U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Combined Heat and Power

Council of Industrial Boiler Owners Energy Committee Meeting,

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Today

Focus: Industrial Energy Efficiency

- August 30, 2012 Executive Order – *"Accelerating Investments in Industrial Energy Efficiency"*
  - CEACs / CHP TAPs
- State & Local Energy Efficiency Action Network
  - CHP Guide
- Boiler MACT Technical Assistance Effort
  - DOE Technical Assistance Program
  - Ohio Pilot Program
- Upcoming HR 6582 Report

August 30, 2012 Executive Order – “Accelerating Investments in Industrial Energy Efficiency”

Executive Order

- August 30th, 2012: President Obama signed an Executive Order to **accelerate investments in industrial energy efficiency (EE), including combined heat and power (CHP)** with the goal of bringing together all stakeholders to seize this opportunity and ensuring that Federal agencies are taking the maximal steps to support private sector investment in this space.
- The Executive Order is part of the President's efforts to both **Revitalize American Manufacturing** and to pursue **an All-of-the-Above energy strategy**
- Often **barriers exist** that prevent otherwise economic investments in industrial EE and CHP from occurring.
- The Administration believes it is important to **accelerate investment in industrial energy efficiency** in a way that **benefits all stakeholders**.

What the Executive Order Does

- Sets a national **goal of 40 GW** of new **combined heat and power** installation over the next decade;
- Directs DOE and EPA to convene stakeholders through ongoing **regional workshops to foster a national dialogue** to identify, develop, and encourage the adoption of **best practice policies and investment models**;
- Directs EPA to provide **assistance to States** on accounting for the potential emission reduction benefits of CHP and other energy efficiency policies when developing State Implementation Plans (SIPs) to achieve national ambient air quality standards;
- Directs EPA to employ **output based approaches as compliance options** in power and industrial sector regulations, as appropriate, to recognize the emissions benefits of highly efficient energy generation technologies like CHP;

What the Executive Order Does cont'd

- Directs DOE to expand participation in and create additional tools to support the **Better Buildings, Better Plants program**, which is working with companies to help them achieve a goal of reducing energy intensity by 25 percent over 10 years, as well as utilizing existing partnership programs to support energy efficiency and CHP;
- Directs all Federal agencies to support and encourage efforts to accelerate investment in industrial energy efficiency and CHP by:
  - Providing general **guidance, technical analysis and information**, and financial analysis on the value of investment in industrial energy efficiency and CHP to States, utilities, and owners and operators of industrial facilities;
  - Improving the usefulness of Federal **data collection and analysis**; and
  - Assisting **States in developing and implementing State specific best practice policies** that can accelerate investment in industrial energy efficiency and CHP.

National Goal of 40 GW of CHP by 2020

- Achieving this goal would:
  - Increase total CHP capacity in the U.S. by **50 percent** in less than a decade
  - Save energy users **$10 billion a year** compared to current energy use
  - Save **one quadrillion Btus** (Quad) of energy — the equivalent of 1 percent of all energy use in the U.S.
  - Reduce emissions by **150 million metric tons of CO2 annually** — equivalent to the emissions from over 25 million cars
  - Result in **$40-$80 billion in new capital investment in manufacturing** and other U.S. facilities over the next decade

Source: DOE/EPA, CHP: A Clean Energy Solution, August, 2012, https://www1.eere.energy.gov/manufacturing/distributedenergy/pdfs/chp_clean_energy_solution.pdf

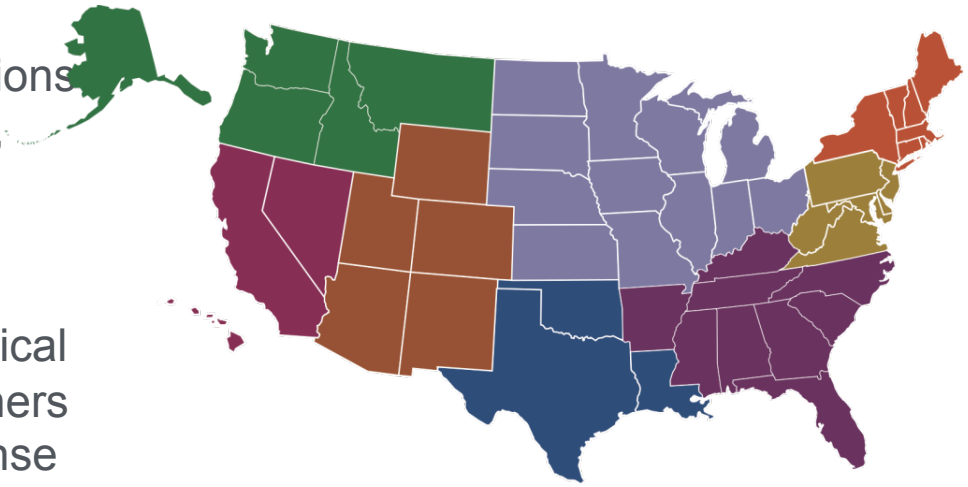
Regional Clean Energy Application Centers (CEACs)

