

CHP Activities in the Midwest



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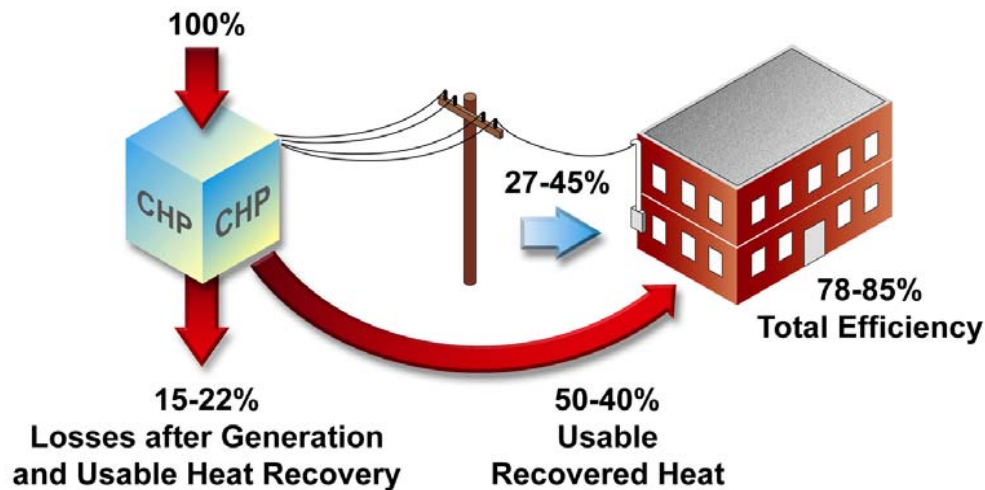
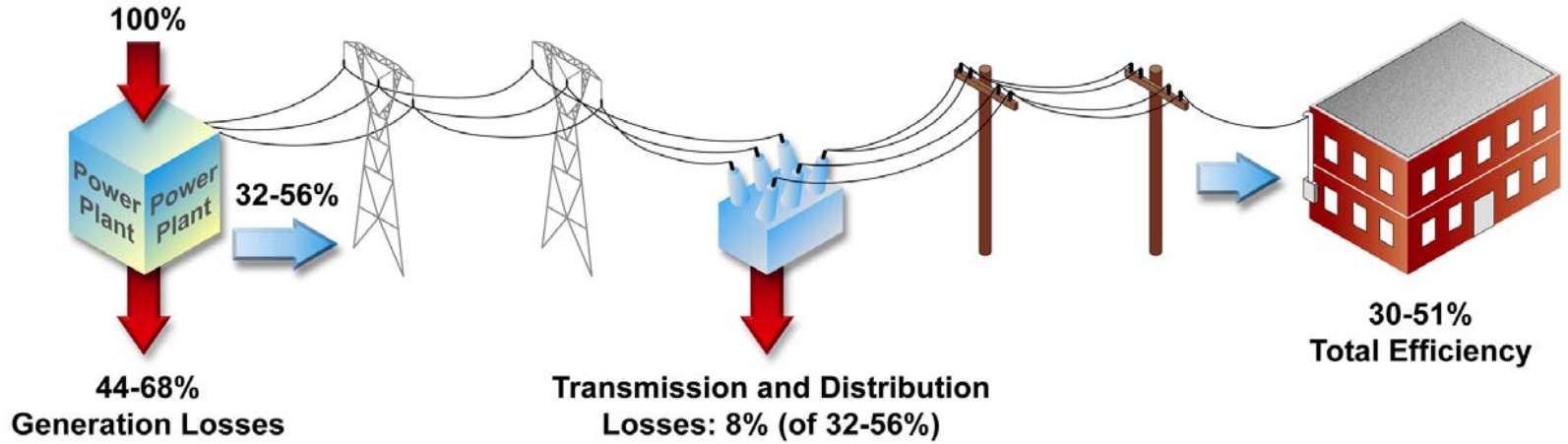




What is CHP?

- Integrated System
- Located At or Near A Building/Facility
- Provides a Portion of the Electrical Load
- Utilizes the Thermal Energy
 - Cooling
 - Heating
 - Dehumidification
 - Process Heat

How CHP Saves Energy





Types of Technologies

- Generation:

- Reciprocating Engines
- Advanced Turbines
- Microturbines
- Fuel Cells

- Thermal:

- Absorption Cooling
- Desiccant Dehumidification
- Enthalpy and Energy Recovery Technologies
- Thermal Storage



Why Is There An Opportunity?

- DOE/EIA Project Over 360 GW of New Capacity
 - To Meet Growing Demand
 - To Compensate for Plant Retirements
- Today's Central Station Plants Lose 23 Quads of Thermal Energy
- Aging Electric Transmission/Distribution System
 - Difficult to Site New Lines
 - Capacity Constrained
 - Costly to Maintain



Why is There an Opportunity?

