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Energy Efficiency, Clean Energy, Sustainability: Industry Perspectives and ERS Services

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November 2, 2012

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Presentation Agenda

- ❑ Status of Energy Efficiency and Clean Energy Industry
- ❑ ERS Services and Business Areas
- ❑ Sample ERS Projects
- ❑ Discussion

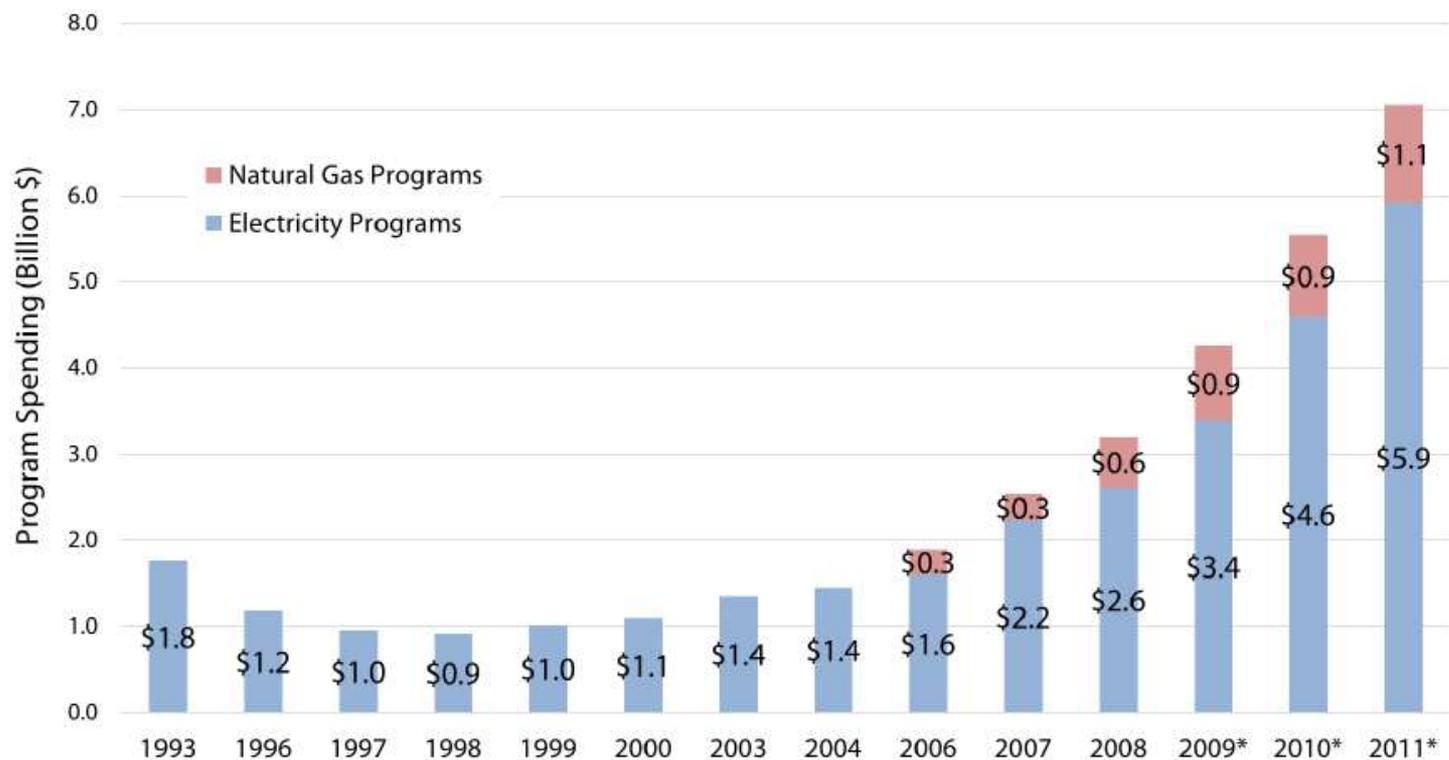
State of the Industry

- ❑ Energy Efficiency Programs – driven at a state level
- ❑ Federal initiatives exist but are limited
- ❑ Budgets are at their highest levels ever
- ❑ Limited resources in the field
- ❑ High demand for new talent
- ❑ Looking for a career? – the industry needs you



