ELECTRIC UTILITY OWNERSHIP FEASIBILITY STUDY

City of Bethel, May 2011

Prepared by: Agnew:Beck Consulting, LLC + EES Consulting
Electric Utility Ownership Feasibility Study
City of Bethel

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I::EXECUTIVE SUMMARY

Purpose of the Study

In February 2011, the City of Bethel contracted with Agnew::Beck Consulting and EES Consulting (the consultant team) to prepare an Electric Utility Ownership Feasibility Study (the study). The study assesses the feasibility of a change in ownership from the privately run Bethel Utility Corporation (BUC) to a public or cooperative ownership model. The study’s purpose, as written in the Request for Proposal (RFP) prepared by the City, is as follows:

“The ultimate goal of the study will be to determine if transferring ownership from a privately owned company to a publicly owned electric utility is feasible, and if so, how that transfer would reduce the cost of energy for the ratepayers of Bethel while concurrently reducing the costs to the State of Alaska in the Power Cost Equalization (PCE) Program.”

Items A through H in the RFP outline the specific requirements of the study and they form the basis for the analysis that was conducted.
Ownership Models

This study analyzes three ownership models:

- Investor owned utility (IOU)
- Municipal (or publicly owned) utility
- Cooperative

A base case financial model was prepared to assess the rates and PCE amounts under each of the ownership models. The results were compared to the status quo, which is ownership by the Bethel Utility Corporation (BUC), an IOU.

Sensitivity analysis was used to test the financial impacts from alternative fuel procurement strategies, the integration of wind, and the use of waste heat. The study also assesses the impact to city finances, the economic impact to the community of reduced electricity rates, and which ownership model results in the highest amount of local democratic control.

Methodology

To prepare the study, the consultant team built a financial model based on quantitative data sources including BUC financial reports submitted to the Regulatory Commission of Alaska (RCA), PCE reports, industry standards related to the provision of energy, and existing studies. The financial model’s assumptions were validated based on interviews with 32 representatives from the fuel industry, other utilities, the RCA, the Alaska Energy Authority (AEA), the Regulatory Affairs and Public Advocacy (RAPA) office of the Attorney General’s office, and city staff.

Study Limitations and Overall Energy Issues

Agnew::Beck has been concurrently working on the Bethel 2035 Comprehensive Plan Update. Through that process and the interviews conducted as part of this study, the consultant team has heard the community voice concern about energy prices in Bethel. Many people expressed skepticism about BUC’s business operations and rate structure, as well as fear about the overall cost of energy. There is sentiment within the community that high energy costs are forcing people to leave Bethel.

This study is not scoped to assess the overall impact of energy costs on the socioeconomic trends in Bethel. Instead, this study looks specifically at one discrete aspect of energy costs: the sale of electricity. When people talk about energy, they are thinking about many components, including the cost of crude oil, gasoline prices, the cost to heat homes with fuel oil, and the cost of electricity. Of all components related to energy, electricity provision is the only one that is regulated by the RCA and is heavily subsidized by the State (through the PCE program). This creates some certainty regarding prices to ratepayers. The other components of energy are not regulated and can cause substantial impact to the community when prices jump.
In Bethel, most homes and businesses are heated with fuel oil, which can be costly. Gasoline prices also impact the community because residents use vehicles, boats, and snow machines for transportation and subsistence. Based on sample utility bills and a series of assumptions, the monthly cost of heating oil makes up about 66 percent of total energy costs (defined as electricity, heating oil, and vehicle transportation). Electricity comprises approximately 18 percent of the monthly bill after the PCE subsidy is applied.1 Please note that many other studies have been conducted to evaluate the relative cost of the various energy components. Other studies estimate that heating fuel makes up about 40 percent of total energy cost, transportation makes up about 25 percent, and electricity comprises 35 percent of the cost. Either way, the cost of electricity is not the largest component of energy expenses in rural Alaska.

