

DOE Zero Energy Ready Home

Tech Training Webinar Series

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy



Building Energy Optimization Tool (BEopt)



The Home of the Future....Today

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy



A Symbol of Excellence

HEALTHFUL ENVIRONMENT

COMFORT PLUS

ADVANCED TECHNOLOGY

ULTRA EFFICIENT

QUALITY BUILT

DURABILITY

KEY ■ DOE Zero Energy ReadyHome
■ ENERGY STAR Certified Home
■ Existing Home

This label indicates relative performance of this DOE Zero Energy Ready Home to existing homes (built between 1990 and 2010) and ENERGY STAR Certified Homes. Actual performance may vary.



Website

- www.buildings.energy.gov/zero/
- Events:
 - Upcoming in-person ZERH Trainings
 - Technical Training webinars
 - Conference Presentations
- Partner Locator
- Program Specifications
- Webinar Recordings



Building America Solution Center

- <http://basc.pnnl.gov/>

Thank You



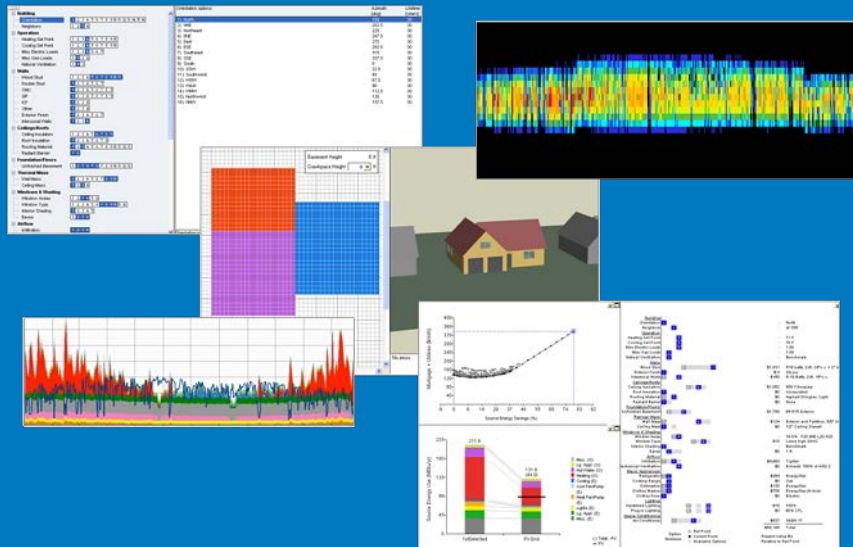
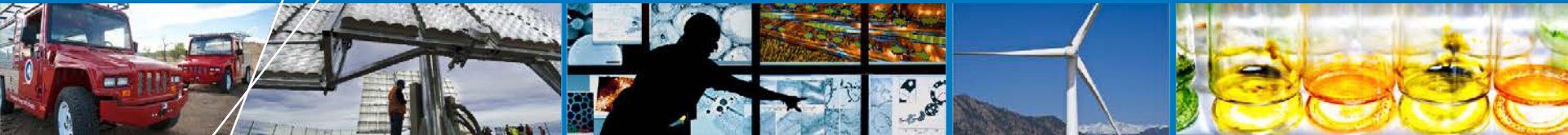
For More Information:

www.buildings.energy.gov/zero

Email:

