

Q. Provide, in tabular form, both the annual and winter season capacity factors and availabilities for each of Newfoundland Power's generating units (including the portable unit(s)), for the past 5 years (2009 – 2013).

A. Newfoundland Power's annual and winter season capacity factors for the past 5 years are presented in Tables 1 and 2 respectively.¹ Tables 3 and 4 present both annual and winter power plant availability for the past 5 years.²

Table 1
Annual Capacity Factor (%)

Plant	2009	2010	2011	2012	2013	Average
Avalon						
Cape Broyle	50.4	61.3	61.9	58.9	55.7	57.6
Hearts Content	30.3	46.2	43.1	20.2	59.6	39.9
Horsechops	54.3	63.0	48.6	56.0	53.1	55.0
Mobile	49.2	45.9	50.6	39.1	44.6	45.9
Morris	61.3	46.2	58.0	46.0	51.1	52.5
New Chelsea	38.4	62.1	52.8	35.8	34.8	44.8
Petty Harbour	31.8	32.8	39.1	30.3	32.5	33.3
Pierre's Brook	70.3	78.5	72.1	58.6	69.8	69.8
Pitmans	45.2	79.5	66.6	42.8	43.9	55.6
Rocky Pond	23.8	44.3	52.5	47.6	42.6	42.2
Seal Cove	28.8	25.7	36.5	24.2	31.4	29.3
Topsail	50.3	64.1	57.0	40.3	48.7	52.1
Tors Cove	43.1	45.2	48.3	41.4	38.7	43.3
Victoria	56.7	72.4	72.0	45.3	66.7	62.6
Burin						
Fall Pond	27.0	21.9	33.0	25.4	27.3	26.9
Lawn	43.7	27.5	41.6	30.8	34.9	35.7
West Brook	40.1	40.2	36.7	26.8	38.4	36.5

¹ Capacity factor is a ratio of potential output to actual output. It is calculated using the following formula:
(Annual Generation) / (Maximum Capacity x Annual Operating Hours). Winter season is defined as December 1 to March 31.

² Plant Availability is a measure of the portion of the hours that generating unit is available over a certain period of time. Plant availability has been calculated based on the following formula:

$$100\% - (\text{hours a unit is unavailable for generation} / \text{total hours available for generation})$$

The calculation excludes the hours the generating unit is out of service due to system disruptions and major planned refurbishment.

Table 1
Annual Capacity Factor (%)
(Cont'd)

Plant	2009	2010	2011	2012	2013	Average
Central						
Lockston	33.9	45.2	40.1	18.0	48.9	37.2
Port Union	49.5	43.9	10.5	43.4	54.1	40.3
Rattling Brook	62.5	68.7	76.6	54.5	62.8	65.0
Sandy Brook	61.7	56.7	42.7	49.1	64.5	54.9
Western						
Lookout Brook	66.2	32.2	67.0	53.8	66.1	57.1
Rose Blanche	48.0	51.0	51.1	56.2	56.2	52.5
Total Hydro	49.9	53.1	54.9	45.6	51.8	51.1
Thermal						
Greenhill Gas Turbine	0.2	0.5	0.0	0.0	0.5	0.2
Mobile Gas Turbine MGT	0.3	1.1	0.2	0.2	0.4	0.5
Port Aux Basques Diesel	0.2	0.6	0.1	0.2	0.4	0.3
Portable Diesel MD3	0.3	0.8	0.1	1.0	1.0	0.6
Wesleyville Gas Turbine	0.4	0.0	0.4	0.2	0.4	0.3
Total Thermal	0.3	0.5	0.1	0.2	0.5	0.3

Table 2
Winter Season Capacity Factor (%)
(December 1 - March 31)

Plant	2009	2010	2011	2012	2013	Average
Avalon						
Cape Broyle	69.2	78.0	87.2	88.5	71.5	78.9
Hearts Content	39.0	47.9	56.8	48.3	85.1	55.4
Horsechops	87.6	87.0	85.7	87.3	68.4	83.2
Mobile	68.4	54.8	68.8	63.7	60.3	63.2
Morris	88.9	55.7	69.4	71.6	67.2	70.5
New Chelsea	67.1	57.9	60.4	66.3	66.7	63.7
Petty Harbour	50.4	51.0	61.7	50.2	49.2	52.5
Pierre's Brook	90.9	94.4	92.5	90.9	91.9	92.1
Pitmans	77.3	75.3	75.3	79.1	83.8	78.2
Rocky Pond	62.2	30.5	71.9	68.6	65.3	59.7
Seal Cove	47.5	45.3	53.8	46.2	35.9	45.7
Topsail	74.7	78.1	79.3	61.5	79.6	74.6
Tors Cove	63.3	57.6	67.2	62.3	57.5	61.6
Victoria	76.4	70.9	83.4	70.3	79.2	76.0
Burin						
Fall Pond	33.4	24.1	31.9	35.3	32.5	31.4
Lawn	60.9	38.6	44.2	43.5	38.6	45.1
West Brook	45.0	39.2	39.9	44.5	47.8	43.3
Central						
Lockston	37.9	44.5	58.3	25.9	59.5	45.2
Port Union	44.8	61.1	0.0	43.0	63.9	42.6
Rattling Brook	62.4	57.2	79.9	42.5	58.1	60.0
Sandy Brook	53.1	48.8	64.1	37.2	64.4	53.5
Western						
Lookout Brook	63.2	35.0	65.9	50.1	69.3	56.7
Rose Blanche	34.2	33.8	38.0	43.5	48.7	39.6
Total Hydro	62.6	57.2	69.3	58.3	62.8	62.0

