be clearly explained in the survey instructions and that all items categorized solely as observations not be included in the survey.

The survey was distributed to the NAESB Advisory Council, the NAESB membership and the Forum distribution list on March 24, 2016.[[31]](#footnote-31) Responses were requested by March 31, 2016, and the results will be made available by the NAESB office as soon as possible. The results will be analyzed in aggregate by (1) respondents who attended one or more of the 2016 NAESB GEH Forum face-to-face meetings either in person or by phone, (2) those that responded to the survey but did not attend any of the 2016 NAESB GEH Forum face-to-face meetings either in person or by phone, and (3) in total.

**III. Presentations and Comments**

In response to the January 13, 2016 solicitation, the NAESB office received eight presentations that were reviewed by the Forum and served as the basis for their activities to develop this report. A summary of the eight presentations was included in the February 18-19, 2016 Forum meeting notes that were approved by the Forum during the March 7-8, 2016 meeting. These notes below reflect the NAESB staff summary of the presentation included in the approved notes.

1. NAESB WGQ Pipeline Segment:[[32]](#footnote-32) The presentation and following discussion focused on the automated and manual scheduling activities of pipelines between the nomination and confirmation process and the many variables that impact how scheduled quantities are determined. Specifically, the participants discussed the degree of automation currently used in the scheduling and confirmation processes. It was noted that the degree of automation varies by pipeline, but the majority of pipelines have a mix of automated and manual activities, and some require no human interaction at all. None of the participants could identify a pipeline with a fully automated system. Several participants stated that allowing a pipeline the opportunity to review its system operations during this process often allows for a more efficient use of available capacity than would occur if there is a fully automated system. These efforts were characterized as the “art of scheduling.” Regarding a new national standard for automation processes, it was recognized that some processes may be easier to automate than others, but that there is no “one-size-fits-all” solution as every pipeline is unique and implementation costs would vary by system. Additionally, it was noted that not all parties in the scheduling/confirmation process are regulated by FERC, and that some existing system processes are proprietary. Pipeline representatives stated that their companies are constantly undertaking efforts to improve the efficiency of their intraday processes which account for roughly 10% to 20% of some pipeline’s daily nominations, but that it is not done on an industry wide basis. Representatives from the Local Distribution Companies (LDCs) segment also noted the importance of scheduling flexibility to support their LDC customers, some of whom are power generators. The level of automation of LDC processes, like pipelines, often depends on the size of the individual company. The participants also discussed how the costs of ‘best efforts’ services, apart from no-notice or hourly services, are absorbed by the pipeline companies and whether those costs should be attributed to the customer. It was noted that the no-notice services and hourly services are available on some pipelines for firm customers and are part of the rate design, but that those services can be expensive. It was also noted that non-ratable supplies are often supplied with the line pack when operationally feasible, and that the processes for such services are typically completely manual, as are most evening and weekend nominations.
2. PJM:[[33]](#footnote-33)  The presentation and discussion focused on PJM’s current and future gas-electric coordination efforts and how the 2014 winter peak impacted their system. The participants discussed the extent of automation utilized in the electric scheduling processes, and noted that while it is highly automated, there are still manual processes in place that serve as check points. Representatives from the ISO/RTO market noted that they, like those in the gas market, have to deal with system constraints and that they have a curtailment process in place that is almost fully automated, but recognized that it is difficult to compare the two commodities. It was stated that the greater scheduling opportunities and faster processing times would be beneficial from an electric perspective, but it is difficult to determine which would be most helpful – faster processing times or more nomination cycles. The participants discussed whether the issue in the PJM market during the 2014 winter was related to the number of opportunities to nominate gas for generators or if it was a pipeline capacity issue, and whether the winter was an anomaly that is not representative of how the system typically works on peak days. Several LDC participants noted that need for careful information sharing and that a strong working relationship with their ISO/RTO is key to effective coordination.
3. ACES Power:[[34]](#footnote-34) The presentation and discussion focused NAESB proceeding with caution in order to maintain the scheduling flexibility provided by the pipelines through interruptible services. The participants discussed the increased use of natural gas and renewable energy for power generation and the shift away from coal. This increasing use of renewables results in the need for quick start-up times, ratable takes and ancillary services. The participants also discussed how new pipeline construction is being driven by the producers more so than electric generators.
4. Fidelity National Information Services:[[35]](#footnote-35)  The presentation and discussion focused on standardizing ‘best efforts’ nominations and creating corresponding efficiencies in the confirmation process. The participants discussed how ‘best efforts’ nominations currently offered by pipelines work with the standardized nomination cycles, and the various confirmation process currently used by pipelines. It was noted that having a single, standardized confirmation response process and eliminating unsolicited confirmation options, is needed to fully automate the scheduling and confirmation processes. Allowing ‘best efforts’ nominations, if utilized efficiently, could eliminate the need for unsolicited confirmations. The participants also discussed the benefits and drawbacks to moving from an EDI to an XML data format, with some participants questioning whether a change in the data format used to communicate between parties is within scope as it doesn’t change the underlying scheduling/confirmation process. Representatives from the LDC community noted the importance of the clean-up cycles, and questioned how a requirement for ‘best efforts’ nominations would impact those cycles. The participants agreed that the purpose of a nomination should be to indicate the request of a shipper and not to “true things up” after the fact.
5. Skipping Stone:[[36]](#footnote-36) The presentation and discussion focused on how non-ratable flow can be used to address coordination issues. Some pipelines offer these services for which they are not compensated. Allowing for non-ratable takes and letting the market develop price signals that can be used to ensure equity may resolve some of the scheduling issues. The participants noted that this may create an opportunity for market manipulation and that the Commission would need to carefully monitor all activities. The participants also discussed the scope of this project and whether NAESB is the appropriate forum for offering such a recommendation. It was also noted that proposal would not address all of the scheduling issues identified by the Commission, including after hours and weekend nominations. The participants discussed whether developing the market espoused in the proposal could be done as a “field test,” similar to “field tests” undertaken on other NAESB standards.
6. Environmental Defense Fund:[[37]](#footnote-37) The presentation and following discussion focused on how enhanced scheduling could support more dynamic coordination between the markets and examined the PJM market events during the 2014 polar vortex. Specifically, it was noted that unavailability of nomination opportunities during that particular event lead to the inefficient use of capacity resulting in higher prices. The participants discussed whether the data provided was representative of the entire Northeast during the vortex or an isolated example. The presenter noted that information included in Skipping Stone’s presentation indicated that only 16% of contracts in place to support electric generation are for firm service and only 32% of the entire pipeline system is contracted to support electric generation. This means that firm service for electric generation accounts for roughly 5% of the total system. They also discussed the “must serve” obligations of power providers during such events and reserve requirements, and that ancillary services are essential for meeting their obligations. Representatives from the pipeline community also observed that customers are not typically requesting additional scheduling opportunities because they are offered no-notice services and non-ratable flow options to meet unexpected demands for capacity. It was noted that more compressed scheduling times could lead to more conservative scheduling by pipelines. Participants representing LDCs noted that there is access to storage in the Northeast and that it may have been used to mitigate constraint issues during the 2014 vortex. Discussions during the presentation provided by Skipping Stone raised concerns with the scope of the presentation relative to the request of the Commission and direction of the Board of Directors.
7. Coalition of Energy Technology Firms:[[38]](#footnote-38) The presentation and discussion focused on the use of modeling to support and improve market efficiencies. The presenters recognized that a certain amount of judgment may be needed as part of the “art of scheduling,” but when there are opportunities for automation to speed up the scheduling and confirmation processes, modeling can help to identify those areas. Representatives from pipeline companies stated that they already support the use of data analytics and modeling, and currently use them to review and test their own processes.
8. OATI, Inc.:[[39]](#footnote-39) The presentation and following discussion focused on how the wholesale electricity market’s e-Tag electronic scheduling system could be used to support gas scheduling processes. The participants discussed the physical differences between the two commodities and noted that confidential information related to the pooling and liquidity in the gas market may present issues that would make it difficult to adapt an e-Tag system to gas. The participants also discussed how FERC Order Nos. 888 and 1000 transformed the wholesale electric market nearly 20 years ago, and how each market currently addresses system constraints. It was noted that some of the same concerns being raised now were made when the transformative electric market orders were drafted. Concerns regarding the scope of the presentation were raised, and the presenters noted that the purpose of the presentation was to solicit discussion and further refine the rough outline of how the e-Tag system could be applied to the gas system.

**IV. Possible Solutions Discussed by Forum**

As noted in Section II, during the March 21-22, 2016 meeting the participants reviewed each of the issues as categorized and provided comments concerning whether a possible solution was actionable or not actionable. Of the 58 issues reviewed (some issues were included in multiple categories) 18 were categorized as actionable with or without conditions, 48 were categorized as not actionable and 5 were categorized as requiring more understanding. Again, as no votes were taken on the categorizations, nothing in the work paper represents a consensus of the group, rather a record of comments provided by the participants. As such, several of the issues received multiple, and sometimes conflicting, categorizations.

The nine tables below provide a breakdown of the issues by possibility of solution as recorded during the meeting. Please note that \* indicates that the issue appeared in multiple tables.

Only 4 issues were categorized solely as actionable in the current environment and included in Table 5. These issues are:

1. Levels of confirmation
2. Use of multiple confirmation methods in addition to traditional confirmations for intraday nominations. There is currently a good definition of Confirmation by Exception (CBE) in NAESB standards. CBE however, may not be available everywhere but there may also be additional confirmation methods that could benefit from standardization.
3. Level of confirmations: there is a wide range of data elements that are exchanged, from a minimum amount to a very large set of data. In the "Art of Scheduling," pipelines confirm at different levels, with potential for disparities. Greater standardization could produce confirming efficiencies. (For example, confirm at the shipper-to-shipper level. Or, if there are confirmations at a lower level of detail, it would be driven by model type.) See issue 17 in the first presentation.
4. It would be desirable to have a set of terminology agreed upon by participants to characterize shapes, profiles, ratable, non-ratable, and so forth to facilitate discussion.

| Identification of Actionable v. Not Actionable Items | | | |
| --- | --- | --- | --- |
| **Table 1 - *Possible Solution: Not Actionable*** | | | |
| Category | | Issue | |
| 1 | No-notice Service Offerings | | |
|  |  | 1 | No-notice needs for capacity to support anticipated usage of services purchased, which may or may not be scheduled (e.g., if no notice is not scheduled, such capacity can be made available to other shippers). This issue is one way to address the potential for greater flexibility. Pipelines forecast the amount of no-notice service they expect to provide on a next-day basis and then utilize any projected unused capacity on a interruptible basis to serve other shippers including gas fired electric generators with non-ratable demand. This is a foundational concept for Order 636. |
| 5 | Levels of Confirmation | | |
|  |  | 19 | Manual confirmation processes |
|  |  | 34b | True-up processes at the end of the gas day are examples of best efforts. This may be necessary but not sufficient to effectuate a transaction that can be scheduled. |
|  |  | 37\* | Investigate the need to define the number of iterations to support confirmation, including on a best-effort basis. Defined iterations needed to support confirmations, including best efforts. Taking a look at these issues does not necessarily presume there is a magic number of iterations, in part to changing market conditions and because of respecting the goal of maximizing flow. |
|  |  | 39 | Addressing the communication of characteristics of the information in the confirmation process could require a fundamental redesign, with potential changes to make confirmations more efficient. (Reasonable) commercial confidentiality issues must be respected. Note that some pipeline practices already may include this kind of information in the confirmation process. |
|  |  | 56 | Compress confirmations by expediting verification of nominations. Using simulation to recreate “The Art of Scheduling” tools of software models could support more efficient and effective decision making. |
| 6 | Additional Nomination Cycles | | |
|  |  | 34b | True-up processes at the end of the gas day are examples of best efforts. This may be necessary but not sufficient to effectuate a transaction that can be scheduled. |
| 8 | Access to Scheduling During Non-business Hours | | |
|  |  | 21\* | Computerized scheduling and confirmations for nomination of subscribed services during non-traditional business hours. |
| 11 | Data Issues, Data-Transfer Issues, Field Testing and Modeling | | |
|  |  | 39 | Addressing the communication of characteristics of the information in the confirmation process could require a fundamental redesign, with potential changes to make confirmations more efficient. (Reasonable) commercial confidentiality issues must be respected. Note that some pipeline practices already may include this kind of information in the confirmation process. |
|  |  | 56 | Compress confirmations by expediting verification of nominations. Using simulation to recreate “The Art of Scheduling” tools of software models could support more efficient and effective decision making. |

| Identification of Actionable v. Not Actionable Items | | | | |
| --- | --- | --- | --- | --- |
| **Table 2 - *Possible Solution: Not Actionable, but if there are actions, they should occur through FERC and/or service offerings*** | | | | |
| Category | | Issue | | |
| 1 | No-notice Service Offerings | | | |
|  |  | 29 | Generators rely on flexibility for a number of operational issues on the electric side. (Electric systems may require very-short periods of gas use to address perturbations on the systems, and electric systems also need to address forecasting error for flexible power-plant operations.) Interruptible services are needed because firm service doesn’t always provide for all of the flexibility attributes needed for reliability of power system operations. There are no-notice services, but they are limited. It is challenging to generators that flexibility elements of services are themselves interruptible. | |
| 2 | Non-ratable Takes | | | |
|  |  | 2 | | Non-ratable flexibility, both required to support services purchased and on a best efforts basis. Pipelines that offer no-notice service forecast the amount of no-notice service they expect to provide on a next-day basis and then utilize any projected unused capacity on a interruptible basis to serve other shippers including gas fired electric generators with non-ratable demand. This is a foundational concept for Order 636. |
|  |  | 23\* | | For certain service types, the ability to provide a more granular (e.g., 24 hour) take pattern could alleviate/reduce reliance on intraday to achieve that take pattern. |
|  |  | 40\* | | Some parties seek more opportunities to change the shape of flows over the course of a gas day so that the actual flows may differ from the 1/24th per hour rate. For example: use more nomination cycles and schedules to achieve non-ratable takes, instead of /in addition to using other tools like no-notice and hourly nomination services. |
|  |  | 42 | | A field test for best-efforts scheduling may be able to give us information as to demand and utility of services supporting non-ratable service. |
|  |  | 46\* | | Best-efforts scheduling could also be applied to day-ahead shaped flows. |
| 5 | Levels of Confirmation | | | |
|  |  | 34a | | There are non-bumping best-efforts nomination opportunities with streamlined confirmations as an intra-cycle nomination subject to operating conditions of the pipeline. |
| 6 | Additional Nomination Cycles | | | |
|  |  | 34a | | There are non-bumping best-efforts nomination opportunities with streamlined confirmations as an intra-cycle nomination subject to operating conditions of the pipeline. |
| 11 | Data Issues, Data Transfer Issues, Field Testing and Modeling | | | |
|  |  | 42 | | A field test for best-efforts scheduling may be able to give us information as to demand and utility of services supporting non-ratable service. |
| 12 | New Service Offerings | | | |
|  |  | 41\* | | Would the ability to reserve current contracted primary FT capacity for use tomorrow, address issues related to inability to use FT contracts to serve intermittent electric generation? |
|  |  | 43 | | Observation: the current set of firm offerings is not meeting the demands of generators in some parts of the country. The suggestion is that it is not necessary to change the existing services, but rather to add new services (for example, one could add a block of capacity, e.g. a seasonal block in which a shipper could take x quantity and y quantity for day). This is similar to the type of offering that some pipelines now offer (e.g. revenue banking). Of course physical capabilities of pipeline systems must be taken into account. |
|  |  | 44\* | | Volumetric service to support electric generation akin to SGS (Small Generation Service) on a best-efforts basis may meet expressed needs. |
|  |  | 48\* | | There could be benefits that flow from better matching the efficiency of gas scheduling to the provision of electric-market ancillary services (e.g., addressing short term imbalances, frequency regulation, flexible capacity) by gas generators. Because scheduling of gas is a process and electric ancillary services are products, it would be helpful to analyze what components of the scheduling process could be helpful in accommodating the provision of ancillary service. |

| Identification of Actionable v. Not Actionable Items | | | |
| --- | --- | --- | --- |
| **Table 3 - *Possible Solution: Not Actionable, because this is an observation*** | | | |
| Category | | Issue | |
| 3 | Observations | | |
|  |  | 3 | Performance of receipt/delivery locations – off-rate (daily/hourly) |
|  |  | 4 | Redirection of net scheduled flows resulting from nominations can occur through other portions of the pipeline |
|  |  | 5 | Interdependent capacity changes due to location of receipts/deliveries |
|  |  | 6 | Impact of weather on supply/demand and compressor efficiencies |
|  |  | 7 | Pipeline line pack, pipeline storage, and third party storage(including LDC storage) levels/location in relation to supply/demand |
|  |  | 8 | Gas quality fluctuation – heat content, etc. |
|  |  | 9 | Backhaul/displacement reliability. Pipelines evaluate historic patterns of backhaul/displacement transactions to determine whether such transactions can be relied upon during evaluation of the following scheduling cycles. (E.g.: Can the backhaul happen? Can you keep relying on it and does it create space for forward haul?) |
|  |  | 10 | Maintenance activities |
|  |  | 12 | Order of applying reductions (optimization) – location v. segments, order of scheduling segments, timing of the balancing |
|  |  | 13 | Identification of opportunities for imbalance management |
|  |  | 14 | Balancing of pools |
|  |  | 15 | Flexibility of EPSQ, its level and when it should apply |
|  |  | 24 | Operational risk assessment. Some grid operators take into consideration impacts of gas scheduling and nomination on the electric grid through routine risk assessments. |
| 4 | Support for Multiple Versions of Standards | | |
|  |  | 16 | Application of various NAESB versions and support provided by pipelines for several versions |
| 6 | Additional Nomination Cycles | | |
|  |  | 18\* | Nomination errors requiring manual intervention for mismatches during the confirmation process |
|  |  | 28 | Tight execution windows for gas markets |
|  |  | 30 | Decreasing operational flexibility provided by IT service when providing the possibility of more frequent opportunities for FT and IT through additional nominations/scheduling cycles. The status quo has certain rights and benefits that have been baked into expectations about the amount of flexibility that is available under different services. Changes ahead in either the gas or electric industries may disrupt the flexibility that has worked in the past and may not in the future. |
|  |  | 31 | Coordination/timing challenges |
|  |  | 32 | Forcing pipelines to process quicker may decrease operational flexibility because there may be less time to determine if interruptible transportation is available. Shorter timeframes may inadvertently introduce too much rigidity. |
|  |  | 45 | Intra-cycle capacity releases may improve best efforts scheduling. Conversely best-efforts scheduling may improve the effectiveness of existing intraday capacity releases. |
|  |  | 47 | Episodic analysis of daily flows suggests that more opportunities to schedule may provide additional flexibility to generators and electric consumers’ benefits. |
|  |  | 52 | How to address less time to validate nomination data that would not lead to errors or legal risks? Using simulation to recreate “The Art of Scheduling” tools of software models could support more efficient and effective decision making. |
|  |  | 53 | How to address tighter deadlines that hamper gas controllers ability to account for shifts in volume. Using simulation to recreate “The Art of Scheduling” tools of software models could support more efficient and effective decision making. |
|  |  | 54 | By adding more schedules, are tools available or currently in use that support both the gas controllers and the gas fired generators? Using simulation to recreate “The Art of Scheduling” tools of software models could support more efficient and effective decision making. |
| 7 | Scheduling Issues Surrounding Interconnects | | |
|  |  | 11 | Physical assistance agreed upon between interconnecting parties. OBAs and similar type of arrangement (the implementing devices), seem to be working well. |
|  |  | 20 | Availability of capacity at interconnection points. There is currently uncertainty as to impact of tighter timeframes on the scheduling of capacity for the later cycles. (At present, the schedules tend to come out early.) |
| 10 | Inconsistencies in Electric-Industry Day-Ahead Markets | | |
|  |  | 27 | Timing and Processing Times for Day Ahead energy markets are different across electric markets |
| 11 | Data Issues, Data Transfer Issues, Field Testing and Modeling | | |
|  |  | 50 | How to support through efficient scheduling, a better coordination of gas supplies, transport services, ISOs and RTOs needs and needs of power generators? Using simulation to recreate “The Art of Scheduling” tools of software models could support more efficient and effective decision making. |
|  |  | 51 | Through efficient nominations and scheduling, addressing service interruptions in the supply chain. Using simulation to recreate “The Art of Scheduling” tools of software models could support more efficient and effective decision making. |
|  |  | 52 | How to address less time to validate nomination data that would not lead to errors or legal risks? Using simulation to recreate “The Art of Scheduling” tools of software models could support more efficient and effective decision making. |
|  |  | 53 | How to address tighter deadlines that hamper gas controllers ability to account for shifts in volume. Using simulation to recreate “The Art of Scheduling” tools of software models could support more efficient and effective decision making. |
|  |  | 54 | By adding more schedules, are tools available or currently in use that support both the gas controllers and the gas fired generators? Using simulation to recreate “The Art of Scheduling” tools of software models could support more efficient and effective decision making. |
|  |  | 55 | Need for role playing. Using simulation to recreate “The Art of Scheduling” tools of software models could support more efficient and effective decision making. |

