Commercial Building Energy Asset Scoring Tool Application Programming Interface
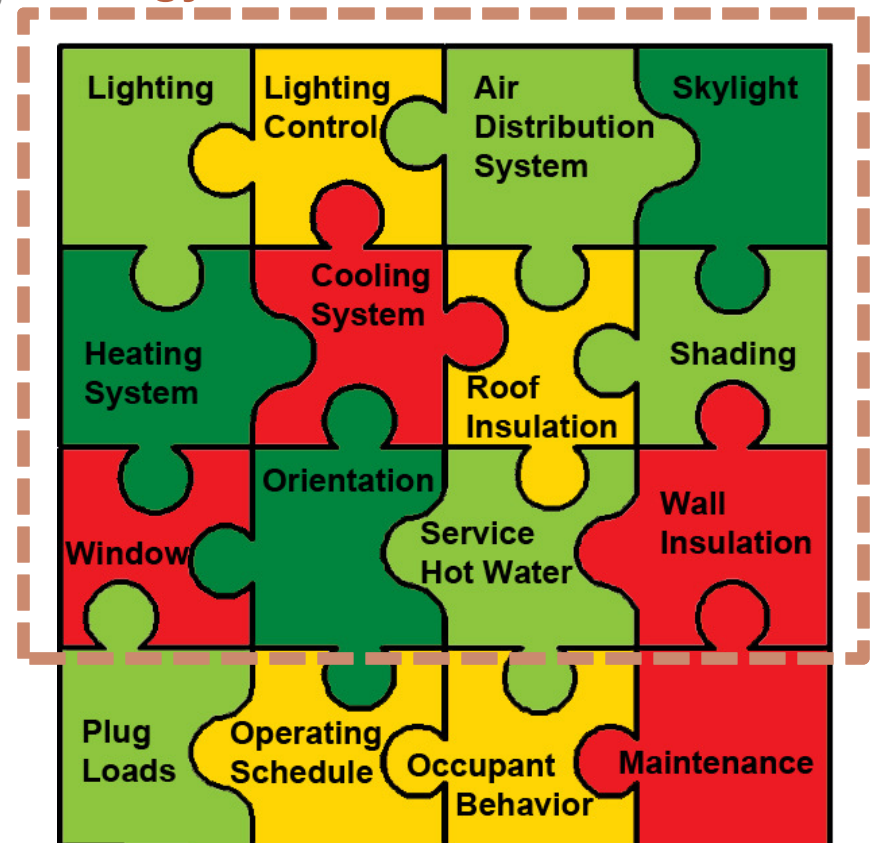
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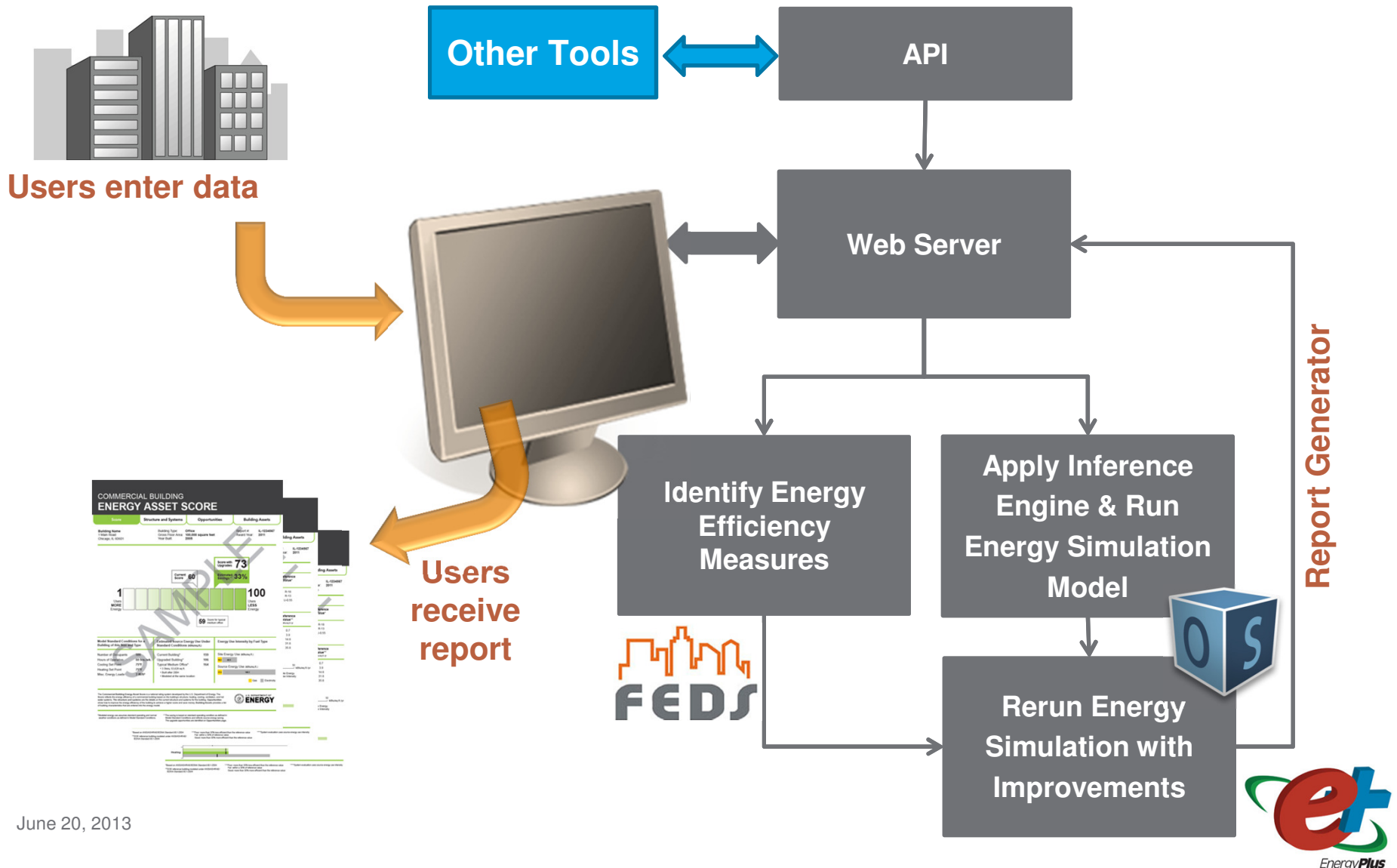JUNE 14, 2013

