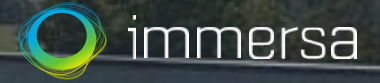


Comprehensive Operation & Maintenance

Tailored O&M Solutions for your BESS and Solar Energy Systems

Ensuring Peak Performance and Longevity for Your Energy Investments.



**Tailored O&M
Solutions for your
BESS and Solar
Energy Systems**

Operations and Maintenance (O&M) Services: **Let Us Handle the Hard Work**

At Immersa, our Operations and Maintenance (O&M) services are designed to give you peace of mind. With our expert team managing your energy systems, you can focus on running your business without worrying about potential issues that could disrupt operations.

By choosing an O&M contract with Immersa, you gain the advantage of comprehensive care for your systems. Our packages focus on **preventative maintenance**, identifying and addressing potential problems **before** they arise. This proactive approach ensures your systems operate efficiently and helps you avoid unexpected downtime or costly repairs.

The Benefits of an O&M Contract with Immersa:



Future-proof your business against disruptions that could affect daily operations.



Preventative maintenance that ensures issues are resolved before they escalate.



Expert support to keep your systems optimised and performing at their best.

With Immersa's O&M agreement, you don't just get a service provider—you get a partner dedicated to ensuring your energy assets work for you, trouble-free. Let us help you maintain your systems, so you can enjoy the benefits without the hassle.

Why Choose an O&M Contract with Immersa?

Our O&M services provide key advantages that protect your investment and ensure your systems run smoothly.

- **Maximised System Performance** - Regular monitoring and maintenance help your energy systems operate at peak efficiency, ensuring you get the best return on your investment.
- **Reduced Downtime** - By addressing potential issues early, we help prevent unexpected breakdowns that could disrupt your business operations.
- **Cost Savings** - Preventative maintenance reduces the risk of expensive repairs or system replacements down the road, saving you money over time.
- **Compliance and Safety** - We ensure that your systems meet all regulatory standards, keeping your business compliant and safe from potential fines or hazards.
- **Technical Expertise Through Immersa & AlphaESS Partnership** - Our partnership with AlphaESS UK allows us to leverage advanced market knowledge and cutting-edge battery technology, ensuring that any technical issues are addressed quickly, effectively, and efficiently. This collaboration brings you the latest innovations in energy storage, backed by industry-leading expertise.

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Alpha Cloud Monitoring

As part of Immersa's installation and LTSA package, every system includes access to the **AlphaESS Cloud** —a free, real-time digital monitoring platform.



Key Features

- **Real-time monitoring:** View current battery capacity, state of charge, and system performance.
- **Customisable settings:** Easily update configuration preferences to optimise energy requirements.
- **Tailored solutions:** Adjust system settings to align with your specific energy objectives.

Alpha Cloud provides both you and Immersa with a comprehensive view and control over your energy system for optimal performance in any context.

Your O&M Package

BESS Installation & Partners: **Operations and Maintenance Package**

Upon signing the O&M contract, Immersa offers a comprehensive, data-driven approach to maintaining your Battery Energy Storage System (BESS). Using the **AlphaESS Cloud** platform, we analyse up to a year of performance data to identify improvements and ensure your system operates at peak efficiency.

O&M Process for BESS Installation

1. Initial Desktop Analysis:

- Using Alpha Cloud, we perform a review of your system's past 6–12 months of performance and operational reports.
- This analysis helps us pinpoint areas that may require attention, ensuring we offer proactive and targeted maintenance.

2. Scheduling of Preventive Maintenance:

- Based on the analysis, Immersa will schedule an initial maintenance visit tailored to your system's needs.
- If no immediate maintenance is required, visits are planned in accordance with your requirements.

3. Preventive Maintenance Activities:

During scheduled visits, our team will carry out a series of tasks, which may include but are not limited to:

- Electrical and mechanical visual inspection of the BESS.
- Support structure assessment and nut tightening control, with a 10% check each year on a rotating basis (access required for roof projects).
- Inspection of all connections between the BESS and the end-user distribution board.
- Cell voltage assessment and State of Charge (SOC) calibration.
- A detailed report outlining any issues or requirements identified during the inspection.

4. Monthly Alpha Cloud Reviews:

- Immersa will conduct monthly reviews of your BESS through Alpha Cloud, monitoring system performance and operational status, and providing you with updates.

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BESS Installation O&M Packages



Gold Package

- **Quarterly visits** for comprehensive system inspection, performance monitoring, and reporting.
- Real-time **performance monitoring** through AlphaESS Cloud.
- Includes preventive maintenance and State of Charge (SOC) calibration.



Silver Package

- **6 monthly visits** for standard system checks and preventive maintenance.
- Performance updates provided through Alpha Cloud.



Bronze Package

- **Yearly visits** for basic maintenance, including system checks and visual inspections.

Your O&M Package

Solar Installation & Partners: **Operations and Maintenance Package**

Upon execution of the O&M contract, Immersa initiates a thorough desktop data analysis through your online meter portal. This analysis reviews the last year's generation performance and self-consumption data, allowing us to assess your system's performance against expected forecasts.

O&M Process for Solar Installation

1. Initial Desktop Analysis:

- We analyse your system's generation and self-consumption data from the past year to gauge performance.
- This analysis enables us to identify areas for improvement and establish a tailored preventive maintenance schedule.

2. Scheduling of Preventive Maintenance:

- Following the desktop analysis, we will schedule a site visit to execute necessary maintenance activities.
- Our findings from both the analysis and initial site checks will be compiled into a comprehensive report, which will be communicated to you via email.