Key Findings

The key findings from the study are organized under three topics:

- Fuel costs,
- Integration of wind and waste heat,
- Ownership structure (rate differences, ideal ownership model and its impacts).

Fuel Costs

Electricity costs in rural Alaska are largely a function of the cost of diesel fuel. Approximately 85 to 90 percent of the cost to provide electricity by BUC is attributed to fuel cost, which includes the cost to buy as well as transport and store the fuel. Other utilities throughout rural Alaska face a similar issue, whereby fuel is the largest cost component to provide electricity. In Bethel, fuel travels on large ocean-going barges, is lightered to smaller barges to travel up the Kuskokwim River and is stored at the Crowley tank farms. Almost daily deliveries are made between the Crowley tank farm and the BUC plant.

1 Information is based on selected utility and energy bills from the Bethel community. A statistically valid survey of Bethel was not conducted. Note: PCE applies to residential users, but not to commercial activities.
BUC fuel procurement practices are between 0.5 percent and 11.6 percent higher than other communities analyzed in this study when an “apples to apples” comparison is conducted. As shown in Chapter 6, a comparison of fuel prices between various rural Alaskan communities is difficult. One cannot compare the cost of fuel in the annual PCE reports without accounting for the different ways that utilities procure fuel and the services provided by the fuel supplier. Many utilities own and operate their own tank farms and some even ship their own fuel.

When examining the PCE reports at face value, it appears that BUC pays as much as 25 percent more for fuel than other communities analyzed. However, BUC is essentially paying for just-in-time delivery of fuel, which includes almost daily deliveries from the Crowley tank farm to the plant. Crowley owns and operates the tank farms and they are legally required to provide fuel to BUC even if there is an interruption in their supply. Crowley also takes on the liability for delivering and storing the diesel. All of these costs are part of the reported fuel cost that BUC shows in their annual filings. For other utilities, the storage and delivery costs show up elsewhere in their cost structure and are not included in their PCE reports. In this study, the consultant team estimated the various components of fuel supply in order to create an “apples to apples” comparison of fuel prices between the communities analyzed. After accounting for the differences, it appears that BUC may still be paying more for fuel than the other communities, but not at a substantial magnitude.

Alternative fuel procurement options make a difference in the cost structure for providing electricity. Building and operating a storage facility would reduce rates by 5.6 percent to 12.9 percent depending on the ownership structure of the utility. Piping diesel to the plant from the Petro Port would provide a minor cost savings of 0.2 percent for a municipal or cooperative-owned utility, and no cost savings for an IOU. Because the “profit” component is different between ownership structures, the impact from alternative fuel procurement strategies varies; Chapter 6 explains this in detail.
Integration of Wind and Waste Heat

The integration of wind helps reduce costs for electricity (by between 1.8 and 5.3 percent) when the utility itself provides the wind resource. If the City sells the wind resource output as a Qualifying Facility (QF) to the utility, electricity costs are not reduced. Chapter 7 provides detail on the wind sensitivity analysis. In all three ownership models, the total energy load attributed to wind is set to 2.5 percent. However, when a third party provides the wind to the utility, that service has to be valued, which can create problems in determining the value. By contrast, if the utility owns the wind generation infrastructure, it can pass the savings in generating costs directly to consumers, without adding a percentage for profit to the owners. Paying the avoided fuel cost for wind results in the utility essentially paying for fuel when the reason for using wind is to reduce the cost of electricity by using less expensive sources of power. If the City provides wind to an IOU or a cooperative, there may be more public benefit because the City can utilize the surplus revenue (between the cost of owning and operating the wind turbines and the avoided fuel cost) to reduce its electricity bills, thereby freeing up City revenue for other services, which may reduce costs to the community elsewhere.

Waste heat can help the city save money on their heating bills. The City currently pays a little over $200,000 a year to heat City buildings. Assuming there is excess capacity in waste heat, those costs could be reduced by 40 percent if the City were able to purchase waste heat from BUC or its successor.

