

# National Residential HVAC Opportunities

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Together We Can Change National Markets

# Topics for Today

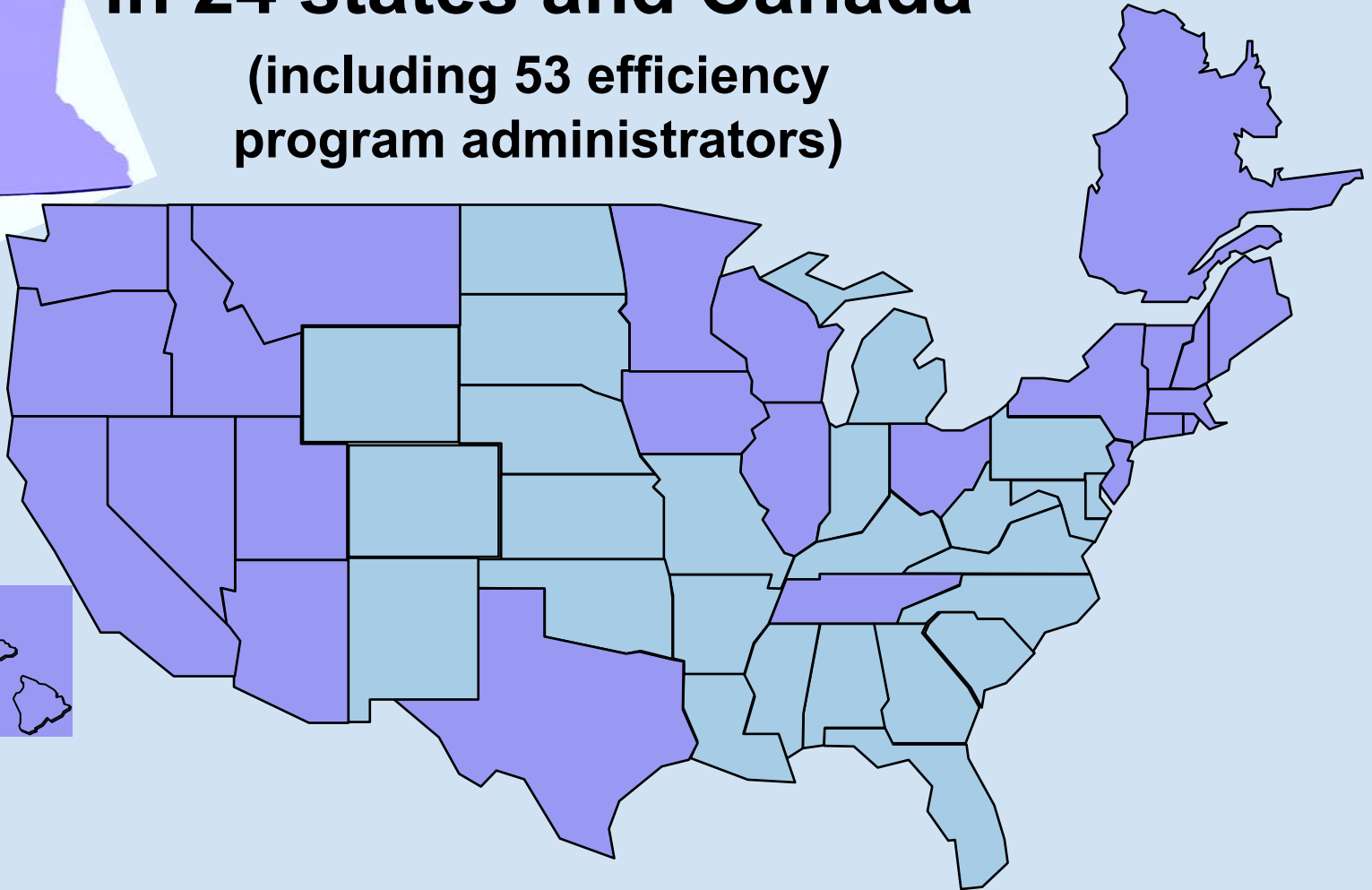
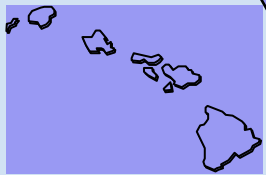
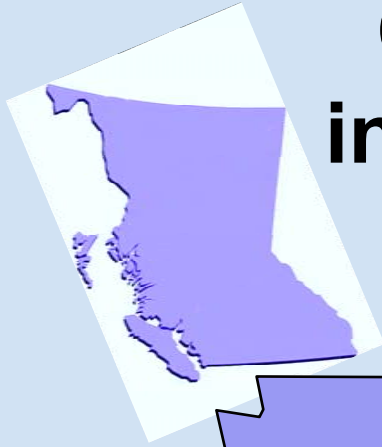
- Who is CEE
- Some HVAC Energy Saving Opportunities
  - High-efficiency equipment
  - Quality installation
  - Proper maintenance
- What National Efforts are Underway
- How They May Affect Your Programs
  - And, opportunities to participate

