Solar® Turbines

A Caterpillar Company

PACKAGE SYSTEM UPGRADE

Worldwide Turbomachinery Support

Factory Pre-Commissioning

Solar's Factory Pre-Commissioning is a project execution strategy that minimizes turbomachinery downtime for Controls and Package System Renewal projects. Factory Pre-Commissioning offers a teamwork approach to verify all aspects of complex renewal projects in a controlled factory environment.

Primary Goals	
●	Safety Enhancement
●	Operational Efficiency
●	Optimize Productivity
●	Installation Efficiency

Factory Pre-Commissioning is a team effort between *Solar*® and the customer to validate project deliverables, software performance, and hardware integration, prior to equipment shutdown for installation and commissioning. Modifications can be made in a controlled, stress-free environment, instead of at the project site.

Controls and Package System Renewal projects are inherently complex. Factory Pre-Commissioning minimizes the risk of lost production when the project does not go as planned during installation, commissioning, or final beneficial use. Factory Pre-Commissioning reduces total project cost by minimizing on-site tasks to allow maximum equipment productivity.

Benefits

- Validation of project scope and deliverables
- Hardware integration of all major systems prior to installation on-site to verify all components work together properly
- Test acceptance prior to installation at project site
- Opportunity to meet Solar's installation crew face-to-face
- Hands-on training ensures new equipment familiarity and optimum productivity
- Project-specific material consolidation plan, so that all associated materials are consolidated and transported to the project site in the most appropriate manner for a smoother installation
- Shortened installation and commissioning schedule
- Reduces the hidden cost of unforseen delays

Validation

From startup to shutdown, Solar's Factory Pre-Commissiong validates all aspects of a complete installation—including custom software operational testing, safety-critical checks, and calibration— to help reduce troubleshooting at the project site.

Major Systems to Be Integrated

- Control console
- Backup systems
- Remote consoles
- Vibration system
- Fire and Gas system
- Pre-engineered fuel modules
- Instrumentation

Pre-Assembly of Components

- Assembly of parts into modules
- Reduction in loose-ship packages

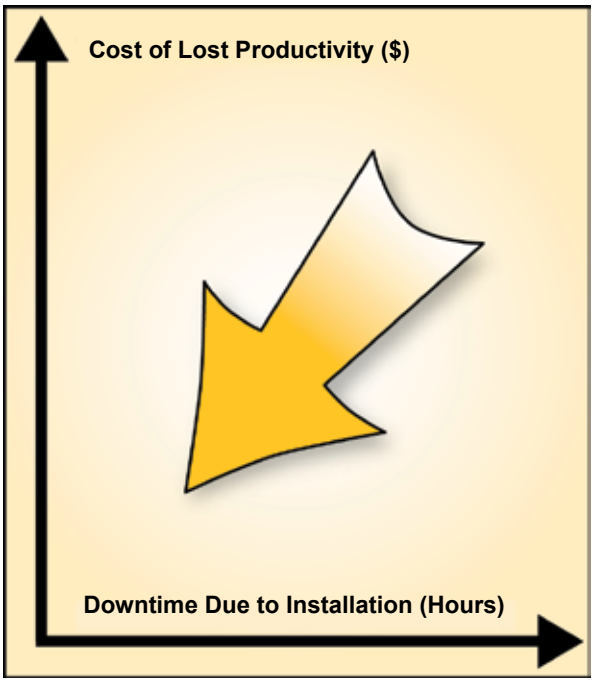
Typical Testing Hierarchy

- Complete and spot check pre-start checklists
- Verify control system connections
- Verify control system operation
- Verify safety systems
- Verify startup sequences
- Complete equipment safety system testing
- Test component level control functionality and integration with software
- Custom feature validation

System Integration Cabinets

Factory Pre-Commissioning Validation is accomplished using two specially designed simulator cabinets. The validation simulators are microproccessor-controlled systems that provide feedback to the control system. One cabinet simulates the turbine engine; the other cabinet is used to simulate the package.

The engine simulator enables the control of engine speed, T5, and other engine parameters.



Factory Pre-Commissioning drives down lost productivity

The package simulator permits discrete and analog input of package devices not under the scope of the upgrade and includes lube, seal, and fuel simulation functionality.

Balance of plant simulation enables validation of compression system valves sequencing, position, and operation.

System Integration

All system modules go through a component integration test. This automated test system is an assembly of electronic and pneumatic components developed to control and test pre-engineered modules.

Additional Information

For more information about Solar's Factory Pre-Commissioning with Controls and Package System Renewal program, contact Solar's Field Office nearest you or go to www.solarturbines.com.