Ownership Structure

Electricity rates would be lower, but only by a modest amount, if the electric utility was owned by the City or a Cooperative. Table 1.1 compares rates between an IOU, a municipal utility, and a cooperative-owned utility. Rates under BUC are 4.5 percent higher than a cooperative and 3.9 percent higher than a municipal utility.

This range reflects variations in what is considered the “profit” component of the rate structure, as well as differences in financing costs. Because the IOU is the only ownership structure that includes a component for Return on Equity (ROE), the rate structure is slightly higher under this model.

Table 1.1 Comparison of Utility Rates by Ownership Category: Base Case Only

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Avg. Avg. Rate per kWh</th>
<th>% Difference from BUC</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUC (status quo)</td>
<td>$0.4304</td>
<td>0.0%</td>
</tr>
<tr>
<td>IOU (not BUC)</td>
<td>$0.4253</td>
<td>-1.2%</td>
</tr>
<tr>
<td>Municipal</td>
<td>$0.4135</td>
<td>-3.9%</td>
</tr>
<tr>
<td>Cooperative</td>
<td>$0.4110</td>
<td>-4.5%</td>
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The ideal ownership model for utility provision in Bethel is a cooperative that operates its own fuel storage using a pipeline system, integrates wind, and allows the city to utilize waste heat. The table above shows cost savings possible when profit is removed from electricity costs. A cooperatively owned utility could offer additional benefits. This determination is based on both financial analysis and an analysis of local democratic control. Table 1.2 shows that if a cooperative owns and operates its own tank farm and pipes diesel directly to the plant, rates may be reduced by 13.7 percent when compared to the current status quo. A municipal ownership structure might lower rates by 13.1 percent, making it a viable option as well. This cost reduction also assumes that 2.5 percent of its energy load comes from wind that the cooperative owns.

There is one caveat to this recommendation: if the cooperative integrates wind, the City does not receive the surplus revenue from the sale of that wind. This study recommends that if a cooperative is eventually put in place, the ratepayers would benefit over the long term by the cooperative utility integrating wind on its own. However, the City currently has a grant to provide wind turbines, which means that it would make sense for the City to initially be the organization that integrates wind into the system. Over time, the new cooperative utility could obtain ownership of those turbines and/or become the recipient of the grant.

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Avg. Avg. Rate per kWh [1]</th>
<th>% Difference from BUC</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUC</td>
<td>$0.4304</td>
<td>0.0%</td>
</tr>
<tr>
<td>IOU (not BUC)</td>
<td>$0.4059</td>
<td>-5.7%</td>
</tr>
<tr>
<td>Municipal</td>
<td>$0.3740</td>
<td>-13.1%</td>
</tr>
<tr>
<td>Cooperative</td>
<td>$0.3743</td>
<td>-13.7%</td>
</tr>
</tbody>
</table>

[1] Assumes the utility builds and operates a fuel storage system, uses a pipeline to deliver fuel from the Petro Port to the tank farm, owns and operates its own wind system, and allows the city to integrate waste heat.

A cooperative electric utility scored highest when evaluated for local democratic control (as defined in Chapter 10). A cooperative model ranks high in terms of local democratic control for three reasons:

- **Ratepayer influence.** Because ratepayers are the members of a cooperative, they have a formal way to influence the makeup of the board of directors and its decisions. This can include annual meetings and/or mail-in ballots where board members are chosen. Ratepayers in Bethel comprise a diverse group of residents and business owners. A cooperative organization can incorporate various stakeholder groups in board elections and/or decisions.

- **Transparency of information.** The cooperative typically operates using open meeting laws making cost and revenue information available to ratepayers. Cooperatives often provide annual reports to their ratepayer members. In addition, while most members of cooperatives choose to exempt the cooperative from economic regulation by the RCA, rural cooperatives receiving PCE must still submit annual reports to the AEA identifying basic information about their cost structure.
- **Confidence in ability to provide electricity.** When compared to a municipal structure, the board of an electric cooperative is more likely to have the ability to focus solely on the provision of utility service and less on other local government services that can compete for limited resources. That is, the cooperative’s board members are not the same as the council members who make decisions about public safety, parks, and other municipal services. This helps protect utility revenues from being used for other public purposes. Because cooperative board members are not the same people who sit on the city council or borough assembly, they are in a better position to make tough decisions related to rate increases, with less concern over future election results.

