

Roth: DOE examines climate-change effect on energy sector

By [Jim Roth](#)

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This month, the Department of Energy released a report examining current and future effects of climate change on the energy sector. The report, titled “U.S. Energy Sector Vulnerabilities to Climate Change and Extreme Weather,” also discusses potential opportunities to boost climate-resilient energy technologies.

The study supports the advancement of the Obama administration’s climate-change efforts under the Interagency Climate Adaptation Task Force and Strategic Sustainability Planning, established under executive order. It also promotes DOE energy security goals.

The report looks at recent climate trends, including high temperatures, droughts, wildfires, intense storms and heat waves. It shows that 2012 was the warmest year since 1895, when record keeping began.

Expecting the trends to continue, the report examines three major challenges for the energy sector: the rising ambient air and water temperatures, the decreasing water availability, and the growing intensity and frequency of severe storms.

The report found that rising temperatures and decreasing water availability would pose risks to thermoelectric power generation facilities by reducing their cooling efficiency.

Findings also indicate that water scarcity is a major threat to unconventional energy development, such as hydraulic fracturing and enhanced oil recovery, which require massive volumes of water.

It was noted that coastal energy infrastructure faces risks from rising sea levels and increasing storm intensity.

Renewable energy resources, including solar, wind, hydro and bioenergy, are also

vulnerable to changing weather patterns. Hydroelectric power plants in Western states have already experienced reduced energy production availability due to below-average snowpack.

In addition, electricity transmission and distribution systems face risks of physical damage from weather-related events and reduced efficiency due to higher ambient temperatures.

Prolonged periods of drought and floods are affecting water infrastructure and disrupt fuel transport by rail and barge.

In Arctic Alaska, onshore operations face negative effects due to infrastructural damage from melting permafrost, while offshore operations could improve due to extended ice-free seasons.

All-in-all, this study demonstrates an alarming effect upon the world around us, as well as numerous effects on the production of energy as we know it today. Perhaps a bit of irony, if energy production must change to adjust to the climate changes most likely caused by how we in fact use today's energies.

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