



October 14, 2021

Build Back Better Act's Clean Electricity Performance Program

Global Warming Potential Metric

The Gas Turbine Association (GTA) is a trade organization representing the major combustion turbine manufacturers in the United States. GTA members produce combustion turbines ranging from 1 to over 400 MW in size. Member companies produce combustion turbines for the power industry, oil and gas operations, commercial operations such as hospitals and campuses, and industrial operations.

The GTA recommends changing the Clean Electricity Performance Program's (CEPP) definition of "carbon dioxide equivalent emissions" in the *Build Back Better Act* (page 13, lines 9-13, [Subtitle D -- Energy](#)). The Global Warming Potential (GWP) metric should be increased to a 100-year period instead of the proposed 20-year period to align the CEPP with international practices and norms, including the Paris Climate Agreement, to provide reliable "qualified clean electricity" (page 15, lines 7-11) by allowing use of natural gas combustion turbines in concert with renewable energy.

A GWP_{20} metric in the CEPP will negatively impact the international competitiveness of U.S. manufacturers and disadvantage natural gas investments globally. GWP_{20} would emphasize the short-term impact of methane emissions while neglecting the long-term climate change mitigation benefits provided by natural gas as a transition fuel. Using GWP_{100} would encourage investments that provide near-term clean and reliable energy and promote the development of infrastructure that can be used for hydrogen and other gaseous renewable fuels as they become available.

Modern electricity generation facilities with natural gas fired combustion turbines help stabilize the U.S. electricity grid and enable the use of renewable fuels. Natural gas fired combustion turbines are extremely versatile: they can transition to hydrogen blends and other renewable gaseous fuels in the future while enabling the greater use of intermittent renewable energy such as wind and solar right now. Natural gas fired combustion turbines enhance the resiliency of the U.S. electricity grid while accelerating its decarbonization.

We strongly recommend updating the definition of "carbon dioxide equivalent emissions" in the *Build Back Better Act's* CEPP to the internationally-accepted GWP_{100} metric.



Background on Global Warming Potential (GWP)

GWP₁₀₀ is the metric used to calculate nationally determined contributions of greenhouse gas emissions as decided by United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP) from 1997 Kyoto (COP 3) through Paris in 2018 (COP 26) to the COP meeting to be held in Glasgow October 31 through November 12, 2021.

GWP is an index of the total energy from solar radiation retained by the addition of a gas to the atmosphere relative to Carbon Dioxide over a fixed time. GWP is the ratio of: (Absolute Global Warming Potential for Component)/(AGWP for CO₂). CO₂ is the reference gas for GWP. AGWP is the energy is expressed in Watt-years/square-meter/kg. AGWP is the of energy absorbed over a time period in an area impacted by sunlight per unit mass of species introduced.

The time period selected for GWP analysis is arbitrary and global warming metrics are available from the Intergovernmental Panel on Climate Change (IPCC) for a 20-, and 100-year window and each approach has strengths and weaknesses. The following GWP values can be found in the IPCC Assessment Report 5 Working Group I published in 2014 and due to be updated in 2021 (IPCC AR6):

Acronym, Common Name or Chemical Name	Chemical Formula	Lifetime (Years)	Radiative Efficiency (W m ⁻² ppb ⁻¹)	AGWP 20-year (W m ⁻² yr kg ⁻¹)	GWP 20-year	AGWP 100-year (W m ⁻² yr kg ⁻¹)	GWP 100-year
Carbon dioxide	CO ₂	see*	1.37e-5	2.49e-14	1	9.17e-14	1
Methane	CH ₄	12.4'	3.63e-4	2.09e-12	84	2.61e-12	28

Table 1: Excerpt From IPCC Working Group I 5th Assessment Report Table 8.A.1

Respectfully,

Leslie Witherspoon
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 Gas Turbine Association

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Gas Turbine Association Membership

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