Another aspect of confidence in the utility is the ability for leadership to think long term about energy provision and the possible integration of alternative energy sources. Compared to a for-profit, IOU model, a cooperative (or a publicly-owned utility) may have greater ability to make energy investments that require a longer term payback period, such as fuel storage, wind or conservation.

**If the ideal ownership model (cooperative with fuel storage, pipeline, wind integration, and allows the City to use waste heat) is implemented, the cost savings in electricity could provide a slight increase in economic activity in Bethel.** Chapter 9 shows the detailed results of the economic impact model. In summary, the recommended ownership model could save up to $25 million in electricity costs over a ten-year period. If these savings were cycled back through the community, as households and businesses spend more on goods and services, an additional $7 million dollars could be spent in Bethel over a ten-year period. This additional spending could translate into approximately 30 new jobs over the same ten-year period.

Perhaps more relevant, alternative ownership models may have the ability to help slow the rate of otherwise inevitable increases in electricity costs. Without such actions, electricity prices (driven by rising fuel costs) are almost certain to increase. Increases in electricity costs beyond the already high rates will create real challenges for retaining existing businesses or attracting new business.
If the recommended ownership model (cooperative with fuel storage, pipeline, wind integration, and city use of waste heat) was implemented, the revenue impact to the City of Bethel would be a gain of approximately $95,000 over a ten year period. Chapter 9 shows the detailed results of the City financial model. The cost savings are the result of a combination of factors that simultaneously reduce City costs for electricity and reduce revenue collected by the City as part of the process to generate electricity in Bethel. The impact of each of these changes is shown in Table 1.3.

<table>
<thead>
<tr>
<th>Item</th>
<th>Revenue Increase or (Decrease) over a 10-Year Period: NPV [2]</th>
<th>Reason for Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales Tax</td>
<td></td>
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<tr>
<td>Electricity to customers</td>
<td>($539,019)</td>
<td>Lower kWh rates; less sales tax revenue</td>
</tr>
<tr>
<td>Fuel to utility</td>
<td>($173,694)</td>
<td>Less expensive fuel and less fuel sales; less sales tax revenue</td>
</tr>
<tr>
<td>Petro Port Thru-Put Fee</td>
<td>($32,056)</td>
<td>Less diesel used b/c of wind; less thru-put fee</td>
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<tr>
<td>Electricity Savings to City</td>
<td>$504,201</td>
<td>Lower kWh rates; lower bill for the City</td>
</tr>
<tr>
<td><strong>NET IMPACT TO CITY</strong></td>
<td>($240,568)</td>
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<tr>
<td>Waste Heat Purchase Savings</td>
<td>$335,533</td>
<td>Heating costs drop b/c waste heat is integrated</td>
</tr>
<tr>
<td><strong>Total NET IMPACT TO CITY</strong></td>
<td>$94,964</td>
<td></td>
</tr>
</tbody>
</table>

[1] Assumes the utility builds and operates a storage system, uses a pipeline to deliver fuel, owns and operates its own wind system, and allows the City to integrate waste heat. [2] NPV is net present value, an adjustment that reflects the difference in the value of money held today versus the future.

