

ON-SITE INFRARED SURVEY

FIELD SERVICE 



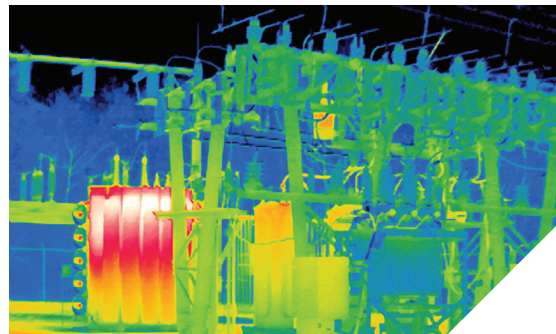
Achieving Sustainable Results with Advanced Energy Services

The mission of our services organization is to deliver consistent value-added service so you can focus on your business. Our highly trained and dedicated Field Service Engineers (FSEs) are ready to partner with you to deliver the right sensing solutions with the best performance and longest-life.

You expect the highest quality from your investments in Advanced Energy technology; therefore, our promise is to:

- Deliver high-value customer care.
- Keep your assets reliable and working.
- Provide you the knowledge and expertise required to solve complex problems quickly.
- Service to prevent unplanned downtime and keep you running safely.

Our on-site Infrared Survey support services have been designed specifically to keep your systems performing with minimal downtime for the long-term.



On-site Infrared Survey of Rectifiers, Transformers, and Master Yard



Advanced Energy can schedule to have an experienced and dedicated Field Service Engineer come out to your site to perform the inspection of rectifiers, transformers, all AC and DC electrical components, and provide a formal report of all findings with recommendations.

Introduction

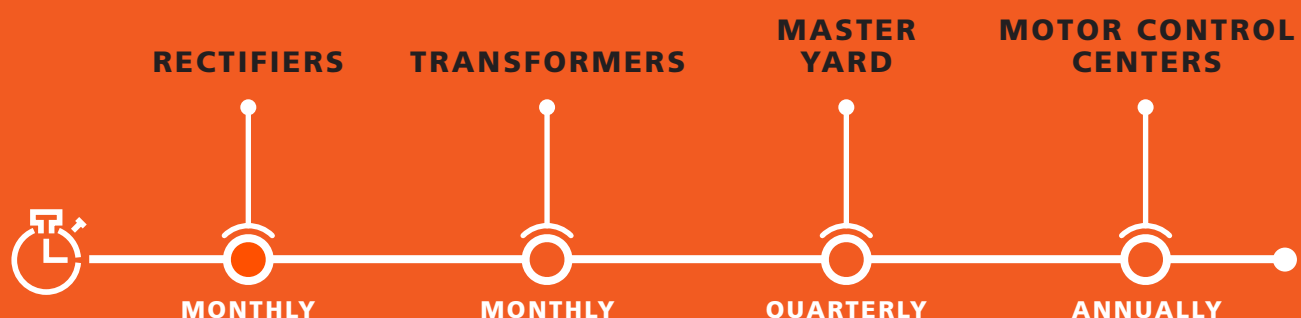
This document provides an overview of Advanced Energy's Infrared survey field service offering for Rectifiers, Transformers, and Substation Master Yards.

Using Infrared cameras, a Field Service Engineer will inspect all components of your site including Motor Control Centers, Master Yard, and Substation for hot spots and electrical defects.

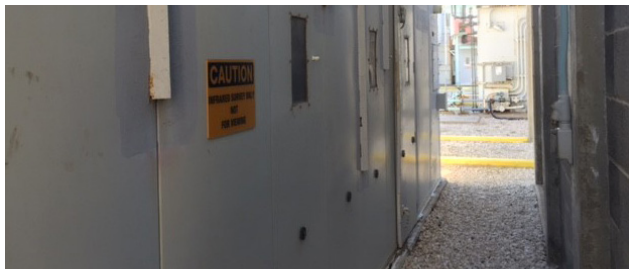
The benefits are early detection of electrical hot spots and prevention of fires or equipment failures due to overheating. Left undetected, these failures could potentially cause plant

down time, along with the expense of unplanned major repairs. Help prevent safety incidents by using our services:

- Infrared Imaging
- On-site Survey
- Custom Report
- Professional Recommendations
- Auxiliary Systems



Product Description

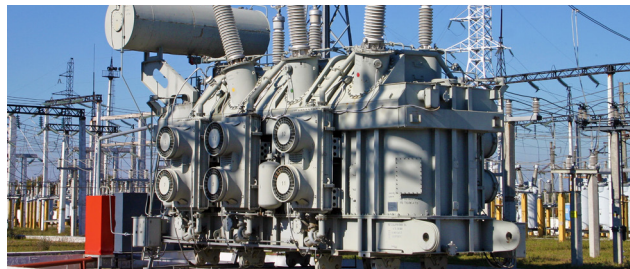


MONTHLY **RECTIFIERS**

The rectifier building contains the “trees” of fuses / diodes. The Fuse/Diode assemblies are viewed with the infrared camera (through infrared window ports) to monitor their temperature.

It's very important to monitor the temperature of these assemblies on a monthly basis to prevent unplanned shut downs of the cell line.

A report is generated that documents all of the fuse/diode assemblies. All assemblies that exceed 90 °C are highlighted on the report.



MONTHLY **TRANSFORMERS**

During the same monthly visit for the rectifiers, we also recommend scanning the DC Disconnects and Secondary Connections associated with the rectifier building and rectifier transformer.

DC Disconnects and Secondary Connections are monitored monthly for hot spots. The cutoff temperature for these areas is 120 °C.

A report is generated that documents all DC Disconnects and Secondary Connections. The ones that exceed 120 °C are highlighted on the report.



QUARTERLY **MASTER YARD**

On a quarterly basis, it is recommended that an infrared survey is performed on the plants main electrical Master Yard or Substation.

A report is generated that documents all hot spots found during this survey. There is no pre-determined cutoff temperature for hot spots in the Master Yard. Anything that is deemed out of the ordinary is documented.



ANNUALLY **MOTOR CONTROL CENTERS**

On an annual basis, it is recommended that an infrared survey is performed on all electrical Motor Control Centers (MCC's) throughout the facility.

A report is generated that documents all hot spots found during this survey. Detection of hot spots on electrical switchgear, motor starters, breakers, etc., can prevent fires or equipment overheating to failure, both of which could potentially cause plant down time.



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ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

AE's power solutions enable customer innovation in complex semiconductor and industrial thin film plasma manufacturing processes, demanding high and low voltage applications, and temperature-critical thermal processes.

With deep applications know-how and responsive service and support across the globe, AE builds collaborative partnerships to meet rapid technological developments, propel growth for its customers and power the future of technology.

PRECISION | POWER | PERFORMANCE

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