The use of IR windows, view ports, and other temperature monitoring avenues are increasingly important as more stringent safety rules prohibit direct opening of electrical enclosures while under load.

IR windows work with some applications; but for switchgear, one often needs an opening to listen ultrasonically for potential arcing or tracking that can lead to electrical flash over. Some manufacturers have designed dual-purpose windows that allow for both IR viewing and UT listening.

Some locations are implementing expensive programs of installing IR windows on all their gear, while others have taken a less costly approach and install view ports or rely on available cooling vents.

An arc flash can exceed the temperature of the sun and cause not only burn damage, but also blast concussion and hearing loss. Few events we witness rival this spontaneous and forceful release of energy.

Companies now obtain data through Arc Flash Hazard Analysis surveys to understand and mitigate arc flash potential and to determine their overall exposure. Collecting and acting on this data is the first step in satisfying both OSHA and NFPA 70E guidelines and providing readily apparent information for those individuals that are exposed to the risk.

As seen below, a line side connection to a bushing is imaged through an IR window at a power generation facility. The mechanical connection was found to be slightly above normal temperature and logged for further review and scheduled for an orderly shutdown and repair.

The win-win scenarios that are played out in facilities on a daily basis using condition-monitoring techniques, is paying off by increased up-time and enhanced safety.

GRC thermographers can assist maintenance and loss control personnel in the correct positioning and application of IR windows and viewports and provide suggestions on when and where to utilize them to best effect.

Personal Protective Equipment (PPE) is still required, even though windows or viewports are installed; and correct labeling is a requirement through both OSHA and NFPA. But IR windows are insinuating themselves into the electrical condition-monitoring environment in a big way.