U.S. Spending on Efficiency

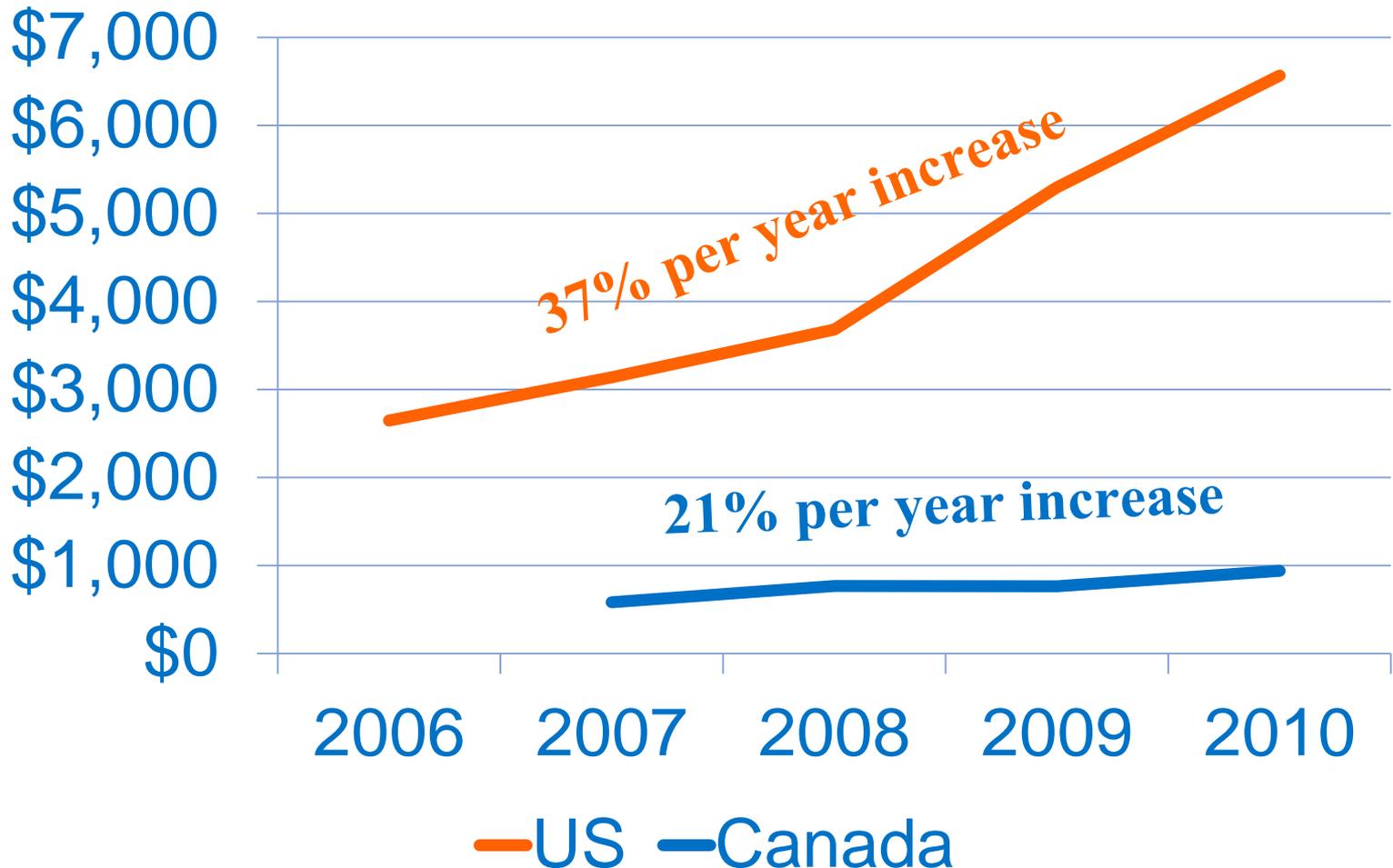
Figure 2. Annual Electric and Natural Gas Energy Efficiency Program Spending or Budgets





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Energy Efficiency & Load Mgmt Spending (Millions)



- 2006-10 US GDP growth rate: 1% per year
- US gas & electric both grew at 37%
- C/I gas up 50% per year (historically focused on low income).



