# APPENDIX B

# FINANCIAL ANALYSIS

## Introduction

The Regional Integrated Resource Plan (RIRP) is a 50-year, long-range plan tasked with identifying the optimal combination of generation and transmission capital improvement projects in the Railbelt region of Alaska. The objectives of the financial analysis portion of the plan are threefold:

1. Provide a high-level analysis of the capital funding capacity of each of the Railbelt utilities, given their current financial condition and assuming that each utility will borrow on its own, rather than utilizing a joint-powers structure or receiving assistance from the State of Alaska.
2. Analyze strategies to capitalize selected RIRP assets by integrating State and federal financing resources with debt capital market resources. Specifically, we look at ways to utilize State funding to:
    - mitigate construction risk,
    - lower capital cost prior to placing assets in service, and
    - extend the debt repayment term beyond terms available in the debt capital markets.
3. Develop a spreadsheet-based model that utilizes inputs from the RIRP model, including total capital requirements, demand-side management (DSM), fuel cost, $CO_2$ cost, and operation and maintenance cost (O&M), and overlays realistic debt capital funding to provide a total cost to ratepayers of the optimal resource plan.

## Railbelt Utility Capital Capacity

The non-profit organizational structure of generation and transmission (G&T) and distribution cooperatives makes it difficult for these entities to produce operating margins and build equity to the levels needed to access the public debt markets. Rate setting is designed to recover operating cost with moderate margins, and any capital in excess of minimal reserves is returned to coop members. Nevertheless, some coops, including Chugach Electric, are able to maintain coverage margins sufficient to secure investment grade credit ratings and utilize the debt capital market to fund asset expansion. Likewise, municipal governments face a similar rate-setting challenge in the form of political pressure to keep rates at levels just sufficient to cover operations and maintain net plant and equipment. In the following sections, we take a look at several key financial measures of coop and municipally owned utilities and utilize these measures to estimate the remaining debt capacity of each of the Railbelt utilities.

To develop the framework for this analysis, we retrieved the publicly available financial reports from each utility's website and the annual filings from the Regulatory Commission of Alaska's website. Using these reports, we summarized each of the utilities' current outstanding debt obligations, company equity, total assets and total plant. We used these figures to derive several important financial ratios, discussed in detail below, that are used by the investment community as well as the nationally recognized rating agencies (Moody's, Standard & Poor's, and Fitch) to determine the ability of each organization to manage its current and/or future debt obligations. It's important to point out that, while no single financial ratio by itself is an accurate determinant of a utility's ability to incur additional debt for capital projects, an analysis of a sampling of several ratios in conjunction with other non-financial metrics (*e.g.*, demand growth, rate-setting authority, political climate, etc.) helps to create some guidelines for how much debt could reasonably be considered and issued in the capital markets.

*Debt to Equity Ratio*. The debt to equity ratio (or debt as a percentage of total capitalization) is derived by dividing a utility's total debt by its net capital. The rating agencies have developed median debt to equity ratios for each of the different types of utility organizational structures. For example, a G&T cooperative can expect to have a higher debt ratio percentage than a retail power distributer due to the need to finance large and relatively expensive generation and transmission assets. A summary of these utility medians for debt to equity is provided in the following table:

| **2008 Median Debt to Capitalization % By Utility System Type** | |
|---|---|
| G&T Coop | 82% |
| Municipal Wholesale | 93% |
| Retail Self Generating | 60% |
| Retail Power Purchaser (Distribution) | 40% |
| Source: Fitch U.S. Public Power Peer Study, June 2009 | |

The table below calculates the remaining debt capacity for each of the Railbelt utilities under varying debt to equity ratios to derive a total debt capacity amount given existing equity capitalization. Debt to equity capitalization for this analysis ranges from 40% to 80%.

| **Railbelt Utility Additional Debt Capacity Based on Current Debt to Equity Ratios** | | | | | |
|---|---|---|---|---|---|
| | **Existing Debt as of 12/31/2008[1]** | **40%** | **60%** | **70%** | **80%** |
| ML&P | $159,405,791 | - | $175,744,945 | $362,920,220 | 730,502,349 |
| Chugach | 354,383,506 | - | - | 9,355,443 | 260,137,205 |
| MEA | 89,128,488 | - | 48,090,737 | 129,409,217 | 277,237,086 |
| HEA | 148,257,837 | - | - | - | 99,152,015 |
| GVEA | 301,670,508 | - | - | - | 131,081,336 |
| Seward | [2] | [2] | [2] | [2] | [2] |
| | | - | $223,835,682 | $501,684,880 | $1,498,109,991 |

