Colorado, Nevada, Texas, and Utah, up to 44 percent for New Mexico.

The researchers note that their findings are consistent with previous studies of extreme precipitation patterns. In 1999, studies at the Illinois State Water Survey and the National Climatic Data Center (NCDC) found that storms with extreme precipitation became more frequent by about 3 percent per decade from 1931 to 1996. In 2004, scientists at NCDC concluded that most of the observed increase in storms with heavy and very heavy precipitation levels since the early 1900s had occurred in the last three decades. In other words, the change is relatively recent. Furthermore, NCDC found that extremely heavy storms are increasing in frequency more rapidly than very heavy storms—which in turn are increasing in frequency more rapidly than heavy storms.

Environment America is a federation of state-based, citizen-funded environmental advocacy organizations with staff in 23 states and Washington, D.C. The 48-page report is available at environmentamerica.org.

Sandia Developing Integrated Energy-Water Model

Researchers at Sandia National Laboratories are developing an interactive computer model that integrates water and energy demands for planning and management purposes. The objective of the model is to "allow energy and water producers, resource managers, regulators, and decision makers to look at the different tradeoffs of water use and energy production caused by uncertainties in population, energy demand, climate, and the economy," said Vince Tidwell, principal investigator.

Concurrent with the energy-water modeling, the research team will put together a set of optimization tools that could be used to assist in the siting of power plants, balancing the energy portfolio (including fossil, nuclear, and renewable fuels) to keep pace with growing power demands, and in making decisions about when to build the next power plant. Cost, availability of water and fuels, access to transmission lines, and greenhouse gas emissions all need to be considered.

The research is in its second year of three-year funding. The team is now compiling data to go into the program. The model will allow users to tailor their investigations to meet specific needs. For example, they can get results on energy and water scenarios at the national, state, or local levels and will be able to look at specific watersheds. This would be particularly helpful in determining water-energy trends in states like New Mexico where most of the power is generated at in-state plants but used by people outside the state.

"Energy data is provided by DOE, and water information is coming from different agencies," says Peter Kobos, who is also doing energy modeling at Sandia. "The challenge will be to have enough data to tell a story. We think we do. If not, we'll identify gaps and address them as the project progresses."

Visit www.sandia.gov.