



Regional CHP Application Centers

CHP Subcontractors Coordination Review Meeting
April 14th, 2005
Ted Bronson, Power Equipment Associates

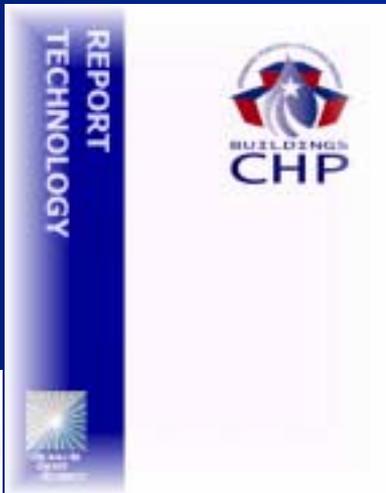
ORIGINS – RACs

- **BCHP Working Group**
 - USDOE, ORNL, Utilities, R&D Organizations
 - 1999 Consensus Roadmap
- **US DOE / EPA CHP Challenge ('98)**
 - 2000 CHP Roadmap
- **Selection of UIC's ERC as Pilot RAC (2001)**
- **Initial Scope:**
 - Education and outreach
 - Project Support





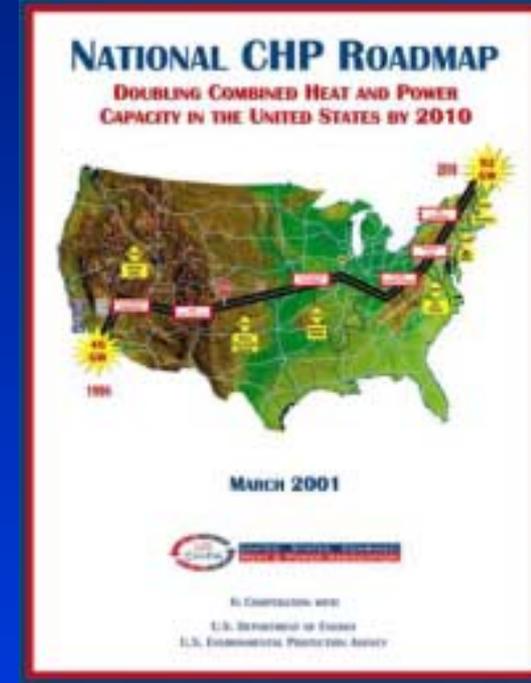
BCHP Working Group



U.S. DOE CHP Vision and Technology Roadmap

REGIONAL RECOMMENDATIONS:

- 1) Raise CHP Awareness - Create new and support existing CHP awareness efforts by Regional and State Groups
- 2) Conduct a coordinated outreach campaign to educate architects, building designers, and local building and other code officials about CHP
- 3) Provide SWAT team technical assistances to those interested in installing CHP Systems



