

1 Q. Describe the methodology used to determine the 2007 hydraulic production  
2 forecast and provide a forecast comparison on a plant by plant basis to the  
3 production forecast using the 30-year average method. (Regulated Activities  
4 Evidence, page 37 to 39)

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7 A. As directed by the Board in Order No. P.U. 14 (2004), Hydro developed its  
8 hydraulic production forecast using the full hydraulic record (1950 and  
9 onward), which incorporated the changes recommended by SGE Acres, and  
10 simulated annual average production using the integrated hydro-thermal  
11 simulation tool SYSSIM. The following monthly constraints and data were  
12 entered into the model:

- 13  
14 • 2007 forecast system peak and energy load;  
15 • Average hydraulic unavailability due to forced outages and  
16 unplanned maintenance;  
17 • Minimum and maximum Holyrood production constraints to reflect  
18 system security and plant maintenance requirements;  
19 • Average NUG (non-dispatchable) production;  
20 • Reservoir rule curve data;  
21 • Hydraulic unit efficiency, reservoir storage, and spillway rating  
22 curves; and  
23 • Channel flow and environmental release constraints.

24  
25 Typical initial water levels were chosen, and the model was run to meet the  
26 forecast 2007 load for ten consecutive years. This was done to remove the  
27 influence of starting water levels on the average. The average stabilized

1 after the first two to three years, after which the simulated average hydraulic  
2 production remained constant.

3  
4 The following compares the production arising from the simulation approach  
5 to the 30-year production filed in the 2003 GRA. The former spreadsheet  
6 method and the 30-year hydrology approach have not been updated as a  
7 part of the 2006 GRA.

<b>Plant</b>	<b>Average Annual Energy (GWh)</b>		
	<b>2006 GRA</b>	<b>2003 GRA</b>	<b>Difference</b>
Bay d'Espoir	2643.8	2657	-13.2
Cat Arm	659.3	733	-73.8
Upper Salmon	567.3	572	-4.7
Hinds Lake	338.3	352	-13.7
Granite Canal	220.1	224	-3.9
Paradise River	36.1	37	-0.9
Snook's Arm, Venam's Bight, Roddickton	7.1	7.2	-0.1
<b>Total</b>	<b>4472.0</b>	<b>4582.2</b>	<b>-110.2</b>