APPLICATION NOTE

4 Steps to take after power quality data has been collected

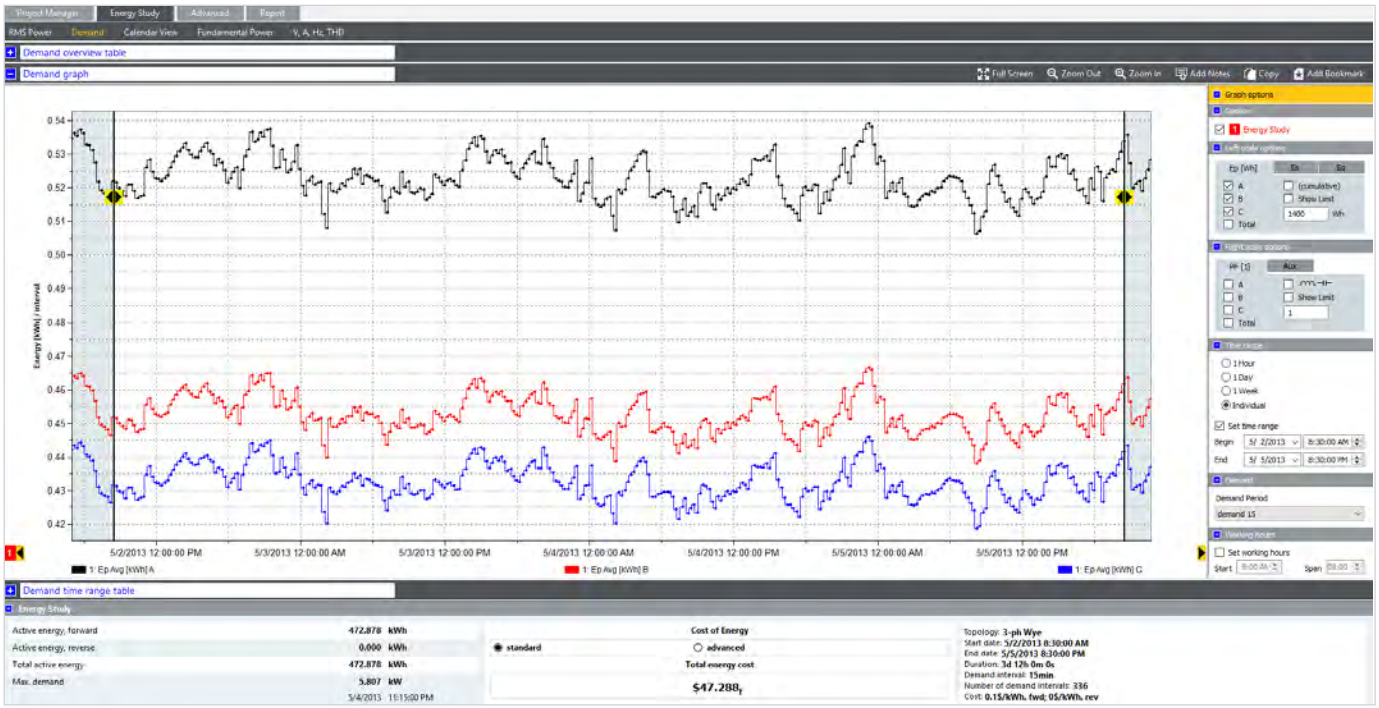
1 Spot checking or interim data review

Whether you are recording data for one week, or one month, it never hurts to check in on the meter and see what has been collected so far. This check-in provides the opportunity to review event data and/or see if any problems have occurred since the start of measurement. It also is a chance to touch base with the equipment operator or key contact to determine whether any issues have occurred or, better yet, that everything has been running fine. If an incident took place, such as a breaker tripping or fuse blowing, compare the occurrence with the data captured up until that time. The comparison typically will result in making a decision on whether or not it is necessary to extend the testing period or whether you already have the data needed.

2 What are some key examples of what to look for?

If an incident log is available from an operator, the first step would be to zero in on the data just before, during and shortly after the incident was reported to happen. Is there any part of the measurement data that changed dramatically at that time? Equipment trips or resets can often be triggered by a significant decrease in the voltage. Depending on the sensitivity of the equipment, this could be as fast as a portion of a waveform or something that lasted many cycles showing up in the RMS trend data.

The MIN and MAX trend lines typically have a response time of a half cycle or single cycle depending on the device. The average is typically a resolution defined by the user. When it comes to nuisance breakers tripping, take a look at the breaker ratings recorded at the start of the study and compare them against the amperage data collected by the instrument. When a large load energizes, it is common to have a large increase of current for a short period of time, typically referred to as inrush current. Often there is a decrease in voltage at the same time referred to as a dip. In addition to voltage and current, it is a good idea to take a look at harmonics. A significant increase in total harmonic distortion (THD) can also cause overheating and tripping.



Energy consumption and cost data as seen in Fluke Energy Analyze Plus Software.

3 Wrapping things up

Disconnect the unit and carefully pack it up. Verify that you have not left any pieces behind such as a voltage clip or small accessory. Make a final visual inspection that test area is clean, secure and ready to be closed up. If applicable, make sure all screws are securely installed on the removable panel. Loose screws or panels can really be a setup for an accident later on. If any tags or lockout/tag-out was used, return everything to its proper place.

4 Reporting

Documenting what you did and your findings is important. Power Quality software makes this easy to accomplish. If your measurement purpose was to baseline or characterize usage, running a generic report of all the data is usually sufficient. If your work was centered on a particular event or issue, make sure the report tells that story well. Also consider your audience. The person making decision based on your recommendations may not know much about power quality. Selecting the data associated with the event rather than dumping the whole database on paper is usually more meaningful. You can also consider the impact of including other sources of data such as pictures or thermal camera images. Be clear and concise about your findings and utilize a report writer (if there is one available) to home in on critical data; when coupled with the complete data set it should be possible to resolve most power quality problems.

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