



**US EPA**

**Planning Evaluations  
for Ratepayer-Funded  
Energy Efficiency  
Programs**

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**Hawaii Energy**

**Hawaii Energy EM&V  
Planning 2009-2011**

Chris Ann Dickerson, PhD  
James Flanagan Associates  
Contract Manager for  
Hawaii Public Utilities Commission

James Flanagan Associates

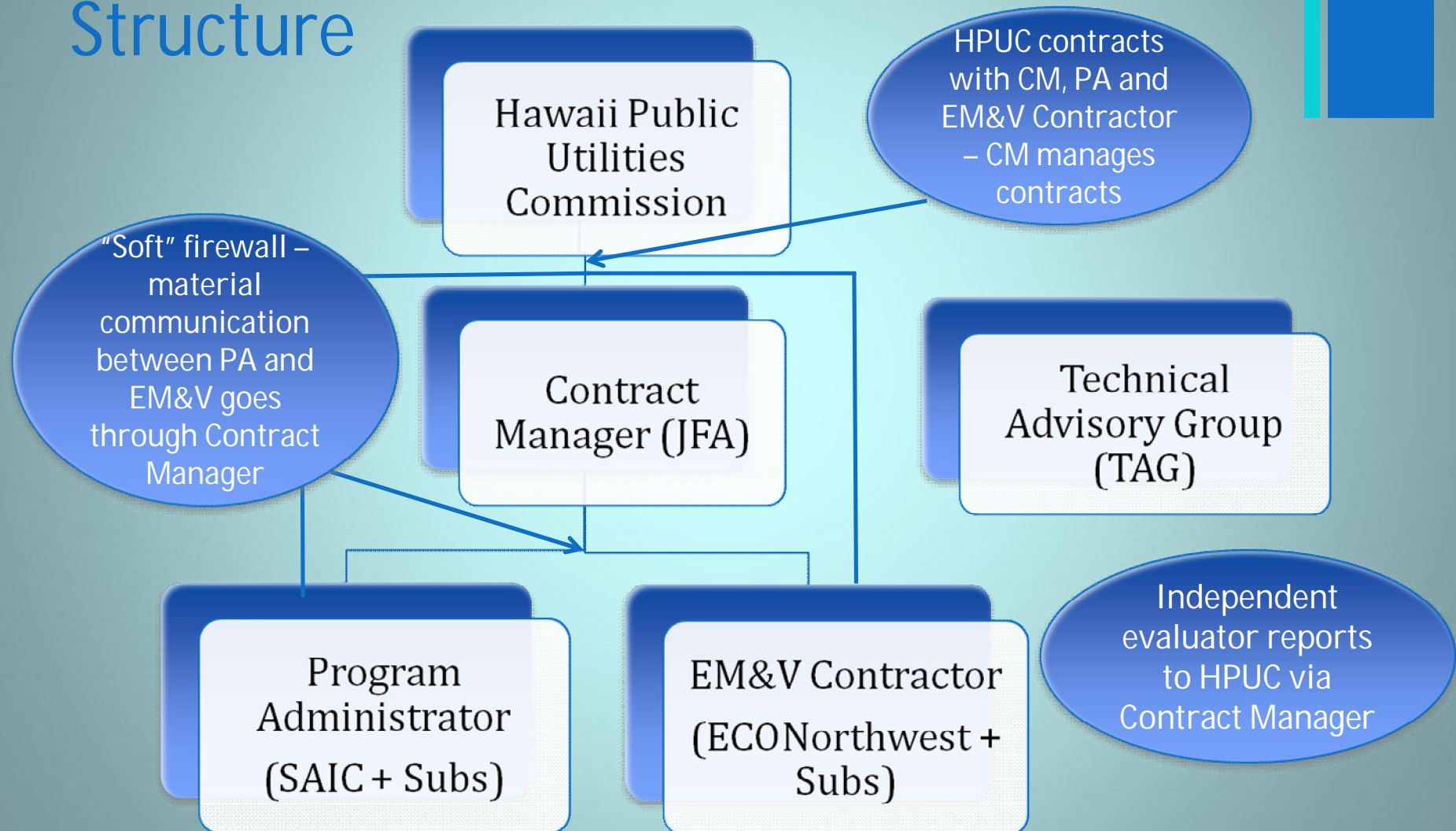
# + Hawaii Energy Efficiency at a Glance

