

Resource Policy Considerations and Non Fuel Goals for Chugach Electric Association

Background

Chugach and the other Railbelt utilities are fueled for the most part by natural gas. At the end of 2006, Chugach Electric is expected to generate 90% of its power by natural gas. The remaining 10% is hydroelectric. Chugach Electric's load grows by about of 4 to 5% a year, thereby shifting the mix of generation toward a greater dependence on natural gas.

Chugach Electric is currently investigating the installation of a natural gas combined cycle unit at IGT. This is necessary as a replacement for aging units at Beluga. It will utilize new technology and generate more efficiently, using less fuel per unit of power. However, it will not change the mix of generation.

Beluga coal has been investigated as an alternative to natural gas. However development cost is still very high, and would require substantial investment beyond the projected cost of natural gas fuel.

The last non-fuel resource installed in the Railbelt was the Bradley Lake hydro plant. When the plant first went into service it was not the least cost generating source. Natural gas was still below \$1.00 per million BTU's. (Today the price is over \$5 per million BTU's.) However, had Bradley Lake not been placed in service in the early 1990's more substantial investments in natural gas fueled generation would have been necessary.

It took years for the power from Bradley Lake to be equal with the cost of power from existing natural gas sources. Today, Bradley Lake power is below the cost of natural gas generation, and as time progresses it will continue to be a lower and lower cost resource relative to both existing *and* new natural gas fueled units.

Chugach and the other Railbelt utilities have been exploring the potential of non-fuel resources for some time. Hydro, solar, tidal, geothermal and wind have all been investigated to one degree or another. More hydro is possible, but will require a very large up-front capital investment and take many years to implement. Solar is not a likely candidate for Alaska. There is a tidal energy working group in Alaska, however the technology is still in its early stages of evolution. Geothermal shows promise (another working group is currently looking at geothermal resources for Alaska, including Mt. Spurr), however it will require substantial up-front risk capital (similar to the oil industry) to characterize the resource, estimate costs and develop preliminary designs.

Chugach has led the Railbelt investigation into wind generation. After looking at 21 prospective sites and instrumenting 12 of them, Fire Island has become the focus of study. Chugach has spent approximately \$172K on investigation of Fire Island and federal grants totaling \$1.22 million have also been received so far to further the studies.

Board Actions and External Support of Fire Island

In February 2005 the Chugach board of directors passed a resolution calling for the CEO to make every effort to secure grant funding to allow the Fire Island wind project to be developed without impact to base rates.

Various legislators have expressed a willingness to assist with state grants toward the infrastructure cost of Fire Island. House Bill 164 was introduced in 2004 which called for \$20 million from the State to be directed toward Fire Island. It failed for political reasons unrelated to the merits of the project. In 2005 Chugach did not actively seek a state appropriation for Fire Island despite interest and support from several majority members in the legislature.

Senator Lisa Murkowski's office has expressed increasing interest and support for Fire Island.

In 2006 the Municipality of Anchorage requested \$20 million from the State to be directed toward the development of infrastructure for Fire Island.

In 2006 the Anchorage Chamber of Commerce passed a unanimous resolution supporting the Fire Island wind project that it sent to the Congressional delegation, the Governor, and all members of the state legislature.

The lowest cost energy from Fire Island is likely to be sold to the grid from a for-profit company that can utilize the federal production tax credit (PTC) and the accelerated depreciation that federal law provides. Such a for-profit sells the power to the utility at a fixed cost for a fixed length of time through a Power Purchase Agreement (PPA), thus giving the utility and the consumer certainty that a portion of their energy portfolio will not increase in price.¹ The two largest for-profit wind developers in the country have expressed interest in the project, have visited Fire Island, and have given Chugach some preliminary (and confidential) estimates of the project's cost.

¹ There are other examples in the United States of cooperatives like Chugach purchasing power from independent power producers under a PPA arrangement.

Recommendations

In order for Chugach to change the mix of its generation resources, it would be helpful if Chugach set some internal policy to chart the direction the organization wishes to head, and set goals and specific targets. Golden Valley Electric Association has already charted such a course. It has adopted a “Renewable Energy Pledge” which sets a goal for GVEA to get 10% of its gross capacity from renewable energy by 2007, 20% by 2014, and 50% by 2050.² Utilities across the country are similarly planning for renewable energy development. Twenty-two states across the country have set similar goals in the form of legislated mandates that require the production of a certain percentage of power from renewable energy by a certain date. In addition, fourteen states have established renewable energy funds to support renewable energy development. The end game of all such goals, mandates, and policies is the same: to hedge against the rising price of finite fossil fuels and provide clean reliable power to consumers. To that same end, it is suggested that Chugach consider the following internal policy goals:

1. Establish a non-fuel / renewable energy advisory group. In progress!
2. Establish a policy calling for the addition of non-fuel generation at a defined price.
3. Establish a policy calling for time-based targets to begin generating power from new non-fuel sources.
4. Request executive staff to pursue state and federal funding to support the development of the Fire Island project.
5. Support statewide policies that encourage renewable energy development.
6. Establish a team within Chugach Electric tasked to implement renewable energy development.

Suggested Time Table

Current Mix: 2005 mix was 88% natural gas and 12% hydro (non-fueled).³ Currently (December 2006), Chugach Electric is estimated to be at or over 90% dependent on natural gas. Non-fuel sources below include wind, geothermal, tidal, hydro & demand side management.

2008: 85% fueled / 15% non-fuel
2010: 80% fueled / 20% non-fuel
2015: 75% fueled / 25% non-fuel
2020: 70% fueled / 30% non-fuel
2025: 65% fueled / 35% non-fuel

² GVEA also has a standing Green Power Advisory Committee (GPAC) made up of 13 community members that represent a cross-section of professions. The GPAC’s purpose is to investigate viable “Green Power alternatives” and to work with GVEA’s Alternative Energy Team (AET) made up of GVEA staff. The AET was established in 1999 and is currently exploring a wind project at Eva Creek near Healy that may have the potential to generate up to 100 megawatts.

³ Per annual report note and long-term fuel supply contracts.