Energy Analysis Software for Residential Buildings

California Energy Commission
Staff Workshop

September 23, 2010
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

User Interface

Building project data

Compliance Processor

Reports, Forms, Performance Data

Energy Performance Rule Set (e.g. Title 24)

Std. Design, Proposed Design

Simulation Engine

Hourly loads for each design sent
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**
Workshop Discussion

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