

Crystal Card

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Sent: Thursday, September 12, 2013 4:42 PM
To: Filings@psc.state.fl.us
Cc: Kelley Corbari; Shevie Brown
Subject: Docket No. 130167-EG
Attachments: AGDF Responses (Partial) to Staff_s 1st Data Request (clean).PDF

Attached for electronic filing, please find the Partial Responses of the AGDF to Commission Staff's First Set of Data Responses in the reference docket.

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b. Docket No. 130167-EG – Petition for approval of natural gas energy conservation programs for commercial customers, by Associated Gas Distributors of Florida.

c. On behalf of: AGDF

d. There are a total of pages: 12

e. Description: Responses to data requests



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September 12, 2013

ELECTRONIC FILING - FILINGS@PSC.STATE.FL.US

Ms. Ann Cole, Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Docket No. 130167- EG-- **Petition for approval of natural gas energy conservation programs for commercial customers, by Associated Gas Distributors of Florida.**

Dear Ms. Cole:

Attached for electronic filing, please find the Associated Gas Distributors of Florida's Partial Responses to Commission Staff's First Data Requests in this docket, regarding the proposed conservation programs for commercial customers.

As always, thank you for your assistance with this filing. If you have any questions whatsoever, please do not hesitate to contact me.

Sincerely,

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Attorneys for the AGDF

RE: Docket No. 130167-EG- Petition for approval of natural gas energy conservation programs for commercial customers, by Associated Gas Distributors of Florida.

AGDF's Responses to Commission Staff's First Set of Data Requests

AGDF's responses to specific items of the PSC Staff's First Set of Data Requests (Requests 1-9, 11 and 14), issued August 14, 2013, are as follows:

1. Please define "source-based electric generation" and "site-based gas appliance emissions."

AGDF Response: The terms "source-based electric generation" and "site-based gas appliance emissions" are used to illustrate the differences between natural gas and electric appliances. The primary objective of using these terms is to properly account for all of the supply side energy losses and emissions associated with the generation, transmission, and distribution of electricity before comparing electric and natural gas appliances. Historically, quantifying site-energy natural gas appliances with source-based electric appliances has been challenging. However, there are now several methodologies and tools that are currently available to better explain the differences between the two.

First, multipliers developed by research institutions such as the Energy Efficiency Standards Group of Berkeley National Laboratories, National Argonne Laboratories, can be applied to end-use consumption data to calculate Full Fuel Cycle costs. This Full Fuel Cycle Analysis gives a more accurate representation of the actual amount energy used when delivered to the end consumer because it accounts for all the supply side energy losses and emissions associated with all energy types. Additionally, the DOE has backed the utilization of Full Fuel Cycle methodology in Docket No. EERE-2010-BT-NOA-0028, **Energy Conservation Program for Consumer Products and Certain Commercial and Industrial Equipment: Statement of Policy for Adopting Full-Fuel-Cycle Analyses Into Energy Conservation Standards Program.**¹

Second, calculating supply side energy losses and emissions associated with the generation, transmission, and distribution of electricity can also be done by utilizing data provided by the Energy Information Administration (EIA). Every year the EIA compiles an Annual Energy Outlook, where they quantify the amount of electricity delivered to the end-use customer versus the amount of energy that went into generating that electricity. This information is available on a national and a state by state basis.²

Finally, the Department of Energy is currently pilot testing a test that factors energy losses into a building's performance. This tool is called the Commercial Building Energy

¹ See <http://www.aga.org/our-issues/energyefficiency/Documents/110818%2076%20FedReg%2051281%20Policy%20Statement.pdf>

² See Table A2 (page 123) of the EIA's 2013 [Annual Energy Outlook](http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf) to compare the Total Delivered Electricity to the Total Electrical Losses data. [http://www.eia.gov/forecasts/aeo/pdf/0383\(2013\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf)

Asset Tool, and the report associated with this tool actually specifies the Site and Source energy consumption. Please see the following link for an illustration of this tool:

http://www1.eere.energy.gov/buildings/commercial/pdfs/energy_asset_score_sample_report.pdf.