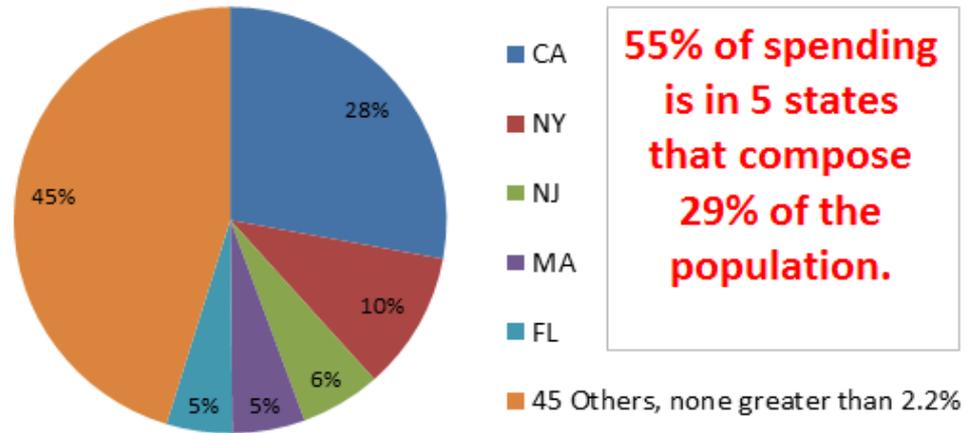
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Energy Efficiency Activity

Region	2010	2011
Northeast (New England, NY, NJ)	\$1.9 Billion	\$2.3 Billion
Midwest	\$680 Million	\$781 Million
South	\$900 Million	\$1.2 Billion
West	\$2.3 Billion	\$2.5 Billion

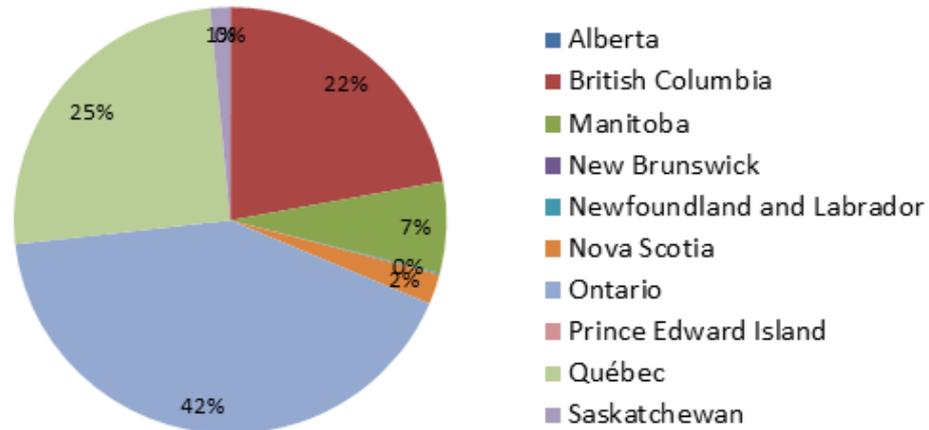
Source: CEE's 2010 State of the Efficiency Program Industry

U.S. Spending by State



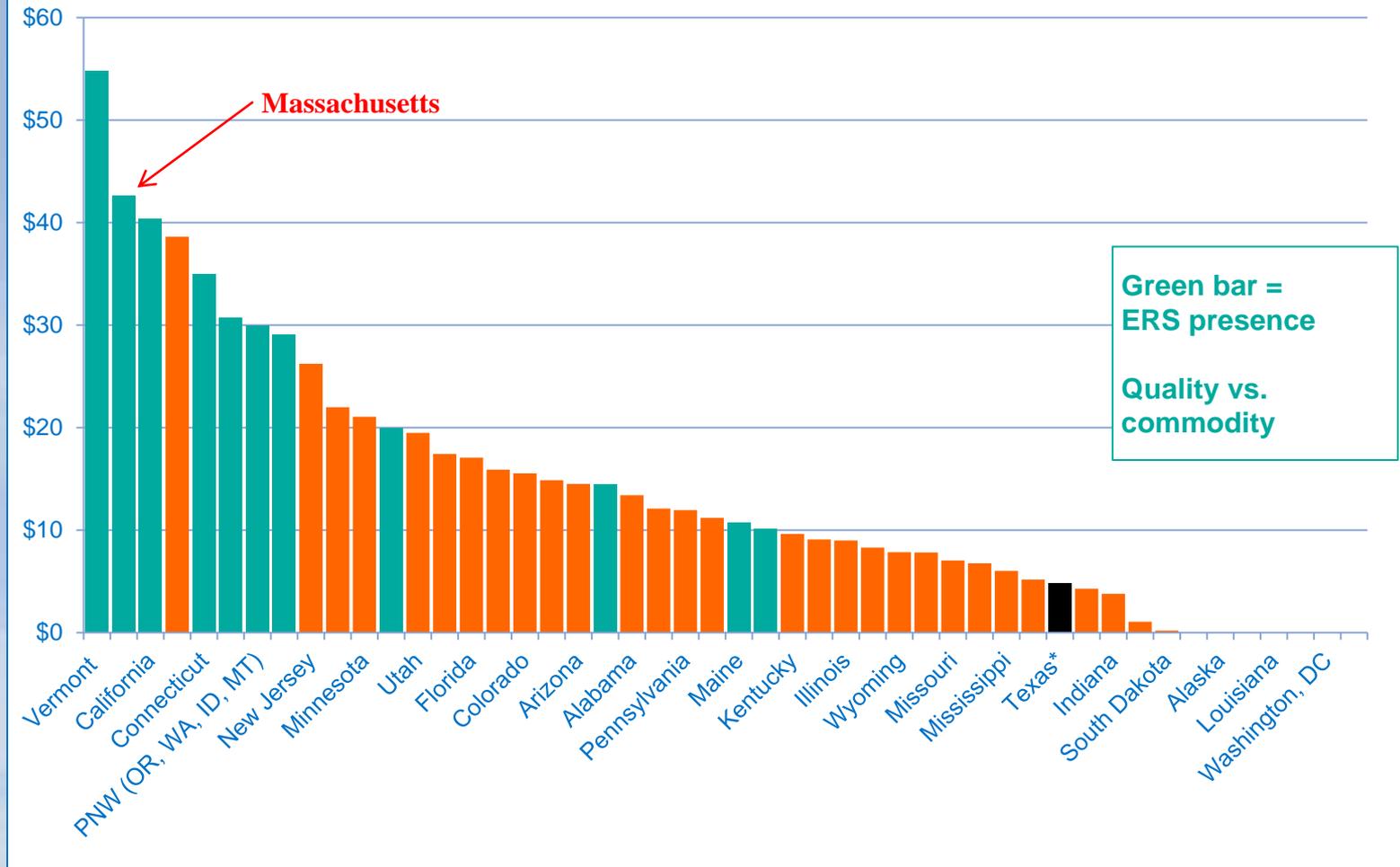
**55% of spending
 is in 5 states
 that compose
 29% of the
 population.**

