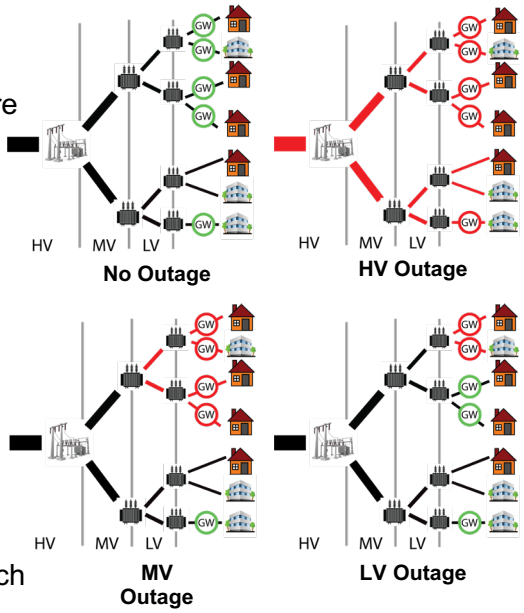
PowerWatch combines pluggable grid sensors, a field-tested deployment methodology, and cloud-based analytics to continuously monitor power quality at each level of the grid, from high-voltage lines to individual customer service connections. While SCADA systems are operational on most electric grids, such systems often under-sample low-voltage, distribution-level outages. In contrast, by plugging into the end consumer's home or business, PowerWatch detects not only the frequency and duration of low-voltage outages, but also grid voltage and frequency, necessary metrics for a comprehensive view of power quality. By operating independent of the utility, nLine can work with our customers to create a sampling strategy for monitoring an investment, performing evaluations of specific geographic areas, or quickly auditing the SAIDI and SAIFI currently being reported to utility SCADA systems.

GridWatch Sensors

- Timestamp outages and restorations with sub-second granularity
- Communicate data in real-time over a cellular connection
- Store data locally and send later in cases of cellular failure
- Continuously monitor and report grid voltage and frequency
- Configure for all household plugs, voltages, and frequencies
- Install quickly and easily on a standard unmodified outlet

Deployment Methodology



- Sensors deployed at outlets in homes and businesses to ensure independence from the utility
- nLine staffs and manages local teams to deploy sensors
- Sensor operations continuously monitored and maintained by nLine field staff
- Participants compensated fairly for participation
- nLine works with customer to determine proper trade-off between coverage, cost, and accuracy
- Sensors can be easily co-deployed with survey instrument

Analytics and Reporting

nLine collects data from the sensors into the Data Access System which extracts the KPIs required by evaluators, formats the data into report-ready graphs and figures, and produces analytics and reporting such as:

- SAIDI and SAIFI over any time period or geographic area
- Real-time outages maps with < 2 minute latency
- specific grid infrastructure or geographic areas with poor power quality
- Average grid voltage and frequency grouped by hour of the day, day of the week, or month of the year
- Comparison against SAIDI and SAIFI reported by a utility or their SCADA system (if SCADA information is provided)
- Data stream integration with utility O&M systems