Distributed Generation

Reducing Carbon Emissions While Providing Reliable Energy Sources

SECURE SOURCE ENERGY

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OVERVIEW

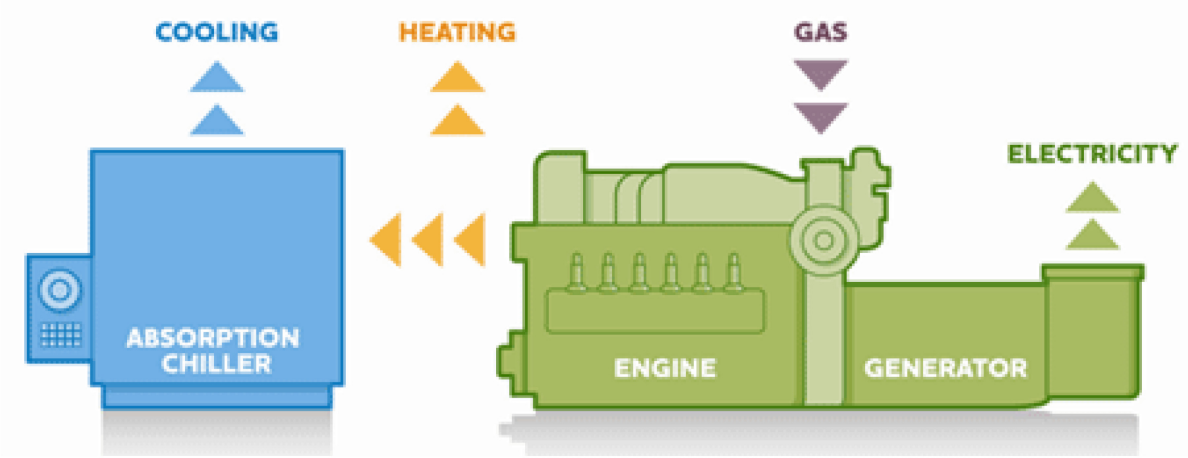
Distributed trigeneration systems can protect property owners' assets and operations while reducing emissions.

Trigeneration systems are:

Trigeneration is a technology that generates electricity while also providing heating and cooling.

Trigeneration uses some of the heat produced by a cogeneration plant to generate chilled water for air conditioning or refrigeration.

How is it different than CHP? In trigeneration, waste heat is used for both heating and cooling, typically with an absorption chiller for the cooling equipment.