CEAC Services:

- **Market Assessments:** Analyses of CHP market potential in diverse sectors, such as health care, industrial sites, hotels, & new commercial and institutional buildings.
- **Education and Outreach:** Providing information on the benefits and applications of CHP to state and local policy makers, regulators, energy end-users, trade associations and others.
- **Technical Assistance:** Providing technical information to energy end-users and others to help them consider if CHP makes sense for them. Includes performing site assessments, producing project feasibility studies, and providing technical and financial analyses.

FY13 FOA closed 3/8/13 for next generation CEACs – CHP Technical Assistance Partnerships (CHP TAPs)

Eight Regional CEACs & International District Energy Association



http://www1.eere.energy.gov/manufacturing/distributedenergy/ceacs.html

State & Local Energy Efficiency Action Network

What is the SEE Action Network?

- Network of 200+ leaders and professionals, led by state and local policymakers, bringing energy efficiency to scale
- Support on energy efficiency policy and program decision making for:
  - Utility regulators, utilities and consumer advocates
  - Legislators, governors, mayors, county officials
  - Air and energy office directors, and others
- Facilitated by DOE and EPA; successor to the National Action Plan for Energy Efficiency

To stay updated on SEE Action activities and resources, sign-up for email alerts:

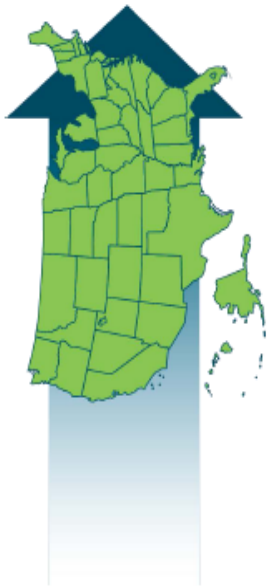
http://www1.eere.energy.gov/seeaction/index.html

The Guide provides state policy makers with actionable information regarding:

- Design of standby rates
- Interconnection standards for CHP with no electricity export
- Excess power sales
- Clean energy portfolio standards
- Emerging market opportunities: CHP in critical infrastructure and utility participation in CHP markets

In development: State workshops w/ PUCs on the Guide & how to refine policy implementation to achieve greater CHP.

SEE Action
STATE & LOCAL ENERGY EFFICIENCY ACTION NETWORK



Guide to the Successful Implementation of State Combined Heat and Power Policies

Industrial Energy Efficiency and Combined Heat and Power Working Group

Driving Ratepayer-Funded Efficiency through Regulatory Policies Working Group

March 2013

The State and Local Energy Efficiency Action Network is a state and local effort facilitated by the federal government that helps states, utilities, and other local stakeholders take energy efficiency to scale and achieve all cost-effective energy efficiency by 2020.

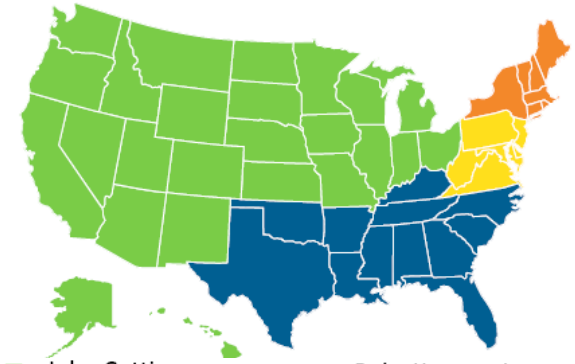
Learn more at www.seeaction.energy.gov

Boiler MACT Technical Assistance Effort

DOE Boiler MACT Technical Assistance

- DOE is providing site-specific technical and cost information on clean energy compliance strategies to those major source facilities affected by the Boiler MACT rule currently burning coal or oil.
  - These facilities may have opportunities to develop compliance strategies, such as CHP, that are cleaner, more energy efficient, and that can have a positive economic return for the plant over time

