

Energy Analysis Software for Residential Buildings

California Energy Commission
Staff Workshop

September 23, 2010



High Performance Buildings & Standards Development Office
Efficiency & Renewable Energy Division

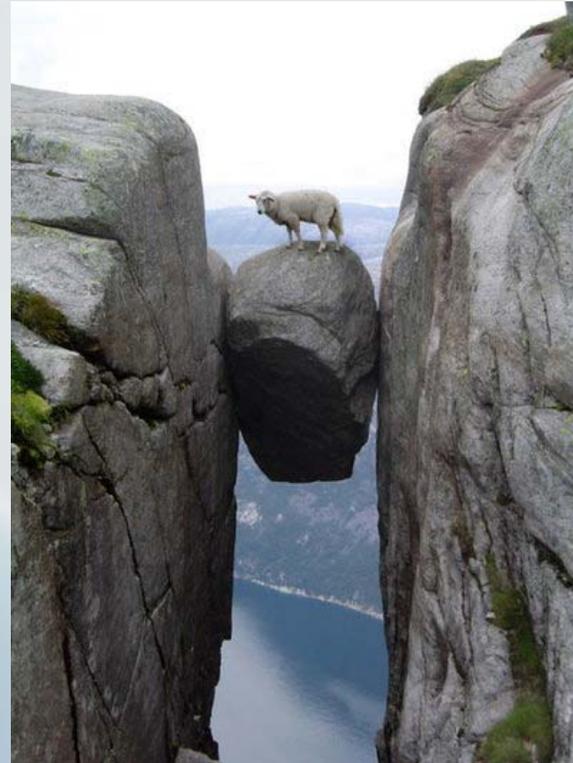
Workshop Objectives

- ❖ Introduce CEC Staff long term vision for software development, updates & availability
- ❖ Explain current status, plans & schedule for 2011 Title 24 residential software
- ❖ Explain plans for upcoming technical support RFP
- ❖ Discuss options & identify issues



Background

- ❖ CEC support for public domain energy analysis programs
- ❖ CEC provision of compliance software
- ❖ Current limitations