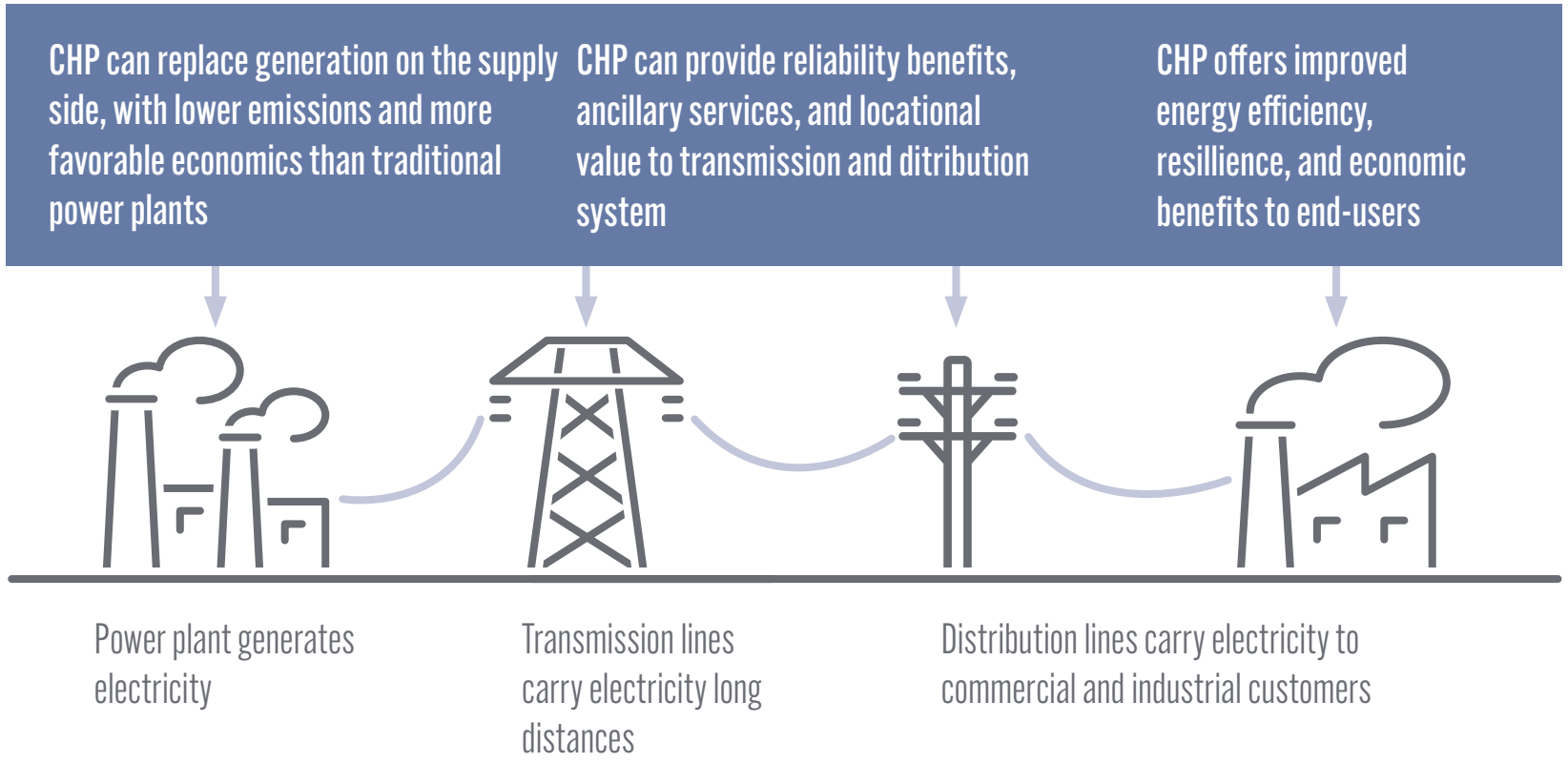


Why invest in distributed generation?

** Buildings, many of them commercial, account for 70% of carbon emissions in New