

How Much Fire in the Hole: Commercial Gas EFLH on the Cheap

Poster Author(s): Jeremiah J. Robinson, DNV GL; Ken Agnew, DNV GL; Beth E. Delahaij, National Grid; David Jacobson, Jacobson Energy

Introduction

This poster presents a template for an evaluation approach that could finally produce accurate and affordable EFLH estimates by climate zone for commercial natural gas heating equipment. It does so by combining two competing evaluation forms—billing analysis and engineering calculation—leveraging the strengths of both to produce a better *and cheaper* commercial gas program evaluation.

Discussion

You can have data without information, but you cannot have information without data.

- Daniel Keys Moran

In the world of commercial gas program evaluations, good data—in the form of direct metering—remains both essential and impractical in the search for true information.

Cold-weather utilities nationwide strive and struggle each year to estimate how much and at what output their rebated commercial natural gas heating equipment runs. While direct metering remains the Holy Grail, it also continues to be out of reach due to the complexity and expense of installing gas metering equipment.

The particular challenge faced by these northern programs is the difficulty in finding an accurate and inexpensive method for estimating equivalent full load hours (EFLH). In addition to the impracticality of metering, other challenges include the following:

- Design redundancy and multiple-unit configurations,
- Oversizing,
- The difficulty of isolating single heating systems for billing analysis in buildings with multiple end uses.

Data are just summaries of thousands of stories – tell a few of those stories to help make the data meaningful.

- Chip & Dan Heath

Recently, DNV GL performed a commercial gas program evaluation for a cold climate utility. The evaluation used on-site inspections and engineering judgment to help communicate—and clarify—the stories behind the billing analysis.

In particular, the on-site visits by experienced engineers allowed us to improve the accuracy of two key inputs:

- Operational (i.e. actual, real-world) efficiency
- The percentage of heating load used by the program-rebated equipment.

We gathered this information in a number of innovative ways including in-depth interviews with staff while standing in front of the equipment, as well as some non-invasive testing and educated observation.

We then paired this on-site data collection effort with results from site-level billing analysis in such a way as to rely on each source only to the extent that it's reliable. Combining the two allowed us to produce accurate estimates of both savings and EFLH.

Performed with one utility and a small sample, this effort represents a template for an evaluation approach which—over time and with several improvements suggested by this study—could produce increasingly accurate and affordable EFLH estimates by climate zone for commercial natural gas heating equipment.