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PUBLIC UTILITY COMMISSION  
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COMMISSION PROCEEDING  
TO ENSURE RESOURCE  
ADEQUACY IN TEXAS

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PUBLIC UTILITY COMMISSION  
OF TEXAS

**AMERICA'S NATURAL GAS ALLIANCE  
RESPONSE TO COMMISSIONER'S QUESTIONS**

TO THE HONORABLE CHAIRMAN AND COMMISSIONERS OF THE PUBLIC UTILITY  
COMMISSION OF TEXAS:

In response to the Texas Public Utility Commission's (Commission) proceeding "To Ensure Resource Adequacy in Texas, Project 40000," America's Natural Gas Alliance ("ANGA") on behalf of its members respectfully submits these responses to the questions posed by the Commission on October 25 and on November 15, 2013. ANGA members are some of the largest independent natural gas exploration and production companies in North America and have extensive operations in Texas. ANGA works with industry, government, and customer stakeholders to ensure the continued availability of natural gas and to promote the increased use of this abundant domestic resource for a clean and secure energy future. As both producers and energy consumers in the state, we have a keen interest in the production of electricity from clean-burning, affordable natural gas. We appreciate the Commission's candor and thoughtfulness in addressing resource adequacy; however, we have serious reservations about the potential adoption of a mandatory reserve margin<sup>1</sup> that may lead to some form of capacity market in the ERCOT market that has served and continues to serve Texas consumers well.

Overall, ANGA does not support moving away from the current well-functioning energy-only market. We feel strongly that prior to making any decision to move away from the current market structure, the Commission should conduct a full analysis quantifying the level of reliability for which load is willing to pay and consider the efficacy and value to reserve margin enhancement of the changes already adopted by ERCOT, such as scarcity pricing, system-wide offer caps and most recently, the creation of protocols to implement an Operating Reserve Demand Curve (ORDC), and the establishment of rules for a 30-minute Emergency Response Service (ERS). In any consideration of potential future changes, at a minimum, the Commission should refrain from taking action before the ERCOT Demand Forecast is published and the forthcoming Brattle Economic Reserve Margin report is issued in January 2014.

As the Commission reviews the current structure in terms of Resource Adequacy, ANGA asks that four core principles be applied so that any decision: (1) create regulatory certainty to encourage investment in new generation through appropriate price signals; (2) provide affordable and reliable electricity; (3) ensure there are no market barriers to the installation of

<sup>1</sup> We emphasize that of course ANGA does not object to the concept of a reserve margin, defined by ERCOT as "The percentage by which available capacity is expected to exceed forecasted peak demand across the region." However, that definition is an observation, a measurement that can be used to generally assess the health of the system. ANGA's concerns relate strictly to a mandatory or designed reserve margin, with the attendant risk of inefficient layering of costs on consumer prices.

new generation including on-site generation; and (4) recognize generation for its flexibility and ability to ramp up and down to meet peak, intermittent, and changing load profiles.

ANGA's comments discuss several broad market design considerations we feel the Commission should be mindful of as they contemplate any change to the existing market design as well as some specific recommended changes to the ancillary market. As to the specific question of whether to move to a mandatory reserve margin/capacity market structure, while ANGA is not supporting such a move, ANGA submits that there would be a host of issues to resolve and that full understanding and resolution of all of these issues would be an extended process, not able to be fully addressed in a few initial rounds of comments to the Commission. Finally, although we recognize that congestion alleviation may not always be a resource adequacy issue, ANGA notes the need for attention to the severe congestion issues that can affect consumer prices in Texas.

## 1. IMPORTANCE OF AFFORDABLE ELECTRICITY

Since Thomas Edison switched on the very first power plant, electricity has been the backbone of the American economy. Our nation's fortunes have risen and fallen with the price and reliability of electric power. In today's economy more than ever, reliable and affordable electricity is critical to our national economic health. Meanwhile, when we review the natural gas-fired generation upon which Texas is so reliant, the enormous game-changing impact of shale gas abundance has eliminated the drivers of wellhead price volatility that were experienced in the past. Not only is there plenty of gas available at reasonable prices, but now producers have an unprecedented ability to bring more gas to market as needed to meet growing demand. Analyses of wellhead prices by both ANGA members and analysts have shown that, after ten years' worth of significant price fluctuation from 2001 through 2008, price behavior from 2009 forward has returned to the stability of the early 1990s, moving within a \$2.00 range based on factors such as weather. These stable and affordable prices have already resulted in substantial savings for Texas electricity consumers.