York and other major cities.*

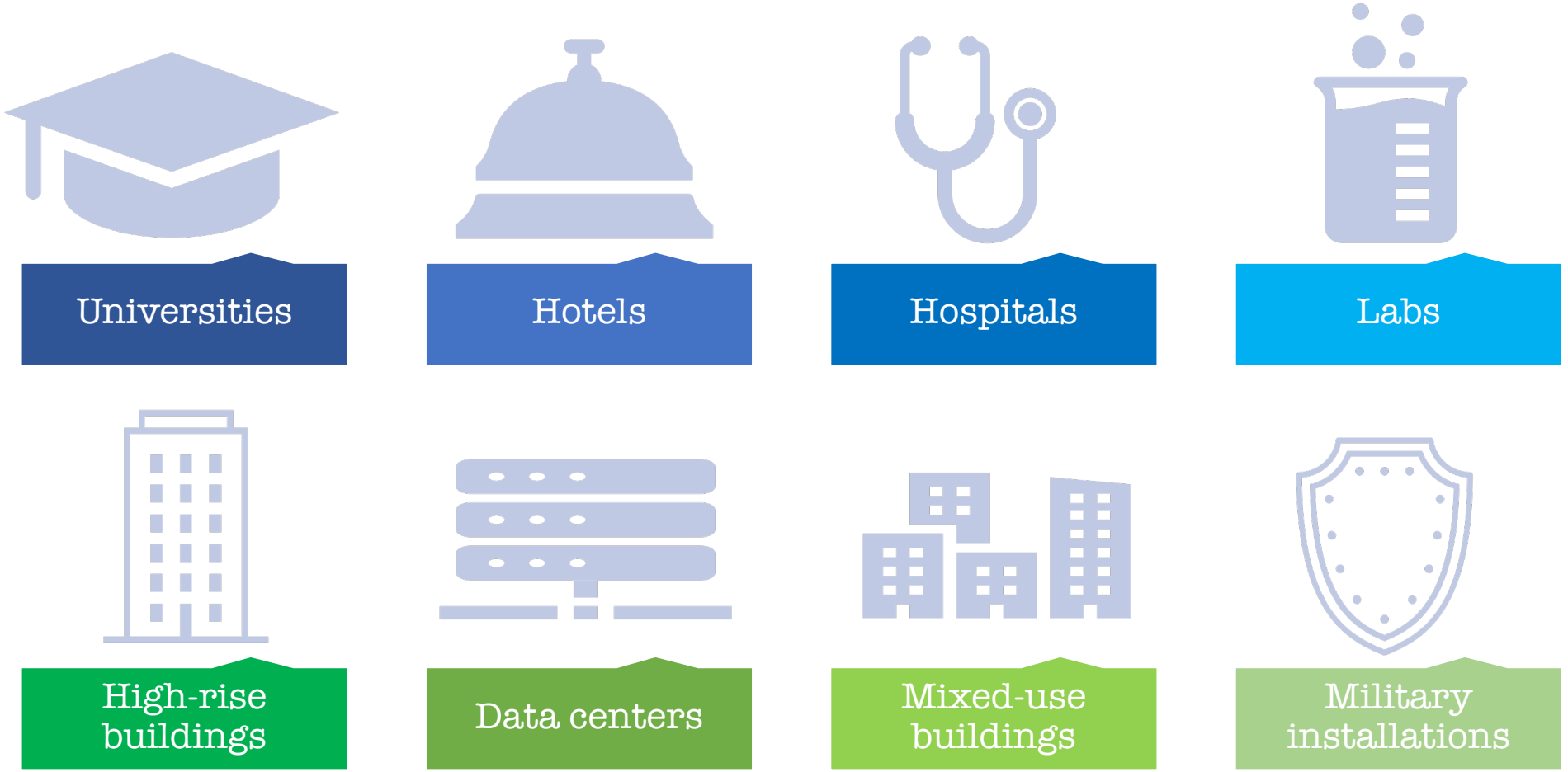
** New tax credits in the Inflation Reduction Act can support trigeneration deployment.*

