

Before the  
Tennessee Regulatory Authority  
Docket No. 09-00183

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**Chattanooga Gas Company**

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Direct Testimony of  
**Philip Pickett P.E.**

On Behalf of  
**Chattanooga Manufacturers Association**

January 15, 2010

**Direct Testimony of Philip Pickett**

**Q. Please state your name, business address and occupation.**

A. I am Philip Pickett P.E., I am a registered Professional Engineer in the State of Tennessee and own and manage Advanced Energy Engineering and Design, Inc. a full services engineering firm located at 408 McCallie Ave in Chattanooga Tennessee which employs 23 employees.

**Q. What principle areas of engineering does Advanced Energy Engineering and Design (AEED) engage in?**

A. AEED is a full service engineering consulting firm that provides mechanical, electrical, plumbing consulting as well as energy solutions for clients. As engineering consultants, we have an ongoing duty to look for energy efficient solutions in our engineering and design services.

**Q. Please outline your educational and professional training and experience.**

A. I earned my Bachelor of Business of Science Degree from the University of Tennessee at Chattanooga. I am a registered Professional Engineer in nine states, and a Certified Energy Manager (CEM), Certified Commissioning Authority (CCA), and a Certified Green Building Engineer (GBE). I have been employed as a consulting engineer with various firms including Stone and Webster and March Adams Engineers before starting AEED in 2001.

**Q. Please comment on your background and experience with assisting clients with energy solutions?**

A. One of my objectives since founding AEED was to make our company a leader in the area of energy consulting. This includes assisting clients with solutions for reducing energy costs and subsequent harmful effects of greenhouse gases on our environment. AEED has completed energy reduction plans for several large clients including Unum Provident, Alstom Power and others.

**Q. Have you previously submitted testimony for the Chattanooga Manufacturers' Association ("CMA") to this Authority?**

A. No.

**Q. What is the subject of your testimony?**

A. I would like to make comments on Chattanooga Gas Company's proposed energy Smart program, and make suggestions on how this program can be implemented to benefit Chattanooga Gas Company's customers.

**Q. Have you prepared any exhibits to accompany your testimony?**

A. Yes.

**Q. Please give a brief description of Chattanooga Gas Company's proposed energySmart program?**

A. The energySmart program is a utility sponsored customer education and conservation program whose purpose is to educate gas customers on conservation and to provide incentives for residential and commercial customers to install or replace gas equipment with higher efficiency gas equipment reducing gas consumption and energy costs. The residential programs provide a free programmable thermostat and provides rebates for high efficiency furnaces and

waterheaters. The commercial programs provides standard rebates for high efficiency furnaces, waterheaters, and food service equipment.

**Q. Do you feel the Energy Smart program proposed in this filing would be good for Chattanooga's customers?**

A. I believe there is merit to a conservation program sponsored and funded through the gas rates. However, the program needs to be fine-tuned where all customers can benefit from the program, and the details on the program expenditures are scrutinized to ensure that all customer classes receive benefits from program expenditures.

**Q. Please explain?**

A. The energySmart program needs to address the needs of medium size gas customers who require consulting advice and a tailored solution to reducing natural gas usage. The \$500.00 rebate may be a pittance incentive for a large manufacturer or school that uses gas in a boiler application. A good conservation program would need to measure the overall savings of a measure and assign a value or (Net Present Value of Projected Equipment Life) based on the gas savings. The program incentive or rebate would be adjusted based on the payback and associated reduction in gas usage. This would result in a higher rebate for some commercial gas equipment. However, the reduction in gas consumption would be considerably higher.

**Q. Can you give a specific example of a tailored solution?**

- A. Yes, for a residential customer, the energySmart program is proposed to provide a \$500 incentive for replacing a standard furnace with a 90% efficiency furnace. For a typical residential customer using 800 therms per year, this will save approximately 120 therms per year in natural gas. Let's say we have a 100 hp boiler that uses 20,000 therms per year. By installing a condensing boiler, a reduction of 15% could be realized or 3000 therms per year reduction. If you apply the residential correlation to the commercial application (\$500 rebate for savings of 120 therms,  $20,000/120 \times \$500 = \$12,500$ ), then a rebate of \$12,500 would be appropriate for the commercial efficiency upgrade, and similar results would be achieved in regards to conservation and natural gas reduction.
- Q. **Is AEED participating with TVA on a conservation program sponsored by the electric industry?**
- A. Yes, AEED has attended training that has certified our company in the Preferred Provider Network to assist electric customers with conservation measures that will qualify them to receive rebates from their electric distributor. Similar to Chattanooga Gas Company's program, this conservation program is designed to reduce electric peak demand and electric usage by providing customers incentives on higher efficiency lighting, electric water heaters, and all electric HVAC equipment and other equipment.
- Q. **What do you feel Chattanooga Gas Company can learn from TVA's program?**

A. I highly recommend that Chattanooga Gas Company partner with local energy professionals to design and implement an effective conservation program. The implementation of a conservation program that will engage local energy professionals will provide gas customers with a better product, ensure a greater return on investment, and will ensure that Tennessee jobs will be created to implement and administer this program.

