Executive Summary

Energy Efficiency Data Access Project: Final Report

Alex Katzman (Enervee Corporation), Michael McNeil and Brian Gerke (Lawrence Berkeley National Laboratory)

"How does the efficiency of products available here compare to those available in other countries? What impacts have the MEPS that took effect last year had on the efficiency or price of available products? Do the products being sold here where we have no S&L program meet the MEPS there?" In the S&L community, these are common questions, but they are difficult to answer. Why? Because the necessary data are spread across disparate sources and exist in many different formats, making it difficult to conduct comprehensive analyses across multiple markets or timeframes. The SEAD Data Access Project was designed to address this problem.

Project Objective

This report establishes a global data framework and data standard for appliances. Widespread adoption of this data framework would enable decision makers to monitor markets in real time by connecting pricing, sales, and efficiency trends and facilitate international data sharing via a common data

standard. The bottom line: better informed policy decisions.

Project Methodology

The team used an iterative approach to gather input from energy efficiency practitioners and incorporate their input into the final product. Stakeholders in Australia, Canada, South Korea, Sweden, the United Kingdom, and the United States identified four high-priority use cases:

1. Access other countries' certifications and ratings for monitoring, verification, and policy design;
2. Connect sales and efficiency trends;
3. Compare product rating methods across countries; and
4. Enable the development of consumer mobile apps and online comparison tools.

The team analyzed various sources of product data, including government certification databases (e.g., Australia's Energy Rating product lists and the U.S. DOE's Certification Database) and online retailers' websites (e.g.,

Amazon.com and BestBuy.com). The team then developed a prototype framework and data standard to meet user requirements and built a prototype database containing data for two products in three markets: TVs and room air conditioners in the United States, Australia, and South Korea. The team created a web portal through users could compare individual models within a market and view charts showing the results of certain cross-market analyses.

The team then used the web portal to demonstrate the tool's functionality to the stakeholder group and obtain feedback. The framework and global data standard were revised in response to this feedback.

> "This could be a very powerful tool both for consumers and—even more so—for policy makers. The possibility of getting fresh data on price, efficiency, and sales volumes allows both for more dynamic MEPS setting as well as evaluation of the same [MEPS] over time." —SEAD Participant

Final Data Framework and Standard

The data framework is the system for capturing, updating, and maintaining data on individual product models, while the data standard is the definition of what fields are required for each product category, how they should be named, and what are acceptable values for each.

The data framework was designed to capture and compare energy efficiency product data for the many types of consumer appliances that are sold around the world. It can be used for a single market or multiple markets.

The framework is designed to receive product data from online retailers and certification organizations, apply automated procedures to normalize and vet the data, and output the data to a web/mobile interface or static file such as an Excel spreadsheet. The framework is composed of five conceptual modules linked together by an intelligent application layer, as shown in the schematic diagram.

The data standard defines a universal set of attributes that are gathered irrespective of the product category, including unique product identifiers, brand/manufacturer, price, energy performance, certification, and marketing-related data. The report also contains proposed definitions for the TV and room air conditioner categories.

The full report describes the data framework and standard in detail and contains practical guidance for promoting their adoption and enhancing their long-term usefulness, including sections on:

- How to build a database with an intelligent application layer that conforms to the standard;
- How to handle market-specific customizations;
- How to populate the database from existing sources; and
- Recommendations for certification database design and management.

Lastly, the report identifies potential follow-on projects that would leverage and enhance the value of SEAD's investment in creating the framework and data standard, including:

- Developing the ability to estimate market share from Internet retail data;
- Using data from comparable models in different markets to derive formulas for converting between different test procedures' outputs; and

The SEAD Energy Efficiency Data Access Framework is composed of five conceptual modules linked together by an intelligent application layer.

- Creating a product database for a market that lacks one by pulling from the certification databases in markets where the same products are sold.

This Report was published on behalf of the SEAD Initiative in October 2013.