

Mid-Atlantic CHP Update

**Mid-Atlantic CHP Application Center
Roadmapping Workshop
University of Maryland Inn and Conference
Center**

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DOE EERE

Mid-Atlantic Regional Office

Status in the Mid-Atlantic Region

- Increasingly More Difficult to Promote
 - Poor Economy
 - Uncertainty in Energy Prices
 - Lack of Utility Support (Electric & Gas)
 - Lack of Customer Recognition / Enthusiasm
 - Quantifying “Other” Operating Benefits
- Incentives
 - States starting to offer incentives
 - Recognition of CHP value

Mid-Atlantic Strategy

- Develop/Implement Results of the CHP Roadmap
- Coordinate Mid-Atlantic Activities with the National Strategy
- Incorporate Mid-Atlantic Distributed Generation Demand Response Activities with CHP Roadmap activities
- Address Sustainability of the Midwest CHP Application Center

Mid-Atlantic CHP Roadmap

Monetize all benefits of CHP

Need examples of successful installations

Expand use of opportunity fuels

Streamline the build, own and operate process/Packaged Systems

Focus on most top market sectors

Establish financing support

Address regulatory issues

Pursue utility CHP applications

Utilize “recycle energy” materials for education

Mid-Atlantic CHP Initiative

Project Implementation

Regulatory and Policy Development

Information/Targeted Education

Mid-Atlantic CHP Application Center

Application Assistance

Respond to technical assistance requests

Co-fund technical feasibility studies

Technology Information

Web site maintenance

Case studies/Fact sheets

Baseline State assessments

Lead/Support Initiative meetings

Support PUCs re: information needs

Educational Support

Development of course materials

Targeted education workshops

Present at workshops/conferences

Training

Organize annual regulatory forum

Mid-Atlantic CHP Initiative

- Voluntary, ad-hoc, action-oriented entity
- Mission: Lead the Mid-Atlantic implementation of CHP technologies in support of DOE and EPA's goal of doubling CHP use by 2010 through (a) coordination and regional collaboration of various stakeholder groups and (b) engaging the Mid-Atlantic CHP Application Center to support completion of Initiative and Roadmap actions.
- Three Subcommittees
 - Information/Targeted Education
 - Project Implementation
 - Regulatory/Policy Development

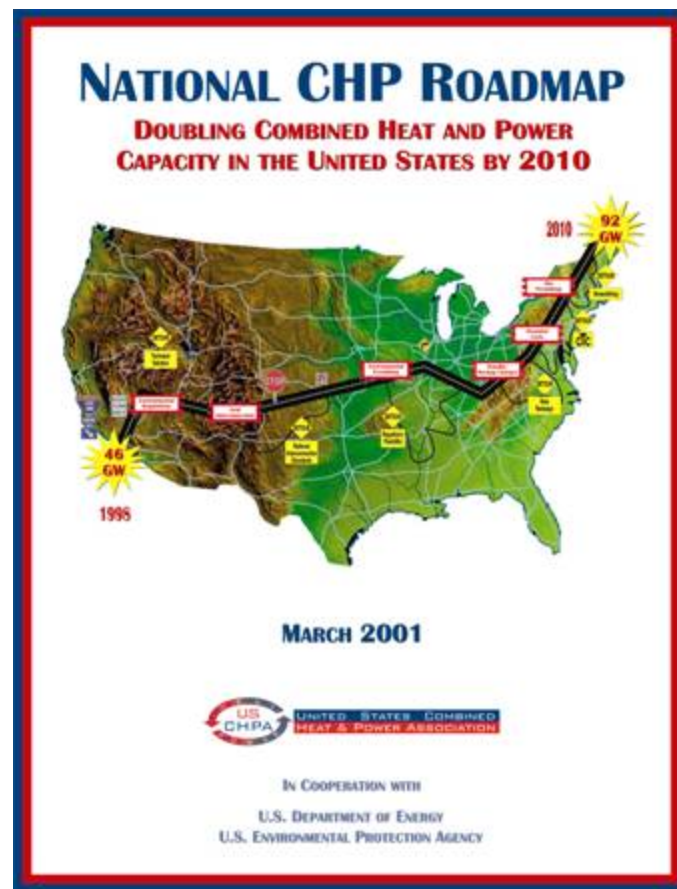
Plan for a Sustainable Mid-Atlantic CHP Application Center

- Provide base support:
 - Education
 - Information
 - Technical Assistance
- Seek financial support from the Mid-Atlantic CHP stakeholders
 - State Energy Offices
 - Utilities
 - Equipment manufacturers/Installers
- Develop paid member services/benefits

Combined Heat and Power

Our CHP activities are guided by the actions identified in the National CHP Roadmap as those items required of us to meet the CHP Goal

- **Raise CHP Awareness**
- **Eliminate Regulatory and Institutional Barriers**
- **Develop CHP Markets and Technologies**