doechallengehome@newportpartnersllc.com

DOE Zero Energy Ready Home BEopt Training



**Craig Christensen
Scott Horowitz**

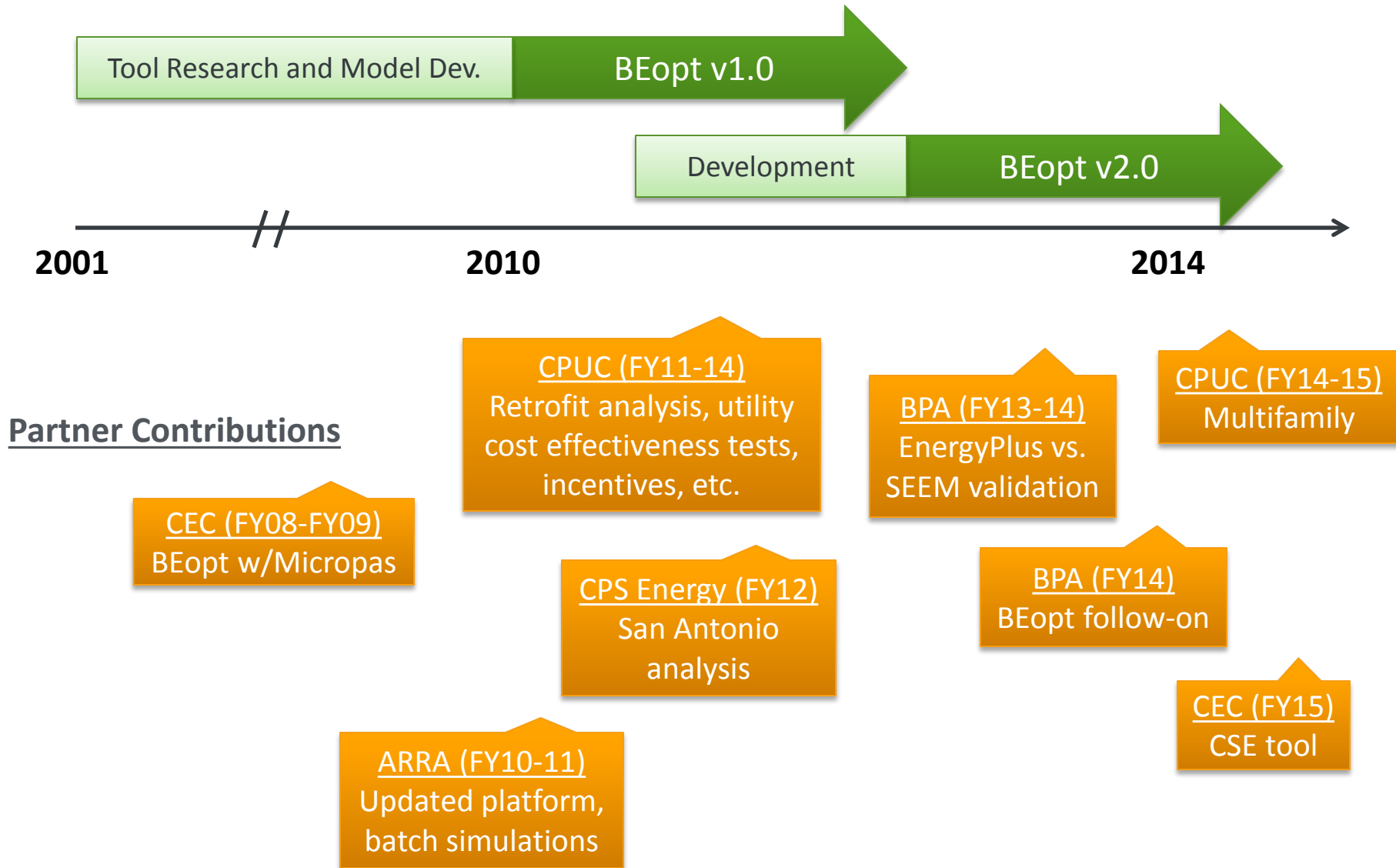
5/15/2014

beopt.nrel.gov

Outline

- **Background**
- **Design Analysis**
 - Geometry Screen
 - Options Screen
 - Site Screen
 - Run
 - Output Screen
- **Optimization Analysis**
 - Path to ZNE
 - Validation
 - Options Screen
 - Run
 - Output Screen
- **Library Manager**
- **DView – Hourly Visualization**

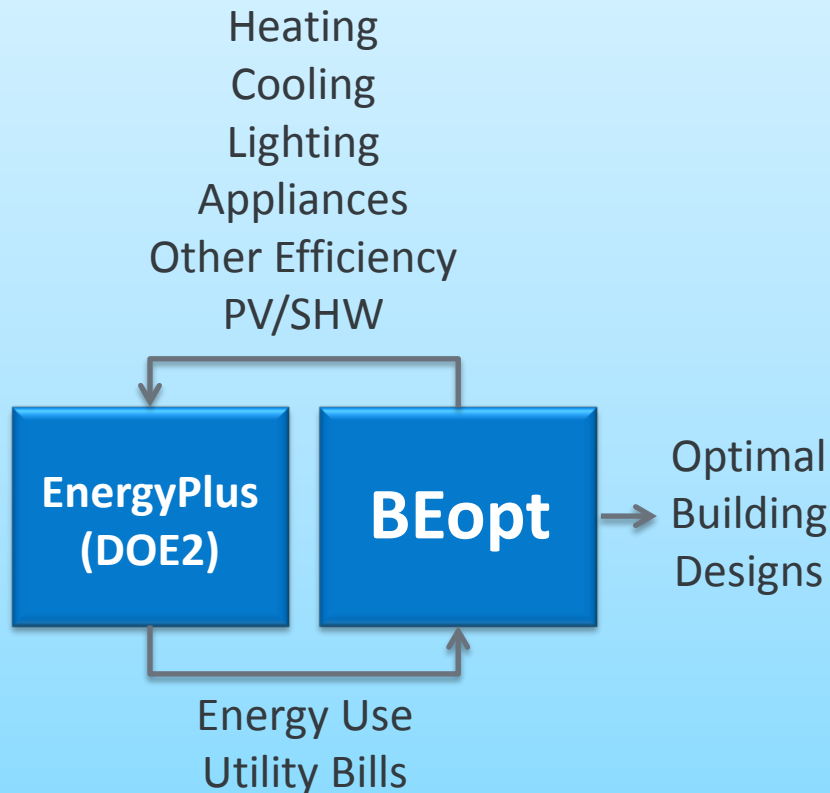
Schedule



What is BEopt?