2. Please explain the process Associated Gas Distributors of Florida (AGDF) used to select Florida Solar Energy Center (FSEC) to create the G-RIM model?

a. Was there a Request for Proposals or a bidding process conducted?

AGDF Response:

Our process was driven by a desire to use a state recognized proven subject matter expert. In that analysis, we determined the FSEC could easily step in and serve as that subject matter expert for the following reasons:

- FSEC has a large and voluminous database of commercial building energy consumption and appliance data;
- FSEC is recognized as one of the foremost building science and energy consumption subject matter experts in the South East U.S.;
- Through FSEC's representation on the Florida Building Commission's Energy Technical Advisory Committee, FSEC has proven during each code development cycle that they poses the unique ability to model and illustrate how different commercial building types and building uses impact energy consumption; and
- FSEC was also selected because of the Florida specific research they have conducted over the past 30 years, which account for Florida's unique and diverse climate.

For all of these reasons, an RFP was not necessary.

b. If so, please provide the number of bidders and the reasoning AGDF used in ultimately selecting FSEC.

AGDF Response: Not applicable

c. Please describe the funding source AFDF utilized to contract with FSEC to build the G-RIM model.

AGDF Response:

The funding source used was the energy conservation cost recovery mechanism that each AGDF member utilizes to fund EC program costs. The development costs for new EC programs AGDF members seek PSC approval for are recoverable. The costs were split amongst AGDF members based on a pro-rated share as determined by the number of total meters of each utility as a percentage of the total AGDF member meter total.

d. Are AGDF members currently recovering the costs of contracting for the FSEC study through the Conservation Cost Recovery docket?

AGDF Response:

Yes, these costs were recovered through the conservation cost recovery clause in prior years with the exception of St. Joe.

3. On page 5 of its petition, AGDF states, on behalf of the natural gas Local Distribution Companies (LDCs), that “increasing the direct end-use of gas by consumers can ultimately reduce the quantities of natural gas used in Florida.”

a. Please provide an example to illustrate how increasing direct end-use of natural gas would result in a reduction of the amount used in Florida, using each of the proposed commercial programs.

AGDF Response: The AGDF stands by the notion that increasing the direct use of natural gas will result in a net reduction of natural gas in Florida. Although it may seem that increasing the direct use of natural gas is counter intuitive, it's quite logical when we explore the realities of such a proposition. State specific data on natural gas consumption can be found on the Energy Information Administration's (EIA) website by selecting Florida natural gas end use consumption from a series of drop down boxes, which are referenced in the response to question 3B within this set of data responses.

EIA energy data confirms that in 2011, total natural gas consumption in Florida was 1,218,340 MMcf. Of which, 1,043,786 MMcf was consumed for electric generation, 16,386 MMcf consumed in the Residential Sector, 54,704 MMcf in the Commercial Sector, and 84,899 MMcf in the Industrial Sector. With nearly 85% of the natural gas consumed in Florida consumed during electric generation, it is evident that power generation is the state's largest sector for natural gas consumption. As with all electric generation, we now must explore which energy losses due to generation, transmission and distribution are associated with using natural gas to generate electricity.

Although there are 3 primary natural gas electric generation units (Steam, Centralized, and Combined Cycle), each with varying degrees of combustion efficiency (ranging from 35-65% efficient), we'll assume the highest combustion efficiency that was identified in the DOE National Energy Technology Laboratory study, of 50.2% for a natural gas combined

cycle plant. Additionally, we'll assume an EIA endorsed 7% energy loss due to transmission and distribution. When we account for the electric generation losses (50.2%), as well as the transmission and distribution losses (7%) associated with generating electricity with natural gas we are looking at an end use efficiency of 42.8%.