- **Rising Concerns Over**

- Blackouts/Brownouts
- Power Supply Constraints
- Electricity Prices

- **Selected Power Outage Costs**

Industry	Avg. Cost of Downtime
Cellular Communications	\$41,000 per hour
Telephone Ticket Sales	\$72,000 per hour
Airline Reservations	\$90,000 per hour
Credit Card Operations	\$2,580,000 per hour
Brokerage Operations	\$6,480,000 per hour



Why Consider CHP?

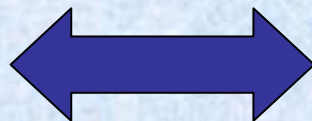
- Peak Electric Power Reduction
- High Efficiency – Up to 80%
- Power Security and Quality
- Significant Emissions Reductions
 - 40% Less than Central Plants
 - Improved Indoor Air Quality
- Supports the Electric Grid Infrastructure
 - Grid Reliability
 - Defers Costly Grid Updates
 - Provides Price Stability



Topic of Discussion

Midwest CHP Application Center

- DOE Funded Project
- UIC/ERC & GTI



Midwest CHP Initiative

- Coalition (Voluntary)
- Founding Members
 - GTI
 - UIC/GTI
 - Delta Institute
 - ELPC
 - NiSource

Promote the Use of CHP in the Midwest



Midwest CHP Initiative

- Voluntary Coalition of Interested Organizations
 - GTI
 - UIC/GTI
 - Delta Institute
 - ELPC
 - US DOE Chicago Regional Office
 - NiSource
 - Peoples Energy
 - Northeast/Midwest Institute
 - Illinois DCCA
 - Indiana Department of Commerce
 - Wisconsin Division of Energy
 - Michigan Public Service Commission
 - Minnesota Department of Commerce
 - US EPA
 - US EPA Region V



Midwest CHP Initiative

- **Mission:** Double the Amount of CHP in the Midwest by 2010
- **Focus:** Work to Remove Marketplace and Government Barriers to CHP Development
- **Committees:**
 - Permitting
 - Education
 - Policy
 - Market Development
- **Bimonthly Meetings**
- **Develop/Implement Action Plans**



Midwest CHP Initiative

- CHP Permitting Guidebook
- CHP Grid Interconnect Workshop
- CHP Policy Platform -- State Commissions
- Comments on Several State/Federal Issues
- Participate in Midwest/Federal Conferences
- Market Development Action Plan



Midwest CHP Application Center

Mission:

Develop Technology Application Knowledge and the Educational Infrastructure Necessary to:

- Reduce Perceived Risks
- Foster CHP for Buildings as a Viable:
 - Technical and Financial Option
 - Energy and Environmental Option

Focus: *(Foster Project Identification)*

- Education
- Information
- Project Assistance



Midwest CHP Application Center

- **Partnership:**

- University of Illinois at Chicago
Energy Resources Center --- UIC/ERC
and
- Gas Technology Institute --- GTI