(beopt.nrel.gov)

Plug-and-Play Optimization Software

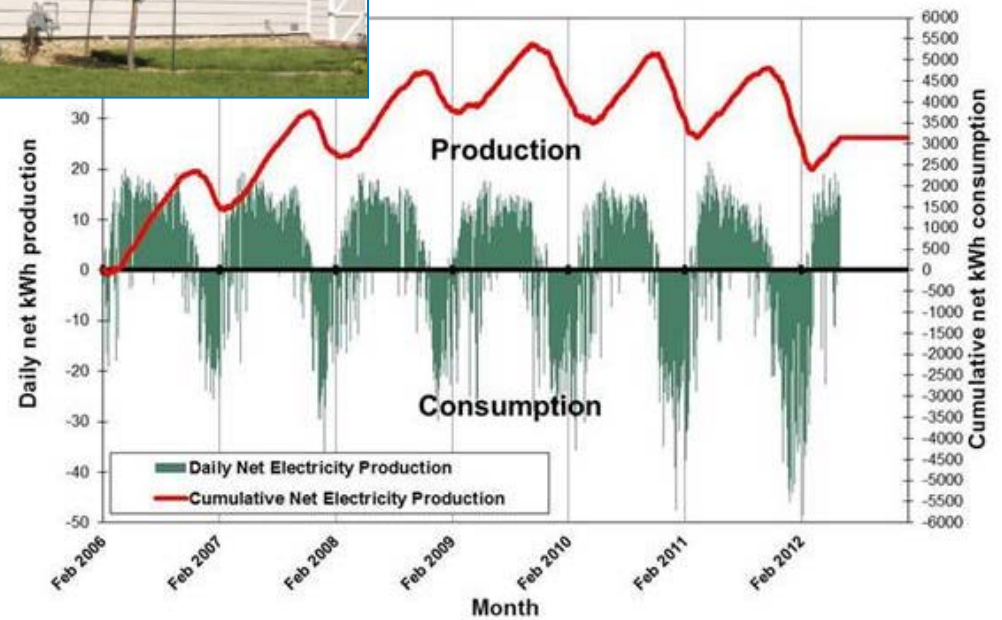


Features:

- Design, parametric, optimization
- New construction and retrofit
- Detailed cost database
- Rapid building drawing tool
- Detailed utility rates (tiered, time-of-use, real-time pricing)
- PV compensation (net-metering, feed-in tariffs)
- Utility cost effectiveness tests
- PV/efficiency incentives
- Demand response
- HPXML export
- Schedule wizard
- Output visualization
- Metrics: LCC, NPV, SPP, LCOE, CO2
- Batch simulations
- Library manager
- ...

Case Study

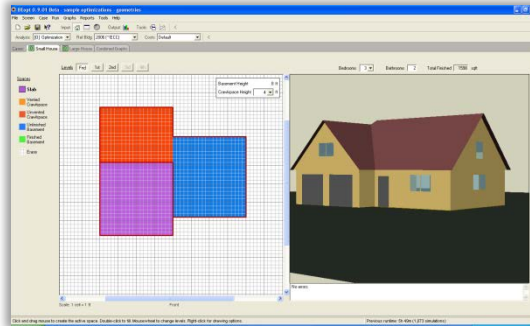
Denver Habitat for Humanity Zero Energy Home



