Q. Provide a list of all Newfoundland Power transmission lines, by voltage. State the ampacity ratings at 0 degrees and peak demand anticipated for each line for next winter. Is it correct to assume that the average demand on each line doesn't exceed about 50% of the peak demand?

A. Attachment A is a list of all Newfoundland Power transmission lines that provides the lines' voltage, winter continuous rating and estimated 2012 forecast peak demand under normal operating conditions.[1] The winter continuous rating is based on a 0ºC ambient temperature for aerial conductor and 20 ºC for underground conductor.[2]

It is not correct to assume average demand on each line would not exceed 50% of peak load. The average and peak demands on a transmission line would be dependent on a number of factors including the characteristics of the load supplied by that particular transmission line, and the characteristics of any electricity production that is interconnected through that transmission line. At locations where Newfoundland Power purchases power from Hydro, the average annual demand varies between approximately 40% and 60% of the annual peak demand.

[1] Newfoundland Power's most recent listing of forecast transmission peak loads is based on the 2011 substation transformer forecast peak loads for 2012. Attachment A shows loading levels under normal operating condition at or below 50% of the winter continuous rating.

[2] For more detail see the response to Request for Information PUB-NP-146, Attachment D and Attachment E.

2013 Transmission Line Loading

Table 1
St. John's Transmission Line Loading Data

Transmission line	From	To	Voltage (kV)	Continuous Winter Rating[2]		2012 Forecast Peak Load[3]		
				Power (MVA)	Current (Amps)	Power (MVA)	Current (Amps)	% Rating
003L	PHR	GOU	33	27.1	474.3	2.59	44.9	10
004L[1]	GOU	SJM	66	89.2	779.9	18.80	162.7	20
005L	HWD	BCV	66	89.2	779.9	28.74	243.5	31
011L	TCV	MOB	66	54.2	474.3	6.56	57.0	12
012L	MUN	KBR	66	43.4	379.3	22.91	197.2	52
013L	SLA	SJM	66	89.2	779.9	30.29	258.5	33
014L	SLA	MUN	66	69.5	608.0	39.53	339.3	56
015L	SLA	MOL	66	51.6	550.4	9.92	85.0	15
016L	KBR	PEP	66	43.4	379.3	27.57	238.9	63
017L[1]	BIG	GOU	66	81.5	712.7	40.10	347.0	49
018L	GDL	GOU	66	62.9	550.4	7.99	68.8	13
019L	HWD	MOL	66	73.2	779.9	45.41	384.8	49
020L(A)[1]	ROP	MOB	66	100.1	875.6	36.96	324.2	37
020L(B)[1]	HCP TAP	ROP	66	100.1	875.6	32.35	284.2	33
020L(C)[1]	HCP TAP	CAB	66	100.1	875.6	24.59	216.1	25
021L	HCP	HCP TAP	66	62.9	550.4	8.08	70.1	13
022L	MRP	ROP	66	54.2	474.3	1.54	13.4	3
023L	PBK	MOB	66	29.6	518.4	3.98	34.6	7
024L[1]	MOB	BIG	66	81.5	712.7	47.39	414.0	58
025L[1]	GOU	SJM	66	91.5	800.5	16.32	141.2	18
030L	RRD	KBR	66	89.2	779.9	46.79	401.4	51
031L	OXP	SLA	66	114.4	1003.9	57.38	488.4	49
032L	OXP	RRD	66	89.2	779.9	49.42	420.6	54
034L	OXP	VIR	66	114.4	1003.9	39.30	334.5	33
035L	OXP	KEN	66	53.9	471.5	14.27	120.69	26
038L(A)	DUF	GES	66	81.5	712.7	39.20	334.7	47
038L(B)	GES	SCV	66	114.8	1003.9	39.16	334.7	33
049L	HWD	CHA	66	73.2	639.9	20.68	177.5	28
051L	KEL	CHA	66	89.2	779.9	12.60	108.2	14
052L	SCV	KEL	66	89.2	779.9	31.78	272.4	35
054L	HWD	KEN	66	114.8	1003.9	49.18	416.7	42
058L	OXP	VIR	66	114.8	1003.9	53.97	459.4	46
059L	VIR	PUL	66	89.2	779.9	27.89	241.6	31

