

Eaton's renewable energy service solutions Eaton's Electrical Engineering Services & Systems



Solar commissioning supports reliable and efficient solar system operations

PV solar commissioning is essential to the growing solar industry. Commissioning helps to ensure the safety, quality and efficiency of installed PV solar systems.

With the aging of existing solar sites, and the potential sale or transfer of solar assets, Eaton's retro-commissioning provides the proper due diligence to ensure a solar site is operating per design parameters with recommendations for improved efficiency and return on investment.

Renewable energy systems are composed of centralized critical components, including the solar inverter, MV step-up transformer, DC and AC distribution switchgear and monitoring system with additional distributed solar assets of combiner boxes, PV panels, conduit and cabling. It is imperative that these systems are not only installed by an expert in solar installations, but commissioned to ensure that functionality of the system is safe and as reported by the manufacturer.

Eaton has one of the largest footprints of field engineers experienced in the installation and commissioning of PV solutions. Our renewable energy service experts support reliable, safe and efficient operations of your solar application. With a robust global field service organization, Eaton engineers bring extensive skills and experience to solar power system analysis, design, installation and commissioning.

Eaton renewable energy service solutions include service plans covering inspection through maintenance to meet your needs, design review, system performance benchmarks and turn-key installation.

Eaton offers a suite of services to meet differing requirements

- **Silver Plan** provides for inspection and benchmark data of the centralized critical solar power components
- **Gold Plan** builds on the Silver Plan by also performing inspection and collecting benchmark data from decentralized DC combiner boxes

- **Platinum Plan** furthers the Eaton solutions by providing advanced inspection, maintenance and testing processes to the entire field
- **Design review and system performance benchmarks** provide the proper due diligence for startup design and operational verification, system retro-commissioning, sale, transfer or purchase of a solar site, and arc flash studies

EATON

Powering Business Worldwide



Eaton Solar Inverter



Eaton Solar Combiner Boxes

Why Eaton

Eaton has one of the largest field service organizations dedicated to supporting the reliability and uptime needs of renewable energy plants. In addition to the field startup, organizations and commissioning services discussed above, Eaton can also provide complete turn-key installation of solar energy projects.

Eaton's services also include the inspection, certification and/or the complete supply of monitoring systems that will allow for Power Purchase Agreements (PPAs) to proactively monitor their solar power generation assets and ensure the maximum return on the investment. Systems that have been in service can greatly benefit from Eaton retro-commissioning, whereby the site is restored to maximize output, with updated ongoing monitoring.

Solar commissioning services

Description	Silver	Gold	Platinum	Retro
Primary Power Distribution Operating Inspection				
Inverter DC switches / switchgear inspection and thermograph	■	■	■	
Inverter inspection and benchmark data	■	■	■	
Transformer inspection and thermograph	■	■	■	
Inverter AC switchgear inspection and thermograph	■	■	■	
Frequency		Quarterly ①		
DC Power Production Operating Inspection				
DC solar panels installation inspection		■	■	
DC solar panel string inspection		■	■	
DC combiner box inspection and measurements		■	■	
DC conduit pipe and wire, junction box inspection		■	■	
Solar monitoring system inspection and benchmark data		■	■	
Frequency		Semi-annual ①		
Primary Power and DC Power Production Operating Advanced				
Inverter DC switches / switchgear testing (megger/ductor/torque)			■	
Inverter testing (fuses / integrated disconnect switches / polarity)			■	
Transformer testing (megger, TTR, torque, oil sample)			■	
Inverter AC switchgear test (megger/ductor)			■	
DC cable testing (megger) to combiner box			■	
DC combiner box testing (megger/ductor/fuses)			■	
Frequency		Annual		
Design Validation and System Performance Benchmarks / Retro-Commissioning				
Solar energy projected output calculations: projected vs. actual				■
System performance analysis: shading/efficiency				■
Field verification of irradiance, cell temperature, spot-check cell performance				■
DC to AC efficiency calculations				■
Solar monitoring system verification				■
Frequency (optional to provide due diligence as required)		Startup/sale/transfer		
Optional Systems Support				
Electric vehicle charging systems, battery storage inspections				
System design, retro-commissioning and complete turn-key installation				

① Programs will be tailored to site conditions.

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