BEFORE THE

RAILROAD COMMISSION OF TEXAS

RAILROAD COMMISSION OF TEXAS EX PARTE	)	
	)	**DOCKET 9900**
IN RE: ESTABLISHMENT OF A NATURAL GAS CONSERVATION AND ENERGY EFFICIENCY PROGRAM	)	

COMMENTS OF THE
U.S. DEPT. OF ENERGY GULF COAST CLEAN ENERGY APPLICATION CENTER

The U.S. Department of Energy Gulf Coast Clean Energy Application Center respectfully offers these comments on the questionnaire issued on January 12, 2010 by the Gas Services Division of the Railroad Commission of Texas' ("Commission") on the above referenced natural gas conservation and energy efficiency program considered in Docket No. 9900.

The U.S. Department of Energy Gulf Coast Clean Energy Application Center ("GC RAC") facilitates greater deployment of clean energy technologies like combined heat and power ("CHP"), district energy, and waste heat recovery in Texas, Louisiana, and Oklahoma. The GC RAC, which is hosted by the Houston Advance Research Center, a non-profit scientific organization, provides education and outreach programs, project-specific support services, and policy development initiatives supportive of clean energy.

The GC RAC applauds the Commission's consideration of a natural gas conservation and energy efficiency program. The GC RAC supports the implementation and operation of energy projects and programs that achieve the greatest energy efficiency possible.

The following responses correspond to the numbered questions posed in the Commission's questionnaire.

1.) Yes. Years of experience with energy efficiency programs in Texas and throughout the nation demonstrate unequivocally that "demand-side" programs provide resources equivalent to or superior to traditional supply-side investments in production and distribution infrastructure. In many cases, demand-side resources can be obtained at a fraction of the cost of building new infrastructure to serve the unmanaged demand for energy. The Winter Gas Savings Program implemented by PG&E is very similar to the demand response programs administered by the Electric Reliability Council of Texas (ERCOT). In addition to the PG&E program, the Railroad Commission should explore demand-side efficiency programs already implemented by the electricity industry in Texas and elsewhere to evaluate whether sufficient parallels exist to warrant adoption of similar types of approaches and programs.

2.) In the vast majority of instances, resources acquired through energy efficiency are more economical than construction of new infrastructure to produce and distribute greater quantities of energy. Any conservation and energy efficiency program enacted in the state should be designed to distribute the economical benefits achieved by energy efficiency to all stakeholders. Programs that penalize or provide inadequate economic benefits to some stakeholders are less successful. If the Atmos Energy low-income program is a win-win for utility shareholders, program participants, and non-participating customers alike, then the RRC should consider expanding the program.

3.) Yes. The Railroad Commission should consider the Energy Efficiency Incentive Program (EEIP) functioning at the Public Utility Commission as a model for any Conservation and Energy Efficiency (CEE) programs adopted by the Commission.

In its deliberations related to CEE programs, the Railroad Commission should also consider the Texas Renewable Portfolio Standard (RPS). When the Texas Legislature first established the renewable energy goals for Texas in 1999, only 116 MW of wind power had been implemented in the state. At the end of 2009, wind capacity exceeded 9,000 MW, about 80 times the level of just ten years ago. This RPS stimulated an estimated investment of $1 billion in the state since its inception.

The core element of the RPS was the creation of a tradable Renewable Energy Credit (REC) for each megawatt-hour of electricity produced by allowed generators. Retail electric providers are required to purchase RECs each year, thereby creating a market where the market-clearing price for RECs establishes the incentive payment for the renewable energy project. In a similar fashion, a Gas Efficiency Resource Standard (GERS) modeled after the state's successful RPS could have greater impact with lower costs than a centrally administered program like the EEIP. A Texas GERS program could be designed to generate tradable Energy Efficiency Credits (EEC) for each million British thermal units (MMBtu) saved by an investment in allowable gas efficiency measure. For adopters of energy efficiency technologies, the sale of EECs to natural gas distribution companies would provide a project incentive equal to the market clearing price. By creating a requirement for natural gas distribution companies to seek efficiency savings, the state could incentivize natural gas conservation and efficiency while allowing the market to choose the best technologies to accomplish the goal.

Natural gas inefficiency results in the production of unused or uneconomic heat that is wasted upon release into the environment. Waste heat results from inefficiencies in commercial and residential water heaters, space heaters, and other natural gas appliances. However, the bulk of waste heat results from inefficiencies in many industrial processes, including, for example, calcining, cement processing, incineration operations, chemical production, and petroleum refining. The technical potential for waste heat recovery at industrial sites is not well characterized at this time, although the U.S. Environmental Protection Agency ("EPA") is in the process of creating a registry of recoverable waste energy sources, as directed by Congress under Title IV, Subtitle D, Section 451 of the Energy Independence and Security Act of 2007 (EISA).[1] Completion of EPA's registry will allow better quantification of industrial waste heat recovery potential in Texas.

