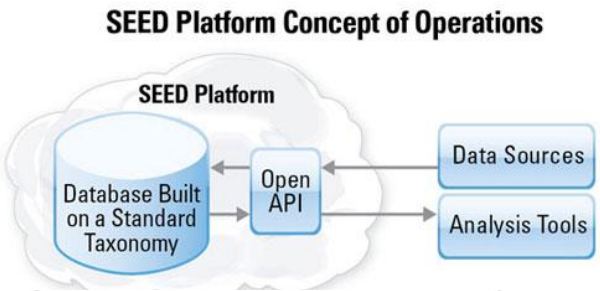
SEED PLATFORM BETA
Standard Energy Efficiency Data Platform



SEED: The Standard Energy Efficiency Database Platform

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Purpose & Objectives

Problem Statement: Data invisibility is a fundamental barrier in building end-use markets. Measuring and recognizing efficiency in U.S. buildings requires standardizing our energy data infrastructure via software conventions.

Impact of Project: SEED is intended to provide public agencies and other organizations a free and open-source data platform for warehousing, reporting, and analyzing building energy data at scale.

- Benchmarking data on 35,000 buildings shows ~3% EE effect

Project Focus: SEED is an element of DOE's effort to help develop a standardized U.S. energy data infrastructure, so that markets can function better through consistent means of measuring and recognizing energy efficiency in buildings.

SEED's Role in BTO MYPP Goals

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- SEED supports Goal 3c): Increase transparency of energy use by allowing comparisons of energy efficiency between buildings to encourage owner/occupier action and drive demand
- "P" indicates primary responsibility

3. Existing Commercial Buildings Strategies to Deliver Goals	Residential	Commercial	Emerging Technologies	Standards	Building Codes	Overarching Goal Contribution
a) Deploy highly energy efficient end-use and building envelope technologies and processes and accelerate adoption of new construction techniques		P	S		S	Deliver 800 TBtus in annual savings by 2020, and 3,000 TBtus in annual savings by 2030.
b) Facilitate the integration of advanced technologies and solutions into existing (and new) buildings		P	S		S	
c) Increase transparency of energy use by allowing comparisons of energy efficiency between buildings to encourage owner/occupier action and drive demand		P			S	