Distributed generation is non-utility scale energy generation located at or near the site where it is consumed.

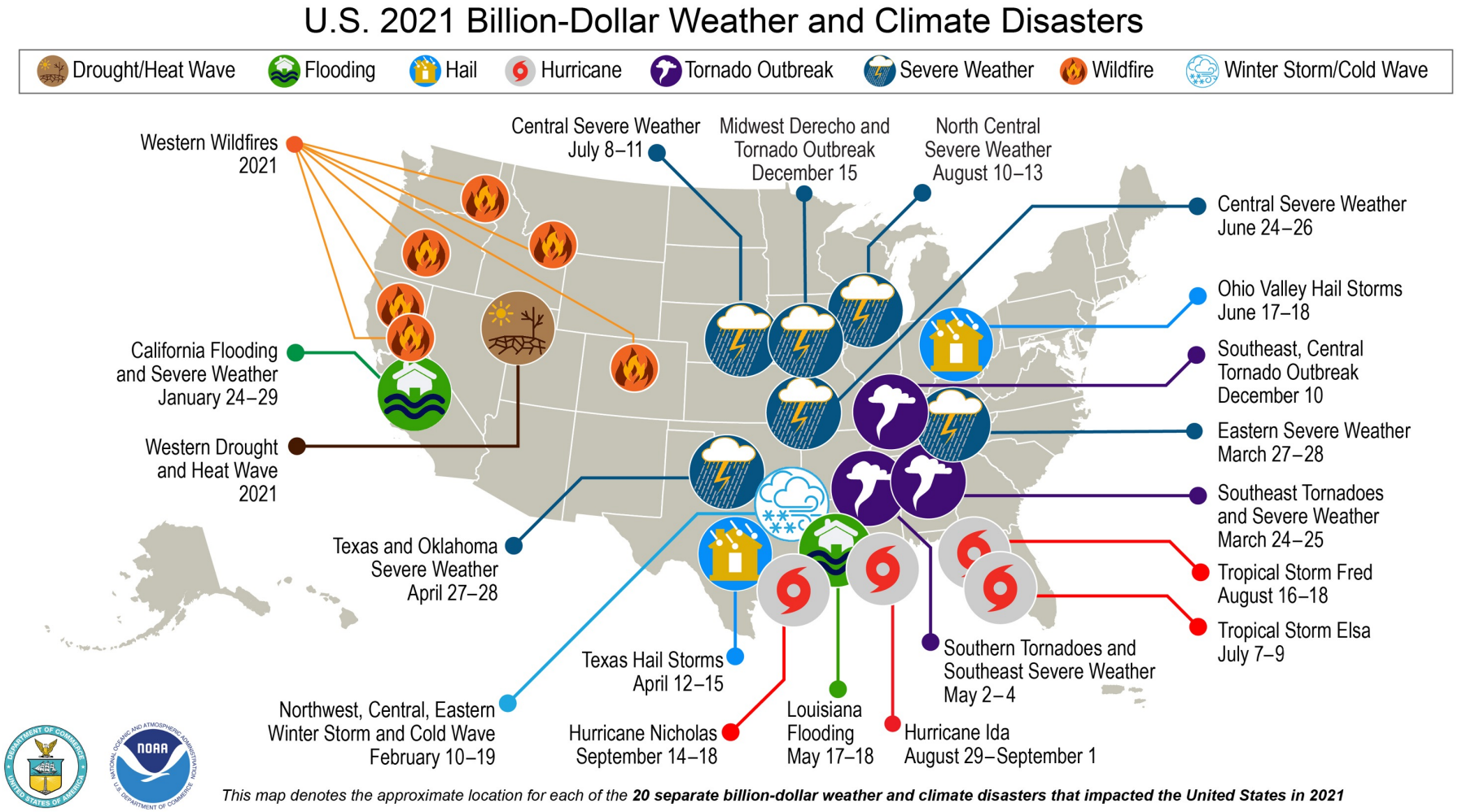


Traditional electric generation loses about 5% of its energy in the transmission and distribution process. On-site distributed generation systems experience minimal losses because the energy is generated close to where it's used.

Who should consider distributed generation?



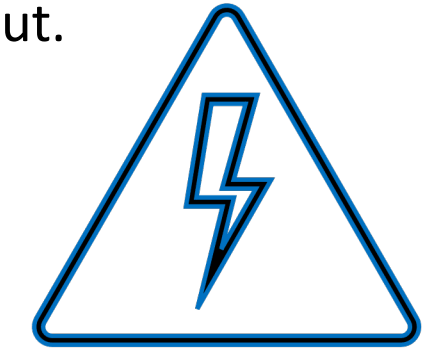
Our **electricity system** was not designed to withstand many of the extreme weather events that occur today.



Trigeneration systems reduce building emissions while improving resiliency in the face of climate change.

Benefits of trigeneration include:

- Ability to run nearly continuously close to the level of their maximum output.
- Reduced reliance on the electric grid.
- Ability to work with renewable resources as part of a microgrid.
- Reliable power to support rapidly increasing electrification needs.



Distributed trigeneration allow buildings to maintain energy service during electric grid outages.

Natural Disaster or Storm Events	Flooding	High Winds	Earthquakes	Wildfires	Snow/Ice	Extreme Temperature
Battery Storage	◒	○	◒	●	○	◒
Biomass/Biogas CHP	◒	◒	◒	●	○	○
Distributed Solar	○	◒	◒	●	◒	◒
Distributed Wind	○	◒	◒	◒	◒	◒
Natural Gas CHP	○	○	◒	◒	○	○
Standby Generators	◒	○	◒	●	◒	○

RANKING CRITERIA

Four basic criteria were used to estimate the vulnerability of a resource during each type of disaster event. They include the likelihood of experiencing:

