What’s the Deal with the Clean Power Plan?

*CHP as a Compliance Option*

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The Clean Power Plan should reduce power plant carbon pollution 32% below 2005 levels in 2030.

**2005**

- 2,664 million short tons of CO₂

**2030**

- 1,814 million short tons of CO₂

**POWER SECTOR CARBON EMISSIONS**

- Historical: 2005 - 3,000 million short tons, 2030 - 1,000 million short tons
- Business-as-usual: 2005 - 3,000 million short tons, 2030 - 1,000 million short tons
- Clean Power Plan: 2005 - 1,814 million short tons, 2030 - 2,543 million short tons

**CO₂ EMISSIONS (MILLION SHORT TONS)**

- 2005 - 3,000
- 2010 - 2,800
- 2015 - 2,600
- 2020 - 2,400
- 2025 - 2,200
- 2030 - 2,000
Energy Efficiency Helps Achieve CPP Targets

Source: ACEEE’s SUPR-2 calculator
Conventional Power Generation

100% Fuel ➔ 60% Waste Heat ➔ 7% Line Loss ➔ 33% Delivered Electricity
Increased Efficiency Results in Reduced Emissions

Source: EPA
CHP Is Cost-Effective

Levelized Costs of Energy across Power Generation Technologies, Q4 2013 ($/MWh)

Source: BCSE 2014
E&E’s POWER PLAN HUB

Supreme Court Stay Response

- Continuing Planning: 20 states
- Assessing Planning: 9 states
- Suspending Planning: 18 states
- Exempt: 4 states

SOURCE: E&E News, Clean Power Plan Hub
“Despite the Supreme Court’s decision, National Grid still strongly supports EPA’s Clean Power Plan.”

Dean Seavers, President of National Grid

“While the Court’s temporary stay is disappointing, it does nothing to diminish our resolve in Minnesota to keep moving forward on clean energy initiatives, including the development of our state’s Clean Power Plan.”

Governor Dayton, Minnesota

“While we’re still reviewing the implications of the Supreme Court’s decision, we remain committed to having the cleanest air in the nation. We’ll continue to build upon the great strides we’ve made as a state....”

Governor Hickenlooper, Colorado
Target Setting

- Steam Glide Path
- Steam Interim Performance Rate
- Steam 2030 Performance Rate
- NGCC Glide Path
- NGCC Interim Performance Rate
- NGCC 2030 Performance Rate
Proposed 2030 targets ranged between 215 lbs/MWh and 1783 lbs/MWh; Final targets range between 771 lbs/MWh and 1305 lbs/MWh.
Current CHP Projects

Source: CHP Installation Database, March 2014
Current CHP Projects (MW)

- Chemicals: 28%
- Paper: 14%
- Refining: 19%
- Primary Metals: 5%
- Commercial/Institutional: 14%
- Other/Misc.: 6%
- Food: 8%
- Other Manufacturing: 6%
- Commercial/Institutional: 14%

Sources: CHP Installation Database (2014 Data)
Affected Units

- Constructed before 2014
- Sell more than 25 MW to the grid
- **Excludes** units that sell < 25 MW or < 1/3 power to the grid
- **Excludes** units which have historically limited fossil fuel use to < 10% capacity factor
- **Excludes** units that are not connected to natural gas pipelines
- **Excludes** highly efficient units
CHP as a Compliance Option

- Installed after 2012 (post-2022 generation)
- Non-affected units
- Eligible under a rate or mass-based approach

“Electric generation from non-affected CHP units may be used to adjust the CO$_2$ emission rate of an affected EGU, as CHP units are low-emitting electric generating resources that can replace generation from affected EGUs.”
(80 Fed. Reg at 64902)
Remaining Potential for CHP

![Graph showing remaining potential for CHP across various sectors.](image)

CHP Technical Potential
Existing CHP Capacity

Key sectors include Food Processing, Paper, Chemicals, Refining, Primary Metals, Other Industrial, WHP, Wastewater, Hospitals, Colleges/Universities, Military, and Other.
CHP Market Penetration under CPP (2015-2030)

How much would installing 10% of technical potential help Ohio?

- 517 MW currently installed
- 6,002 MW technical potential
Impact of New CHP on Ohio’s target:
10% of Technical Potential

2012 baseline of 1,855 lbs CO2/MWh

Final 2030 goal of 1,190 lbs CO2/MWh

600 MW = 7% of Ohio’s emission rate goal

SOURCE: ACEEE SUPR-2 Calculator
Impact of New CHP on Ohio’s target: 25% of Technical Potential

- 1,500 MW of CHP = 16% of Ohio’s emission rate goal

SOURCE: ACEEE SUPR-2 Calculator
Impact of New CHP on Ohio’s target: 50% of Technical Potential

3,000 MW CHP = 27% of Ohio’s emission rate goal

SOURCE: ACEEE SUPR-2 Calculator
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