DOE/NREL Agenda

1. Funding & Status

2. HEScore Project Goals

3. ERI Project Goals

4. ERI Development Process

5. ERI Technical Walk-Thru

6. Next Steps
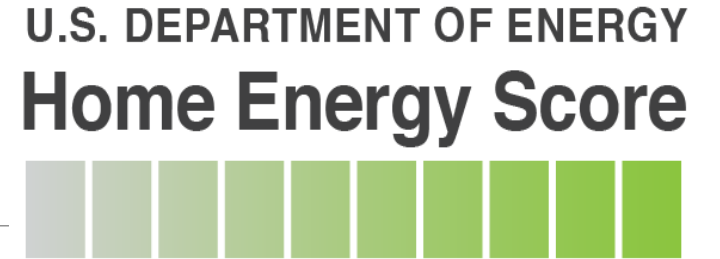
Funding & Status

Funding has been secured for:
- Transition of Home Energy Score to EnergyPlus
- Full ERI calculation using EnergyPlus (from proof-of-concept state)

The two efforts will share common code, models, and rulesets

We will be moving quickly!

Your involvement/feedback is important!

HEScore Project Goals

Seamless backend switch to EnergyPlus

Additional consistency with HERS calculations

Minimal, if any, changes to HEScore API

Additional technologies available (e.g., tankless water heaters, ground-source heat pumps)

Leverages future improvements (technology models, etc.) to EnergyPlus

ERI Project Goals

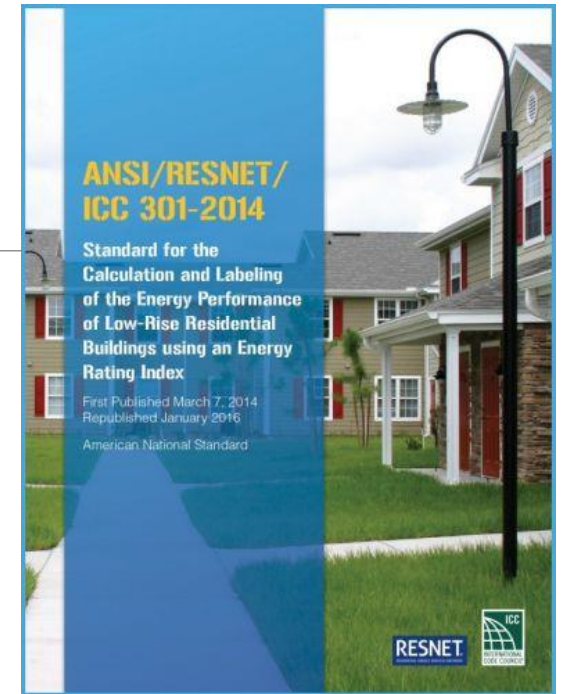Open-source, transparent workflow around EnergyPlus

Reduced effort to connect
◦ Standardized HPXML inputs & outputs
◦ Developers don't need to know anything about OpenStudio/EnergyPlus

Consistent results across software tools

Lower long-term software implementation costs

Leverages future improvements (technology models, etc.) to EnergyPlus

ERI Development Process

Today
- ◦ Introduction
- ◦ Live technical walk-thru
- ◦ Start of developer engagement process

Future
- ◦ Bi-weekly meetings to make decisions, discuss issues
- ◦ Available for all interested software developers
- ◦ Interim "homework problems" to ease into E+ transition
- ◦ Mailing list?

It will be in developers' best interests to be involved early, help steer decisions, and work collectively.

ERI Development Process

Phase I: Focus on Mechanics
- Minimum rated features
- HPXML inputs
- Output formats
- Software Connectivity
- Test suite

- Require orientation-specific walls?
- Require all surfaces or just enclosure surfaces?
- How should we handle weather files?
- How does software get RESNET accredited?
- Etc.

Phase II: Focus on Results
- Advanced technologies
- Comparative testing
- Speed/performance

- Which additional technologies are a priority?
- Should additional speed improvements be a priority?
- Etc.

ERI Technical Walk-Thru

Introduction
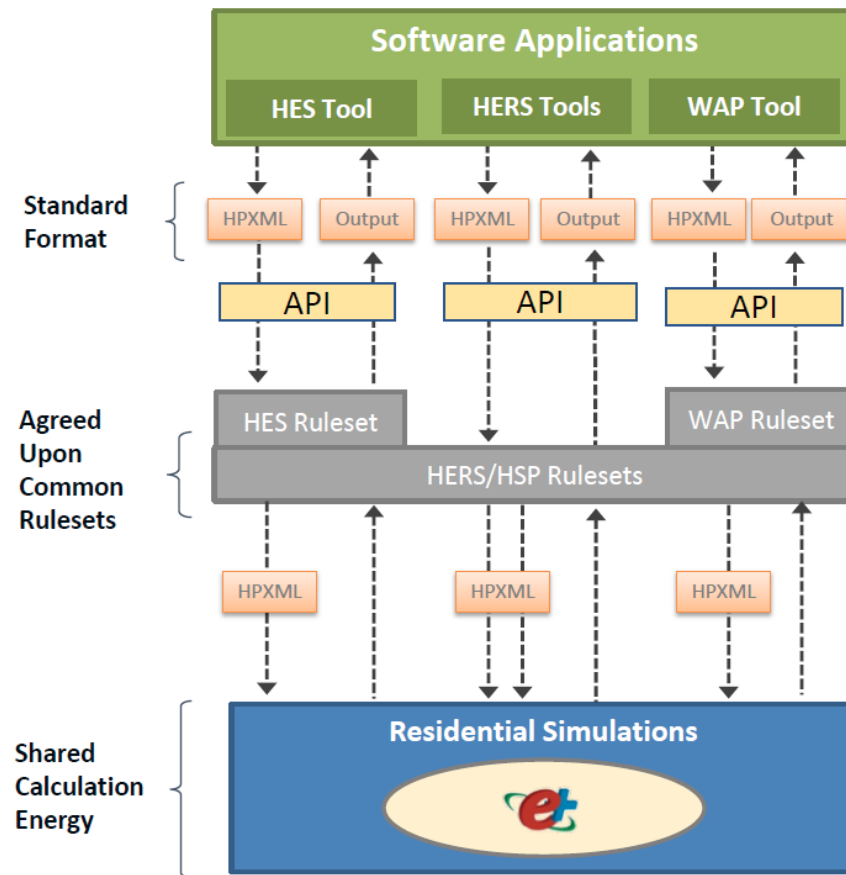
GitHub repository overview

Software setup & deployment

Demo run

Outputs

Tests

HPXML input format

ERI Technical Walk-Thru

Potential Outputs

✓ Common Metric
  (e.g., annual energy estimate, annual cost estimate)
✓ HERS Rating
✓ Home Energy Score
✓ List of cost effective improvements
✓ Energy improvement costs & estimated cost savings

Benefits

✓ Meets the needs of realtors, financial markets, appraisers, policymakers who are all interested in having reliable, comparable energy estimates for new and existing homes
✓ Reduced cost to industry of maintaining multiple energy models/engines
✓ Flexible system supports different use cases and allows software developers to build innovation on top of consistent estimation tool
✓ Potentially provides a consistent method for utilities and others to predict energy savings from retrofits
✓ Potentially could add rulesets for demonstrating code compliance (this would likely be done at the state level)

ERI Technical Walk-Thru

`<StartDemo/>`