(1) 2008 Annual reports and 12/31/2008 Annual Reports to the Regulatory Commission of Alaska
(2) The City of Seward was not included in this analysis due to lack of information regarding their Electric Enterprise Fund

Our analysis found that the debt-to-capitalization ratio for each of the utilities is close to or higher than the median ratio for its organizational type. There does appear to be some additional bonding capacity available for each of the utilities under a G&T cooperative-type structure when compared to the Fitch median ratio of 82%. However, given the utilities' existing debt burdens and current conditions in the financial markets, which have made it more difficult for lower rated power utilities to access capital, it is not clear that the six utilities could support debt capitalization much above 70%. Fitch Ratings specifically mentions that higher debt capitalization percentages can result in negative ratings pressure going forward[1]. At approximately 70%

[1] Fitch Ratings, U.S. Public Power Peer Study, June 2009

debt capitalization, the six utilities together could support between $500 and $700 million of additional debt. At 80%, available additional debt capacity for the six utilities combined increases to approximately $1.5 billion. This analysis does not include the City of Seward's capacity. Given its Electric Enterprise Fund asset base of $26 million (as of 2007), the overall borrowing capacity number would not change by a significant amount if the City of Seward were included.

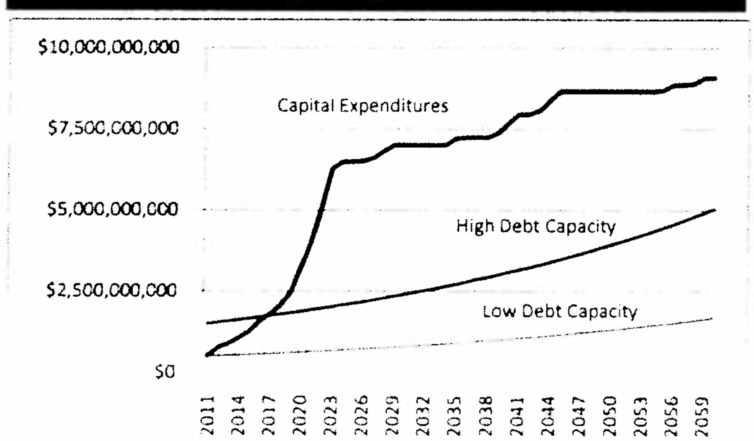
***Debt to Funds Available for Debt Service.*** An important measure of operating leverage is the Debt to Funds Available for Debt Service ratio (Debt/FADS). This ratio measures a utility's ability to handle its current fixed debt burden based on annual operating cash flow. A lower Debt/FADS ratio indicates either a low overall debt burden or a high operating cash flow, with the opposite being true for a higher Debt/FADS ratio. In the "A" rating category and higher, all but one G&T wholesale system rated by Fitch Ratings had a Debt/FADS ratio higher than 8.8 in 2008. For comparison purposes, the average (and median) Debt/FADS ratio for the Railbelt utilities in 2008 was approximately 8.4, with the highest being 13.66. The operating leverage of the six utilities would increase dramatically as capital spending and debt burden increase. An increase in the operating leverage ratio would cause ratings pressure for utilities maintaining a public credit rating and increased scrutiny by creditors including commercial banks and cooperative banks such as CFC or CoBank.

***RIRP Capital Requirements Relative to Railbelt Utility Debt Capacity.*** The preceding debt to equity and Debt/FADS discussions do not take into consideration several additional factors that are relevant to the collective debt capacity of the Railbelt utilities. These factors can impact debt capacity both positively and negatively and include amortization of existing utility debt, the level of new debt required to maintain distribution infrastructure, and potential rate increases.

While these factors are influential, they do not have sufficient positive impact to alter our opinion that the utilities individually do not have the capital capacity to fund the projects recommended by the RIRP. The scope of the RIRP projects is too great, and for certain individual projects, it is reasonable to conclude that there is no ability for a municipality or coop to independently secure debt financing without committing substantial amounts of equity or cash reserves. Specifically, these individual projects would include any that require large capital investment and have any of the following characteristics: exceptionally long construction period, significant construction risk, or significant technological risk. These types of risk are associated with equity rates of return and are rarely, if ever, borne by fixed income investors.

The graphic to the right helps to put into context the scope of required RIRP capital investments relative to the estimated combined debt capacity of the Railbelt utilities. The lines toward the bottom of the graph represent our view of the bracketed range of additional debt capacity

**Black & Veatch Plan 1A Capital Expenditures (Cumulative Total)**



collectively for the Railbelt utilities, adjusted for inflation and customer growth over time.

