



Notice 2022-49 – “Certain Energy Generation Incentives”

March 25, 2024

SUMMITTED ELECTRONICALLY

Internal Revenue Service
CC: PA:LPD:PR (Notice 2022-49)
Room 5203
P.O. Box 7604, Ben Franklin Station
Washington, D.C. 20044

RE: Combined Heat and Power Alliance Additional Comments on Notice 2022-49

Introduction

The Combined Heat and Power Alliance (“CHP Alliance”) is the leading national voice for the deployment of combined heat and power (“CHP”). We are a diverse coalition of business, labor, contractor, non-profit organizations, and educational institution united in educating the public about how CHP and waste heat to power technologies to reduce emissions, improve business competitiveness, reduce energy costs, while enhancing the grid and overall reliability.

The CHP Alliance’s report [*Combined Heat and Power and a Changing Climate: Reducing Emissions and Improving Resilience*](#) found that CHP systems installed through 2035 and operating through 2050 are expected to cause a net reduction in carbon emissions over their system lifetimes by reducing demand for marginal grid resources. The report also outlines how natural gas-fired CHP systems combine their high efficiency and high annual capacity factors to deliver more net emission reductions than the same MW of installed capacity of wind and solar PV systems, which operate at much lower capacity factors. As Figure 4 in the report demonstrates, a 20MW CHP system can reduce more greenhouse gas emissions in about six or seven years as the same capacity of zero-carbon solar photovoltaic does in 35 years.

We know CHP will continue to make an important contribution to speeding achievement of the objective in section 45Y and 48E of reducing industrial and electric sector emissions to 25 percent or less of the annual emissions associated with electric production in 2022. This is especially true as demand for energy from the commercial and industrial sectors is rising now faster than any time in the past 25 years.



Proposed Approach

The Combined Heat and Power Alliance recommends the following approach to calculate the net rate of greenhouse gas emissions to determine eligibility of natural gas-fired CHP for the Section 45Y and Section 48E tax credits which is consistent with guidance for fuel combustion and gasification referenced by Section 45Y:

“In the case of a facility which produces electricity through combustion or gasification, the greenhouse gas emissions rate for such facility shall be equal to the *net rate of greenhouse gases* emitted into the atmosphere by such facility (taking into account lifecycle greenhouse gas emissions, as described in section 21 1(o)(1)(H) of the Clean Air Act...” [Emphasis added.]

We believe this provides an opportunity for efficient natural gas CHP to qualify for benefits under 48E/45Y as long as there is clear verification that the project considered will displace higher emissions sources on the grid leading to a “net negative” GHG emissions impact. The following methodology for calculating the net rate of emissions is consistent with [GHG Protocol’s Project Accounting protocol](#), a well-established greenhouse gas accounting method recognizing that an efficiency project such as CHP will reduce the marginal unit emissions on the grid, thus reducing global net CO₂ emissions. Because of grid dispatching, CHP reduces overall net emissions by displacing the marginal emissions units on the grid that are no longer needed since CHP is providing electricity directly onsite. Each MWh of power CHP produces onsite eliminates the need for less efficient units on the grid to generate power, consume fuel, and produce emissions.

For example, the onsite power provided by a typical industrial natural gas fired CHP unit operating at a net electric emission rate of 515.3 lbs CO₂/MWh¹ would, in most regions of the country, displace marginal grid power generated by a natural gas combined cycle (NGCC) power plant with emissions of 865.9 lbs CO₂/MWh², delivering a net rate of emissions of -397.2 lbs CO₂/MWh including the elimination of transmission & distribution losses for the displaced grid power (one MWh of CHP displaces 1.0537 MWh of grid NGCC generation³, 1.057 grid MWh * 865.9 lbs CO₂/MWh = 912.5 lbs CO₂/MWh, CHP 515.3 – Grid 912.5 = -397.2 lbs CO₂/MWh). Close to real time, locational marginal emissions data is becoming widely available to enable accurate and timely verification of emissions savings from such projects on an hourly basis. While the example above is based on combustion-based CO₂ emissions

¹ CHP net electric emissions based on 16MW GT & fired HRSG system offsetting 82% efficient NG packaged boilers. Unfired power to heat ratio of 0.794, overall efficiency (including fired steam) of 78.7%.

² NGCC emissions based on 369 plants in eGRID 2022 indicated to be combined cycle, NG fuel, non-CHP. Overall efficiency is 46.8%.

³ Assumes T&D losses of 5.1%, the US average grid losses in eGRID 2022.



factors, the approach can be applied using life cycle assessment (LCA) GHG values as long as LCA is applied to both the CHP and marginal grid power outputs.

How this would work in practice

For natural gas-fired CHP to qualify for credits under Section 48E and 45Y, the project must demonstrate that it will achieve a net emissions rate less than or equal to 0 lbs CO₂/MWh after factoring in reductions in grid emissions, however, in no case shall a CHP qualify if the emissions rate of the facility, before accounting for grid reductions, is greater than 750 lbs CO₂/MWh⁴.