ANGA is uniquely suited to comment on resource adequacy issues in Texas. ANGA represents the providers of affordable natural gas for power generation, a preferred energy source both because of its environmental benefits and because of its low "all-in" cost of generation. In fact, based on a study by Navigant Consulting, Texas has seen substantial savings in energy costs for all classes of consumer as a result of the current and expanding abundance of natural gas. Annually, Texas consumers are conservatively saving over \$7 billion a year, of which more than \$3 billion is the reduction in power generation cost.<sup>2</sup>

In fact, the natural gas industry supports nearly 12 percent of total employment in Texas. That's nearly 1.3 million jobs that are directly and indirectly related to developing natural gas, according to a study by IHS Global Insight. That's more than the number of people employed in all jobs in either San Antonio, Austin or El Paso, according to Bureau of Labor Statistics data.<sup>3</sup>

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<sup>2</sup> The Impact of Natural Gas Abundance on Texas Consumers, A Study by Navigant Consulting Inc. May 2012

<sup>3</sup> BLS Austin [http://www.bls.gov/eag/eag.tx\\_austin\\_msa.htm](http://www.bls.gov/eag/eag.tx_austin_msa.htm)  
BLS El Paso [http://www.bls.gov/eag/eag.tx\\_elpaso\\_msa.htm](http://www.bls.gov/eag/eag.tx_elpaso_msa.htm)  
BLS San Antonio [http://www.bls.gov/eag/eag.tx\\_sanantonio\\_msa.htm](http://www.bls.gov/eag/eag.tx_sanantonio_msa.htm)

Total Employment in All Jobs in Three Cities  
(for comparison with 1.3 million natural gas jobs)

|             |              |                  |             |
|-------------|--------------|------------------|-------------|
| Austin      | October 2013 | Total Employment | 938,800,000 |
| El Paso     | October 2013 | Total Employment | 293,100,000 |
| San Antonio | October 2013 | Total Employment | 964,500,000 |

Our members are also major power customers whose operating costs will be directly affected by any changes made to the current market design. Thus, ANGA has a double-pronged vested interest in electric markets that work well and make optimal use of this cost-effective, clean fuel. Natural gas fired generation provides many operational and environmental advantages. Specifically, natural gas fired generation has the ability to ramp up and down for the benefit of the grid. Those advantages, coupled with an extremely low levelized cost of electricity offered by gas-fired combined-cycle plants make natural gas the fuel of choice to provide stable and reliably electricity now and in the future. In part, this is a long way of saying that natural gas-fired generation is very effective in providing affordable power for the foreseeable future. Low, abundance-driven fuel cost, extremely high efficiency, and low capital cost per MW that cause the low levelized cost of electricity, are the elements that make gas-fired generation not only a friend of the consumer in Texas but also a driver for economic development in the state.

## 2. IMPORTANCE OF MARKET SIGNALS

### Background

Currently, ERCOT operates an energy-only market. It establishes a target (non-mandatory) planning reserve margin; it does not operate a market to procure capacity. Market participants rely on the energy market prices to signal the need for new investment. Theoretically, as reserve margins tighten, energy prices will increase to reflect scarcity and market participants will respond to this signal to invest in new generation, with a goal of an overall reduction in their energy costs.

In practice, similarly to all independent system operators, ERCOT has added a price cap designed to "protect" consumers from what they might consider unacceptably high prices. The challenge with price caps is that often they are set at a level insufficient for stimulating new investment, thus preventing the pricing mechanism in the energy only market from inducing needed new investment. In addition, often the ISO actions during a scarcity event prevent the appropriate scarcity pricing to materialize. This revenue is exactly the revenue needed to keep the peaking units available and operating during scarcity conditions. This issue of not actually producing the revenue the mechanism was designed to produce is commonly referred to as the "missing money problem."

The impact of price caps, combined with actions preventing the scarcity pricing to materialize sufficiently, has led to several actions and considerations by ERCOT and the Commission to address tightening post-2014 reserve margins projected by ERCOT's annual demand forecast.