*Railbelt Utility Debt Capacity Conclusions.* The REGA study completed in 2008 concluded that the most cost effective approach to funding necessary Railbelt generation and transmission assets was to form a regional G&T. While SNW was not asked to validate this conclusion, we are of the opinion that a regional entity such as GRETC, with "all outputs" contracts migrating over time to "all requirements" contracts, will have greater access to capital than the combined capital capacity of the individual utilities. To be clear, our conclusion should not be interpreted to mean that a regional G&T agency would be able to execute the RIRP capital plan independent of any State or federal assistance; however, a regional G&T agency will have lower-cost access to debt capital than the utilities would have on their own. This is primarily due to two factors: (1) a regional G&T entity will eliminate the rate pressure/competition that naturally exists under the current Railbelt construct of each of the 6 utilities independently providing generation and transmission services to their customers, and (2) a regional G&T entity executing a utility-approved comprehensive RIRP plan with strong power purchase agreements will be better positioned with the rating agencies and private investors.

## *Strategies to Lower Capital Cost of RIRP to Ratepayers*

As previously noted, the scope of the RIRP is significant. The complexity of the overall capital plan and the size and construction duration of various projects within the plan will necessitate some amount of "equity" capital from ratepayers and/or the State of Alaska. Furthermore, equity capital, in the form of a ratepayer benefits charge or State financial assistance through either loans or grants, is the most efficient source of funding available to GRETC for the RIRP. Capital accruing from the State in the form of grants or from existing ratepayers in any form needs to be balanced with long-term debt capital so that future rate payers who will benefit from the RIRP assets share the cost of funding these assets. The following sections discuss various sources of equity capital funding and methods for involving the State in the execution of the RIRP.

*Ratepayer Benefits Charge.* A ratepayer benefits charge is a charge levied on all ratepayers within the Railbelt system that will be used to cash fund and thereby defer borrowing for infrastructure capital. A rate surcharge that is implemented prior to construction allows for partial "pay-go" funding of capital projects and reduces the overall cost of the projects by reducing the amount of interest paid for funding in the capital markets. For example, the potential interest cost savings that could be realized if GRETC were to fund some portion of a $2 billion project through rates rather than entirely upfront through bond proceeds are shown in the table below:

| $2 billion project | | |
|---|---|---|
| Rate Surcharge Through Construction | Funded With Bonds | Interest Cost Reduction (1) |
| $500 million | $1.5 billion | $1.2 billion |
| $1.0 billion | $1.0 billion | $2.4 billion |

(1) Assumes 30-year debt to fund construction at 7.00% interest.

***"Pay-Go" vs. Borrowing for Capital.*** A "pay-go" capital financing program is one in which ongoing capital projects are paid for from remaining revenue after maintenance and operations (M&O) expenses, and debt service are paid for. As will be discussed in further detail later, we have assumed that any bonds sold in the capital markets will require generation of a 1.25 times debt service coverage ratio. Covenanted coverage would likely be lower than 1.25 times. The cash generated in excess of M&O expense and debt service expense ("coverage") will be used to fund reasonable reserves with the balance going towards ongoing capital projects. For example, in years where debt service on outstanding bond issues is the highest, the 1.25 times debt service coverage ratio creates additional reserves in the amount of nearly $130 million above what is required to pay operating expense and debt service.

There is a tradeoff between the benefits derived from a pay-go financing structure versus one for which all projects are bonded. The benefit to ratepayers and GRETC in the pay-go structure is that it minimizes the total cost of the projects through the reduction of interest costs. On the other hand, the benefit of borrowing for a portion of capital needs is that expenses are spread out over time, and the cost of the debt can be structured to more closely match the useful life of the assets being financed. This is particularly important for some of the larger hydro-electric projects, where the useful life would likely exceed 50 years; these projects have large upfront costs that would be cost-prohibitive if funded entirely through rates. A balance of these two funding approaches appears to be most effective in lowering the overall cost of the project as well as spreading out the costs over a longer period of time.

***Construction Work In Progress.*** Construction Work In Progress (CWIP) is a rate methodology that allows for the recovery of interest expense on project construction expenditures through the rate base during construction, rather than capitalizing the interest until the projects are completed and operating. This concept is important: the overall cost of the projects is significantly reduced through the immediate payment of interest on construction borrowing, versus the alternative of borrowing an additional sum just to pay for the interest while the project is still under construction. The benefit to ratepayers of the CWIP concept is that it significantly lowers both the overall cost of the project as well as the future revenue requirements needed to pay debt service. The use of CWIP in Alaska will most likely need to be vetted and approved by the Regulatory Commission of Alaska.