The GERS program should be designed to stimulate investments in all manner of waste heat reduction and recovery technologies including high efficiency boilers, improved water heaters, heating and cooking appliances. In addition, the program should incentivize the many excellent opportunities to recover waste heat produced by large natural gas engines used at natural gas pipeline compressor stations, water pumping stations, combined heat and power installations, inefficient industrial processes, and inefficient power plants.

Waste heat is also created by natural gas-fueled engines and turbines commonly used at large natural gas compression stations. The status and market potential for waste heat recovery in natural gas compressor stations is documented in two recent reports prepared for the Interstate Natural Gas Association of America ("INGAA").[2] The most economical

[1] For more information, see http://www.epa.gov/RDEE/registry/. Last accessed: January 14, 2010.
[2] See "Waste Energy Recovery Opportunities for Interstate Natural Gas Pipelines" (February 2008) and "Status of Waste Heat to Power Projects on Natural Gas Pipelines" (November 2009) by Bruce A. Hedman, ICF International. Available: http://www.ingaa.org/File.aspx?id=6210. Last accessed: February 22, 2010.

candidates for waste heat recovery are those that employ combustion gas turbines larger than 15,000 hp and that operate in excess of 5,250 hours per year, although the reports note that additional systems are often economical in states where power purchase prices include some incentive for clean energy (e.g., states where heat recovery qualifies as an option under a renewable portfolio standard).

Waste heat recovery is also possible within the power generating sector. Whereas traditional power generation in large central station facilities results in about half of the primary energy to be discarded, Combined Heat and Power (CHP) technology can improve the effectiveness of waste heat capture and utilization. When appropriately sized generating units are placed at a local industrial facility, college campus, or even commercial building, CHP systems can produce an overall efficiency around 50% higher than conventional approaches. Estimates place the potential for additional CHP in Texas at over 13,000 MW in the next decade,[3] much of which may remain undeveloped without an incentive provided through the heat recovery option under the proposed RPS.

In many cases, waste heat can be recovered economically using readily available, conventional technologies. Waste heat can be used to make steam, which can be readily used for a wide variety of purposes including, for example, offsetting boiler operations to replace existing steam loads, producing chilled water, mechanical work, dehumidification, and generating electricity. As an alternative to steam, so-called organic rankine cycle ("ORC") technology can be used to convert waste heat directly into electricity. Beyond steam and ORC, additional technology options are under development.

[3] See "Combined Heat and Power in Texas: Status, Potential, and Policies to Foster Investment" (December 2008) by Summit Blue Consulting. Available: http://www.summitblue.com/attachments/0000/0525/r4_-_Combined_Heat_and_Power_in_Texas_Status__Potential__and_Policies_to_Foster_Investment.pdf. Last accessed February 22, 2010.

Waste heat recovery results in zero new emissions. Because industrial plant emissions are already attributed to the plant's process, the waste heat resource can be captured and used without releasing additional greenhouse gases or criteria pollutants. Consequently, waste heat recovery projects are equivalent to wind or solar power in cleanliness, but provide firm baseload power that is generated in close proximity to where it is needed. Power production close to loads reduces the need for transmission lines to carry power from remote renewable energy resources and increases energy security for adopters. Waste heat recovery is an excellent resource for Texas and the Railroad Commission should investigate opportunities to incentivize it within a program similar to the state's existing, successful RPS program.

4.) Smart meters can improve market efficiency. By enabling more information of higher quality to be shared by both the buyers and the sellers of energy, smart meters allow the accurate reflection of marginal energy prices and the development of innovative energy transaction strategies and services. These new market approaches can have beneficial results not only for those engaged in individual market transactions but also to all market participants generally. Consequently, smart meter implementation should be considered by the Railroad Commission as a component of its CEE programs.

However, the complex pricing and transaction strategies enabled by smart meters may not be appropriate for all market participants. Many residential and some commercial energy consumers are unable or uninterested in actively managing their energy purchases. The Railroad Commission should consider the appropriateness of small energy consumers for these services and allow for some element of choice for specific types or classes of energy customers to decline these services. Furthermore, given the expense and time required to

implement smart meters broadly across all consumer classes, a focus on larger energy consumers may be preferred, as it could achieve a high proportion of the value of this approach, but at a lower cost, in less time, and with fewer complaints.

5.) No comment.

6.) No comment.

7.) No comment.

8.) No comment.

9.) No comment.

10.) Years of experience with energy efficiency programs in Texas and throughout the nation demonstrate unequivocally that "demand-side" programs provide for resource adequacy equivalent to or superior to traditional supply-side investments in production and distribution infrastructure. In many cases, demand-side resources can be obtained at a fraction of the cost of building new infrastructure to serve the unmanaged demand for energy. Investment by natural gas distribution companies in demand-side resources for purposes of achieving resource adequacy should be rewarded in a manner consistent with investments in supply-side infrastructure. Decoupling is one approach that has potential to provide such parity.

11.) No comment.

12.) No comment.

The GC RAC appreciates the opportunity to file these comments.

Respectfully submitted,

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