Canadian Spending by Province



- The South Central U.S. has 60x the area & 8x the population of MA, but spends less on EE.

2010 Energy Efficiency & Load Management Spending



*Per Capita spending CEE's 2010 State of the Efficiency Program Industry. Some post-processing by ERS.

State Efficiency Scorecards

State	Year in Top 5	Years in Top 10
California	6	6
Oregon	6	6
Massachusetts	5	6
New York	5	6
Vermont	5	6
Connecticut	3	6
Minnesota	0	6
Washington	0	6
Rhode Island	0	5
Maine	0	2
Maryland	0	2
New Jersey	0	2
Wisconsin	0	1



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Looking Forward . . .

- ❑ Great state legislative support over last five years.
- ❑ Many programs still ramping up.
- ❑ NY, CA, and others have reaffirmed carbon reduction goals.
- ❑ Despite economic challenges, states and cities are restating their commitment to sustainability.
- ❑ Major national and international efforts anticipated.

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About ERS

- ❑ Established in 1995
- ❑ Office locations
 - North Andover, MA
 - New York, NY (Times Square)
 - Augusta, ME
 - Santa Clara, CA
 - Portland, OR
 - College Station, TX
- ❑ 60 employees
- ❑ Continued growth
- ❑ Unique work culture



Energy Efficiency Consulting: ERS Services

- ❑ Types of Services
 - Engineering and Technical Assistance
 - Program Design and Implementation
 - Energy Program Evaluation
 - Sustainable Building Development

- ❑ Sources of Funding
 - Utility Sponsored Programs
 - State Sponsored Programs
 - Federal Sponsored Programs
 - Large Private Corporations and Organizations

Engineering and Technical Assistance

- ❑ Energy Efficiency Feasibility Studies
 - Comprehensive and Focused
 - Commercial and Industrial
 - Existing Buildings and New Construction
 - Benchmarking
 - Energy Master Planning
 - Retrocommissioning (RCx)
- ❑ Demand Response Assessments
- ❑ Industrial Process and Productivity Efficiency
- ❑ Renewable Energy Systems
- ❑ Combined Heat and Power (CHP)
- ❑ Distributed Generation (DG)
- ❑ Green Building Assessment/Sustainable Design

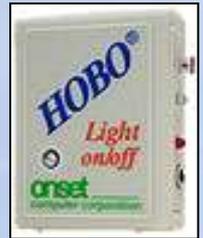
Program Planning and Implementation

- ❑ Program Development and Implementation
- ❑ Program Research and Assessment
- ❑ Energy System Baseline Assessments
- ❑ Energy Efficiency Potential Studies
- ❑ Assessment of Energy Efficiency Technologies
- ❑ Program Marketing and Outreach
- ❑ Quality Control and Assurance
- ❑ Database Development