| Identification of Actionable v. Not Actionable Items | | | |
| --- | --- | --- | --- |
| **Table 4 - *Possible Solution: Actionable by NAESB in the current environment for those pipelines offering such services*** | | | |
| Category | | Issue | |
| 2 | Non-ratable Takes | | |
|  |  | 23\* | For certain service types, the ability to provide a more granular (e.g., 24 hour) take pattern could alleviate/reduce reliance on intraday to achieve that take pattern.. |
|  |  | 40\* | Some parties seek more opportunities to change the shape of flows over the course of a gas day so that the actual flows may differ from the 1/24th per hour rate. For example: use more nomination cycles and schedules to achieve non-ratable takes, instead of /in addition to using other tools like no-notice and hourly nomination services. |
|  |  | 46\* | Best-efforts scheduling could also be applied to day-ahead shaped flows. |

| Identification of Actionable v. Not Actionable Items | | | |
| --- | --- | --- | --- |
| **Table 5 - *Possible Solution: Actionable by NAESB in the current environment*** | | | |
| Category | | Issue | |
| 5 | Levels of Confirmations | | |
|  |  | 17 | Levels of confirmation |
|  |  | 33 | Use of multiple confirmation methods in addition to traditional confirmations for intraday nominations. There is currently a good definition of Confirmation by Exception (CBE) in NAESB standards. CBE however, may not be available everywhere but there may also be additional confirmation methods that could benefit from standardization. |
|  |  | 35\* | Lining up the processes and timeframes that occur within the confirmations/scheduling window to gain efficiency of data exchange. |
|  |  | 36 | Level of confirmations: there is a wide range of data elements that are exchanged, from a minimum amount to a very large set of data. In the "Art of Scheduling," pipelines confirm at different levels, with potential for disparities. Greater standardization could produce confirming efficiencies. (For example, confirm at the shipper-to-shipper level. Or, if there are confirmations at a lower level of detail, it would be driven by model type.) See issue 17 in the first presentation. |
|  |  | 37\* | Investigate the need to define the number of iterations to support confirmation, including on a best-effort basis. Defined iterations needed to support confirmations, including best efforts. Taking a look at these issues does not necessarily presume there is a magic number of iterations, in part to changing market conditions and because of respecting the goal of maximizing flow. [Here iterations is meant to refer to the frequency and timing of data exchanges between confirming parties] |
|  |  | 38\* | Further standardize methods and processes (for example, standardizing time frames for the different elements of the processes) employed to support confirmations. Standardization could clarify the steps and expectations among parties surrounding default actions that may arise from different time periods in the process. |
| 6 | Additional Nomination Cycles | | |
|  |  | 18\* | Nomination errors requiring manual intervention for mismatches during the confirmation process |
|  |  | 49\* | As the electric system continues to evolve into a peakier and a more renewable grid, the need for enhanced scheduling and flexibility from the gas transportation system will grow. |
| 8 | Access to Scheduling During Non-business Hours | | |
|  |  | 21\* | Computerized scheduling and confirmations for nomination of subscribed services during non-traditional business hours. |
| 9 | Communications | | |
|  |  | 22 | It would be desirable to have a set of terminology agreed upon by participants to characteristics shapes, profiles, ratable, non-ratable, and so forth to facilitate discussion. |
|  |  | 25\* | Communication protocols with LDCs, gas generator operators and natural gas marketing companies |
|  |  | 26\* | Improve efficiency of critical information sharing (related to items 22 and 25) |
| 11 | Data Issues, Data-Transfer Issues, Field Testing and Modeling | | |
|  |  | 35\* | Lining up the processes and timeframes that occur within the confirmations/scheduling window to gain efficiency of data exchange. |
|  |  | 36 | Level of confirmations: there is a wide range of data elements that are exchanged from a minimum amount to a very large set of data. In the Art of Scheduling, pipelines confirm at different level with potential for disparities; greater standardization could produce confirming efficiencies. (For example, confirm at the shipper to shipper level, or if you do it as a lower level of detail it would be driven by model type.) See issue 17 in the first presentation. |
|  |  | 38\* | Further standardize methods and processes (for example, standardizing time frames for the different elements of the processes) employed to support confirmations. Standardization could clarify the steps and expectations among parties surrounding default actions that may arise from different time periods in the process. |
| 12 | New Service Offerings | | |
|  |  | 48\* | There could be benefits that flow from better matching the efficiency of gas scheduling to the provision of electric-market ancillary services (e.g., addressing short term imbalances, frequency regulation, flexible capacity) by gas generators. Because scheduling of gas is a process and electric ancillary services are products, it would be helpful to analyze what components of the scheduling process could be helpful in accommodating the provision of ancillary service. |
|  |  | 49\* | As the electric system continues to evolve into a peakier and a more renewable grid, the need for enhanced scheduling and flexibility from the gas transportation system will grow. |

| Identification of Actionable v. Not Actionable Items | | | |
| --- | --- | --- | --- |
| **Table 6 - *Possible Solution: Actionable by NAESB after sufficient experience has been gained and analyzed after April 2016*** | | | |
| Category | | Issue | |
| 5 | Levels of Confirmations | | |
|  |  | 35\* | Lining up the processes and timeframes that occur within the confirmations/scheduling window to gain efficiency of data exchange. |
|  |  | 38\* | Further standardize methods and processes (for example, standardizing time frames for the different elements of the processes) employed to support confirmations. Standardization could clarify the steps and expectations among parties surrounding default actions that may arise from different time periods in the process. |
| 8 | Access to Scheduling During Non-business Hours | | |
|  |  | 21\* | Computerized scheduling and confirmations for nomination of subscribed services during non-traditional business hours. |
| 9 | Communications | | |
|  |  | 25\* | Communication protocols with LDCs, gas generator operators and natural gas marketing companies |
|  |  | 26\* | Improve efficiency of critical information sharing (related to items 22 and 25) |
| 11 | Data Issues, Data-Transfer Issues, Field Testing and Modeling | | |
|  |  | 35\* | Lining up the processes and timeframes that occur within the confirmations/scheduling window to gain efficiency of data exchange. |
|  |  | 38\* | Further standardize methods and processes (for example, standardizing time frames for the different elements of the processes) employed to support confirmations. Standardization could clarify the steps and expectations among parties surrounding default actions that may arise from different time periods in the process. |
| 12 | New Service Offerings | | |
|  |  | 48\* | There could be benefits that flow from better matching the efficiency of gas scheduling to the provision of electric-market ancillary services (e.g., addressing short term imbalances, frequency regulation, flexible capacity) by gas generators. Because scheduling of gas is a process and electric ancillary services are products, it would be helpful to analyze what components of the scheduling process could be helpful in accommodating the provision of ancillary service. |

| Identification of Actionable v. Not Actionable Items | | | |
| --- | --- | --- | --- |
| **Table 7 - *Possible Solution: Actionable by NAESB to the extent FERC orders and/or pipelines offer the provision of enhanced scheduling services*** | | | |
| Category | | Issue | |
| 5 | Levels of Confirmations | | |
|  |  | 57 | Could eTag be applied to the gas industry to mimic the significant number of transactions processed on the power grid that use eTag in short processing windows, and if so, can it result in a streamlined scheduling process for natural gas? |
|  |  | 58\* | Are there “lessons learned” in the electric industry that could benefit the gas industry as it considers the feasibility of modifying the scheduling process to make it more efficient? |
| 6 | Additional Nomination Cycles | | |
|  |  | 49\* | As the electric system continues to evolve into a peakier and a more renewable grid, the need for enhanced scheduling and flexibility from the gas transportation system will grow. |
|  |  | 58\* | Are there “lessons learned” in the electric industry that could benefit the gas industry as it considers the feasibility of modifying the scheduling process to make it more efficient? |
| 11 | Data Issues, Data-Transfer Issues, Field Testing and Modeling | | |
|  |  | 57 | Could eTag be applied to the gas industry to mimic the significant number of transactions processed on the power grid that use eTag in short processing windows, and if so, can it result in a streamlined scheduling process for natural gas? |
| 12 | New Service Offerings | | |
|  |  | 49\* | As the electric system continues to evolve into a peakier and a more renewable grid, the need for enhanced scheduling and flexibility from the gas transportation system will grow. |

| Identification of Actionable v. Not Actionable Items | | | |
| --- | --- | --- | --- |
| **Table 8 - *Possible Solution: A better industry understanding is needed to determine if here are applicable/relevant lessons for improving the gas scheduling process.*** | | | |
| Category | | Issue | |
| 5 | Levels of Confirmations | | |
|  |  | 57 | Could eTag be applied to the gas industry to mimic the significant number of transactions processed on the power grid that use eTag in short processing windows, and if so, can it result in a streamlined scheduling process for natural gas? |
|  |  | 58\* | Are there “lessons learned” in the electric industry that could benefit the gas industry as it considers the feasibility of modifying the scheduling process to make it more efficient? |
| 6 | Additional Nomination Cycles | | |
|  |  | 58\* | Are there “lessons learned” in the electric industry that could benefit the gas industry as it considers the feasibility of modifying the scheduling process to make it more efficient? |

| Identification of Actionable v. Not Actionable Items | | | |
| --- | --- | --- | --- |
| **Table 9 - *Possible Solution: A better industry understanding is needed to determine if there are issues that could be identified for later policy review*** | | | |
| Category | | Issue | |
| 12 | New Service Offerings | | |
|  |  | 41\* | Would the ability to reserve current contracted primary FT capacity for use tomorrow, address issues related to inability to use FT contracts to serve intermittent electric generation? |
|  |  | 44\* | Volumetric service to support electric generation akin to SGS (Small Generation Service) on a best-efforts basis may meet expressed needs. |
|  |  | 48\* | There could be benefits that flow from better matching the efficiency of gas scheduling to the provision of electric-market ancillary services (e.g., addressing short term imbalances, frequency regulation, flexible capacity) by gas generators. Because scheduling of gas is a process and electric ancillary services are products, it would be helpful to analyze what components of the scheduling process could be helpful in accommodating the provision of ancillary service. |

**IV. Possible Action for Board Consideration**

The Board of Directors has several choices in determining the direction to be taken to respond to the Commission’s requests that “…that the gas and electric industries, through NAESB, explore the potential for computerized scheduling when shippers and confirming parties all submit electronic nominations and confirmations, including a streamlined confirmation process if necessary”, and “…that the natural gas and electric industries, through NAESB, begin considering the development of standards related to faster, computerized scheduling and file such standards, or a report on the development of such standards, with the Commission by October 17, 2016.” The Board can consider the issues identified in the Forum and direct NAESB to consider particular actions that may lead to standards development. Conversely, the board could consider the issues identified in the Forum and determine that no standards development action by NAESB is necessary. The board could also determine that additional analysis of the information provided would be helpful before it takes any action and assign that analytic task to a group, which once completed, could provide a focused foundation for decision making. Should the board determine that standards-development on any issue by NAESB is advisable, an added consideration is timing: Would this standards development activity take place in 2016, or would it take place sometime after 2016 when sufficient time has passed to permit a better understanding of the impact of the changes to the nominations timeline, which was implemented on April 1, 2016?

The survey results, which may provide greater insight into the level of support for NAESB standards development action on any particular issue, could assist the board in setting a direction. The survey results will be presented separately, as the survey response period concluded March 31. Similarly, the participants in the Forum, plus other interested parties, may choose to develop requests for standards development that are directly related to the Forum’s efforts. Indeed, one request for standards development[[40]](#footnote-40) was received shortly after the Forum completed its last March meeting.

**VI. Conclusion**

As noted in this report, the NAESB Board of Directors has many options it may choose to pursue as it determines how best to respond to FERC Order No. 809. The Forum serves at the pleasure of the board, and is willing and able to address any assignments now or in the future the Board sees fit. The participants of the Forum thank the Board of Directors for providing this opportunity to serve NAESB and look forward to supporting the organization in the future. The NAESB staff and co-chairs of the Forum conclude with thanks to all who helped provide the information included in this report.

Appendices:

A GEH Forum Meeting Schedule

B GEH Forum Participants

C GEH Form Distribution List

D Presentations and Comments

E Meeting Notes, Work Papers, Comments and Transcripts

F Summary of Board Action in Response to FERC Order No. 809

##### January 12, 2016

**TO:** NAESB Board of Directors, Gas-Electric Harmonization (GEH) Forum and Interested Parties

**FROM:** NAESB Office

**RE:** Timeline to Address 2016 WEQ Annual Plan Item 7.a & 2016 WGQ Annual Plan Item 3.a – *Updated January 19, 2016*

Dear Board Members, Forum Participants and Interested Parties,

Please find below a timeline that would support the development of potential solutions in response to 2016 WEQ Annual Plan Item 7.a and 2016 WGQ Annual Plan Item 3.a for board consideration.

| **Timeline -- Schedule of Meetings and Deliverables** | | | |
| --- | --- | --- | --- |
| * **** | Date/Time | Committee & Meeting | Deliverables |
|  | January 25, 2016 - 10:00 am to 11:00 am Central | Conference Call GEH Forum – Organizational & Informational | Administrative Session |
|  | February 1, 2016 | Inform NAESB office of intent to submit presentations |  |
|  | February 8, 2016 | Presentations forwarded to the NAESB office | Presentations posted on the NAESB web site |
|  | February 18, 2016 – 8:00 am to 5:00 pm Central  February 19, 2016 - 8:00 am to 2:00 pm Central | GEH Forum face to face meeting (1.5 day meeting) in Houston, TX at the Doubletree Downtown Hotel | Review all presentations with time allotted for questions and answers. Presentations will provide education on the current process, identification of issues and potential solutions within the bounds of the request of the FERC in Order No. 809 |
|  | March 7, 2016 – 8:00 am to 5:00 pm Central  March 8, 2016 - 8:00 am to 2:00 pm Central | GEH Forum face to face meeting (1.5 day meeting) in Houston, TX at the Hilton Americas | Discussion of presentations and potential solutions |
|  | March 21, 2016 – 8:00 am to 5:00 pm Central  March 22, 2016 - 8:00 am to 2:00 pm Central | GEH Forum face to face meeting (1.5 day meeting) in Houston, TX at the Hilton Americas | Summation of potential solutions |
|  | April 3, 2016 | GEH Forum Report developed by the GEH Forum co-chairs and NAESB staff based upon GEH Forum discussion record | GEH Forum Report posted to the NAESB website |
|  | April 7, 2016 – 9:00 am to 1:00 pm Central | NAESB Board of Directors Meeting | The GEH Forum Report will be presented to the NAESB Board of Directors for further direction |
|  | Week of April 11th | Status report to Commission | A status report including the direction determined by the NAESB Board of Directors will be filed with the Commission. |

Total Participants – 205

[NAESB Membership Roster](https://www.naesb.org/pdf4/memstats.pdf)