- Currently, 90% of Hawaii's energy is produced from petroleum
- In 2008, Governor Lingle signed the Hawaii Clean Energy Initiative (HCEI) with US DOE: Meet 70% of Hawaii's energy needs with efficiency and renewable energy by 2030
- Hawaii Public Utilities Commission (HPUC) is responsible for ratepayer funded energy efficiency programs, *Hawaii Energy*
- Ratepayer-funded programs have been underway since mid-1990s, initially operated by the HECO utilities under the HPUC
- Ratepayer-funded programs play an important role in helping to achieve HCEI goals

## + Background Developments

- 2006 Hawaii State Legislature authorizes Public Benefit Fund (PBF) for DSM programs
- 2007 Decision to transition the Energy Efficiency programs from the HECO utilities to a third-party administrator/Hawaii PUC
- Fall 2008 HPUC hires Contract Manager team
- Early 2009 Program Administrator selected/transition begins
- July 1, 2009 EE programs transitioned
- July 2009 Overarching Evaluation Plan for 2009-2011
- Fall 2009 EM&V Contractor RFP/Selection
- December 2009 EM&V contractor in place

# + Hawaii Energy EE/EM&V Management Structure



# + Hawaii Energy

## 2009-2010 Portfolio Goals

### Residential Portfolio

	MWh	Incentive	\$/kWh
Residential Efficient Water Heater	5,784	3,525,000	0.609
Residential New Construction	3,474	980,001	0.282
Energy Solutions for the Home	61,173	1,980,500	0.032
Residential Low Income	2,369	276,500	0.117
<b>Total Residential</b>	<b>72,800</b>	<b>6,762,001</b>	<b>0.093</b>

### Business Portfolio

	MWh	Incentive	\$/kWh
Commercial Industrial EE	15,684	1,664,045	0.106
Commercial Industrial New Const.	21,255	1,471,412	0.069
Commercial Industrial Custom Ret.	21,345	2,134,481	0.100
New Programs	9,500	950,000	0.100
<b>Total Business</b>	<b>67,784</b>	<b>6,219,938</b>	<b>0.092</b>

Source: SAIC HEEP Annual Plan, 2009

## + Evaluation Budget Program Years 1&2 (Evaluation Contractor)

	PY1 2009- 2010	PY2 2010- 2011	Total
<b>Program Budget</b>	\$17,833,960	\$17,638,406	\$35,472,366
<b>EM&amp;V Contractor</b>	\$891,698	\$881,920	\$1,773,618
<b>% of Program Budget</b>	5.0	5.0	5.0

## + Evaluation Activities (Program Administrator - SAIC)

- Program Administrator also has EM&V budget for internal use, subject to approval, approximately 1% of total program budget.
- Collect, compile and assess information on residential, commercial, institutional and industrial markets in order to be responsive to:
  - Market changes and market potential
  - New technologies and/or existing technologies that become cost-effective
  - Opportunities for enhancing program performance.

# + EM&V Priorities PY 2009-2010 and 2010-2011 (Evaluation Plan)

- Determine energy efficiency impacts
  - Review Technical Reference Manual (TRM)
  - Secondary Sources
  - Fieldwork/Analysis
  
- Review reporting to Commission and Legislature (via Contract Manager)
  - Review documents/Calculations
  - Inspections/surveys
  - Analyses
  
