

FROM:

Filed: March 17, 2008

EB-2007-0050

Exhibit C

Tab 4

Schedule 12

Page 4 of 5

The following is a chart derived from HONI Interrogatory Response to Pappas - C-4 - 012. This lists the Conductor Type and Temperature Rating of the 10 existing 230 kV circuits from the Bruce GS, the 4 existing 500 kV circuits and the 2 proposed 500 kV circuits.

CHART FROM HONI [INTERROGATORY REPLY]

	Conductor Type, Stranding, Conductors per bundle	Temperature Rating °C
230 KV TRANSMISSION LINE BRUCE TO		
HANOVER/ORANGEVILLE:		
Bruce x Hanover - B4V & B5V	ACSR, 42/7, 1	127
Hanover x Orangeville - B4V & B5V	ACSR, 54/19, 1	104
230 KV TRANSMISSION LINE BRUCE TO		
OWEN SOUND:		
Bruce x Owen Sound - B27S & B28S	ACSR, 26/7, 1	140
230 KV TRANSMISSION LINE BRUCE TO		
DETWEILER:		
Bruce x Seaforth - B22D & B23D	ACSR, 54/19, 1	150
Seaforth x Detweiler - B22D & B23D	ACSR, 26/7, 1	120
500 KV TRANSMISSION LINE BRUCE TO		
MILTON***:		
Bruce x Milton - B561M		
Section 1	ACSR, 26/7, 4	127
Section 2	ACSR, 26/7, 4	127
Bruce x Milton/Claireville - B560V		
Section 1	ACSR, 26/7, 4	127
Section 2	ACSR, 26/7, 4	127
500 KV TRANSMISSION LINE BRUCE TO		
LONGWOOD:		
Bruce x Longwood - B562L		
Section 1	ACSR, 26/7, 4	127
Section 2	ACSR, 26/7, 4	104
Section 3	ACSR, 26/7, 4	127
Bruce x Longwood - B563L		
Section 1	ACSR, 26/7, 4	127
Section 2	ACSR, 26/7, 4	127
New 500 KV TRANSMISSION LINE Bruce		
TO MILTON:		
Bruce x Milton - B566M & B567M	ACSR, 26/7, 4	127