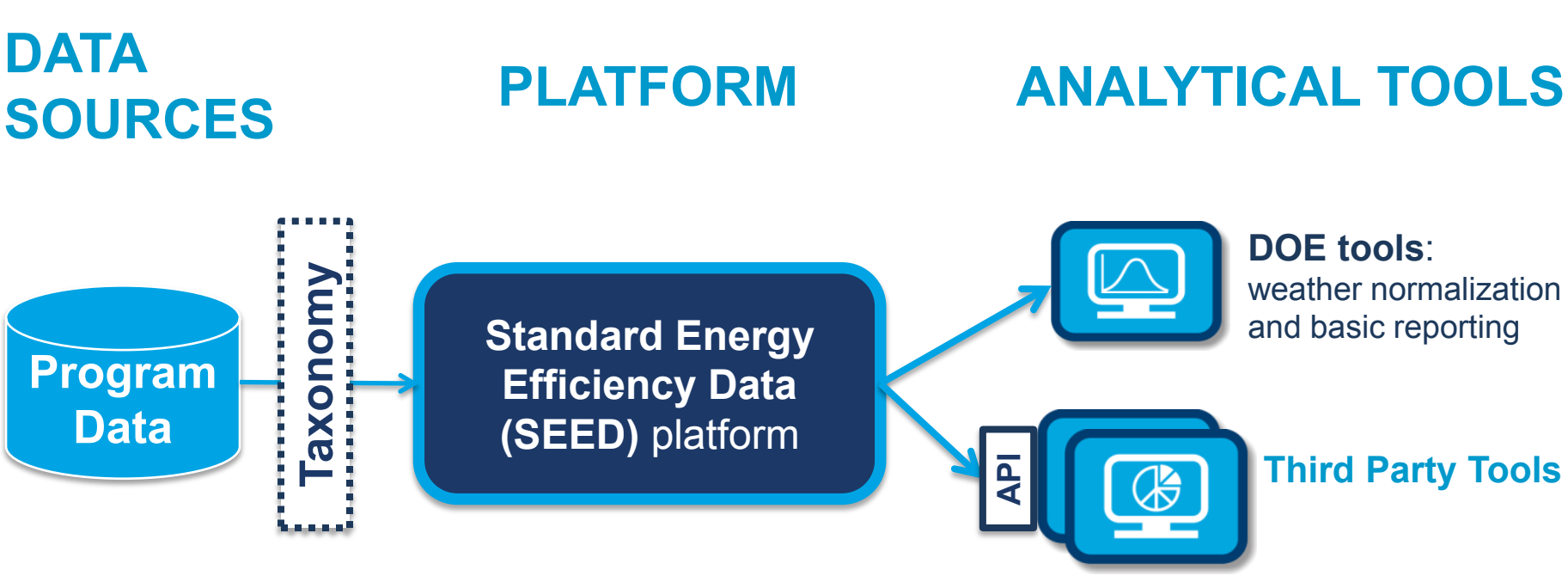
Approach

- Identify constituent needs in managing high volumes of data from state/local benchmarking and other buildings energy efficiency policies and programs
- Define an approach consistent with the EERE Energy Data Initiative
- Compile user requirements in detail through close consultation with leader jurisdictions
- Develop SEED software in Agile sprint methodology, including Beta version, V. 1.0, and V. 1.1
- Support users in working through installation issues
- Help transfer SEED to a non-DOE governance structure

The SEED Platform: Basic Features

- SEED is built on a blank database structure for which users create their own “instance” of the platform.
- Users import building-level data from multiple sources and use SEED to conduct various forms of analysis and reporting of the information.
- Users decide how external parties can access SEED—who can gain access, and what fields are to be public..
- SEED includes an Applications Programming Interface that enables third parties to develop supplemental tools that can serve a range of user and other constituent needs.

SEED Simplified Schematic



SEED's Relation to the BPD

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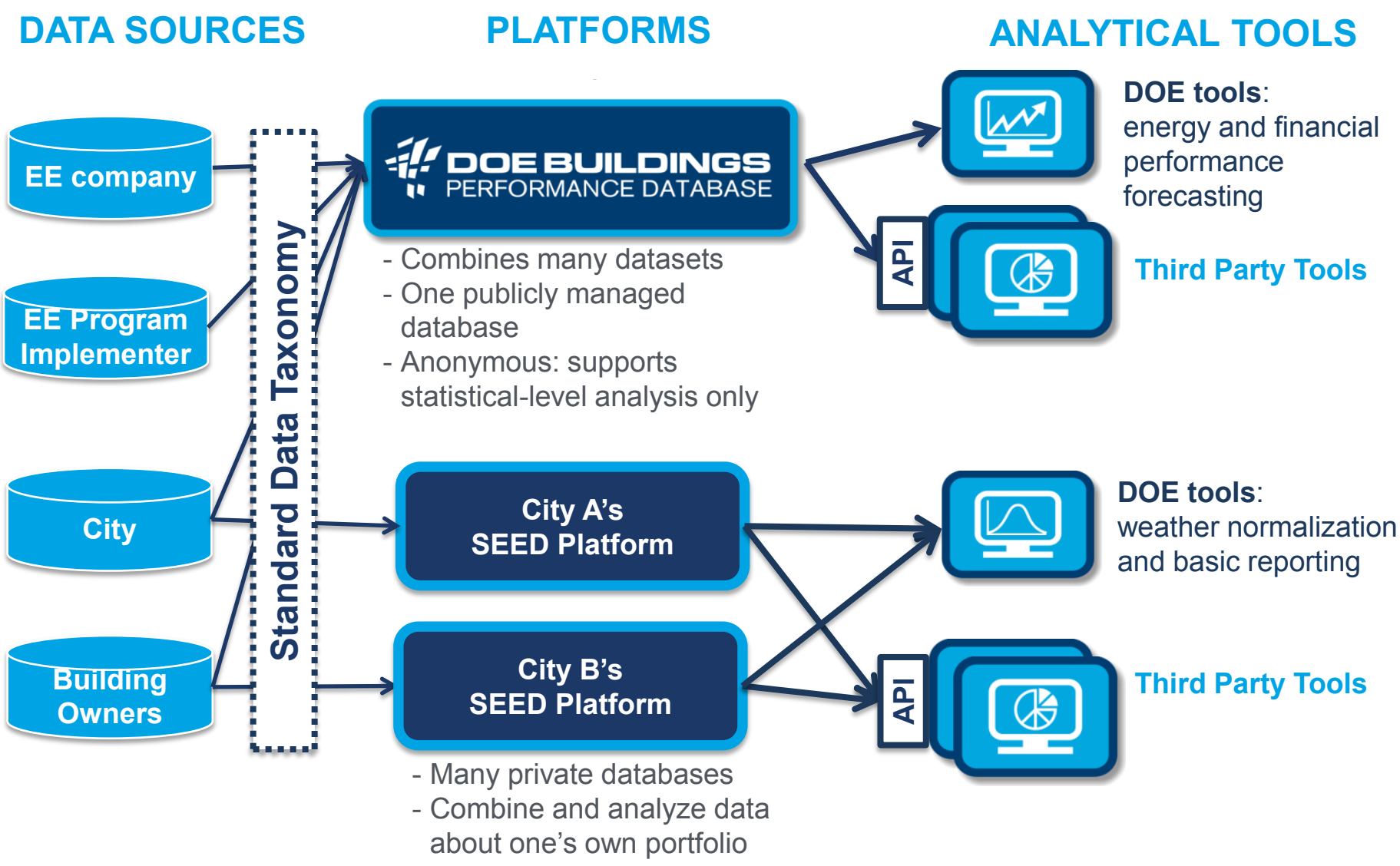

Who benefits from SEED?