- Process Eval./Benchmarking
  
- Market Assessment
  
- Coordinate with statewide energy efficiency activities

# + Research Prioritization Considerations

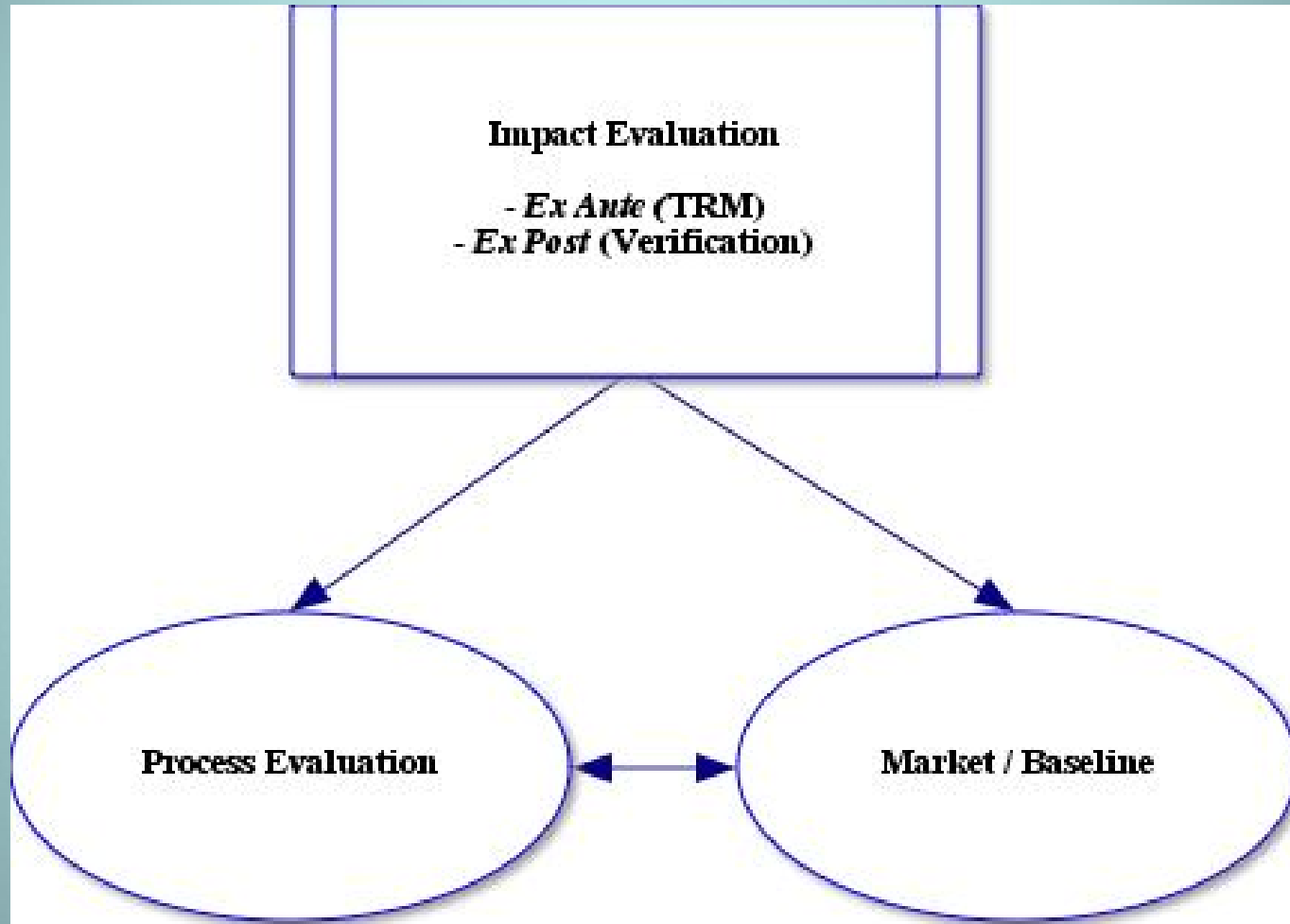
## Activity

- Determine energy efficiency impacts
  - Review TRM
  - Secondary Sources
  - Fieldwork/Analysis
  
- Review reporting to Commission and Legislature (via Contract Manager)
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  - Inspections/surveys
  - Analyses
  
- Process Eval./Benchmarking
  
- Market Assessment
  
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## Periodicity

- Prioritize fieldwork and analytic resources; deploy resources in a manner that contributes highest EM&V value each period
  
- REQUIRED – Annually
  
- Will be conducted at some level each EM&V cycle, but emphasis varies with priorities

# Evaluation Components – Research Prioritization



## + Measure Savings Focus: *Ex Ante*

### Activity

- Determine energy efficiency impacts
  - Review TRM
  - Secondary Sources
  - Fieldwork/Analysis

### Output

- ***If*** significant concerns with TRM calculations (errors, egregious overstatement of savings) then EM&V measure savings recommendations could be applied to 2009-2010 and/or 2010-2011 savings claim (not expected).
- ***Otherwise***, updated estimates will be based on a combination of secondary and primary analyses/data collection. Updated estimates incorporated as *ex ante* estimates for subsequent program cycles.
- TRM deemed savings are for simple measures; TRM calculation methods are for complex sites.

