

An integrated assessment of water-energy and climate change in sacramento, california how strong is the nexus?

Dale, L. L., Karali, N., Millstein, D., Carnall, M., Vicuña, S., Borchers, N., ... & Sohn, M. D. (2015). An integrated assessment of water-energy and climate change in Sacramento, California: how strong is the nexus?. *Climatic Change*, 132(2), 223-235. <10.1007/s10584-015-1370-x> Accessed 28 Mar 2021.

Abstract

This paper is among the first to report on the full integration of basin-scale models that include projections of the demand and supply of water and energy for residential, commercial, industrial, and agricultural sector users. We link two widely used regional planning models that allow one to study the impact of rising climate variability on water and electricity use in Sacramento, California. Historic data combined with the current energy and water system configuration was used to assess the implications of changes in temperature and precipitation. Climate simulations suggest that electricity imports to the region would increase during hot dry spells, when regional power production is most constrained. In particular, regional imports of electricity would increase over 35 % in hot dry years, assuming a 4 °C increase in average temperature and a 25 % decrease in average precipitation..

Keywords

thermal power plant, groundwater depth, electricity demand, hydropower generation, thermal generation.