In 2012, ERCOT adopted new system-wide offer caps and scarcity pricing to help solve the missing money problem during scarcity events. On November 19, ERCOT's Board of Directors approved protocol revisions to implement an Operating Reserve Demand Curve and also

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approved revisions to ERCOT's Emergency Response Services (ERS) to establish rules for a 30-minute ERS option in addition to the existing 10-minute ERS. Concurrently, the Commission is considering whether to establish a mandatory reserve margin with a capacity market addition as the mechanism in which to assure the mandatory reserve margin is satisfied in future years.

The consideration of implementing a mandatory reserve margin and establishing a capacity market is similar to actions taken in other ISO markets. However, ERCOT is unique in that it has adopted much higher system wide offer caps and scarcity pricing than have other ISOs. Additionally, without a mandatory reserve margin requirement, ERCOT allows more market design flexibility. Reserve margins are able to fluctuate in any given year so that the appropriate market signal can be sent to incent new investment.

This flexibility has allowed private parties to make long-term bilateral arrangements that provide for price stability, reliability, and the addition of resources such as onsite generation. This ability to build bilateral relationships with power suppliers has been particularly useful to oil and gas producers. From ERCOT's perspective, this flexibility has also enabled ERCOT to move forward, as noted by the November 19<sup>th</sup> decision, with improving the ancillary services market design. By changing the ancillary markets structure to an operating reserve demand curve, those generators providing reserves will now be more fairly compensated; hence, helping to solve revenue shortfalls and leading to more investment.

While ANGA recognizes the concern over ensuring adequate capacity, we submit that a move to a capacity market at this time is not prudent and is a more disruptive alternative to the current market adjustments taking place.

ANGA believes the Commission can continue with ERCOT's approach of observing the reserve margin and using it as a planning tool without any mandatory character. ANGA fully supports the recently adopted changes to the ERCOT market design and strongly believes that these changes should be allowed to materialize and be accurately assessed before any changes to the reserve margin occur.

### 3. GENERAL CONSIDERATIONS IN DETERMINING MARKET DESIGN

#### Regulatory Certainty

ANGA reiterates its appreciation of the Commission's studying the important issues pertaining to the existing market. ANGA and its members request the Commission be mindful that generators may be reluctant to invest in plants if they believe the ground rules are subject to change. For example, they may refrain from investing if they believe that reimbursement or market rules will be modified at a later date in a manner that might suit them more favorably. Additionally, other stakeholders and job creators, particularly the companies contemplating massive industrial investment in facilities that heavily depend on affordable electric rates, might hesitate to continue investing and expanding if there is uncertainty with the existing regulatory paradigm. ANGA respectfully encourages the Commission to provide a timeframe and outline for any proposed changes to the existing markets so that all parties involved in economic development may best prepare and plan. Moreover, we request that any changes contemplated be done so thoughtfully and with as much participant and stakeholder support possible. Finally, we request that a final decision be communicated, even if the commission decides no further changes are needed, so that the mere contemplation of changes does not continue indefinitely and extend the current regulatory uncertainty.

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As the Commission is aware, many other state authorities and their regulated utilities use the price of electricity to retain jobs and to encourage economic development. Here are some immediate examples:

Pacific Gas and Electric Company (PG&E) will soon begin offering a competitive new electric rate aimed at promoting economic development by making it possible for eligible employers to keep, expand or launch new operations in California rather than leave the state. PG&E News Release October 3, 2013;

The New York Power Authority touts the link between affordable power and economic development: "Our economical electricity, already linked to over 350,000 jobs statewide, can make the difference between jobs growing here or going elsewhere. We work with state and local entities, including Governor Andrew M. Cuomo's Regional Economic Development Councils, Empire State Development Corporation, the New York State Economic Development Power Allocation Board (EDPAB) and other local and regional economic development organizations to further promote economic development within New York State". New York Power Authority: What We Do;

Meanwhile, in Texas this same relationship of power to growth has been squarely recognized by business leaders:

"As Texas continues to grow and in order to ensure that business can continue to expand and attract new investment, the state must consider the overall, delivered cost of electricity and the establishment of regulatory policies that allow for appropriate capital investment in Texas' electric infrastructure. Electricity cost and a reliable electric grid system are key inputs to the success of Texas businesses."