The ideal scenario results in an estimated reduction of $4 million over a ten-year period to the State PCE program. Because the ideal scenario reduces rates by 13.7 percent, less PCE subsidy is needed from the State to help move the Bethel residents and community facilities to an electricity rate level that is closer to the urban average (Juneau, Fairbanks, and Anchorage).
Feasibility of a Cooperative

In a perfect world, this study recommends that the Bethel community would be best served by forming a cooperative electric utility. As described previously, a cooperative that provides its own storage and pipeline service, integrates wind, and allows the city to use waste heat is the ideal ownership structure. This is based on the financial impacts to ratepayers, the PCE program, and City finances. It is also a function of how the cooperative model scored when evaluating it for local democratic control. However, the feasibility of forming a cooperative is limited because electricity is currently provided by BUC, and it is not likely that a newly formed cooperative could force a change in ownership for the following reasons.

Voluntary transaction required. If BUC was interested in selling to a newly formed cooperative, a change in ownership could occur. The current understanding is that BUC is in negotiations with Tanadgusix Corporation (TDX) to sell the utility to TDX. There are no plans to sell BUC to an existing or newly formed cooperative.

Regulatory intervention is limited. Under the laws that govern the RCA, it is possible for the RCA to revoke a utility’s certificate to provide electricity if the RCA makes a determination that the current utility is not fit, not willing, and not able to provide the service. However, to do so would require findings that the current utility is not adequately providing electricity to ratepayers. Additionally, the RCA does not have the authority to force a sale of the utility’s assets, even if the certificate is revoked.

Eminent domain is not recommended. Alaska Statute 09.55.240(e) provides a list of authorized uses for which municipalities can use the power of eminent domain to purchase property; the provision of electricity is not listed. However, the Alaska Statute also enables local municipalities to provide electrical service to their communities. An argument could be made that because a municipality has the power to provide electricity as a service, it can use eminent domain in order to do so. However, eminent domain has never been used for this reason in Alaska. A vote of the electorate is required, and the use of eminent domain would be costly to implement with no guarantee of success.

Recommendations

Given the limitations listed previously, the following recommendations are provided as specific actions that the City and/or the Bethel community can take to improve the likelihood of less-expensive electricity.

Realism about energy issues and options. High and growing energy costs are a big part of the high cost of living in Bethel, and these costs are understandably frustrating to Bethel residents and businesses. There is a natural tendency to hope that several simple actions might solve this issue. Our analysis suggests that the high energy costs in Bethel (like the similar costs in other western Alaska rural communities) are driven primarily by factors that are not likely to change. These include the city’s remote location, its small population and high global fuel costs. However, there are local options to make incremental improvements in reducing the costs of electricity and other energy uses, and these should be pursued.
Reduce the heightened level of skepticism over current electricity costs. There is some room for improvement in the cost structure for providing electricity in Bethel. However, the current cost structure reflects the challenges involved in providing electricity in Bethel. While the City should continue to press BUC or its successor to provide electricity at the lowest possible price, there is only so much available capacity within a community for organizing to effect change and improve the lives of residents and businesses. We recommend focusing this finite amount of community capacity on other ways to improve the energy situation in Bethel and less on trying to purchase BUC. Further suggestions on this topic are included below, and in the City’s draft comprehensive plan.

Develop a relationship with BUC or its successor. This recommendation is related to the one above. The City should consider more proactive ways to create a partnership with BUC or its successor. The current owners of BUC have not shown an interest in partnering with the City, or in sharing information about business operations or future plans for energy provision. This lack of communication has further intensified the skepticism the community feels towards BUC’s executives. A partnership is necessary to develop options for combating rising energy prices, integrating wind, finding alternative ways to procure fuel, and using waste heat to reduce City expenses. Even if the BUC continues at the helm of the electric utility, the City should consider ways to reach out to BUC leaders and try to repair this relationship (one suggestion is offered below).

Develop a relationship with the RCA and the RAPA and help the community better understand their role. Throughout the course of this study, the consultant team heard concerns and questions about the RCA. People wondered about the makeup of the organization and the processes it follows to regulate utilities. Because the RCA rate case process is based on testimony and information provided to the RCA, the City and the Bethel community have an opportunity to be involved in these processes as they occur and should feel comfortable with the group of people regulating the utility.