Table 1
St. John's Transmission Line Loading Data
(Cont'd)

Transmission line	From	To	Voltage (kV)	Continuous Winter Rating[2]		2012 Forecast Peak Load[3]		
				Power (MVA)	Current (Amps)	Power (MVA)	Current (Amps)	% Rating
066L[1]	FER	CAB	66	54.2	474.3	24.15	212.3	45
067L	OXP	RRD	66	89.2	779.9	34.03	289.6	37
069L	KEN	SLA	66	52.9	550.4	11.68	100.2	18
070L	OXP	SLA	66	114.8	1003.9	57.64	490.5	49
072L	HWD	GOU	66	114.8	1003.9	35.64	302.0	30
073L	HWD	GDL	66	114.8	1003.9	52.75	446.9	45
074L	PEP	VIR	66	114.8	1003.9	5.26	45.5	5
079L	HWD	CHA	66	89.2	779.9	20.18	171.0	22

1) These transmission lines peak load assumes the Fermeuse Wind Farm (27 MW at 100% PF) and all of the Southern Shore hydro plants (CAB, HCP, PBK, MRP, ROP, MOB, and TCV) are producing at full capacity. This results in the highest load on these lines under normal system conditions.
2) The winter continuous rating is based on the section of the transmission line with the lowest continuous current rating. The ambient condition which determines the winter continuous rating is provided in the response to Request for Information PUB-NP-146, Attachments D and E.
3) This is the forecast peak load during normal operating conditions. Normal operating conditions include all transmission lines and substation power transformers being in service.

Table 2
Avalon Transmission Line Loading Data

Transmission line	From	To	Voltage (kV)	Continuous Winter Rating[1]		2012 Forecast Peak Load[2]		
				Power (MVA)	Current (Amps)	Power (MVA)	Current (Amps)	% Rating
039L(A)	DUF	HOL	138	170.4	712.7	67.48	269.6	38
039L(B)	HOL	COL	138	170.4	712.7	56.15	227.7	32
039L(C)	COL	SPF	138	170.4	712.7	50.62	208.5	29
039L(D)	SPF	BRB	138	170.4	712.7	39.01	161.8	23
040L	CAR	VIC	66	81.5	712.7	8.30	72.5	10
041L	HCT	CAR	66	53.9	471.5	1.10	9.6	2
043L	HCT	NCH	66	81.5	712.7	8.45	73.8	10
048L	BLK	BRB	138	170.4	712.7	36.24	150.7	21
055L(A)	BLK	PJN	66	54.2	474.3	17.40	147.3	31
055L(B)	PJN	QTZ TAP	66	54.2	474.3	16.83	145.1	31
055L(C)	QTZ TAP	DUN	66	54.2	474.3	16.50	144.6	30
055L(D)	DUN	CLK	66	54.2	474.3	8.76	78.0	16
055L(E)	QTZ TAP	QTZ	66	54.2	574.3	0.10	0.9	0
056L	BRB	CAR	66	81.5	712.7	24.90	211.3	30
057L(A)	BRB	ILC	66	53.9	471.5	21.40	181.6	39
057L(B)	ILC	HGR	66	53.9	471.5	9.68	84.1	18
064L	WAV	BLK	138	170.4	712.7	68.97	283.5	40
065L	NCH	OPL	66	54.2	474.3	9.83	86.9	18
068L	HGR	CAR	66	53.9	471.5	1.26	11.0	2
080L(A)	BLK	NHR	66	81.5	712.7	18.55	157.0	22
080L(B)	NHR	ISL	66	81.5	712.7	11.81	101.5	14
080L(C)	ISL	HCT	66	54.2	474.3	8.21	71.3	15
086L	WAV	BLK	66	62.9	550.4	24.26	202.4	37
094L(A)	BLK	SCT	66	62.9	550.4	10.05	85.1	15
094L(B)	SCT	RVH	66	62.9	550.4	6.35	55.0	10
095L	RVH	TRP	66	62.9	550.4	2.79	24.4	4

1) The winter continuous rating is based on the section of the transmission line with the lowest continuous current rating. The ambient condition which determines the winter continuous rating is provided in the response to Request for Information PUB-NP-146, Attachments D and E.
2) This is the forecast peak load during normal operating conditions. Normal operating conditions include all transmission lines and substation power transformers being in service.