[http://www.txbiz.org/advocacy/economic\\_development.aspx](http://www.txbiz.org/advocacy/economic_development.aspx)

### Ease of Entry

ANGA believes that the current ERCOT process for entry into the generation market is sufficient for the future. Historically that process has been straight forward; developers of new generation propose a project, negotiate an interconnection agreement for transmission, and gain approval of that agreement from ERCOT. At that point, they are ready to build, subject to any required construction and operational permits from local, state and federal authorities. Generation of less than 10 MW is not required to complete the full ERCOT process. ANGA believes this process is efficient and should continue regardless of any changes in market design arising from this proceeding.

### On-Site Power

Generation installed on the customer side of the electricity meter can be an important complement to the power market and an important tool for responding to price signals. Natural gas fueled distributed generation equipment, such as combined heat and power (CHP), and fuel cells are among the most energy efficient and cleanest solutions on the market. CHP represents a proven, effective, and underutilized near-term energy solution to enhance energy efficiency, improve environmental quality, promote economic growth, and maintain a robust energy infrastructure. However, CHP remains underutilized in Texas and low cost natural gas can provide the impetus for wider scale adoption of this suite of technologies. CHP helps make businesses more competitive by lowering their energy costs, reducing demand on the electricity

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transmission and distribution system and reducing emissions (Catalog of CHP Technologies – U.S. Environmental Protection Agency Combined Heat and Power Partnership: Catalog of CHP Technologies, U.S. EPA Introduction report. December 2008). Fuel Cells, which depending on the technology can also be used in a CHP application, are likewise highly efficient, but are even cleaner from an emissions standpoint. They can also be installed rapidly at locations within load pockets and sized to appeal to both residential and small business consumers.

ANGA submits that the Commission should consider the effectiveness of policies and regulations governing the installation of such on-site generation in enabling the option. Such policies include utility interconnection standards and contracts; utility rate design, especially the design of standby rates; and a level playing field in terms of portfolio standards, utility planning, and taxes.

ANGA submits that the Commission should use broad criteria in examining the effectiveness of these policies, including job creation, electric system benefits and costs, resiliency, fuel security and impact on the environment. ANGA is confident that such a thorough examination will determine that gas-fired generation is highly competitive with other forms of clean generation. We are confident that natural gas fired distributed generation including CHP, fuel cells and other clean, high-efficiency generation technologies can provide customers with a viable alternative in achieving resource adequacy.

Management of the grid is not a one dimensional process. Response to reliability events can be managed through the system's ability to manage load. A review of the duration and amounts needed during peak or emergencies over the last few events indicates that payment for load reduction during these times is efficient, problem-specific and manageable.

### Treatment of DR

In the event the Commission further considers imposing a capacity market along with mandatory reserve margins, the treatment of demand response (DR) in the capacity mix will be important. DR must be required to compete with other capacity resources on a comparable basis - "level playing field." When DR commits to being a capacity resource, it must be able to affirmatively demonstrate the ability to deliver and a commitment to do so. DR must be both measurable and verifiable.

Texas needs strong upfront criteria for DR that establishes a commitment to the market and the ability to deliver prior to participation in a capacity auction. In effect, the lesson that has been learned in other markets is that a market relying upon specific customers' commitments to "turn off" when peak demand periods are reached must have very strong standards to make sure it really happens. ANGA commends ERCOT for instituting its pilot 30-minute Emergency Response Service (ERS30) as a recognition of the importance of predictable response and rapid ramping capability.

## 4. RECOMMENDED REVISIONS TO ANCILLARY SERVICES MARKET

In order for ERCOT to respond to the ever-changing real time requirements of the grid and to maintain grid reliability, certain products and services have been developed in a market in concert with the energy market (Ancillary Services). Generally, these services are used in maintaining to the grid's frequency or balance between load and generation. Ancillary Services are required by NERC and are critical to grid reliability. Ancillary Services can be offered up to

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the market or purchased by those in the market to maintain grid reliability.

As Professor Hogan succinctly outlines in “Electricity Scarcity Pricing through Operating Reserves: An ERCOT Window of Opportunity”, changing the ancillary service market to be co-optimized with economic dispatch utilizing demand curves for reserve margins will help fill the missing-money gap. Unlike a capacity market, which is an administered market created on assumptions and forecasts for years in advance, operating reserves are administered real-time to maintain the appropriate level of resources to deal with unpredictable events. Additionally, in a well-designed ancillary service market, units who have more flexible operations will be valued more.

