

1 Q. **Reference: Study, Section 5, page 23, lines 7-10**

2 Preamble:

3

4 “The upgrades include the commissioning of the third synchronous condenser at  
5 Wabush Terminal Station, the installation of an additional 23 MVAR of shunt  
6 compensation . . .”  
7

8 Does the addition of synchronous condenser SC-3 improve the transmission lines losses? If  
9 so, please quantify this improvement (in MW).

10

11 A. The addition of Synchronous Condenser #3 (“SC3”) marginally improves the 230 kV  
12 transmission line losses. Table 1 outlines the 230 kV transmission line losses for peak load  
13 scenarios as follows:

14

15 Status Quo No System Upgrades and No Tacora Mines, without SC3  
16 IOC<sup>1</sup> Load at 247.5 MW, NLH<sup>2</sup> Load at 87.6 MW, Total Load = 335.1 MW

17

18 Status Quo No System Upgrades and No Tacora Mines, with SC3  
19 IOC load at 247.5 MW, NLH Load at 87.6 MW, Total Load = 335.5 MW

20

21 Alternative 4 T4, T5 Replacement, 23 MVAR Capacitor Banks, without SC3  
22 IOC load at 247.5 MW, Tacora Mines Load at 47.5 MW, NLH Load at 87.6 MW,  
23 Total Load = 382.6 MW

24

25 Alternative 4 T4, T5 Replacement, 23 MVAR Capacitor Banks, with SC3  
26 IOC load at 247.5 MW, Tacora Mines Load at 47.5 MW, NLH Load at 87.6 MW,  
27 Total Load = 382.6 MW

---

<sup>1</sup> Iron Ore Company of Canada (“IOC”).

<sup>2</sup> Newfoundland and Labrador Hydro (“NLH”).

**Table 1: 230 kV Transmission Line Losses with and without SC3**

<b>Study Case</b>	<b>230 kV Transmission Line Losses (MW)</b>	
	<b>without SC3</b>	<b>with SC3</b>
Status Quo (no Tacora)	<b>24.1</b>	<b>23.6</b>
Alternative 4 (with Tacora)	<b>32.6</b>	<b>31.7</b>