- DOE Boiler MACT Technical Assistance program was piloted in Ohio starting in Feb. 2012 and is being offered nationally



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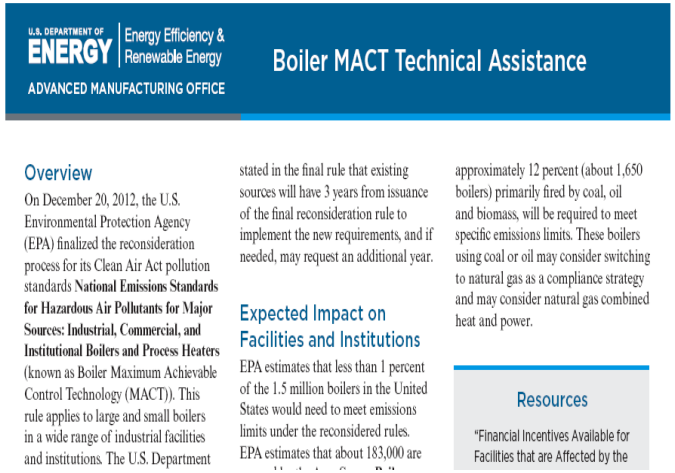

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Boiler MACT Technical Assistance

Overview

On December 20, 2012, the U.S. Environmental Protection Agency (EPA) finalized the reconsideration process for its Clean Air Act pollution standards **National Emissions Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters** (known as Boiler Maximum Achievable Control Technology (MACT)). This rule applies to large and small boilers in a wide range of industrial facilities and institutions. The U.S. Department stated in the final rule that existing sources will have 3 years from issuance of the final reconsideration rule to implement the new requirements, and if needed, may request an additional year.

Expected Impact on Facilities and Institutions

EPA estimates that less than 1 percent of the 1.5 million boilers in the United States would need to meet emissions limits under the reconsidered rules. EPA estimates that about 183,000 are approximately 12 percent (about 1,650 boilers) primarily fired by coal, oil and biomass, will be required to meet specific emissions limits. These boilers using coal or oil may consider switching to natural gas as a compliance strategy and may consider natural gas combined heat and power.

Resources

"Financial Incentives Available for Facilities that are Affected by the

Results: National Technical Assistance

- Preliminary Findings Reported (as of August 20, 2013):
  - Over 370 companies contacted
  - 80 feel they are already in compliance
  - 62 no longer in business
  - Technical Assistance for 55 in various stages
  - All companies are now aware of how CHP can assist in a compliance strategy
  - DOE will continue to track results of results of technical assistance

Upcoming “Report on the Deployment of Industrial Energy Efficiency“ to Congress (H.R. 6582)

Report on the Deployment of Industrial EE (H.R. 6582)

- *Background to the American Energy Manufacturing Technical Corrections Act* (H.R. 6582) passed Dec 4, 2012
- DOE report due in 2 years describing:
  - "The legal, regulatory, and economic barriers to the deployment of industrial energy efficiency in all electricity markets (including organized wholesale electricity markets, and regulated electricity markets)."
  - "In coordination with the industrial sector and other stakeholders, shall develop policy recommendations regarding the deployment of industrial energy efficiency, including proposed regulatory guidance to States and relevant Federal agencies to address barriers to deployment."
- *Industrial Energy Efficiency*
  - *"…improve energy efficiency or to generate or transmit electrical power and heat,…"*
  - *"…including electric motor efficiency … demand response, direct or indirect combined heat and power, and waste heat recovery."*

Report on the Deployment of Industrial EE (H.R. 6582)

(A) The legal, regulatory, and economic barriers to the deployment of industrial energy efficiency in all electricity markets (including organized wholesale electricity markets, and regulated electricity markets), including, as applicable, the following:

- (i) Transmission and distribution interconnection requirements.
- (ii) Standby, back-up, and maintenance fees (including demand ratchets).
- (iii) Exit fees.
- (iv) Life of contract demand ratchets.
- (v) Net metering.
- (vi) Calculation of avoided cost rates.
- (vii) Power purchase agreements.
- (viii) Energy market structures.
- (ix) Capacity market structures.
- (x) Other barriers as may be identified by the Secretary, in coordination with the industrial sector and other stakeholders.