SEED makes it easier for decision-makers to store, analyze, and share data.

Platform Function	Potential User Groups			
	Governments w/ Disclosure laws	Building owners and managers	EE Program Administrators	EE Software Developers
Track Compliance	✓			
Combine and store datasets at low cost	✓	✓	✓	
Easily share data	✓	✓	✓	
Analyze data	✓	✓	✓	✓
Develop innovative tools that can be widely used				✓

Key Issues

- Meeting user needs for security and privacy while serving national goals
  - Creating an Open Source licensing structure
  - Ensuring interoperability with the Building Energy Taxonomy
  - Allowing third-party via plugins and an API
- Capturing user requirements across a range of program needs and IT environments
  - Cloud hosting vs. agency in-house
  - Understanding data issues across a range of policy/program goals
- Managing user variance in data quality and compatibility
  - Providing for Extract/Transfer/Load functionality for input files
  - Matching and cleaning data from multiple sources

Distinctive Characteristics

- The SEED tool is unique in that it is designed to support program and policy operations, not only analytics and research purposes.
- SEED is being developed in close collaboration with specific, major users in state and local government
  - This may help avoid/minimize competing platforms/industry fragmentation
- SEED is scalable in three respects:
  - in terms of total buildings and data fields it can manage data for,
  - in supporting multiple policy/program purposes, and
  - in supporting unlimited third-party plugins or “apps”
- SEED is intended for ultimate “ownership” by the user community

Accomplishments and Progress

Accomplishments:

- Previous performer demonstrated basic functionalities (2012)
- Released Beta 3 version (Dec. 2012)
- Completed compilation of user requirements (Jan. 2013)
- Redefined scope of versions 1.0 and 1.1 (Mar. 2013)

Progress on Goals:

- Several major users engaged
- Open Source approach implemented
- API and plugin functions implemented, and plugin developers engaged
- Beta 3 feedback key to completing user needs process

SEED Pilot Users

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Beta users are governments with disclosure laws; future users could include building portfolio owners, energy efficiency program managers, and energy efficiency service providers.

San Francisco

Seattle

Austin

Washington D.C.

