Transformer replacement to lessen Liberty outages

Tyson Hurd and Josh Kleinschmidt hook up a transformer in the Tahoe Keys on Nov. 21. Photo/Kathryn Reed

By Kathryn Reed

Power outages are never fun. And when the problem isn't obvious, it's worse for everyone – including the crews tasked with solving the issue.

Last weekend a swath of the Tahoe Keys was without power. A transformer had gone out in this South Lake Tahoe neighborhood. It needed it replacing.

The problem is when the Keys was built in the late 1960s all of the transformers were submersible. In other words, they are underground and likely sitting in water because of the high

water table. Even when some were replaced in the 1980s, back underground they went.

Aesthetically, putting electrical transformers underground made sense. Practically, though, the logic was missing.

“The submersibles are mapped, but they’re hard to find,” Nick Rains, a patrolman with Liberty Utilities, told *Lake Tahoe News*. “A backhoe is brought in and it’s a bit of a guessing game.”

In winter it is even more problematic with snow and the ground being frozen.

Crews maneuver the green transformer box into place. Photo/Kathryn Reed

Rains was out with a crew this week on Venice Drive replacing the transformer that died three days earlier. To do so required getting permission from the homeowner to place a green box in their front yard. Most people don’t want it there, so it can take some negotiating.

Liberty has a program to replace all the submersible

transformers. But when one goes out, like last Saturday, then it rises to the top of the list. The new ones have a life expectancy of about 30 years.

When Liberty bought the territory from NV Energy in 2011 there were more than 130 of these submersible transformers, with most being in the Keys. Since then about 80 percent have been replaced.

“Liberty has made the change-out program a priority; investing about $100,000 per year with a goal to change out an average of 10 per year,” Jeff Matthews, manager of engineering and planning for Liberty Utilities, told *Lake Tahoe News*. “Liberty wasn’t able to change out as many submersible transformers this year because of the high water table due to the extreme snow earlier this year.”

Doing any repair work can be a nightmare on the submersibles. The above ground ones make it so outages don’t last as long because the work can be done faster. The technology also allows for outages to not be as widespread by rerouting customers.

Another concern of the submersibles is what they are doing to the environment.

“A potential toxin of concern for electric transformers contaminating groundwater is polychlorinated biphenyls (PCBs), which were formerly used in transformer oil. (South Tahoe Public Utility District) tests all of our wells regularly for PCBs and has never found PCBs in our drinking water,” Shelly Thomsen with STPUD told *LTN.* “By moving electrical equipment above ground, Liberty Utilities is moving in the right direction to greatly minimize any issues relating to groundwater in the future.”

Utility companies are mandated to test the water in these vaults when pumping is required to access the components.

“Not all older transformers had PCBs in the internal fluids. I am not concerned about the individual older transformers units that may have had PCBs because the hydrostatic pressure from being submersed in water helps keep the contents inside and individual units usually have very little internal fluids. Also, PCBs have a high affinity for adhering to soil particles, which makes the PCBs less likely to leach into groundwater,” Doug Smith, assistant executive officer with Lahontan Regional Water Quality Control Board, told *Lake Tahoe News.*

According to Matthews, Liberty has not had any issues with its transformers in regards to contaminants.