The Long View

Zero Net Energy Homes

Efficient Existing Homes

New
Construction
Programs

Title 24
Standards

HERS II
Programs

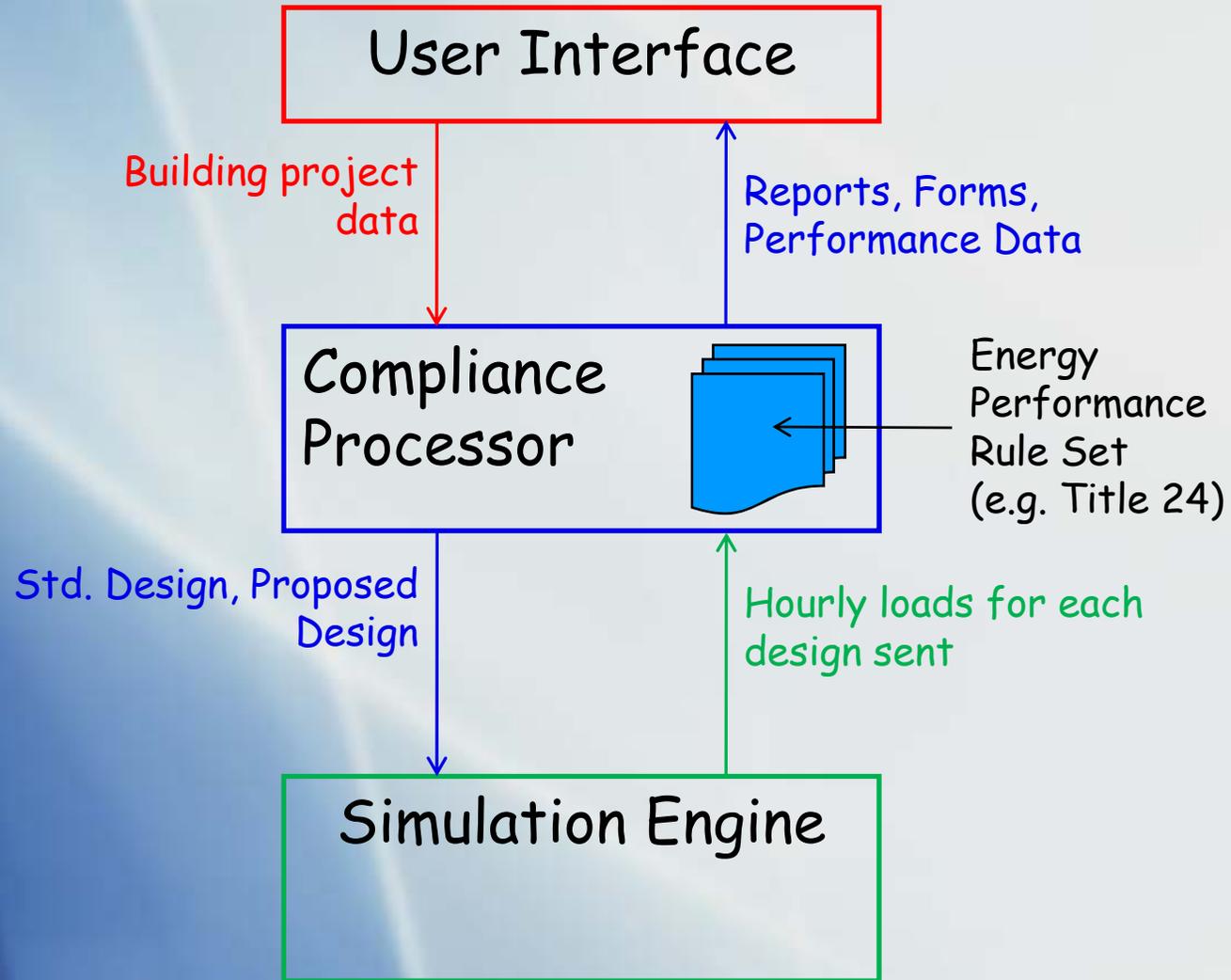
Consumer
Awareness
Programs

Renewable
Energy
Programs

Collaborative Software Platform & Environment

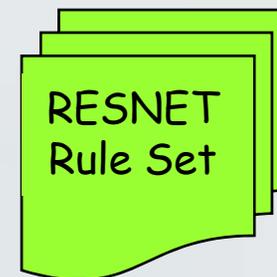
Current CEC Needs

Public Goods Software Architecture



Energy Performance Rule Sets

- ❖ Computer Processable Performance Rules
- ❖ Create, modify & document using controlled vocabulary and logical operators
- ❖ “Lock” rule set for energy policy deployment



Public Goods Software Consortium

- ❖ Collaborative group to develop, test, document, support energy simulation software and special function processors / applications for public good clean energy purposes
- ❖ Provide software under a Lesser General Public License (or equivalent)
- ❖ Workforce development is a critical component



- Give young energy analysts & software developers a career path
- Sponsor student projects relevant to achieving our energy policy goals

Public Goods Software Consortium

❖ Collaboratively manage and make available:

- Simulation software for Standards, HERS II, utility efficiency programs, PV incentive programs, general energy analysis
- Controlled vocabulary, data models, data exchange schema
- Building & energy system prototypes, weather & solar data, energy cost data (e.g. TDV)
- Rule sets, application code, energy analysis projects
- Documentation & tutorials



Current Activities

- ❖ Zone Model Development
- ❖ 2011 Title 24 Development Tool
- ❖ 2011 Title 24 Work Group & Web Site
- ❖ Building Model Data Exchange
- ❖ Compliance Data Exchange & Archive
- ❖ Home Energy Rating System Software Components



Plans for CEC Technical Support

❖ *High Performance Homes* Technical Support RFP

- 2011 Title 24 “public domain” software completion
- CEC PV model validation, software & platform updates
- Title 24 compliance data repository
- Title 24 exceptional analysis
- **HPH** consortium support & software platform development
- 2014 Standards Update – research key topic areas



Plans for CEC Technical Support

- ❖ Budget: ~ \$1,500,000
- ❖ Term: Q2, 2011 – Q2, 2014
- ❖ Schedule:
 - Release RFP – November, 2010
 - Proposals Due - January, 2011
 - Notice of Proposed Award – February, 2011
 - Contract Start – May, 2011



Plans for 2011 Title 24 Software

❖ Scope

- Compliance Processor
- 2011 Title 24 Residential Rule Set
- Building Model data exchange schema
- Compliance data exchange schema

❖ Approach

- “Apollo 13” solution set
- Lesser General Public License, or equivalent

❖ Schedule

- May, 2011 – June, 2012



Workshop Discussion

Send written comments to
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