NUCLEAR CRISIS
JAPAN & THE FUTURE OF ENERGY POLICY

3. STATES: Calif. plant has shaky relationship with seismic surroundings *(ClimateWire, 03/16/2011)*

Debra Kahn, E&E reporter

In the wake of radioactive releases from Japan's Fukushima Daiichi nuclear plant, critics are saying a California nuclear plant's susceptibility to earthquakes and tsunamis could affect its chances of renewing its operating license.

While the federal licenses for Pacific Gas & Electric's Diablo Canyon plant, near San Luis Obispo, and Southern California Edison's San Onofre plant are valid for at least another decade, both utilities have begun the renewal process ahead of time. The Nuclear Regulatory Commission has never denied a relicensing application. But especially in PG&E's case, opponents had been citing seismic and tsunami-related concerns even before last week's 9.0-magnitude earthquake off the coast of northern Japan.

The Diablo Canyon plant, on the coast halfway between Los Angeles and San Francisco, is 85 feet above sea level. But its intake pipes, which draw seawater to cool the steam after it powers electrical turbines, are at sea level, and are susceptible to blockages. In 2008, PG&E had to ramp down power production at the plant when a swarm of jellyfish blocked the intake pipes.

PG&E spokesman Kory Raftery said if a tsunami hit, plant operators would be able to reduce power almost instantaneously in order to use less water. "With jellyfish or kelp, that's quite different than what you would see in tsunami conditions," he said. "Anytime there's a high swell event, operating experience tells us it's good to ramp down to make sure the intake and traveling screens are clean so they don't get blocked up." A concrete structure 45 feet high also protects the pumps' air supply, he said.

As well, Diablo Canyon's on-site desalination plant, which provides fresh water to cool the reactors themselves, has two reserve pools of 2.5 million gallons each, which are above the reactors and could be tapped if the plant goes down.

David Weisman, outreach coordinator for the San Luis Obispo-based Alliance for Nuclear Responsibility, said the pipes wouldn't be able to withstand a major tsunami and its attendant debris. "What happens if a container ship offshore gets caught in the tsunami?" he asked. "There's no saying a whale couldn't be pushed up against it."

New seismic fault and reversed blueprint

The 2008 discovery of a new seismic fault, running directly under Diablo Canyon, has had state lawmakers and agencies calling for more studies before the NRC issues new licenses to PG&E. Ten state senators wrote to the Energy Department last year about the Shoreline Fault, which they said could also intersect with the existing Hosgri Fault, exacerbating the risk of radioactive leaks.

"We need independent, third-party studies to determine the true risk presented by these large, dangerous faults in such close proximity to California's aging reactors," state Sen. Sam Blakeslee (R) said yesterday in a statement.

Blakeslee, a former Exxon research scientist from San Luis Obispo with a Ph.D. in earthquake studies, authored a **bill** in 2006 requiring the state to assess the vulnerability of the state's nuclear plants to a major disruption, either from an earthquake or plant aging. The California Energy Commission, in turn, produced a **report** in 2008 directing both utilities to update their seismic studies using more advanced techniques than had been available before. Neither has yet done so.

But the state's only power to influence the federal relicensing process lies in its ability to protect customers from high electricity rates. PG&E's request last year to pass on about $85 million of seismic studies and other relicensing costs to ratepayers could provide an outlet for the California Public Utilities Commission to withdraw the plant's certificate of public convenience and necessity.

Steven Weissman, a former administrative law judge at the CPUC and current law professor at the University of California, Berkeley, said extending the license would likely open ratepayers up to footing even more than the $5.5 billion bill for the plant thus far.

PG&E built the two-unit, 2,200-megawatt Diablo Canyon plant in 1967 for about $350 million. By 1973, however, oil company scientists had turned up evidence of a large offshore fault 2.8 miles west of the plant, requiring PG&E to spend $2.2 billion on re-engineering to withstand a 7.5-magnitude quake. Then, in 1981, PG&E discovered it had built the seismic supports according to a reversed blueprint, necessitating another $2.2 billion in repairs.

"Clearly the NRC has jurisdiction over safety issues, but where the CPUC comes in is if there are safety issues, it's likely that PG&E will have to spend a lot of additional money to resolve the problems," Weissman said. "If they're going to extend it another 30 years, a lot of parts have worn out; the technology's changed; there's just a need to redo things. The commission arguably should have an ability to say something about it now."

"We're really just kind of looking at those events as anybody else," Raftery said of the situation in Japan. "We're going to continue, obviously, to study that and learn lessons, but it's too early to figure out what's going on in Japan."