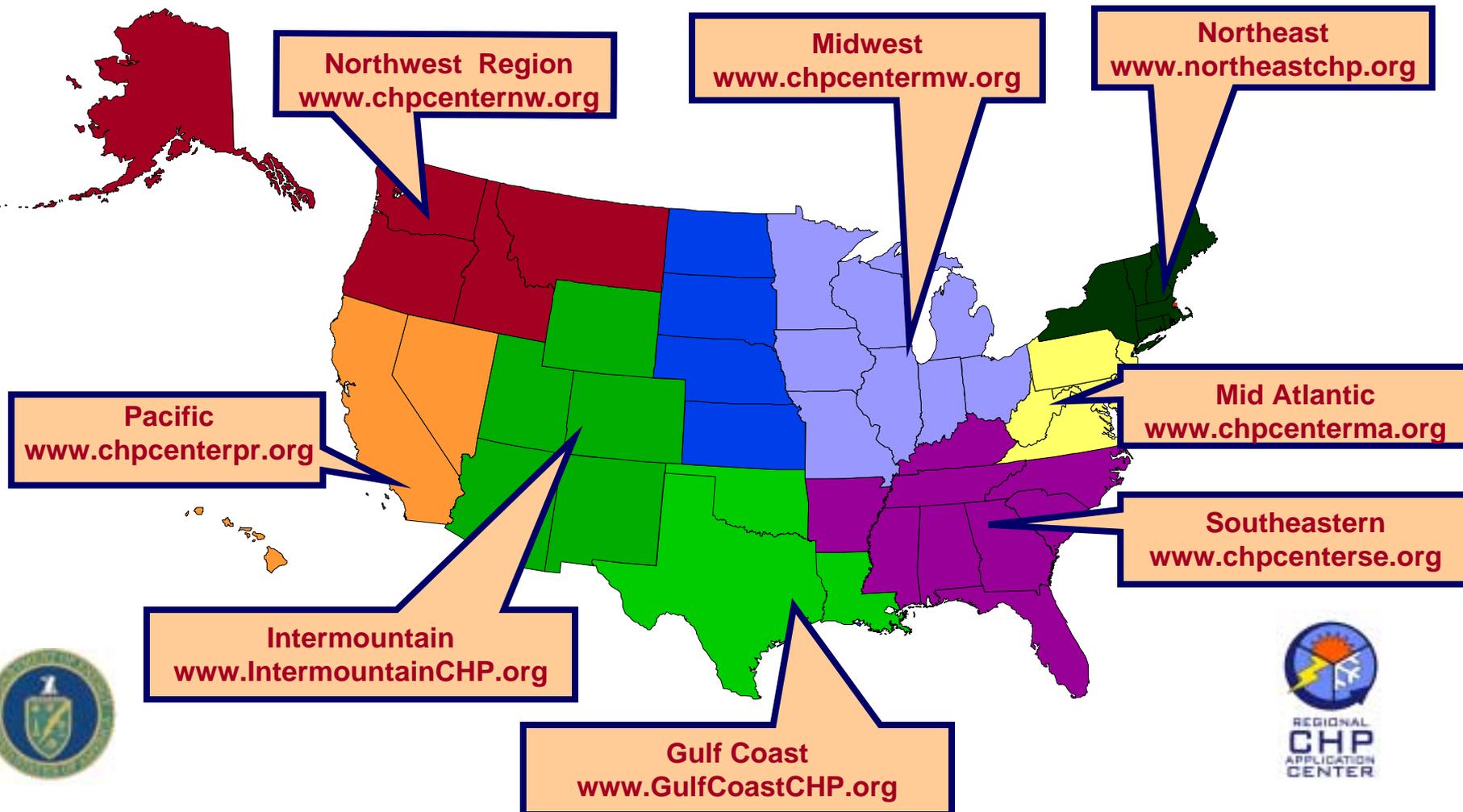
Regional CHP Application Centers

- **Purpose: DOE Headquarters Program to lead regional deployment of CHP technologies thru:**
 - **Educating regional players on benefits of CHP technologies, while reducing perceived risks**
 - **Providing project specific support**
 - **Providing feedback to DOE and industry regarding future R&D program needs**
 - **Providing regional coordination and implementation of DOE projects**



Regional Application Centers

The regional application centers will promote combined heating and power (CHP) technology and practices, serve as a central repository and clearinghouse of CHP information, and identify and help implement regional CHP projects.



RACs vs. Initiatives

- RAC – DOE Funded entity providing Education and Outreach and Project Support to develop CHP market
- Regional Initiatives – Voluntary, Ad-hoc organizations driving roadmap actions and Advocacy efforts in the Regions
 - **Provide insight and direction to RAC**
 - **Provide a mechanism to disseminate RAC results**
 - **RAC provides horsepower to implement ideas**



RAC Services Offered

- **Education and Outreach**
 - Website (Available & Updated)
 - Focused Training and Educational Courses
 - Workshops / Conferences
 - Regulatory Interactions
 - Project Profiles / Case Studies
- **Project Support**
 - Site Evaluations (Screening)
 - Application Analysis (Tech / Financial)
 - Technical Assistance



Tools (Developed by RACs)

- **RAC Protocols (MW) – Guidebook, Case Studies, Baselines**
- **Training Courses / CHP Primer (MW)**
- **Best Practices Installation Seminar for Project Developers (NE, MW)**
- **CHP Graduate Level Education (MW)**
- **CHP Site Walkthrough Screening Guide (MW)**
- **Environmental Permitting Guidebook (MW, NE)**
- **CHP Resource Guidebook (MW)**
- **Hospital / Healthcare Targeted Market Materials (ORNL, MW)**



Tools (Developed by others)

- **US DOE / ORNL CHP Education and Outreach Projects**
 - **University Case Studies (IDEA)**
 - **Opportunity Fuels Report (RDC)**
 - **Project Installation Database (EEA)**
 - **Industrial Association Outreach (USCHPA)**
 - **Urban Planning (GTI)**
 - **State Issue Project (EEA and ACEEE)**
 - **Numerous Market Studies**
- **Recycled Energy Materials**
- **Other Govt Agencies**
 - **HUD CHP Guidebook**
 - **Steam Program, CHP Analysis Tool**
- **Economic Analysis Tools**
- **USDOE / ORNL Product Development and Deployment**



