WHY IS WASTE HEAT TO POWER ZERO EMISSION?

HOW DOES IT DIFFER FROM COMBINED HEAT & POWER?

WASTE HEAT TO POWER (WHP) IS A ZERO-EMISSION WAY TO PRODUCE ELECTRICITY

- **WHP converts, recovers, or recycles otherwise wasted heat** from industrial processes to generate electricity or mechanical power, requiring no additional fuel and generating zero emissions.
- **WHP is a stand-alone add-on unit**; it harnesses heat through technology that is normally added after the existing facility is commissioned. WHP is independent of the primary industrial process of the facility.
- **According to a 2021 study by ICF International**, WHP systems offer a comparable emissions profile to wind and solar but due to their ability to run nearly 24/7, can provide greater annual emissions reduction than a comparable capacity solar or wind system.

COMBINED HEAT AND POWER (CHP) IS A LOW-EMISSION, ENERGY EFFICIENT WAY TO PRODUCE ELECTRICITY

- **CHP burns fuel** to generate electricity simultaneously or sequentially or to provide mechanical shaft power in combination with producing steam and/or thermal energy.
- **CHP is an integrated system**, and its primary purpose is to produce both thermal energy and electricity.
- **CHP systems can be structured as zero-emission if renewable fuels are used**; whereas WHP is inherently zero-emission since the source of power is always waste heat.

EVALUATING "ZERO-EMISSION"

WHP can say YES to the following zero-emission criteria!

- **Technology does not combust a fuel** for the purpose of creating electricity.
- **Fuel source** to produce electricity is waste heat.
- **No incremental greenhouse gases are released** in the process of generating electricity.
- **Does not require a Title V permit** or similar air quality permits[1] for a system (no need for Clean Air Act New Source Review).

[1] May require an administrative change or minor modification to an existing permit depending on the state.

HEAT IS POWER
LET'S CAPTURE IT

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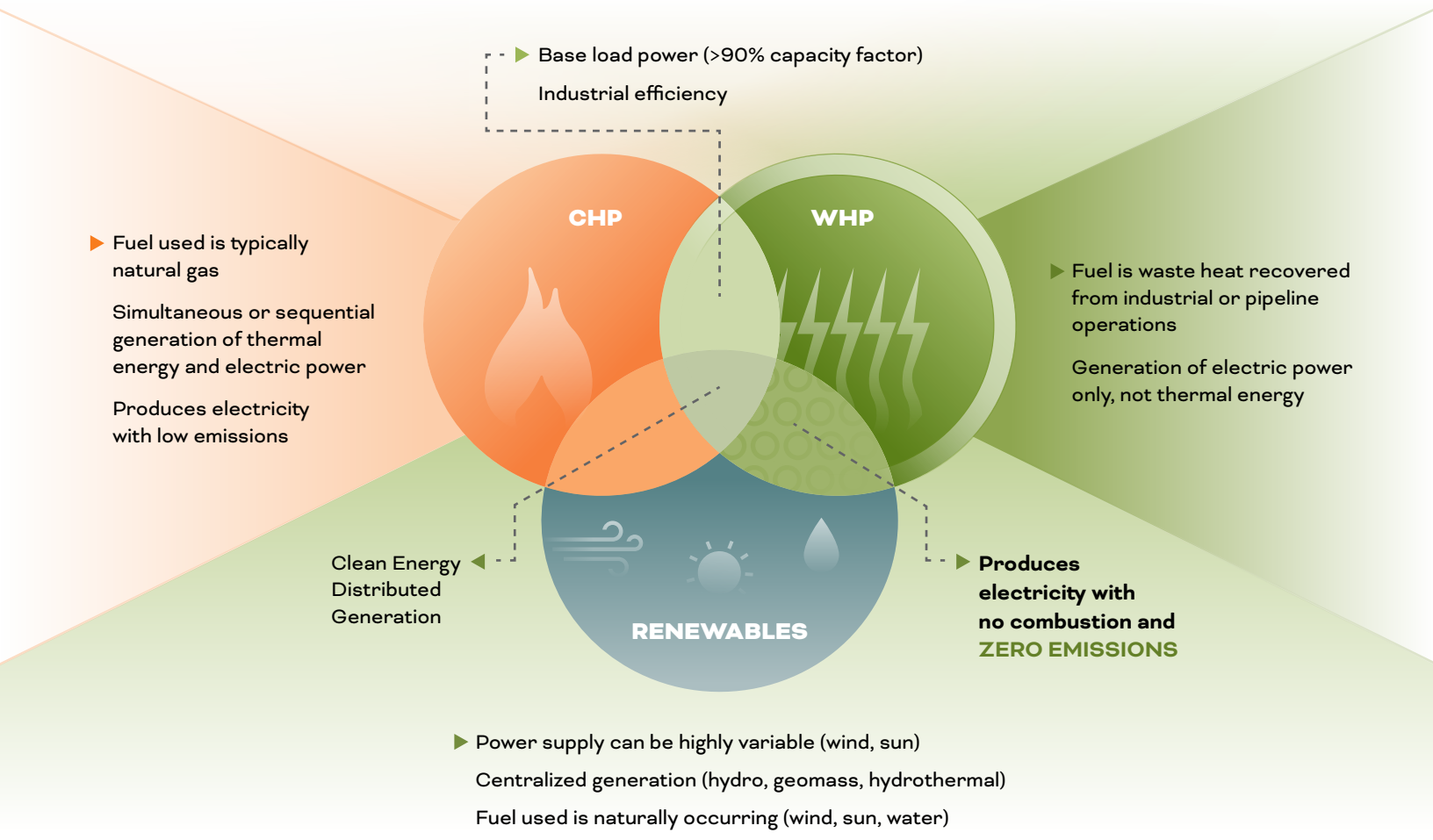
FEDERAL AND STATE POLICY TREAT WHP AS ZERO-EMISSION

- 20 States consider WHP to be a renewable resource eligible for a Tier 1 renewable portfolio standard and CHP to be an efficiency resource eligible for Tier 2.
- WHP has a distinctly different tax code definition from CHP.
- WHP has a distinctly different Energy Independence and Security Act definition from CHP.
- Federally, renewables receive a 30% Investment Tax Credit (ITC).
  - WHP historically received a 30% ITC.
  - CHP historically received a 10% ITC; but it was increased to 30% in the 2022 Inflation Reduction Act for 2 years.
    - After 2025 only Clean Electricity Investment and Production Tax Credits will be available to zero-emission technologies on a technology-neutral basis.



OVERLAPPING BENEFITS OF CHP AND WHP

- **Generate power on-site**, eliminating the need for transmission and associated line losses.
- **Can be a reliable source of 24/7 baseload power** for manufacturing and other industrial facilities; has capability to achieve a high-capacity factor.
- **Potentially provide excess electricity** where electricity is delivered to the grid or used for the industrial process onsite.
- **Serve as decarbonizing technologies** that reduce emissions from the industrial sector.