Table of Transmission Line Data for
Pappas IR #12

Line	In Service Date	Firm Capacity *		Capability (MW) **	Avg Loading (2007) *****	Max Loading (2007) *****	Length	Conductor Type, Stranding, Conductors per bundle	Conductor Size (diameter)	Conductor Cross Section Area		Temperature Rating	Conductor Resistance	Conductor Resistance (R/Length)	Conductor Resistivity (ρ)
		Amps	MW*	Total of both circuits			km		m	kmil	m ²	°C	Ω	Ω/km	Ω-m
230 KV TRANSMISSION LINE BRUCE TO HANOVER/ORANGEVILLE:															
Bruce x Hanover - B4V & B5V	26-Nov-63	1019	423	284	452	560 (B4V) & 340 (B5V)	48	ACSR, 42/7, 1	0.02870854	1277.5	0.0006473	127	2.5975	0.053873	3.487E-08
Hanover x Orangeville - B4V & B5V	10-Dec-61	991	412	287	378	293 (B4V) & 267 (B5V)	77	ACSR, 54/19, 1	0.02773703	1192.5	0.0006042	104	4.3488	0.056296	3.402E-08
230 KV TRANSMISSION LINE BRUCE TO OWEN SOUND:															
Bruce x Owen Sound - B27S & B28S	31-Oct-77	860	357	273	175	230 (B27S) & 160 (B28S)	69	ACSR, 26/7, 1	0.02453023	932.7	0.0004726	140	4.7902	0.069594	3.289E-08
230 KV TRANSMISSION LINE BRUCE TO DETWEILER:															
Bruce x Seaforth - B22D & B23D	11-Oct-75	991	412	278	374	355 (B22D) & 355 (B23D)	111	ACSR, 54/19, 1	0.02773703	1192.5	0.0006042	150	6.2305	0.056296	3.402E-08
Seaforth x Detweiler - B22D & B23D	20-Nov-70	860	357	274	135	163 (B22D) & 156 (B23D)	81	ACSR, 26/7, 1	0.02453023	932.7	0.0004726	120	5.6436	0.069594	3.289E-08
500 KV TRANSMISSION LINE BRUCE TO MILTON***:															
Bruce x Milton - B561M	1-Apr-83	2636	2442	2040	2051	1655 (B561M)	176	-	-	-	-	-	-	-	-
Section 1							18	ACSR, 26/7, 4	0.02453023	932.7	0.0004726	127	1.2724	0.069594	3.289E-08
Section 2							158	ACSR, 26/7, 4	0.01942713	585	0.0002964	127	17.3424	0.110045	3.262E-08
Bruce x Milton/Claireville - B560V	1-Oct-94	2636	2442			1525 (B560V)	209								
Section 1							3	ACSR, 26/7, 4	0.02264719	795	0.0004028	127	0.2112	0.080033	3.224E-08
Section 2							206	ACSR, 26/7, 4	0.01942713	585	0.0002964	127	22.7161	0.110045	3.262E-08
500 KV TRANSMISSION LINE BRUCE TO LONGWOOD:															
Bruce x Longwood - B562L	26-Nov-90	2636	2442	2038	1103	995 (B562L)	189								
Section 1							3	ACSR, 26/7, 4	0.02264719	795	0.0004028	127	0.2241	0.080033	3.224E-08
Section 2							15	ACSR, 26/7, 4	0.02453023	932.7	0.0004726	104	1.0775	0.069594	3.289E-08
Section 3							171	ACSR, 26/7, 4	0.01942713	585	0.0002964	127	18.7673	0.110045	3.262E-08
Bruce x Longwood - B563L	26-Nov-90	2636	2442			1020 (B563L)	189								
Section 1							3	ACSR, 26/7, 4	0.02453023	932.7	0.0004726	127	0.1949	0.069594	3.289E-08
Section 2							186	ACSR, 26/7, 4	0.01942713	585	0.0002964	127	20.4684	0.110045	3.262E-08
New 500 KV TRANSMISSION LINE Bruce TO MILTON:															
Bruce x Milton - B566M & B567M		2636	2443	2040	-	-	176	ACSR, 26/7, 4	0.01942713	585	0.0002964	127	19.3544	0.110045	3.262E-08

* The MW are calculated from the Ampere capacity assuming the appropriate voltage of 120 kV, 240 kV or 535 kV at a power factor of 0.9.
Firm Capacity means the capacity available on that line assuming that one of the two circuits is out of service.

** Capability means the power that can be transmitted along the line without requiring additional voltage support from other sources. This number is also known as the Surge Impedance Loading (SIL). The SIL can be increased by adding shunt or series compensation. A shunt capacitor bank is an example of shunt compensation. Although it is possible to reliability transmit power along the line in excess of the SIL, the voltage performance suffers. For a transmission path of about the length of the circuits in the Bruce area, exceeding SIL by more than 50% is not realistic unless a large amount of compensation is provided.

*** When this line was first placed into service in 1983, both circuits went to Milton SS and the two circuits were known as B560M and B561M. On October 1, 1994, the B560M circuit was reconfigured at Milton SS to bypass Milton SS and terminated instead at Claireville TS. It was renamed to B560V to reflect the change in termination. This change increased the length by 33 km. The capacity and capability of the line did not change as a result.
A portion of the Bruce x Milton line was initially placed into service in 1979 and operated at 230 kV in order to provide some additional transmission capacity before the construction of the line at the Milton end was completed. The portion that was so connected went from Bruce to Belwood Junction where it was connected to the 230 kV circuits D6V & D7V, Detweiler x Orangeville.

**** Power: Average Non-peak Transmitted MW is not readily available. Average 2007 loading is provided instead which encompasses on- and off-peak.

***** Power: MW During Provincial Demand of 29000 MW is not available.