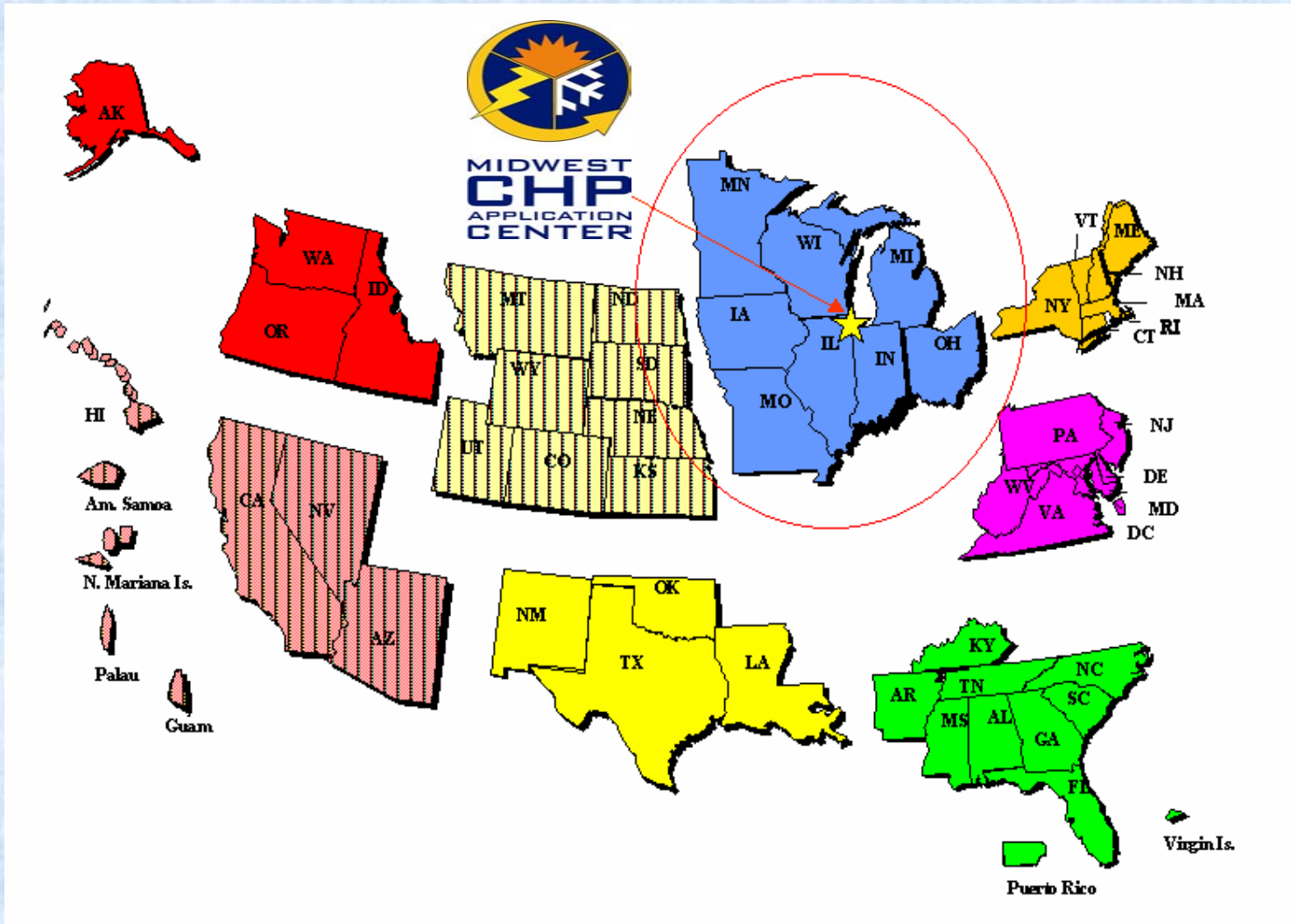
- **Sponsorship:**

- DOE Office of Power Technologies

- **Technical/Program Guidance:**

- Oak Ridge National Laboratory --- ORNL

Midwest CHP Application Center





Project Elements

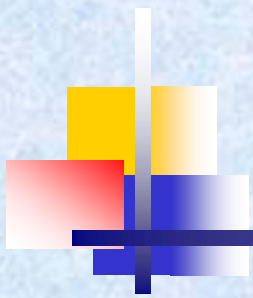
- Baseline Assessment / Characterization
- Case Studies
- Information Repository
- Project Support



Baseline Assessments *(By State)*

- Document Acceptance / Opposition to BChP
- Identify / Contact Target Customers
- Identify Installations (Operating & Planned)
- Document Current Policy and Pricing (Electric & Gas)
- Identify Market Barriers & Market Trends

**Guide Application Center Activities to
Identify Projects.**



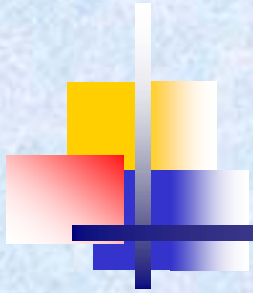
Case Studies

- Develop the Analysis Framework and Protocols
- Collect Information from Existing and New Sites
- Develop a Database of Case Studies



Information Repository

- Website --- Linked to Appropriate Sites
- Databases --- Expandable for Other Centers
- CHP Literature/Reports/Presentations



Project Support

Screening Criteria

Standard Outreach

Website

Tool Kit

- Case Studies
- Screening Software (GARD)
- Baseline Information
- Continuing Education Credits
- General Information

High Impact

Standard +

Facilitate Partnerships

Technical Assistance

SWAT Team



SWAT Teams

Mission:

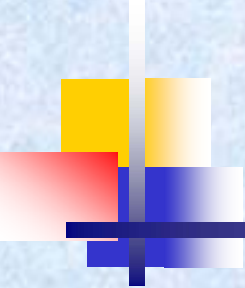
Apply “Expert” Talent to High Impact Projects to:

- Provide Assistance to
“Remove Perceived Risk”
- Provide Assistance to
“Identify Technical Solutions”