BEopt GUI

Input

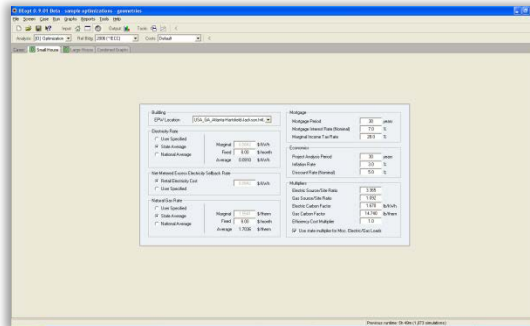
Geometry



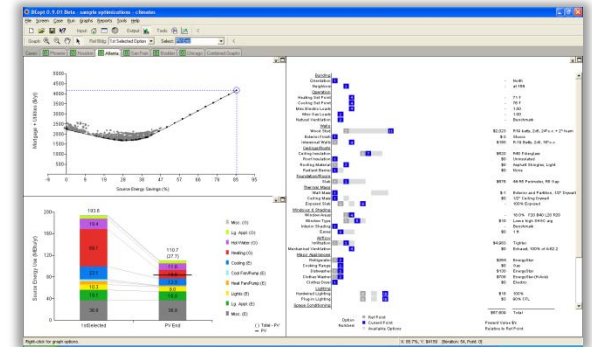
Output



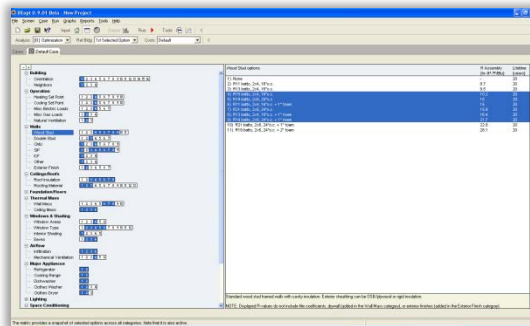
Site