1. A fuel supply interruption
2. Damage to equipment
3. Performance limitations
4. A planned forced shutdown

○ Resource is unlikely to experience any impacts

◒ Resource is likely to experience one, two or three impacts

● Resource is likely to experience all four impacts

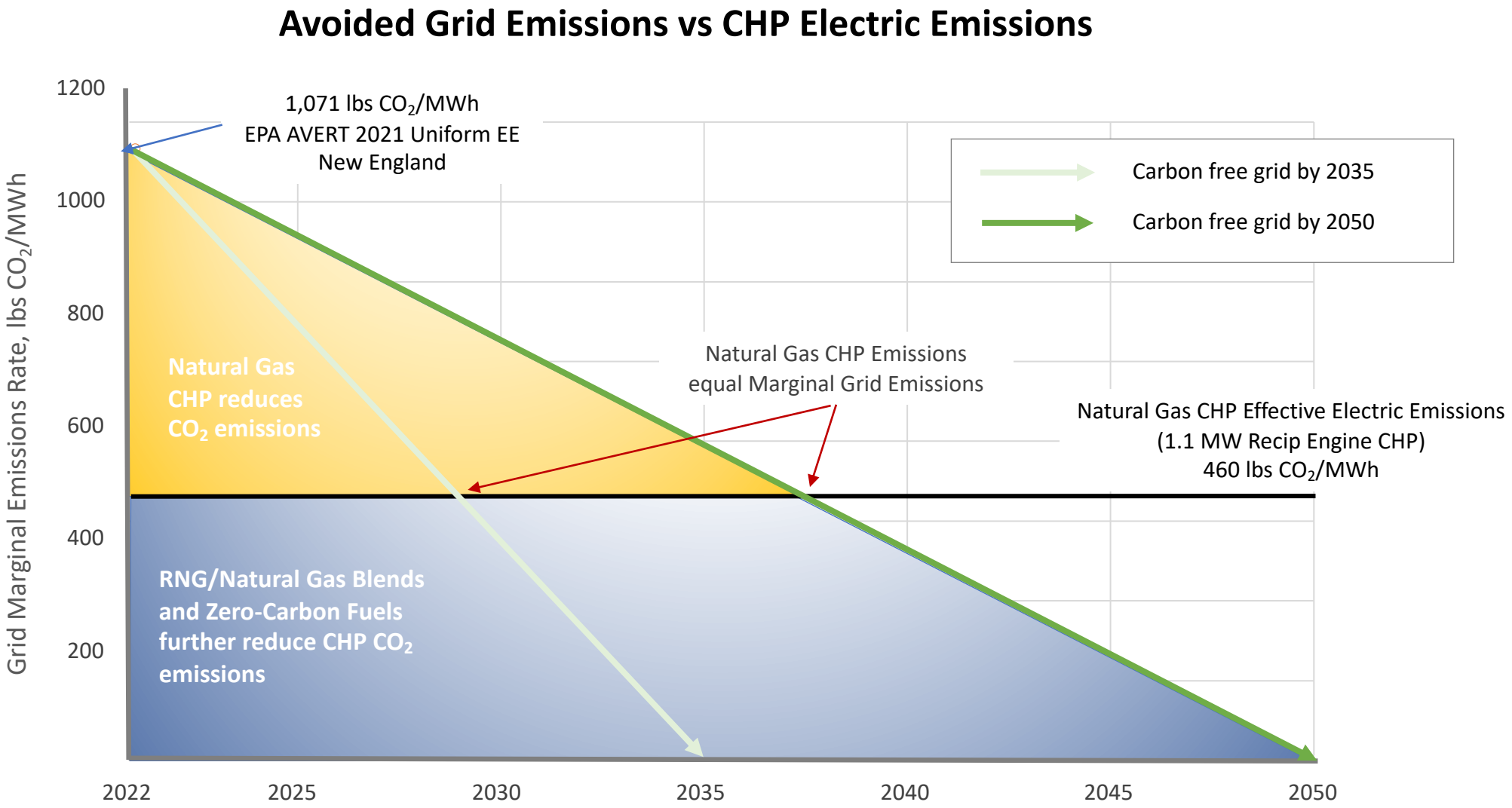
Distributed trigeneration systems are immediately deployable, enabling emissions reductions and improved reliability in the near term.

- Properly designed trigeneration systems are 80% to 90% efficient.
- Inverter-based systems provide for clean electricity signals that can power sensitive electronic equipment that can be damaged by typical generators.
- Trigeneration uses less fuel input for the same energy output, lowering GHG emissions.
- Trigeneration systems can be used with complementary technologies like high-efficiency electric drive and thermal storage, to further reduce emissions.

Trigeneration systems that use lower-carbon fuels allow for even greater emissions reduction.

- Trigeneration systems will use lower-carbon fuels efficiently, requiring less fuel inputs to achieve the same energy output as other generation units.
- Fuels like biogas and RNG are already in use in trigeneration systems, and most inverter-based reciprocating engines can take RNG and biogas as input fuels today.
- While use of hydrogen fuel is not widespread, it could see more extensive use as technology develops.

Renewable and net-zero carbon fuels maintain CHP's advantage



Trigeneration and H.R. 5376

- New Tax Incentive should Drive Trigeneration Investment
- Tax Credit up to 30-50%
- Zero Emission Credit Begins in 2025
- Zero Emission Credit Extends to 2032
- More details forthcoming on both credits

Trigeneration is a proven resilient, economically-viable solution to reduce emissions.

Can help commercial building owners and managers reduce their GHG emissions while maintaining reliable energy services.

Trigeneration systems:

** Run close to their maximum capacity nearly all the time;*

** Have an efficiency rate of up to 90%*

** Can work efficiently with low-carbon fuels like RNG and biogas.*

- *Are a critical part of responsible climate action.*
- *Are eligible for the new 30-50% tax credit.*