Report on the Deployment of Industrial EE (H.R. 6582)

(B) Examples of—

- (i) successful State and Federal policies that resulted in greater use of industrial energy efficiency;
- (ii) successful private initiatives that resulted in greater use of industrial energy efficiency; and
- (iii) cost-effective policies used by foreign countries to foster industrial energy efficiency.

(C) Estimated economic benefits to the national economy of providing the industrial sector with Federal EE matching grants of $5,000,000,000 for 5- and 10-year periods,

(D) The estimated energy savings available from increased use of recycled material in energy-intensive manufacturing processes.

- DOE has convened a stakeholder group to provide input and contribute to this study.
- DOE is on track to meet Congressional deadline of Dec 2014.

Report on the Deployment of Industrial EE (H.R. 6582) Stakeholder Group:

- Alliance to Save Energy
- The Aluminum Association
- American Chemistry Council
- ACEEE
- American Forest & Paper Association
- American Gas Association
- American Iron & Steel Institute
- American Public Power Association
- Association for Demand Response and Smart Grid
- AEE
- Blue-Green Alliance
- CHP Association
- CIBO – Lisa Jaegar
- Council on Competitiveness
- Edison Electric Institute
- Electricity Consumer Resource Council
- Environmental Law and Policy Center
- EPA
- FERC
- Glass Packaging Institute
- IECA
- International Association of Heat and Frost Insulators and Allied Workers
- IDEA
- IIP
- Louroe Electronics – Richard Brent (Chair)
- National Association of Clean Air Agencies
- National Association of Energy Service Companies
- National Association for Manufacturers
- NARUC
- NASEO
- NASUCA
- National Governors Association
- NRDC
- NRECA
- PJM
- Portland Cement Association
- Regulatory Assistance Project
- USEA
- World Resources Institute

For More Information

- Executive Order

  http://www.whitehouse.gov/the-press-office/2012/08/30/executive-order-accelerating-investment-industrial-energy-efficiency
- SEE Action IEE and CHP Working Group

  http://www1.eere.energy.gov/seeaction/
- Combined Heat & Power
  http://www1.eere.energy.gov/manufacturing/distributedenergy/index.html
- DOE webpage on Boiler MACT Technical Assistance
  http://www1.eere.energy.gov/manufacturing/distributedenergy/boilermact.html

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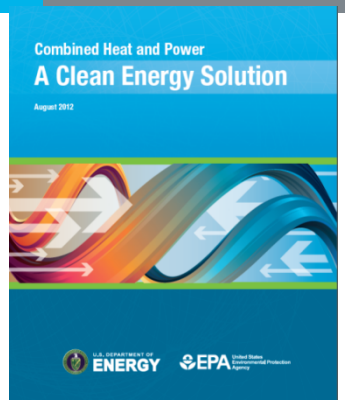
Recent CHP Reports

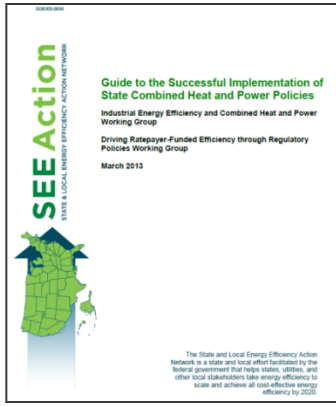
CHP: A Clean Energy Solution, August, 2012

Provides a foundation for national discussions on effective ways to reach the 40 GW target, and includes an overview of the key issues currently impacting CHP deployment and the factors that need to be considered by stakeholders participating in the dialogue.



CHP: Enabling Resilient Energy Infrastructure for Critical Facilities, March 2013

This report summarizes how critical infrastructure facilities with CHP systems operated during Superstorm Sandy. Several examples from other storms and blackout events in other regions of the country are also included. The report provides information on the design and use of CHP for reliability purposes, as well as state and local policies designed to promote CHP in critical infrastructure applications.



Guide to the Successful Implementation of State CHP Policies, March 2013

Informs state utility regulators and other state policymakers with actionable information to assist them in implementing key state policies that impact CHP.

- Design of standby rates
- Interconnection standards for CHP with no electricity export
- Excess power sales
- Clean energy portfolio standards (CEPS)
- Emerging market opportunities—CHP in critical infrastructure and utility participation in CHP markets