

# Appendix F – Risk Measure

## Risk for Net Power Costs

Risk refers to uncertainty, or the variance in expected outcomes, usually in relation to the possibility of adverse results. There are two sources of risk: volume and market prices. The amount of hydroelectric generation held by Seattle City Light compared to its non-hydro generation subjects it to a high degree of uncertainty around expected generation. The quantity of water flow, the natural timing of its arrival at City Light dams, and the decisions about upstream control of water flow are all uncertain. In addition to volumetric risk, market price risk also has an impact on total Net Power Cost (the 20-year present value of revenue net of cost). Energy markets, while related to hydro flows, are a source of additional revenue and cost uncertainties. In order to determine the lowest risk resource portfolio, the value at risk of each portfolio was evaluated and compared.

## Risk Methodology

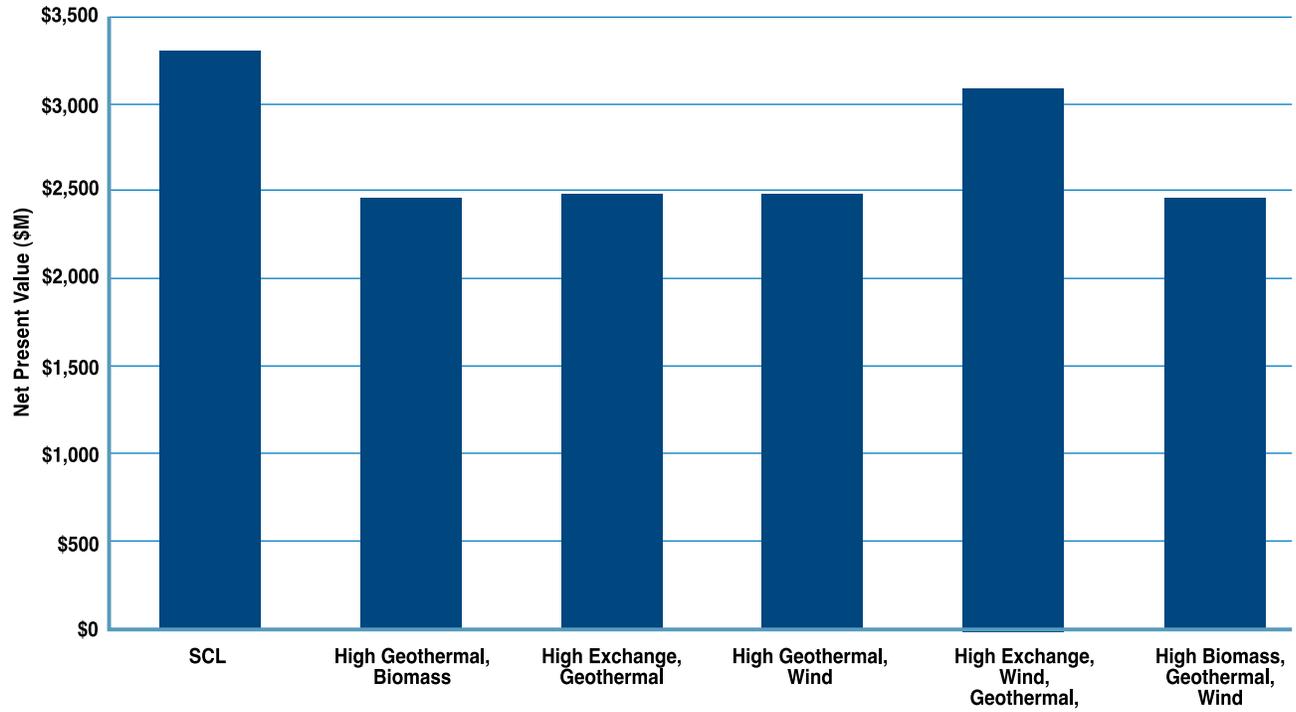
The amount of the risk to NPC was measured by using Aurora Electric Market Model software based on combinations of historical water years (1929-1978), alternative fuel prices, and customer load. The amount of risk is measured based upon a probability distribution at the 95% confidence level.

In order to measure the impact of each factor, the NPV (Net Present Value) at risk is calculated first based upon varying the water year, then market prices, and finally the combination of price and hydro. All of these scenarios are estimated based on variation in customer load.

The following table and graph illustrate the result of this analysis:

Portfolios	NPV at 95% Exceedence Level (\$M)	Rank
SCL	\$3,292	6
High Geothermal, Biomass	\$2,456	2
High Exchange, Geothermal	\$2,473	3
High Geothermal, Wind	\$2,476	4
High Exchange, Wind, Geothermal	\$3,079	5
High Biomass, Geothermal, Wind	\$2,452	1

### Risk at 95% Level



Based on the analysis reported above, the best resource portfolio is the combination of Geothermal, Exchanges, Wind, and Biomass.