| **Participant Roster - Sorted by Last Name** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **First Name** | **Last Name** | **Company** | **Quadrant** | **Segment** | **NAESB Member** |
| Denise | Adams | ONEOK Rockies Midstream | WGQ | Services | N |
| Dave | Allred | NWP Marketing Services | ----- | ----- | N |
| Karl | Almquist | Tallgrass Operations, LLC | WGQ | Pipeline | Y |
| Omar | Aslam | Federal Energy Regulatory Commission (FERC) | None | None | \*\*G |
| Trevante | Bailey | Dominion Transmission, Inc. | WGQ | Pipeline | Y |
| John | Baker | Open Access Technology International, Inc. (OATI) | WEQ | End User | Y |
| Stacy | Bartoszek | NJR Energy Services Company | WGQ | Services | N |
| Sharat | Batra | Los Angeles Department of Water and Power | WEQ | Mrkt/Brk | Y |
| Wayne | Benoit | Boardwalk Pipeline Partners, LP | WGQ | Pipeline | Y |
| Susan | Bergles | American Gas Association | WGQ | LDC | Y |
| Carrie | Bivens | Electric Reliability Council of Texas, Inc. (ERCOT) | WEQ | IGO | Y |
| Na | Bocangel | Colorado Springs Utilities | WGQ | LDC | Y |
| Jonathan | Booe | North American Energy Standards Board | ----- | ----- | Staff |
| Paul | Borkovich | Southern California Gas Company | WGQ | LDC | Y |
| Brad | Bouillon | California Independent System Operator Corp. | WEQ | IGO | Y |
| Y.J. | Bourgeois | Anadarko Energy Services Company | WGQ | Producer | Y |
| Sue | Brodeur | Unitil | ----- | ----- | N |
| Kelly R. | Brooks | WBI Energy Transmission, Inc. | WGQ | Pipeline | Y |
| Richard | Brown | PJM Interconnection, LLC | WEQ | IGO | Y |
| John | Broyles | New York ISO | WEQ | IGO | Y |
| Dan | Buckner | Alliance for Cooperative Energy Services Power Marketing LLC (ACES) | WGQ | End User | N |
| Michaela | Burroughs | American Gas Association | WGQ | LDC | Y |
| James (Jim) | Busch | BP West Coast Products | WGQ | End User | N |
| Montie | Callager | Targa Resources Inc. | WGQ | Services | N |
| William A. | Callan | ISO New England, Inc. | WEQ | IGO | Y |
| Greg | Campoli | New York ISO | WEQ | IGO | Y |
| Evelyn | Carmouche | Shell Energy North America (US), L.P. | WGQ | Services | Y |
| Joe | Casey | Spectra Energy Corp | WGQ | Pipeline | Y |
| Jack | Cashin | The Electric Power Supply Association (EPSA) | WGQ | End User | N |
| Douglas | Chapel | Consumers Energy Company | WGQ | LDC | N |
| Joe | Conneely | Granite State Gas Transmission System | WGQ | Pipeline | N |
| Pete | Connor | American Gas Association rep | WGQ | LDC | Y |
| Chuck | Cook | Chevron Natural Gas | WGQ | Producer | Y |
| Margaret | Cordts | NorthWestern Energy | WGQ | LDC | N |
| Janet | Corritore | Tenaska Marketing Ventures | WGQ | Mrkt/Brk | N |
| David | Crabtree | TECO/Peoples Gas System | WEQ | Distribution | Y |
| Valerie | Crockett | Tennessee Valley Authority | WGQ | End User | Y |
| Lorraine | Cross | Cross & Company, P.L.L.C. | None | None | \*A |
| Kelly A. | Daly | Stinson Leonard Street LLP | WGQ | Services | N |
| George | Danner | Business Laboratory, LLC | WEQ | Services | N |
| Dale | Davis | Williams | WGQ | Pipeline | Y |
| Rae | Davis | Dominion Carolina Gas Transmission , LLC | WGQ | Pipeline | Y |
| Alexander | Davydov | Total Gas and Power North America Inc. | WGQ | Pipeline | N |
| Jeffrey | DeAnna | NJR Energy Services Company | WGQ | Services | N |
| Laura K. | Demman | Northern Natural Gas Company | WGQ | Pipeline | Y |
| Jerry H. | Dempsey | OATI | WEQ | End User | Y |
| Rhonda | Denton | BP Energy Company | WGQ | Producer | Y |
| Jay | Dibble | Calpine Energy Services, LP | WGQ | End User | Y |
| Stacy | Djukic | Northern Indiana Public Service Company | WGQ | LDC | N |
| Bill | Donahue | Puget Sound Energy, Inc. | WEQ | Distribution | N |
| Mary | Draemer | Energy Transfer Equity, L.P. | WGQ | Pipeline | Y |
| Jeremy | Durocher | MCP Operating LLC | WGQ | Pipeline | Y |
| Katie | Ege | Great River Energy | WEQ | Generation | N |
| Catherine M. | Elder | Aspen Environmental Group | WGQ | Services | Y |
| Sam | Ellis | Southwest Power Pool | WEQ | IGO | Y |
| Cameron T. | Eoff | Associated Electric Cooperative Inc. | WEQ | Generation | N |
| Tamara | Evey | Ameren Services Company | WGQ | LDC | N |
| Anna | Fernandez | Federal Energy Regulatory Commission (FERC) | None | None | \*\*G |
| Kathy | Ferreira | New Jersey Natural Gas Company | WGQ | LDC | N |
| Douglas | Field | Southern Star Central Gas Pipeline, Inc. | WGQ | Pipeline | Y |
| Brian | Fields | Calpine Energy Services, LP | WGQ | End User | Y |
| Brian J. | Fitzpatrick | PJM Interconnection, LLC | WEQ | IGO | Y |
| Jim | Fort | The Energy Authority, Inc. | WEQ | Mrkt/Brk | N |
| Danielle | Foster | Shell Energy North America (Canada) | ----- | ----- | N |
| Michael | Frey | Municipal Gas Authority of Georgia | WGQ | Services | N |
| William | Gallagher | Vermont Public Power Supply Authority | WEQ | Generation | Y |
| Wayne | Gardner | WE Gardner Company LLC | WGQ | Services | \*A |
| Tina | Gary | Portland General Electric Company | WEQ | Generation | N |
| Dennis | Gee | Pacific Gas and Electric Company (PG&E) | WGQ | LDC | Y |
| Tim | Gerrish | Florida Power & Light | WEQ | Mrkt/Brk | Y |
| Joseph | Ghormley | Southwest Power Pool | WEQ | IGO | Y |
| Gloria | Glover | TECO/Peoples Gas System | WEQ | Distribution | Y |
| Casey | Gold | Natural Gas Supply Association (NGSA) | WGQ | Producer | N |
| Mike | Goldenberg | Federal Energy Regulatory Commission (FERC) | None | None | \*\*G |
| Lindsay | Gottsponer | AGL Resources Inc. | WGQ | Pipeline | Y |
| Mark | Gracey | Southern Natural Gas Company, L.L.C. | WGQ | Pipeline | N |
| Bob | Gray | Arizona Corporation Commission | WGQ | Services | \*A |
| Wraye | Grimard | Peoples Gas System, a Division of Tampa Electric Company | WGQ | LDC | N |
| Jerry H. | Gross | Questar Pipeline Company | WGQ | Pipeline | Y |
| Stanley | Gross | El Paso Electric | WEQ | Trans | Y |
| Brandon | Guderian | Devon Energy | WGQ | Producer | Y |
| Tom | Gwilliam | Iroquois Gas Transmission System | WGQ | Pipeline | Y |
| Francis J. | Halpin | Bonneville Power Administration | WEQ | Generation | Y |
| Erik | Hanser | Michigan Public Service Commission | ----- | ----- | N |
| Kevin | Hanson | Electric Reliability Council of Texas, Inc. (ERCOT) | WEQ | IGO | Y |
| Ann | Hartigan | Unitil Service Corporation | WGQ | LDC | Y |
| Chantal | Hendrzak | PJM Interconnection, LLC | WEQ | IGO | Y |
| Ronnie C. | Hensley II | Southern Star Central Gas Pipeline, Inc. | WGQ | Pipeline | Y |
| Sherry | Hill | TransCanada PipeLines Limited | WGQ | Pipeline | Y |
| Roy | Hiller | Southern Company Services, Inc. | WGQ | End User | Y |
| Micki | Hoffee | Northern Natural Gas | WGQ | Pipeline | Y |
| Rachel | Hogge | Dominion Transmission, Inc. | WGQ | Pipeline | Y |
| Brad | Holmes | Fayetteville Express Pipeline | WGQ | Pipeline | N |
| Brenda | Horton | Kern River Gas Transmission Company | WGQ | Pipeline | Y |
| Richard | Ishikawa | Southern California Gas Company | WGQ | LDC | Y |
| Samara | Jaffe | National Grid | WGQ | LDC | Y |
| Patricia | Jagtiani | Natural Gas Supply Association (NGSA) | WGQ | Producer | N |
| Bonnie | Janssen | Michigan Public Service Commission | WGQ | End User | \*\*G |
| Steven | Jaskolski | TransCanada US Pipelines / ANR Pipeline Company | WGQ | Pipeline | Y |
| Andrew | Kennedy | TECO/Peoples Gas System | WEQ | Distribution | Y |
| Drake R. | Kijowski | PSEG Energy Resources and Trade LLC | WGQ | LDC | N |
| Gordon | King | Okaloosa Gas District (APGA) | WGQ | LDC | N |
| Robert | Kott | California Independent System Operator Corp. | WEQ | IGO | Y |
| Richard | Kruse | Algonquin Gas Transmission, LLC (Spectra Energy Corp) | WGQ | Pipeline | N |
| Debbie | Kupczyk | National Fuel Gas Supply Corporation | WGQ | Pipeline | Y |
| Earl | Lambert | EnCORE | ----- | ----- | N |
| Gregory | Lander | Skipping Stone, LLC - CapacityCenter | WGQ | Services | Y |
| Nancy | Leatherland | Enbridge (U.S.) Inc. | WGQ | Pipeline | Y |
| Rodney | Luck | Los Angeles Department of Water and Power | WGQ | End User | N |
| Jared M. | Luner | Xcel Energy | WGQ | End User | N |
| Steve | Maestas | Public Service Company of New Mexico | WEQ | Mrkt/Brk | Y |
| Kathleen | Magruder | BP Energy Company | WEQ | Mrkt/Brk | N |
| James | Maguire | Direct Energy | WGQ | Services | N |
| Elizabeth | Mallett | North American Energy Standards Board | ----- | ----- | Staff |
| Beth | Martin | WEC Energy Group | WGQ | LDC | Y |
| Willis | McCluskey | Salt River Project Agricultural Improvement & Power District | WGQ | End User | Y |
| Steve | McCord | Columbia Gas Transmission, LLC | WGQ | Pipeline | Y |
| Missy | McNamara | Columbia Gas Transmission, LLC | WGQ | Pipeline | Y |
| Rae | McQuade | North American Energy Standards Board | None | None | Staff |
| Michelle | Mendoza | Piedmont Natural Gas | WGQ | LDC | N |
| Cary | Metz | Enable Energy Resources, LLC | WGQ | Services | Y |
| Megan | Miller | Spectra Energy Corp | WGQ | Pipeline | Y |
| Sherri | Monteith | American Electric Power | WEQ | Generation | Y |
| Richard | Moreno | Energy Transfer Equity, L.P. | WGQ | Pipeline | N |
| Doug | Morgan | United Utility Group | WGQ | LDC | N |
| Art | Morris | Florida Power & Light | WGQ | End User | Y |
| Scott | Morrison | American Public Gas Association (APGA) | WGQ | Services | N |
| Bob | Mosemann | Anadarko Energy Services Company | WGQ | Producer | Y |
| Ann | Mountford | Pacific Gas and Electric Company | WGQ | LDC | Y |
| Sylvia | Munson | FIS | WGQ | Services | Y |
| Erin | Murphy | Environmental Defense Fund, Inc. | WGQ | End User | Y |
| Rebecca | Newson | Shell Energy North America (US), L.P. | WGQ | Services | Y |
| Christi | Nicolay | Macquarie Energy LLC | WGQ | Services | Y |
| David | Nilsson | Power Costs, Inc. (PCI) | WEQ | Tech/Serv | Y |
| Mike | Novak | National Fuel Gas Distribution Corporation | WGQ | LDC | Y |
| Gene | Nowak | Kinder Morgan Inc | WGQ | Pipeline | Y |
| Lou | Oberski | Dominion Resources Services, Inc. | WEQ | Generation | Y |
| Linn C. | Oelker | LG&E and KU Services Company | WEQ | Generation | N |
| Sheree | Osborne | Puget Sound Energy, Inc. | WGQ | LDC | N |
| Debra Ann | Palmer | New England LDCs | WGQ | LDC |  |
| Lopa | Parikh | Edison Electric Institute (EEI) | WEQ | End User | Y |
| Randy E. | Parker | ExxonMobil Gas and Power Marketing Company (a division of ExxonMobil Corporation) | WGQ | Producer | Y |
| Norman | Pedersen | Southern California Generation Coalition (Hanna and Morton LLP) | WGQ | End User | N |
| N. Jonathan | Peress | Environmental Defense Fund, Inc. | WGQ | End User | Y |
| Sheldan | Perry | Open Access Technology International, Inc. (OATI) | WGQ | Services | Y |
| Don | Petersen | Pacific Gas and Electric Company (PG&E) | WGQ | Pipeline | N |
| Joshua | Phillips | Southwest Power Pool | WEQ | IGO | Y |
| Damonica | Pierson | Shell Exploration and Production Company | WGQ | Producer | N |
| Phil | Precht | Baltimore Gas & Electric Company | WGQ | LDC | Y |
| Buffy | Pyle-Liberto | Exelon Corporation | WGQ | Services | N |
| Tom | Pysh | Northern Indiana Public Service Company | WEQ | Generation | N |
| Denise | Rager | North American Energy Standards Board | ----- | ----- | Staff |
| Deepak | Raval | NiSource Inc. | WGQ | LDC | Y |
| Jack | Reid | Seminole Electric Cooperative, Inc. | WEQ | Mrkt/Brk | Y |
| David | Reitz | National Fuel Gas Supply Corporation | WGQ | Pipeline | Y |
| Ginger | Richman | NJR Energy Services Company | WGQ | Services | N |
| Sara | Rogers | ONEOK Partners GP, LLC | WGQ | Pipeline | Y |
| Douglas | Rudd | New Jersey Natural Gas Company | WGQ | LDC | N |
| Michael | Russ | National Fuel Gas Supply Corporation | WGQ | Pipeline | Y |
| Chris | Russo | Sequent Energy Management, L.P. | WGQ | Services | Y |
| Steve | Salese | Direct Energy Business, LLC | WGQ | Services | Y |
| Andy | Sanchez | Southwestern Energy Company | WGQ | Producer | N |
| Manuel | Santos | Open Access Technology International, Inc. (OATI) | WGQ | Services | Y |
| Keith | Sappenfield | Environmental Resources Management | WGQ | Services | Y |
| Anita M. | Schafer | Duke Energy Corporation | WGQ | LDC | N |
| Jeff | Schmitt | PJM Interconnection, LLC | WEQ | IGO | Y |
| Ben | Schoene | ConocoPhillips Company | WGQ | Producer | Y |
| Dave | Schryver | American Public Gas Association (APGA) | WGQ | Services | N |
| Eric | Scott | Avista Utilities | WGQ | LDC | N |
| Mark | Sellers-Vaughn | Cascade Natural Gas | WGQ | LDC | N |
| Donnie | Sharp | City of Huntsville d/b/a Huntsville Utilities | WGQ | LDC | N |
| Lisa | Simpkins | Exelon Generation Company, LLC | WGQ | Services | Y |
| Carelton | Simpson | Unitil Energy Systems | WGQ | LDC | N |
| Jeff | Sissom | APGA/MLGW | WGQ | LDC | N |
| Ed | Skiba | MISO | WEQ | IGO | Y |
| Rick | Smead | RBN Energy LLC | WEQ | Tech/Serv | Y |
| Richard | Smith | Golden Pass Pipeline, LLC | WGQ | Pipeline | Y |
| Leigh | Spangler | Latitude Technologies, Inc. | WGQ | Services | Y |
| Joe | Sterrett | Tallgrass Operations, LLC | WGQ | Pipeline | Y |
| Will | Szubielski | Emera Energy Services, Inc. | WGQ | Services | N |
| Kenny | Taylor | Dominion Carolina Gas Transmission, LLC | WGQ | Pipeline | Y |
| Veronica | Thomason | North American Energy Standards Board | ----- | ----- | Staff |
| Terence (Terry) | Thorn | KEMA Gas Consulting Services | None | None | \*A |
| RJ | Thornbury | The Energy Authority, Inc. | WGQ | Services | N |
| Sue | Tierney | Analysis Group, Inc. | None | None | \*A |
| Michael | Tita | Federal Energy Regulatory Commission (FERC) | None | None | \*\*G |
| Ronald G. | Tomlinson | Dominion Transmission, Inc. | WGQ | Pipeline | Y |
| Roy | True | Alliance for Cooperative Energy Services Power Marketing LLC (ACES) | WEQ | Mrkt/Brk | Y |
| Caroline | Trum | North American Energy Standards Board | ----- | ------ | Staff |
| John | Ulloa | Pacific Gas and Electric Company (PG&E) | WEQ | Generation | N |
| Brad | Van Dyke | Tallgrass Operations, LLC | WGQ | Pipeline | Y |
| Kim | Van Pelt | Texas Gas Transmission | WGQ | Pipeline | N |
| Glenn | Vaughan | Enbridge (U.S.) Inc. | WGQ | Pipeline | Y |
| Jill | Vaughan | CSR, Transcriber | None | None | N |
| Deborah | Waugh | Williams - Discovery | WGQ | Pipeline | N |
| Janelle | Weatherford | Enbridge (U.S.) Inc. | WGQ | Pipeline | Y |
| Thomas | Webb | Enbridge (U.S.) Inc. | WGQ | Pipeline | Y |
| Maya | Weber | Platts | None | None | \*\*\*P |
| David | Webster | Macquarie Energy LLC | WGQ | Services | Y |
| Brian J. | Wiese | MidAmerican Energy Company | WGQ | LDC | N |
| Vickie | Wonder | Northern Natural Gas | WGQ | Pipeline | N |
| Charles | Yeung | Southwest Power Pool | WEQ | IGO | Y |
| Kathy | York | Tennessee Valley Authority | WEQ | Mrkt/Brk | Y |
| Christopher | Young | Exelon Corporation | WGQ | End User | N |
| Randy | Young | Gulf South Pipeline Company | WGQ | Pipeline | N |

