



Overseer's Undercurrent Midsummer Course Corrections

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With little fanfare and even less warning, the California Public Utilities Commission is taking to heart some lessons learned during this record-breaking summer. We've been relatively lucky at this point in 2006, but it's best to prepare now for a possible secondary heat wave - and to get a jump on next year.

Twice in the past week, CPUC president Mike Peevey issued expedited orders that may affect how the regulated utilities deal with continued load growth and the potential for even higher peak-demand days in summer 2007. July's heat storm and the surprising growth in electric demand "have exposed certain vulnerabilities in the electric generation and transmission infrastructure that require immediate attention to ensure reliability in 2007, particularly in parts of Southern California," Peevey wrote.

Summer peak season is certainly not over yet. For example, Texas this week continues to skirt record power demand levels.

But this is what we've learned so far from summer 2006 in California:

- Not only did the California Independent System Operator set new records for peak demand on three occasions, we experienced an 11-day streak from July 17 to July 27 in which the daily peak exceeded the prior record level of 45,431 MW.

- CAISO chief executive officer Yakout Mansour testified that the new peak of 50,270 MW was 12 percent higher than the previous record "and represents the typical demand of five years ahead."

- CAISO figures do not cover operations of all public power utilities, but most, if not all, of these entities also set records this year, including Los Angeles at 6,164 MW and the Sacramento Municipal Utility District at 3,299 MW. This is not to mention the national impacts of the heat, which led utilities in every region except the Pacific Northwest into new, often sequential demand records.

- July 24 also represented a new summer record for natural gas deliveries in Southern California. SoCal Gas reported delivering 3.7 billion cubic feet, the most it has delivered on a summer day in the past five years. The all-time winter record was 5.2 bcf on January 16, 2001 (records prior to this can't be easily compared because of the change in the gas market structure).

- While the state's bulk power system avoided any serious outages or disruptions, local distribution problems were responsible for dropping more than 2 million customers at one time or another. The biggest contributor to local problems was heat-related failure of local transformers - a rough count indicates that as many as 3,000 units died and were replaced during the heat storm.

- These outages may have limited system peaks as much as or more than the 1,500 MW attributed to the successful conservation response. Figures are not yet available, but for instance, when San Diego Gas & Electric set a new peak figure of 4,502 MW on July 22, the utility said it might have seen loads of as much as 4,800 MW to 4,900 MW if not for the extent of dropped load. During the last two weeks of July, Edison had as many as 1.1 million customers without power and PG&E had more than 1.2 million, or the equivalent of at least 2,000 MW of load.

- While the focus has been on peak demand, it's evident that overall electric consumption has also been far higher this year. Even before July, several utilities reported year-to-year energy deliveries up by 5 percent to 8 percent compared to last year.

The newest actions from the CPUC are aimed at addressing the potential to avoid system outages and curtailments during future peak periods.

Last week, Peevey reopened the utilities' energy-efficiency cases to solicit ways to improve

demand-response programs for next year. What's clear is that the state remains heavily dependent on interruptible contracts as the most effective demand-response tool during periods of high power consumption. The problem is that repeated calls for curtailments result in less responsiveness, as the industrial and commercial customers weigh the costs of ceasing operations against the penalties assessed for ignoring emergency curtailments.

While the commission and utilities have been promoting a wide range of other types of programs, particularly demand bidding, it is still unclear how responsive those programs are. Draft figures for how these programs fared during the late-July peak week were reported by Bill Kelly last week (Circuit, Aug. 11, 2006). We can expect more information and insight in reports from the utilities that are due August 30, as per Peevey's order.

A second ruling issued this week goes even further by ordering Southern California Edison to expand its air conditioning cycling program by 300 MW and to develop at least 250 MW of dispatchable generation that can be used to quickly restore system outages (see story on page 9). In an unusual break from current utility procurement practices, Peevey ruled that these may be utility-owned units, although Edison should consider offers from bidders that can promise a project that will be operational by August 1, 2007.

The invitation to Edison to build its own peaking generators may not sit well with the nonutility generation community, but we've been waiting about five years for action on getting new peakers into the portfolio.

And we've been talking about demand-response programs for far longer, so it's certainly high time to find out what is working and to get more of it into the system. The directive to Edison to bolster cycling programs correctly identifies air conditioning as the major driver of peak demand. It expands a particularly effective control technology that represents the future of utility demand-response programs.

We still need to understand more about the drivers of overall power consumption that are at play and how to contain them. We know that newer houses are being built in desert areas - and even though they meet Title 24 standards, they still require more energy because of their size and increased use of air conditioning. We're still learning about the energy impacts of home computers and new electronics, such as plasma-screen TVs.

The good news is that, for the most part, California's power system held up well enough during the historic heat storm period. The not-so-good news is that we've still got a long way to go before we can stop worrying about the next heat wave.

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