

**Waste Heat to Power (WHP)** is a form of clean energy that uses leftover heat from industrial processes to generate electricity with no additional fuel, combustion or emissions. WHP systems capture 250 - 2,000 degree Fahrenheit waste heat from exhaust stacks or pipes, which would otherwise be lost to the atmosphere, and convert the energy in the heat into electricity.

DOE has identified 96 **existing WHP systems** in the U.S. with a total capacity of 766 MW of electricity. The same study estimates an additional technical potential of 15 GW.

**Industries** with high potential for WHP systems include petroleum (refineries, pipelines, gas processing), chemicals, metals, minerals, paper, wood, and general manufacturing.

**Twenty states include WHP in their renewable portfolio standard** or similar program.

**Waste Heat to Power (WHP) Systems can:**

- Improve industrial energy efficiency
- Generate power on site where it is needed
- Improve electrical reliability for key processes
- Reduce the cost of purchased electricity and/or fuel
- Generate revenue by selling excess power
- Reduce monthly electrical demand charges
- Displace power from sources that generate emissions
- Reduce carbon footprints
- Reduce emissions of criteria pollutants including sulfur dioxide, nitrogen oxides and particulates

**WHP includes many technologies** such as steam cycle, organic Rankine cycle, nano-antenna technology, high pressure CO<sub>2</sub> cycle, thermoelectric generation, Kalina cycle and Stirling engine. Systems vary from 25 kW modular designs that can be installed in a couple hours, operated and monitored remotely, decommissioned, and redeployed as needed, to custom configurations that can generate more than 100 MW from high volume, high temperature waste heat streams.

**Existing federal tax policies** incent specific known energy technologies, stifling innovation and limiting the ability of non-incented technologies to compete. Federal tax policies should provide parity for clean power from multiple sources, including wind, solar, hydro, WHP and others. The Heat is Power Association therefore supports tax reform that is technology neutral and encourages desired outcomes, versus existing laws that tend to pick winners and losers. In lieu of technology neutral tax reform, WHP should be treated like other clean power sources and included in incentives such as the investment tax credit (ITC) and production tax credit (PTC). Congress should also add WHP to the federal definition of renewable energy.

*The Heat is Power Association (HiP) is the trade association for the waste heat to power (WHP) industry. WHP uses waste heat from industrial processes to generate electricity with no additional fuel, no combustion, and no incremental emissions. HiP educates policy makers about clean energy from waste heat and advocates for policies that provide parity for WHP with other sources of clean energy.*