Table 3
Burin Transmission Line Loading Data

Transmission line	From	To	Voltage (kV)	Continuous Winter Rating[2]		2012 Forecast Peak Load[3]		
				Power (MVA)	Current (Amps)	Power (MVA)	Current (Amps)	% Rating
300L	LLK	MSY	138	170.4	712.7	9.14	37.9	5
301L(A)[1]	GAR TAP	SPO	66	54.2	474.3	7.81	66.8	14
301L(B)[1]	GBE	GAR TAP	66	54.2	574.3	9.55	81.2	14
301L(C)[1]	GRH	GBE	66	54.2	474.3	9.93	83.9	18
302L[1]	LAU	SPO	66	40.2	352.1	18.60	159.0	45
305L(A)	GRH	WBC	66	81.5	712.7	6.23	52.9	7
305L(B)[1]	LAU	WBC	66	81.5	712.7	4.62	38.9	5
308L[1]	SPO	MSY	138	170.4	712.7	18.52	76.8	11

1) These transmission lines experience their peak load when the St. Lawrence Wind Farm is producing at full capacity (27 MW at 100% PF), all of the Burin Peninsula hydro plants (FPD, WBK, LWN, and PAR) are ON, and the GRH GT is ON.
2) The winter continuous rating is based on the section of the transmission line with the lowest continuous current rating. The ambient condition which determines the winter continuous rating is provided in the response to Request for Information PUB-NP-146, Attachments D and E.
3) This is the forecast peak load during normal operating conditions. Normal operating conditions include all transmission lines and substation power transformers being in service.

Table 4
Bonavista Transmission Line Loading Data

Transmission line	From	To	Voltage (kV)	Continuous Winter Rating[2]		2012 Forecast Peak Load[3]		
				Power (MVA)	Current (Amps)	Power (MVA)	Current (Amps)	% Rating
100L	SUN	CLV	138	170.4	712.7	28.59	116.1	16
109L(A)	SUN	NWB	138	170.4	712.7	31.79	129.1	18
109L(B)	NWB	CLV	138	170.4	712.7	26.57	108.9	15
110L(A)	CLV	MIL	66	40.1	350.4	16.78	147.3	42
110L(B)	MIL	LET	66	34.6	302.3	7.11	63.1	21
110L(C)[1]	SMV	LET	66	34.6	302.3	0.00	0.0	0
110L(D)	PRC	SMV	66	89.2	779.9	2.81	24.1	3
110L(E)	LOK	PRC	66	89.2	779.9	2.79	23.9	3
111L(A)	PUN	LOK	66	89.2	779.9	4.04	34.4	4
111L(B)	CAT	PUN	66	89.2	779.9	3.55	30.2	4
117L	CAT	BVA	138	170.4	712.7	12.34	52.2	7
123L(A)	CLV	PRC	138	170.4	712.7	20.89	86.4	12
123L(B)	PRC	CAT	138	170.4	712.7	20.96	87.6	12
124L(A)	PBD	CLV	138	170.4	712.7	17.92	74.1	10
124L(B)	TNS	PBD	138	170.4	712.7	20.17	84.4	12
124L(C)	ALX	TNS	138	170.4	712.7	21.06	88.8	13
124L(D)	GAM	ALX	138	170.4	712.7	26.83	114.7	16
124L(E)	PBD TAP	PBD	138	170.4	712.7	1.66	7.0	1

1) 110 L(C) transmission line is normally open at Summerville Substation (SMV).
2) The winter continuous rating is based on the section of the transmission line with the lowest continuous current rating. The ambient condition which determines the winter continuous rating is provided in the response to Request for Information PUB-NP-146, Attachments D and E.
3) This is the forecast peak load during normal operating conditions. Normal operating conditions include all transmission lines and substation power transformers being in service.

