

**Energy conservation:
We've changed the lightbulbs, now what?
2016 AMO Conference
Tuesday, August 16th**

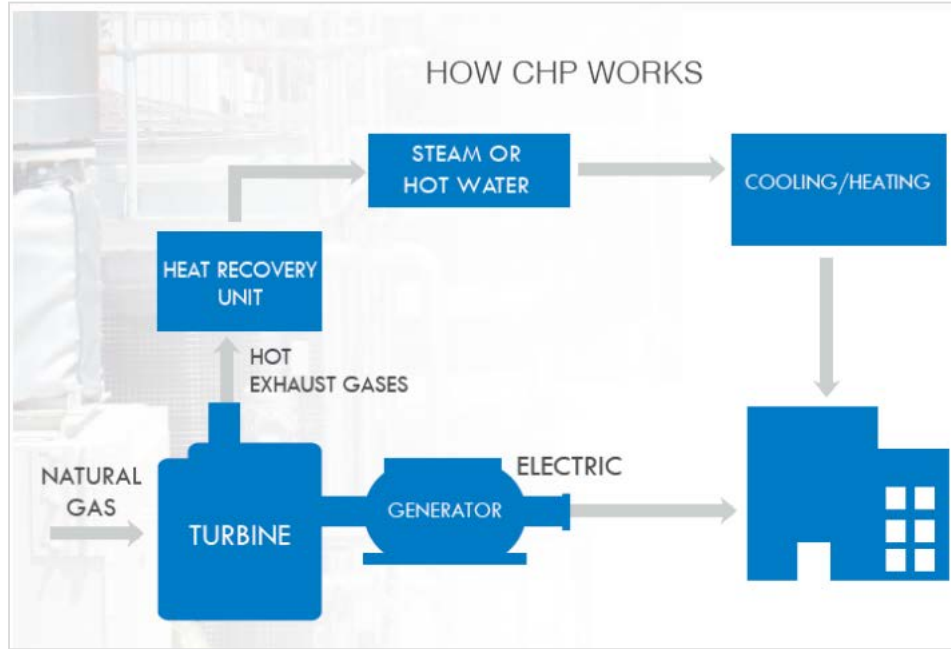
Agenda

- What is Combined Heat and Power?
- What are the benefits?
- How to apply this in your municipality

What is Combined Heat and Power (CHP)?

Cogeneration or Combined Heat and Power (CHP) technology allows you to generate your own electricity using a cheaper fuel source (typically natural gas).

What is CHP?



In the process of generating electricity yourself, CHP captures and reuses the heat generated in the process

CHP can help you reduce energy consumption without the discomfort

With CHP you are **saving money** by generating electricity yourself but also **more energy efficient** using the heat byproduct for your facility.

CHP installations for municipalities of all sizes



Microturbine



Reciprocating Engine

Municipal applications



Recreational Centres

Municipal applications



Municipal Buildings and Arenas

Municipal applications



Waste Water Treatment Plants

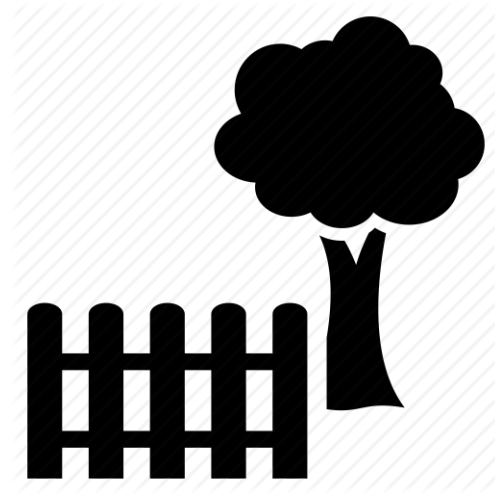
Financial benefits

- Reduced base load Reduced energy costs
- Stabilized electricity costs over a fixed period



Environmental benefits

- Reduced primary energy use
- Reduced transmission losses from the grid
- Advance climate change and environmental goals by reducing emissions of CO₂ and other pollutants (if you are using diesel backups or generators)

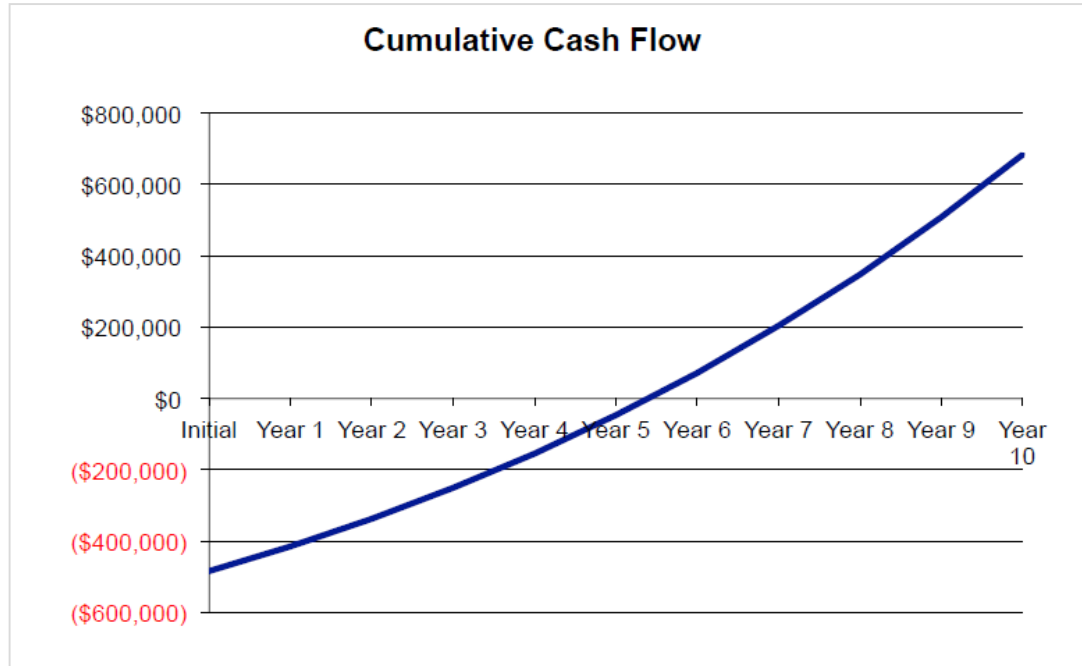


Community benefits

- CHP can increase the reliability of a building's power supply
- Assists a municipality to provide emergency shelter to residents in power outages
- Captures methane gas that would be flared and turns this 'free fuel' into power



Payback analysis for a recreational centre



Your municipality is a good candidate for CHP if....

- Have problems with power quality (voltage blips, brown outs)
- Have problems with power reliability (outages)
- Need to improve the operational efficiency of the facility (e.g. reduce overall cost)
- Understand the “divergent spark spread” and believe that electricity rates and costs will continue to increase

Your municipality is a good candidate for CHP if....

- Want to avoid paying as much electricity to power your facilities.
- Have aging equipment (boilers) that need replacing or would like to extend the life of these assets
- Have a culture that supports technology improvement

Conclusion

CHP can assist municipalities reaching their energy conservation efforts. CHP can:

- ✓ Drastically cut electricity bills without changing the services or comfort you provide
- ✓ Naturally reduce consumption by re-using heat
- ✓ Act as a back-up generator during power outages
- ✓ Be tailored for municipalities of all sizes

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