

Will Drought Cause the Next Blackout?

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WE'RE now in the midst of the nation's most widespread drought in 60 years, stretching across 29 states and threatening farmers, their crops and livestock. But there is another risk as water becomes more scarce. Power plants may be forced to shut down, and oil and gas production may be threatened.

Our energy system depends on water. About half of the nation's water withdrawals every day are just for cooling power plants. In addition, the oil and gas industries use tens of millions of gallons a day, injecting water into aging oil fields to improve production, and to free natural gas in shale formations through hydraulic fracturing. Those numbers are not large from a national perspective, but they can be significant locally.

All told, we withdraw more water for the energy sector than for agriculture. Unfortunately, this relationship means that water problems become energy problems that are serious enough to warrant high-level attention.

During the 2008 drought in the Southeast, power plants were within days or weeks of shutting down because of limited water supplies. In Texas today, some cities are forbidding the use of municipal water for hydraulic fracturing. The multiyear drought in the West has lowered the snowpack and water levels behind dams, reducing their power output. The United States Energy Information Administration recently issued an alert that the drought was likely to exacerbate challenges to California's electric power market this summer, with higher risks of reliability problems and scarcity-driven price increases.

And in the Midwest, power plants are competing for water that farmers want for their devastated corn crops.

Unfortunately, trends suggest that this water vulnerability will become more important with time.

Population growth will mean over 100 million more people in the United States over the next four decades who will need energy and water to survive and prosper. Economic growth compounds that trend, as per-capita energy and water consumption tend to increase with affluence. Climate-change models also suggest that droughts and heat waves may be more frequent and severe.

Thankfully, there are some solutions.

The government can collect, maintain and make available accurate, updated and comprehensive water data, possibly through the United States Geological Survey and the E.I.A. The E.I.A. maintains an extensive database of accurate, up-to-date and comprehensive information on

energy production, consumption, trade and price. Unfortunately, there is no equivalent set of data for water. Consequently, industry, investors, analysts, policy makers and planners lack the information they need to make informed decisions about power plant siting or cooling technologies.

The government should also invest in water-related research and development (spending has been pitifully low for decades) to seek better air-cooling systems for power plants, waterless techniques for hydraulic fracturing, and biofuels that do not require freshwater irrigation.

We should encourage the use of reclaimed water for irrigation, industry and the cooling of equipment at industrial operations like smelters and petrochemical complexes. These steps typically spare a significant amount of energy and cost. The use of dry and hybrid wet-dry cooling towers that require less water should be encouraged at power plants, since not all of them need wet cooling all the time. As power plants upgrade their cooling methods to ones that are less water-intensive, these operations can save significant volumes of water.

Most important, conservation should be encouraged, since water conservation results in energy conservation, and vice versa.

New carbon emissions standards can also help save water. A plan proposed by the Obama administration (requiring new power plants to emit no more than 1,000 pounds of carbon dioxide per megawatt hour generated) would encourage utilities to choose less carbon- and water-intensive fuels. Conventional coal plants, which are very thirsty, exceed the standards proposed by the president. But relatively clean, and water-lean, power plants that use wind, solar panels and natural gas combined cycle, would meet them. Thus, by enforcing CO₂ limits, a lot of water use can be avoided.

Because rivers and aquifers can span many states (or countries), because there is no alternative to water, and because water represents a critical vulnerability for our energy system, governments at all levels have a stake in working with industry to find solutions. The downsides of doing nothing — more blackouts — are too serious to ignore.

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http://www.nytimes.com/2012/07/24/opinion/will-drought-cause-the-next-blackout.html? r=1&nl=todaysheadlines&emc=edit_th_20120724

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