Recommendations: Renewable Energy & Fuel Switching

1. Tap Existing Gas Pipeline to serve Falmouth, Cumberland, Yarmouth and Convert Wyman Station to Natural Gas

Most of the United States has access to natural gas, and a cost-effective distribution infrastructure supplies most major cities. Although natural gas is still a fossil fuel, it is much lighter in the carbon chain and emits 25% less CO_2e than burning fuel oil. Natural gas is generally a less expensive fuel source than either propane or oil. The State energy office encourages the expansion of natural gas in Maine because it is a cleaner fuel. Maine is more heavily dependent on heating oil than the rest of the country, and it would be beneficial to bring natural gas to our community and surrounding communities. Fuel oil in Maine comes predominantly from the Middle East, while much of the natural gas we would use originates in North America, and is therefore a more secure energy source.

At the time of the construction of this distribution system, gas was being moved from south to north, and it was not economic to extend the service beyond Portland. As a result, Falmouth and other communities north of Portland grew with a fuel-oil based energy supply. Fuel oil is easier to store than other fuels and does not require a fixed pipeline. It is also rich in carbon and can be expensive. Fuel oil is unregulated and prices can change quickly, as we saw in 2008.

Power plants also grew with fuel oil, including Wyman Station in Yarmouth. Wyman was built in 1958, and at the time was the biggest power generator in Maine. Wyman still receives 100% of its fuel for electrical generation via water-borne fuel oil tankers, although it currently functions as a peaking plant.

In the late 1990's, two new mainline natural gas systems were constructed through Portland, moving gas from north to south. The first, Maritimes & Northeast Gas (M&NE), is a high-pressure, 36-in diameter line from the Sable Island gas field, offshore Nova Scotia to Dracut, Massachusetts – servicing Boston. The second, known as Portland Gas Transmission (PGT), is a similar high-pressure system extending from near Montreal (the Canadian Border) to Westbrook, Maine. PGT and M&NE combined their systems from Westbrook southward to Dracut.

In 2004, Trans Canada and ConocoPhillips sought to build a Liquefied Natural Gas (LNG) terminal in Harpswell, with a pipeline extending to Yarmouth and Cumberland, which would have enabled the Wyman plant to convert to natural gas. The LNG terminal was vetoed by local voters in Harpswell. Wyman can still be converted to natural gas service by using the existing electrical corridors to connect the Wyman station to the existing gas pipelines:

- The M&NE line passes through Western Falmouth (east of Highland Lake). PGT intersects with M&NE from the northwest at a point just below Falmouth. Flows from both lines move, at the moment, from south to north and are operating at high pressures in the 1100 psig range.

- The Wyman Plant maintains a right-of-way for its electrical output that passes just south of Yarmouth, through Cumberland to the Falmouth Country Club. The right-of-way then bisects Falmouth Country Club proceeding to the southwest where it intersects the main power grid just adjacent to the M&NE gas line.

In addition to Wyman Station producing fewer emissions (and the stack could get lowered), we might find that other lateral lines become feasible once the line is opened; for example, supplying natural gas to the commercial area at former Exit 10 in west Falmouth (Hannaford / TD Bank complex). We estimate that the 3.5 mile line to connect the Maritimes and Northeast high pressure gas system to the Hannaford/TD Bank complex would cost approximately $5 million.

Some new laterals could then be dropped down to service Falmouth's commercial and school areas, as well as to parts of Cumberland and into the main part of Yarmouth. Some residential areas could be served by natural gas, and we could possibly provide natural gas fueling stations for vehicles.

Natural gas franchises for Westbrook, Gorham, and Brunswick have already been bid and awarded. There have been no applicants (and thus no award) for a gas franchise for the Falmouth/Cumberland/ Yarmouth area because of their geography and minimal load. In Kennebunk, the town holds the franchise. That would be a possibility for Falmouth and/or the three towns together.

Since natural gas is predominately methane, it will be important that pipeline leaks are prevented.

Recommendation:

Establish a tri-town ad hoc committee to study and work with the PUC and the owner of the Wyman Plant to determine if it is feasible to convert the plant to natural gas, and the feasibility of expanding natural gas within the three towns.

2. Wind Power Generation In Falmouth – Land

Wind power generation is being developed at different scales throughout the state. Falmouth has always taken the position that what is not specifically allowed under our ordinance is prohibited. Therefore, in order to allow wind energy to be developed in town, Falmouth needs to address it in its ordinances.

The State of Maine has put together a model Wind Energy Facility Ordinance, which classifies wind facilities according to height and aggregate capacity. The model ordinance can be found online at www.maine.gov/spo/landuse/docs/ModelWindEnergyFacilityOrdinance.pdf.

Cumberland is also discussing a wind energy system ordinance. Saco has adopted a small wind power ordinance.

Recommendation:

Adopt an ordinance to allow responsibly sited, land based wind power installations.

Requested budget: $0.

3. Wind Power Generation In Falmouth – Off Shore

The state is giving serious consideration to siting deep water wind turbines. There is movement forward on this. It appears that there will be a need for shore access for underwater transmission lines.

Recommendation:

Monitor the State's plans for off shore wind turbines. Be prepared to work with other coastal communities to push for local access to off shore generated electricity.

Requested budget: $0.

4. Municipal Renewable Energy Supply

Some towns have installed municipally owned renewable energy operations. Hull MA, for example, has successfully erected several wind turbines. Other towns have installed solar arrays on municipal buildings.

Three technologies—wind, solar, and biomass—may have significant promise for Falmouth. The High School has recently obtained a grant to install photovoltaics, and the new Elementary School will be installing a biomass boiler.

Recommendation:

Monitor the results from the high school and elementary school installations, with an eye to expanding these kinds of power facilities at other municipal buildings.

Requested budget: $0.