**Q. Does the absence of a conservation program place Chattanooga Gas Company at a competitive disadvantage?**

A. Yes, I have attached a copy of TVA's Energy Vision 2020 (Exhibit A), a technical document that TVA will use as a model to introduce demands side programs for customers served by TVA power. In reviewing these programs, it is evident that TVA demand side programs that will be available to electric distributors as well as their existing enhanced growth incentives are not fuel neutral, and would provide incentives to customers to install total electric and reduce natural gas loads. Some of these programs are specifically designed to target non-electric equipment (natural gas), and provide incentives to install hi-efficiency electric equipment.

**Q. Does the Electric Power Board currently offer a conservation/promotional program providing incentives for electric equipment?**

A. I have attached copies of EPB's energy right program. (Exhibit B). Under the energy right program, there are incentives to meet high efficiency construction requirements, and to install all electric water heaters and all electric

heating/cooling systems. For example, this program will provide a rebate of \$600 per home where natural gas is available. These incentives are not fuel neutral and encourage customers to install all electric.

**Q. Can you give an example of recent load losses where Chattanooga Gas Company has lost market share due to electric incentives/rebates?**

A. Yes, Hamilton County Schools opted to install total electric on three high schools, East Hamilton High School, Signal Mountain High School and Hixson High School. These schools decided to install ground source heat pumps for their main heating system and qualified for TVA's enhanced growth credit discounts as well as other incentives from TVA to install high efficiency total electric equipment. This is a change for Hamilton County Schools who have traditionally installed a natural gas boiler for heating their schools. Furthermore, since they did not need natural gas for heating, it was easier for the school to go with total electric for the other gas loads as well.

**Q. Would the energySmart program currently proposed by Chattanooga Gas helped Chattanooga Gas Company retain their market share of gas loads in Hamilton County Schools.**

A. As I mentioned before, a custom solution is needed in these applications. A \$500.00 rebate would not upgrade the efficiency of a 50 or 100 Hp boiler used for heating a high school. The same holds true for the water heating and kitchen equipment. A custom solution based on a payback or NPV formula would

increase the rebate based on the relative reduction in gas consumption. A higher rebate in these applications would have improved the economics of the gas option.

**Q. How did the TVA Enhanced Growth Program provide incentive for Hamilton County Schools to go all electric on these three high schools.**

A. The overall purpose of TVA's Enhanced Growth Program (Exhibit C) is to provide incentives for economic development by providing a substantial discount off electric rates. However, customers can also qualify for the electric discounts by installing all electric HVAC. The ground source heat pump systems required a considerable installation premium over gas equipment, but the enhanced growth electric discounts helped justify the higher costs and reduced the payback of this system. The school qualifies for a discount on all their electrical requirements.

**Q. What do you feel is the future trend for natural gas usage in the Chattanooga market?**

A. The moderation of natural gas prices will provide Chattanooga Gas Company an opportunity in this market, however, Chattanooga Gas Company may continue to lose market share of existing and new customers without effective promotional and conservation programs. This is because customers are receiving handsome incentives to install high efficiency all electric equipment, and do not have incentives to install hi-efficiency gas equipment.



**Q. What recommendations to you have regarding Chattanooga Gas Company's energySmart Program.**

A. I have reviewed Chattanooga Gas Company's proposed energySmart Program. The proposed program is a good start but it needs some improvements to properly address the needs of commercial and small manufacturing customers. For example, commercial and small manufacturing customers need an energy audit by an energy professional to identify energy saving measures to reduce natural gas usage at their facility. After identifying energy savings opportunities, then these measures could be ranked using an economic analysis, (net present value) or other method. Customer incentives/rebates would be based on this overall ranking and the costs of implementing the measure.

**Q. What is your suggestion to the Company and TRA on how to implement an Energy Smart program.**

A. The most effective way for implementing this program is to engage local engineering, heating and air conditioning and plumbing professionals. Chattanooga Gas Company should enlist local design, HVAC and Plumbing professionals to participate in a focus group to address the needs in the marketplace. Chattanooga Gas Company should consider selecting a local administrator that has a physical presence in Chattanooga to handle customer inquiries. A modest amount of resources needs to be spent on customer education and promotion, however, the most effective program would emphasis personal contact and good service. Chattanooga Gas should partner with local Hvac and

plumbing professionals, and promote the program through cooperative advertising programs. The result is a better program and return on program costs. Customers benefit with lower gas bills. Chattanooga Gas Company has conservation programs that provides for a fair competitive market with the electric industry. The energySmart program results in new jobs added in Tennessee.

**Q. Does this conclude your testimony?**

A. Yes