Commercial Building Energy Asset Score

▶ Energy asset score evaluates the as-built physical characteristics of a building and its overall energy efficiency, independent of occupancy and operational choices.

▶ The physical characteristics include

  ■ Building envelope (window, wall, roof)

  ■ HVAC systems (heating, cooling, air distribution)

  ■ Lighting system (luminaire and lighting control systems)

  ■ Service hot water system

  ■ Other major energy-using equipment (e.g. commercial refrigerator, commercial kitchen appliances, etc.)
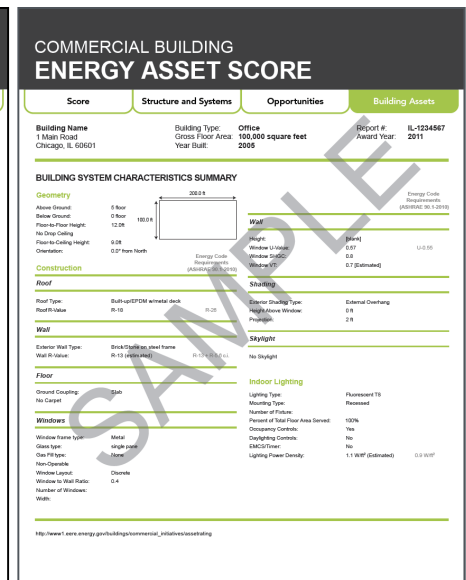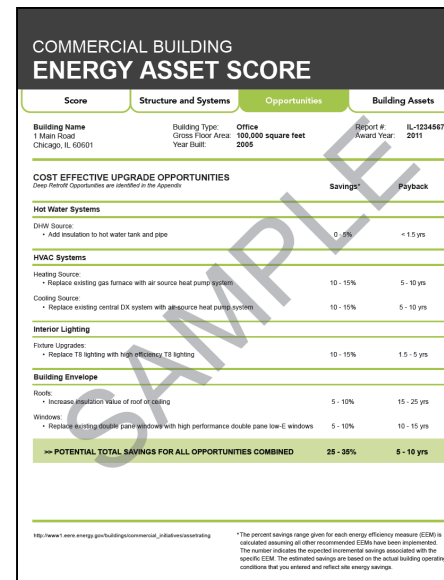
Energy Asset Score

Building energy use is affected by many factors.

