

En Banc Hearing on Alternative Energy, Energy Conservation and Efficiency, and Demand Side Response

Comments of the Joint Supporters

By

Arthur Pearson

The E Cubed Company, LLC

APearson@ECubedLLC.com 212 987 1095

November 19, 2008

CHP/Micro-CHP BENEFITS

- 21 quadrillion BTU's are generated in the US to supply energy to residences, according to the U.S. Energy Information Administration.
- 10.1 quadrillion BTU's, or 47% of that total, ***never*** reaches US residences or provides useful energy. They are lost due to electrical inefficiencies during generation up the stack and during delivery via line losses.

CHP/Micro-CHP BENEFITS

- Compared to separately generating electricity at a central station and thermal energy on site, CHP systems such as microturbines and Micro-CHP reduce the total fuel (natural gas/LPG) required to generate electricity and thermal energy by 25% to 35%.
- CHP/Micro-CHP systems can also provide demand response benefits when properly deployed.

CHP/Micro-CHP BENEFITS

- Using the CHP Emissions Calculator developed by the US DOE, US EPA and the Oak Ridge National Laboratories, for every 1200 kW (1,000 units) of efficient, natural gas powered Micro-CHP, the reduction in Carbon Dioxide emissions in Pennsylvania would be equal to:
 - Removing 726 passenger cars from the road every year
 - or
 - The annual carbon stored by a 906 acre pine and fir forest.

CHP/Micro-CHP BENEFITS

Program Recommendations

- First fuel savings should be established as a critical element in the design of any programs pursuant to Act 129.
- CHP/Micro-CHP should be included in any programs developed for commercial and residential rate-payers.
- Any TRC tests used to evaluate programs need to fully take into account environmental benefits.

CHP/Micro-CHP BENEFITS

Conclusions

- Assuming 10 quadrillion lost BTU's, a 25% fuel saving with CHP/M-CHP and if 20% of residential customers installed a Micro-CHP system, the BTU savings would equal 500 trillion BTU's.
- Such a reduction in BTU demand would:
 - Result in greatly reduced emissions - both direct and indirect
 - Make a significant stride in achieving the goal of energy independence for the country
 - Provide significant economic benefits on both the macro and micro levels
 - Enhance national security