Midwest Regional CHP Application Center

States

- Illinois
- Indiana
- Iowa
- Michigan
- Minnesota
- Missouri
- Ohio
- Wisconsin

Key Partners

- UIC Energy Resources Center
- Gas Technology Institute

Strengths / Focus

- Engineering / Site Analysis
- Hospital / Schools / Ethanol / Biomass
- Project Profiles



Intermountain Regional CHP Application Center

States

- Arizona
- Colorado
- New Mexico
- Utah
- Wyoming

Key Partners

- etc. Group
- Southwest Energy Efficiency Project
- Energy Strategies

Strengths / Focus

- Energy Efficiency
- Regulatory
- Utility Relationships
- Opportunity Fuels



Mid-Atlantic Regional CHP Application Center

States

- Delaware
- Maryland
- New Jersey
- Pennsylvania
- Virginia

Key Partners

- University of Maryland
- Rutgers University

Strengths / Focus

- CHP Building
Equipment (Lab)
- Federal Sector



Northeast Regional CHP Application Center

States

- Connecticut
- Maine
- Massachusetts
- New Hampshire
- New York
- Rhode Island
- Vermont

Key Partners

- University of Massachusetts – Amherst
- Pace University
- NYSERDA

Strengths / Focus

- Policy
- Grid Relief
- WW Treatment



Northwest Regional CHP Application Center

States

- Alaska
- Idaho
- Oregon
- Montana
- Washington

Key Partners

- Washington State University (Lead)
- State Energy Offices

Strengths / Focus

- District Energy
- Legal, Institutional, and Regulatory Matters
- Waste Heat to Power
- Large Industrials



Pacific Regional CHP Application Center

States

- California
- Hawaii
- Nevada
- Pacific Territories

Key Partners

- San Diego State University
- University of California at Berkeley
- University of California at Irvine

Strengths / Focus

- Cooling Applications
- Ultra Clean Technologies



New Regional Application Centers

- Southeast

- Arkansas, Mississippi, Alabama, Georgia, Florida, South Carolina, North Carolina, Kentucky, Tennessee
- Mississippi State University and North Carolina State University

- Gulf Coast

- Texas, Louisiana, and Arkansas
- Houston Advanced Research Center



RAC Accomplishments

- **General**

- **Regional Roadmap Workshops**

- » **In 2004, all 6 RACs have been engaged in developing these roadmaps to identify regional areas of focus**
 - » **Some RACs used forum to build Stakeholder advisory groups or Initiatives**

- **Websites**

- » **Following the Lead of the Midwest, each RAC has an established website as an educational source to end-users, policy makers and other stakeholders**

- **Baseline Studies**

- » **Each RAC is in the process of completing State Baseline studies to understand the CHP landscape in their states**



RAC Accomplishments

- **Midwest**

- **Installations - > 100 MWs affected**

- » **Leading efforts for Schools, Hospitals, Office Buildings, and the Ethanol markets; Numerous workshops, and project profiles completed**
 - » **Developed several courses and tools to analyze and assess CHP installations and potential**

- **Education and Outreach**

- » **Regulatory Education**

- **Interconnect Workshop**
 - **Tariff Workshop**

- » **Targeted Markets (hospitals, schools, ethanol, biomass-digesters)**



RAC Accomplishments

• Intermountain

- Significant involvement through Utah PSC with Gas and Electric utilities establishing CHP as a resource
 - » PSC Demand Side Management Task Force
 - » Distributed Energy Task force
 - » Utah Power / Questar Joint CHP-DE Assessment
 - Identified 10 candidates for CHP – joint contacts with utility
 - Reviewed Feasibility Study at the University of Utah
- Outreach to
 - » Western State Energy Users
 - » Colorado DG Roundtable
 - » Questar Gas Customers
 - » Utah Resources Forum
 - » National Conference of State Legislatures



RAC Accomplishments

- **Mid-Atlantic**

- **Used Regional Roadmap process to develop advisory group of key Regional Stakeholders**
 - » **Developed MAAC Action Plan**
- **Outreach**
 - » **Participating in MADRI process**
 - » **Participated in Optimizing Steam System Performance Workshop**
- **Project Support / Feasibility Studies**
 - » **National Aquarium**
 - » **Metal Finished Products Company – Organic Rankine Cycle Application**
 - » **USPS Sorting Facility**



RAC Accomplishments

- **Northeast**

- **Meeting with State Energy Offices to identify key market segment focus areas**
- **Outreach**
 - » **Meetings with large commercial real estate developers to educate on incentives and opportunities**
 - » **Seminar on CHP Best Practices for project developers and design firms**
- **Project Support / Feasibility Studies**
 - » **Large Commercial Real Estate Developments**
 - » **Country Clubs**