In contrast, when natural gas is consumed at the end use location it does not experience nearly the energy losses that are experienced when it is used to generate electricity, although there are some energy losses in the transmission and distribution of natural through underground piping infrastructure. These losses can best be calculated by examining the Total Energy Diagram found on page 9 of response 3B. Here, we have to calculate the natural gas energy losses for the commercial sector. This is done by determining how much natural gas contributes to the commercial sector, and then subtract the non-natural gas contributing factors (electricity, renewable and oil). For example, the total energy for the commercial sector is 8.28 Quads (Quadrillion Btus), of which natural gas contribute 4.26, or 51%. Of the 8.28 Total Quads to the Commercial Sector, only 6.63 Quads are delivered in the form of usable energy; whereas 1.63 Quads are considered energy losses. If we assume that 51% of these losses are due to natural gas, then we are left with a natural gas energy loss factor of 19.5%, or an end use efficiency of 80.5%.

Thus, given the choice to use natural gas at an end use efficiency of 80.5%, or to use electricity generated by natural gas at a 42.8% end use efficiency, the direct use of natural gas does in fact contribute to higher efficiencies and an overall less consumption.

b. Please provide all data, detail, and supporting documentation for the statement above.

AGDF Response: The appendix titled *PDF Binder for Back up to Question 3B 8-21-13* contains the data, detail, and supporting documentation for question 3B.

4. On pages 5-6 of its petition AGDF states, "the opportunity to achieve substantive energy savings by increasing the direct use of gas by Florida consumers may, on a relative basis, produce more significant savings in Florida compared to projected savings associated with similar programs based on nationwide usage numbers." Please explain and illustrate the basis for this assertion.

AGDF Response: AGDF believes that the projected savings associated with the proposed commercial conservation programs will exceed that of national usage numbers for the following key reasons.

First, AGDF utilities will be replicating the promotional and outreach approach that is used in marketing the residential energy conservation programs, whereby consist and inform programs from all AGDF utilities allow for collaborative messaging throughout the state.

This collaboration in marketing commercial energy conservation programs, similar to the GetGasFL.com residential collaborative approach, allows for a greater marketing and communication footprint at a lower cost per utility; which in turn leads to higher participation rates from consumers.

Second, climate and population play a large role in dictating energy demand on energy infrastructure in general, and on more specifically on commercial buildings. Given Florida's warm climate relative to other states, Florida's electricity demand (KW) and consumption (KWH) are higher than most states in the U.S. According to the Energy Information Administration, Florida ranks as the 3rd highest electricity consuming state, at 83,458 thousand Megawatt trailing only behind PA & TX. Therefore, energy conservation programs that are designed to decrease electricity consumption have a larger net impact, relative to other states with lower electricity consumption.

- 5. On page 6 of the petition AGDF states, "The conversion of commercial businesses to gas represents a significant opportunity to meet FEECA goals, reduce carbon emissions, and optimize the use of embedded investment in the gas mains to the benefit of ratepayers." Please explain the basis for this assertion.**

AGDF Response: The PSC's Cost Effectiveness Manual for Natural Gas Utility Demand Side Management Programs ("DSM Manual") require that each proposed natural gas energy conservation program pass the G-RIM and Participants Test. By passing these 2 required cost effectiveness tests, the proposed natural gas energy conservation meet both the requirements and the intent of FECCA.

Although it is not required by the DSM Manual, AGDF was proactive in requiring that the Florida Solar Energy Center included emission reductions associated with the proposed program. For each proposed appliance rebate, AGDF has included the results of the G-RIM & Participants Tests, as well as the total avoided Carbon Dioxide Emissions. More detailed information on how emissions reductions were calculated by the FSEC built model can be found in the response to question 13 of this set of interrogatories.