Energy Program Evaluation

- ❑ Evaluation Program Design and Planning
- ❑ Engineering Data Collection
- ❑ Measurement, Verification, and Analysis
- ❑ Survey Instrument Development
- ❑ Net-to-Gross Survey Administration
- ❑ Realization Rate and Attribution Analysis
- ❑ Testimony
- ❑ Benefit-Cost Analysis



Sustainable Building Development

- ❑ Energy Efficiency and Sustainable Design
- ❑ High Performance Building System Design
- ❑ Daylight Harvesting
- ❑ State-of-the-Art Lighting Design
- ❑ Water Conservation
- ❑ Renewable Energy Systems
- ❑ Construction Practices and Materials
- ❑ Indoor Environmental Quality
- ❑ LEED Consulting



Other Services

- ❑ Clean Energy Policy Consulting
 - Green Communities
 - Energy Codes
 - Benchmarking
- ❑ International Energy Consulting
 - Eastern Europe
 - Asia
 - Developing Country Program Development



Case Study Project: Efficiency Maine Program Design and Delivery

- ❑ Design and Delivery of State-Wide Energy Efficiency Program
- ❑ Business Program for Existing Commercial and Industrial Facilities
- ❑ New Construction Program for Commercial Facilities
- ❑ Residential Efficient Products
- ❑ Technologies
 - Lighting
 - HVAC
 - Controls
 - Refrigeration
 - Compressed Air
 - Industrial Process
- ❑ ERS Runs All Promotional, Market Development, Project Review, Technical Analysis, and Inspection Activities



Case Study Project: NYSERDA Industrial & Process Efficiency Outreach

- ❑ Provide outreach services and technical assistance to industrial facilities across NY
- ❑ Energy savings based on energy intensity reductions (ex: kWh consumed per part produced)
- ❑ Focus on facilities with demand > 2MW
- ❑ Goals:
 - Electric: 840,000 MWh by 2013
 - Gas: 1,680,000 MMBtu
- ❑ Parallel paths approach:
 - Facility site visits
 - Public agencies
 - Trade allies
 - Customer events



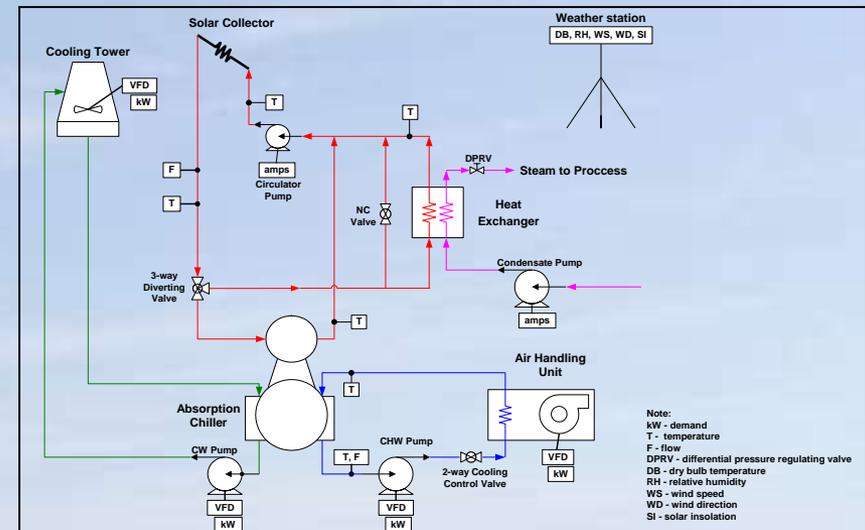
Case Study Project: High Performance Schools Research and Protocol Development

- ❑ Collaborative for High Performance Schools (CHPS)
 - Better Performing Students, Teachers, Buildings
- ❑ Northeast CHPS Protocol
 - Site Development
 - Indoor Air Quality
 - Energy Consumption
 - Renewable Energy
 - Daylighting
 - Transportation
 - Green Communities
 - Recycled, Recyclable, and Local Materials
- ❑ New – High Performance Renovations for Existing Schools



Case Study Project: Steinway and Sons Solar Thermal Cooling Project Development

- ❑ Solar Driven Absorption Chiller Project
- ❑ Process Heating (Steam Generation from Solar)
- ❑ Space De-Humidification/Cooling
- ❑ Space Heating
- ❑ Demonstration Project (Largest System of It's Kind)
- ❑ Industrial Application



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