June 22, 2009

Mayor and City Council
City of Idaho Falls, Idaho

Subject: Transmission Study Update

Mooney Consulting was asked to update the Transmission Planning Study prepared by CH2M Hill. Idaho Falls Power ("IFP") staff has provided background and assistance.

The study was transmitted electronically.

Thank you for the opportunity to help IFP in this important matter.

Sincerely,
Mooney Consulting LLC

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IDAHO FALLS POWER
Long Range Transmission Planning Study Update

INTRODUCTION

Idaho Falls Power ("IFP") requested Mooney Consulting LLC to review and update the Transmission Planning Study conducted by CH2M Hill in 1973 ("Study"). This Transmission Planning Study Update ("Update") extends the planning horizon to an IFP load of 200 MW (2020 to 2025 at recent rates of growth). The IFP peak load to date has been 155 MW.

OVERVIEW

The Study proved to be a good guideline for development of the IFP System ("System"). IFP load growth was slower than the Bonneville Power Administration ("BPA") forecast at that time (155 MW was forecast to occur in 1995 and actually occurred in 2005). The slower than forecasted growth simply delayed the timing of construction of improvements indicated in the Study.

All of the improvements recommended in the Study have been completed by IFP except for construction of the North 161 kV transmission loop ("North Loop"). The North Loop was described as needed for expansion North of Idaho Falls by the time the IFP load reached 155 MW.

The principal entity in providing reliable service to IFP is BPA through a General Transfer Agreement with Rocky Mountain Power ("RMP"). Electric service to IFP relies entirely on two RMP 161 kV transmission lines from Goshen Substation near Shelley. One transmission line connects Goshen to Sugar Mill Substation ("Sugar Mill") on the east side of the City is rated 165 MW and the transmission line that connects Goshen to Westside Substation ("Westside") on the west side of the City is rated 330 MW. Upgrades of the Rocky Mountain 161 kV system supplying Sugar Mill are likely to be required to continue reliable service to IFP at load levels above 165 MW.

SYSTEM DESCRIPTION

Existing Transmission System

IFP's existing transmission system is made up of a 161 kV South Transmission Loop ("South Loop") approximately 18 miles in length ("South Loop") and a 44 kV sub transmission system ("44 Loop") approximately 20 miles in length. The South Loop was constructed in 1981 and the 44 Loop was constructed prior to 1970.

44 Loop

The 44 Loop supplies the center of the City and connects to Sugar Mill and to Westside Substations. The 44 Loop rating for reliable service is 140 MW. With the loss of any one of the three 70 MVA 161-44 kV transformers at Sugar Mill or Westside, all of the IFP load from the 44 Loop can be served with the network intact. Also, with any single line segment of the 44 Loop out of service, most or all of the load on the 44 Loop can be served. If at any time in the future, all of the load" on the 44 can't be served with any single line out of service improvements need to be implemented to maintain that level of reliability.

Although recent pole testing has been positive, some replacement may need to occur during the next twenty years due to age. It would be prudent to budget for replacement of elements of the 44 Loop as pole testing results indicate is necessary to continue its reliable service.

44 Loop Substations

There are more than 20 transformers in various substations connected to the 44 Loop with a total rated capacity of approximately 270 MVA. Some serve the older parts of the City with substations rated 44-4.16 kV and also 44-12.5 kV. IFP should plan to replace all the 4.16 kV system within the next 10 years as a part of its reliability and loss reduction programs unless subsequent information suggests that a later retirement is economically justified.

44 Loop Losses

IFP can reduce electrical system losses by reducing load served by the 44 Loop. All load served from the 44 Loop has the losses of two transformers (161-44 and 44 to 12.5 or 4.16 as well as the higher losses of the 44 Loop compared to the South or North Loop. Because of the 44 Loop capacity limitations and the higher losses associated with the 44 Loop, no more substations should be added to the 44 Loop (Hatch Substation being the last addition).

South Loop

The South Loop connects Sugar Mill Substation (161-44 kV, two 70 MVA transformers) and West Side Substation (161-44 kV, one 70 MVA transformer) and is 795 MCM ACSR conductor mostly on tubular steel poles Two 25 MVA, 161-12.5 kV distribution substations are connected to the South Loop (Harrison and York). With the proposed growth South of Idaho Falls, additional substation sites (number will depend on residential, commercial or industrial zoning and development) should be acquired to allow economical service in the future. The economics of the acquisition of new sites compared to the expansion of existing substations should be compared from time to time. Existing sites can be expanded as required. New sites may be available on a planning basis but may not be possible when needed in the future as surrounding areas are proposed for development.

Proposed North Loop
The North Loop will connect Sugar Mill and Westside and will be approximately the same length as the South Loop. With the expansion plans of development north of the City, IFP needs to aggressively pursue routing and substation sites before significant development occurs.

SYSTEM OPERATION

The City of Idaho Falls has developed and implemented a number of building block components (such as the fiber optic network) toward deployment of a "smart grid" to enhance reliability, decrease system restoration time, and improve efficiencies. Deployment of "smart grid" technologies (such as automated devices) should be completed in conjunction with the physical improvements to the system to further promote a robust transmission system.

CONCLUSIONS

As a result of the review of the Study, analysis of the System and the Update, Mooney Consulting LLC concludes the following:

- The 44 Loop is at or near its capacity of approximately 140 MW operating as a network supplied from both Sugar Mill and Westside Substations (2-70 MVA transformers at Sugar Mill and 1-70 MVA transformer at Westside).

- Load greater than the capability of the 44 Loop is currently served from the South Loop via two substations (Harrison 25 MVA and York 25 MVA) and a third in the construction stage (Westside 25 MVA) scheduled for completion in 2009.

- The projected growth north of the City and the limitations of the 44 Loop requires the North Loop be constructed as soon as practicable. No other alternative will allow the areas to be served reliably and economically.

- The 161 kV RMP transmission line from Goshen to Sugar Mill is reaching its limit of 165 MW.

- Building blocks, such as the fiber optic network, provide the capability for IFP to implement reliability and efficiency "smart grid" systems for the benefit of its customers.

RECOMMENDATIONS

Based on the Conclusions and the Update, Mooney Consulting LLC recommends the following:

- Construct the North Loop from Sugar Mill to Westside as soon as practicable (2010), acquire a minimum of 4 substation sites along the route and construct one

25 MVA substation by 2010 (number of sites depends on zoning for residential, commercial or industrial).

-Conduct a route selection study and obtain necessary permits by 2009

-Decide on the project delivery approach and implement in 2009

- Consider acquiring one or more additional substation sites along the South 161 kV transmission loop in addition to the recently acquired Sandy Downs Site.

- Construct substations served from the South and/or North Loops as required for new areas and to restrict the load on the 44 kV transmission loop to less than 140 MW.

- Establish a plan of service with BPA and RMP to increase the transmission capability from Goshen to Sugarmill to meet the IFP load.

- Study and implement "smart grid" functions utilizing the fiber optic network to enhance the reliability and efficiency of the electric system.