New York City

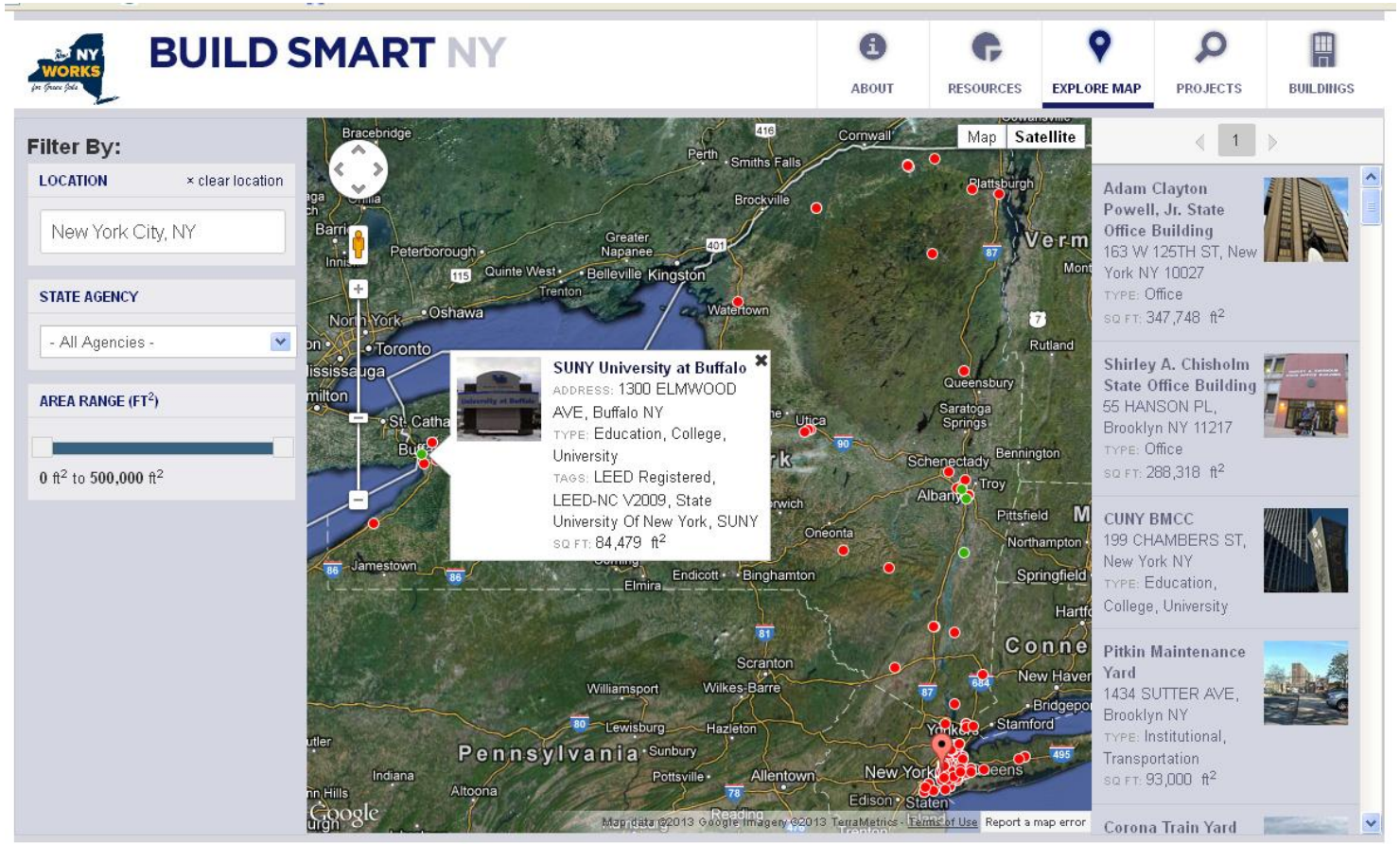
Philadelphia

DOE BUILDINGS PERFORMANCE DATABASE
FUELING INVESTMENT IN ENERGY EFFICIENCY

1. Andre Gunther Photography. http://www.aguntherphotography.com/california/san_francisco/parks/downtown-skylines/downtown.html
2. Christopher Reiger. *Hungry Hyaena*. http://hungryhyaena.blogspot.com/2008_04_01_archive.html
3. *Put Up Your Dukes.* http://putupyourdukes.files.wordpress.com/2008/08/austin_tx_downtown.jpg
4. *Best Travel Wallpapers.* http://www.travelskyline.net/flying_high_washington_dc-wallpapers.html
5. Patrick Theiner. *Creative Commons*. http://famouswonders.com/new-york-skyscrapers-and-its-marvelous-skyline/
6. http://www.listofimages.com/wp-content/uploads/2011/11/philadelphia-skyline.jpg

SEED Application Programming Interface

- The SEED API enables users to share select parts of their data with third party software.



Honest Buildings' Platform for NY State

Project Plan & Schedule

- Project initiation (ICF contract) date: Oct. 2012
- Project planned completion date:
  - Version 1.0 summer 2013
  - Version 1.1 Fall 2013
  - Transition to user community 2014 and beyond
- Explanation for changes in schedule
  - Project initiated in response to urgent user demand
    - DOE began work using available contract support
    - Initial contract support terminated
  - ICF engaged to apply broader domain expertise
    - Lag in contracting process delayed ICF start date
  - ICF uncovered software issues as well as fuller articulation of user needs
    - User needs and software issues drove expansion of scope and extension of schedule

Project Budget

Current Budget: $262,000

Variances: Proposed budget: $625,000

- Variance: $363,000
- Variance driven by scope expansion
- Scope expansion driven primarily by user requirements

Cost to Date:

- Current budget has been expended as of March 2013

Additional Funding:

- DOE solely funding SEED development
- Jurisdictions will carry the bulk of implementation costs
- SEED business plan will define future funding

Project Integration, Collaboration & Market Impact

Partners, Subcontractors, and Collaborators:

- Pilot users include New York City, Philadelphia, District of Columbia, Austin, San Francisco, Seattle
- LBNL lead on taxonomy
- Booz Allen original contractor
- University of Pennsylvania active in plugin development

Technology Transfer, Deployment, Market Impact:

- Standard, free, open source platform design allows any organization to implement SEED at modest cost
- API/plugin features enable third parties to extract data, build applications, use data for various market purposes

Communications: SEED communications focus mainly on user community, also leverages SEE Action Network and other DOE channels.

Next Steps and Future Plans

- Complete SEED business plan for ultimate user community ownership by June 2013
- Complete SEED licensing arrangements by spring 2013
- Work with plugin developers to test API functionality as part of v.1.0 development
- Develop v.1.0 in sprints by summer 2013
- Support users in implementing v.1.0
- Complete v.1.1 in sprints by fall 2013
- Support transition to user community ownership