As for optimizing the embedded costs investment in the gas mains, the logic here is straightforward. Embedded costs refer to costs incurred in the past which allow a natural gas utility to deliver energy in the present. The most common embedded cost is the capital cost of transmission and distribution infrastructure. This proposed commercial energy conservation rebate program would encourage commercial customers who currently don't use natural gas but are located on or near gas mains to convert to natural gas. Thus, optimizing the embedded or past cost incurred by the utility by increasing the utilization of that gas main while minimizing additional infrastructure costs.

6. On page 7 of the petition AGDF states, “The displacement of electric appliances with gas appliances and efficiency upgrades to older existing gas appliances reduce both source-based electric generation carbon emissions and site-based gas appliance emissions.” Please explain the basis for this assertion.

AGDF Response: The language referenced in Question 6 was intended to state that the replacement of electric appliances with natural gas appliance, *and* upgrading FROM older gas appliances TO new gas appliances in commercial buildings will reduce emissions in 2 ways. First, when switching from electric to gas, electric generation emissions will be reduced. Second, when an older natural gas appliance is replaced with a newer and more efficient unit, lower appliance-generated emissions will also be achieved.

7. In the footnote on page 8 of the petition AGDF states, “This petition does not seek to amend or modify any of the existing Commercial programs currently being offered by any of AGDF’s members.”

a. How do the proposed commercial programs differ from the existing commercial programs?

AGDF Response: There are several differences between the programs proposed within the AGDF petition and some of the existing Commercial conservation programs currently offered by the utilities, outlined as follows:

First, our proposed program creates rebates that are specific to building types and appliances. This level of specificity, where we analyze the cost/benefits analysis for each appliance specific to a certain building type is something completely new to any existing commercial energy conservation program.

Second, we propose the creation of a uniform Commercial appliance rebate program, similar to how the AGDF utilities offer uniform residential rebate programs. This uniformity allows the AGDF utilities to promote the uniform programs in a clear, concise, and consistent message across the state, which has proven to be very effective when communicating energy conservation programs to builders, facility managers, and customers who operate in multiple locations.

Third, many economies of scale can be achieved through uniform conservation programs. In addition to providing a consistent message to potential end-users, AGDF utilities can also get more value for their advertising dollar buy.

- b. **Do the individual AGDF members intend to maintain their existing commercial programs if the Florida Public Service Commission (Commission) approves AGDF's petition for new commercial programs?**

AGDF Response: The proposed Commercial Conservation Program is not intended to replace the various Commercial Energy Conservation Programs currently offered by some of the AGDF Utilities. Should the proposed Commercial Conservation Programs be approved by the Commission, each AGDF utility will conduct an internal assessment to determine whether or not to keep or replace any preexisting Commercial Conservation Program.

- c. **If so, what internal controls are in place to ensure commercial customers will not receive double rebates?**

AGDF Response: Should any of the AGDF utilities elect to maintain their various preexisting Commercial Conservation Programs in the event that the proposed Commercial Conservation Programs are approved, each utility will be responsible for ensuring that none of its respective customers receives double rebates.

As is the case with administering and documenting Residential Rebates, each AGDF utility will install controls systems to ensure that the issuing of double rebates doesn't occur. Control systems such as creating a Service Order for each administered rebate, altering the meta-data to reflect rebate payment in utility GIS Systems, tracking and reporting rebates in an external rebate tracking database, noting the comment section within Customer Premise, and building in IT report functionality that prevents a customer from receiving a second appliance rebate within a specified period of time; are all practices that are currently used by AGDF Utilities to ensure that the double rebates aren't paid to Residential Customers. Each control option would be an option for each AGDF Utility, based on the utility's preferences and resources, to be utilized for tracking and monitoring the administration of Commercial Rebates as well.

8. **Please provide a bibliography for both the Petition and the FSEC Model, citing any sources, data, and materials utilized in the preparation of the petition and in the building of the FSEC model.**

AGDF Response:

¹ "Reducing Energy Use in Florida Buildings", R. Raustad, M. Basarkar, R. Vieira, FSEC-CR-1763-08.