Both CWIP and pay-as-you-go funding rely on ratepayers to advance dollars for capital projects and thereby convey some project risk to ratepayers. If for example, a generation project were not completed for any reason ratepayers would have paid for a portion of the project even though the asset never produced power. SNW believes that ratepayers in a typical municipal utility structure generally incur this risk regardless of rate setting policies or methodologies. The ability to shift project risk to creditors is both limited and expensive and may not be appropriate for the "System" envisioned by GRETC. Under an Investor Owned Utility (IOU) structure, shareholders are responsible for bearing some of this risk, however shifting risk to shareholders requires higher equity rates of return to those investors. GRETC is not presently contemplated to be structured as an IOU.

***State Financial Assistance.*** State financial assistance could take a variety of forms, but for the purpose of this report, we will focus on State assistance structured similarly to the Bradley Lake project. State financial assistance offers GRETC a number of advantages not available through traditional utility enterprise bond funding or project finance. Similar to a ratepayer benefits charge, State funding, whether in the form of a grant or loan, can be utilized to defer higher cost conventional revenue bond funding. Obviously a grant from the State provides the cheapest form of capital to GRETC, but even when structured as a loan, State assistance can dramatically lower GRETC's overall cost of capital. State funding in the form of a loan has three significant advantages when compared to revenue bonds or a loan from a commercial lender. The advantages of State funding include:

1. *Repayment flexibility.* State funding can be utilized to extend debt repayment beyond the term maturities available in the public or commercial debt capital markets. Additionally, a State loan can easily be restructured or deferred to achieve system rate objectives.
2. *Credit support/risk mitigation.* State funding can be used to mitigate project construction risk. This is particularly relevant for projects with extended construction timelines, such as large hydro-electric projects. Risk mitigation is also relevant in situations where permitting is an issue or a new technology is being used. Generally, fixed income investors will not accept significant construction and permitting risks inherent with the large-scale projects included in the RIRP without some form of support from the State.
3. *Potential interest cost benefit.* State funding can provide a lower cost source of capital. The State's high investment grade credit rating allows it to borrow for less than even the most secure utility enterprise. Assumptions as to the form of State assistance in the financial model are discussed in greater detail below; however, the terms of any loan, agreement, or grant between the State and GRETC will need to be further researched and developed in the next stage of the GRETC formation process.

## ***RIRP Financial Model Summary Results***

The development of the RIRP financial model took into account several different goals and objectives. The first goal was to identify ways to overcome the funding challenges inherent with large scale projects, including the length of construction time before the project is online and access to the capital markets. A second goal was to develop strategies that could be used to meet an objective of the RIRP of producing equitable rates over the useful life of the assets being financed. Structures commonly used in the current capital markets would not meet this goal, as certain of the assets required to be financed have longer useful lives than the longest term capital markets transaction could bear. With these challenges in mind, we developed separate versions of the model that would capture the cost of financing under a "*base case*" scenario and an "*alternative*" scenario, both of which are described in greater detail below.

***Major Assumptions (Black & Veatch Inputs).*** The input assumptions for the RIRP financial model were developed around outputs from the Black & Veatch PROMOD/Strategist modeling analysis. The results created a detailed list of the capital costs for the projects chosen over the 50-year RIRP time horizon. The results show both generation unit costs as well as required transmission development costs associated with the selected projects. Other assumptions used from the Black & Veatch PROMOD analysis include associated fuel costs, fixed and variable O&M, $CO_2$ charges, and forecasted energy load requirements by year, including DSM energy use reductions.

***Major Assumptions (Financing Model Inputs).*** The assumptions used for capital markets transactions within the financing model are all market-accepted structures for an investment grade utility, cooperative, or joint action agency. Below is a summary of the major structuring assumptions used for both financing scenarios:

- 30-year debt repayment on all bond issues sold in the capital markets
- 7.00% interest rate on all bond issues sold in the capital markets
- Rate generated debt service coverage of 1.25X
- All energy generation developed is used or sold
- Debt Service Reserve Fund (DSRF) for each bond issue funded at 10% of bond issue par amount. The DSRF balance is maintained throughout the 50-year RIRP and earns 3.00% interest, which is used to pay debt service on an annual basis.

