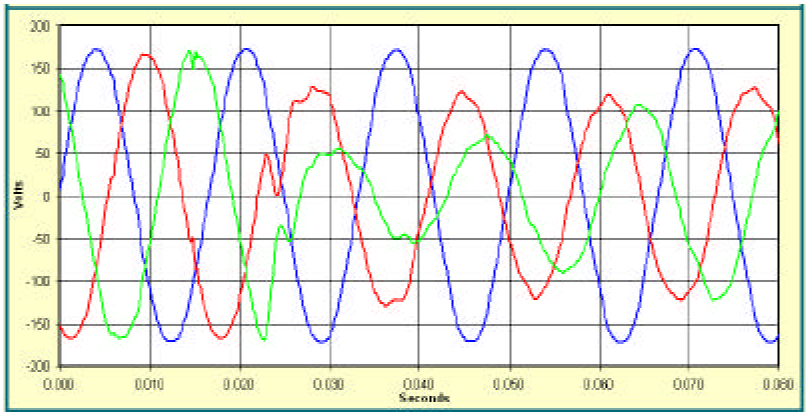


Phase A
Phase B
Phase C

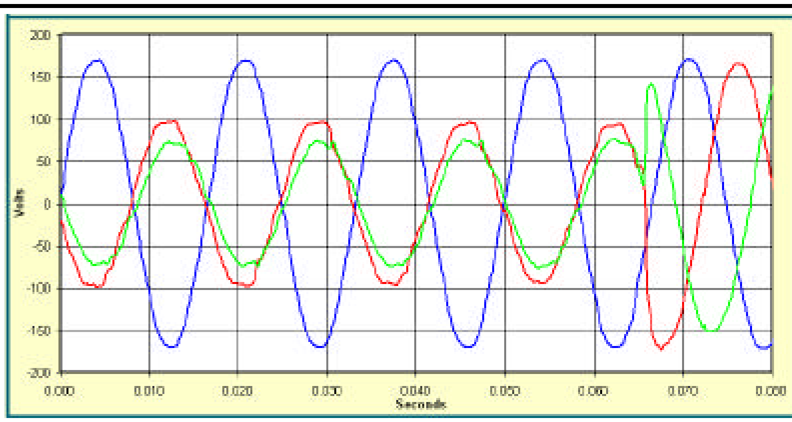
Waveform: Start of Event

Analysis

This looks like a typical voltage sag at first, but there are some interesting differences. The sag affects only two phases; both the voltage amplitude and the voltage phase angle appear to be affected.

There is more going on here than a simple voltage sag!

Event	Date and Time	Type	Severity	Minimum	Maximum	Duration
1	10/16/05 12:35:10	Voltage Sag	Severe	44.6	123.4	90.749



Phase A
Phase B
Phase C

Waveform: End of Event

Analysis

Just before the disturbance event ends, the nature of the event becomes clear. Two phases have dropped to ~50% of nominal, and the phase angle between these phases and the remaining phase has shifted to 180 degrees (vs. 120 degrees normal)

Event	Date and Time	Type	Severity	Minimum	Maximum	Duration
1	10/16/05 12:35:10	Voltage Sag	Severe	44.6	123.4	90.749

Technical Analysis

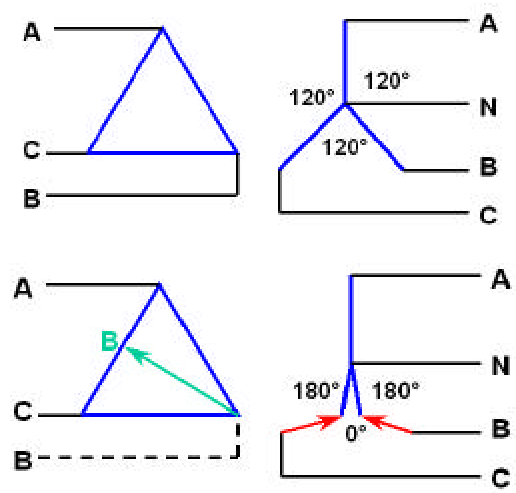
TEALwatch® monitors power on the output (Wye connection) of a PDU / PCDU. Normally, phase-neutral voltages are balanced and the angle between phases is 120 degrees. (Top, at right)

However, when one phase is lost (here, Phase B) and the phase is floating, the transformer primary pulls the floating phase to a potential roughly equidistant between the two other phases. (Green arrow, bottom right)

Output Phase A (here derived from Ph A - Ph C voltage) remains unchanged. Phases B and C drop to about 50% of nominal (related to the floating reference point of Phase B on the primary) and their phase angles approach 180 degrees (Red arrows)

This only happens when Phase B is floating or unreferenced – so this is a local problem: within the facility distribution, most likely not at the utility level.

Look for a loose terminal, faulty breaker / contactor, or other intermittent electrical connection on one of the primary phases.



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