Overcurrent Definitions

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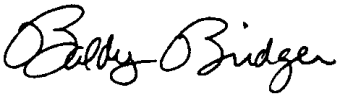
There are several terms that we use to name abnormal current in an electric power system. Although these terms are sometimes used interchangeably, they really aren't interchangeable. Recently, I came across a set of definitions that made a lot of sense to me, so I'm passing them along to you. These are taken from a couple of standards of the International Electrotechnical Commission, IEC 439-1 and IEC 947-1.

- **Overcurrent**: A current exceeding the rated current.
- **Short circuit**: The accidental or intentional connection, by a relatively low resistance or impedance, of two or more points in a circuit which are normal at different voltages.
- **Short circuit current**: An overcurrent resulting from a short circuit due to a fault or an incorrect connection in an electric circuit.
- **Overload**: Operating conditions in an electrically undamaged circuit which cause an overcurrent.
- **Overload current**: An overcurrent occurring in an electrically undamaged circuit.
- **Fault current**: A current resulting from an insulation failure or the bridging of insulation.

Note several relationships among these various currents:

- An overload current is always an overcurrent, but not all overcurrents are overload currents.
- An overload is not a fault.
- A short circuit current is both a fault current and an overcurrent. However, not all fault currents are short circuit currents. Also, not all overcurrents are short circuit currents.
- A fault current is not necessarily an overcurrent. Under some fault conditions, the fault current may be much less than the rated current. A typical example is a ground fault current on a high-resistance grounded system. This current may be only an amp or two, compared to a rated current of up to several thousand amps.



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