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California heat wave causing sweat over demand for power

Although the nuclear plant at San Onofre is offline, officials are finding ways to keep electricity flowing — for now.

California's power grid was getting through its first major test of the summer amid a record-setting heat wave. But the continuing uncertainty over when the troubled San Onofre nuclear power plant will reopen has officials concerned about the coming months.

Officials had scrambled to put a system in place to provide energy during peak summer months without San Onofre, which typically supplies about 20% of the power for large swaths of Southern California. The plant has been offline for more than six months because of problems with newly replaced steam generators.

On Friday, they said the contingency plans had worked but they admitted to being anxious about future heat waves.

"This is just the first significant heat wave," said Stephanie McCorkle, spokeswoman for the California Independent System Operator, which manages most of the state's energy grid. "If we have successive heat waves, you're going to have equipment fatigue."

The triple-digit temperatures were expected to keep the region broiling through Sunday, though power officials said they are less concerned about the weekend because demand for electricity will be lower.

The contingency planning has been complicated by the fact that no one is

sure when San Onofre will come back online. Initially, operator Southern California Edison had hoped to have the plant working again by the beginning of summer. But it now appears that the earliest the plant could partially reopen is the end of the year.

Ted Craver, chief executive of Edison's parent company, Edison International, told investors recently it's not clear whether the plant will ever be able to operate at full power without once again replacing the steam generators that malfunctioned.

Edison has spent about \$165 million on inspections, repairs and replacement power, but Craver says the company has no estimate of the final costs.

The plant has been shut down since Jan. 31, when one of the plant's steam generator tubes began leaking, releasing a small amount of radioactive steam into the atmosphere.

In total, about 8.7% of the plant's nearly 39,000 steam generator tubes have shown wear, and 1,317 have been plugged to take them out of service, either because of excessive wear or as a precaution. In particular, some of the tubes were showing a highly unusual type of wear caused by rubbing against adjacent tubes.

Craver said reactor Unit 2, where problems appear to be less severe, might be able to come back online at some point at reduced power, but "it is not clear at this time if Unit 3 will be able to restart without extensive additional repairs."

Edison spokeswoman Jennifer Manfre said the company expects to submit a restart plan for Unit 2 to the U.S. Nuclear Regulatory Commission by the end of the year. No date has been set for Unit 3.

An NRC investigation blamed faulty computer modeling by manufacturer Mitsubishi Heavy Industries for inaccurately predicting conditions in the replacement steam generators, leading to excessive vibration of the tubes, and said manufacturing differences exacerbated the issues in reactor Unit 3.

If the plant remains offline until November, the California Public Utilities Commission will be required by state law to launch an investigation that could result in the plant's operating costs being removed from customers' rates, because it is not producing any power.

The commission will also probably review the costs of the faulty replacement generators, which the plant's owners were to recover from ratepayers, PUC energy division director Edward Randolph said.

To date, about \$258 million of the total \$671 million estimated cost of the flawed generators has been included in Edison's rates and \$50 million in rates for San Diego Gas & Electric, also served by San Onofre.

Before the plant's unexpected outage, no one had planned for a scenario in which both units would be out of service for an extended period, an oversight that critics have seized upon since the outage began.

Now, increasingly, some officials are saying California needs to figure out how to get along without San Onofre.

"We're getting through this summer," said California Energy Commission Chairman Robert B. Weisenmiller. "Some of the things we've used to get through this summer, we will not have available in the future.... We're generally trying to reduce the level of reliance in Southern California on that plant."

When operating, San Onofre produces 2,200 megawatts of power and provides voltage support to allow for importation of power from elsewhere.

A pair of mothballed generating units at a gas plant in Huntington Beach were brought back online for this summer – a temporary solution because the units' air emission credits will transfer to another plant in the fall.

A new transmission line was completed in June, allowing for the importation of as much as 800 additional megawatts into the San Diego area, and another line was upgraded.

Utilities, including San Onofre owners Southern California Edison and San Diego Gas & Electric, have called on customers to reduce their energy use and offered incentives for conservation.

On Wednesday night, with triple-digit heat roasting much of Southern California, an electrical fire took a generating unit offline at Ormond Beach Generating Station, a gas-fired plant in Ventura County, removing an additional 775 megawatts of energy from the grid.

The outage and heat wave prompted the state's grid operator, the California Independent System Operator, to issue a rarely used call for conservation known as a Flex Alert, asking customers statewide to scale back energy use.

McCorkle said it appeared that the public heeded the call. Statewide peak demand for Thursday had been projected at as high as 47,125 megawatts, but actual peak use was 45,325. McCorkle attributed the difference in part to about 900 megawatts in conservation.

The alert, initially issued for Friday through Sunday, was later lifted for the weekend, but officials still asked consumers to conserve if possible.