² "Energy Efficiency Potential of Gas-Fired Water Heating Systems in a Quick Service Restaurant", A. Karas, D. Fisher, FSTC Report 5011.07.19, Food Service Technology Center, October 2009.

³ American Society of Heating, Refrigeration and Air Conditioning Engineers, 2003. ASHRAE Handbook, HVAC Applications, Atlanta, GA.

⁴ Food Service Technology Center, San Ramon, CA, 2008 Fisher-Nickel, Inc. <http://www.fishnick.com/saveenergy/tools/calculators/>

⁵ "Evaluation of the NovelAire Desiccant Unit in Commercial Applications", CDH Energy Corp., Final Report, March 2009.

9. Please refer to Appendix B to the petition, specifically the report from FSEC titled "Developing G-RIM and Participants Tests for Specific Commercial Programs for the Associated Gas Distributors of Florida." On page 1 of the report, FSEC states the model AGDF used to establish commercial programs is based on a worksheet for the utilities' current residential programs.

a. Did AGDF or FSEC look at other states, resources, or studies to find an analysis tool that specifically addresses developing commercial/industrial conservation programs?

AGDF Response: The AGDF did not utilize other state resources that specifically address developing commercial and industrial conservation programs. Given the differences in each state's utility regulatory climate we felt that the most logical strategic plan for submitting and creating a Commercial Conservation Program was to start with the PSC's DSM Manual, referenced above, and build the entire model around the requirements specified within the manual.

b. If so, please provide a bibliography of the sources, materials, and data.

AGDF Response: Not applicable.

c. If not, why was such action not used to provide an apples-to-apples comparison in developing the proposed commercial appliance programs?

AGDF Response: Although benchmarking utility best practices can be a highly effective tool to educate consumers about demand side management programs (which AGDF utilities will conduct upon petition approval) there are 3 primary reasons that benchmarking against utilities outside of Florida may not be wise.

First, Florida rules dictate that a proposed natural gas demand side management program must pass the G-Rate Impact Measure and the Participants Tests, and must be conducted within the cost effectiveness specifications in Forms CB 1-5. Other states may not require utilities to offer demand-side management programs. Even in those that do, the G-Rate Impact Measure and the Participants Tests aren't necessarily the cost effectiveness metrics that programs must adhere to.

Second, Florida's climate presents unique energy demands. With a relatively low heating load and an unusually high cooling load relative to most other states, energy consumption behavior in Florida must be examined exclusively. This uniqueness is also evidenced in Building Codes, particularly in how the Florida Building Commission develops and adopts Florida Building Code, Energy Conservation.

Finally, per Commission rule, the proposed programs must pass the cost effectiveness metrics for each AGDF utility. As such, the AGDF Utilities must provide their own, utility-specific cost and rate data into the cost effectiveness model to determine if each proposed program passes the G-Rate Impact Measure and the Participants Tests. If AGDF were required to utilize rate and cost data from a utility outside of Florida, additional challenges would arise in both acquiring the data and utilizing it in the model in a manner that still ensured the results demonstrated an appropriate cost effectiveness analysis for each AGDF utility. AGDF did not see this as a productive exercise in preparing this petition.

d. Did AGDF or FSEC review the costs, participation rates, etc. of AGDF members' existing commercial programs in modeling its proposed new commercial programs?

AGDF Response: We certainly discussed the limited existing programs that Florida City Gas and Peoples Gas offered, but in the end we felt it was more prudent to utilize residential programs as the basis for projecting cost and participation rates. There were several reasons for why we selected this option.

First, every AGDF utility offered residential rebate programs so we were given a uniform metric that allowed us to quantify the labor and advertising costs associated with each program participant.

Second, although some of the AGDF utilities offered various programs, no such programs were appliance specific; meaning that no programs offered a fixed amount of money for the installation of any specific appliance. Whereas this is the case with the existing residential conservation programs.