Table 5
Gander Transmission Line Loading Data

Transmission line	From	To	Voltage (kV)	Continuous Winter Rating[2]		2012 Forecast Peak Load[3]		
				Power (MVA)	Current (Amps)	Power (MVA)	Current (Amps)	% Rating
102L(A)	RBK	NDJ	66	40.1	350.4	20.24	175.5	50
102L(B)	GAN	RFD	66	40.1	350.4	9.32	79.2	23
102L(C)	NDJ	RFD	66	40.1	350.1	9.92	87.9	25
104L	RFD TAP	RFD	66	34.7	303.3	2.10	18.3	6
108L(A)	GAN	JON	66	40.1	350.4	10.31	87.6	25
108L(B)	JON	GBY	66	40.1	350.1	10.08	87.3	25
114L(A)[1]	CKH	GBY	66	54.2	474.3	0.00	0.0	0
114L(B)	CKH	BOY	66	54.2	474.3	21.80	187.4	40
114L(C)	BOY	SUM	66	54.2	474.3	15.25	135.4	29
115L	GAM	HBS	66	54.2	474.3	6.41	54.3	12
116L(A)	HBS	TRN	66	54.2	474.3	3.14	26.9	6
116L(B)	GPD TAP	TRN	66	54.2	474.3	0.79	6.9	2
116L(C)	WES	GPD TAP	66	54.2	474.3	1.57	13.6	3
116L(D)	GPD TAP	GPD	66	54.3	474.3	1.03	8.9	2
121L	GLV TAP	GLV	138	131.6	550.4	10.55	44.9	8
124L(A)	PBD	CLV	138	170.4	712.7	17.23	71.0	10
124L(B)	TNS	PBD	138	170.4	712.7	19.16	80.1	11
124L(C)	ALX	TNS	138	170.4	712.7	19.97	84.1	12
124L(D)	GAM	ALX	138	170.4	712.7	24.19	103.6	15
124L(E)	PBD TAP	PBD	138	170.4	712.7	1.49	6.2	1
136L	BFS	COB	138	170.4	712.7	48.71	202.1	28
140L	SUM	TWG	66	54.2	474.6	8.17	73.2	15
142L	COB	CKH	66	81.5	712.7	22.44	187.3	26
144L	COB	GAN	138	170.4	712.7	55.93	241.5	34
146L	GAN	GAM	138	134.8	563.8	31.59	136.8	24

1) The transmission line section 114L(A) is normally open at Gander Bay Substation (GBY).
2) The winter continuous rating is based on the section of the transmission line with the lowest continuous current rating. The ambient condition which determines the winter continuous rating is provided in the response to Request for Information PUB-NP-146, Attachments D and E.
3) This is the forecast peak load during normal operating conditions. Normal operating conditions include all transmission lines and substation power transformers being in service.

Table 6
Grand Falls Transmission Line Loading Data

Transmission line	From	To	Voltage (kV)	Continuous Winter Rating[1]		2012 Forecast Peak Load[2]		
				Power (MVA)	Current (Amps)	Power (MVA)	Current (Amps)	% Rating
101L	GFS	RBK	66	54.2	474.3	8.52	72.5	15
102L(A)	RBK	NDJ	66	40.1	350.4	19.87	171.8	49
102L(B)	GAN	RFD	66	40.1	350.4	8.74	74.0	21
102L(C)	NDJ	RFD	66	40.1	350.4	9.02	79.9	23
103L	NDJ	LEW	66	54.2	474.3	19.12	169.4	36
105L	SBK	GFS	66	40.1	350.4	5.75	48.9	14
130L	STY	GFS	138	170.4	712.7	68.92	282.9	40
132L	GFS	BFS	138	170.4	712.7	19.23	79.8	11
133L	STY	BFS	138	170.4	712.7	49.19	201.9	28
134L	BFS	BOT	138	131.6	550.4	13.90	57.7	10
136L	BFS	COB	138	170.4	712.7	44.82	186.0	26
363L	BVJ	SCR	138	131.6	550.4	16.32	67.8	12