\*A = Advisory Council Member

\*\*G = Governmental Participant

\*\*\*P = Press Participant

|  |  |
| --- | --- |
| Adams, Denise | ONEOK Partners |
| Agrawal, Rakesh | Blackstone Technology Group, Inc. |
| Albrecht, Matt | Chevron Natural Gas |
| Allenback, Peggi | MidAmerican Energy Company |
| Allred, Dave | NWP Marketing Services |
| Almquist, Karl | Tallgrass Operations, LLC |
| Anderson, Bruce | New England Power Generators Association, Inc. |
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| Anderson, Mark | Paiute Pipeline Company |
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| Aslam, Omar | Federal Energy Regulatory Commission (FERC) |
| Bagot, Nance | The Electric Power Supply Association (EPSA) |
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| Bailey, Vicky | BHMM Energy Services, LLC |
| Baird-Forristall, Caroline | MidAmerican Energy Company |
| Baker, John | Open Access Technology International, Inc. |
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| Bartley, J. | Accenture, LLC |
| Bartoszek, Stacy | NJR Energy Services Company |
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| Bear, John | ISO/RTO Council (IRC) |
| Beck, Elizabeth | Vectren Corporation |
| Begley, Mark | Northern Natural Gas |
| Bell, John S. | Kansas Corporation Commission |
| Bellairs, David A. | Metropolitan Utilities District of Omaha |
| Bellville, Nathan T. | South Mississippi Electric Power Association (SMEPA) |
| Benoit, Wayne | Boardwalk Pipeline Partners, LP |
| Benson, Marty | Intermountain Gas Company |
| Bergles, Susan | American Gas Association |
| Betancourt, Ramona | ETC Tiger Pipeline LLC |
| Billiot, Scott | Oglethorpe Power Corp. |
| Bishop, Cary M. | Greenwood Commissioners of Public Works (CPW) |
| Bivens, Carrie | Electric Reliability Council of Texas, Inc. (ERCOT) |
| Blasiak, James L. | Washington Gas Light Company |
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| Bloodworth, Michelle | MISO |
| Bocangel, Na | Colorado Springs Utilities |
| Boehme, John | Central Valley Gas Storage, LLC |
| Bogdan, Candace | Liberty Utilities (Midstates Natural Gas) Corp. |
| Booe, Jonathan | North American Energy Standards Board |
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| Bormack, Mitchell | TRC Solutions |
| Boswell, William | North American Energy Standards Board |
| Boucher, Jennifer | The Berkshire Gas Company |
| Bougner, Mike | Xcel Energy |
| Bouillon, Brad | California Independent System Operator Corp. |
| Bourgeois, Y.J. | Anadarko Energy Services Company |
| Bowling, Michael | Tucson Electric Power Company |
| Bowman, Erica | America’s Natural Gas Alliance (ANGA) |
| Bradbury, Debbie | Trunkline Gas Company |
| Braun, Christine | FortisBC Huntingdon Inc. |
| Bray, Walter | Arizona Electric Power Cooperative, Inc. |
| Breden, Dan | Prairie Power, Inc. |
| Breezeel, Phillip | Prairie Power, Inc. |
| Broderick, Kyle | Portland General Electric Company |
| Brodeur, Sue | Unitil |
| Brooks, Kelly | J. Aron & Company (Goldman, Sachs & Co. |
| Brooks, Kelly R. | WBI Energy Transmission, Inc. |
| Brown, Richard | PJM Interconnection, LLC |
| Brownell, Stanley | PJM Interconnection, LLC |
| Broyles, John | New York ISO |
| Bruechner, Paul | Okaloosa Gas District |
| Bruns, Joe | Cedar Falls Utilities |
| Bryson, Michael | PJM Interconnection, LLC |
| Buccigross, Jim | 8760 Inc. |
| Buckner, Dan | Alliance for Cooperative Energy Services Power Marketing LLC (ACES) |
| Burgess, Tom | North American Electric Reliability Corporation (NERC) |
| Burke, Lynn M | Columbia Gas of Ohio, Inc. |
| Burks, J. Cade | Big Data Energy Services |
| Burroughs, Michaela | American Gas Association |
| Busch, James (Jim) | BP West Coast Products |
| Butcher, Angie | Michigan Public Service Commission |
| Butler, James | NiSource Inc. |
| Butler, Scott | Consolidated Edison Co of New York, Inc. |
| Caffery, David | PSEG Energy Resources & Trade LLC |
| Calhoun, John Anthony | Santee Cooper |
| Callager, Montie | Targa Resources Inc. |
| Callan, William A. | ISO New England, Inc. |
| Campoli, Greg | New York ISO |
| Capilla, Leslie | Arizona Public Service Company |
| Cardone, Ernie | New York ISO |
| Carlson, Tom | Arizona Public Service Company |
| Carmouche, Evelyn | Shell Energy North America (US), L.P. |
| Carrette, Jeffrey | Total Gas and Power North America Inc. |
| Carriere, Jay | Berkshire Hathaway Energy Company |
| Casey, Bill | Portland General Electric Company |
| Casey, Joe | East Tennessee Natural Gas, L.L.C |
| Casey, Melissa | Williams – Transco |
| Cashin, Jack | The Electric Power Supply Association (EPSA) |
| Cather, Brenda | Anadarko Energy Services Company |
| Chambers, Andrea | Ballard Spahr LLP |
| Chang, Ibtissam | Southern California Gas Company |
| Chang, Stacy | NV Energy |
| Chapel, Douglas | Consumers Energy Company |
| Charles-Joseph, Debbie | New York State Electric and Gas Corporation |
| Christian, Ron | Vectren Corporation |
| Clausen, Brad | Entergy Services, Inc. |
| Cockrell, Jessica L. | Federal Energy Regulatory Commission (FERC) |
| Cocks, Michael | Bonneville Power Administration |
| Colombo, Craig | Dominion Resources |
| Colussy, Peter | Xcel Energy |
| Conneely, Joe | Granite State Gas Transmission System |
| Connor, Pete | American Gas Association |
| Conte, Tony | National Fuel Gas Supply Corporation |
| Cook, Chuck | Chevron Natural Gas |
| Cooper, Chris | Dauphin Island Gathering Partners |
| Copeland, Karen | Municipal Gas Authority of Georgia |
| Cordts, Margaret | NorthWestern Energy |
| Corritore, Janet | Tenaska |
| Costello, Chuck | Blackstone Technology Group, Inc. |
| Crabtree, David | TECO/Peoples Gas System |
| Crawford, Ernie | Public Service Company of New Mexico |
| Crockett, Valerie | Tennessee Valley Authority |
| Cross, Lorraine | Cross & Company, P.L.L.C. |
| Crowley, Colin | Puget Sound Energy, Inc. |
| Crysler, Dan | Latitude Technologies, Inc. |
| Culp, Jodi | Black Hills Energy |
| Culpepper, Les | The Southeast Alabama Gas District |
| Cymes, Jim | Steckman Ridge |
| Czigler, Frank | Public Service Electric and Gas Company |
| DaFonte, F. Chico | Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities |
| Dahlberg, Lynn | Williams – Northwest Pipeline |
| Daly, Kelly A. | Stinson Leonard Street LLP |
| Dandridge, Michelle M. | Southern California Gas Company |
| Danner, George | Coalition of Energy Technology Firms |
| Dauer, Jim | NRG Energy, Inc. |
| Davis, Dale | Williams |
| Davis, Noy S. | New England LDCs |
| Davis, Rae | Dominion Carolina Gas Transmission, LLC |
| Davydov, Alexander | Total Gas and Power North America Inc. |
| DeAnna, Jeffrey | NJR Energy Services |
| DeBoissiere, Alex | The United Illuminating Company |
| DeBruin, Martin | Liberty Utilities (New England Natural Gas Company) Corp. |
| DeCourcey, Erica | New Mexico Gas Company |
| Demman, Laura K. | Northern Natural Gas |
| Dempsey, Jerry H. | Open Access Technology International, Inc. |
| Denton, Rhonda | BP Energy |
| Derryberry, Richard | Xcel Energy |
| Desselle, Michael | Southwest Power Pool |
| Devers, Janice | Maritimes & Northeast Pipeline, L.L.C. – US |
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| Diamond, Michael | Van Ness Feldman LLP |
| Dibble, Jay | Calpine Energy Services, LP |
| Dickens, Dwayne | UNS Electric |
| Dillavou, Jay H. | MidAmerican Energy Company |
| Dininger, Dennis | Indianapolis Power & Light Company (IPL) |
| Dinkins, Phaedra | Williams |
| Djukic, Stacy | Northern Indiana Public Service Company |
| Donahue, Bill | Puget Sound Energy, Inc. |
| Dorr, Justin | Avista Corporation |
| Downey, Carrie | Imperial Irrigation District |
| Draemer, Mary | Energy Transfer Equity, L.P. |
| Dragulescu, Adrian | Exelon Generation Company, LLC |
| Dreskin, Joan | Interstate Natural Gas Association of America (INGAA) |
| Durbin, Marty | America’s Natural Gas Alliance (ANGA) |
| Durocher, Jeremy | MCP Operating, LLC |
| Ege, Katie | Great River Energy |
| Ehly, Katie | America’s Natural Gas Alliance (ANGA) |
| Elder, Catherine M. | Aspen Environmental Group |
| Elgie, Tom | Powerex Corp. |
| Ellis, John | Sempra Utilities |
| Ellis, Sam | Southwest Power Pool |
| Ellsworth, Bruce | New York State Reliability Council |
| Ellzey, Jay | Chevron Natural Gas |
| Engels, William | Los Angeles Department of Water & Power |
| Eoff, Cameron T. | Associated Electric Cooperative Inc. |
| Epstein, Max | Potomac Economics |
| Ethier, Robert | ISO New England, Inc. |
| Evans, Bruce | PacifiCorp |
| Evey, Tamara | Ameren Services Company |
| Eynon, Patrick | American Services Company |
| Fan, Chris | Pacific Gas and Electric Company (PGE) |
| Faust, Tina | Questar Gas Company |
| Feemster, Bryan | City Utilities of Springfield, Missouri |
| Fernandez, Anna | Federal Energy Regulatory Commission (FERC) |
| Ferreira, Kathy | New Jersey Natural Gas Company |
| Field, Douglas | Southern Star Central Gas Pipeline, Inc. |
| Fields, Brian | Calpine Energy Services, LP |
| Filer, Leslie | Avista Corporation |
| Finklea, Edward | Northwest Industrial Gas Users |
| Fitzpatrick, Brian | PJM Interconnection, LLC |
| Flynn, Kevin | ISO New England, Inc. |
| Foley, Kevin | Puget Sound Energy, Inc. |
| Follmer, Annette | USG Corporation |
| Forshaw, Brian | Connecticut Municipal Electric Energy Cooperative |
| Fort, Jim | The Energy Authority, Inc. |
| Foss, Michelle | University of Texas |
| Fossum, Drew | Tenaska Energy, Inc. |
| Foster, Danielle | Shell Energy North America (Canada) |
| Foutch, Jeffrey | Peregrine Midstream Partners LLC |
| Freitas, Christopher | US Department of Energy |
| Frey, Michael | Municipal Gas Authority of Georgia |
| Friedman, Randy | Northwest Natural |
| Fuentes, Daryll | USG Corporation |
| Fuerst, Gary | FirstEnergy Service Co. |
| Fulton, Brian | USN Gas Inc. |
| Furino, Robert S. | Unitil |
| Gagliardi, Kristine | Columbia Gulf Transmission |
| Gallagher, William | Vermont Public Power Supply Authority |
| Garcia, Clarissa | Goldman, Sachs & Co. | J. Aron & Co. |
| Gardner, Wayne | WE Gardner Company LLC |
| Garner, David | Puget Sound Energy, Inc. |
| Gary, Tina | Portland General Electric Company |
| Gee, Bob | Gee Strategies Group, LLC |
| Gee, Dennis | Pacific Gas and Electric Company (PGE) |
| George, Simi Rose | Environmental Defense Fund |
| Gerrish, Tim | Florida Power & Light |
| Ghormley, Joseph | Southwest Power Pool |
| Gibson, Tom | Columbia Gas of Maryland |
| Gilbert, Steve | Northern Natural Gas |
| Gill, Paul | Sea Robin Pipeline company, LLC |
| Gillingham, Rick | Hoosier Energy Rural Electric Cooperative, Inc. |
| Ginnetti, Jim | EquiPower Resources Corp |
| Ginsberg, Susan | Independent Petroleum Association of America (IPAA) |
| Glazebrook, Sherri | Tennessee Gas Pipeline Company, L.L.C. |
| Glazer, Craig | PJM Interconnection, LLC |
| Glines, Brent | Golden Spread Electric Cooperative |
| Glover, Gloria | TECO/Peoples Gas System |
| Goddard, Aaron | Columbia Gas of Maryland |
| Gold, Amy | Shell Energy North America (US) L.P. |
| Gold, Casey | Natural Gas Supply Association (NGSA) |
| Goldbeck, Glenn | Pacific Gas and Electric Company (PGE) |
| Goldenberg, Mike | Federal Energy Regulatory Commission (FERC) |
| Goodman, Craig | National Energy Marketers Association (NEM) |
| Gottsponer, Lindsay | AGL Resources Inc. |
| Gracey, Mark | Kinder Morgan Inc |
| Grassi, Bob | PPL Services Corporation |
| Gray, Bob | Arizona Corporation Commission |
| Gray, Dax | Utah Associated Municipal Power Systems (UAMPTS) |
| Gray, Kevin | Southern Star Central Gas Pipeline, Inc. |
| Grimard, Wraye | Peoples Gas System, a Division of Tampa Electric |
| Grooms, Craig | Buckeye Power |
| Gross, Blake | American Electric Power |
| Gross, Jerry H. | Questar Pipeline Company |
| Gross, Stanley | El Paso Electric |
| Grover, Scott | Southern Company Services, Inc. |
| Guderian, Brandon | Devon Gas Services L.P. |
| Gwilliam, Tom | Iroquois Gas Transmission System |
| Haas, Paul | El Paso Natural Gas Company, L.L.C. |
| Haines, Phil | Puget Sound Energy |
| Hale, Kenneth J. | City Utilities of Springfield, Missouri |
| Halpin, Francis J. | Bonneville Power Administration |
| Hammer, Mark | Puget Sound Energy, Inc. |
| Hanchey, Jeannette | PXD |
| Hanser, Erik | Michigan Public Service Commission |
| Hanson, Kevin | Electric Reliability Council of Texas, Inc. (ERCOT) |
| Hardy, Dave | Tri-State Generation and Transmission Association, Inc. |
| Hargett, Chris | Consolidated Edison Co of New York, Inc. |
| Harrel, Scott | Oglethorpe Power Corp. |
| Harshbarger, Bob | Puget Sound Energy, Inc. |
| Hart, Anita | NV Energy |
| Hartigan, Ann | Unitil Service Corporation |
| Hartsoe, Joseph | American Electric Power Service Corp. |
| Hathaway, Dave | Wisconsin Public Service |
| Helm, M. Gary | PJM Interconnection, LLC |
| Hendrzak, Chantal | PJM Interconnection, LLC |
| Henry, Mike | Emera Energy |
| Hensley II, Ronnie C. | Southern Star Central Gas Pipeline, Inc. |
| Hicken, Jeff | Alliant Energy |
| Hild, Jeffrey | Xcel Energy |
| Hill, Audrea | PSC Nitrogen Fertilizer, L.P. |
| Hill, Sherry | TransCanada PipeLines Ltd. |
| Hiller, Roy | Southern Company Services, Inc. |
| Hoffee, Micki | Northern Natural Gas |
| Hogge, Rachel | Dominion Transmission, Inc. |
| Holmes, Brad | Fayetteville Express Pipeline |
| Horn, Jennifer | JEA |
| Horne, Glenda | Santee Cooper |
| Horner, Jason | Portland General Electric Company |
| Horton, Brenda | Kern River Gas Transmission |
| Horton, Rob | Hoosier Energy Rural Electric Cooperative, Inc. |
| Hughes, John | Electricity Consumers Resource Council (ELCON) |
| Ishikawa, Richard | Southern California Gas Company |
| Jaffe, Samara | National Grid |
| Jagtiani, Patricia | Natural Gas Supply Association (NGSA) |
| Janssen, Bonnie | Michigan Public Service Commission |
| Jaskolski, Steven | TransCanada US Pipelines / ANR Pipeline Company |
| Jones, Dan | Duke Energy Corporation |
| Jones, Kim | NCUC |
| Jones, Paul | Salt River Project Agricultural Improvement & Power District |
| Joosten, John | Kern River Gas Transmission Company |
| Jordan, Deena | Regency Energy Partners LP |
| Joseph, Kelli | New York ISO |
| Joyce, Patrick | Black Hills Corporation |
| Kahle, Dick | Lincoln Electric System |
| Kasha, Priscila Castillo | Los Angeles Department of Water and Power |
| Katz, Andrew | NSTAR |
| Kelley, Rod | Bonneville Power Administration |
| Kennedy, Andrew | TECO/ Peoples Gas System |
| Kennedy, Mariah | Puget Sound Energy, Inc. |
| Keogh, Miles | National Association of Regulatory Utility Commissioners (NARUC) |
| Kerr, Paul | Shell Energy North America (Canada) |
| Kerrigan, Lily | Wright & Talisman, P.C. |
| Kijowski, Drake R. | PSEG Energy Resources and Trade LLC |
| King, Gordon | Okaloosa Gas District |
| Kinser, Glenn | TOTAL Gas & Power North America, Inc. |
| Kisluk, Eileen Wilson | PAA Natural Gas Storage |
| Knight, Jim | Metropolitan Utilities District |
| Koch, Kent E. | Columbia Gas of Kentucky |
| Kott, Robert | California ISO |
| Koza, Frank | PJM Interconnection, LLC |
| Kramer, Bernard | DTE Gas Company |
| Kruse, Richard | Algonquin Gas Transmission, LLC |
| Kupczyk, Debbie | National Fuel Gas Supply Corporation |
| Kvam, Michele | Puget Sound Energy, Inc. |
| Lacy, Catharine M. | Dominion Resources Services, Inc. |
| Lambert, Earl | EnCORE |
| Lander, Gregory | Skipping Stone, LLC |
| Lane, Bryan | FortisBC Energy, Inc. |
| Langel, Gina | Omaha Public Power District |
| Langston, Mike | Energy Transfer Equity, L.P. |
| Lasa, Dulce | Southern California Gas Company |
| Lauby, Mark | North American Electric Reliability Corporation (NERC) |
| Laval, Stuart | Duke Energy Corporation |
| Lavarco, William | NextEra Energy Power Marketing, LLC |
| Leatherland, Nancy | Enbridge (U.S.) Inc. |
| Lee, Amy | Northwest Natural |
| Lee, Michael | Federal Energy Regulatory Commission (FERC) |
| Leesman, Katie | Process Gas Consumers Group (Ballard Spahr LLP rep) |
| Lehman, Richard | Salt River Project Agricultural Improvement & Power District |
| Lennon, Rose | Washington Gas Light Company |
| Leuschen, Sam | PPA Natural Gas Storage, LLC |
| Liang-Nicol, Cecilia | Monongahela Power Company |
| Linder, Sorana | Crossroads Pipeline |
| Lobdell, Julie | Municipal gas Authority of Georgia |
| Locke, Michael | JEA |
| Love, Paul | Natural Gas Pipeline Company of America LLC |
| Luck, Rodney | Los Angeles Department of Water and Power |
| Luner, Jared M. | Xcel Energy |
| Lyser, Shelly | Consolidated Edison Co of New York, Inc. |
| Maestas, Steve | Public Service Company Of New Mexico |
| Maffa, Paul | Liberty Utilities (Peach State Natural Gas) Corp. |
| Magruder, Kathleen | BP Energy Company |
| Maguire, James | Direct Energy Business, LLC |
| Malcolm, Shelby | Open Access Technology International, Inc. |
| Mallett, Elizabeth | North American Energy Standards Board |
| Mancuso, Melanie | FirstEnergy Utilities |
| Manning, James | North Carolina Electric Membership Corporation |
| Markovich, Kevin | NorthWestern Energy |
| Martin, Beth | WEC Energy Group |
| Martin, Tim | Wolverine Power Supply Cooperative |
| Marton, David | FirstEnergy |
| Mata, Antelmo | Williams - Transco |
| Matthews, Jennifer | Southern Star Central Gas Pipeline, Inc. |
| Maust, Keith | Piedmont Natural Gas |
| Mayette, Joe | United States Gypsum Company |
| McAnally, Robert | Northwest Natural |
| McBroom, Melissa | ONEOK Partners GP LLC |
| McCluskey, Willis | Salt River Project Agricultural Improvement & Power District |
| McCord, Steve | Columbia Gas Transmission Corporation |
| McCord, Tom | The Energy Authority, Inc. |
| McCoy, Matt | SouthernStar Central Gas Pipeline |
| McDermott, Mike | Pacific Gas and Electric Company (PGE) |
| McGeeney, Chris | Associated Electric Cooperative Inc. |
| McLafferty, Dan | Pacific Gas and Electric Company (PGE) |
| McNamara, Missy | Columbia Gas Transmission, LLC |
| McNevin, John | EnCORE |
| McQuade, Rae | North American Energy Standards Board |
| Meehan, James H. | FirstEnergy Corporation |
| Melvin, Jasmin | Platts |
| Mendoza, Michelle | Piedmont Natural Gas |
| Meriwether, Tom | Targa Resources |
| Metz, Cary | Enable Energy Resources, LLC |
| Metzker, Amber L. | Xcel Energy |
| Millar, Debra | Columbia Gas of Pennsylvania |
| Millard, Ryan | Portland General Electric Company |
| Miller, Mary Kay | Northern Natural Gas |
| Miller, Megan | Spectra Energy Corp |
| Miller, Rebecca | Dominion Transmission, Inc. |
| Miller, William T. | American Public Gas Association (APGA) |
| Mills, Ron | Latitude Technologies, Inc. |
| Miyaji, Wendell | Comverge |
| Mohre, David | National Rural Electric Cooperative Association (NRECA) |
| Monteith, Sherri | American Electric Power Service Corp. |
| Moore, Wayne | Southern Company Services, Inc. |
| Moreno, Richard | Energy Transfer |
| Morgan, Doug | United Utility Group |
| Morris, Alex | Pacific Gas and Electric Company (PGE) |
| Morris, Art | Florida Power & Light |
| Morrison, Andrew | MarkWest Energy Partners, L.P. |
| Morrison, Scott | American Public Gas Association (APGA) |
| Morrissey, Tomas | Pacific Northwest Utilities Conference Committee |
| Morrow, Mark C. | UGI Corporation |
| Mosemann, Bob | Anadarko Energy Services Company |
| Mosley, Scott | SouthStar Energy Services, LLC |
| Mott, Michael | Northwest Natural |
| Mountford, Ann | Pacific Gas and Electric Company (PGE) |
| Moura, John | North American Electric Reliability Corporation (NERC) |
| Mucci, Ron | ONEOK |
| Munson, Sylvia | FIS |
| Murphy, Erin | Environmental Defense Fund, Inc. |
| Murphy, Kyle | Latitude Technologies, Inc. |
| Musich, Beth | Southern California Gas Company |
| Mysore, Sunil | Latitude Technologies, Inc. |
| Nance, Peter | ICF International |
| Neph, Sherry | ONEOK Partners GP LLC |
| Newson, Rebecca | Shell Energy North America (US), L.P. |
| Nichols, Marshall | National Petroleum Council |
| Nicolay, Christi | Macquarie Energy LLC |
| Nielsen, Janie | Kern River Gas Transmission Company |
| Nilsson, David | Power Costs, Inc. (PCI) |
| Nishimuta, Lisa | ONEOK |
| Nolte, Bill | Sunflower Electric Power Corporation |
| Norton, Chris | American Municipal Power, Inc. |
| Novak, Mike | National Fuel Gas Distribution Corporation |
| Nowak, Gene | Kinder Morgan Inc |
| O’Bryan, Wayne | Big Rivers Electric Corporation |
| O’Hara, Chris | NRG Energy, Inc. |
| Oberski, Louis | Dominion Resources Services, Inc. |
| Oelker, Linn C. | LG&E and KU Services Company |
| Ogg, Joelle | DC Energy |
| Olenick, John | Southwest Gas Corporation |
| Olling, Kevin | Midland Cogeneration Venture LP |
| Omey, Samantha | ExxonMobil Corporation / XTO Energy Inc. |
| Orr, Bryant | Oglethorpe Power Corp. |
| Osborne, Sheree | Puget Sound Energy, Inc. |
| Owens, David | Edison Electric Institute (EEI) |
| Pace, Dawnell | Williams – Northwest Pipeline, LLC |
| Padilla, Elleanor | Arizona Public Service Company |
| Page, Carly | Natural Gas Supply Association (NGSA) |
| Palmer, Debra Ann | New England LDCs |
| Parikh, Lopa | Edison Electric Institute (EEI) |
| Parker, Randy E. | ExxonMobil Gas and Power Marketing Company (a division of ExxonMobil Corporation) |
| Patrick, Marguerite (Becky) | Infinite Energy |
| Patterson, Delia | American Public Power Association (APPA) |
| Patton, Gail | Targa Resources |
| Pauley, Bob | Indiana Commission |
| Pedersen, Norman | Hanna and Morton LLP |
| Pederson, Blake | Tucson Electric Power Company |
| Penner, Audrey | Manitoba Hydro |
| Pennock, Lori-Lynn | Salt River Project Agricultural Improvement & Power District |
| Peoples, John | Duquesne Light |
| Percell, Cynthia | Red Willow Production Company owned by the Southern Ute Indian Tribe |
| Peress, N. Jonathan | Conservation Law Foundation |
| Pergola, Perry M. | Vectren Corporation |
| Perry, Sheldan | Open Access Technology International, Inc. |
| Persekian, Joe | USG Corporation |
| Peschka, Terri | Portland General Electric Company |
| Petersen, Don | Pacific Gas and Electric Company (PGE) |
| Pettinato, Robert | Los Angeles Department of Water and Power |
| Philips, Marjorie | Direct Energy Business, LLC |
| Phillips, Joshua | Southwest Power Pool |
| Pierson, Damonica | Shell Exploration and Production Company |
| Pleasant, Rochelle | Total |
| Plumaj, Joshua | Columbia Gulf Transmission |
| Poli, Patricia | Michigan Public Service Commission |
| Pollard, Joseph | TransCanada US Pipelines |
| Pranaitis, Mark | The Southern Connecticut Gas Company |
| Precht, Phil | Baltimore Gas & Electric Company |
| Price, Kent E. | Salt River Project Agricultural Improvement & Power District |
| Price, Valerie | Enable Gas Transmission |
| Pyle-Liberto, Buffy | Exelon Corporation |
| Pyles, Adam | CenterPoint Energy Services |
| Pysh, Tom | Northern Indiana Public Service Company |
| Rager, Denise | North American Energy Standards Board |
| Ramsey, Brad | National Association of Regulatory Utility Commissioners (NARUC) |
| Raval, Deepak | NiSource Inc. |
| Razack, Abdul | Nevada Power |
| Reeping, Robert | FirstEnergy Utilities |
| Reese, Benjamin J. | PAA Natural Gas Storage |
| Reid, Jack | Seminole Electric Cooperative, Inc. |
| Reid, John D. | PAA Natural Gas Storage |
| Reitz, David | National Fuel Gas Supply Corporation |
| Renshaw, Kevin | Southern Star Central Gas Pipeline, Inc. |
| Retherford, Angila | Vectren Corporation |
| Rhyno, Wendy | Alliance Pipeline |
| Richman, Ginger | NJR Energy Services Company |
| Rikard, Clay | Southern Company Services, Inc. |
| Rivers, Cynthia | Florida Gas Transmission, LLC |
| Rivers, Cynthia | Fitchburg Gas & Electric Light Company |
| Robbins, Chris | Intermountain Gas Company |
| Roberts, Emily | Gill Ranch Storage Company |
| Robinson, Dennis | ISO New England, Inc. |
| Rogers, Sara | ONEOK |
| Roth, Tom | Roth Energy Company |
| Rudd, Douglas | New Jersey Natural Gas Company |
| Rudiak, John | New England LDCs |
| Rudolphi, Matthew R. | South Mississippi Electric Power Association (SMEPA) |
| Ruperto, Melinda | MidAmerican Energy Company |
| Russ, Mike | National Fuel Gas Supply Corporation |
| Russell, Chelsea | Superior Water, Light and Power |
| Russo, Chris | Sequent Energy Management, L.P. |
| Ryu, Heejin | Exelon Generation |
| Sahba, Shahriar | Open Access Technology International, Inc. |
| Saini, Ishwar | Macquarie Energy LLC |
| Salese, Steve | Direct Energy Business, LLC |
| Salisbury, Chad | Santee Cooper |
| Sanchez, Andy | Southwestern Energy Company |
| Santa, Don | The Interstate Natural Gas Association of America (INGAA) |
| Santman, Ken | Avista Corporation |
| Santos, Manuel | Open Access Technology International, Inc. |
| Sappenfield, Keith | Environmental Resources Management |
| Schafer, Anita M. | Duke Energy Corporation |
| Schmitt, Jeff | PJM Interconnection, LLC |
| Schoene, Ben | ConocoPhillips Company |
| Schryver, Dave | American Public Gas Association (APGA) |
| Schubert, Eric | BP America Production Company |
| Scott, Eric | Avista Corporation |
| Sellers-Vaughn, Mark | Cascade Natural Gas Corporation |
| Selsmeyer, Patrick J. | Integrys Energy Services, Inc. |
| Shah, Jayana | New Jersey Natural Gas Company |
| Shahidehpour, Mohammad | Eastern Interconnection States Planning Council (EISPC) -IIT |
| Sharp, Donnie | City of Huntsville d/b/a Huntsville Utilities |
| Sharp, Steve | Arkansas Electric Cooperative Corporation (AECC) |
| Shields, Justin | UNS Electric |
| Shipley, Don | Southwest Power Pool |
| Shoemaker, Mike | FortisBC Energy Inc. |
| Short, Tag | MISO |
| Shumway, Neal | Tenaska Marketing Ventures |
| Silberstein, Pam | National Rural Electric Cooperative Association (NRECA) |
| Simon, Timothy | TAS Strategies |
| Simpkins, Lisa | Exelon Generation Company, LLC |
| Simpson, Carleton | Unitil Energy Systems |
| Singh, Harry | Goldman, Sachs & Co. |
| Sissom, Jeff | APGA/MLGW |
| Sixkiller, Heather | Portland General Electric Company |
| Skelton, Kathryn | Noble Energy, Inc. |
| Skiba, Ed | MISO |
| Smead, Rick | RBN Energy LLC |
| Smith, Chris | Puget Sound Energy, Inc. |
| Smith, Jim | Municipal Energy Resources Corporation |
| Smith, Richard | Golden Pass Products LLC |
| Snider, Wade | Brazos Electric Cooperative |
| Snow, Robert V. | Federal Energy Regulatory Commission (FERC) |
| Soreng, Erik | PacifiCorp |
| Spangler, Leigh | Latitude Technologies, Inc. |
| Sterrett, Joe | Tallgrass Operations, LLC |
| Stone, Carolyn | Cascade Natural Gas Corporation |
| Stuchell, Jeff | FirstEnergy Solutions |
| Stultz, Mark | BP America Production Company |
| Sturm, John | Alliance for Cooperative Energy Services Power Marketing LLC (ACES) |
| Stutzman, Rain | NRG Energy, Inc. |
| Suga, Glenn | Sierra Pacific Power Company |
| Szubielski, Will | Emera Energy Services, Inc. |
| Tardy, Ryan | Sierra Pacific LDC |
| Tarpey, Steve | BP West Coast Products |
| Tatum, Ed | Old Dominion Electric Coop |
| Taylor, Brandon | Puget Sound Energy |
| Taylor, Kenny | Dominion Carolina Gas Transmission, LLC |
| Tennyson, John | City Utilities of Springfield, Missouri |
| Theobald, David | Omaha Public Power District |
| Thomas, Sharon | National Association of Regulatory Utility Commissioners (NARUC) |
| Thomason, Veronica | North American Energy Standards Board |
| Thompson, Michael J. | Wright & Talisman, P.C. |
| Thoms, Eric | MISO |
| Thorn, Terence (Terry) | KEMA Gas Consulting Services |
| Thornbury, RJ | The Energy Authority, Inc. |
| Tierney, Sue | Analysis Group, Inc. |
| Tilbury, Joshua | New Mexico Gas Company |
| Tingler, Teri | ONEOK |
| Tita, Michael | Federal Energy Regulatory Commission (FERC) |
| Toledano, Donna | Colorado Springs Utilities |
| Tomlinson, Ronald G. | Dominion Transmission, Inc. |
| Trent, Dan | Associated Electric Cooperative Inc. |
| True, Roy | ACES |
| Trum, Caroline | North American Energy Standards Board |
| Tulchinsky, Don | Columbia Gas of Massachusetts |
| Tweed, Caitlin | Bracewell & Giuliani LLP |
| Twiggs, Thane Thomas | Castleton commodities Merchant Trading L.P. |
| Ulloa, John | Pacific Gas and Electric Company (PGE) |
| Ulmer, Andrew | California Independent System Operator Corp. |
| Van Dyke, Brad | Tallgrass Operations, LLC |
| Van Pelt, Gregory | California Independent System Operator Corp. |
| Van Pelt, Kim | Boardwalk Pipeline Partners, LP |
| Van Schaack, Phil | MISO |
| Vance, Kevin | Shell Oil Products US |
| Vannoy, Kevin | MISO |
| Vaughan, Glenn | Enbridge (U.S.) Inc. |
| Vesuvio, Vincent | Infinite Energy |
| Vidas, Harry | Eastern Interconnection States Planning Council (EISPC) -ICFI |
| Vu, Mia | Pacific Gas and Electric Company (PGE) |
| Wagner, Tom | Entergy Nuclear Power Marketing, LLC |
| Wah, Pauline C. | Southern California Gas Company |
| Walker, Wesley | Dominion Resources Services, Inc. |
| Walsh, Lisa | Encana Oil and Gas |
| Washington, Kathy | Transwestern Pipeline |
| Wateland, Dale | CenterPoint Energy Services |
| Watson, Kimberly | Golden Triangle Storage, Inc. |
| Waugh, Deborah | Williams – Discovery Gas Transmission |
| Weatherford, Janelle | Enbridge (U.S.) Inc. |
| Weaver, Alonzo | Memphis Light, Gas & Water Division |
| Webb, Thomas | Enbridge (U.S.) Inc. |
| Weber, Maya | Platts |
| Webster, David | Macquarie Energy LLC |
| Weidner, James | Northern Natural Gas |
| Weinber, Bob | South Mississippi Electric Power Association (SMEPA) |
| Wetter, Kari | Wabash Valley Power Association, Inc. |
| Whiting, Joh | Intermountain Gas Company |
| Wiese, Brian J. | MidAmerican Energy Company |
| Wiggins, Dena | Natural Gas Supply Association (NGSA) |
| Wilkins, Jimmy | North Carolina Electric Membership Corporation |
| Williams, Richard | Midcontinent Express Pipeline LLC |
| Willins, Steve | U.S. Energy Services, Inc. |
| Willis, Troy | Georgia Transmission Corporation |
| Wingo, Mike | Carolina Gas Transmission Corporation |
| Wisersky, Megan | Madison Gas & Electric Company |
| Wonder, Vickie | Northern Natural Gas |
| Wood, JT | Southern Company Services, Inc. |
| Woosley, Stephen | Columbia Gas of Virginia |
| Word, Garrett | TransCanada US Pipelines |
| Worthington, Kerry | Eastern Interconnection States Planning Council (EISPC) |
| Wozniak, Caroline | Federal Energy Regulatory Commission (FERC) |
| Wyntjes, Sherry | Chevron Natural Gas |
| Yeung, Charles | Southwest Power Pool |
| Yildirok, Val | Portland General Electric Company |
| Yoho, Lisa | BG Energy Holdings Limited |
| York, Kathy | Tennessee Valley Authority |
| Young, Christopher | Exelon Corporation |
| Young, Randy | Boardwalk Pipeline Partners, LP |
| Zenner, Courtney | BG Group |

