

## SOLAR TECHNICAL SERVICES

### IMPROVE PERFORMANCE, INCREASE REVENUE

We provide competitive technical services to enhance the long term performance of your solar farm. RES are an independent service provider, with well-established links to the major equipment manufacturers, so we can develop the best technical solution to any problem.

Our highly skilled engineers and technical specialists provide competitive maintenance services to maximise warranties, lower costs and minimise lost production now, whilst exploring ways to improve future production.

We provide costed options to reduce costs, improve performance and revenue.

### SOLAR TECHNICAL SERVICES WE CAN PROVIDE:

- » Thermographic image site health check
- » Solar module Degradation Protection Devices (DPD)
- » Comprehensive Functional Acceptance Testing (FAT)
- » Technical due diligence
- » Plant performance test
- » Module performance test
- » Recommendations for distressed plant
- » Plant refurbishments, upgrades and corrective solutions

See overleaf for more details.

### CASE STUDY - THERMOGRAPHIC INSPECTION

Aerial thermal imaging analysis was a cost effective and efficient way of analysing a large 20 MWp solar farm in East Anglia.

Over 2000 panels - almost 3% were identified with various faults - invisible to the naked eye. These were replaced under the manufacturer's warranty to ensure there was no loss of generating capacity and associated revenue.

Expertise to provide you with the best technical solutions.



Inspecting micro crack evidence



On-site panel performance testing



Thermal expansion joints inserted



Thermographic imaging using a drone

## SOLAR TECHNICAL SERVICES

### Thermographic image site health check

Whole park health checks for module hot spots and cracks, bypass diode malfunction and junction box overheat.

## BENEFITS

Provides a thermal image to quickly identify area of low performance.

### Solar module Degradation Protection Devices (DPD)

Supply, installation and commissioning of Potential Induced Degradation (PID) protection devices.

Prevents occurrence of PID and reduces further power loss in solar modules.

### Comprehensive Functional Acceptance Testing (FAT)

RES undertake the FAT test for the EPC contractor or provides witness verification for 3<sup>rd</sup> parties or EPC.

Provides a true and accurate FAT test and delivers evidence to support any performance bond claims and allows future budget setting.

### Technical due diligence

A detailed study of site compliance, defects and asset risks pre or post acquisition to provide an impartial status report of the site.

Enables informed decisions for acquisition, investment strategy and budgets based on a true understanding of the site to avoid unexpected costs.

### Plant performance test

Study of plant to identify performance status and determine performance issues.

Provides evidence for future warranty and performance bond claims (such as 5, 10 and 24 yr) and knowledge of issues on plant performance to aid investment decisions and budget setting.

### Module performance test

Onsite detailed module performance degradation testing. Avoids transportation damage.

Provides data to support module degradation claims and to help determine impact on predicted plant performance and return on investment.

### Recommendations for distressed plant

Detailed study of the known performance deterioration with recommended solutions.

Provides costed recommendations and solutions with business case.

### Plant refurbishments, upgrades and corrective solutions

Using our experience we establish the best refurbishment or upgrade options and manage the safe delivery of the work.

Experienced engineers rectify plant compliance or performance issues.

## ABOUT US

RES (Renewable Energy Systems) has developed and/or built over 13 GW of renewable energy capacity worldwide and support an operational portfolio of assets exceeding 3 GW. RES is active in a range of energy technologies including onshore & offshore wind, solar, energy storage and transmission & distribution.



### CALL US FOR INFORMATION ON OUR TECHNICAL SERVICES

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