



District Heating Study

Need: We need to find more energy efficient ways to heat buildings. Combined heat and power has been used in Europe effectively and efficiently for decades.

Goal: To better understand the economics of this possibility in the US and to begin to look at the policy questions of what it will take for a community in the US to support this direction moving forward

Methods: a group from class investigates what it would take to build a combined heat and power project for a small neighborhood. **Elsa King** has offered her neighborhood as a starting point:

We are examining a 14 house cul-de-sac for the potential value of establishing a CHP (combined heat and power plant) to meet the needs of the residents. The street is Iris Lane, Bellingham.

- The houses were built in 1970 and there are 2 styles of all-electric homes. (baseboard heating, electric cooking and hot water.)
- Two years of power bills from 3 homes have been compared and dissected to broaden our understanding of power vs. heating uses in the homes.
- Projections have been made for the potential savings from a CHP plant.
- City policies for the establishing of a plant have been discussed with officials.
- We are working on the economics of retrofitting the existing homes.
- We have suggested our project may be interesting as an applied mechanical engineering project for a senior level WSU class. As well, a policy class may be interested.
- We are looking at the projections of natural gas costs for the future and developing an understanding of other potential fuels that could be used as times change. (methane, biofuels)
- We are reviewing new federal legislation that is in the works (Waxman-Markey HR2454) that apparently mandates 80% energy efficiency in new and remodels by 2050.
- The need to inspire interest in our local building environment has led us to research promotional videos and succinct motivational articles.
- We would like to understand why Western has only a district heating plant and does not provide power from the plant.
- We imagine inspiring our City government Center to model and therefore demonstrate the benefits of a CHP plant: The city hall, the library, the police station, the county courthouse, the jail, the children's museum, the health department and the civic buildings on Grand St along with the municipal court.
- We envision the upgrades and remodels planned for the near future encompassing the infrastructure essential to a CHP plant.

It is worth the intellectual exercise to analyze the costs and permitting problems that would be encountered in such a project. This will involve looking at the utilities for the area, considering the costs and political realities of doing a project. We will run the numbers of the savings in energy and calculate the dollar value. Looking at all of these issues should help us understand what prevents these projects from happening.

Knowing the economics will allow us to investigate what it might take to move a project forward. This will enable us to consider what we can do to support such progress. A further exercise is to look at the long term and discuss what sort of local government policies could support the future implementation of this technology. This could include a discussion of carbon credit trading or a carbon tax.

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