From: David E. Seitz [mailto:david@deseitz.com]
Sent: Friday, June 24, 2011 2:57 PM
To: Daken.Abigail@epamail.epa.gov
Cc: Waterheaters@energystar.gov; Tom L. Harman; 'Ron Kraemer'; 'William F Hines'
Subject: FW: The FPL study on ETWH

Dear Abigail and Craig,

All of us at SEISCO as well as the other manufacturers of electric tankless appreciate more than you know the fact that the EPA is taking a position that leads hopefully to correct the issues related to the DOE's "Energy Star for water Heaters".

It is so very refreshing to know the DRINTL who through 2004-2007 was so very supportive of the SEISCO products which were used in many Path projects including Zero Energy Homes and finally the choice for HUD's "Path Concept Home". I always wondered how SEISCO and its products could go from accolades to disparagement by the DRINTL and DOE in a matter of months.

You recognition not to try and pick winners or losers was so strongly stated during the DOE process as well as the concern that some of these selections and early admissions of products could and did lead to tarnishing the wonderful reputation of "Energy Star"

In an effort to assist you in your consideration for electric tankless I am providing you info that clearly disputes the allegations that the use of electric tankless lead to increased peak diversified system demand. These were the same type of hyper-reaction that occurred in the early 1900's when electric double ovens were introduced and followed with the introduction of residential a/c. The utilities discovered the real benefits of diversity and I was blessed to have Mr. William Menger P.E. who had served with the old Houston Light and Power who taught me many things from what he learned as head of R&D. More recently in 1998, we hired Thomas Harman PhD who in addition to being Chair for Computer engineering at University of Houston and adjunct professor at Rice, had served and still does, on the National Electric Code's Panel 2. Panel 2 is residential feeder and service load requirements. He demonstrated clearly that those making the statements that the electric tankless whole house unit could in MOST cases not be used in homes in the U.S. without upgrading the entire electric service for the home is just false and misleading. A home with 125 amp service can accommodate a suitable whole house unit.

Your direction at this time is POU electric tankless. I serve on ASHRAE committee 118.2 with Harvey Sachs and we have discussed electric tankless ad nauseum. The real problem is that the gas heater manufacturers and in particular the Chinese made gas tankless manufacturers and reps have aggressively misrepresented their products, the real world efficiencies, the maintenance requirements and CERTAINLY the ability of an electric tankless to provide sufficient hot water to take care of the whole house. This led to the exclusion of electric products except electric heat-pump water heaters (again THEN manufactured primarily in China).

That resulted in 43% or more of all the families in the U.S. not having a fair playing field in enjoying the benefits of tax credits offered to the aforementioned products. Finally even today though we all know that these products are overrated, require significantly more maintenance than represented and have a negative payback, the purchasers of these products and the manufacturers benefit from the U.S.. tax credits to support their sales.

We should not at this time in our economy be granting or extending tax credits for any water heaters in my opinion as tax credits are simply reduced revenues that we the taxpayers have to make up. We can wait.

As to trying to make a distinction for POU vs whole house, it cannot truly be done and shouldn't be. If a 25kW works for a whole house and in another application is also required to take care of a master bath with large tub/shower combo as a

point of use heater there is no distinction. Furthermore even trying to make this distinction is a restrictive effort that tends to continue the irregularities of the playing field.

There are so many more benefits in which the electric tankless is most suitable such as our combo hydronic space heating and/domestic hot water unit being used and distributed in Minnesota through Wright Hennepin Electric Coop. Then you have the booster applications which would allow a 14kW to be inexpensively attached to and improve the efficiency and performance of any storage tank water heater including heat pump, in a "Heat Boost" application. This type configuration allows the gas storage tank to be turned down reducing standby loss and yet provides almost any consumer the opportunity for the benefits of endless hot water.

Saying all this I realize that there are many who would continue the senseless argument of demand etc even the largest utilities because they haven't invested time to investigate and evaluate as did Fla. Power the real results of use of the ETWH. These very issues related to the misstatements I have discussed are the subject of litigation in Federal Court in Phoenix. They will be resolved and hopefully put to bed.

In closing I want you both to understand that we stand ready to assist you in any way to get what you want or need to properly pursue your effort. Not included in this letter are the results of 3 years of performance testing with Delmarva Power from 1993-1996 assisted by DuPont and more. So any assistance we can provide please let us know.

God Bless the EPA and Craigs (DRINTL) efforts.

The following discusses the attachments in specifics.

I have attached two sets of documents. First the Florida Power Study to determine whether the RA-28kW would be acceptable for use on their standard configuration of 9 homes connected to a 75kVa transformer.

