


CONFERENCE WEBSITE

<https://www.iage-net.org/igec2022>

14th International Green Energy Conference

(IGEC-XIV)

July 4-8, 2022 | Virtual

Name	Claudio Canizares	
Affiliation	University of Waterloo	
Invited Plenary Lecture		
Presentation Title	Energy Storage	
Abstract (Approximately 200 words)	As the penetration of variable renewable generation increases in power systems, issues such as grid stiffness, larger frequency deviations, and grid stability are becoming more relevant. In this context, Energy Storage Systems (ESSs) are proving to be effective in facilitating the integration of renewable resources, and thus are being widely deployed in both microgrids and large power grids. This talk will review several energy storage technologies, particularly Compress Air Energy Storage (CAES), flywheels, batteries, and thermal energy systems, and their modeling and applications for power systems. An overview will be provided of the work being carried out by Prof. Canizares' group at the University of Waterloo on all these energy storage systems, focusing on novel models and applications in microgrids and distribution and transmission grids for system stability and control, in particular for frequency regulation.	
Biographical Sketch (Approximately 200 words)	Dr. Claudio Cañizares is a University Professor and the Hydro One Endowed Chair at the Electrical and Computer Engineering (E&CE) Department, and the Executive Director of the Waterloo Institute for Sustainable Energy (WISE) at the University of Waterloo, where he has held various academic and administrative positions since 1993 and has received multiple recognitions, especially the 2021-2022 Awards of Excellence in Graduate Supervision at both the University and Faculty of Engineering levels. He obtained the Electrical Engineer degree from the Escuela Politécnica Nacional (EPN) in Quito-Ecuador in 1984, where he held different academic and administrative positions between 1983 and 1993, and his MSc (1988) and PhD (1991) degrees in Electrical Engineering are from the University of Wisconsin-Madison. His research activities focus on the study of stability, control, optimization, modeling, simulation, and computational issues in bulk power systems, microgrids, and energy systems in the context of competitive energy markets and smart grids. In these areas, he has led or been an integral part of many grants and contracts from government agencies and private companies worth millions of dollars, and has collaborated with multiple industry and university researchers in Canada and abroad,	

CONFERENCE WEBSITE

<https://www.iage-net.org/igec2022>

14th International Green Energy Conference

(IGEC-XIV)

July 4-8, 2022 | Virtual

supervising/co-supervising over 170 research fellows and graduate students. He has authored/co-authored more than 350 publications with over 24,000 citations and a 70+ H-index, including journal and conference papers, technical reports, book chapters, disclosures and patents, and has been invited to deliver keynote speeches, seminars, tutorials, and presentations at many institutions and conferences worldwide. He is the Editor-In-Chief of the Institute of Electrical & Electronic Engineering (IEEE) Transactions on Smart Grid, the 2022-2023 IEEE Division VII Director of the IEEE and Power & Energy Society (PES) Boards, and a Fellow of the IEEE, a Fellow of the Royal Society of Canada, where he was the Director of the Applied Science and Engineering Division of the Academy of Science from 2017 to 2020, and a Fellow of the Canadian Academy of Engineering. He is also the recipient of the 2017 IEEE PES Outstanding Power Engineering Educator Award, the 2016 IEEE Canada Electric Power Medal, and of multiple IEEE PES Technical Council and Committee awards and recognitions, holding leadership positions in several IEEE-PES Committees, Working Groups, and Task Forces.