

PACIF Launches Pilot Program for Internet-Connected Sensors

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Editor's note: This article was originally published in the September-October 2021 issue of VLCT News magazine. It has been posted digitally in 2022 to complement [our 8/15/22 announcement](#) that PACIF members can receive 15% to 30% discounts on different portions of an internet-connected sensor system. Sensors will also be eligible for PACIF Grants in 2023.

Thanks to modern technology, a variety of devices can now communicate regularly via the internet, in both personal and commercial applications. A good example of how municipalities currently rely on such devices is the use of supervisory control and data acquisition (SCADA) systems in water and wastewater plants. In these SCADA systems, internet-connected sensors constantly monitor water flows, metered chemical application, and other processes, allowing these parameters to be monitored and controlled in real time from anywhere!

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As part of PACIF's goal of providing state-of-the-art services to our members, we have partnered with Travelers BoilerRe (our equipment breakdown reinsurer) to conduct a pilot program among PACIF members that will help determine the potential cost-effectiveness, functionality, and risk management value of several types of internet-connected sensors that provide monitoring capability.

Aside from functionality, our primary consideration was that the sensors must not pose a cybersecurity or hacking risk to members. After a thorough evaluation, we have determined that if the sensors are hacked, they cannot be used to alter or interfere with a municipality's networks or data systems and are therefore safe for use. The worst that could happen is that the sensor would malfunction or provide inaccurate readings.

Loss control staff selected members to participate in the pilot program according to the nature of their exposures and the availability of internet connectivity at the chosen facility. In July, wireless sensors were deployed at these members' sites to monitor the following conditions:

- high temperature and vibration (for electric motor and hydro turbine function),
- temperature (to detect cold or freezing temperatures in heated areas),
- passive infrared and magnetic contact (to detect motion and door entries for building security), and
- the presence of water (to detect water leaks).

Each sensor tested in the pilot program provides real-time information on the condition it is designed for and will generate an alert if the sensor detects any abnormal condition. An online dashboard is the interface for controlling the sensors.

Using internet-connected sensors to monitor facilities and equipment for abnormal conditions has real potential to prevent loss. For example, getting an early alert of a cold building (suggesting that the heat system is not functioning) will allow municipal staff to take prompt action that can prevent frozen or broken pipes and water damage. Similarly, vibration sensors can identify early changes in motor or equipment operating characteristics that can indicate the need for maintenance or inspection. This could prevent total failure of the motor or equipment, saving downtime and expense.

Through this year-long pilot program, we hope to gain an understanding of the sensors' costs, ease of installation, overall effectiveness, and value in protecting members' property and equipment. If this technology proves to be a worthwhile loss prevention tool, PACIF will likely offer it to all members and potentially provide financial incentives or support.