Table 2
Winter Season Capacity Factor (%)
(December 1 - March 31)
(Cont'd)

Plant	2009	2010	2011	2012	2013	Average
Thermal						
Greenhill Gas Turbine	0.3	0.1	0.1	0.1	1.0	0.3
Mobile Gas Turbine MGT	0.6	1.4	0.1	0.2	0.2	0.5
Port Aux Basques Diesel	0.3	0.2	0.2	0.2	1.1	0.4
Portable Diesel MD3	0.2	5.0	0.2	0.2	0.7	1.3
Wesleyville Gas Turbine	0.3	2.2	0.0	0.1	1.6	0.9
Total Thermal	0.3	1.1	0.1	0.1	1.0	0.5

Table 3
Annual Availability (%)

Plant	2009	2010	2011	2012	2013	Average
Avalon						
Cape Broyle G1	98.3	97.7	95.6	94.6	93.1	95.9
Heart's Content G1	81.7	99.7	99.4	98.7	99.7	95.8
Horse Chops G1	99.3	98.9	98.9	95.4	96.0	97.7
Mobile G1	99.8	91.0	99.3	99.0	99.9	97.8
Morris G1	98.3	90.9	86.6	98.1	94.8	93.7
New Chelsea G1	99.7	98.9	98.9	99.5	99.9	99.4
Petty Harbour G1	99.6	99.9	94.2	97.8	100.0	98.3
Petty Harbour G2	98.7	96.7	98.8	97.8	99.8	98.3
Petty Harbour G3	99.4	99.7	98.3	97.4	99.7	98.9
Pierre's Brook G1	99.6	94.6	99.7	97.9	99.9	98.3
Pittman's Pond G1	93.9	92.4	97.4	99.9	98.5	96.4
Rocky Pond G1	99.5	98.4	96.8	99.3	100.0	98.8
Seal Cove G1 ³	75.8	97.7	97.1	98.7	99.7	93.8
Seal Cove G2 ⁴	30.4	99.2	99.5	70.6	87.6	77.5
Topsail G1	98.0	91.1	97.8	99.0	99.2	97.0
Tors Cove G1	98.1	97.3	99.7	100.0	100.0	99.0
Tors Cove G2	98.6	98.6	99.9	100.0	92.9	98.0
Tors Cove G3	98.8	89.1	97.9	98.0	85.8	93.9
Victoria G1	99.3	99.8	99.8	93.9	95.3	97.6
Burin						
Fall Pond G1	96.8	96.2	99.6	100.0	98.9	98.3
Lawn G1	99.3	99.6	99.8	98.2	98.7	99.1
West Brook G1	98.7	98.9	91.8	99.6	70.2	91.9
Central						
Lockston G1	98.9	99.2	99.9	99.8	98.9	99.3
Lockston G2	99.1	99.3	98.5	96.9	99.6	98.7
Port Union G1	97.6	100.0	100.0	100.0	99.8	99.5
Port Union G2	97.7	100.0	100.0	97.8	99.8	99.1
Rattling Brook G1	94.8	99.9	99.9	98.8	88.7	96.4
Rattling Brook G2	94.0	99.5	99.7	92.0	98.0	96.7
Sandy Brook G1	99.0	99.0	99.6	96.3	99.9	98.7

³ Low availability is the result of Seal Cove unit 1 governor failure from September 2008 to March 2009.

⁴ In March 2009 a piece of concrete entered the turbine causing damage to the thrust bearing, runner bolts, lower seal and shaft. The generator was out of service for the remainder of 2009 while repairs were made.

