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FOR BOARD ACTION

Agenda Item # 5

Meeting Date:

7/26/05

SUBJECT:

Infrastructure Plan and Emission Control Strategic Plan

PREPARED BY:

Wally Schlink, Director of Power Resources

ITEM DESCRIPTION:

RPU and the Rochester community have been going through a period of tremendous growth and opportunity. An outshoot of that growth has been the increased demand for energy to supply the needs of the community.

Beginning in 1999 RPU has had a Board approved power supply plan in place to meet the demand and energy needs of their customers. This plan has led to the installation of a new Pratt & Whitney gas turbine at Cascade Creek, the upgrading of the existing Westinghouse gas turbine at the same location and the notification to business partners of our intention to recover generating assets, primarily SLP, that are currently under contract to meet our future local needs. In addition RPU has increased its activities in the areas of renewable energy and conservation.

One major project that has been undertaken is the installation of a high pressure steam line to meet the thermal energy needs of a large customer. This project has caused us to look at future energy supply needs in greater detail and to develop better long range planning tools to evaluate our options. We have also incorporated input from the community and considered emerging environmental regulations that govern our operation as we developed the future power supply plan.

Following the acceptance of the R.W. Beck study on technologies and regulations in 2003, RPU committed to an 18 month process of detailed studies and information evaluation that incorporate the environmental, economic, regulatory and operational issues that must be considered and evaluated. RPU has complied with that commitment and staff is prepared to present the work, conclusions and recommendations to the Board that will assist them in deciding the appropriate direction for the utility to proceed. The various studies have been individually presented to the Board and the public and have been placed on file.

Staff will present the aggregated results of the studies, answer any questions and submit a recommended course of action to the Board.


General Manager


Date

FOR BOARD ACTION

Agenda Item # 5

Meeting Date:

7/26/05

UTILITY BOARD ACTION REQUESTED:

It is recommended that the Board approve the following:

1. Accept the recommendations of the Electric Utility Baseline Strategy for 2005 – 2030 Electric Infrastructure to be used as a guideline for power supply planning.
2. Direct staff to proceed with report recommendations for emission control projects to allow for permitting, engineering and design to proceed.

Staff will return for approval of major purchases, financing and contracts as required.

General Manager

Date



June 15, 2005

Mr. Wally Schlink
Rochester Public Utilities
4000 E. River Rd. NE
Rochester, MN 55906-2813

RE: Baseline Electric Infrastructure Study
Rochester Public Utilities
Project 34945

Dear Mr. Schlink:

Burns & McDonnell was authorized to assist the Rochester Public Utilities (RPU) in its assessment of future requirements for its electrical infrastructure. The RPU desired a baseline assessment of its financial requirements over a study period to 2030. The assessment included the review of traditional resources associated with meeting RPU's projected demand and energy needs to develop a traditional resource expansion plan. The impacts which demand side and renewable options might have on the traditional plan were also included. The costs for several futures were modeled in a detailed financial model developed by RPU. The model allowed a detailed assessment of a variety of measures such as rates, average bills and debt requirements to be developed. These parameters were used to identify the more attractive future for RPU to pursue. This report provides the results of the assessment

The assessment for RPU identified issues which need to be confronted within the time frame between now and 2015 and from 2016 to 2030. These periods were selected to coincide with the various options associated with the Silver Lake Plant capacity under the contract with the Minnesota Municipal Power Agency.

Conclusions and Recommendations

The results of this study indicate that the Silver Lake Plant Unit 4 should be kept in operation throughout the study period. The determination of the status of Units 1-3 depends on the cost of replacement capacity at the end of the MMPA contract.

With the above assumption on Silver Lake Unit 4, the RPU is not in need of significant resource expansion to meet its projected demand and energy requirements until approximately 2016. Prior to that date, RPU should rely on the market for seasonal purchases to make up any deficits. Post 2016, a mixture of market, gas and coal-fired resources provide the lowest cost evaluated plan.

The above conclusion on use of market capacity is tempered by the fact that RPU will have to correct the existing transmission limitations into the RPU service territory or add internal generation in order to regain previous levels of power supply reliability for its customers. The current limitations reduce the firm import of its supply from the Southern Minnesota Municipal Power Agency when the load in the area around RPU exceeds certain levels. These levels are being exceeded during an increasing number of hours per year. Therefore, reliance on the market



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for firm imports during the summer months is not considered prudent until the transmission limitation is removed.

Challenges which RPU will confront over the next ten years include environmental controls and upgrades to the Silver Lake Plant Unit 4 and potentially Units 1-3 to continue operation in compliance with expected environmental regulations. The investments in these units will help prolong the time when RPU will need replacement coal capacity

RPU should pursue the aggressive demand side management reductions identified. The achievement of the estimated reductions will postpone the need for additional base load capacity.

Synopsis of Process

Burns & McDonnell developed the traditional resource plan by first reviewing the load projections prepared by RPU. The forecast allowed an assessment of the capacity and energy deficiencies associated with various futures. The primary variance in the futures was due to the assumptions used for the capacity at the Silver Lake Power Plant.

Resource expansion plans were developed which provided an assessment of the benefits of gas and coal-fired resource options. Participation in projects being developed in the region were considered along with resources that RPU could develop on its own. These options were reviewed on a net present value basis to determine the lower cost options.

Risk analysis was performed on the lower cost options. Assumptions were varied to determine their impact on the evaluation. Risk profiles of the probable net present values were determined. The report provides a complete description of the process and the results identified.

A variety of demand side options were considered to reduce the demand and energy needs of RPU. Benefit cost analysis was performed on the options to determine the attractiveness of the options from the utility rate payers, participant and society perspectives. This review was aided by input from a Citizen's Advisory group.

The estimated reductions in demand and energy requirements were removed from the forecast. The revised forecast was then used to assess the RPU renewable energy needs to meet the state renewable portfolio standard.

The various futures with and without the DSM and renewable impacts were modeled in the detailed financial forecast model. The results indicated that an aggressive DSM approach would provide benefits to RPU in delaying base load capacity.

Summary

The results of the infrastructure plan have identified the lower cost approaches to meeting the RPU demand and energy requirements to the year 2030 include a combination of market purchases, gas and coal-fired resource additions, ongoing modifications to the Silver Lake Plant and a variety of DSM programs. Renewable energy should be pursued from wind resources and the Olmstead Waste to Energy Facility biomass facility.



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We look forward to discussing any aspect of this report with you at your convenience.

Sincerely,
BURNS & MCDONNELL

Jeff Greig
General Manager
Business & Technology Services

Kiah Harris
Project Manager

KH/pma



RESOLUTION

BE IT RESOLVED by the Public Utility Board of the City of Rochester, Minnesota, to approve the following:

1. Accept the recommendations of the Electric Utility Baseline Strategy for 2005 – 2030 Electric Infrastructure to be used as a guideline for power supply planning.
2. Direct staff to proceed with report recommendations for emission control projects to allow for permitting, engineering and design to proceed.

Passed by the Public Utility Board of the City of Rochester, Minnesota, this 26th day of July, 2005.

President

Secretary