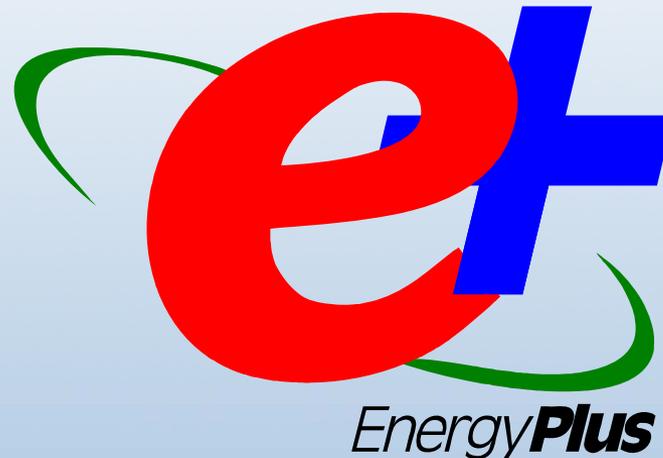


# Energy Design Plugin

An EnergyPlus Plugin for Google SketchUp



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# EnergyPlus

- Simulation engine only
- State-of-the-art capabilities
- Continued funding from DOE
- Free

# SketchUp

- Intuitive, easy-to-use 3-D drawing software
- Available from Google as free or pro versions
- Popular among architects
- Powerful API using Ruby programming language for plugins



# Energy Design Plugin

*Adds EnergyPlus functionality  
to the SketchUp 3-D environment*

- Create/Edit EnergyPlus Input Files
- Run EnergyPlus and view results
- Automatically create building models

# Energy Design Plugin

- Developed by NREL
- Still in development
- Pre-beta testing with ~100 users
- Public beta release in March 2008
- Available for **free** at [www.energyplus.gov](http://www.energyplus.gov)
- Works with free and pro versions of SketchUp
- Available for Windows initially (Mac later)

