
ROSE BLANCHE BROOK DEVELOPMENT

FEASIBILITY REVIEW UPDATE

Newfoundland Light & Power Co. Limited
December 19, 1997

EXECUTIVE SUMMARY

The Rose Blanche project adds a relatively small increment of both energy production and generation capacity to the Newfoundland electrical system. Net present value analysis of the project reveals that, when the costs of the project are compared to the benefits of either (1) delay of the need for capital expenditures on large-scale generation, or (2) displacement of fuel requirements at Holyrood, plus the reduction of line losses on the electrical system and avoidance of the need to replace obsolete diesel generation capacity in Port aux Basques, the benefits of the project exceed its costs. From the ratepayer's perspective, the project is one of the most economical small-scale hydroelectric generation options currently available for development on the island.

The Company chose the Rose Blanche project not only for economic reasons, but because it provides significant qualitative benefits to the province in general (environment), and to customers in the Port aux Basques area in particular (reliability).

The project will displace 38,000 barrels of oil annually. This provides a tangible environmental benefit in the form of reduced "greenhouse gas" emissions of carbon dioxide, sulphur dioxide and nitrous oxide in Newfoundland's most populous region, the northeast Avalon. The design of the plant also incorporates features which will enhance the ability of the Rose Blanche Brook ecosystem to support fish populations.

The Port aux Basques area is served by a long (185 kilometers) series of radial transmission lines that traverse an area which is subject to some of the harshest weather conditions in the province. For this reason, an additional source of generation in the area will provide enhanced security and reliability of supply. While upgrading of the lines has resulted in improved reliability in recent years, a weather-induced interruption in the transmission supply would leave the Port aux Basques area with only enough power to meet 45% of its peak requirements.

Local generation in the Port aux Basques area is currently limited to 4.16 MW of diesel generating capacity at Port aux Basques, and a 7.3 MW mobile gas turbine unit and 1.0 MW of portable diesel generation at the Grand Bay substation. The Company, with the assistance of an outside consultant, recently conducted a review of all of its diesel generation units. The review resulted in a decision to retire 1.66 MW of the diesel generation in Port aux Basques, among others, because the units are obsolete, difficult to operate safely, and no longer reliable. The construction of the Rose Blanche plant will more than offset this reduction in local generation, thereby avoiding the approximately \$1.2 million cost of replacing the retired diesel capacity.

Maintenance is critical on any electrical system, but particularly so for an area such as Port aux Basques with only one transmission infeed and limited local generation. Transmission line maintenance often requires that the line be de-energized. The addition of the planned generation at Rose Blanche will provide the added benefit of lengthening the time during which it is practical to perform major transmission line maintenance, thereby providing scheduling flexibility for maintenance crews and reducing disruptions to the power supply.

The present value financial analysis set out in Section 4 of the report shows the present value of the cost of the Rose Blanche project, in 1998 dollars, to be \$13,483,000. The comparison to avoided generation capacity costs assumes no capacity benefit until 2002. The only case analyzed against which the cost of Rose Blanche does not compare favourably is a comparison considering avoided energy production only, and utilizing the fuel forecast provided by Newfoundland & Labrador Hydro prior to the hearing. However, since a need for system capacity is projected for 2002, comparing the cost of Rose Blanche to only the avoided cost of energy production at Holyrood beyond that year does not reflect reality.

The more valid avoided generation comparison reveals that the present value of the cost of Rose Blanche is \$5.6 million less than the \$19.0 million present value of the avoided cost of generation. Substituting Hydro's fuel forecast in the analysis still leaves the Rose Blanche project with a cost advantage of more than \$3.8 million.

Sensitivity analyses were conducted on the cost effect of delaying the project to either 1999 or 2002. These analyses reveal that any benefit in delaying the project is more than offset by the cost of financing the approved 1997 capital expenditures in the interim. Consequently, the least-cost timing scenario is completion of the project in 1998.

This report recommends that the project be completed in 1998 to meet a planned in-service date of November 1998. The recommendation is based on the favourable economics of the project, as well as the significant qualitative benefits, including the positive environmental impact of the project, and the resulting enhancement of the security and reliability of the power supply in the southwest corner of the province.