

1 Q. (a) Provide the in-service date for each Hydroelectric plant (RJH,
 2 Schedule I).

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4 (b) Provide the annual actual energy production for each Hydroelectric
 5 plant for each year after the in-service date (RJH, Schedule I).

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7 (c) Provide the derivation of the 2002 forecast of 4,271.67 GWh
 8 hydroelectric generation (RJH, Schedule V).

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10 A. (a) The in-service dates for Hydro's hydroelectric plants are as follows:

Plant/Unit	In-Service Date
Bay d'Espoir	
Unit 1	May, 1967
Unit 2	June, 1967
Unit 3	October, 1967
Unit 4	September, 1968
Unit 5	February 1970
Unit 6	April, 1970
Unit 7	December, 1977
Hinds Lake	December, 1980
Upper Salmon	January, 1983
Cat Arm	August, 1985
Paradise River	March, 1989
Roddickton Mini Hydro	December, 1980
Snooks Arm	1957
Venam's Bight	1957

1 (b) The following table provides the net generation from each of Hydro's
2 hydroelectric plants taken from available records.

	BAY D'ESPOIR	HINDS LAKE	UPPER SALMON	CAT ARM	PARADISE RIVER	SNOOKS ARM	VENAM'S BIGHT	RODDICKTON MINI HYDRO
1969	1,302.2							
1970	1,281.9							
1971	1,323.9							
1972	1,614.4							
1973	2,047.7							
1974	2,320.9							
1975	2,319.4							
1976	2,657.4							
1977	2,917.1							
1978	2,803.9					3.5	2.6	
1979	2,354.9					3.4	2.6	
1980	2,367.4	35.5				4.3	2.9	
1981	2,966.9	419.7				2.7	1.7	1.3
1982	2,813.8	319.8				4.3	2.8	1.2
1983	2,935.1	395.4	581.7			4.4	2.8	1.2
1984	3,074.8	366.7	644.9			3.3	2.6	0.8
1985	2,258.7	290.6	511.8	387.7		2.4	1.9	0.8
1986	2,391.1	263.8	502.8	740.4		3.1	2.2	0.8
1987	1,864.5	232.9	380.6	584.8		2.7	1.6	1.1
1988	2,472.2	525.3	382.1	773.9		3.3	2.9	1.4
1989	2,310.2	271.5	512.9	668.1	24.0	3.0	1.6	1.1
1990	2,229.9	316.5	497.4	674.3	38.1	3.4	1.4	1.2
1991	2,635.1	368.4	562.3	699.8	31.8	4.0	2.9	0.7
1992	2,613.0	308.1	558.6	704.5	30.6	3.9	2.8	1.0
1993	2,814.7	354.2	551.7	666.9	45.1	3.6	2.9	0.9
1994	3,282.3	459.0	658.4	602.9	34.4	4.0	2.6	1.1
1995	2,587.7	402.6	552.1	808.5	35.5	3.6	2.6	1.2
1996	2,785.9	352.3	597.7	793.2	36.9	4.4	2.9	1.4
1997	2,845.8	407.5	599.1	734.9	34.8	3.9	2.8	0.8
1998	2,609.2	408.7	553.9	650.4	32.0	4.0	2.9	1.3
1999	3,088.2	345.7	649.1	674.9	38.0	3.0	2.6	1.1
2000	3,115.0	388.0	636.9	836.8	36.4	1.7	1.2	0.7

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The Snook's Arm and Venam's Bight plants were purchased by Hydro in 1968 from the original owners who had built the plants to supply a mine in Tilt Cove in 1957. Reliable records of these individual plants are available only since 1978.

(c) The 2002 forecast of 4,271.67 GWh from Hydro's hydroelectric generation is based on annual average production from each plant as follows:

Bay d'Espoir	2,598.0	GWh
Upper Salmon	552.0	GWh
Cat Arm	735.0	GWh
Hinds Lake	340.0	GWh
Paradise River	39.37	GWh
Small hydros	7.30	GWh
Total	3,271.67	GWh

Each of the larger plants, Bay d'Espoir, Upper Salmon, Hinds Lake, Cat Arm and Paradise River annual average production is based on a historic average water to energy conversion factor for the plant which is applied to the average water available for use at the generating stations. The average water available for use is determined from average historic watershed inflow records with a reduction for water releases due to spill and for fisheries flow requirements. The following table provides the data for each of these larger plants.

Plant	Conversion Factor GWh/Mm³	Average Historic Inflows Mm³	Fisheries Releases Requirements Mm³	Average Spill Mm³	Useful Water Mm³	Average Energy GWh
Bay d'Espoir	0.4330	6080.18	31.83	48.05	6000.31	2598
Upper Salmon	0.1296	4400.76	93.43	51.22	4256.11	552
Cat Arm	0.8972	840.84	0.00	21.97	818.88	735
Hinds Lake	0.5370	649.93	14.54	1.86	633.53	340
Paradise Rvr	0.0920	534.85	0.00	106.91	427.94	39.37

1 Average Historic Inflows are the averages for all available years of
 2 record for each plant.

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 4 Fisheries Release Requirements are as per agreement requirements
 5 with the Department of Fisheries and Oceans and are based on
 6 historic average releases.

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 8 The average spill is based on historic average spills except for
 9 Paradise River where 20% of inflows are assumed to be spilled as it is
 10 a run-of-river plant.

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 12 The production from the small hydro plants at Snook's Arm and
 13 Venam's Bight is based on the average of historic annual production.
 14 The Roddickton plant is assumed to be 1.0 GWh annual average
 15 production.