As the grid's overall emissions continue to decline, new CHP projects will need to meet ever lower emission standards to qualify for tax credits. CHP projects would need to continue to demonstrate they are meeting or beating the standard for avoided grid emissions using the lower of (1) 750 lbs CO₂/MWh or (2) the marginal emissions rate as reported by the Environmental Protection Agency's AVOIDed Emissions and geneRation Tool (AVERT) that was in place the year construction of the facility began.

For each calendar year, all hourly CHP net electric emissions should be tracked and reported for hours the CHP operates to produce an annual average in lbs CO₂ per MWh. For a CHP facility to qualify for tax credits, this annual net electric emissions average must be less than or equal to the lower of (1) the marginal emissions rate published by AVERT for the region within which the CHP unit operates, or (2) 750 lbs CO₂/MWh for the year in which construction of the facility began.

CHP owners who have filed for the Section 48E Investment Tax Credit (ITC) will be required to report their emissions using this methodology within 90 days of the end of each operating year. Any CHP that received an ITC but does not meet the 750 lbs CO₂/MWh ceiling or the avoided emissions rate for the region in place, will be subject to recapture in accordance with the IRS's five-year recapture provision.

For CHP owners who choose to file for the Section 45Y Production Tax Credit (PTC), this credit must be filed for each year within 90 days of the end of a calendar year following the unit's commercial operation. To qualify for the PTC payment, the CHP net emissions annual average must be less than or equal to the lower of (1) the marginal emissions rate published by AVERT for the region within which the CHP operates or (2) 750 lbs CO₂/MWh.

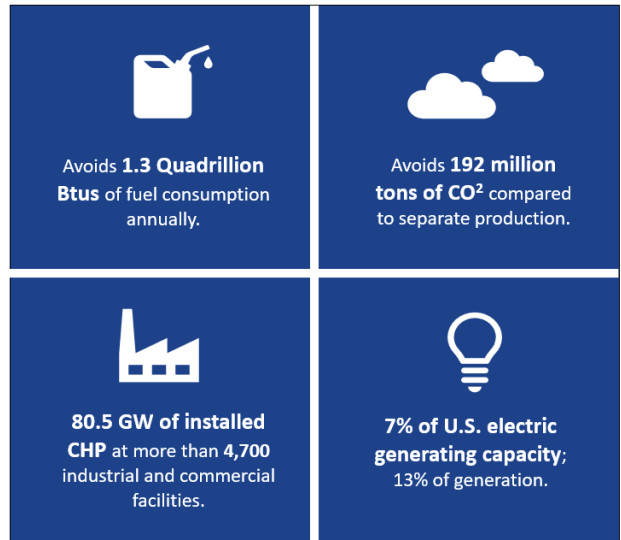
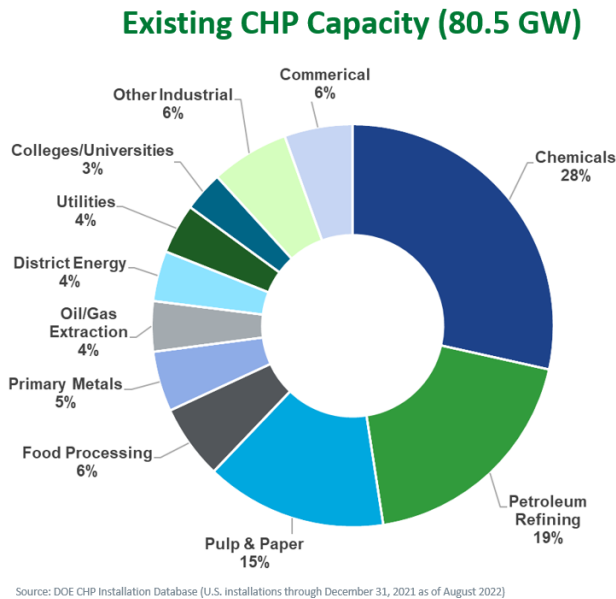
⁴ 750 lbs CO₂/MWh is the emissions rate for current state of the art natural gas combined cycle generating units (the most efficient central station natural gas fueled generation technology) per DOE's Annual Energy Outlook assumptions



Conclusion

Super-efficient natural gas-fired CHP is a proven efficiency measure that has reduced 1.3 quadrillion Btus of fuel combustion and over 192 million tons CO₂, as indicated in the chart below, which is drawn from the Department of Energy's CHP Installation database. The CHP Alliance urges the Treasury Department to make natural gas-fired CHP eligible for the section 45Y and 48E tax credits.

The CHP Alliance appreciates the opportunity to provide additional comments to the Treasury Department and IRS's request for information. The CHP Alliance welcomes the opportunity to continue to engage with the Treasury Department and IRS on the implementation of the Inflation Reduction Act through additional comment opportunities, meetings, and other means. Please feel free to contact me with any questions you have.



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