By transitioning from a fixed operating reserve design to a design where operating reserves are valued based on demand curves, operating reserve resources will be compensated more appropriately during scarcity conditions. Benefits to this concept becoming the mechanism to fill the missing-money issue include the following:

- Short-term operations will be represented in market prices for energy and reserves; hence, real reliability issues will be valued and addressed unlike the result in a forward capacity procurement market
- The mechanism will be compatible with an energy-only market design.
- The mechanism will provide appropriate signals to demand response resources
- The concept has been successfully incorporated in both the NYISO and MISO.
- The mechanism will provide valuable information for regulators analyzing potential market power situations: if operating reserves are scarce, that scarcity can explain high generator bids rather than there being a suspicion of market power—and demand curve data will help ascertain that relationship.

Various changes to the ancillary services market could be needed to support continuation of the existing market structure. First, if a non-mandatory reserve margin is maintained, ANGA believes that the Commission should continue to consider design enhancements to send accurate and reliable signals for investment. An example of successful progress in this area is the November decision by the ERCOT board to revise protocols in order to be able to implement an Operating Reserve Demand Curve (ORDC) as part of the ancillary services market. While some might take issue with the development of a demand curve by arguing it introduces an administrative intervention into the market, we note that the existing operating reserve margins themselves are an administrative determination and such interventions can be appropriate to address market deficiencies. Although its implementation may require further ongoing evaluation, ANGA believes that the ORDC approach could provide better market signals and incentives for customers to take steps to manage price risk, including installing on-site generation or participating in demand response. Therefore, ANGA supports the decision and progress in this direction.

### 5. CHALLENGES TO BE ADDRESSED IN A CAPACITY MARKET

ANGA is not universally opposed to the use of capacity markets to enhance reliability. However, we believe that the ERCOT market is functioning relatively well and the changes already adopted by ERCOT should be appropriately valued and incorporated into any reserve margin assessment. Policy considerations aside, we also note that from a pure process standpoint, many issues must be thoroughly considered and addressed for a capacity market to

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work without unintended consequences and such thorough consideration would require more thought and careful review than is afforded by a few initial rounds of comments and Q&A to the Commission. Given these points, we believe that the Commission should decide against a mandatory reserve margin and a capacity market at this time.

However, recognizing the questions posed by the Commission regarding capacity market design, we provide the following observations and submit that if the Commission were ultimately to move toward imposing a mandatory reserve margin, either directly on loads to manage individually, or through a capacity market construct, the Commission would need to gain insight from the challenges that have been faced in other power markets nationwide that have constructed capacity markets. ANGA's participation in a variety of these markets informs the observations offered below.

### Level of the Reserve Margin

The number-one issue in imposing a mandatory reserve margin is determining what level of reserve margin is appropriate.

The question of an appropriate reserve margin has, of course, long been an issue in prudence reviews of traditional utilities. A *de facto* standard emerged from those reviews around the country. In essence, it was centered on limiting loss of load events (LOLE) to no more than one in the last ten years' worth of demand levels.

However, in a competitive market model, this standard cannot be blindly followed, but would need to be reexamined. That reexamination would need to take into account specific system conditions expected in the competitive market (e.g. ERCOT) as a whole, such as the impact of generation portfolios that include intermittent technologies, as well as in specific locations that may be transmission constrained.

### Forward Commitment of Capacity

The three-year forward period adopted by PJM and ISO-NE is based on the average lead-time for a new gas-fired combustion turbine or a gas-fired combined cycle generator, and is viewed as providing sufficient time for those resources to arrange for financing and complete construction. A forward commitment provides more time for an existing resource considering whether to exit a market to make decisions to either retrofit or retire. This forward capacity construct has signaled a significant number of retirements of older resources to occur while allowing sufficient time for newer resources to take their place.

### Locational Price Signals

In order for capacity to be valuable it must be deliverable to load when it is needed. System congestion can impede deliverability and must be recognized in capacity pricing. New plants are more likely to be developed where they are needed if the capacity market is designed to reflect a higher price in the areas where capacity is needed most.