Run



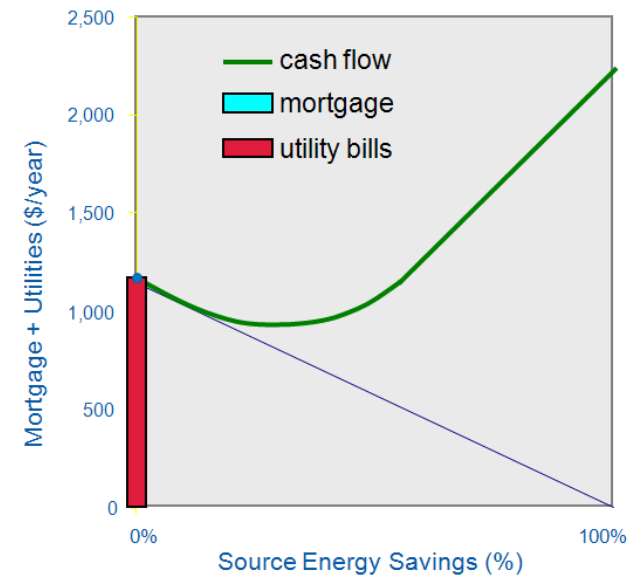
Options



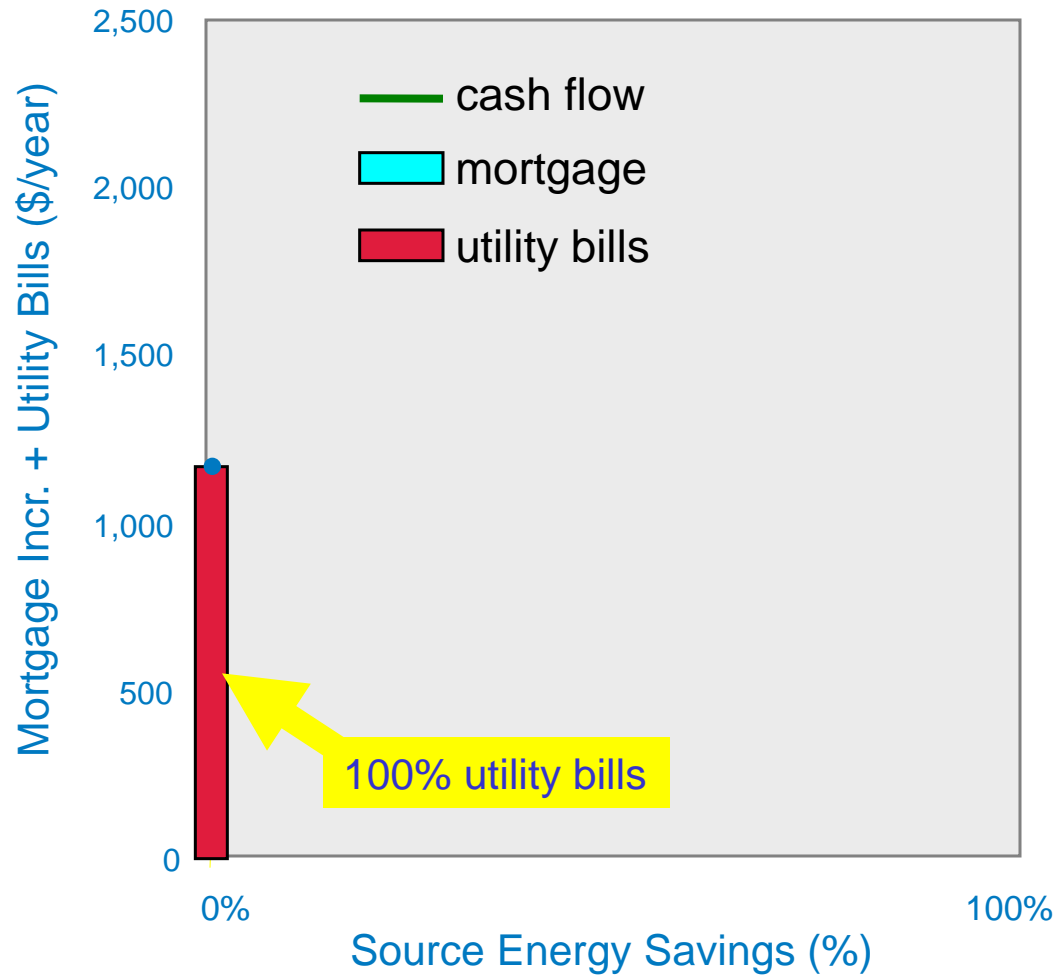
Live Demo

The Path to Zero Net Energy

