Just Because We Can Doesn’t Mean We Should

Is arguing whether WHP is CHP as productive as rearranging the deck chairs on the Titanic?
The Argument that WHP=CHP

- If CHP = Cogeneration, and
- Cogeneration was defined in PURPA, and
- PURPA talks about topping-cycle cogeneration and bottoming-cycle cogeneration, and
- Many WHP projects meet the definition of bottoming-cycle cogeneration, and
- Bottoming-cycle cogeneration = made up term bottoming-cycle CHP, then
- WHP = CHP

Disclaimer: in case this slide is taken out of context, let it be know that this argument is not supported by The Heat is Power Association
Who Makes that Argument?

- Engineers
- Supporters of WHP that want to fit WHP into established CHP programs
- Supporters of WHP that want WHP to get pulled along by the momentum for more CHP
- Energy stakeholders that want to simplify the policy landscape and make it easier to deal with WHP
Is it a Good Argument?

• Technically it is a pretty good argument
  – It doesn’t fit all cases but it does cover many
• In the context of the history of CHP it is a bad argument
• As an agent of simplification it is a very bad argument

Let’s take a closer look at each of these points
Is WHP Technically Bottoming-Cycle?

Most WHP qualifies as bottoming cycle cogeneration under the PURPA definition

PURPA definitions

Cogeneration - “Equipment used to produce electric energy and forms of useful thermal energy (such as heat or steam) through the sequential use of energy.”

- Where the fuel is first used to produce electricity directly and then useful energy is captured from the exhaust, it is called **topping cycle**.
- Where the fuel is first used to produce steam in a boiler and then some useful power is extracted along the way, it is called **bottoming cycle**.

“**Bottoming-cycle cogeneration** facility means a cogeneration facility in which the energy input to the system is first applied to a useful thermal energy application or process, and at least some of the reject heat emerging from the application or process is then used for power production.”

Waste Heat to Power

The process of capturing industrial waste heat and using it for power generation.
Is WHP Historically CHP?

• No

• CHP was adopted as a term in the U.S. to make a clear distinction between projects promoted under a 1978 policy and application of much more energy efficient technology in 1998
  – It has taken 15 years for CHP to become a widespread term that means something distinct from PURPA cogeneration

• The exclusive focus of CHP promoters beginning in 1998 was to eliminate the barriers for distributed generation technologies that could achieve greater efficiencies by producing power at or near a thermal energy user

• It was clear from the name that electricity or mechanical energy and heat would be produced from the project
  – “Half the fuel and half the emissions of conventional generation”
Is it Simpler to Say WHP = CHP?

• No - In many respects it is more confusing
• Simplification has not been necessary for those that have already decided to provide incentives for the benefits that WHP delivers
• Congress and many states have already defined WHP as something distinct from CHP and those who continue to insist that WHP = CHP just confuse the issue further
Congress Has Been Clear in Legislation Signed into Law

• HR 6582
  – Directs the Department of Energy to complete a study of the Barriers to Industrial Efficiency
  – Defines electricity produced from waste heat recovery separately from combined heat and power

• Energy Independence and Security Act of 2007 (EISA)
  – The term ‘recoverable waste energy’ means waste energy from which electricity or useful thermal energy may be recovered through modification of an existing facility or addition of a new facility.
  – CHP is defined separately – CHP “simultaneously and efficiently produces useful thermal energy and electricity”

• Section 48 of the Tax Code
  – CHP is defined in a way that excludes bottoming-cycle cogeneration projects from qualifying for the 10% investment tax credit
The States Have Been Clear

- State policies that directly incentivize WHP in their Renewable Portfolio Standards or Goals have distinct definitions for WHP and refer to WHP by the following terms:
  
  **CA**: Waste heat to power
  **LA, IN***: Waste heat recovery
  **MN**: Waste heat recovery converted into electricity
  **UT**: Waste gas or waste heat capture or recovery
  **OH**: Waste energy recovery system
  **NV**: Energy recovery process
  **CO, SD, ND, WV**: Recycled energy
  **IN, OK**: Industrial byproduct technology
  **ME**: Class II Resource
  **CT**: Waste Heat Recovery System
  **MI**: Industrial Cogeneration

* WHP qualifies under both terms in IN

- Many of these same programs include separate benefits for CHP
The Industry Has Been Clear

• The technology for converting waste heat to power, especially lower temperature waste heat, is specialized
• WHP does not produce electricity and thermal energy – just electricity
• We are in the market every day - when anyone in the industry is talking about CHP, they are talking about a topping-cycle project
• WHP produces no incremental emissions and is therefore like a renewable energy resource
DOE and EPA Continue to Insist that WHP = CHP

• The question is why
• There is no dispute whether WHP is something that these agencies should want to promote – it is directly on point with their stated goals and mission
• The Stakeholders have been clear
  – Congress has made it clear that it believes WHP is distinct from CHP and many of the Agency programs get their authorization from Congress
  – The States clearly feel that WHP is different and yet get no support from DOE and EPA in that view
  – The Industry believes that WHP is different as evidenced by the fact that WHP does not receive the federal tax benefits of CHP, is often excluded from RFP’s for CHP, and uses different equipment than CHP
Just Because We Can Doesn’t Mean We Should

But we should. The question is what is the best strategy to help DOE and EPA understand these important differences.