**ANNEXURE A**

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| **DESCRIPTION** | **REQUIREMENTS** |
| **SOUND** | |
| 1. **MAXIMUM SOUND LEVELS** | |
| **Noise level requirements** | To be met when operating ERG Controls |
| Including when the control door panel is open |
| 1. **TESTING AND STANDARDS** | |
| **Noise measurements** | To be conducted as part of performance tests |
| Relevant with standards |
| **Background Noise and Reflections** | Shall be corrected during testing |
| Corrected mean value shall be compared against specified guaranteed sound pressure level. |
| 1. **NON-COMPLIANCE MITIGATION** | |
| **If Noise level exceeds specified limits** | Contractor shall make necessary modification |
| Provide additional sound attenuation measures |
| 1. **DESIGN CALCULATIONS** | |
| **Sound level calculations for generator under full load – Measurement points** | 7 meters from the generator's surface, at 8 equidistant points around the ERG. |
| 1.5 meters from the generator's surface, at 8 equidistant points around the  ERG. |
| **ERG Alarm Requirements** | Must effectively operate without producing any audible noise. |
| **AIR** | |
| 1. **AIR QUALITY AND EMISSIONS** | |
| **From ERGs** | Shall be in accordance with all relevant regulatory  requirements and Australian Standards |
| **For Each type of ERG** | Contractor must provide the emission levels listed within the vendor schedules for each ERG variant offered. |
| **ELECTROMAGNETIC** | |
| **Electromagnetic emissions from ERGs** | Shall not exceed the limits specified in IEC  61000.6.3 for residential, commercial and light industrial areas. |
| **ERG to comply with** | Australian Communication Authority requirements with respect to electromagnetic compatibility. |
| **ERGs to be immune to electromagnetic interference** | As per the limits specified in IEC 61000.6.2 for industrial areas |
| **VIBRATIONS** | |
| **Vibration levels from ERGs** | Shall not be more than ‘Value 1’ levels |
| In accordance with ISO 8528-9 Table C1 with respect to displacement, velocity and acceleration. |
| **COMMUNICATIONS AND CONTROL** | |
| **SCADA System functionality** | The SCADA system shall enable remote control and monitoring of both single and multiple ERGs |
| Ensure seamless integration with the principal’s existing control systems. |
| Contractor must provide a fully integrated system, including SCADA, and instrumentation. |
| Communication medium for ERGs shall include CANbus cable and sync cable (wander lead) to ensure reliable data transmission and synchronization. |
| **Operational Autonomy** | The SCADA system shall ensure the ERGs can operate autonomously across all load conditions and during fault recovery. |
| The system must support automatic start, shut down, and reinstatement after faults without requiring local intervention. |
| **Functionality** | The SCADA system must enable the following operations both locally and remotely:  (i) Start/Stop the generator.  (ii) Close/Open the generator circuit breaker.  (iii) Fault diagnosis and reset with software confirmation for each function.  (iv) Setpoint adjustment for configurable parameters. |
| Remote access must provide full functionality, including but not limited to:  (i) Monitoring generator performance.  (ii) Adjusting control parameters.  (iii) Initiating fault diagnostics and resetting alarms. |
| **Alarm System and notification** | Alarm indicators must  (i) Be clearly visible locally on the control panel |
| The alarm system must support remote monitoring and provide email notifications for selected alarms, with: (Please see below)  (i) Configurable notification settings.  (ii) Alarm prioritization (e.g., warnings vs. critical faults). |
| **Monitoring and Data logging** | SCADA system must provide real-time readings of all operating parameters for the engine and alternator. |
| Capabilities must include Event recording with timestamps for all alarms and major events |
| The data log must be accessible remotely for analysis and reporting |
| **PARALLEL OPERATIONS** | |
| **Synchronization and Parallel Operations** | The control system must enable all ERGs to:  (i) Synchronize and reverse synchronize with the grid and/or other ERGs.  (ii) Operate in parallel mode with other generators, maintaining stable voltage, frequency, and load sharing |
| **Infinite Bus Mode** | All ERGs must be able to operate in Infinite Bus Mode, with or without a master controller, for enhanced flexibility in load management. |
| The control system must ensure:  (i) Seamless integration of electrical protections in multi-generator operation.  (ii) Real-time load balancing and synchronization across all units. |
| **Testing and Validation** | Factory Acceptance Testing (FAT) |
| Site Acceptance Testing (SAT) |
| verify synchronization, reverse synchronization, and Infinite Bus operation under simulated conditions. |