

SOLAR PHOTOVOLTAICS (PV)

SOLAR PV **ASSET MANAGEMENT**

Maximise quality, safety and sustainability while
minimising risks and costs



Exponential worldwide growth highlights how photovoltaics (PV) has evolved into a mainstream electricity source

Solar photovoltaics (PV) is the fastest growing electricity source in the world today. Exponential worldwide growth highlights how PV has evolved into a mainstream electricity source. Given the fast-growing solar energy market, and the world's ever-increasing focus on sustainability, stakeholders around the world are investing in and developing solar PV systems at an incredible pace.

Resilient and traceable supply chains, asset reliability, operational efficiency, product quality, personnel safety, data maintenance and security, and escalating costs are just some of the challenges facing solar energy market stakeholders as they strive to meet global sustainable energy demands.

Intertek's purpose is bringing quality, safety and sustainability to life. Our broad portfolio of innovative solutions and trusted specialist services, delivered by our global network of industry-leading experts, provides the Total Quality Assurance the solar energy industry needs to overcome challenges and meet global energy demands.

Throughout the entire lifecycle of your Solar PV project, we're here for you.

Design

Successful completion of the design phase is critical for all the project phases and activities that follow. It is the design phase that establishes the project features, structure, criteria, major deliverables and much more. PV systems can be complex and require an extensive amount of site-specific information to be gathered early in the design process.

This phase, if not carefully considered and executed, could have lasting negative effects on the project from start to finish. Intertek's expert team helps you navigate design demands and requirements with a pro-active view of your safe and successful project completion.

- Feasibility studies
- Design verification and review
- Technology assessment
- Yield calculations and site assessment
- Design consultancy
- Engineering plan testing and test plan development

Permitting

The permitting process can be very complex as rules and regulations vary by location, project size and type. Streamlining the process and ensuring accurate and approved permits is an important requirement, that if not correctly accomplished, could cause significant delays (and costs), and in extreme cases could result in project cancellation. From right-of-way permits to environmental permits, we can help you prepare for and secure the permits needed for the safe and successful completion of your project.

- Permitting assistance and support
- Geotechnical studies and engineering
- Investor/lender related services
- Environmental impact assessment
- Technical due diligence
- Code review

Procurement

Quality, resilience, and timeliness in global supply chains are especially important when planning for and executing large-scale projects. One equipment failure or delayed delivery can greatly impact the overall project schedule and create a series of additional issues that further delay project timelines and increase costs.

Whether we are on-site at the supplier location inspecting PV panels, modules, Storage (battery) systems and transformers or analyzing NCR and other data points to help you identify higher impact quality and safety risks in your supply chain, our technical experts around the world are your source for supply chain assurance.

- Traceability (Aware™)
- Vendor inspection
- Product testing and certification
- FAT verification
- Supplier auditing & assessment
- RiskAware data analytics
- Expediting
- Vendor compliance verification
- Electrical safety testing & certification

Construction

Intertek understands that every construction project has unique requirements and must maintain a schedule, minimize safety risks for personnel, and keep costs in-line with budget.

Local knowledge and technical expertise in construction management support, as well as unrivaled experience with integrating safety and quality assurance services that ensure compliance with industry and regulatory standards, are key to helping you safely and successfully complete your construction project.

Some of our key construction-related services include:

- Owner's engineering services
- As-built inventory documentation
- Field inspection verification
- Auditing and systems certification
- Construction material testing & inspection
- Non-destructive testing
- Final construction documentation review
- Commissioning & test-run supervision
- Project planning & pre-construction readiness verification
- On-site QA/QC and HSE
- Project & construction management support
- Data & records traceability & management
- Take-over & end-of warranty inspection

Asset Reliability and Operational Efficiency

Maximizing productivity and minimizing downtime are critical steps to ensuring efficient and safe operations, improved output, and optimal return on investments.

Ongoing operation, maintenance and monitoring (OM&M) of solar PV generating system is critical to achieving performance and realizing the return on investment.

Our expertise and experience helps you mitigate operational risks while providing peace of mind knowing that your assets meet and exceed quality, safety, sustainability, and performance standards.

- Asset management
- Bankability testing
- EL testing / IV curve tracing
- End of warranty inspections
- Occupational health & safety
- Inverter reliability assessment
- Root cause investigations & failure analysis
- Thermographic Inspection
- Integrity program
- Condition monitoring
- Reliability engineering
- Remaining life assessment & life extension
- Materials analysis
- Non-destructive testing
- Document control
- Aware™ asset risk management
- Mechanical testing
- Energy production validation
- Stray current monitoring
- Performance testing & optimization
- Environmental monitoring
- Risk-based inspection
- Drone inspection
- O&M considerations for PV + storage
- PV module and storage degradation rate modeling
- DC array inspection



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