The City has recently become more involved in the economic regulation of BUC based on their protest of the recent rate increase, which resulted in involvement by the RAPA division of the Attorney General’s Office and ultimately a reduced rate increase for BUC. The City should consider inviting members of the RCA to Bethel for an education session with partner organizations. This could be part of an “Energy Summit,” where the various organizations in the community, such as YKHC, AVCP, AVCP Housing Authority, Calista Corporation, AVEC, the Middle Kuskokwim Electric Cooperative and BUC, come together to discuss current energy-related projects and studies, learn from one another, and strengthen relationships and partnerships around energy provision. Ideally this process could spawn one or more specific projects (in the spirit of the Yuut Elitnaurviat, People’s Learning Center) that would foster cooperation and lead to tangible outcomes.

Consider advocating for changes to RCA regulations to incentivize cost effective fuel procurement. Currently, a private IOU electrical utility is economically regulated under the RCA, which means that the RCA has authority to approve rate changes, and therefore reviews the utility’s revenue requirements and cost structure. However, 85 to 90 percent of the cost to provide electricity in rural Alaska is due to the cost of diesel fuel, and fuel suppliers are not regulated under the RCA. Additionally, in return for participating in the PCE program, all utilities have to report their fuel costs. However, there is no requirement to break down the various components of the fuel reporting to better understand and compare costs between utilities, and therefore, to validate that fuel is being purchased as cost effectively as possible.
The City might want to consider advocating for modifications to state regulations in order to make fuel costs more transparent and/or cost effective. Examples include: requiring that all utilities participating in the PCE program to bid out fuel procurement or to provide detailed breakdowns of the various cost components that make up fuel purchasing. At a minimum, the City should explore and publicize options for reducing fuel costs, including buying fuel as part of a regional cooperative, and/or exploring options for City ownership of fuel storage tanks.

Be prepared to form a cooperative if the opportunity arises. As described in Chapter 3, there are a number of energy plans and solutions being discussed at the regional level. The City should be involved in these discussions in order to develop partnerships with other organizations that are searching for broader solutions to energy issues in Bethel. To the extent that alternative hydro, natural gas, or other large scale methods for generating electricity come about, these opportunities might be the catalyst needed to change the way electricity is provided in Bethel. In the event these opportunities arise, a cooperative organization should be considered as the type of organization to distribute energy throughout Bethel and possibly to the larger Yukon-Kuskokwim region.

Be an advocate to protect PCE and possibly expand it. The PCE program is a substantial benefit to residents in Bethel and other rural communities throughout Alaska. At approximately, $37 million annually, the PCE funds approximately 95 percent of the eligible costs to bring rural residential costs closer to the urban average of Fairbanks, Juneau, and Anchorage. Without PCE, residential electricity bills in Bethel would be roughly twice what they are today. However, businesses are not eligible for PCE, and community facilities are limited by a population-based formula. At a minimum, Bethel should organize to show support for the existing PCE program to ensure that funding levels continue.

The City might also want to consider advocating for changes to the PCE program to expand funding and eligibility to small businesses, which are particularly impacted by the high costs of electricity.

Implement energy efficiency and conservation programs to help reduce resident, business and City use of electricity. Energy efficiency programs can reduce electricity bills by as much as one-third or more. The City has been working to switch out light bulbs in order to reduce electricity costs. The city should consider a comprehensive energy efficiency plan for their operations as well as a community-wide effort to help partner organizations, residents, and businesses reduce electricity costs.

Look comprehensively at options to reduce energy use and energy costs. As stated at the outset of this section, electricity makes up one of the smaller and more manageable components of the community’s energy use. Much more could be done to find opportunities for efficiencies in other categories of energy use, including transportation and residential heating. Efficiencies can be found at many levels, from the use of electricity and heating oil in a single home, to the pattern of development in the community as a whole. Bethel is a very spread-out community, which increases costs for electrical distribution and street lighting, and has an even greater impact on the use of fuel for transportation and home heating.