***Base Case Model: Specific Assumptions.*** The *base case* financing model was structured such that the list of generation and transmission projects would be financed through the capital markets in advance of construction and that the cost of the financing in the form of debt service on the bonds would immediately be passed through to rate payers (see "Construction Work in Progress" herein). Bond issues are assumed to be sold prior to the required project funding dates, and staggered in approximately three-year intervals over the first 20-years, when the majority of the large capital projects and transmission projects are scheduled. The projects being financed over the balance of the 50-year RIRP period are financed through cash flow created through normal rates and charges ("pay-go"). The pay-go approach works once debt service coverage from previous years has grown to levels that create cash reserve balance amounts sufficient to pay for the projects as their construction costs come due.

The sources of funds for the projects included in the RIRP under the base case model are as follows:

| **RIRP Plan 1A : Base Case Sources of Funds (dollars in millions)** | |
|---|---|
| Bonds | $5,889 |
| State Funds | $0 |
| Infrastructure Tax | $0 |
| Pay-Go | $3,196 |

The *base case* model assumes that approximately $5.9 billion of bonds are sold over the RIRP time horizon through five different bond sales ranging in size from $656 million to $2.5 billion. The maximum fixed charge rate on the capital portion alone is estimated to cost $0.13 per kWh, while the average fixed charge rate over the 50-years is $0.07 per kWh.

***Alternative Model: Specific Assumptions.*** The *alternative* model was developed with the goal of minimizing the rate shock that may otherwise occur with such a large capital plan, and levelizing the rate over time so that the economic burden derived from these projects can be spread more equitably over the useful life of the projects being contemplated. Similar to the *base case* scenario, the first method used was to transfer the excess operating cash flow that is generated to create the debt service coverage level, and use that balance to both partially fund the capital projects in the early years and almost fully fund the projects in the later years. The second method used was the implementation of a Capital Benefits Surcharge that is applied to rate payers starting the day GRETC is formed. For this analysis, it was assumed that a $0.01 rate surcharge would be in place for the first 17 years, during which time approximately 75% of the capital projects in the plan will have been constructed. The third method used to spread out the costs over a longer time period was the use of the State as an equity participant in the execution of the RIRP capital funding plan. In a financing structure that is similar to the Bradley Lake financing model, the State would provide the upfront funding for any large hydroelectric projects, to be paid back by GRETC out of system revenues over an extended period of time, and following the repayment of the potentially more expensive capital markets debt. This analysis assumes that a $2.4 billion hydroelectric project is financed through a zero interest loan to GRETC that is then paid back through a 30-year capital markets take-out bond issue in 2047.

The sources of funds for the projects included in the RIRP under the alternative case model are as follows:

| **RIRP Plan 1A : Alternative Case Sources of Funds (dollars in millions)** | |
|---|---|
| Bonds | $3,657 |
| State Funds | $2,409 |
| Benefit Surcharge | $883 |
| Pay-Go | $2,135 |

The *alternative* model assumes that $5.9 billion of bonds are sold over the RIRP time horizon through nine different bond sales ranging in size from $32 million to $2.4 billion, which includes the $2.4 billion take-out financing to repay the State for front-funding of hydroelectric assets. The capital costs not bonded for come from the rate surcharge that is applied from day one and cash flow generated from rates and charges after operations and debt service (pay-go capital). The maximum fixed charge rate on the capital portion alone is estimated to cost $0.08 per kWh, while the average fixed charge rate over the initial 50-year period is $0.06 per kWh, not including the $0.01 consumer benefit surcharge that is in place for the first 17 years. While the average fixed cost is not significantly different between the *base case* and *alternative* scenarios, the difference between the two maximum rates are significant. The lower maximum rate in the alternative scenario benefits the rate payers by smoothing out the rates over a period of time that more closely matches the useful life of the RIRP assets.

***Summary, Next Steps, Conclusion.*** The RIRP presents a number of funding challenges, given the size and scope of the projects being contemplated. It has become evident through the financial modeling and the individual debt capacity analyses of this process that the utilities on their own would not be able to accomplish such an ambitious capital plan. The formation of a regional entity, such as GRETC, that would combine the existing resources and rate-base of the Railbelt utilities, as well provide an organized front in working to obtain private financing and the necessary levels of State assistance would be, in our opinion, a necessary next step towards achieving the goal of reliable energy for the Railbelt now and in the future.

# Regional Integrated Resource Plan

## Financial Analysis Summary Report

SNW

1420 Fifth Avenue, Suite 4300
Seattle, Washington
98101

Phone: (206) 628-2882

Fax: (206) 343-2103

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