1) The winter continuous rating is based on the section of the transmission line with the lowest continuous current rating. The ambient condition which determines the winter continuous rating is provided in the response to Request for Information PUB-NP-146, Attachments D and E.
2) This is the forecast peak load during normal operating conditions. Normal operating conditions include all transmission lines and substation power transformers being in service.

Table 7
Corner Brook Transmission Line Loading Data

Transmission line	From	To	Voltage (kV)	Continuous Winter Rating[2]		2012 Forecast Peak Load[3]		
				Power (MVA)	Current (Amps)	Power (MVA)	Current (Amps)	% Rating
351L	MAS	WAL	66	62.9	550.4	20.52	174.0	32
352L	MAS	WAL	66	62.9	550.4	19.63	166.4	30
353L	WAL	FRN	66	62.9	550.4	3.61	30.8	6
356L	MAS	HUM	66	93.3	816.4	17.60	149.0	18
357L	MAS	BVS	66	89.2	779.9	28.20	239.2	31
358L	BVS	GIL	66	62.9	550.4	3.88	33.0	6
359L[1]	BVS	HUM	66	89.2	779.9	0.00	0.0	0

1) The transmission 359L is normally open at Bayview Substation (BVS).
2) The winter continuous rating is based on the section of the transmission line with the lowest continuous current rating. The ambient condition which determines the winter continuous rating is provided in the response to Request for Information PUB-NP-146, Attachments D and E.
3) This is the forecast peak load during normal operating conditions. Normal operating conditions include all transmission lines and substation power transformers being in service.

Table 8
Stephenville Transmission Line Loading Data

Transmission line	From	To	Voltage (kV)	Continuous Winter Rating[2]		2012 Forecast Peak Load[3]		
				Power (MVA)	Current (Amps)	Power (MVA)	Current (Amps)	% Rating
400L[1]	BBK	WHE	66	62.9	550.4	0.00	0.0	0
401L(A)	STV	WHE TAP	66	89.2	779.9	22.12	189.6	24
401L(B)	WHE TAP	GAL	66	89.2	779.9	22.03	189.9	24
402L	GAL	BHD	66	81.5	712.7	16.67	144.5	20
403L(A)	ROB	STV	66	54.2	474.3	2.65	22.9	5
403L(B)	LBK	ROB TAP	66	54.2	474.3	5.87	50.7	11
403L(C)	ROB TAP	ROB	66	34.6	302.3	3.94	34.0	11
404L[1]	WHE TAP	WHE	66	62.9	550.4	0.00	0.0	0
405L	STV	HAR	66	81.5	712.7	25.29	216.8	30
406L	HAR	GAL	66	62.9	550.4	14.61	126.2	23
407L(A)	STV	STX	66	54.2	474.3	7.20	61.8	13
407L(B)	STX	STG	66	54.2	474.3	3.02	26.0	6
410L(A)	BHD	ABC	66	62.9	550.4	13.27	115.9	21
410L(C)	ABC	LCV	66	54.2	474.3	7.03	62.5	13
416L	GBS	LGL	66	62.9	550.4	7.22	63.4	12
417L	GBS	PAB	66	53.9	471.5	5.68	49.9	11

1) The transmission line 404L is normally open at Wheelers Substation (WHE).
2) The winter continuous rating is based on the section of the transmission line with the lowest continuous current rating. The ambient condition which determines the winter continuous rating is provided in the response to Request for Information PUB-NP-146, Attachments D and E.
3) This is the forecast peak load during normal operating conditions. Normal operating conditions include all transmission lines and substation power transformers being in service.