



# **CHP's Consideration in EPA Programs**

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# Presentation Overview

- EPA's efforts in clean energy and CHP
  - Programmatic Activities
    - District Energy and CHP
    - Energy-Water Nexus
  - Regulatory Activities
    - Energy Efficiency
    - Greenhouse Gases
  - Outreach Activities
    - Implementation efforts of Clean Air Act regulations
    - CHPP Voluntary Program

# EPA & Clean Energy

- EPA has many active programs supporting clean energy
  - CHP Partnership
  - Green Power Partnership
  - ENERGY STAR Program
  - State and Local Climate Energy Program
  - Re-Powering America's Lands
  - Methane outreach programs (landfills, coal mines, gas and livestock management)

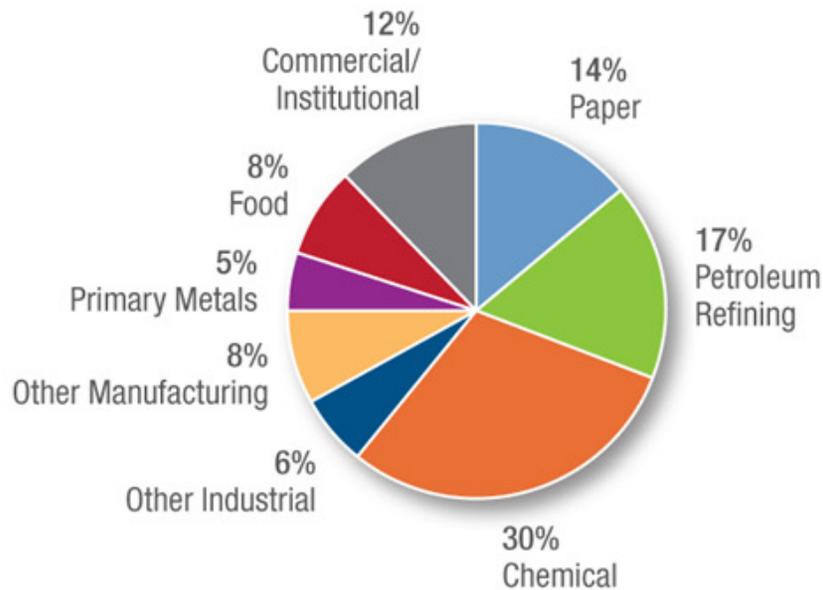
# Partnership Programs: CHP Partnership

- Provides policy and regulatory support within EPA and to States
  - Advance consideration of output-based standards with credit for CHP in EPA regulations
  - Improve understanding of permitting processes (e.g., New Source Review, output-based standards) to facilitate increased use of CHP
  - Ensure adequate treatment of CHP in Clean Energy in SIPs Roadmap
  - Conduct a regional pilot in the Midwest to identify barriers and incorporate use of output-based standards in state permits
  - Cooperate with NASEO to develop tools and resources
    - Potential for CHP to achieve state energy objectives
    - State policies and programs to advance CHP deployment
    - Case studies on state CHP efforts

# EPA & CHP

- CHP's unique role in:
  - Protecting public health and welfare
  - Addressing climate change
- CHP is a key supply-side energy efficiency resource
- Advances in CHP market penetration will help address key challenges:
  - Lowering the cost of reducing GHG emissions and other air pollutants
  - Increasing clean energy generation
  - Improving electricity system reliability

# CHP is an Important Domestic Resource



Source: ICF CHP Installation Database, 2011

- 82 GW of installed CHP at almost 4,000 industrial and commercial facilities (2011)
- Avoids more than **1.8 quadrillion Btus** of fuel consumption annually
- Avoids **241 million metric tons of CO<sub>2</sub>** as compared to traditional separate production
- CO<sub>2</sub> reduction equivalent to eliminating **forty 1,000 MW coal power plants**

# District Energy & CHP

- EPA recognizes district energy is a key to increased CHP use
  - District energy can support increased CHP and increased renewables
    - biomass, geothermal, and concentrating solar
- Low-carbon electricity & heat
  - Offers an opportunity to reduce the carbon content from thermal energy production
- Reduces the cost of GHG reductions from generation of both electricity and thermal energy

## Advance District Energy/CHP in EPA Program Activities

- Through a competitive solicitation, EPA's Office of Sustainable Communities provides technical assistance to states, regions, and communities that want to develop in ways that reflect the principles of smart growth, green building, and the Partnership for Sustainable Communities. The most recent round resulted in an award to a district energy project in San Francisco.
- Office of Brownfields recently engaged on the Tompkins County, New York, EcoVillage & Community Energy District project, under consideration for a brownfields site.
- Several Climate Showcase Community grant initiatives have an important CHP component (City of Keene (NH), Tanana Chiefs Conference (AK), and Tompkins County (NY)).

