



MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Brown, Mital, Helgeson, Manning and Simpson
CC: Mel Damewood, Roger Kline, Steve Newcomb
FROM: Frank Lawson, Mike McCann, Bo Mackey, Jared Rubin
DATE: July 14, 2014
SUBJECT: New Carmen-Smith Transformers Update
OBJECTIVE: Information Only

Issue

Management is moving forward with the production and delivery of two (2) transformers for the Carmen Smith Hydro-Electric Project. This is necessary due to the age of the existing transformers (>50 years) and current state of the transformers.

Background

In July 2012, the Board approved a contract with CG Power Systems (CG) for the purchase of two (2) transformers for the Carmen-Smith Hydro-Electric Project in anticipation of receiving the FERC License. The contract allowed EWEB to stage the procurement to match the anticipated license schedule. In early 2013, following CG's submittal of the equipment design, EWEB chose to place a "hold" on the construction of the transformers pending approval of the license.

Release for Manufacture & Delivery

At this time, based on the perpetual delay in the FERC licensing process and deteriorating conditional assessments of at least one of the Carmen-Smith transformers, EWEB staff is recommending the release and delivery of the transformers for installation on the Carmen-Smith powerhouse deck in the next 1-2 years. Depending on the delivery schedule, EWEB can commission the units in coordination with other powerhouse work at the site. Mitigating the risks associated with placement on the powerhouse deck include the use of a natural ester fluid in the new transformers. In the recent past, an alternative that was considered to mitigate the risk of an oil release, was to relocate the transformers off of the powerhouse deck to a site nearby. This alternative would take years to implement due to the necessity of federal environmental and permitting work and would cost at least several million dollars more than the recommended approach. Staff believes that the recommended approach achieves the necessary mitigation of environmental risk while allowing EWEB to move forward on a more timely and cost-effective basis. Staff believes that the alternative or waiting several years to move the transformers creates unnecessary operational risk (transformer failure) and financial risk (replacement power costs) while doing little to mitigate environmental risk compared to the recommended approach of using soybean oil.

The recommended approach will allow EWEB to move forward with transformer replacement without adverse impact to the current license schedule which remains in a state of perpetual delay. In-other-words, transformer replacement can place “de-coupled” from relicensing.

Soybean Oil

Another recommendation is to use a “natural ester” fluid made from soybean oil in the new transformers (e.g. FR3™ Envirotemp™ from Cargill). The fluid has several advantages including the following:

1. Twice the flash point as mineral oil lowers fire risk and allows for tighter equipment spacing. These factors offer distinct advantages for the deck of the Carmen-Smith generating site.
2. The non-toxic and biodegradable qualities of the fluid reduce the potential impact of spills. The fluid is carbon neutral, and contains no petroleum, halogens, silicones, or sulfurs.
3. High saturation point and temperature capability allows increased overload potential and extends the life of equipment.

The EPA has designated the fluid to be ultimately biodegradable, and has published an environmental technology report in 2002. EWEB is presently evaluating the use of this fluid in other new transformers and in some refill applications.

Action Required

No action is required of the Board, this is for information only. If you have any questions please contact Frank Lawson, 541-685-7621 or email at frank.lawson@eweb.org