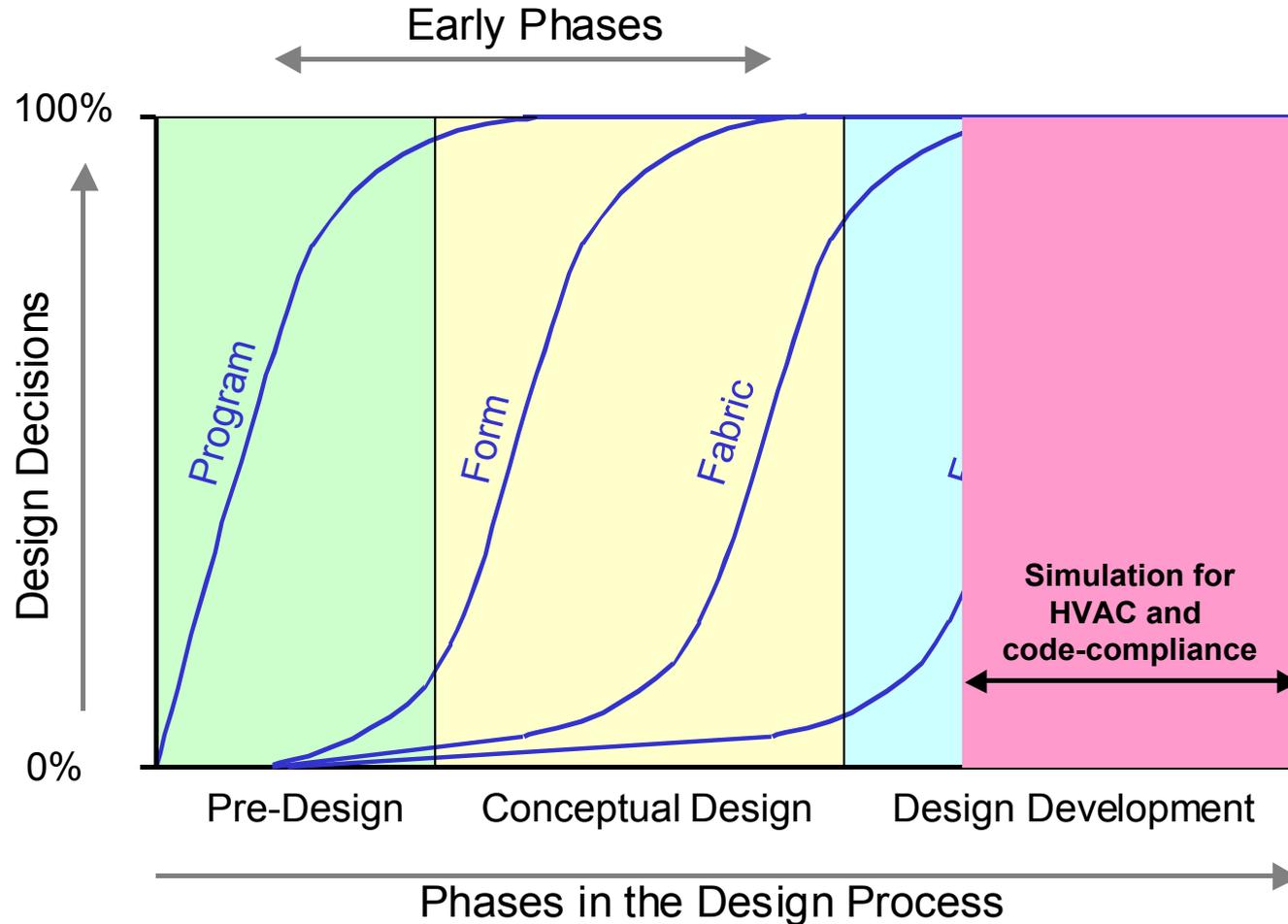
# Energy Design Plugin

Key to integrating simulation into the early phases of the design process

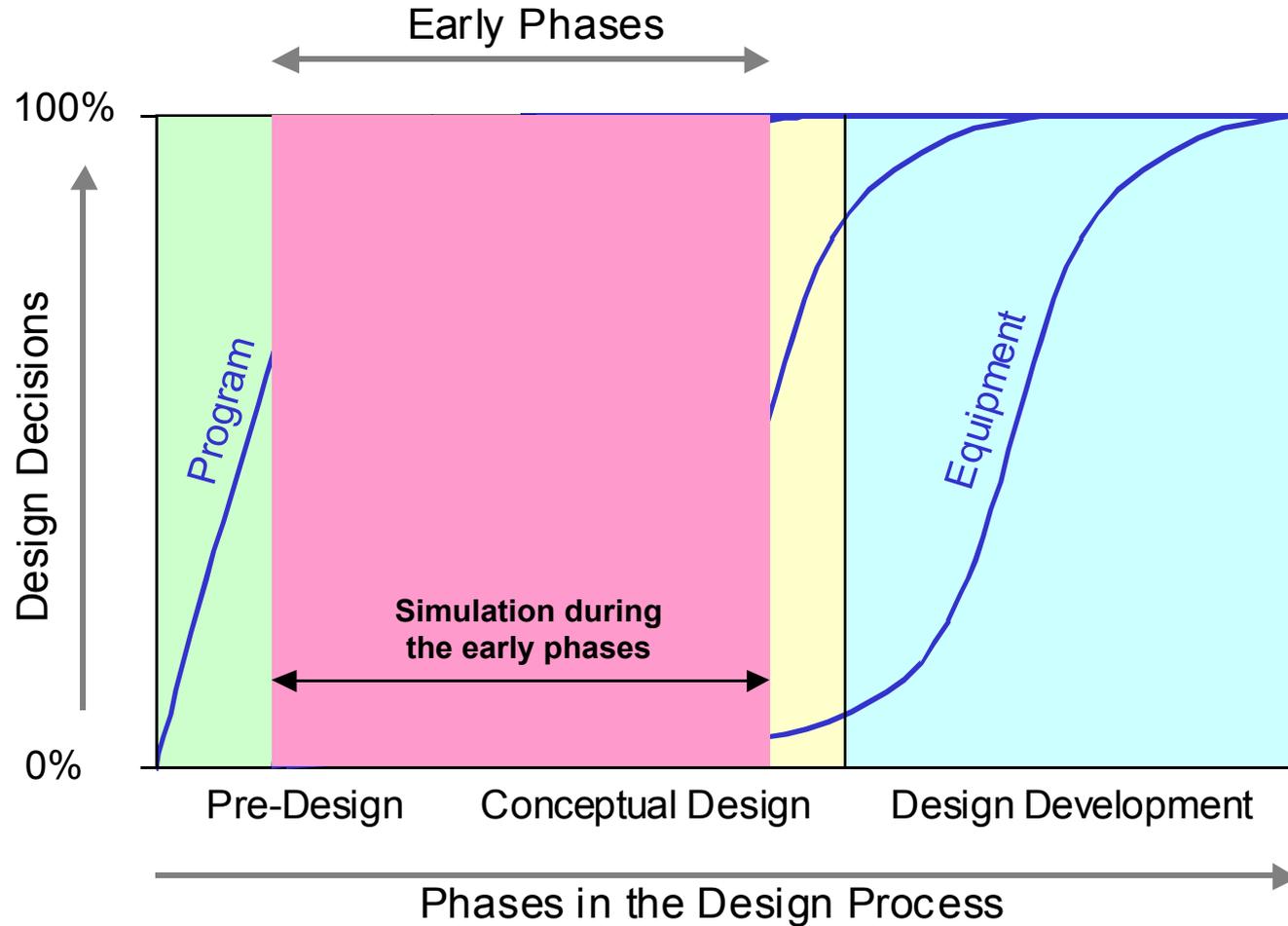
# Integrating Simulation into the Early Phases of the Design Process

- "Form" decisions made during the early phases of the design process have a big impact on energy performance
- Simulation during the early phases can help optimize energy performance without adding to the cost of the design
- Traditionally simulation only used for HVAC options and code-compliance

# Phases in the Design Process



# Phases in the Design Process



# SketchUp in the Design Process

- Conceptual Phase:
  - Quickly create building form and massing
  - Present design proposals to client
  - Changes based on client feedback
- Design Development:
  - Export from SketchUp to CAD tool
  - Design refinement with CAD

# SketchUp in the Design Process

- Conceptual Phase:
  - Quickly create building form and massing
  - **Changes based on simulation feedback**
  - Present design proposals to client
  - Changes based on client feedback
- Design Development:
  - Export from SketchUp to CAD tool
  - Design refinement with CAD

# Version 1.0

- Goals
  - Make entering 3-D geometry easy
  - Automatic prototype or compliance models
- Audience
  - Current E+ users
  - Prospective E+ adopters

# V 1.0 – *Open Source Development*

- Goals
  - Launch open source project
  - Build volunteer developer community
- Audience
  - Developers in industry
  - Collaborators at national labs, universities
  - Enthusiasts, students

# Version 2.0

- Goals
  - Manage and edit most simulation inputs
- Audience
  - Simulation experts
  - Brave architects

# Version X.X

- Goals
  - “Simulation for everyone”
  - Appeal similar to Energy-10
- Audience
  - Engineers
  - Architects
  - Homeowners

# Value to Industry

- Key to bringing energy simulation into the early phases of the design process (before CAD or architectural drawings)
- Bridges the gap between simulation tools and the design process
- Demonstration that an existing software tool can be leveraged to add energy functionality without reinventing the wheel

# Demo

# Thank you!

## Questions?