# How CEE Works for Efficiency Programs



# CEE has 73 members in 24 states and Canada

(including 53 efficiency  
program administrators)



# Why Do We Care About HVAC?

- Heating and Cooling Use a Lot of Energy
  - Residential buildings account for 19% of CO2
  - Residential buildings use 35% of total U.S. energy
  - HVAC uses 45% of residential building energy
- Central AC Use Coincides with Peak Demand

**The Ultimate Objective:**  
**Efficient In-Field Performance!**

# Efficient In-Field Performance

1. High Efficiency Equipment
2. A Quality Installation
3. Proper Maintenance

# National Equipment Requirements

	Split or Packaged	SEER	EER	HSPF
Federal Standard (current)	Split	10	N/A	6.8
	Packaged	9.7	N/A	6.6
Federal Standard (as of 1/23/06)	Both	13	N/A	7.7
ENERGY STAR (current)	Split	13	11	8.0
	Packaged	12	10.5	7.6
ENERGY STAR (as of 4/1/06)	Split	14	11.5	8.2
	Packaged	14	11	8.0
CEE Tier 1 (proposed)	Split	14	12	8.5
	Packaged	14	11	8
CEE Tier 2 (proposed)	Split	15	12.5	8.5
	Packaged	14	12	8
CEE Advanced	Split	TBD in 2006		
	Packaged	TBD in 2006		



**\$300 Credit →**





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# CEE Directory of ARI-Verified Equipment

## [WWW.CEEHVACDIRECTORY.ORG](http://www.ceeHVACDirectory.org)

Web assistant | Norton AntiVirus | Address <http://www.ceeHVACDirectory.org/hp.php>

Verified Directories  
Heat Pump Search

[Help](#)

<b>ARI Reference Number</b> <a href="#">Help</a> <input type="text"/> <input type="button" value="Search The Database"/>	<b>CEE Tier</b> <a href="#">Help</a> Residential Tier 1	<b>Cooling Capacity (Btuh)</b> <a href="#">Help</a> Minimum <input type="text"/> Maximum <input type="text"/> <small>1 Ton equals 12,000 Btu/h</small>	<b>Heating Capacity (Btuh)</b> <a href="#">Help</a> Minimum <input type="text"/> Maximum <input type="text"/> <small>1 Ton equals 12,000 Btu/h</small>
<b>Model Number</b> <a href="#">Help</a> Outdoor Unit <input type="text"/> Indoor Unit <input type="text"/>		<b>SEER (Btuh/Watt)</b> <a href="#">Help</a> Minimum <input type="text"/> Maximum <input type="text"/>	<b>HSPF (Btuh/Watt)</b> <a href="#">Help</a> Minimum <input type="text"/> Maximum <input type="text"/>
<b>Outdoor Unit Manufacturer</b> <a href="#">Help</a> Please select a Manufacturer		<b>Indoor Coil Manufacturer</b> <a href="#">Help</a> Please select a Manufacturer	
<b>Outdoor Unit Brand</b> <a href="#">Help</a> Please Select an Outdoor Unit Brand		<b>Single-Phase or 3-Phase</b> <a href="#">Help</a> Please make a selection	
<b>Indoor Coil Brand</b> <a href="#">Help</a> Selected from Table	<b>Split Systems or Packaged Units</b> <a href="#">Help</a> Splits and Packages	<b>OEM vs. Independent Coils</b> <a href="#">Help</a> Search HP and HPCOILS	<input type="button" value="Search The Database"/> <a href="#">Reset Values</a>



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# Equipment Is Not Enough!