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| --- | --- |
| Buccigross, Jim | 8760 Inc. |
| Bartley, J. | Accenture, LLC |
| True, Roy | ACES |
| Gottsponer, Lindsay | AGL Resources Inc. |
| Kruse, Richard | Algonquin Gas Transmission, LLC |
| Buckner, Dan | Alliance for Cooperative Energy Services Power Marketing LLC (ACES) |
| Sturm, John | Alliance for Cooperative Energy Services Power Marketing LLC (ACES) |
| Rhyno, Wendy | Alliance Pipeline |
| Hicken, Jeff | Alliant Energy |
| Barbieri, Amanda | Ameren Missouri |
| Evey, Tamara | Ameren Services Company |
| Bowman, Erica | America’s Natural Gas Alliance (ANGA) |
| Durbin, Marty | America’s Natural Gas Alliance (ANGA) |
| Ehly, Katie | America’s Natural Gas Alliance (ANGA) |
| Gross, Blake | American Electric Power |
| Hartsoe, Joseph | American Electric Power Service Corp. |
| Monteith, Sherri | American Electric Power Service Corp. |
| Bergles, Susan | American Gas Association |
| Burroughs, Michaela | American Gas Association |
| Connor, Pete | American Gas Association |
| Norton, Chris | American Municipal Power, Inc. |
| Miller, William T. | American Public Gas Association (APGA) |
| Morrison, Scott | American Public Gas Association (APGA) |
| Schryver, Dave | American Public Gas Association (APGA) |
| Patterson, Delia | American Public Power Association (APPA) |
| Eynon, Patrick | American Services Company |
| Bourgeois, Y.J. | Anadarko Energy Services Company |
| Cather, Brenda | Anadarko Energy Services Company |
| Mosemann, Bob | Anadarko Energy Services Company |
| Tierney, Sue | Analysis Group, Inc. |
| Sissom, Jeff | APGA/MLGW |
| Gray, Bob | Arizona Corporation Commission |
| Bray, Walter | Arizona Electric Power Cooperative, Inc. |
| Capilla, Leslie | Arizona Public Service Company |
| Carlson, Tom | Arizona Public Service Company |
| Padilla, Elleanor | Arizona Public Service Company |
| Sharp, Steve | Arkansas Electric Cooperative Corporation (AECC) |
| Elder, Catherine M. | Aspen Environmental Group |
| Eoff, Cameron T. | Associated Electric Cooperative Inc. |
| McGeeney, Chris | Associated Electric Cooperative Inc. |
| Trent, Dan | Associated Electric Cooperative Inc. |
| Dorr, Justin | Avista Corporation |
| Filer, Leslie | Avista Corporation |
| Santman, Ken | Avista Corporation |
| Scott, Eric | Avista Corporation |
| Chambers, Andrea | Ballard Spahr LLP |
| Precht, Phil | Baltimore Gas & Electric Company |
| Carriere, Jay | Berkshire Hathaway Energy Company |
| Yoho, Lisa | BG Energy Holdings Limited |
| Zenner, Courtney | BG Group |
| Bailey, Vicky | BHMM Energy Services, LLC |
| Burks, J. Cade | Big Data Energy Services |
| O’Bryan, Wayne | Big Rivers Electric Corporation |
| Joyce, Patrick | Black Hills Corporation |
| Culp, Jodi | Black Hills Energy |
| Agrawal, Rakesh | Blackstone Technology Group, Inc. |
| Costello, Chuck | Blackstone Technology Group, Inc. |
| Benoit, Wayne | Boardwalk Pipeline Partners, LP |
| Van Pelt, Kim | Boardwalk Pipeline Partners, LP |
| Young, Randy | Boardwalk Pipeline Partners, LP |
| Cocks, Michael | Bonneville Power Administration |
| Halpin, Francis J. | Bonneville Power Administration |
| Kelley, Rod | Bonneville Power Administration |
| Stultz, Mark | BP America Production Company |
| Schubert, Eric | BP America Production Company |
| Denton, Rhonda | BP Energy |
| Magruder, Kathleen | BP Energy Company |
| Busch, James (Jim) | BP West Coast Products |
| Tarpey, Steve | BP West Coast Products |
| Tweed, Caitlin | Bracewell & Giuliani LLP |
| Snider, Wade | Brazos Electric Cooperative |
| Grooms, Craig | Buckeye Power |
| Bouillon, Brad | California Independent System Operator Corp. |
| Ulmer, Andrew | California Independent System Operator Corp. |
| Van Pelt, Gregory | California Independent System Operator Corp. |
| Kott, Robert | California ISO |
| Dibble, Jay | Calpine Energy Services, LP |
| Fields, Brian | Calpine Energy Services, LP |
| Wingo, Mike | Carolina Gas Transmission Corporation |
| Sellers-Vaughn, Mark | Cascade Natural Gas Corporation |
| Stone, Carolyn | Cascade Natural Gas Corporation |
| Twiggs, Thane Thomas | Castleton commodities Merchant Trading L.P. |
| Bruns, Joe | Cedar Falls Utilities |
| Pyles, Adam | CenterPoint Energy Services |
| Wateland, Dale | CenterPoint Energy Services |
| Boehme, John | Central Valley Gas Storage, LLC |
| Albrecht, Matt | Chevron Natural Gas |
| Cook, Chuck | Chevron Natural Gas |
| Ellzey, Jay | Chevron Natural Gas |
| Wyntjes, Sherry | Chevron Natural Gas |
| Sharp, Donnie | City of Huntsville d/b/a Huntsville Utilities |
| Feemster, Bryan | City Utilities of Springfield, Missouri |
| Hale, Kenneth J. | City Utilities of Springfield, Missouri |
| Tennyson, John | City Utilities of Springfield, Missouri |
| Danner, George | Coalition of Energy Technology Firms |
| Bocangel, Na | Colorado Springs Utilities |
| Toledano, Donna | Colorado Springs Utilities |
| Koch, Kent E. | Columbia Gas of Kentucky |
| Gibson, Tom | Columbia Gas of Maryland |
| Goddard, Aaron | Columbia Gas of Maryland |
| Tulchinsky, Don | Columbia Gas of Massachusetts |
| Burke, Lynn M | Columbia Gas of Ohio, Inc. |
| Millar, Debra | Columbia Gas of Pennsylvania |
| Woosley, Stephen | Columbia Gas of Virginia |
| McCord, Steve | Columbia Gas Transmission Corporation |
| McNamara, Missy | Columbia Gas Transmission, LLC |
| Gagliardi, Kristine | Columbia Gulf Transmission |
| Plumaj, Joshua | Columbia Gulf Transmission |
| Miyaji, Wendell | Comverge |
| Forshaw, Brian | Connecticut Municipal Electric Energy Cooperative |
| Schoene, Ben | ConocoPhillips Company |
| Peress, N. Jonathan | Conservation Law Foundation |
| Butler, Scott | Consolidated Edison Co of New York, Inc. |
| Hargett, Chris | Consolidated Edison Co of New York, Inc. |
| Lyser, Shelly | Consolidated Edison Co of New York, Inc. |
| Chapel, Douglas | Consumers Energy Company |
| Cross, Lorraine | Cross & Company, P.L.L.C. |
| Linder, Sorana | Crossroads Pipeline |
| Cooper, Chris | Dauphin Island Gathering Partners |
| Bleiweis, Bruce | DC Energy |
| Ogg, Joelle | DC Energy |
| Guderian, Brandon | Devon Gas Services L.P. |
| Maguire, James | Direct Energy Business, LLC |
| Philips, Marjorie | Direct Energy Business, LLC |
| Salese, Steve | Direct Energy Business, LLC |
| Davis, Rae | Dominion Carolina Gas Transmission, LLC |
| Taylor, Kenny | Dominion Carolina Gas Transmission, LLC |
| Colombo, Craig | Dominion Resources |
| Lacy, Catharine M. | Dominion Resources Services, Inc. |
| Oberski, Louis | Dominion Resources Services, Inc. |
| Walker, Wesley | Dominion Resources Services, Inc. |
| Bailey, Trevante | Dominion Transmission, Inc. |
| Hogge, Rachel | Dominion Transmission, Inc. |
| Miller, Rebecca | Dominion Transmission, Inc. |
| Tomlinson, Ronald G. | Dominion Transmission, Inc. |
| Kramer, Bernard | DTE Gas Company |
| Jones, Dan | Duke Energy Corporation |
| Laval, Stuart | Duke Energy Corporation |
| Schafer, Anita M. | Duke Energy Corporation |
| Peoples, John | Duquesne Light |
| Casey, Joe | East Tennessee Natural Gas, L.L.C |
| Worthington, Kerry | Eastern Interconnection States Planning Council (EISPC) |
| Vidas, Harry | Eastern Interconnection States Planning Council (EISPC) -ICFI |
| Shahidehpour, Mohammad | Eastern Interconnection States Planning Council (EISPC) -IIT |
| Owens, David | Edison Electric Institute (EEI) |
| Parikh, Lopa | Edison Electric Institute (EEI) |
| Gross, Stanley | El Paso Electric |
| Haas, Paul | El Paso Natural Gas Company, L.L.C. |
| Anthony, Susan | Electric Reliability Council of Texas, Inc. (ERCOT) |
| Bivens, Carrie | Electric Reliability Council of Texas, Inc. (ERCOT) |
| Hanson, Kevin | Electric Reliability Council of Texas, Inc. (ERCOT) |
| Anderson, John | Electricity Consumers Resource Council (ELCON) |
| Hughes, John | Electricity Consumers Resource Council (ELCON) |
| Henry, Mike | Emera Energy |
| Szubielski, Will | Emera Energy Services, Inc. |
| Metz, Cary | Enable Energy Resources, LLC |
| Price, Valerie | Enable Gas Transmission |
| Leatherland, Nancy | Enbridge (U.S.) Inc. |
| Vaughan, Glenn | Enbridge (U.S.) Inc. |
| Weatherford, Janelle | Enbridge (U.S.) Inc. |
| Webb, Thomas | Enbridge (U.S.) Inc. |
| Walsh, Lisa | Encana Oil and Gas |
| Lambert, Earl | EnCORE |
| McNevin, John | EnCORE |
| Moreno, Richard | Energy Transfer |
| Draemer, Mary | Energy Transfer Equity, L.P. |
| Langston, Mike | Energy Transfer Equity, L.P. |
| Wagner, Tom | Entergy Nuclear Power Marketing, LLC |
| Clausen, Brad | Entergy Services, Inc. |
| George, Simi Rose | Environmental Defense Fund |
| Murphy, Erin | Environmental Defense Fund, Inc. |
| Sappenfield, Keith | Environmental Resources Management |
| Ginnetti, Jim | EquiPower Resources Corp |
| Betancourt, Ramona | ETC Tiger Pipeline LLC |
| Pyle-Liberto, Buffy | Exelon Corporation |
| Young, Christopher | Exelon Corporation |
| Ryu, Heejin | Exelon Generation |
| Dragulescu, Adrian | Exelon Generation Company, LLC |
| Simpkins, Lisa | Exelon Generation Company, LLC |
| Omey, Samantha | ExxonMobil Corporation / XTO Energy Inc. |
| Parker, Randy E. | ExxonMobil Gas and Power Marketing Company (a division of ExxonMobil Corporation) |
| Holmes, Brad | Fayetteville Express Pipeline |
| Aslam, Omar | Federal Energy Regulatory Commission (FERC) |
| Cockrell, Jessica L. | Federal Energy Regulatory Commission (FERC) |
| Fernandez, Anna | Federal Energy Regulatory Commission (FERC) |
| Goldenberg, Mike | Federal Energy Regulatory Commission (FERC) |
| Lee, Michael | Federal Energy Regulatory Commission (FERC) |
| Snow, Robert V. | Federal Energy Regulatory Commission (FERC) |
| Tita, Michael | Federal Energy Regulatory Commission (FERC) |
| Wozniak, Caroline | Federal Energy Regulatory Commission (FERC) |
| Marton, David | FirstEnergy |
| Meehan, James H. | FirstEnergy Corporation |
| Fuerst, Gary | FirstEnergy Service Co. |
| Stuchell, Jeff | FirstEnergy Solutions |
| Mancuso, Melanie | FirstEnergy Utilities |
| Reeping, Robert | FirstEnergy Utilities |
| Munson, Sylvia | FIS |
| Rivers, Cynthia | Fitchburg Gas & Electric Light Company |
| Rivers, Cynthia | Florida Gas Transmission, LLC |
| Gerrish, Tim | Florida Power & Light |
| Morris, Art | Florida Power & Light |
| Shoemaker, Mike | FortisBC Energy Inc. |
| Lane, Bryan | FortisBC Energy, Inc. |
| Braun, Christine | FortisBC Huntingdon Inc. |
| Gee, Bob | Gee Strategies Group, LLC |
| Willis, Troy | Georgia Transmission Corporation |
| Roberts, Emily | Gill Ranch Storage Company |
| Smith, Richard | Golden Pass Products LLC |
| Glines, Brent | Golden Spread Electric Cooperative |
| Watson, Kimberly | Golden Triangle Storage, Inc. |
| Singh, Harry | Goldman, Sachs & Co. |
| Garcia, Clarissa | Goldman, Sachs & Co. | J. Aron & Co. |
| Conneely, Joe | Granite State Gas Transmission System |
| Ege, Katie | Great River Energy |
| Bishop, Cary M. | Greenwood Commissioners of Public Works (CPW) |
| Pedersen, Norman | Hanna and Morton LLP |
| Gillingham, Rick | Hoosier Energy Rural Electric Cooperative, Inc. |
| Horton, Rob | Hoosier Energy Rural Electric Cooperative, Inc. |
| Nance, Peter | ICF International |
| Downey, Carrie | Imperial Irrigation District |
| Ginsberg, Susan | Independent Petroleum Association of America (IPAA) |
| Pauley, Bob | Indiana Commission |
| Dininger, Dennis | Indianapolis Power & Light Company (IPL) |
| Patrick, Marguerite (Becky) | Infinite Energy |
| Vesuvio, Vincent | Infinite Energy |
| Selsmeyer, Patrick J. | Integrys Energy Services, Inc. |
| Benson, Marty | Intermountain Gas Company |
| Robbins, Chris | Intermountain Gas Company |
| Whiting, Joh | Intermountain Gas Company |
| Dreskin, Joan | Interstate Natural Gas Association of America (INGAA) |
| Gwilliam, Tom | Iroquois Gas Transmission System |
| Callan, William A. | ISO New England, Inc. |
| Ethier, Robert | ISO New England, Inc. |
| Flynn, Kevin | ISO New England, Inc. |
| Robinson, Dennis | ISO New England, Inc. |
| Bear, John | ISO/RTO Council (IRC) |
| Brooks, Kelly | J. Aron & Company (Goldman, Sachs & Co. |
| Horn, Jennifer | JEA |
| Locke, Michael | JEA |
| Bell, John S. | Kansas Corporation Commission |
| Thorn, Terence (Terry) | KEMA Gas Consulting Services |
| Horton, Brenda | Kern River Gas Transmission |
| Joosten, John | Kern River Gas Transmission Company |
| Nielsen, Janie | Kern River Gas Transmission Company |
| Gracey, Mark | Kinder Morgan Inc |
| Nowak, Gene | Kinder Morgan Inc |
| Crysler, Dan | Latitude Technologies, Inc. |
| Mills, Ron | Latitude Technologies, Inc. |
| Murphy, Kyle | Latitude Technologies, Inc. |
| Mysore, Sunil | Latitude Technologies, Inc. |
| Spangler, Leigh | Latitude Technologies, Inc. |
| Oelker, Linn C. | LG&E and KU Services Company |
| DaFonte, F. Chico | Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities |
| Bogdan, Candace | Liberty Utilities (Midstates Natural Gas) Corp. |
| DeBruin, Martin | Liberty Utilities (New England Natural Gas Company) Corp. |
| Maffa, Paul | Liberty Utilities (Peach State Natural Gas) Corp. |
| Kahle, Dick | Lincoln Electric System |
| Engels, William | Los Angeles Department of Water & Power |
| Batra, Sharat | Los Angeles Department of Water and Power |
| Kasha, Priscila Castillo | Los Angeles Department of Water and Power |
| Luck, Rodney | Los Angeles Department of Water and Power |
| Pettinato, Robert | Los Angeles Department of Water and Power |
| Nicolay, Christi | Macquarie Energy LLC |
| Saini, Ishwar | Macquarie Energy LLC |
| Webster, David | Macquarie Energy LLC |
| Wisersky, Megan | Madison Gas & Electric Company |
| Penner, Audrey | Manitoba Hydro |
| Devers, Janice | Maritimes & Northeast Pipeline, L.L.C. – US |
| Morrison, Andrew | MarkWest Energy Partners, L.P. |
| Durocher, Jeremy | MCP Operating, LLC |
| Weaver, Alonzo | Memphis Light, Gas & Water Division |
| Knight, Jim | Metropolitan Utilities District |
| Bellairs, David A. | Metropolitan Utilities District of Omaha |
| Butcher, Angie | Michigan Public Service Commission |
| Hanser, Erik | Michigan Public Service Commission |
| Janssen, Bonnie | Michigan Public Service Commission |
| Poli, Patricia | Michigan Public Service Commission |
| Allenback, Peggi | MidAmerican Energy Company |
| Baird-Forristall, Caroline | MidAmerican Energy Company |
| Dillavou, Jay H. | MidAmerican Energy Company |
| Ruperto, Melinda | MidAmerican Energy Company |
| Wiese, Brian J. | MidAmerican Energy Company |
| Williams, Richard | Midcontinent Express Pipeline LLC |
| Olling, Kevin | Midland Cogeneration Venture LP |
| Bloodworth, Michelle | MISO |
| Short, Tag | MISO |
| Skiba, Ed | MISO |
| Thoms, Eric | MISO |
| Van Schaack, Phil | MISO |
| Vannoy, Kevin | MISO |
| Liang-Nicol, Cecilia | Monongahela Power Company |
| Smith, Jim | Municipal Energy Resources Corporation |
| Copeland, Karen | Municipal Gas Authority of Georgia |
| Frey, Michael | Municipal Gas Authority of Georgia |
| Lobdell, Julie | Municipal gas Authority of Georgia |
| Keogh, Miles | National Association of Regulatory Utility Commissioners (NARUC) |
| Ramsey, Brad | National Association of Regulatory Utility Commissioners (NARUC) |
| Thomas, Sharon | National Association of Regulatory Utility Commissioners (NARUC) |
| Goodman, Craig | National Energy Marketers Association (NEM) |
| Novak, Mike | National Fuel Gas Distribution Corporation |
| Conte, Tony | National Fuel Gas Supply Corporation |
| Kupczyk, Debbie | National Fuel Gas Supply Corporation |
| Reitz, David | National Fuel Gas Supply Corporation |
| Russ, Mike | National Fuel Gas Supply Corporation |
| Jaffe, Samara | National Grid |
| Nichols, Marshall | National Petroleum Council |
| Barua, Rajnish | National Regulatory Research Institute (NRRI) |
| Mohre, David | National Rural Electric Cooperative Association (NRECA) |
| Silberstein, Pam | National Rural Electric Cooperative Association (NRECA) |
| Love, Paul | Natural Gas Pipeline Company of America LLC |
| Gold, Casey | Natural Gas Supply Association (NGSA) |
| Jagtiani, Patricia | Natural Gas Supply Association (NGSA) |
| Page, Carly | Natural Gas Supply Association (NGSA) |
| Wiggins, Dena | Natural Gas Supply Association (NGSA) |
| Jones, Kim | NCUC |
| Razack, Abdul | Nevada Power |
| Davis, Noy S. | New England LDCs |
| Palmer, Debra Ann | New England LDCs |
| Rudiak, John | New England LDCs |
| Anderson, Bruce | New England Power Generators Association, Inc. |
| Ferreira, Kathy | New Jersey Natural Gas Company |
| Rudd, Douglas | New Jersey Natural Gas Company |
| Shah, Jayana | New Jersey Natural Gas Company |
| DeCourcey, Erica | New Mexico Gas Company |
| Tilbury, Joshua | New Mexico Gas Company |
| Broyles, John | New York ISO |
| Campoli, Greg | New York ISO |
| Cardone, Ernie | New York ISO |
| Joseph, Kelli | New York ISO |
| Charles-Joseph, Debbie | New York State Electric and Gas Corporation |
| Ellsworth, Bruce | New York State Reliability Council |
| Lavarco, William | NextEra Energy Power Marketing, LLC |
| Butler, James | NiSource Inc. |
| Raval, Deepak | NiSource Inc. |
| DeAnna, Jeffrey | NJR Energy Services |
| Bartoszek, Stacy | NJR Energy Services Company |
| Richman, Ginger | NJR Energy Services Company |
| Skelton, Kathryn | Noble Energy, Inc. |
| Burgess, Tom | North American Electric Reliability Corporation (NERC) |
| Lauby, Mark | North American Electric Reliability Corporation (NERC) |
| Moura, John | North American Electric Reliability Corporation (NERC) |
| Booe, Jonathan | North American Energy Standards Board |
| Boswell, William | North American Energy Standards Board |
| Mallett, Elizabeth | North American Energy Standards Board |
| McQuade, Rae | North American Energy Standards Board |
| Rager, Denise | North American Energy Standards Board |
| Thomason, Veronica | North American Energy Standards Board |
| Trum, Caroline | North American Energy Standards Board |
| Manning, James | North Carolina Electric Membership Corporation |
| Wilkins, Jimmy | North Carolina Electric Membership Corporation |
| Djukic, Stacy | Northern Indiana Public Service Company |
| Pysh, Tom | Northern Indiana Public Service Company |
| Begley, Mark | Northern Natural Gas |
| Demman, Laura K. | Northern Natural Gas |
| Gilbert, Steve | Northern Natural Gas |
| Hoffee, Micki | Northern Natural Gas |
| Miller, Mary Kay | Northern Natural Gas |
| Weidner, James | Northern Natural Gas |
| Wonder, Vickie | Northern Natural Gas |
| Finklea, Edward | Northwest Industrial Gas Users |
| Friedman, Randy | Northwest Natural |
| Lee, Amy | Northwest Natural |
| McAnally, Robert | Northwest Natural |
| Mott, Michael | Northwest Natural |
| Cordts, Margaret | NorthWestern Energy |
| Markovich, Kevin | NorthWestern Energy |
| Dauer, Jim | NRG Energy, Inc. |
| O’Hara, Chris | NRG Energy, Inc. |
| Stutzman, Rain | NRG Energy, Inc. |
| Katz, Andrew | NSTAR |
| Chang, Stacy | NV Energy |
| Hart, Anita | NV Energy |
| Allred, Dave | NWP Marketing Services |
| Baxter, James | Oglethorpe Power Corp. |
| Billiot, Scott | Oglethorpe Power Corp. |
| Harrel, Scott | Oglethorpe Power Corp. |
| Orr, Bryant | Oglethorpe Power Corp. |
| Bruechner, Paul | Okaloosa Gas District |
| King, Gordon | Okaloosa Gas District |
| Tatum, Ed | Old Dominion Electric Coop |
| Langel, Gina | Omaha Public Power District |
| Theobald, David | Omaha Public Power District |
| Mucci, Ron | ONEOK |
| Nishimuta, Lisa | ONEOK |
| Rogers, Sara | ONEOK |
| Tingler, Teri | ONEOK |
| Adams, Denise | ONEOK Partners |
| McBroom, Melissa | ONEOK Partners GP LLC |
| Neph, Sherry | ONEOK Partners GP LLC |
| Baker, John | Open Access Technology International, Inc. |
| Dempsey, Jerry H. | Open Access Technology International, Inc. |
| Malcolm, Shelby | Open Access Technology International, Inc. |
| Perry, Sheldan | Open Access Technology International, Inc. |
| Sahba, Shahriar | Open Access Technology International, Inc. |
| Santos, Manuel | Open Access Technology International, Inc. |
| Kisluk, Eileen Wilson | PAA Natural Gas Storage |
| Reese, Benjamin J. | PAA Natural Gas Storage |
| Reid, John D. | PAA Natural Gas Storage |
| Armato, John | Pacific Gas and Electric Company (PGE) |
| Fan, Chris | Pacific Gas and Electric Company (PGE) |
| Gee, Dennis | Pacific Gas and Electric Company (PGE) |
| Goldbeck, Glenn | Pacific Gas and Electric Company (PGE) |
| McDermott, Mike | Pacific Gas and Electric Company (PGE) |
| McLafferty, Dan | Pacific Gas and Electric Company (PGE) |
| Morris, Alex | Pacific Gas and Electric Company (PGE) |
| Mountford, Ann | Pacific Gas and Electric Company (PGE) |
| Petersen, Don | Pacific Gas and Electric Company (PGE) |
| Ulloa, John | Pacific Gas and Electric Company (PGE) |
| Vu, Mia | Pacific Gas and Electric Company (PGE) |
| Morrissey, Tomas | Pacific Northwest Utilities Conference Committee |
| Evans, Bruce | PacifiCorp |
| Soreng, Erik | PacifiCorp |
| Anderson, Mark | Paiute Pipeline Company |
| Grimard, Wraye | Peoples Gas System, a Division of Tampa Electric |
| Foutch, Jeffrey | Peregrine Midstream Partners LLC |
| Anderson, Pam | Perkins Coie LLP |
| Maust, Keith | Piedmont Natural Gas |
| Mendoza, Michelle | Piedmont Natural Gas |
| Brown, Richard | PJM Interconnection, LLC |
| Brownell, Stanley | PJM Interconnection, LLC |
| Bryson, Michael | PJM Interconnection, LLC |
| Fitzpatrick, Brian | PJM Interconnection, LLC |
| Glazer, Craig | PJM Interconnection, LLC |
| Helm, M. Gary | PJM Interconnection, LLC |
| Hendrzak, Chantal | PJM Interconnection, LLC |
| Koza, Frank | PJM Interconnection, LLC |
| Schmitt, Jeff | PJM Interconnection, LLC |
| Melvin, Jasmin | Platts |
| Weber, Maya | Platts |
| Broderick, Kyle | Portland General Electric Company |
| Casey, Bill | Portland General Electric Company |
| Gary, Tina | Portland General Electric Company |
| Horner, Jason | Portland General Electric Company |
| Millard, Ryan | Portland General Electric Company |
| Peschka, Terri | Portland General Electric Company |
| Sixkiller, Heather | Portland General Electric Company |
| Yildirok, Val | Portland General Electric Company |
| Epstein, Max | Potomac Economics |
| Nilsson, David | Power Costs, Inc. (PCI) |
| Elgie, Tom | Powerex Corp. |
| Leuschen, Sam | PPA Natural Gas Storage, LLC |
| Grassi, Bob | PPL Services Corporation |
| Anker, Alisha | Prairie Power, Inc. |
| Breden, Dan | Prairie Power, Inc. |
| Breezeel, Phillip | Prairie Power, Inc. |
| Leesman, Katie | Process Gas Consumers Group (Ballard Spahr LLP rep) |
| Hill, Audrea | PSC Nitrogen Fertilizer, L.P. |
| Caffery, David | PSEG Energy Resources & Trade LLC |
| Kijowski, Drake R. | PSEG Energy Resources and Trade LLC |
| Crawford, Ernie | Public Service Company of New Mexico |
| Maestas, Steve | Public Service Company Of New Mexico |
| Czigler, Frank | Public Service Electric and Gas Company |
| Dewar, Mark | Puget Sound Energy |
| Haines, Phil | Puget Sound Energy |
| Taylor, Brandon | Puget Sound Energy |
| Crowley, Colin | Puget Sound Energy, Inc. |
| Donahue, Bill | Puget Sound Energy, Inc. |
| Foley, Kevin | Puget Sound Energy, Inc. |
| Garner, David | Puget Sound Energy, Inc. |
| Hammer, Mark | Puget Sound Energy, Inc. |
| Harshbarger, Bob | Puget Sound Energy, Inc. |
| Kennedy, Mariah | Puget Sound Energy, Inc. |
| Kvam, Michele | Puget Sound Energy, Inc. |
| Osborne, Sheree | Puget Sound Energy, Inc. |
| Smith, Chris | Puget Sound Energy, Inc. |
| Hanchey, Jeannette | PXD |
| Faust, Tina | Questar Gas Company |
| Gross, Jerry H. | Questar Pipeline Company |
| Smead, Rick | RBN Energy LLC |
| Percell, Cynthia | Red Willow Production Company owned by the Southern Ute Indian Tribe |
| Jordan, Deena | Regency Energy Partners LP |
| Roth, Tom | Roth Energy Company |
| Jones, Paul | Salt River Project Agricultural Improvement & Power District |
| Lehman, Richard | Salt River Project Agricultural Improvement & Power District |
| McCluskey, Willis | Salt River Project Agricultural Improvement & Power District |
| Pennock, Lori-Lynn | Salt River Project Agricultural Improvement & Power District |
| Price, Kent E. | Salt River Project Agricultural Improvement & Power District |
| Calhoun, John Anthony | Santee Cooper |
| Horne, Glenda | Santee Cooper |
| Salisbury, Chad | Santee Cooper |
| Gill, Paul | Sea Robin Pipeline company, LLC |
| Reid, Jack | Seminole Electric Cooperative, Inc. |
| Ellis, John | Sempra Utilities |
| Russo, Chris | Sequent Energy Management, L.P. |
| Carmouche, Evelyn | Shell Energy NOrt America (US), L.P. |
| Foster, Danielle | Shell Energy North America (Canada) |
| Kerr, Paul | Shell Energy North America (Canada) |
| Gold, Amy | Shell Energy North America (US) L.P. |
| Newson, Rebecca | Shell Energy North America (US), L.P. |
| Pierson, Damonica | Shell Exploration and Production Company |
| Vance, Kevin | Shell Oil Products US |
| Tardy, Ryan | Sierra Pacific LDC |
| Suga, Glenn | Sierra Pacific Power Company |
| Lander, Gregory | Skipping Stone, LLC |
| Bellville, Nathan T. | South Mississippi Electric Power Association (SMEPA) |
| Rudolphi, Matthew R. | South Mississippi Electric Power Association (SMEPA) |
| Weinber, Bob | South Mississippi Electric Power Association (SMEPA) |
| Borkovich, Paul | Southern California Gas Company |
| Chang, Ibtissam | Southern California Gas Company |
| Dandridge, Michelle M. | Southern California Gas Company |
| Ishikawa, Richard | Southern California Gas Company |
| Lasa, Dulce | Southern California Gas Company |
| Musich, Beth | Southern California Gas Company |
| Wah, Pauline C. | Southern California Gas Company |
| Grover, Scott | Southern Company Services, Inc. |
| Hiller, Roy | Southern Company Services, Inc. |
| Moore, Wayne | Southern Company Services, Inc. |
| Rikard, Clay | Southern Company Services, Inc. |
| Wood, JT | Southern Company Services, Inc. |
| Field, Douglas | Southern Star Central Gas Pipeline, Inc. |
| Gray, Kevin | Southern Star Central Gas Pipeline, Inc. |
| Hensley II, Ronnie C. | Southern Star Central Gas Pipeline, Inc. |
| Matthews, Jennifer | Southern Star Central Gas Pipeline, Inc. |
| Renshaw, Kevin | Southern Star Central Gas Pipeline, Inc. |
| McCoy, Matt | SouthernStar Central Gas Pipeline |
| Mosley, Scott | SouthStar Energy Services, LLC |
| Olenick, John | Southwest Gas Corporation |
| Desselle, Michael | Southwest Power Pool |
| Ellis, Sam | Southwest Power Pool |
| Ghormley, Joseph | Southwest Power Pool |
| Phillips, Joshua | Southwest Power Pool |
| Shipley, Don | Southwest Power Pool |
| Yeung, Charles | Southwest Power Pool |
| Sanchez, Andy | Southwestern Energy Company |
| Miller, Megan | Spectra Energy Corp |
| Cymes, Jim | Steckman Ridge |
| Daly, Kelly A. | Stinson Leonard Street LLP |
| Nolte, Bill | Sunflower Electric Power Corporation |
| Russell, Chelsea | Superior Water, Light and Power |
| Almquist, Karl | Tallgrass Operations, LLC |
| Sterrett, Joe | Tallgrass Operations, LLC |
| Van Dyke, Brad | Tallgrass Operations, LLC |
| Meriwether, Tom | Targa Resources |
| Patton, Gail | Targa Resources |
| Callager, Montie | Targa Resources Inc. |
| Simon, Timothy | TAS Strategies |
| Kennedy, Andrew | TECO/ Peoples Gas System |
| Crabtree, David | TECO/Peoples Gas System |
| Glover, Gloria | TECO/Peoples Gas System |
| Corritore, Janet | Tenaska |
| Fossum, Drew | Tenaska Energy, Inc. |
| Shumway, Neal | Tenaska Marketing Ventures |
| Glazebrook, Sherri | Tennessee Gas Pipeline Company, L.L.C. |
| Crockett, Valerie | Tennessee Valley Authority |
| York, Kathy | Tennessee Valley Authority |
| Boucher, Jennifer | The Berkshire Gas Company |
| Bagot, Nance | The Electric Power Supply Association (EPSA) |
| Cashin, Jack | The Electric Power Supply Association (EPSA) |
| Fort, Jim | The Energy Authority, Inc. |
| McCord, Tom | The Energy Authority, Inc. |
| Thornbury, RJ | The Energy Authority, Inc. |
| Santa, Don | The Interstate Natural Gas Association of America (INGAA) |
| Culpepper, Les | The Southeast Alabama Gas District |
| Pranaitis, Mark | The Southern Connecticut Gas Company |
| DeBoissiere, Alex | The United Illuminating Company |
| Pleasant, Rochelle | Total |
| Kinser, Glenn | TOTAL Gas & Power North America, Inc. |
| Carrette, Jeffrey | Total Gas and Power North America Inc. |
| Davydov, Alexander | Total Gas and Power North America Inc. |
| Hill, Sherry | TransCanada PipeLines Ltd. |
| Pollard, Joseph | TransCanada US Pipelines |
| Word, Garrett | TransCanada US Pipelines |
| Jaskolski, Steven | TransCanada US Pipelines / ANR Pipeline Company |
| Washington, Kathy | Transwestern Pipeline |
| Bormack, Mitchell | TRC Solutions |
| Hardy, Dave | Tri-State Generation and Transmission Association, Inc. |
| Bradbury, Debbie | Trunkline Gas Company |
| Bowling, Michael | Tucson Electric Power Company |
| Pederson, Blake | Tucson Electric Power Company |
| Willins, Steve | U.S. Energy Services, Inc. |
| Morrow, Mark C. | UGI Corporation |
| Mayette, Joe | United States Gypsum Company |
| Morgan, Doug | United Utility Group |
| Brodeur, Sue | Unitil |
| Furino, Robert S. | Unitil |
| Simpson, Carleton | Unitil Energy Systems |
| Hartigan, Ann | Unitil Service Corporation |
| Foss, Michelle | University of Texas |
| Dickens, Dwayne | UNS Electric |
| Shields, Justin | UNS Electric |
| Freitas, Christopher | US Department of Energy |
| Follmer, Annette | USG Corporation |
| Fuentes, Daryll | USG Corporation |
| Persekian, Joe | USG Corporation |
| Fulton, Brian | USN Gas Inc. |
| Gray, Dax | Utah Associated Municipal Power Systems (UAMPTS) |
| Battams, Ahuva Z. | Van Ness Feldman LLP |
| Diamond, Michael | Van Ness Feldman LLP |
| Beck, Elizabeth | Vectren Corporation |
| Christian, Ron | Vectren Corporation |
| Pergola, Perry M. | Vectren Corporation |
| Retherford, Angila | Vectren Corporation |
| Gallagher, William | Vermont Public Power Supply Authority |
| Wetter, Kari | Wabash Valley Power Association, Inc. |
| Blasiak, James L. | Washington Gas Light Company |
| Lennon, Rose | Washington Gas Light Company |
| Brooks, Kelly R. | WBI Energy Transmission, Inc. |
| Gardner, Wayne | WE Gardner Company LLC |
| Martin, Beth | WEC Energy Group |
| Davis, Dale | Williams |
| Dinkins, Phaedra | Williams |
| Waugh, Deborah | Williams – Discovery Gas Transmission |
| Dahlberg, Lynn | Williams – Northwest Pipeline |
| Pace, Dawnell | Williams – Northwest Pipeline, LLC |
| Mata, Antelmo | Williams - Transco |
| Casey, Melissa | Williams – Transco |
| Baumgart, Julie A. | Wisconsin Public Service |
| Hathaway, Dave | Wisconsin Public Service |
| Martin, Tim | Wolverine Power Supply Cooperative |
| Kerrigan, Lily | Wright & Talisman, P.C. |
| Thompson, Michael J. | Wright & Talisman, P.C. |
| Bougner, Mike | Xcel Energy |
| Colussy, Peter | Xcel Energy |
| Derryberry, Richard | Xcel Energy |
| Hild, Jeffrey | Xcel Energy |
| Luner, Jared M. | Xcel Energy |
| Metzker, Amber L. | Xcel Energy |

