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Kelly Sanders
ktsanders@usc.edu

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Quantifying Water Across the US Energy System: A Discussion Existing Data Challenges and Recommendations for Best Practices

Kelly T. Sanders[a]
[a]*Sonny Astani Department of Civil and Environmental Engineering*
University of Southern California, ktsanders@usc.edu

Abstract: While it is well-accepted that the US energy sector requires substantial volumes of water for activities such as cooling thermal power plants, producing and processing primary fuels and managing waste streams, generating national estimates of volumetric water use for these activities has been thwarted by poor data quality and inconsistent definitions. Furthermore, data cited in the peer-reviewed literature are often decades old, yet in most cases, their origin and original context have become obscured over time due to poor citation and reporting practices. This presentation will discuss a rigorous effort carried out to quantify the water use of the US energy system in 2014, where results were differentiated across five lifecycle stages for 17 fuel cycles, by water source type and quality. While volumetric cooling water withdrawal data for the thermoelectric power sector tend to be more abundant and of much higher quality than other sectors of the US economy, access to data across other parts of the energy system are still very sparse. Analysis is further thwarted by the lack of water consumption data at the national level. Suggestions for future best practices in regards to data collection and reporting will be discussed.

Keywords*:* energy-water nexus, electricity, water management