

Report to Plymouth State University Community

Energy Strategy and Carbon Reduction Update

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Compressed Natural Gas (CNG) Thermal Project – Plymouth State University (2013)

Introduction

Plymouth State University is committed to the pursuit of environmental sustainability and to identifying efficient ways to achieve goals for campus operations. In addition, as a public institution, the University has a responsibility to ensure that financial decisions made balance diverse goals.

For the last several years, the University has been exploring multiple energy strategies which lower overall energy costs and makes progress towards carbon neutrality, as reflected in the Climate Action Plan (CAP), as part of the President's Climate Commitment signed in May 2007. Some of the strategies considered were leading edge ideas as well as proven biomass alternatives.

The primary campus group charged with studying and recommending energy alternatives is a group called the Energy Committee with member ship from various segments of the campus including: Physical Plant, Finance Office, Office of Sustainability, Purchasing, and our Co-Gen Plant Contractor – Noresco. This group meets bi-weekly and has done the bulk of the work to explore energy alternatives for the campus.

Next fall, the University will be converting the Co-Generation plant from diesel fuel (#6) to Compressed Natural Gas as our primary source of fuel in heating the campus. The rest of the document explains the strategy and expected outcomes.

Strategy and Outcomes

There are several motivations for this change including cost savings and improving our institution's relationship with the environment to achieve our goal to cut carbon emissions to address global warming. Compressed natural gas (CNG) will be used as a transition fuel to achieve these cost and environmental goals in the short term, with a conversion to a biomass fuel source as the long-term strategy for thermal generation on campus. Biogas from dairy farms and various biomass energy sources were extensively explored as alternative fuels for the thermal plant, but for a variety of reasons were not a feasible option at this time for the University. Converting our thermal generation to CNG will allow us to achieve significant cost savings while reducing both our pollutant load and our carbon emissions.

The decision to use CNG as a fuel source was a complex one that involved many considerations, including extensive discussions of issues associated with the production of the fuel including fracking. In short, the decision was made to move ahead with the project even in light of these concerns because of the following major considerations:

- The current funding climate. Conversion to a less expensive fuel will generate budget savings that can fund the capital needs as well as provide additional resources for strategic campus priorities.
- The conversion brings financial savings to Plymouth State University that can help control tuition costs; projected project payback is less than one year.
- The negative environmental impacts of our current fuel source (Fuel oil #6) are significant and an alternative fuel is critical to meet long-term sustainability goals.
- The EPA is changing air quality rules to make #6 fuel oil even more expensive to use because of its heavy pollutant load.
- Converting to CNG reduces our carbon footprint by about 12% and an energy solution is critical to reaching the long-term goal of carbon neutrality.
- CNG is firmly viewed as a transition fuel to biomass for the institution, and the infrastructure being used in the project reflects that decision.
- Greener U, the sustainability consulting firm in the Master Planning process, has reviewed the plan and identified it as a sound one for reaching our institutional goals.

Our current fuel source is extremely polluting in both emissions and its production, so despite continuing concerns about fracking, the benefits of the project clearly outweigh the benefits of the status quo. Most of our CNG fuel will be coming from pipeline gas transported from Canada which does not use fracking as an extraction method.

There will be some construction activity this summer near the Co-Gen plant to allow for CNG fuel trucks to deliver their fuel directly to the plant. Further, the University has engaged energy consultants and contractors to properly design the systems to accept and process the fuel as well as meet all safety and code requirements.

This technology is called a “virtual pipeline” as pipeline gas is transported to the location as opposed to tapping directly off the pipeline. The technology to facilitate this process is cutting edge and Plymouth State will be one of the first organizations to utilize this model and we believe the first in New Hampshire.

We look forward to continuing to share news about this exciting project, and to answering questions members of our community may have about it. Please feel free to email either of us if you have any follow up questions.