



There is Another Way to Reduce GHG Emissions in the Power Sector

Using Manufacturing Waste Heat to Produce Power Can Reduce 430 Million Metric Tons of Carbon Dioxide

A 30 Percent Tax Credit for CHP is Needed

For manufacturing facilities that use steam energy, recycling and use of waste heat can also be used to generate power. Most of the power is used internally and what is not consumed is sold to the grid. Self-generation displaces the purchase of power from the grid, which is mostly fossil-energy based.

According to the U.S. EPA's Combined Heat and Power (CHP) Partnership, existing CHP units avoid over 215 million metric tons of CO₂ compared to separate electricity and thermal production. Another 430 million metric tons of avoided CO₂ are technically feasible. Increasing the tax incentive from 10% to 30% would drive new investments, create jobs, and increase manufacturing competitiveness. U.S. capacity of CHP has remained relatively flat for the last decade, which means that the existing 10% tax credit is insufficient to motivate favorable CHP economics.

- **A reliable source of power to backup intermittent power:** Manufacturing facilities operate 24/7, which means they require a reliable source of power. Their excess power can be a source of reliable supply to the grid, providing spinning reserves that help keep the grid stable even in the most severe weather conditions. This is especially important given the intermittency of wind and solar.
- **Example – CO₂ reductions from a 10 MW CHP unit:** According to the U.S. EPA's CHP Partnership, a 10 MW CHP unit will avoid 42,506 tons of CO₂ per year and 87.8 tons of NO_x.¹
- **Potential:** According to the DOE, "Significant potential exists for increasing CHP installations in the U.S. While about 81 GW of CHP capacity is in operation today, almost double that amount – an estimated 149 GW of technically viable capacity spread across more than 290,000 commercial and industrial facilities – remains to be developed."² *Given that existing CHP units avoid over 215 million metric tons of CO₂, there is a potential to avoid another 430 million metric tons of CO₂.*
- **Avoided transmission and distribution losses:** "By producing electricity onsite, CHP also avoids transmission and distribution (T&D) losses that occur when electricity travels over power lines. Within the five major power grids in the United States, average T&D losses vary from 4.23 percent to 5.35 percent, with a national average of 4.48 percent."³ "Losses can be even higher when the grid is strained and temperatures are high. By avoiding T&D losses associated with conventional electricity supply, CHP further reduces fuel use, helps avoid the need for new T&D infrastructure, and eases grid congestion when demand for electricity is high."⁴

¹ U.S. EPA Combined Heat and Power Partnership, https://www.epa.gov/sites/default/files/2015-07/documents/combined_heat_and_power_frequently_asked_questions.pdf

² U.S. Department of Energy, "Combined Heat and Power in Integrated Resource Planning", November 2020

³ Emissions & Generation Resource Integrated Database (eGRID), U.S. EPA, <https://www.epa.gov/egrid>

⁴ CHP Benefits, U.S. EPA CHP Partnership, <https://www.epa.gov/chp/chp-benefits>