

Planting SEEDs Implementation of a Common Platform for Building Performance Disclosure Program Data Management

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> ACEEE Summer Study August 19, 2014

Building Performance Disclosure Regulations: 12.1B SF



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Rapid increase in data about building performance



Benchmarking Results

Contact Information

Retrocommissioning



Energy Efficiency & Renewable Energy

Audit Data

But Usability Is Lacking.

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SEED is designed to help!

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The Standard Energy Efficiency Data Platform

SEED is primarily designed to help State and local governments implement building performance reporting regulations for private and/or public buildings

In the future it could be used by large portfolio owners, energy efficiency programs, and energy efficiency service providers.



San Francisco



New York City



Washington D.C.



Austin



Philadelphia



Seattle



SEED enables users to *import data from multiple sources* about the same group of buildings, and *conduct analysis and reporting* of the information.

The SEED platform is a blank database; each user has their own private copy.

The SEED platform utilizes a standard data format (BEDES).

The owner of each SEED instance can choose which external parties can access their information, and what records and fields to share.

An application programming interface (API) will enable third-parties to access the data, and offer add-on tools and services, in a replicable way.



SEED V1 workflow





SEED Workflow in Action



Value of SEED

A free, open-source, web-enabled software application that helps organizations easily aggregate, clean, track, and share data on the energy performance of large groups of buildings.

- Reduces upfront cost of storing and managing data in a private, secure way
- Standard, vendor neutral, objective
- Addresses workflow management and relieves administrative burden
- Data cleansing process increases data quality and saves staff time
- Common format facilitates sharing and collaboration
- Enables development of third-party applications

But these tactical values serve a bigger goal for the market – to make data and systems interoperable



Pilot Users: Matching Portfolio Manager Data

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Display: 10 v buildings

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Showing 1 to 10 of 516 buildings (6 unmatched)



Pilot Users: Drawing from Multiple Data Sources

- Portfolio Manager (annual downloads)
- Audit data
- Participation in utility programs

Benchmarking

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Contact Information

2013 Project

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Portfolio Manager Account Holder				
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12/31/2014

12/31/2013

Compliant 🗸

Pilot Users: Improving Data Accuracy

- View data from multiple sources
- Minimize rekeying

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Building Count							
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Pilot Users: Interagency Coordination