Asset Scoring Tool

Users enter data

Other Tools

API

Web Server

Users receive report

Identify Energy Efficiency Measures

Apply Inference Engine & Run Energy Simulation Model

Rerun Energy Simulation with Improvements

Report Generator

FEDS

EnergyPlus

June 20, 2013

Asset Score Report

Pacific Northwest
NATIONAL LABORATORY

Proudly Operated by Battelle Since 1965

▶ Report (four sections)

■ Score

■ Structure and Systems

■ Opportunities

■ Building Assets
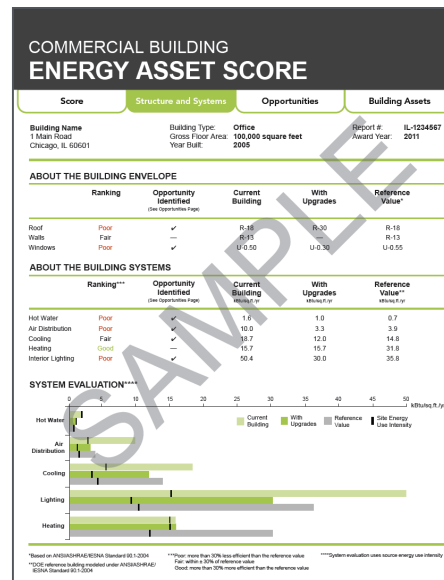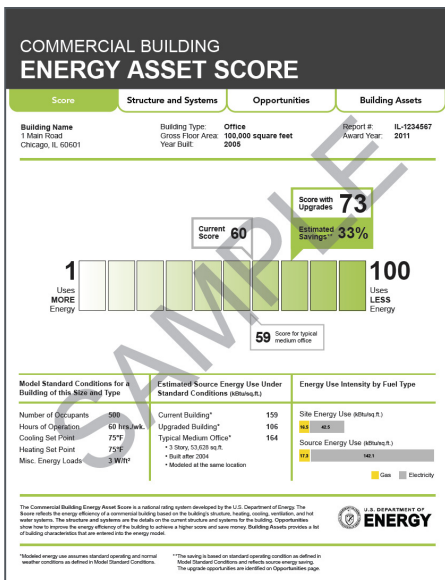
Project Schedule

- API Development Plan, Nov 2012 – Jan 2013
- Asset Scoring Tool Update based on pilot #1 feedback and user research, Oct 2012 – Jun 2013
- API Development, Feb 2013 – Jun 2013
- Pilot 2, Jun – Sep 2013
- API testing, July – Sep 2013

What is New?

▶ Two-stage data entry process

  ■ Build your building component inventories

  ■ Build your building geometry and assign component properties

▶ Refined data collection form based on sensitivity analysis

▶ Updated building system evaluation method

▶ Updated scoring method (not finalized yet)