3. Preventive Maintenance Activities:

During scheduled visits, our team will carry out a series of tasks, which may include but are not limited to:

- Electrical and mechanical visual inspection of the Solar PV system (and BESS if applicable), including all connections to the system and your distribution board.
- Support structure assessment and nut tightening control, with a 10% check each year on a rotating basis (access required for roof projects).
- General cleanliness assessment of solar panels (panel cleaning is optional).
- Ground condition reporting, including vegetation height that may affect system performance.
- Interface with manufacturers for warranty issues, including processing relevant documents and exchanges.
- Production of a performance and incident report.

O&M Services

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Gold Package

- **Quarterly visits** for comprehensive system checks and maintenance.
- Includes panel cleaning as part of the service (optional based on agreement).
- Detailed performance and incident reporting.



Silver Package

- **6-monthly visits** for standard system checks and preventive maintenance.
- Regular performance reporting and recommendations provided via email.



Bronze Package

- **Yearly visits** for basic maintenance and visual inspections.
- Performance updates provided, with optional panel cleaning upon request.

Operation and Maintenance Full Breakdown

Electrical Maintenance Checks

	Bronze	Silver	Gold	Notes
Full ECR Report	x	x	x	
Monthly Alpha Cloud Reviews	x	x	x	
Main Switching Distribution Board - Lockable	x	x	x	
Main Distribution Board - Termination Temperature Check	x	x	x	
MCB/Cable Size Verification (Initial Visit)	x	x	x	
MCB Terminal Torque Testing	x	x	x	
ZE & PFC Earth Testing	x	x	x	
RCD Manual Testing	x	x	x	
RCD Testing	x	x	x	
Earth Testing of Array Frame	x	x	x	
Earth Electrode Resistance Testing	x	x	x	
DC Cable Wiring Inspection	x	x	x	
String Testing	x	x	x	
Grounding System Continuity Testing	x	x	x	
General Status Inspection for Cabling & Rodent Damage	x	x	x	

Reporting and Monitoring

	Bronze	Silver	Gold	Notes
Performance & Incident Reporting		x	x	Optional
General Visual Inspection of Complete Plant		x	x	
Pyranometer Cleaning & Maintenance			x	Optional
Meter Reading & Monitoring	x	x	x	
Owner/Owner Representative Access to Monitoring Platform			x	Optional
Warranty & Repair Monitoring			x	Optional
Interface with Manufacturer for Warranty Issues			x	Optional

Operation and Maintenance Full Breakdown

Operational Maintenance Service

	Bronze	Silver	Gold	Notes
Cleaning of All Draw-Out Components			x	Optional
Verification of Correct Connections	x	x	x	
IP Rating Integrity Check	x	x	x	
Label Presence Verification	x	x	x	
Fire Barrier Integrity Check			x	Optional
Ventilation Blockage Inspection		x	x	Optional
Corrosion Inspection on Array Frame			x	Optional
Security Inspection of Array Mounting			x	Optional
Emergency Shutdown Display Verification		x	x	Optional
PV/Battery Schematic Visibility Verification		x	x	Optional
Foundation Stability Inspection (Ground Mount)		x	x	Optional
Internal Room Condition Inspection (Damp, Humidity, Temperature)		x	x	Optional
Emergency Device Control Inspection		x	x	Optional
Panel Condition & Cleanliness Inspection (Ground Level)			x	

Operation and Maintenance Full Breakdown

Preventative Maintenance

	Bronze	Silver	Gold	Notes
Indicator, Meter, and Instrument Function Testing	x	x	x	
Noise, Vibration, and Odor Inspection		x	x	Optional
Discoloration, Corrosion, and Insulation Integrity Inspection		x	x	Optional
Resistor & Overheating Device Inspection			x	Optional
Cleaning & Greasing of HV Switches and Disconnectors		x	x	Optional
Cleaning of Switchgear Stationary Components			x	Optional
Low Voltage Switchgear Maintenance			x	Optional
Inverter Inspection	x	x	x	Optional
Protection Device Operation Testing		x	x	Optional
Filter Replacement, Pressure Gauge Check, MOVs & Fan Inspection			x	Optional
Plant Restart Sequence Testing (Winter or Low-Impact Periods)	x	x	x	
Low Voltage Panel Visual Inspection			x	Optional
Main Cable Connection Tightness Inspection	x	x	x	

Photovoltaic System Checks


	Bronze	Silver	Gold	Notes
Overall PV Module Condition Inspection (Glass, Frame - Visual from Ground)			x	Optional
PV Module Cleaning			x	Optional
Support Structure Status & Nut Tightening Inspection (Spot Check)			x	Optional
Support Structure Corrosion & Erosion Inspection	x	x	x	

Operation and Maintenance Full Breakdown

Battery System Maintenance


	Bronze	Silver	Gold	Notes
Battery Container Condition Inspection	x	x	x	
Lighting Power Supply Inspection	x	x	x	
Emergency Light Testing	x	x	x	
Rust Inspection	x	x	x	
Module Terminal Connection Testing	x	x	x	
MCB Functionality Testing	x	x	x	
Alarm Status Inspection	x	x	x	
Cable Condition Inspection (Burning/Overheating)	x	x	x	
Fixing Bolt Tightness Inspection	x	x	x	
Bracket Fixing Inspection	x	x	x	
Battery Module Cleaning		x	x	Optional
Copper Bar Condition Inspection Inside PCS		x	x	Optional
Protection Insulation Presence Inspection		x	x	Optional
Air Conditioning System Inspection			x	Optional
Full Discharge-Charge Cycle Testing		x	x	Optional
PCS Visual Inspection	x	x	x	
Cooling Fan Inspection		x	x	Optional
Emergency Stop Function Testing		x	x	Optional
Emergency Stop Function Testing		x	x	Optional
Emergency Stop Function Testing		x	x	Optional



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