

INVERTER AND PCS SERVICE OVERVIEW



CEA'S Services are Designed to Mitigate Risk



TECHNICAL SERVICES

- Supplier Technical Diligence
- Design Reviews
- Technology Assessments
- Factory Acceptance Testing Verification
- Offloading and Installation Witnessing
- Site Acceptance Test Witnessing
- Commissioning Oversight



QUALITY ASSURANCE

- Supplier Factory Audit
- In-Process Monitoring:
 - Verify BoM
 - Manufacture Surveillance
 - Performance Test Verification
 - Factory Acceptance Test
- Pre-Shipment Inspection:
 - Packaging & Loading Verification

The build quality and field performance of inverters used in renewable energy projects play a vital role in the performance, reliability and O&M costs throughout the life of the project. Whether procuring inverters or fully integrated Power Conditioning Systems (PCS), quality and performance starts at the factory. CEA provides various technical and quality assurance services that minimize risk and will provide investment confidence for your renewable energy project.



PROJECTS

- Over 15 GW of inverter projects completed
- Global capability - services performed in the US, China, Spain & India
- Over 20 years of collective inverter experience in-house

Market: Utility scale
Location: US & Spain (2019)
Type: QA, Technical Services Support
Service: Factory Audit / IPM, PSI, BoM Verification

CEA Value Added: Performed Factory Audit on manufacturing facility, in-process monitoring during production of the inverters, pre-shipment inspection release and Bill of Material verification prior and during manufacturing for U.S. client.



Market: C&I / Utility Scale
Location: US & China (2019)
Type: Quality Assurance
Service: FA, IPM, FAT

CEA Value Added: Provided Factory Audit prior to production followed by In-Process Monitoring and Factory Acceptance Testing. Supported 200 MW's of inverter production for U.S. based client.



Market: Utility scale
Location: US, China & Spain (2019)
Type: Technical Services
Service: Technical Due Diligence

CEA Value Added: Performed technology assessment and benchmarking of fully integrated energy storage product offerings which include the bi-directional inverters and DC systems. Diligence performed to support 2+GW pipeline in the U.S



Market: C&I
Location: US & India (2016)
Type: Quality Assurance
Service: Pre-Shipment Inspection

CEA Value Added: Performed pre-shipment inspection on string inverters in the manufacturing facility. Reviewed BoM and manufacturing system documentation and released inverters for shipment to the U.S.



Clean Energy Associates (CEA), a solar and storage technical advisory firm, provides quality assurance and independent engineering solutions worldwide. We serve financial institutions, project developers, EPCs, IPPs, and power plant owners. From our base in China, CEA's quality control engineers travel worldwide to conduct upstream in-factory technical evaluations, including factory audits, production monitoring and pre-shipment product inspections. Our US-based product management and engineering (IE/OE) teams provide support throughout the project life cycle, from upstream supply chain management and supplier benchmarking, to downstream system design, construction, commissioning, performance assessment, re-power and optimization as well as warranty support. We serve the solar and storage industries through our expertise in PV modules, racking, inverters and energy storage systems. Since 2008, CEA has reduced buyers' risks and improved returns on investments via quality assurance, technical and financial due diligence and engineering services.

As technical advisors, we provide procurement and investment confidence through risk mitigation to key stakeholders in solar and storage projects worldwide.

