The Energy-Water Nexus: Low Carbon Electricity and Implications for Water Resources

Overview:

Take the average amount of water flowing over Niagara Falls in a minute. Now triple it. That's almost how much water power plants in the United States take in for cooling each minute, on average. It requires more water, on average, to generate the electricity that lights our rooms, powers our computers and TVs, and runs our household appliances, than the total amount of water we use in our homes for everyday tasks—washing dishes and clothes, showering, flushing toilets, and watering lawns and gardens. Over 40% of water withdrawn in the US is by power plants. On the other hand, about 13% of all the electricity generated in the US goes to moving and cleaning water supplies. In California, almost 20% of all the electricity used in the state is for water; and in Arizona, the Central Arizona Project, which provides water to the arid region, is the top energy consumer in the state. Changes in supplies and demands of both resources are driven by population growth and climate. Decisions in either sector have implications for the other.

What You Will Learn

- What is the Energy-Water Nexus and why is it important.
- Why water requires energy, and energy requires water
- Regional manifestations of the energy-water nexus
- The role of population and climate in supply and demand regimes for both energy and water
- Why low carbon isn't always low water

Presenter Bio:

Dr. Kristen Averyt served as Deputy Director of Western Water Assessment since 2009, where she worked to develop climate science relevant to decision makers throughout the Western U.S. Currently, she is the acting Associate Director of Science for the Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado. Kristen received a Ph.D. in Geological and Environmental Science from Stanford University and has also earned several awards and honors, including a Fulbright Fellowship to New Zealand in 1998 and a NOAA Knauss Congressional Fellowship in 2005, during which she worked in the U.S. Senate. As the staff scientist for Working Group I of the Intergovernmental Panel on Climate Change, she was one of the many scientists who received the 2007 Nobel Peace Prize. Her current work focuses on the interplay between climate mitigation and climate adaptation efforts, including the energy-water nexus.