Minimum-cashflow designs at various energy-savings levels



The Path to Zero Net Energy

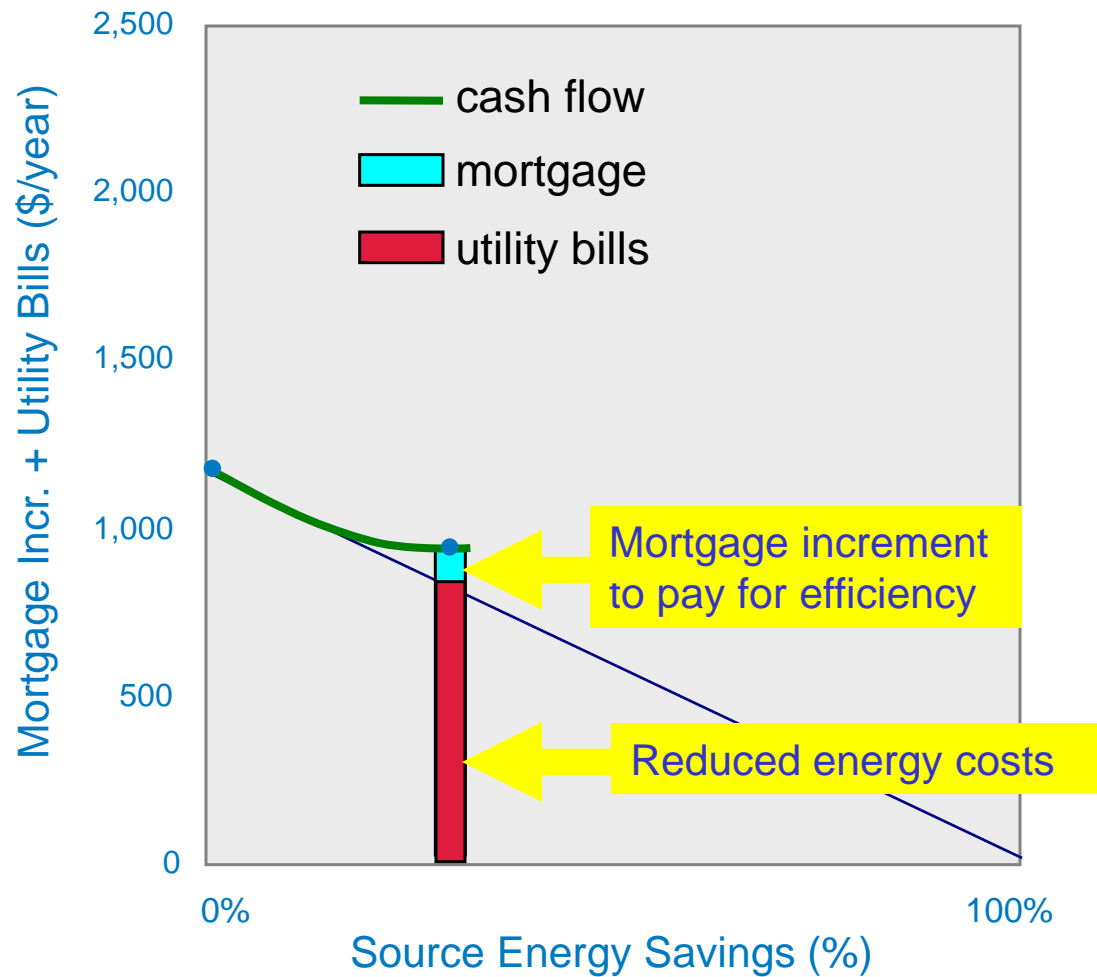


energy-related
cash flow

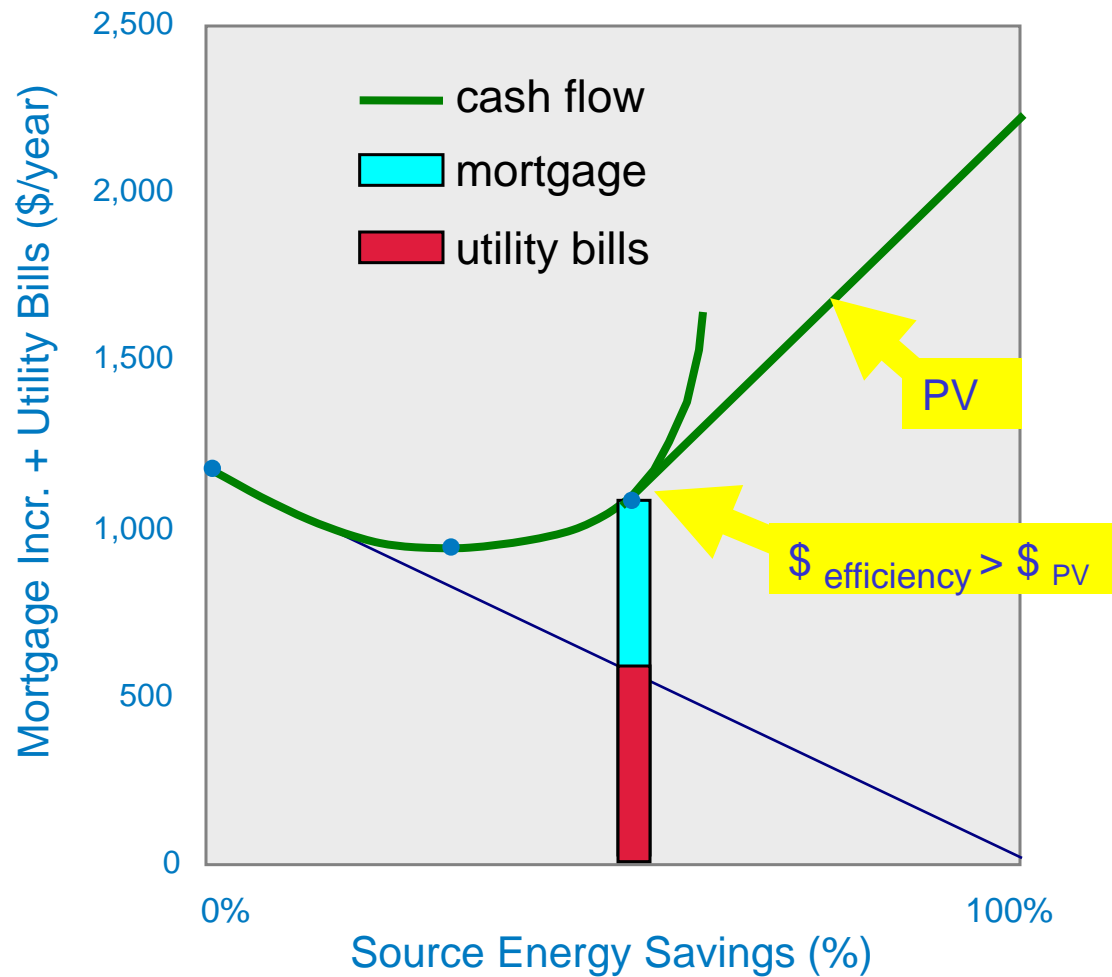