| Appendix D – Presentations and Comments | | |
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| Date | Request for Presentations | Presentations and Comments |
| January 12, 2016 | NAESB GEH Request for Presentations: <https://www.naesb.org/pdf4/geh012516w1.doc> | Presentations Due February 1, 2016  **Presentations:**  NAESB WGQ Pipeline Segment: <https://www.naesb.org/pdf4/geh021816w1.pdf>  PJM: <https://www.naesb.org/pdf4/geh021816w2.pdf>  ACES Power: <https://www.naesb.org/pdf4/geh021816w3.pptx>  Fidelity National Information Services (FIS): <https://www.naesb.org/pdf4/geh021816w4.pptx>  Fidelity National Information Services - Additional Notes and Comments including Examples: <https://www.naesb.org/pdf4/geh021816w10.docx>  Skipping Stone: <https://www.naesb.org/pdf4/geh021816w5.pptx>  Environmental Defense Fund (EDF): <https://www.naesb.org/pdf4/geh021816w6.pptx>  Coalition of Energy Technology Firms: <https://www.naesb.org/pdf4/geh021816w7.pptx>  Coalition of Energy Technology Firms, G. Danner: <https://www.naesb.org/pdf4/geh021816w11.zip> (Zip File Due to Size)  OATI, Inc.: <https://www.naesb.org/pdf4/geh021816w8.pptx>  OATI, Inc. – Addendum: <https://www.naesb.org/pdf4/geh021816w9.pdf> |