RAC Accomplishments

- **Northwest**

- **Project / Technical Support:**

- » **Seattle South Lake Union District Energy Project**
 - » **720 MW BP refinery at Cherry Point, WA**
 - » **Renton Sewage Treatment Plant**
 - » **Bremerton Naval Complex**

- **Outreach**

- » **Waste Heat to Power Conference**
 - » **CHP and Digester Applications for Dairy Farms**
 - » **Northwest Power Planning Council**
 - » **Northwest Industrial Gas Users Association**
 - » **Oregon's Fair and Clean Energy Coalition**



RAC Accomplishments

- **Pacific**

- **Outreach activities to**

- » **Rebuild Hawaii / Hawaii DG /CHP Workshop**
 - » **CA University facility managers working group**
 - » **Sempra Energy account managers to target potential CHP customers**
 - » **Strategic Energy Plan of Contra Costa County**
 - **Identified 3 recommended CHP projects**
 - **RAC supporting and working to identify additional opportunities**
 - » **Nevada Energy Efficiency / Renewable Energy Task Force**



RAC Coordination Activities

- **Purpose:**
 - **To leverage work already done to optimize performance of RACs**
 - **To identify regional strengths that can be applied nationally**
 - **To coordinate ongoing work, especially for market sector development (i.e. hospitals, schools, industrial)**



RAC Coordination Activities

- **Regional Kickoff Meetings**
 - Set expectations / communication
 - Identify Strengths
- **Quarterly Working Group Calls**
- **Semi-Annual Face to Face Meetings**
 - To educate RACs on results of DOE and Industry Projects
 - To coordinate with other govt entities
 - » EPA CHP Partnership
 - To exchange information on best practices and new tools
 - To build relationships between the Regions
- **CHP Application Center Toolkit**



Upcoming RAC Events: Regional CHP Roadmap Workshops

- Gulf Coast CHP Roadmap Workshop
 - April 26th -27th, Woodlands, Texas
 - (<http://www.energetics.com/gulfcoastchp.html>)
- Southeast CHP Roadmap Workshop
 - May 17th-18th (tent.), Atlanta, GA



Targeted Workshops - IMRAC

- **CHP Policy Issues for the Arizona Corporation Commission and Other Stakeholders -- jointly sponsored by the Distributed Energy Association of Arizona (summer, 2005 – date depends on pending rate case)**
- **Municipal Landfills and Wastewater Treatment Plants, Denver, Colorado (summer, 2005)**
- **CHP for Architects and Engineers, Salt Lake City, Utah (August 10, 2005)**
- **Municipal Landfills and Wastewater Treatment Plants, Salt Lake City, Utah (August 11, 2005) – may cover other opportunity fuels sectors**
- **Agricultural Sector, Colorado (October 2005)**



Targeted Workshops – MW RAC

- **Architect / Engineer Education in Illinois**
 - **May 16th – Willowbrook, IL (Chicago suburb)-with MW Cogen Association**
 - **May 24th – Joliet, IL**
 - **May 25th – Bloomington / Peoria, IL**
 - **TBD – Rockford, IL**
- **3rd Annual MW DG/CHP Regulatory Forum – “The Effect of CHP Regulation on State Economy and Consumer Benefits,” June 8th, Next Energy Center, Wayne State University, Detroit, Michigan**
- **Food Processing (TBD)**
- **K-12 Schools (TBD)**
- **Municipal Electric Utility Outreach Programs (Ohio, Wisconsin, and Iowa) (TBD)**



Targeted Workshops - Others

- **Northeast**

- **CHP for the Multifamily Building Sector, June, Hartford, CT (with HUD)**
- **Hospitals and Healthcare (Summer, 2005)**

- **Mid-Atlantic**

- **Maryland's Annual Energy Conference (November, 2005)**
- **FEMP (TBD)**
- **Opportunity Fuels (TBD)**



Targeted Workshops – Others

- **Northwest**

- **Interconnection with a 3rd party for utility T&D engineers, Seattle, WA – On hold pending legislation in WA and PUC activity in OR, ID, and MT.**
- **Anaerobic Digestion with CHP (2nd – November, 2005)**
- **2nd Annual Waste Heat to Power Conference (2006)**

- **Pacific**

- **CHP in LEED's Activities with SEMPRA, Summer, 2005**
- **CARB 2007 DG Emissions Regulations, Fall, 2005**
- **State Buildings and LEEDs (TBD)**



The Future of RACs

- RACs are now well positioned and in action to:
 - **engage and educate key state and regional organizations to promote CHP as an option in Regional Power Planning**
 - **engage key target markets in their region to educate them on benefits of CHP**
 - **identify key potential CHP projects for project development and technical support –**
 - **work together to leverage resources and optimize overall program success.**



For Further Information

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