In addition, the appliances between the residential conservation programs and the proposed commercial conservation programs are very similar. With the existing conservation residential programs the appliances include water heater (tank and tankless), range, furnace and dryer; and the proposed commercial conservation programs include water heater (tank and tankless), range, fryer, dryer. Although there are subtle differences between residential and commercial appliances, the two types of appliances are close enough to be used as a reference baseline for calculating participation rates and advertising & labor costs per program participant.

In sum, it is the intention of AGDF utilities to market and advertise the commercial conservation program in a very similar manner to how the residential programs are currently being marketed. See the answer to Data Request 7a herein for more information on how the AGDF utilities plan to market this proposed commercial conservation throughout Florida.

11. On page 14 of the petition, AGDF states that advertising and common expenses were determined by establishing a “baseline advertising cost ratio of total advertising dollars to total rebates processed, based on FPUC’s historical residential advertising cost per rebate.” Please explain the basis for utilizing FPUC’s data as a baseline for expected advertising and common costs.

AGDF Response: The AGDF developed a workgroup to delegate tasks, assign responsibilities, and create a communication schedule to inform all utilities as to the status of the effort to develop a commercial energy conservation program.

The workgroup decided to utilize FPUC as the baseline to calculate these costs for each AGDF utility for the two reasons: 1) FPUC had a diverse customer base high concentrations of customers in both South Florida, as well as Central Florida; giving AGDF diverse advertising cost information that covered two regions of Florida; and 2) FPUC had excellent internal accounting itemization of Residential Rebate related cost data. This level of itemization allowed for differentiating between how much advertising and labor dollars were being spent on the various types of residential conservation (i.e. New Construction, Retention, Retrofit).

This itemized cost data allowed us to establish a baseline advertising cost ratio of total advertising dollars to total rebates processed, based on FPUC's historical residential advertising cost per rebate. Data from FPUC's 2010 Schedule CT-2 and 2011 Schedule C-3 were used in this process.

This ratio was then applied to the estimated number of commercial program participants for each LDC to determine the advertising cost portion of the total Energy Conservation Program Costs. This advertising baseline rate was then adjusted to reflect each LDCs total historical advertising expenditures relative to total customers (based on Docket NO. 110004-GU Schedule CT-2).

This approach was deemed the most appropriate course of action to take to derive a methodology that best accounted for the advertising program costs associated with each rebate processed. AGDF notes that this approach was taken to calculate the labor costs as depicted in Appendix C of this petition.

14. Please explain how AGDF or FSEC chose the incentive amounts for each appliance. Please provide all sources and any other assumptions/data used in the modeling of such appliance costs, including any supporting documentation.

AGDF Response: Appendix D to the AGDF Petition consisted of over 2,800 pages of GRIM and Participant Test results. As such, an overview of the results will assist in providing a little context for these results. First, it is worth noting that the rationale for the variability in cost effectiveness results is due largely to the fact that all of the AGDF LDCs have different rate structures, varying O&M and administration costs, and each have different projection rates for each of the proposed energy conservation rebate programs. Given the variability between AGDF utility cost data, the results for each program tended to be consistent among utilities. For example, utilities tended to have very consistently strong GRIM and Participant results scope for technologies such as tankless water heater, and tended to illustrate weak results for pool heaters (which consequently were not included within this petition).

The first 35 pages of Appendix D depict summary results for each of the AGDF LDCs, each building type, and each rebate type. These summary results illustrate that on average, the GRIM and Participant Test scores achieved indicate very strong results, well over the mandated minimum score of 1.0. These strong GRIM and Participant Test results are indicative of the conservative approach taken by AGDF to opt for strong GRIM and Participant Test results and lower than possible rebate dollar amounts, over weaker G and RIM and Participant Test results and higher rebate dollar amounts. Appendix D is structured in manner to provide a summary of each utilities test scores, followed by the individual results for each utility. Within the individual utility results, a summary sheet has been inserted to identify the utility, the building type, the technology being evaluated, and a table expressing the GRIM & Participant Results.