CHP Systems

Distributed Generation Technologies

Thermally-Activated HVAC Technologies



Gas-turbine



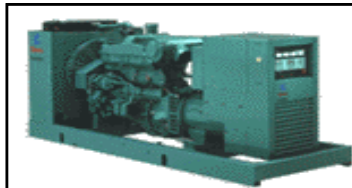
Solid Oxide Fuel Cell



Microturbine



Commercial Phosphoric Acid Fuel Cell



I.C. Engine



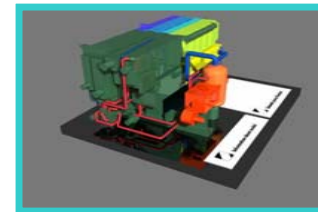
Residential PEM Fuel Cell

800°F

600°F

360°F

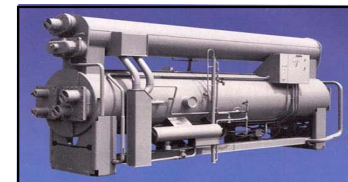
180°F



Triple-Effect Absorption Chiller



Double-Effect Absorption Water-Cooled Chiller



Single-Effect Absorption Chiller

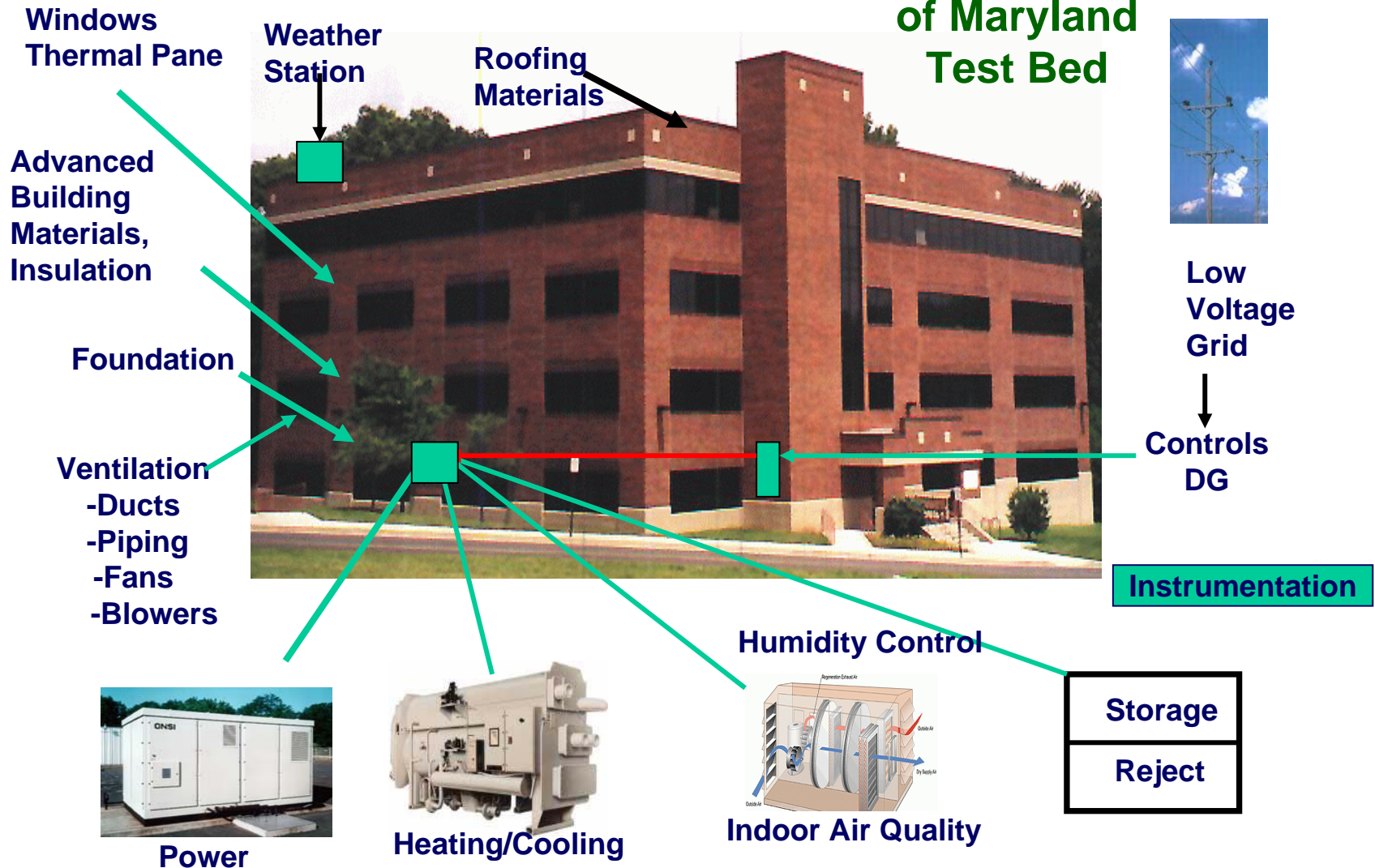


Desiccant Technology

Recoverable Energy Quality (Temperature) and HVAC Technology Match

Integration of Distributed and CHP Systems

University of Maryland Test Bed



Application Centers

University of Illinois-Chicago: Midwest Regional CHP Applications Center

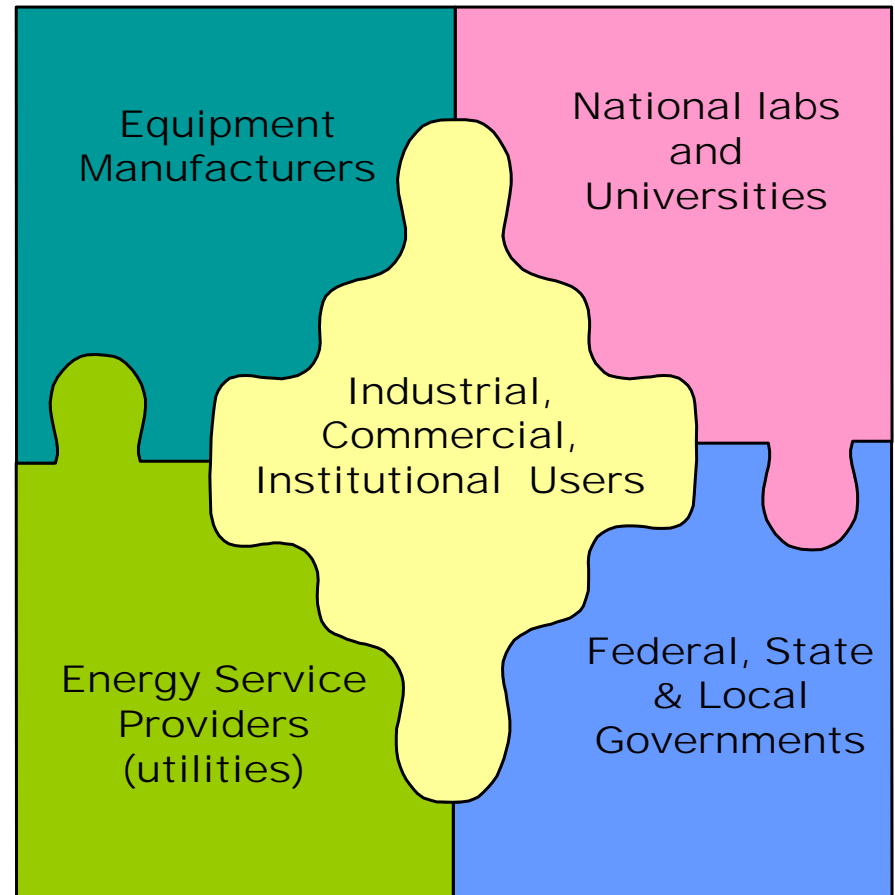
- facilitate CHP projects, technical assistance
- region-specific information, application knowledge



- **Guidebook**
- **Lessons learned in setting up Application Center**
– to be used by future centers

Strategic Partnerships

- www.eren.doe.gov/der
- **Technical publications**
- **Workshops and conferences**
- **Technology planning**
- **Cost-shared RD&D**



Mid-Atlantic CHP

	Commercial		Industrial		Other		Total	
State	Sites	MW	Sites	MW	Sites	MW	Sites	MW
DE			5	426			5	426
MD	6	78	8	687			14	766
NJ	116	223	60	3,196	3	2	179	3,421
PA	37	588	47	1,389	11	662	95	2,638
VA	10	79	33	1,828	1	240	44	2,147
WV	4	145	4	228			8	374
Total	173	1,112	152	7,329	15	903	340	9,770

Federal Market Analysis

- Executive goal to decrease energy consumption at federal facilities.
- Opportunities to save energy and reduce energy expenditures still exist at facilities in Mid-Atlantic region.
- Restructuring within energy industry introduces new opportunities to leverage government investment in energy efficiency and renewable energy (EERE) projects.
- Saving energy optimally accomplished by alignment of facility needs with available EERE options.
- Targeting of programs to promote EERE requires characterization of the end-user population.
- Vast amount of energy data available to segment population, but actionable information is not easily accessible.
- Assessment of current federal facilities regarding usage and renewable energy development

Enabling Demand Response Distributed Generation Conference

- 2 day workshop to explore opportunities for Demand Response and DG.
- Major Findings:
 - Education
 - Regulatory framework
 - Pricing Policies
 - Coordination of regional policies and technical standards
 - Metering
 - Development of tradable commodities market