## Advance CHP's role in the Energy-Water Nexus

- Synergies between work by different EPA programs across media and regions to reduce greenhouse gas emissions and water use through improved efficiencies:
  - ENERGY STAR Portfolio Manager
  - CHP Partnership resources on CHP's use in the WWTF sector
  - Advisory role on Water Environment Research Foundation (WERF) projects:
    - Barriers to biogas utilization
    - Developing a biogas baseline based on current and potential use of biogas from anaerobic digestion at wastewater plants

# Advance CE and CHP in Rule Development

- Efforts include energy efficiency characteristics that result in environmental benefits:
  - Recognition of CE and CHP expands the suite of technologies that can be considered
  - Incorporate output-based provisions where applicable
- Existing Clean Air Act (CAA) regulations that include such provisions:
  - Several New Source Performance Standards
  - BACT Guidance – sector specific and permitting handbook
  - CHP and output-based considerations in MATS
- Proposed regulations that consider such provisions
  - Proposals applicable to CHP

# Advance CE and CHP in Rule Implementation

## Work done with Industry, States, and within EPA

- CE provisions in CAA regulatory programs can be underutilized if not supported during rule implementation phase
- Work with states and within EPA to support use of CE provisions. Examples include:
  - SIP Baseline Emission Projections
  - CE in SIPs Roadmap
  - Resources and outreach to facilitate use of output-based standards
- Work with industry to support use of CE provisions
- GHG Reporting Program

# Partnership Programs: CHP Partnership

- Support development of new CHP projects with credible and unbiased technical expertise
- Offers trusted tools, guidance, and technical assistance (examples)
  - CHP Emissions Calculator
  - CHP Catalog of Technologies
  - Funding Database
  - Waste Heat to Power Primer
  - CHP Project Development Handbook
  - Spark Spread Estimator (simple financial analysis tool, forthcoming)
- Targets key regulatory, utility and information barriers

# Partnership Programs: CHP Partnership

- Market sector strategies
  - Partnership has worked in the ethanol, waste water treatment facilities, hotels and casinos and utility sectors
  - Provide an understanding of sectoral barriers to CHP
  - Outcomes of sectoral work:
    - Resources have led to the growth in the use of CHP in the sector
    - Developed collaborations within the Agency (e.g., work with Office of Wastewater Management on CHP and Wastewater Treatment Facilities)
    - “Go-to” resources in the sector

# CHP Partnership Contact Information

CHPP Website : [www.epa.gov/chp](http://www.epa.gov/chp)

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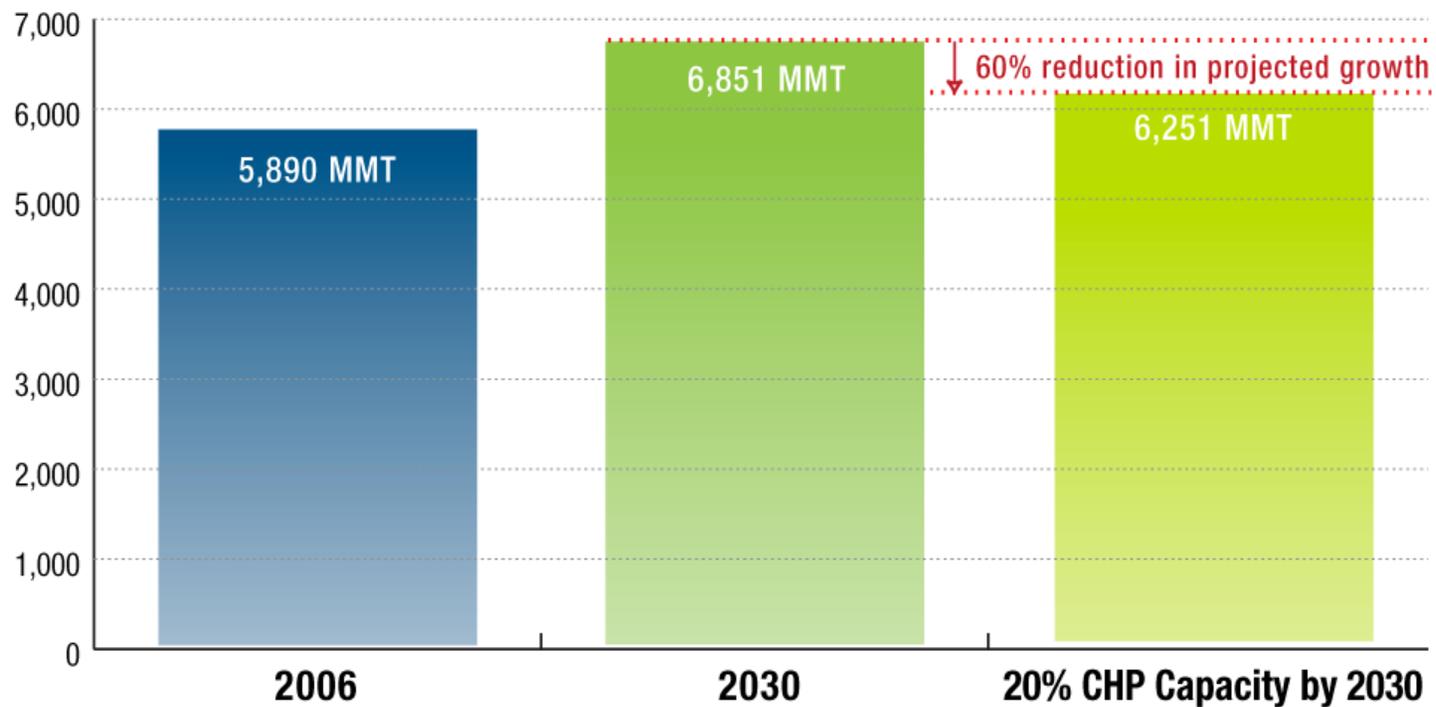
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# 20% CHP Could Reduce Projected CO<sub>2</sub> Emissions Increase by More than 60%

US Carbon Dioxide Emissions 2006 and 2030 (MMT)



Source: ORNL