

U.S. EPA CHP Activities

Increasing the Efficiency of Energy Supply



Kathleen Hogan

U.S. Environmental Protection Agency

Director, Climate Protection Partnerships Division

USEA Dialogue on Promoting Energy Efficiency Through Deploying CHP

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CHP is an Energy Efficiency Measure

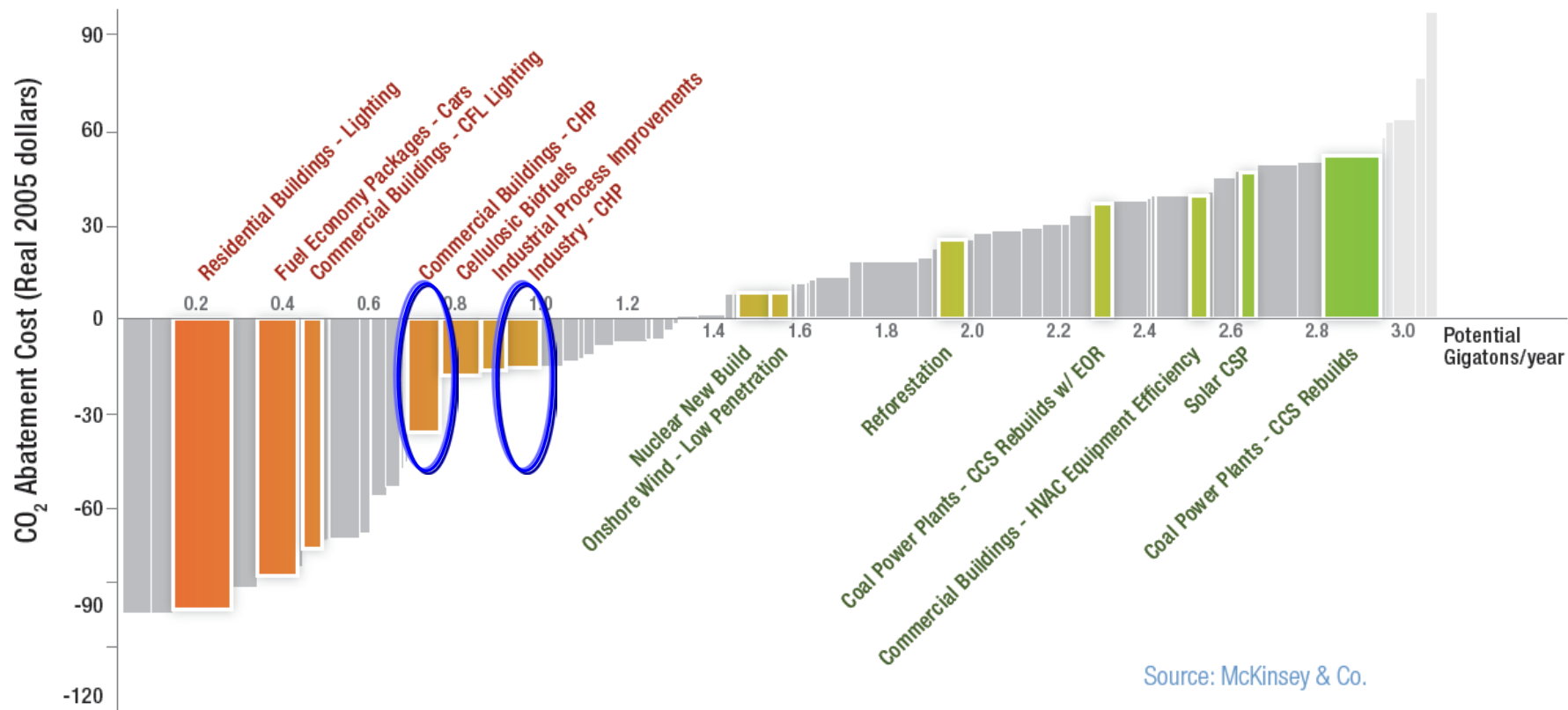
- EPA promotes greater use of CHP because **significant cost-effective emissions reductions can be achieved** by increasing the efficiency of the nation's energy supply.
- CHP systems typically achieve total system efficiencies of 60-80% for producing electricity and thermal energy.
- Higher efficiency can lead to:
 - Reduced total fossil fuel use
 - Lower operating costs for the end-user
 - Reduced emissions of regulated air pollutants and CO₂
 - Increased reliability and power quality for the end-user
 - Reduced grid congestion and avoided distribution losses for the electric grid

Key Near-Term GHG Reduction Opportunity

- ❑ Between 2001-2007, EPA CHP Partnership has assisted Partners with more than 335 projects representing 4,450 MW of new CHP capacity.
- ❑ Annually, these projects will prevent the emission of more than 10.93 MMTCO₂.
- ❑ Near-term opportunities have large potential for GHG reductions
 - Based on existing technical potential
 - Achieve efficiencies of 60-80%
 - Energy savings (4-5 Quads) & GHGs (250 to 300 MMTCO₂)
 - Over 50% of potential in systems below 5 MW in size
- ❑ Different than today's CHP (over 85% industrial; average capacity is 25 MW).
- ❑ Many factors affect capture of this potential.