Three Types of Users

Owner

- Add new members
- Load/Delete data
- View Data

Member

- Load/Delete data
- View Data

Viewer

View Data





Pilot Users: Compliance Activities

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Display: 10 🛊 buildings

Pilot Users: Driving Action

SEATTLE OFFICE BUILDING SEATTLE HB OPEN PROJECTS COMMUNITY START A PROJECT How It Works List Your Business Log In BENCHMARKING HOME . BUILDINGS . NY . NEW YORK . OFFICE . 10 HUDSON SQUARE Feedback CE PROFILE BUILDING Seattle High Energy User 10 Hudson Square > PROJECTS 2 O CONNECTIONS t Connect 160-170 VARICK ST 🗰 ORGANIZATIONS 2 📥 STARS Address: 99999 100th St. New York, NY 10013 US CO VEWS 1819 Pinit 🖸 🚺 Year Built: 1974 Gross Floor Area: 91,000 Office Seattle Building ID: 99999 YEAR CONSTRUCTED: 1983 FLOOR COUNT -FLOOR AREA: 301,968 ft2 HEIGHT -**Compare Your Building to Others in Seattle** Solution Providers Your building's annual energy use per square foot or Energy Use Intensity **CodeGreen Solutions** (EUI) can be compared to the other 400 Seattle office buildings that G New York City, N SUSTAINABILITY CODEGREEN reported 2012 energy performance as required by law. Have you done work on this ÷ case your organizatio Your building's 2012 EUI 91 kBtu/sf Tags Energystar 9 41 AM 100% LOWEST USE MEDIUM-HIGH HIGHEST USE 42 or less 61-80 81 or more 43-60 One Franklin Square 1301 K Street NW Full report and other building type comparisons at www.seattle.gov/energybenchmarking. Washington, DC 20005 EUI = Total Annual Energy Use (kBtu) + Total Square Feet Af) SCORE 90 energy GBIG SEARCH P BUILDINGS PLACES INSIGHTS COLLECTIONS LOG IN Home + Places + United States + District of Columbia Floor Area: 00 643,325 sq. ft. 1301 K St NW Compare Your Building to Others in the U.S. Site EUI: 51 kBtu/sqft Overview Strategies Collections (21) If available, your building's ENERGY STAR® score shows how its energy Source EUI: use compares to other U.S. buildings on a scale of 1 deast efficient) to LOCATION & NEARBY GBIG BUILDINGS 167 kBtu/sqft colin 100 (most efficient). Buildings scoring 75 or more may be eligible to earn 1301 K St NM **GHG Emissions:** ENERGY STAR certification. Unlike EUI, the ENERGY STAR score takes Since 2000 4648 MtCO_e into account the number of workers, operating hours, computers and Water Use: other factors. Learn more at www.energystar.gov. 8003 kGal Type: Office BUILDING PERFORMANC Your Building's ENERGY STAR Score: 37 Owner: OCATION Seattle Median ENERGY STAR Score for Offices: 75 Hines 83 - Very Walkable Year Built: ACTIVITY TIMELINE GO - Good Transit 1990 A higher ENERGY STAR score indicates a more efficie ESRI Zip Code demographics Source: District Departm ent of the En **One Franklin Square - Energy Star** The information in this report is self-reported and subject to verification. The City is sending this report to the bailding own or and the person that rep Certified 2013 Settings Identify Compare Collections One Franklin Square - Energy Star Certified 2012 www.seattle.gov/EnergyBenchmarking Energy Star Office 04/16/2013 Energy Star Office

One Franklin Square - Energy Star Certified 2011

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Why Open Source?

- SEED was developed to support cities and others collecting whole-building energy data in using a consistent and interoperable data platform
- SEED is being developed as open source software to encourage market development of products that are flexible and meet different users' needs, providing a range of options
- "Open source" means that anyone can contribute to the open source code base and create add-on proprietary extensions. This enables the growth of a market of providers that can offer hosting and add-on functionalities that can be utilized by all SEED users
- All products that use the same code base, using the SEED brand, will remain interoperable



Quality Control Principles

- The SEED code base and brand will be closely managed to ensure high quality and interoperable software that meets the public interest
- The github site <u>https://github.com/SEED-platform</u> will be the only official version of SEED (code will be posted this month!)
- Interested parties are encouraged to contribute modifications and enhancements to the open source code base.
- Use of the SEED name will be managed as follows:
 - Products that open source core code as is, or add proprietary extensions using the API, can use the SEED name in their product.
 - Derivative works and customizations that modify the SEED code base (and do not contribute those modifications back to the project) are also encouraged, but the resulting products must say they are "based on SEED"



Management Plan

- The transition of SEED to management outside of DOE is intended to ensure the long-term viability of the project and use by the market
- DOE plans to support the creation of an Open Source Community 501c3 in the upcoming year
- This entity will provide ongoing maintenance to the code base, update it to remain compatible with key public tools, curate contributions from developers, and identify and oversee development of other new features identified by the SEED community, support users, conduct outreach, etc.
- We invite your participation as we design and form the 501c3
- DOE will continue to support SEED, and Lawrence Berkeley National Laboratory (LBNL) will provide oversight of the code, while the permanent management plan is established





Related Summer Study Presentations:

Enabling Interoperability Through a Common Language for Building Performance Data – Panel 6, Thurs at 8.30a

Getting Real With Energy Data – Using the BPD to Support Data-Driven Analyses and Decision Making – Panel 11, Fri at 8.30a Buildings.energy.gov/SEED SEEDPlatform@ee.doe.gov

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