100% utility bills

energy savings
relative to base

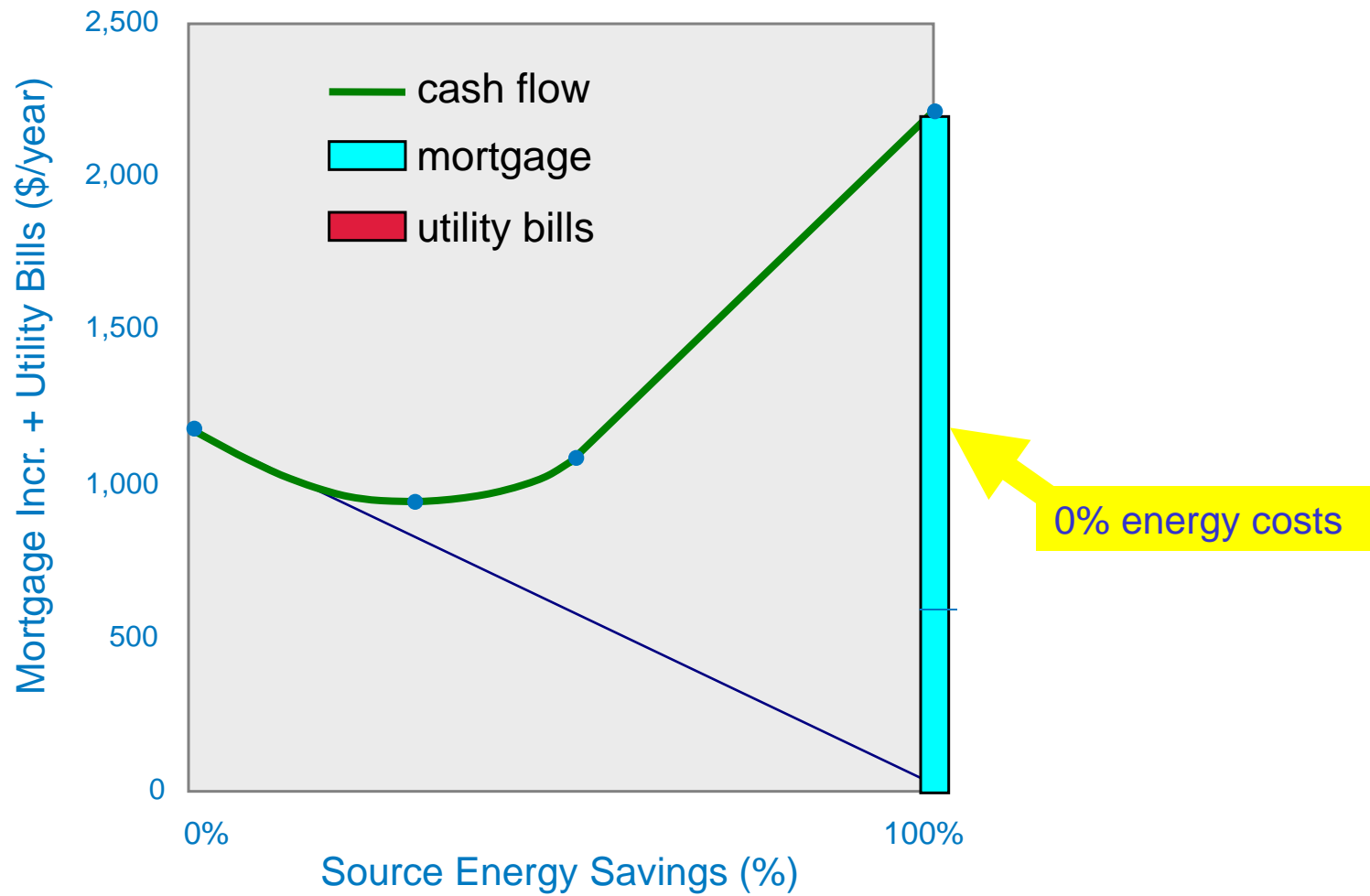
The Path to Zero Net Energy



The Path to Zero Net Energy

