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Climate induced Risks to Hydropower Systems in the Global South

Paulina Jaramillo

Professor of Engineering and Public Policy at Carnegie Mellon University (CMU)

Date: Friday, March 17, 2023 11:00 AM – 12:00 PM

Location: SEEC Building, C120 or Zoom https://cuboulder.zoom.us/j/99654274989

Abstract:

Hydropower is the largest renewable source of electricity generation worldwide, accounting for 16% of electricity generation in 2019. Although there has been a recent trend towards increasing the capacity of other renewable electricity sources, such as solar and wind, hydropower will remain one of the most important renewable electricity sources globally and should play an important role in the sector's decarbonization. On the other hand, climate change can threaten the viability of future hydropower development. Climate change could alter the timing and magnitude of precipitation, which directly influences water availability and streamflow. Additionally, the accelerated melting of glaciers creates unsustainable streamflow in glacierized basins that will likely disappear as glaciers continue to retreat. Furthermore, rising temperatures could increase evapotranspiration within basins, reducing the expected water volumes available and directly affecting power plant operations. SHowever, there is a gap in the literature regarding climate impacts on individual hydropower projects in the Global South, and further regional studies are needed. In this talk, Professor Jaramillo will present the Risk and Impacts of Climate Change on Hydropower (RICCH) tool developed at Carnegie Mellon University. RICCH is an interac-tive assessment tool for hydropower in the Global South that could inform future adaptation of the hydropower sector. The talk will highlight the results of analyses using RICCH on future hydropower generation in South America and Africa.

Bio:

Prof. Paulina Jaramillo is currently a Professor of Engineering and Public Policy at Carnegie Mellon University (CMU). Prof. Jaramillo is also a fellow of the Scott Institute for Energy Innovation and Research at CMU and a research affiliate of the Kigali Collaborative Research Center. She also holds a courtesy appointment at CMU Africa. Finally, Prof. Jaramillo was a coordinating lead author for the IPCC's 6th Assessment Report as part of Working Group III. Prof. Jaramillo's past research focused on life cycle assessment of energy systems with an emphasis on climate change impacts and mitigation research. As a professor at CMU, she is currently involved in multi-disciplinary research projects to better understand the social, economic, and environmental implications of transitions in the U.S. energy system. Prof. Jaramillo's research and education efforts also include issues related to energy access and develop-ment in the Global South.

Link to campus map for SEEC Building

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