## + Verification Focus: Annual Claim

### Activity

- Review reporting to Commission and Legislature (via Contract Manager)
- Review documents/Calcs
- Inspections/surveys
- Analyses

### Output

- ***Verification rate for annual report/earnings claim --***  
Review tracking data, documentation, check analyses, conduct onsite and telephone inspections, recalculate a sample of engineering estimates –
- ***Updates to ex ante estimates for the next program cycle – results of significant EM&V activity and analyses.***

# + Additional Evaluation Activities

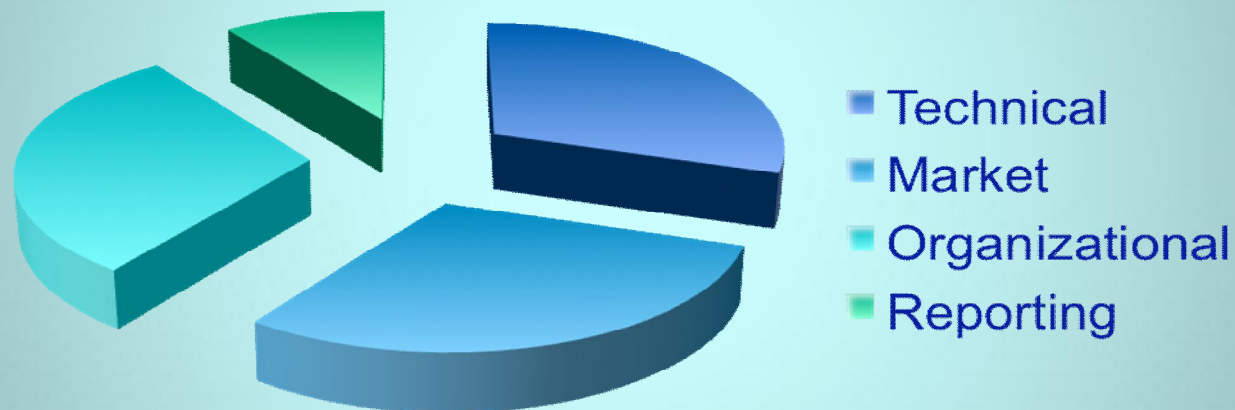
## Activity

- Process Eval./Benchmarking
- Market Assessment
- Coordinate with statewide energy efficiency activities

## Output

- Documents program activity and use of ratepayer funds
- Contributes to improvement of the programs
- Contributes to characterization of measure savings for use in TRM and development of estimates for custom measures.
- Facilitate cooperation with other EE initiatives.

## + Sources of Uncertainty and Opportunity in Implementing and Evaluating Energy Efficiency



A comprehensive EM&V approach is designed to address all of these areas rather than focus on just one piece of the pie. Too often EM&V focuses on technical to the exclusion of other issues.

# + Key Issues for Hawaii Energy EM&V

- Prioritize resources on improving programs while ensuring that ratepayer funds are spent wisely
- Technical, Organizational and Market issues are of equal importance
- Willing to trade-off “excessive” focus on *ex post* EM&V sampling precision in order to devote resources to other useful EM&V activities
- Verify Program Administrator claims w/desk review + telephone and onsite inspection – adjust savings claim accordingly
- *Ex post* evaluation/fieldwork updates *ex ante* estimates rather than retrospectively adjust savings inputs. BUT Commission may revise *ex ante* estimates and calculation methods at any time
- “Gentle” approach to measuring free-ridership/spillover -- research used for program targeting
- Total Resource Benefit basis (lifecycle not just first year savings)
- Reduced focus on partial “attribution” for PA savings claim given other EE activities (e.g., Federal ARRA funds). Handle overlap as a load planning issue. Monitor as situation develops.

## + Acknowledgements

- Hawaii Public Utilities Commission

Wendy Takanishi, HPUC

[wendy.takanishi@hawaii.gov](mailto:wendy.takanishi@hawaii.gov)

808-586-2068

- James Flanagan Associates

Jim Flanagan

[jimflanagan4@mac.com](mailto:jimflanagan4@mac.com)

415-863-2525

## + Contact Information

### ■ CAD Consulting

Chris Ann Dickerson, PhD

(Subcontractor to JFA on Contract Manager Team  
for Hawaii Public Utilities Commission)

[cadickerson@cadconsulting.biz](mailto:cadickerson@cadconsulting.biz)

510-562-1034