

**Fanellan Hub 400 kV Substation and  
Converter Station  
Environmental Impact Assessment Report  
Volume 4 | Technical Appendices**

**Appendix 14.33 – Source Noise Levels**

**February 2025**



## TECHNICAL APPENDIX 14: NOISE IMPACT ASSESSMENT

### 14.33 Source Noise Levels

**Table 1: Equipment Sound Power Levels from Hitachi – 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 (inductors)	6	External	85
AC HP C (capacitors)	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	93.7
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

Equipment	Quantity	Housing Arrangements	Sound Power Level (SWL) (dB(A))
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))
Substation Transformers	2	External	85
AVR	1	Internal	45
Earthing Auxiliary Transformer	2	External	55
Shunt Reactors	2	Internal	89

**Table 3: Sound Reduction – Building Facades - 200mm Rockspan and Firemaster Ultima**

**Sound Insulation Prediction (v7.0.13)**

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- Key No. 2517

Margin of error is generally within  $R_w \pm 3$  dB

Job Name:

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Notes:

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Initials: tim ashley

File Name: insul



**R<sub>w</sub> 36 dB**  
C -3 dB  
C<sub>tr</sub> -5 dB

**System description**

Panel 1 Outer layer: 1 x 200.0 mm Rockspan Ultima 200mm- (m=37.7 kg/m<sup>2</sup>, f<sub>c</sub>=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	

