Paint by Numbers: A Decision-Framework for Determining Net Savings Approach

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As energy efficiency (EE) programs continue to increase in importance, measuring the savings directly attributable to those programs has come under increased scrutiny from program administrators, policy makers and key stakeholders.
But it is difficult to measure the unknown — specifically to determine what would have happened in the absence of a program. These effects, known collectively as net savings, include free ridership or attribution, spillover, and market effects. These are critical metrics that can define a program's overall success in reaching a specific energy savings goal.

While there are established best practices in the energy efficiency industry for determining net savings, there is hardly consensus on this issue. Rather, measuring the net savings may be approached from several perspectives based on a number of critical variables. The choice of what method or combination of methods and approaches should consider a variety of key issues.

Although there are a variety of methods used to calculate net savings, these techniques can be compared across the analytical spectrum. One end of this spectrum focuses on the degree to which the technique relies on objective data compared to the other end which focuses on the degree to which expert judgment or experience determines the outcome.

As a way to illustrate the ways in which these methodological approaches are used to estimate net savings, these recommendations have been synthesized from the strategies described in the major white papers on this topic (i.e., NMR et al., 2011; Tetra Tech et al., 2011, and Violette & Rathbun 2014) and summarized in the accompanying poster.
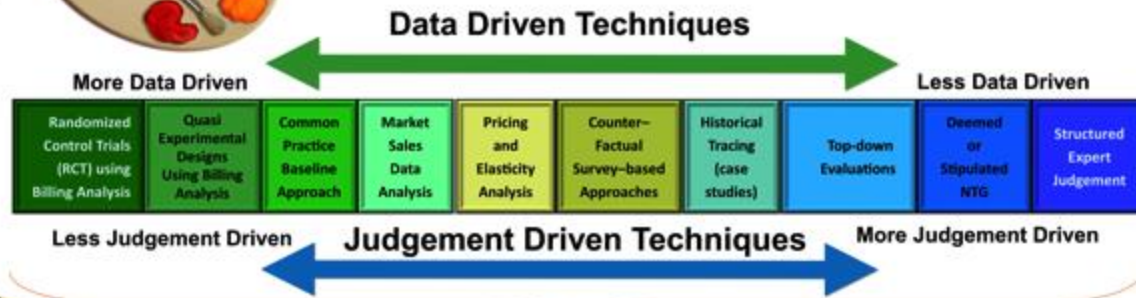
This poster presents complex materials in an easy-to-understand and approachable format. It also provides real world examples of how different methodological approaches can be used to develop realistic, defensible, and meaningful net savings estimates across a variety of program designs, using a variety of research tools.

Key Issues to Consider Before Beginning Net Savings Study

* Information Use
* Program Maturity
* Data Collection Timing
* Frequency of Net Savings Estimation
* Triangulation of NTG Approaches

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Data Driven Techniques

More Data Driven — Less Data Driven

| Randomized Control Trials (RCT) using Billing Analysis | Quasi Experimental Designs Using Billing Analysis | Common Practice Baseline Approach | Market Sales Data Analysis | Pricing and Elasticity Analysis | Counter-Factual Survey-based Approaches | Historical Tracing (case studies) | Top-down Evaluations | Deemed or Stipulated NTG | Structured Expert Judgement |

Less Judgement Driven — Judgement Driven Techniques — More Judgement Driven

Example of Net Savings Method

Net Savings Approach for Upstream Residential Lighting