Table 3
Annual Availability (%)
(Cont'd)

Plant	2009	2010	2011	2012	2013	Average
Western						
Lookout Brook G3	99.7	99.4	99.2	99.4	92.1	98.0
Lookout Brook G4	89.1	76.4	98.7	99.7	92.5	91.3
Rose Blanche G1	99.9	98.8	99.7	98.4	100.0	99.4
Total Hydro	94.7	96.8	98.2	97.3	96.2	96.6
Thermal						
Greenhill Gas Turbine	84.2	99.1	99.9	96.7	100.0	96.0
Mobile Gas Turbine MGT	95.9	100.0	100.0	100.0	100.0	99.2
Port Aux Basques Diesel	82.3	100.0	100.0	100.0	99.7	96.4
Portable Diesel MD3	98.4	90.3	100.0	100.0	96.5	97.0
Wesleyville Gas Turbine	92.5	99.7	90.6	100.0	98.9	96.4
Total Thermal	90.7	97.8	98.1	99.3	99.0	97.0

Table 4
Winter Season Availability (%)
(December 1 - March 31)

Plant	2009	2010	2011	2012	2013	Average
Avalon						
Cape Broyle G1	97.3	99.9	99.9	99.7	99.5	99.3
Heart's Content G1	81.9	99.5	99.5	95.7	99.5	95.2
Horse Chops G1	98.8	97.9	97.4	99.0	99.6	98.5
Mobile G1	99.5	97.8	98.0	97.4	100.0	98.5
Morris G1	97.7	98.5	97.5	90.0	98.8	96.5
New Chelsea G1	99.3	99.2	97.4	99.9	99.7	99.1
Petty Harbour G1	99.1	100.0	83.3	100.0	100.0	96.5
Petty Harbour G2	100.0	98.4	99.8	100.0	100.0	99.6
Petty Harbour G3	98.8	99.7	99.5	99.5	99.8	99.5
Pierre's Brook G1	97.0	99.3	98.6	99.8	99.9	98.9
Pittman's Pond G1	99.6	99.4	99.9	87.1	95.8	96.4
Rocky Pond G1	99.2	96.9	99.9	99.5	100.0	99.1
Seal Cove G1 ⁵	4.4	99.0	87.2	99.0	99.8	77.9
Seal Cove G2	88.1	99.5	98.6	98.8	37.5 ⁶	84.5
Topsail G1	98.6	98.4	99.0	97.5	99.5	98.6
Tors Cove G1	99.3	92.5	100.0	99.9	100.0	98.3
Tors Cove G2	97.3	99.9	100.0	100.0	91.7	97.8
Tors Cove G3	98.3	88.4	93.9	100.0	88.4	93.8
Victoria G1	99.4	99.7	99.3	100.0	100.0	99.7
Burin						
Fall Pond G1	99.5	99.8	99.5	100.0	100.0	99.8
Lawn G1	99.9	99.0	99.5	99.9	94.2	98.5
West Brook G1	91.6	97.2	90.2	99.5	99.9	95.7
Central						
Lockston G1	98.5	99.5	99.8	99.0	84.3	96.2
Lockston G2	99.3	99.0	98.6	90.9	99.8	97.5
Port Union G1	99.4	100.0	100.0	100.0	100.0	99.9
Port Union G2	99.5	100.0	100.0	92.5	100.0	98.4
Rattling Brook G1	96.0	91.5	99.8	99.3	100.0	97.3
Rattling Brook G2	96.1	91.4	98.6	99.4	100.0	97.1
Sandy Brook G1	98.3	98.1	99.2	87.6	99.9	96.6

⁵ Low availability is the result of Seal Cove unit 1 governor failure from September 2008 to March 2009.

⁶ Low availability is the result of Seal Cove unit 2 AC drive failure and 9 other small outages caused by blocked trash racks.

Table 4
Winter Season Availability (%)
(December 1 - March 31)
(Cont'd)

Plant	2009	2010	2011	2012	2013	Average
Western						
Lookout Brook G3	99.6	99.8	98.4	99.9	99.3	99.4
Lookout Brook G4	99.7	57.6	97.9	99.1	100.0	90.9
Rose Blanche G1	99.8	99.8	99.5	100.0	100.0	99.8
Total Hydro	94.7	96.8	97.8	97.8	96.5	96.7
Thermal						
Greenhill Gas Turbine	99.7	100.0	100.0	98.3	100.0	99.6
Mobile Gas Turbine MGT	99.2	100.0	100.0	100.0	100.0	99.8
Port Aux Basques Diesel	97.8	100.0	100.0	100.0	100.0	99.6
Portable Diesel MD3	100.0	100.0	100.0	100.0	100.0	100.0
Wesleyville Gas Turbine	100.0	100.0	100.0	100.0	100.0	100.0
Total Thermal	99.3	100.0	100.0	99.7	100.0	99.8