# What is a Quality HVAC Installation?

## Agreement on Complete Definition Didn't Exist

- CEE members developed specification
- Lacked full industry support
- ACCA, CEE and other stakeholders developing specification

1. “Matched System”
2. Proper Equipment Sizing/Selection
3. Refrigerant Charge and Air Flow are Correct
4. Ducts Sealed and Well-Designed

# Why Promote Quality Installation?

- Get Expected Energy Savings/Peak Demand Reduction
- Health, Comfort, Safety, Lower Costs
- Minimize Warranty Claims and Exposure

## Who Benefits:

Manufacturers, Quality Contractors, Skilled Technicians, Utilities, Environment, Grid, and Consumers!

# Who are the Key Market Players?

- Direct Market Participants: Manufacturers ↪ Consumer
- Supporting Industry Organizations
  - Trade organizations (ACCA, ARI, PHCC, RSES, SMACNA)
  - Testing and Certification (NATE)
  - Training
  - Diagnostic/Verification Tools Companies
- Efficiency Program Administrators
- Federal Government (DOE and EPA)
- Local Government (Building Code Offices)

# Why Aren't Quality Installations the Norm?

- Substantial Market Barriers:
  - Consumers Don't Understand Benefits of QI
  - No Brand or Symbol for QI
  - HVAC Purchases are Unexpected & Unplanned
  - Shortage of Techs; Surplus of Contractors

# The Sufficient Market Conditions Don't Exist Nationally

Several efforts by individual stakeholders

- Most on a local or regional level
- Seldom coordinated with other industries

Multiple industries working together is effective!

# What Are the Desired Market Conditions?

1. Stakeholder Agreement on the Definition of “QI”
2. QI can be verified and measured in the field
3. Supply-side is able and willing to deliver QI
4. Consumers understand benefits of QI
  - Can identify and select QI in the marketplace

# ACCA Quality Installation Specification

## Committee:

- Manufacturers
- Contractors
- Utilities
- Efficiency Advocates
- Certification Bodies
- EPA

## End Product:

- Attributes
- Metrics
- Metric Values
- Verification Method
- Acceptable Evidence

Provide Credible Definition and Platform for Efficiency Programs



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# HVAC Maintenance & Tune Ups

- 15 Year Lifespan for Equipment
  - Limited opportunities to influence equipment and installation
- Existing Equipment Performance is Suboptimal
- Increasing Number of “*Clean & Tune*” Programs
- Energy Bill Maintenance Awareness Campaign
  - Increased consumer awareness may spark program opportunity

# Equipment, Installation, & Maintenance

Programs are becoming more holistic

1. Consumer education +
2. Equipment rebate +
3. Trained and certified technician +
4. Verification by credible third party +
5. Maintenance agreement incentive +
6. Tune-up incentive

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Health, Comfort, Safety, Energy Savings, & Peak Demand Reduction!

# National HVAC Developments--Review

- Increasing Federal Minimum Standard
- Increasing ENERGY STAR Requirements
- Possible ENERGY STAR Installation Program
- Increasing CEE Requirements
- CEE Directory of ARI-Verified Equipment
- ACCA Quality Installation Specification
- Federal Energy Bill
  - Tax credits for equipment
  - HVAC maintenance public awareness campaign

# Opportunities to Get Involved

1. Participate in the ENERGY STAR Process
  - Monitor and comment on “Installed to ENERGY STAR Guidelines”
2. Attend a CEE Program Meeting
  - December 13<sup>th</sup> and 14<sup>th</sup> -- San Francisco, CA
  - Become a member
3. Leverage Maintenance Awareness Campaign