



ASSEMBLY COMMITTEE ON
WATER, PARKS AND WILDLIFE

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CHAIR

Tuesday, February 11, 2020
9:30 a.m. -- State Capitol, Room 444

INFORMATIONAL HEARING

What Happens to Water Supplies During Power Shutoffs?

BACKGROUND

Power shutoffs. Storms, wildfires, earthquakes, or other disasters can affect California's electric infrastructure and lead to unplanned power outages lasting various amounts of time. In particular, California has experienced increasingly frequent and destructive wildfires in the last decade. Eight of the twenty most destructive fires in California history, as determined by CAL FIRE, have been attributed to power lines. With forecasts of high winds in the autumn of 2019, the three largest electric utilities proactively cut power to lines to reduce the likelihood that their infrastructure would cause or contribute to a wildfire under the anticipated high winds. These planned de-energization events, or Public Safety Power Shutoff (PSPS) events, ranged from a few hours to a week and affected 40 of California's 58 counties.

PSPS events and unplanned power outages leave many critical facilities, including water and wastewater facilities, without power from the grid. Electric utilities occasionally shut off power to respond to specific localized incidents or planned maintenance, and many water and wastewater agencies are prepared for these occasional and short-term power outages. Preparing for more frequent, longer-lasting power outages, however, presents important challenges.

Water and wastewater systems require energy. Water supply, conveyance, treatment, distribution, and wastewater collection and treatment can all require energy inputs. In California, these processes require about two percent of the state's total energy use each year. In most cases, pumping requires the most energy throughout the stages of the water process. The amount of energy required to maintain water and wastewater services varies depending on the agency, amount of water pumped from sources (such as aquifers), the distance between users, and the topography of the land. For example, using gravity rather than electric pumps greatly reduces the amount of energy needed in water systems.

Water and wastewater systems during power shutoffs: efforts to prepare. Many water and wastewater agencies have developed specific plans for power shutoff events and have been able to maintain continuous service to their customers, though not without challenges and setbacks.

Most of these plans involve the purchase, rental, or sharing of backup generators, which must then be maintained, tested, deployed, and installed. Many agencies developed protocols for ensuring overtime staffing of their facilities. Upon notification of a power shutoff, these plans often include filling and maintaining water tanks near capacity, fueling generators and acquiring extra fuel, and notifying the public with guidelines about water use and conservation.

On the longer time scale, some agencies have adopted plans to reduce energy consumption in their systems. These plans may include storing water in higher elevation reservoirs so distribution can use gravity rather than electric pumps, promoting overall water efficiency by water users, and improving energy efficiency within water infrastructure. Some agencies have explored using distributed energy, or an independent energy source that does not rely on the grid, such as solar, wind, battery banks, etc., to improve water and wastewater resiliency to energy interruptions. Finally, water agencies have been managing the vegetation around water facilities to protect their infrastructure from fires.

Challenges. Based on their experiences responding to the 2019 power shutoffs, water agencies have reported several challenges in preparing for and responding to power shutoffs. These challenges include, but are not limited to:

- Communications in advance of planned power shutoffs;
- Affordability or availability of generators;
- Regulatory restrictions on testing and run time of generators;
- Lacking another power contingency in the event of backup power failure;
- Funding, both to support long-term investments into the water systems and for staffing facilities, fueling generators, etc., during a power shutoff;
- Increases in water consumption during shutoff events by the public, firefighting, etc.; and
- Communications in advance of re-energization.

Implications for Californians. Consequences of complete power loss on water utilities are severe. Without operational pumps in the water treatment and distribution processes, residents can lose access to water for consumption and cooking, local health care facilities and restaurants may close, and firefighting capabilities may be impeded. Without sufficient water pressure in the system, drinking water distribution systems can become contaminated from surrounding soil and groundwater. Without operational pumps in the wastewater collection and treatment processes, sewage can back up into homes, and untreated sewage may need to be stored until treatment can resume or directly discharged into rivers and streams. These consequences can cascade and cause further infrastructure damage or failure, posing additional risks to public health and the environment.

This hearing is intended to provide the Legislature and the public the opportunity to hear from the water community and emergency response agencies about the challenges they have faced responding to, and planning for, power shutoffs, as well as strategies, lessons learned, and solutions they can share.