NEW Asset Scoring Tool Demo

Objects

API Framework
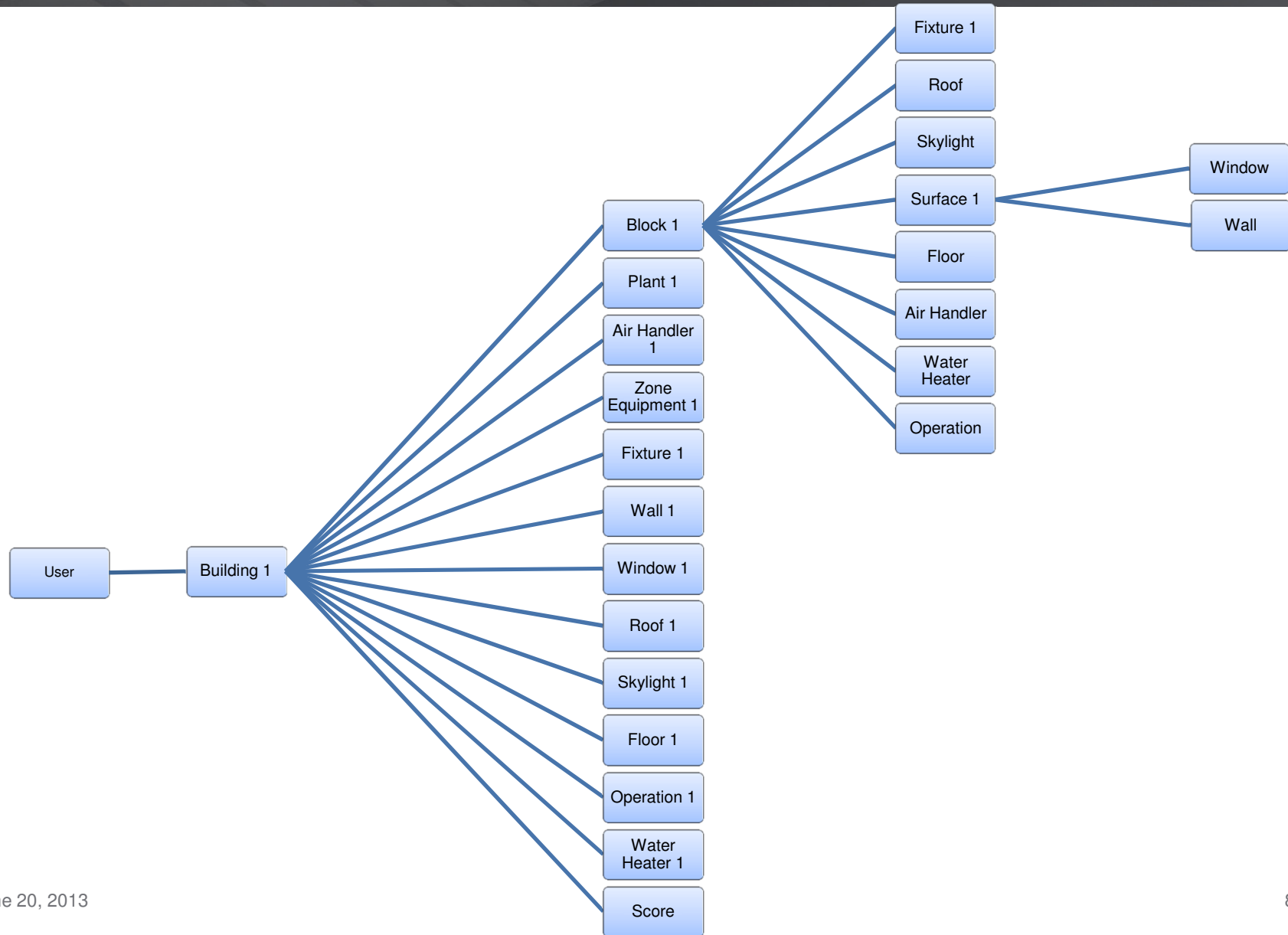
▶ RESTful

 ■ http://en.wikipedia.org/wiki/Representational_state_transfer

 ■ URL base – https://assetscoreapi.pnnl.gov/api/v1

 ■ HTTP Methods (e.g., GET, PUT, POST, or DELETE)

 ■ Supports JSON and XML

▶ Versioned

▶ Resources

 ■ Users

 ● https://assetscoreapi.pnnl.gov/api/v1/users

 ■ Buildings

 ● https://assetscoreapi.pnnl.gov/api/v1/buildings

▶ Documentation

 ■ https://assetscoreapi.pnnl.gov/docs

► Token-based

► SSL required

► Generate token through authenticate service

■ POST to https://assetscoreapi.pnnl.gov/api/v1/users/authenticate

■ Can pass email and password via JSON, XML or URL parameters

● JSON Example:
{"username": "someone@somewhere.com",

  "password": "test"

}

● Response will contain token:
{"token":"xzysuLdC2hiJfRGgMkAv"}

► All REST resources require the token

■ https://assetscoreapi.pnnl.gov/api/v1/buildings/1?token=yadfav34x623

► Token does not expire

■ Each call to "authenticate" will generate a new token

API Testing

▶ Dedicated server for API testing

   ■ https://assetscoreapi.pnnl.gov

▶ Completely independent from pilot server

   ■ Separate instance of code

   ■ Separate database

▶ Data generated against API testing server will NOT be migrated

   ■ For testing purposes only

Questions?

Energy Asset Score website
http://www1.eere.energy.gov/buildings/commercial/assetscore.html

Energy Asset Scoring Tool
buildingenergyscore.energy.gov/

API Test Server
assetscoreapi.pnnl.gov

Please email us at asset.score@ee.doe.gov for more information.
Please email us at asset.score@pnnl.gov for technical support.