### Sloped Demand Curve

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A sloped demand curve is the economic tool that PJM and New York use to recognize that system reliability is a matter of degrees and not a simple “we have it” or “we don’t have it” proposition. If constructed properly, the demand curve can reduce pricing volatility and provide new plant developers some confidence in forward capacity pricing. A vertical demand curve (as seen in New England) has presented many challenges to that market and should not be duplicated in Texas.

### Market Power Mitigation

Strong rules need to be in place to guarantee that a capacity market is free from the exercise of market (both buyer side and seller side). Minimum Offer Price Rules (MOPRs), which generally establish bid floors for new entry, have proven to be an effective tool to guard against the price suppression caused by uneconomic market entry. While ANGA is not prepared to endorse a specific MOPR (as the northeast RTOs all have different rules in place), a strong and effective MOPR must be part of any well-designed capacity construct.

### Distributed Generation

The role of distributed generation (DG), including CHP, must be defined. Is it a source of capacity that may bid into the market? Overall, DG generally and CHP specifically represent important load mitigation and additional sources of power input into the grid. Accordingly, it is important that any rule changes be as supportive of DG and CHP as is feasible.<sup>4</sup>

### Proper Capacity Factor Valuation for Intermittent Generation

While intermittent resources such as wind and solar, provide generation, the timing of such generation cannot be controlled. Given this inherent operating constraint, intermittent resource capacity should be adjusted appropriately if participating in a capacity market.

## 6. CONGESTION

ANGA recognizes that congestion may be an issue separate from generation resource adequacy. However, given the significant impact that congestion in areas such as West Texas has on our members, we feel it is important to raise the issue.

ANGA does not have a specific proposed solution, but does note that other organized markets use alternative market mechanisms to manage congestion. The options and issues differ somewhat from those existing in ERCOT; however, some may be quite compatible with current

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<sup>4</sup> According to the Texas CHP Initiative, the size of the existing CHP resource is substantial: With a total capacity of about 17,000 MW, Texas has the largest fleet of CHP facilities of any state in the nation. In the last few years, the CHP fleet has consistently generated approximately 80 million MWh annually or about 20% of the electricity in the state. This is roughly four times the amount of energy produced by wind power. The bulk of the current fleet is located at industrial sites along the Texas coast between Corpus Christi to Port Arthur, although other CHP adopters are located across the state.

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ERCOT design and would better incent infrastructure upgrades to relieve congestion. ANGA encourages the Commission and ERCOT to further investigate the severe West Texas congestion issue and explore alternative market mechanisms that could be implemented to solve this congestion.

### 7. ANSWERS TO COMMISSIONER QUESTIONS

[Note: ANGA has responded specific Commissioner questions below where we have additional thoughts to offer above and beyond the considerations presented above.]

#### **Commissioner Anderson's Questions. November 15, 2013**

- Could new ancillary services be used to address resource adequacy? Why or why not?

Yes.

- If a backstop ancillary service were created, what resources would be able to provide the service?

ANGA generally does not support the creation of a backstop service, as it is a non-market approach that distorts the economic signals to generators and consumers. Thus, in this series of questions, ANGA addresses the issues raised, but this relevant only if the Commission were to create backstop services, despite ANGA's non-support of such services.

- Would deployment of the backstop ancillary service cause inappropriate price reversal?

ANGA believes that if the Commission does develop a backstop ancillary service, then it should only be used when there is an emergency, rather than on a full-time basis. As to pricing, the Commission may want to review or compare such a service to Demand Response, Interruptible services or possibly to the Value of Lost Load.

- What is the appropriate trigger for a backstop ancillary service procurement to occur?

ANGA believes that if the Commission does develop a backstop ancillary service, then one possible trigger would be a defined emergency situation. Under defined circumstances the backstop ancillary service procurement will occur and when those circumstances no longer exist, the backstop ancillary service procurement is no longer available.

Another possible trigger is when forecasted demand is within X% of peak generation during the summer months or some other defined time frame based upon the performance of the grid.

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If you have any questions, please contact Amy Farrell at [afarrell@anga.us](mailto:afarrell@anga.us) or (202) 789-2642.

A handwritten signature in black ink, appearing to read "Amy Farrell". The signature is fluid and cursive, with the first letters of each word being capitalized and prominent.

Amy Farrell  
Vice President, Market Development  
America's Natural Gas Alliance