| Appendix E: Meeting Notes, Work Papers, Comments and Transcripts | | |
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| Date | Link to Agendas, Notes and Transcripts | Work Papers, Comments and Transcripts |
| January 25, 2016 | GEH Forum Organizational & Informational Conference Call  Agenda: <https://www.naesb.org/pdf4/geh012516a.docx>  Meeting Notes: <https://www.naesb.org/pdf4/geh012516notes.docx>  Transcripts from the meeting can be ordered from: Jill Vaughan, CSR 1803 Rustic Oak Ln, Seabrook, Texas 77586 281-853-6807 | GEH Forum Request for Presentations - January 12, 2016: <https://www.naesb.org/pdf4/geh012516w1.doc>  Timeline to Address 2016 WEQ Annual Plan Item 7.a & 2016 WGQ Annual Plan Item 3.a: <https://www.naesb.org/pdf4/geh012516w2.doc>  Timeline to Address 2016 WEQ Annual Plan Item 7.a & 2016 WGQ Annual Plan Item 3.a - Updated January 19, 2016: <https://www.naesb.org/pdf4/geh012516w3.doc> |
| February 18-19, 2016 | GEH Forum Meeting w/Web Conferencing, Houston, TX (Held at the Doubletree Downtown Hotel)  Agenda: <https://www.naesb.org/pdf4/geh021816a.docx>  Meeting Notes: <https://www.naesb.org/pdf4/geh021816notes.docx>  Attachment – White Board Notes: <https://www.naesb.org/pdf4/geh021816a1.docx>  Transcripts from the meeting can be ordered from: Jill Vaughan, CSR 1803 Rustic Oak Ln, Seabrook, Texas 77586 281-853-6807 | Presentations:  NAESB WGQ Pipeline Segment: <https://www.naesb.org/pdf4/geh021816w1.pdf>  PJM: <https://www.naesb.org/pdf4/geh021816w2.pdf>  ACES Power: <https://www.naesb.org/pdf4/geh021816w3.pptx>  Fidelity National Information Services (FIS): <https://www.naesb.org/pdf4/geh021816w4.pptx>  Fidelity National Information Services - Additional Notes and Comments including Examples: <https://www.naesb.org/pdf4/geh021816w10.docx>  Skipping Stone: <https://www.naesb.org/pdf4/geh021816w5.pptx>  Environmental Defense Fund (EDF): <https://www.naesb.org/pdf4/geh021816w6.pptx>  Coalition of Energy Technology Firms: <https://www.naesb.org/pdf4/geh021816w7.pptx>  Coalition of Energy Technology Firms, G. Danner: <https://www.naesb.org/pdf4/geh021816w11.zip> (Zip File Due to Size)  OATI, Inc.: <https://www.naesb.org/pdf4/geh021816w8.pptx>  OATI, Inc. – Addendum: <https://www.naesb.org/pdf4/geh021816w9.pdf> |
| March 7-8, 2016 | GEH Forum Meeting w/Web Conferencing, Houston, TX (Held at the Hilton Americas Hotel)  Agenda: <https://www.naesb.org/pdf4/geh030716a.docx>  Meeting Notes: <https://www.naesb.org/pdf4/geh030716notes.docx>  Attachment – Comments on the February 18-19, 2016 White Board Notes: <https://www.naesb.org/pdf4/geh030716a1.docx>  Transcripts from the meeting can be ordered from: Jill Vaughan, CSR 1803 Rustic Oak Ln, Seabrook, Texas 77586 281-853-6807 | February 18-19, 2016 Meeting Notes, Comments from D. Davis, Williams: <https://www.naesb.org/pdf4/geh030716w1.docx>  Comments from D. Nilsson, PowerCosts, Inc.: <https://www.naesb.org/pdf4/geh030716w2.pdf>  Comments Submitted by AGA on GEH Forum Meeting February 18-19, 2016: <https://www.naesb.org/pdf4/geh030716w3.pdf>  DRAFT Day 1 - Discussion Work Paper: <https://www.naesb.org/pdf4/geh030716w4.docx>  Comments Submitted by OATI: <https://www.naesb.org/pdf4/geh030716w5.pdf>  DRAFT Day 1 and Day 2 - Discussion Work Paper: <https://www.naesb.org/pdf4/geh030716w6.docx> |
| March 21-22, 2016 | GEH Forum Meeting w/Web Conferencing, Houston, TX (Held at the Hilton Americas Hotel)  Agenda: <https://www.naesb.org/pdf4/geh032116a.docx>  Meeting Notes: *to be posted shortly*  Transcripts from the meeting can be ordered from: Jill Vaughan, CSR 1803 Rustic Oak Ln, Seabrook, Texas 77586 281-853-6807 | Excel Spreadsheet of Categorized Issues: <https://www.naesb.org/pdf4/geh032116w1.xlsx>  Word Formatted Tables of Categorized Issues: <https://www.naesb.org/pdf4/geh032116w2.docx>  Comments Submitted by S. Munson (Excel Spreadsheet of Categorized Issues): <https://www.naesb.org/pdf4/geh032116w3.xlsx>  Comments Submitted by S. Munson (Word Formatted Tables of Categorized Issues): <https://www.naesb.org/pdf4/geh032116w4.docx>  Comments Submitted by The Pipelines (Excel Spreadsheet of Categorized Issues): <https://www.naesb.org/pdf4/geh032116w5.xlsx>  Comments Submitted by D. Nilsson, PowerCosts, Inc.: <https://www.naesb.org/pdf4/geh032116w6.pdf>  DRAFT Tables of Categorized Issues Work Paper (Day 1 - March 21): <https://www.naesb.org/pdf4/geh032116w7.docx>  DRAFT Tables of Categorized Issues Work Paper (Days 1&2 - March 21-22): <https://www.naesb.org/pdf4/geh032116w8.docx>  Comments Submitted by S. Morrison, American Public Gas Association:  <https://www.naesb.org/pdf4/geh032116w9.docx> |

##### March 30, 2016

**TO:** Rae McQuade, President & COO

**FROM:** Jonathan Booe, Vice President & CAO

**RE:** NAESB Response to Paragraph 107 of FERC Order No. 809 on *Coordination of the Scheduling Processes of Interstate Natural Gas Pipelines and Public Utilities* issued on April 16, 2015

Rae,

Please find below a summary of our activities to respond to the Commission’s request in Order 809.

