Q. Please explain how the Muskrat Falls project individual units will be incorporated into the supply reliability model. Include in the response the expected forced outage rates, a description of any possibility for common mode failures simultaneously removing multiple Muskrat Falls project generators and how common mode failures been have incorporated into modeling.

A. The Muskrat Falls project individual units will be incorporated into the supply reliability model as hydroelectric units. They will be modelled as individual units, not on a plant basis. For the long term planning model, the following parameters will be modelled:

(1) Maximum and minimum capacities – annually and by month;
(2) Energy Output – annually and by month;
(3) Maintenance periods – annually; and
(4) Forced Outage Rates – annually.

The forced outage rates (DAFOR) for the Muskrat Falls units will be modelled as the average weighted forced outage rates for Hydro's hydroelectric units for the previous five years. This number is expected to be less than one percent.

Typically, Hydro considers forced outages for hydroelectric units to be statistically independent and thus does not model hydroelectric units with common mode failures that remove all units in a plant from service, unless a specific mechanism is known. As indicated, the Muskrat Falls plant is being constructed in a unitized manner. Each unit contains independent systems to prevent common mode failure points.