

THERMAL ENERGY STORAGE



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STORAGE (T.E.S.) YARD**

The Thermal Energy Storage (“TES”) system was proposed by Redding Electric Utility (“REU”), which also provided funding for its construction.

To understand why TES is something REU likes, you need to know a little more about Redding’s electricity. Redding gets its electricity from a generator located on Clear Creek Road. The generator can only make a certain amount of electricity. On hot summer days at about 5:00 in the evening, when air conditioners at businesses are still running and people are returning home and turning on their own air conditioners, the generator sees the most demand. As more people move to Redding, demand for electricity will eventually be greater than REU’s ability to make it. Adding more generating capacity is expensive.

One way to put off doing this work is to “move” demand. The TES system makes ice in four tanks at night, when electricity demand is low and lower outside temperatures make cooling more efficient. During the day instead of running its chilling equipment full blast, the Library will use the ice to cool itself.

This system requires a chiller (the machine that looks like a Lego in the upper right of the picture) and an extra set of pumps that circulates cold fluid to the air distribution machinery on the roof.

Four giant slushy tanks on the north side of the building help the library maintain its cool temperatures during the peak summer hours by using ice to keep the systems cooler. The Thermal Energy Storage system makes ice in its tanks at night, when electricity demand is low and cooler nighttime temperatures make cooling more efficient. During the day, the library uses the ice to cool the building. These tanks can reduce the drain on the city’s electric utility system by as much as half the normal usage during the summer. The system is explained in the display in the Children’s Library.