

Validate Automation of ASHRAE 90.1 Performance Rating Method in Commonly Used Simulation Tools

The proposed scope includes developing a comprehensive test suite for validating implementation of automatic generation of ASHRAE 90.1 Appendix G Performance Rating Method (PRM) baseline and proposed design models; updating the existing PRM automation functionality in the commonly used simulation tools including EnergyGauge, eQUEST, TRACE 3D Plus and OpenStudio; testing it using the developed test suite; and piloting the validated automation features in several jurisdictions.

The project addresses the following key areas of interest targeted by this FOA:

1. **State and Local Code Adoption:** The project will increase the degree of automation and validate it in four popular simulation tools, facilitating wider adoption of modeling by jurisdictions. It will also include piloting the validated functionality in Florida, Denver and potentially New York City.
2. **High Impact States and Local Jurisdictions:** The project includes validating the EnergyGauge software that is used for code compliance by most projects in Florida, a high impact state, and piloting the implementation in selected Florida jurisdictions.
3. **Rural Communities:** Studies have shown that modeling-based compliance is largely used by large, complex buildings common in metropolitan areas. Municipalities with a high volume of such permits, such as New York City, have personnel trained to review modeling submittals. Rural municipalities are typically not equipped to provide meaningful enforcement on such projects, creating the compliance loophole. Validating compliance automation in popular simulation tools would address this issue.
4. **Implementation and Compliance:** The project will reduce the time and cost of documenting compliance by design teams and submittal reviews by jurisdictions.
5. **Innovative Approaches:** The project leverages the tools and methods established by ASHRAE Standard 229P for validating the automation of PRM compliance.
6. **Partnerships:** The project success requires collaboration between standards developers, BEM tool vendors and jurisdictions. The proposed project team includes the nationally recognized leaders in these fields as described in the Addendum section of this document.

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Team Member Organizations: Karpman Consulting LLC, Florida Solar Energy Center (FSEC), Trane, James J. Hirsch & Associates (JJH). The project will also require technical assistance from PNNL.

Project Location: National

Confidentiality Requirements: None