



# EM&V of HVAC Quality Installation and Maintenance

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# Topics for Today

- ▶ What is our shared challenge regarding EM&V of HVAC programs?
  - What are common to residential and commercial markets?
- ▶ What are the specific barriers that need to be addressed?
- ▶ Who are the market actors that can address those barriers?
- ▶ What should we do first, second?

# Session Format

- ▶ Informal presentations/comments (60 mins)
  - The EM&V challenge
  - Western HVAC Performance Alliance
  - Differences between Res and Com
  - White paper on quality maintenance EM&V
  - Relevant industry research efforts
  - New initiatives to address the challenge
    - RTF protocol
    - CA IOUs next steps
    - Others?

# Session Format (2)

- ▶ Agreement on the Barriers and Agents of Change (30 mins)
  - What are the 5 top priority barriers?
  - Who are the market actors that can address/influence these barriers?
- ▶ Networking Break (30 mins)
- ▶ Joint review of Outcomes and Prioritization (15 mins)
- ▶ Separate Residential and Commercial Meeting (60 mins)

# The Concern

The value proposition for investing in HVAC efficiency is in jeopardy, primarily due to **misunderstanding about actual market conditions** and the **variability of measuring performance** change due to efficiency interventions.

Barrier	Actor/Influencer
<p>Equipment Degradation Curves./map</p> <p>Status of Installed Base.</p> <p>Benis of Intervening at different times</p> <p>NEBs</p> <p>Common tech. practices</p>	<p>OEMs, ACCA, HARDI, Performance Contractors, VSPs</p> <p>OEMS, HARDI, Field Researchers</p>
<p>TRC Test Assumptions (Baseline)</p>	<p>PUC, CEE Members, Interveners, Industry</p>
<p>Coordination Between Program Design and Evaluation</p>	<p>PUC, CEE Members, Interveners, Evaluation consultants</p>
<p>Precision/Accuracy of Performance Testing</p>	<p>HVAC Industry, Home Performance Industry</p>
<p>Standardized methods for EMV</p>	
<p>Recognizing interactions between programs (e.g. whole house</p>	