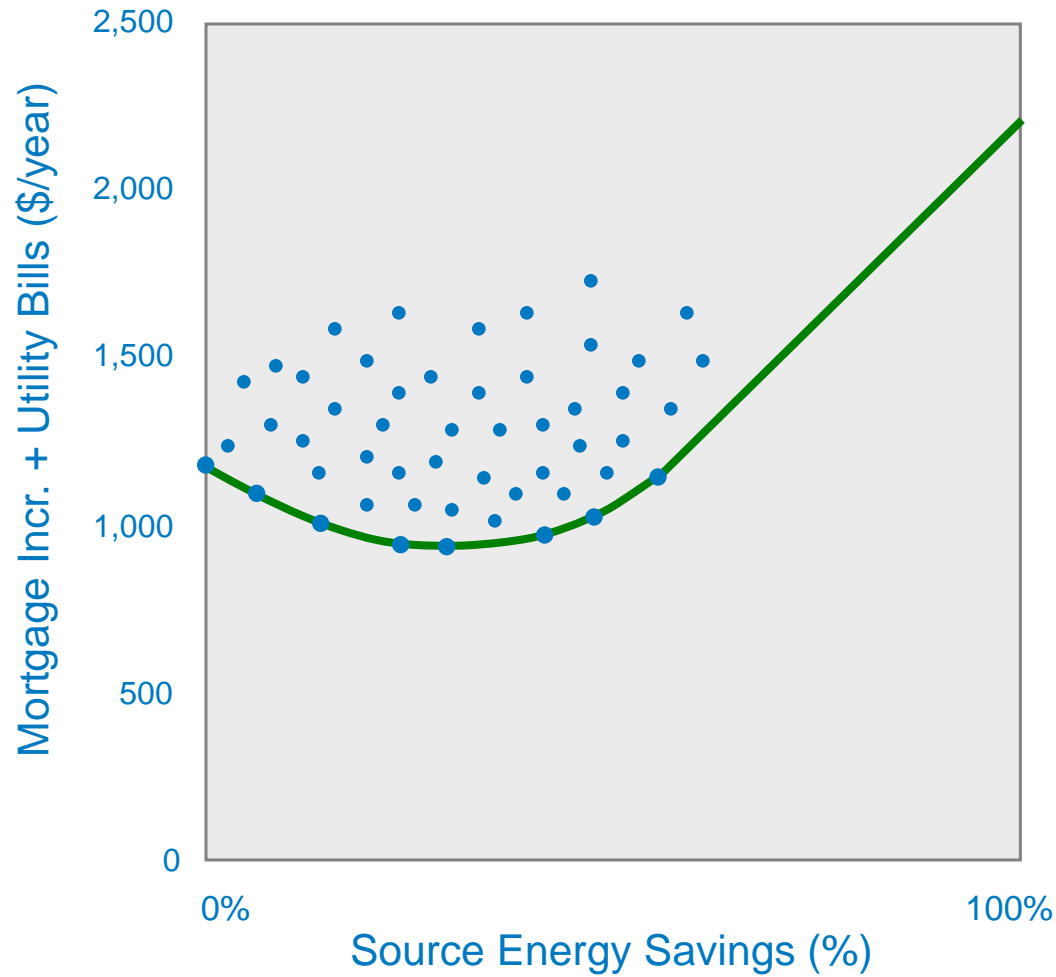


The Path to Zero Net Energy

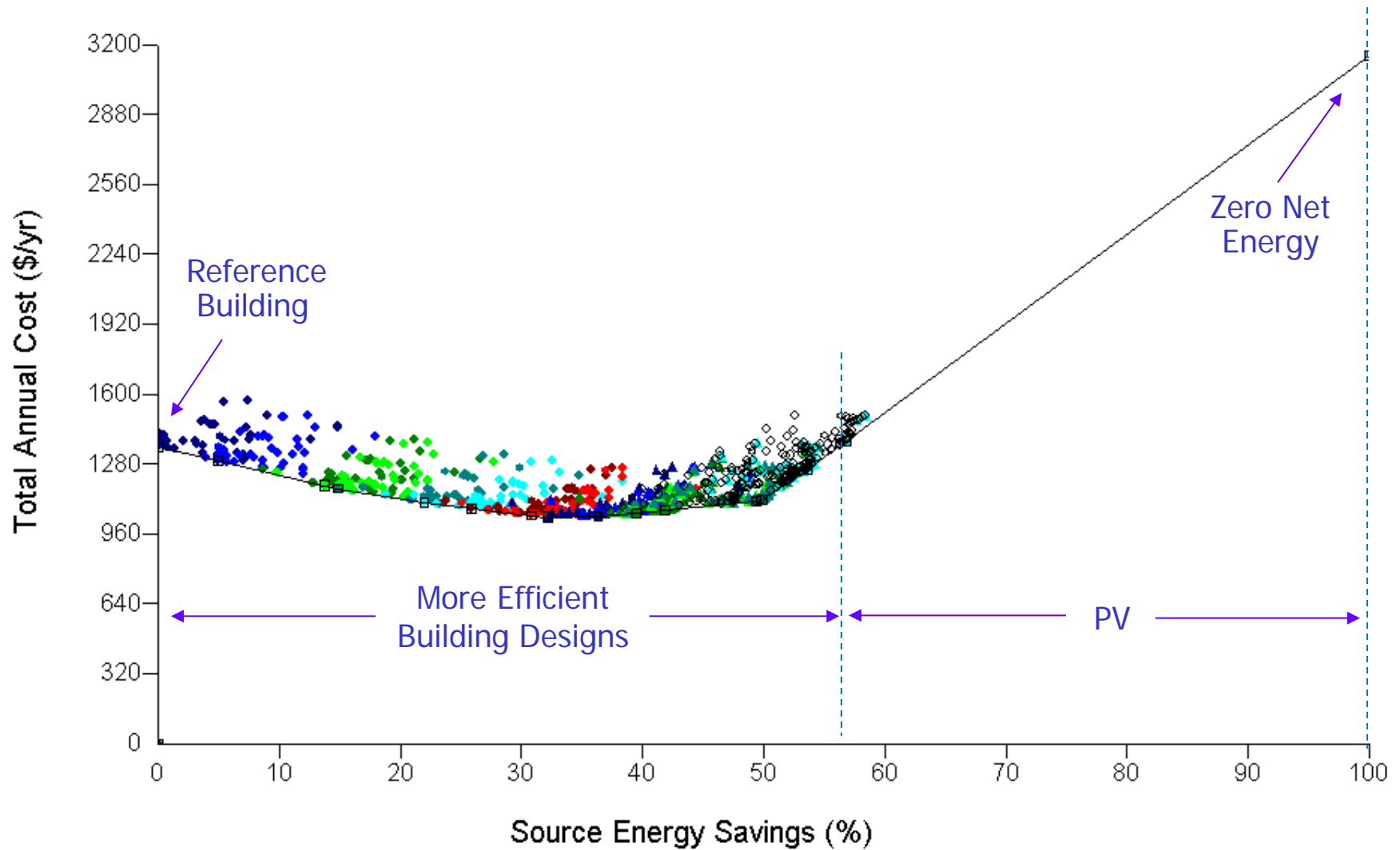




The Path to Zero Net Energy



Validation



Validation