| **2015-2016 Activities Related to FERC Order No. 809** | | |
| --- | --- | --- |
| Date | Action | Selected Text / Comment |
| April 16, 2015 | FERC Issues Order No. 809 [RM14-2-000] | ¶107 “While NAESB’s modified standards represent an improvement over the currently effective standards, we continue to recognize that additional intraday nomination opportunities could promote more efficient use of existing pipeline infrastructure and provide additional operational flexibility to all pipeline shippers, including gas-fired generators. The modified NAESB standards reflect reduced intraday processing times from the current NAESB standards (i.e., three hours instead of the current four hours), and existing operational limitations, including the manual processes utilized by pipelines for processing nominations, may affect the ability of the gas industry to add additional standard nomination cycles applicable to all shippers. However, the use of computerized scheduling would appear to provide an opportunity for faster and more frequent scheduling of intraday nominations for those shippers and their confirming parties willing to commit to scheduling electronically. ***We request that gas and electric industries, through NAESB, explore the potential for faster, computerized scheduling when shippers and confirming parties all submit electronic nominations and confirmations, including a streamlined confirmation process if necessary.*** Providing such an option would enable those entities that need greater scheduling flexibility to have their requests processed expeditiously.” |
| June 1, 2015 | NAESB Board Working Session | The stated purpose of the meeting is to discuss changes to the NAESB annual plans for the wholesale gas and wholesale electric quadrants, specifically the inclusion of an item for the consideration of standards development for electronic scheduling – which was requested by FERC in Order No. 809. |
| June 12, 2015 | Notational ballot proposing changes to the 2015 WEQ/WGQ Annual Plans | Based on discussion during the June 1 working session, the notational ballot presented two identical paths for addressing FERC Order No. 809 – the only variance being a 2015 or a 2016 start date for the items.  “Do you support, initiating in XXXX, the creation, by the GEH Forum, of a standards development timeline and framework addressing electronic scheduling, which, once completed, would be forwarded to the NAESB Board of Directors for approval (Docket No. RM14-2-000)? The board approval would be required before any subsequent GEH Forum exploratory work could proceed. This will require a two-step approval of the board – (a) for the timeline, and subsequently (b) for a framework for standards development.” |
| June 26, 2015 | Results of notational ballot proposing changes to the 2015 WEQ/WGQ Annual Plans | The proposed annual plan items offering a 2015 initiation date failed to gain simple majority support of the WGQ, but did garner simple majority support from the WEQ and RMQ. The proposed annual plan items offering a 2016 initiation date garnered super majority support of all three quadrants and was adopted. |
| August 4, 2015 | NAESB Report to FERC Concerning FERC Order No. 809 | NAESB submitted a report to the Commission that included minor corrections in support of the modifications to the nomination timeline and described the activities of the organization to respond to paragraph 107 of Order No. 809. The report included the minutes from June 1 board meeting, the results of the June 12 notational ballots and comments submitted and the modified 2015 WEQ and WGQ annual plans. |
| September 3, 2015 | NAESB Board Meeting | During the meeting, the board adopted the 2015 WEQ and WGQ annual plans, including reaffirmation of items 3.b and 3.c of the WGQ plan and 9.a and 9.b of the WEQ plan.   * Review FERC Order No. 809 ¶ 107 issued in Docket No. RM14-2-000 regarding computerized scheduling and provide recommended direction concerning the development of standards or modifications to existing standards as needed to support the request of the Commission The recommended direction will require two-step board approval, for both the timeline to be pursued and the framework for standards development   Status: Not Started, and planning not to be started before 2016   * Resulting from the efforts of annual plan item 3(b), develop standards as needed and directed by the Board of Directors, which are specifically assigned to the WGQ.   Status: Not Started, dependent on completion of item above |
| September 17, 2015 | FERC Order No. 809 Order on Rehearing | ¶1 “In Order No. 809, the Commission revised its regulations relating to the scheduling of transportation service on interstate natural gas pipelines to better coordinate the scheduling practices of the wholesale natural gas and electric industries, as well as to provide additional scheduling flexibility to all shippers on interstate natural gas pipelines. The Commission also requested that natural gas and electric industries, through the North American Energy Standards Board (NAESB), explore the potential for faster, computerized scheduling when shippers and confirming parties all submit electronic nominations and confirmations, including a streamlined confirmation process if necessary. On May 18, 2015, the Desert Southwest Pipeline Stakeholders (DSPS) filed a request for rehearing of Order No. 809. On August 4, 2015, NAESB filed a report indicating that due to the press of implementing the revised nomination standards by April 1, 2016, it would not begin the development of computerized scheduling standards until after that date. As discussed below, the Commission denies DSPS’ request for rehearing and directs El Paso Natural Gas Company, L.L.C. (El Paso), Transwestern Pipeline Company, LLC (Transwestern), and TransCanada-North Baja Pipelines (TransCanada-North Baja) to make an informational filing within 90 days of the date of this order. ***In addition, while we recognize the time commitments in implementing the revised nomination timeline, the Commission requests that the natural gas and electric industries, through NAESB, begin considering the development of standards related to faster, computerized scheduling and file such standards or a report on the development of such standards with the Commission by October 17, 2016.***” |
| November 5, 2015 | NAESB Board Conference Call | In response to the September 17 Order on Rehearing, the Managing Committee and Chairman called a single topic conference call to discuss whether the work on the relevant WEQ and WGQ annual plan items should begin in 2015 or 2016, given the direction of the Commission provided in the September 17 Order on Rehearing. As quorum was not met, a vote to modify the annual plan items could not be taken; however, there was significant discussion on the timing and the process of the effort and the issuance of subsequent notational ballot was widely supported. |
| November 6, 2015 | Notational ballot proposing changes to the 2015 WEQ/WGQ Annual Plans and proposed 2016 WEQ/WGQ Annual Plans | Based on discussion during the November 5 board working session, a notational ballot was distributed that proposed modifications to the 2015 and proposed 2016 WEQ and WGQ annual plans to reactivate the GEH Forum and set a 2016 completion date to recommend a timeline and a framework for standards development to the Board of Directors. |
| November 13, 2015 | Results of notational ballot proposing changes to the 2015 WEQ/WGQ Annual Plans and proposed 2016 WEQ/WGQ Annual Plans | The proposed modifications to all four versions of the annual plans passed a simple majority vote of each quadrant.   * Review FERC Order No. 809 ¶ 107 issued in Docket No. RM14-2-000 regarding computerized scheduling and provide recommended direction concerning the development of standards or modifications to existing standards as needed to support the request of the Commission The recommended direction will require two-step board approval, for both the timeline to be pursued and the framework for standards development   Status: Not Started   * Resulting from the efforts of annual plan item 3(b), develop standards as needed and directed by the Board of Directors, which are specifically assigned to the WGQ.   Status: Not Started, dependent on completion of item above |
| December 10, 2015 | NAESB Board Meeting | During the meeting, the board adopted the 2016 WEQ and WGQ annual plans, including reaffirmation of items 3.a and 3.b of the WGQ plan and 7.a and 7.b of the WEQ plan.   * Review FERC Order No. 809 ¶ 107 issued in Docket No. RM14-2-000 regarding computerized scheduling and provide recommended direction concerning the development of standards or modifications to existing standards as needed to support the request of the Commission The recommended direction will require two-step board approval, for both the timeline to be pursued and the framework for standards development   Status: Not Started   * Resulting from the efforts of annual plan item 3(b), develop standards as needed and directed by the Board of Directors, which are specifically assigned to the WGQ.   Status: Not Started, dependent on completion of item above  The following additional clarifications concerning the annual plan items were adopted by the board and included as footnote in the annual plans.  The steps for the GEH forum shall be:   1. Provide a forum for industry education from both the natural gas and electric industries regarding gas-electric coordination specific to computerized scheduling, and confirmations including a streamlined confirmation process, if necessary ([FERC Order No. 809 Order on Rehearing, Docket No. RM14-2-001](https://www.naesb.org/pdf4/ferc091715_order809_order_on_rehearing.docx)) 2. Identify potential issues specific to computerized scheduling, and confirmations including a streamlined confirmation process, if necessary which could be based on the education provided in step 1 3. Identify potential solutions to the issues identified in step 2 4. Identify potential schedules for standards development including status and progress reports to the board |
| December 22, 2015 | NAESB Report to FERC Concerning FERC Order No. 809 | NAESB submitted a report to the Commission that described the organization’s activities since the August 4, 2015 status report. |
| January 12, 2016 | NAESB GEH Forum Request for Presentations | At the request of the Forum co-chairs, Dr. Sue Tierney and Terry Thorn, the NAESB office distributed a request for presentations to be provided during the first face-to-face Forum meeting on February 18-19, 2016. Notice of intent to submit a presentation was requested by February 1, 2016 and presentations were requested by February 8, 2016. The Forum co-chairs requested that the all presentations respond directly to the request of the Commission in paragraph 107 of FERC Order No. 809 and that they focus on providing information to support (1) education on the current practices and processes in both the natural gas and electric industries regarding gas-electric coordination and computerized scheduling, (2) identification of issues related to computerized scheduling and (3) potential solutions to the issues identified. |
| January 25, 2016 | NAESB GEH Forum Organizational Conference Call | The GEH Forum held an organizational conference call to review administrative items and the process the Forum will employ to respond to the annual plan items. This included a review of the schedule of meetings, the request for presentations, the purpose of the upcoming meetings, and the means for participation. |
| February 18-19, 2016 | NAESB GEH Forum Meeting | The GEH Forum held its first face-to-face meeting to review and discuss the presentations submitted in response to the NAESB solicitation. In total 8 presentations were submitted by members of the WGQ pipeline segment, PJM, ACES Power, Fidelity National Information Services, Skipping Stone, Environmental Defense Fund, a coalition of energy technology firms, and OATI, Inc. During the meeting, presenters were given equal time to provide their presentations and answer any questions from the participants |
| March 7-8, 2016 | NAESB GEH Forum Meeting | The GEH Forum held its second face-to-face meeting to discuss the presentations provided during the first meeting and review and modify a work paper containing a list of issues that were identified through the presentations. During the meeting the participants went through each of the issues identified in the work paper to provide clarity or additional information regarding the issue itself and considered them in the context of six categorizations developed by the co-chairs of the Forum. The six questions were as follows:   1. Is a discussion of this issue within the scope of the Commission’s request that “… gas and electric industries, through NAESB, explore the potential for faster, computerized scheduling when shippers and confirming parties all submit electronic nominations and confirmations, including a streamlined confirmation process if necessary?” and “… natural gas and electric industries, through NAESB, begin considering the development of standards related to faster, computerized scheduling”? 2. Is it an issue that could be pursued where more uniformity or streamlining would meet the Commission’s request?  Would it be economical and efficient to do so?  Should consideration of this issue be postponed until we have more experience and a better understanding of the impact of changing the nominations timeline which is to be implemented April 1? 3. Is this an issue where a national standard is not helpful, and it best addressed by services individually tailored to customer’s needs and reflecting individual inherent operational requirements? Is this an issue (non FERC policy related) where something stands in the way of resolving it? Is this an operational issue or some other matter that falls outside of NAESB’s purview? 4. Other Miscellaneous Topics: Is this issue a topic where tools can be used to address the Commission’s request and uniformity is not helpful or is more detrimental than beneficial? 5. Is it an issue that NAESB cannot take action on in the absence of FERC taking prior action? Is this an issue where the Commission itself could consider addressing the issue (without presuming a conclusion that the Commission would actually decide to introduce policy changes, but still entertaining the possibility that additional action may be warranted after a full record is developed)? 6. This is factual point   The results of the exercise were posted to the Forum website after the meeting |
| March 21-22, 2016 | NAESB GEH Forum Meeting | The GEH Forum held its third face-to-face meeting to continuing discussions concerning the list of issues captured and modified during the previous meeting and to discuss potential solutions to the issues. To facilitate discussion, the co-chairs provided a work paper putting all of the issues and the related information captured during the previous meeting into 12 categories. The following categories were identified.   1. No-notice Service Offerings 2. Non-ratable Takes 3. Observations 4. Support for Multiple Versions of Standards 5. Levels of Confirmations 6. Additional Nomination Cycles 7. Scheduling Issues Surrounding Interconnects 8. Access to Scheduling During Non-business Hours 9. Communications 10. Inconsistencies in Electric-Industry Day-Ahead Markets 11. Data Issues, Data-Transfer Issues, Field Testing and Modeling 12. New Service Offerings   Each of the issues, as categorized, were reviewed, and the participants discussed whether the category assigned to each issue was correct. Additionally, the participants discussed whether any solutions to the issue were actionable by NAESB. This information was captured in the work paper. The participants requested that the NAESB office distribute a survey to garner the perspectives of the industry related to each of the issues captured and the six questions previously reviewed, but modified. The questions included in the survey were as follows:  (1a) Is this issue within the scope of the Commission's request and directly responsive to the Board’s directive to the GEH Forum?  (1b) Is this issue within the scope of NAESB's purview, without necessarily suggesting any action be taken by NAESB?  (2a) Would pursuing this issue lead to more uniformity or streamlining that would meet the Commission's request and be directly responsive to the Board’s directive to the GEH Forum?  (2b) Can this issue be economically pursued?  (2c) Is there a benefit to waiting until more experience has been gained after the April 1st 2016 implementation of the changes to the nomination timeline before pursuing this issue?  (3) Do you concur that this issue would not benefit from a national standard due to one or more of the following reasons (non-FERC policy issue, operational issue, service issue, etc.)?  (4) Do you concur that additional uniformity with respect to this issue may not be needed because this issue falls into a potential area where, for example, tools could be used to address the Commission's request?  (5) Does this issue have policy implications that would require Commission direction before NAESB (or others) were to proceed further, or where there are other issues that stand in the way of moving forward at present?  (6) Is this issue a statement of fact/observation? |
| March 24, 2016 | GEH Forum Survey | The GEH Forum Survey was distributed by the NAESB office to NAESB GEH Forum Distribution List, NAESB members and the Advisory Council and response were requested by March 31, 2016. The results of the survey will be compiled by the NAESB office and presented to the Board of Directors at a future meeting. |

1. The November 30, 2004 Gas and Electric Coordination Task Force Report can be found through the following hyperlink: <http://www.naesb.org/member_login_check.asp?doc=ferc113004.pdf>. [↑](#footnote-ref-1)
2. The December 14, 2004 Correspondence from Chairman Wood can be found through the following hyperlink: <http://www.naesb.org/member_login_check.asp?doc=ferc121404.pdf>. [↑](#footnote-ref-2)
3. The June 27, 2005 NAESB Report can be found through the following hyperlink: <http://www.naesb.org/member_login_check.asp?doc=ferc062705_cover_report.pdf>. [↑](#footnote-ref-3)
4. FERC Order No. 698 was issued on June 25, 2007 and can be found through the following hyperlink link: <http://www.naesb.org/member_login_check.asp?doc=ferc062507.doc>. [↑](#footnote-ref-4)
5. FERC Order No. 587-U was issued on March 24, 2010 and can be found through the following hyperlink: <https://www.naesb.org/pdf4/ferc032410.pdf>. [↑](#footnote-ref-5)
6. The National Petroleum Council’s report, *Prudent Development – Realizing the Potential of North America’s Abundant Natural Gas and Oil Resources* can be found through the following link: [www.npc.org/nard-execsummvol.pdf](http://www.npc.org/nard-execsummvol.pdf). [↑](#footnote-ref-6)
7. The NAESB Gas-Electric Harmonization Committee Report is posted on the NAESB website and can be found through the following hyperlink: <https://www.naesb.org/pdf4/bd092012a1.pdf>. [↑](#footnote-ref-7)
8. The March 20, 2014 Notice of Proposed Rulemaking, *Coordination of the Scheduling Processes of Interstate Natural Gas Pipelines and Public Utilities*, can be found through the following hyperlink:<https://www.naesb.org/pdf4/ferc032014_nopr_coord_scheduling_process_interstate_ngps_public_utilities.pdf>. [↑](#footnote-ref-8)
9. The September 29, 2014 NAESB Report to FERC in response to the Gas Electric Harmonization Notice of Proposed Rulemaking can be found through the following hyperlink: <https://www.naesb.org/pdf4/ferc092914_naesb_geh_report_nopr032014.pdf>. [↑](#footnote-ref-9)
10. FERC Order No. 809 was issued on April 16, 2015 and can be found through the following hyperlink: <https://www.naesb.org/pdf4/ferc041615_order809_geh_final_rule.pdf>. [↑](#footnote-ref-10)
11. The redlined 2015 WEQ Annual Plan as revised on June 1, 2015 can be found through the following hyperlink: <https://www.naesb.org//pdf4/bd060115a2.docx>. [↑](#footnote-ref-11)
12. The redlined 2015 WGQ Annual Plan as revised on June 1, 2015 can be found through the following hyperlink: <https://www.naesb.org//pdf4/bd060115a1.docx>. [↑](#footnote-ref-12)
13. The final minutes from the June 1, 2015 Board of Directors meeting can be found through the following hyperlink: <https://www.naesb.org//pdf4/bd060115fm.docx>. [↑](#footnote-ref-13)
14. The October 16, 2015 FERC Order No. 587-W can be found through the following hyperlink: <https://www.naesb.org/pdf4/ferc101615_order587w.docx>. [↑](#footnote-ref-14)
15. The August 4, 2015 NAESB Update Report to FERC concerning FERC Order No. 809 can be found through the following hyperlink: <https://www.naesb.org/pdf4/ferc080415_naesb_update_report_order809.pdf>. [↑](#footnote-ref-15)
16. The September 17, 2015 FERC Order No. 809 Order on Rehearing can be found through the following hyperlink: <https://www.naesb.org/pdf4/ferc091715_order809_order_on_rehearing.docx>. [↑](#footnote-ref-16)
17. The results of the November 5, 2015 notational ballot can be found through the following hyperlink: <https://www.naesb.org//pdf4/bd110515ballot_results.doc> [↑](#footnote-ref-17)
18. The minutes from the December 10, 2015 Board of Directors meeting can be found through the following hyperlink: <https://www.naesb.org//pdf4/bd121015dm.docx> [↑](#footnote-ref-18)
19. The December 22, 2015 NAESB Status Report for submittal to the Commission concerning FERC Order No. 809 can be found through the following hyperlink: <https://www.naesb.org/pdf4/ferc122215_naesb_order809_status_report.pdf>. [↑](#footnote-ref-19)
20. The January 25, 2016 GEH Forum conference call announcement can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh012516a.docx> [↑](#footnote-ref-20)
21. The request for presentations can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh012516w1.doc> [↑](#footnote-ref-21)
22. The meeting schedule can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh012516w3.doc> [↑](#footnote-ref-22)
23. The January 25, 2016 Forum conference call meeting notes can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh012516notes.docx> [↑](#footnote-ref-23)
24. The February 18-19, 2016 Forum meeting notes can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh012516notes.docx> [↑](#footnote-ref-24)
25. The agenda and list of issues can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh030716a.docx> [↑](#footnote-ref-25)
26. The final working document from the meeting can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh030716w6.docx> [↑](#footnote-ref-26)
27. The agenda can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh032116a.docx> [↑](#footnote-ref-27)
28. The comments submitted by the WGQ Pipeline segment can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh032116w5.xlsx>. [↑](#footnote-ref-28)
29. The comments submitted by Fidelity National Information Services can be found at the following link: <https://www.naesb.org/pdf4/geh032116w4.docx>. [↑](#footnote-ref-29)
30. The work paper can found through the following hyperlink: <https://www.naesb.org/pdf4/geh032116w8.docx> [↑](#footnote-ref-30)
31. The NAESB GEH Forum Survey distributed on March 24, 2016 can be found at the following link: <https://www.naesb.org/pdf4/geh032416survey.docx> [↑](#footnote-ref-31)
32. The NAESB WGQ Pipeline Segment presentation can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh021816w1.pdf>. [↑](#footnote-ref-32)
33. The PJM presentation can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh021816w2.pdf>. [↑](#footnote-ref-33)
34. The ACES Power presentation can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh021816w3.pptx>. [↑](#footnote-ref-34)
35. The Fidelity National Information Services can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh021816w4.pptx>. [↑](#footnote-ref-35)
36. The Skipping Stone presentation can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh021816w5.pptx>. [↑](#footnote-ref-36)
37. The Environmental Defense Fund presentation can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh021816w6.pptx>. [↑](#footnote-ref-37)
38. The Coalition of Energy Technology Firms presentation can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh021816w7.pptx>. [↑](#footnote-ref-38)
39. The OATI, Inc. presentation can be found through the following hyperlink: <https://www.naesb.org/pdf4/geh021816w8.pptx>. [↑](#footnote-ref-39)
40. The request currently being considered by the NAESB Triage Subcommittee can be found through the following hyperlink: <https://www.naesb.org/pdf4/tr032416a.docx> [↑](#footnote-ref-40)