The same developer that built the Crane Creek project was applying for service for 100 homes all of which would have an RA 28 installed. The documents show that actually there were 11 connections including a mobile home and they indicate 6 RA-28's were installed but forgot to mention there was already 1 home in this group belonging to the developer that had a SEISCO so there were 7 RA-28's

connected to one 75kVa transformer.

The results OF THIS FIRST STUDY were that there was **NO OVERLOADING OF THE TRANSFORMER, NO VOLTAGE DROP, NOR POWER QUALITY (FLICKER) ISSUES** EVEN AFTER THEY LEFT THE METERING ON FOR SEVERAL DAYS BEYOND THEIR INTIAL PLAN.

The **first attachement** sets out Fla. Powers concerns and reasons for the test to avoid the developers having to spend an additional $1,000 per lot for additional service.

The second attachment shows the comments from engineering that NO ABNORMAL CHARACTERISTICS RESULTED FROM THE USE OF THE RA-28'S.

The Third attachment ontains all the comments related to the results including "I wanted to see this last chart from the tx to see if we overloaded the tx at any time, which from the recording we do not. .Thanks Bobby" This is particularly important as the Southern Company's previous testing of several tankless electric raised a concern as to POSSIBLE transformer overload. 7 RA-28's in a perfect young family community on a single 75kVa transformer certainly speaks for itself. John Richardson's original testing (TVA) showed no problems once we changed our control board with the new version eliminating "Flicker".

Next are the Crane Creeks Senior Apartment project. This **ALL ELECTRIC** project contains 127 apartments having 1 and 2 bedroom units. The building contains 138,000 sq.ft. air conditioned space in Melbourne, Fla. The project is monitored by a single commercial meter so that all results for usage and "demand" include the entire building and all common area including the commercial kitchen and dining.

First attachment for Crane Creek shows the Billing an Demand history from **4/2002-4/2008** I was amazed since I developed apartments and very well constructed and insulated condominiums and our electric consumption per sq. ft. were considerably more than this project (SIP Panel construction). Lew Pratz, the DOE's director for the Zero Energy Homes visited subdivision referred to above and saw and I believe was impressed by the construction. Nevertheless the energy consumption and electric demand is provided by

month and is extremely low when ALL of the usage and demand is thrown on the 127 units. **THE HIGHEST TOTAL BUILDING DEMAND ON ANY DAY FOR THIS ENTIRE 6 YEAR PERIOD WAS 126kW or 1kW PER APARTMENT TO TOTAL LOAD.**

Second.attachment for Crane Creek is the same info from **5/2009-5/2011** and you can see very similar results with the **TOTAL BUILDING'S Demand never exceeding 132kW or 1.04 kW per apartment**.

I am trying to get for myself my copy of the same info for **5/08-5/2009**.. I have requested Cliff the original developer to get this period. Never the less here is 7 years of demand and consumption on a all electric project whose 127 apartment each which have an electric tankless water heater and have no flicker and very low demand. (Note in about 2003 the project replaced some of the electric tankless in one bedroom units with electric storage tanks water heaters)

As you can note from both sets of information. No service or transformer overload and a significantly low number for demand and consumption even with all the electric tankless.

I will share with you any additional info I get and the White Paper. There is a good deal of data to support the conclusions of the original "Demand Report" that William Menger, PE and previous head of the R&D department for the old Houston Light and Power.

It is clear that in the overwhelming number of cases, the problems in the field relate to power quality issues and light flicker which draws the attention to the electric utility who in many cases in the past had to put in new oversized transformers to try and eliminate a problem caused by the use of old load switching technology used by most electric tankless manufacturers. Furthermore I was told by a young engineer that in his case the power company didn't have sufficient data to feel comfortable with standard load calculations much the same as Florida Power above.

Instead of throwing away a great deal of money politicking there should be more effort as I have offered to require all of us to be tested under new

standards including IEEE flicker to prove we are not going to create these issues. EPRI needs to be more involved and testing can easily be done in other multifamily or multiple homes as WE HAVE ALREADY DONE AND ARE NOT INCLUDED HERE to demonstrate the simple calculations provided by the NEC for a residential service do in fact work and the power company can rely upon to determine its side of the load.

In closing as you already know, my position has always been that the right ETWH reduces consumption and demand, and is the perfect solution to backup for renewable hot water sources from an energy standpoint. The savings in water by using the ETWH at points of use individually or in clusters definitely adds the final benefit that cannot be ignored by anyone serious about energy savings.

Thanks as always,

Sincerely,

David Seitz