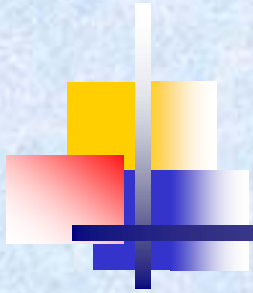
Midwest CHP Application Center

- Baseline Assessments (Illinois/Michigan)
- Planned and Implemented Grid Interconnection Workshop
- US EPA Partnership Program
(July 9th Illinois Workshop)
- Regional Application Center Guidebook (Draft)
- Technical Assistance Program Implemented
- Case Studies
- Website

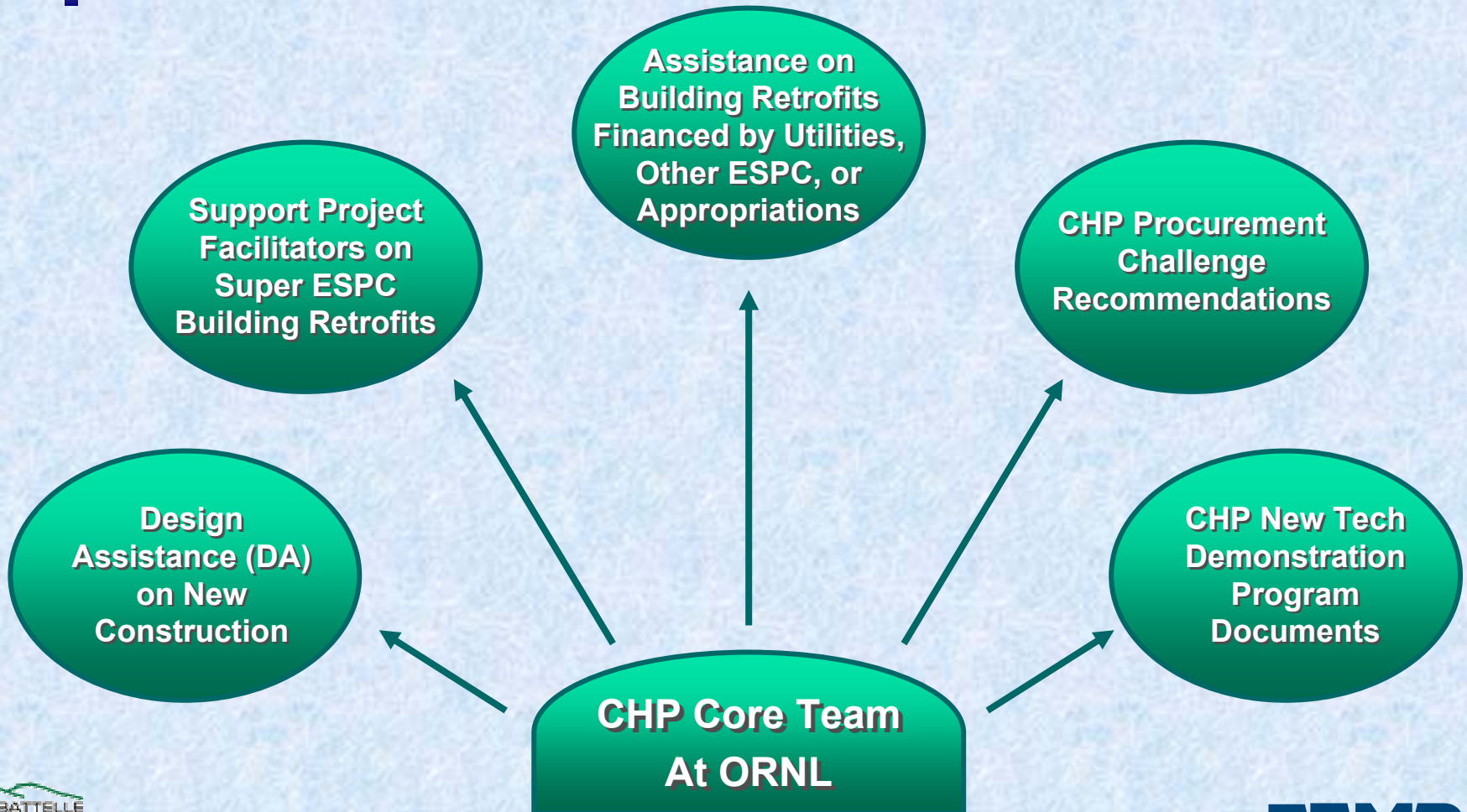


FEMP's CHP Tech-Specific Program

- Partnering with DOE's Office of Power Technologies, the CHP Industry and others to make advanced CHP easily accessible to federal agencies through FEMP's ongoing assistance programs



FEMP's CHP Tech-Specific Program





For Further Information

Midwest CHP Application Center

www.CHPCenterMW.org

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Midwest CHP Initiative

www.nemw.org/uschpa/regional.htm

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