McKinsey Study Shows CHP as Cost-Effective CO2 Reduction Technology

Cost of CO₂ Reduction Technologies



The figure above shows a range of CO₂ abatement practices and technologies,

EPA Areas of Focus to Advance CHP

- EPA is actively working to advance CHP through several efforts
 - CHP Partnership
 - State technical assistance
 - Waste energy rulemaking
 - Additional activities

EPA CHP Partnership

- CHP Partnership is a voluntary program seeking to reduce the environmental impact of power generation by promoting the use of highly efficient CHP, thereby reducing emissions of comparable, separate heat and power.
- More than 260 Partners dedicated to promoting and installing CHP.
- Accomplishments from 2001 to 2007 include:
 - Assisting more than 335 CHP projects, representing 4,450 MW of new CHP capacity.
 - On an annual basis, these projects will prevent the emission of nearly 11 MMTCO₂.
 - Emissions reductions equivalent to the emissions from 2 million passenger vehicles per year.

EPA CHP Partnership Core Activities

- Education and Outreach
 - Benefits and opportunities of CHP
- Technical assistance for Partner candidate sites
 - Identify opportunities for cost-effective CHP
 - Assess goals, drivers, and potential barriers for a project
- Public recognition
 - Annual Greenhouse Gas Reduction Report
 - Shows carbon reductions associated with Partner's projects, as well as equivalent benefits in acres of trees planted and car emissions prevented.
 - ENERGY STAR® CHP Award
 - EPA CHP Partnership International CHP Award

ENERGY STAR CHP Award

- ❑ ENERGY STAR CHP Award is for highly efficient CHP systems that achieve fuel and emissions savings over comparable separate heat and power.
- ❑ To date, over 50 Awards have been given:
 - Total electrical generating capacity of more than 4,000 MW;
 - Average operating efficiency of 70%;
 - Use an average of 29% less fuel than typical onsite thermal generation and purchased electricity.
- ❑ Based on this comparison, the awarded CHP systems reduce CO2 emissions by an estimated 11.2 million tons per year.
- ❑ This reduction is equivalent to the annual emissions from 1.8 million passenger vehicles.

State Technical Assistance

- ❑ Technical assistance to state policy makers, with a focus on state utility regulators, who want to explore greater use of clean energy for its economic and environmental benefits.
- ❑ Provide technical assistance, best practices and lessons learned on state policies that affect CHP
 - Interconnection Standards
 - Utility Rates (standby rates, utility throughput incentive)
 - Renewable Portfolio Standards/Energy Efficiency Portfolio Standards
 - Public Benefits Funds

Energy Independence and Security Act of 2007 - Title IV – Subtitle D

- ❑ EPA is required under Subtitle D to establish a recoverable waste energy inventory program.
- ❑ Specifically, EPA shall:
 - Establish “an ongoing survey of all major domestic industrial and large commercial combustion sources in the United States (as defined by the Administrator) and the sites at which the sources are located” (the survey), and “a review of each source for the quantity and quality of waste energy produced at the source.”
 - “Not later than 270 days after the enactment of EISA, publish a rule that establishes the criteria for including sites in the registry” (the Registry of Recoverable Waste Energy Sources).

Emphasis added

Energy Independence and Security Act of 2007 - Title IV – Subtitle D (2)

- “Not later than 1 year after the date of enactment of EISA, EPA shall establish a Registry of Recoverable Waste Energy Sources, and sites on which the sources are located, that meet the criteria...”
- Provide an annual report to Congress describing lost opportunities for domestic waste-heat recovery projects and calculating the quantity of lost energy and emission reductions.
- Develop a grant program to fund additional efficiency programs in those DOE certified States that have achieved 80% or more of the waste heat recovery opportunities.

Energy Independence and Security Act of 2007 - Title IV – Subtitle D (3)

- ❑ EPA did not meet the EISA deadline due to process timeline and stakeholder feedback.
- ❑ EPA is taking Congress' intent seriously and continues to work to advance the rule in as timely a manner as possible.
- ❑ EPA felt it important to solicit feedback from stakeholders on this rule, as it is the first of its kind, and held extensive stakeholder listening meetings.
- ❑ The proposed rule will be published in the Federal Register for public comment.

Additional Activities

- EPA is developing a new program for emerging technologies: Climate Choice
 - Micro-CHP: Engine and fuel cell, residential and small commercial
 - Draft technology neutral specification and are looking comments and partners: banwell.peter@epa.gov
- National Action Plan for Energy Efficiency: Facilitated by EPA and DOE
 - Vision for 2025 – framework for implementing Action Plan recommendations; includes measuring progress at the state level.
 - Goal 10, Policy Step 27: Policies in place to remove barriers to combined heat and power.

Collaboration with USEA

- Need “all hands on deck” to reduce GHG emissions – CHP key near-term opportunity.
- Leverage private and public expertise.
- Increased collaboration with USEA on identifying barriers to increased CHP investment and steps to remove barriers important.

Contact Us

CHP Policy

Katrina Pielli

202-343-9610

Pielli.Katrina@epa.gov

CHP Partnership

Felicia Ruiz

202-343-9129

Ruiz.Felicia@epa.gov