

Abstract:

Energy production requires water, and water treatment and distribution require energy. In recent years, the United States has seen collisions at this energy-water nexus, where insufficient resources in one sector impact the reliability of the other. Further, climate change and population growth are beginning to impact the supply and demand balance for both energy and water resources, creating additional difficulties. As the challenges of rising temperatures, declining water availability, drought, growing energy demands, and escalating water needs shift the connections at energy and water, it becomes clear that solutions to each problem must consider cascading effects on the others. This seminar will outline the core concepts of the energy-water nexus, how this issue has manifest in different parts of the United States, and recent research evaluating US electricity system optimization under different climate conditions.