TECHNICAL APPENDIX 13.3: SOURCE NOISE LEVELS

1. APPENDIX 13.3 SOURCE NOISE LEVELS

Table 1: Equipment Sound Power Levels – HVDC Converter

Equipment	Quantity	Housing Arrangements	Sound Power Level (SWL) (dB(A))
Alternating Current (AC) Hall Heating Ventilation Air Conditioning (HVAC)	2	Internal	80
AC HP L	6	External	85
AC HP C	6	External	85
AC PLC Filter Reactor	6	External	80
Air Exhaust HVAC	4	Internal	71
Air Intake Climate System Air Handling Units (AHU)	4	Internal	70
Air Intake HVAC System AHU	4	Internal	67
Chiller	14	Internal	4 @ 70, 4 @ 80, 2 @ 85, 4 @ 92
Climate System Overpressure Fresh Air Intake	4	Internal	2 @ 68, 2 @ 71
Climate System Fresh Air Reactivation	4	Internal	2 @ 57, 2 @ 60
Climate System Wet Air Outlet	8	Internal	4 @ 40, 4 @ 71
Cooler Bank	2	External	95
DC Hall AHU	8	External	80
Exhaust Air Outlet Climate System	4	Internal	71
Relay Building HVAC	3	Internal	2 @ 75, 1 @ 80
Storage Building HVAC	3	Internal	80
Transformers Fans	6	External	80

Transformers in Building	6 (across 2 buildings)	Internal	106
Filter Reactor	6 (across 2 buildings)	Internal	75
Converter Reactor	6 (across 2 buildings)	Internal	90

Table 2: Equipment Sound Power Levels – 400 kV AC Substation

Equipment	Quantity	Housing Arrangements	SWL (dB(A))
SGTs	2 (across 2 buildings)	Internal	86
Synchronous Compensator	2 (across 2 buildings)	Internal	92
Step up Transformer	2 (across 2 buildings)	External	96.5
Start up Transformer	2 (across 2 buildings)	External	83.1
Auxiliary Transformer	2 (across 2 buildings)	External	84
Synchronous Condenser Coolers	2 (across 2 buildings)	External	95.1

Figure 1: Sound Reduction – Building Facades - 200mm Rockspan and Firemaster Ultima

Sound Insulation Prediction (v7.0.13)

- Key No. 2517

Margin of error is generally within Rw +/- 3 dB

Job Name:

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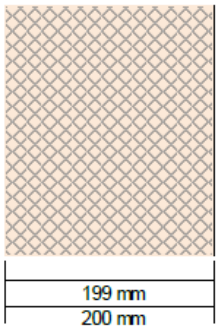

Rw	36 dB
C	-3 dB
C_{tr}	-5 dB

System description

Panel 1 Outer layer: 1 x 200.0 mm Rockspan Ultima 200mm- (m=37.7 kg/m2, fc=119690 Hz, Damping=0.01) Profile

frequency (Hz)	R(dB)	R(dB)
50	22	
63	23	23
80	25	
100	26	
125	27	27
160	29	
200	30	
250	31	31
315	32	
400	33	
500	33	32
630	30	
800	24	
1000	36	28
1250	44	
1600	46	
2000	48	48
2500	49	
3150	51	
4000	53	53
5000	55