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PRESENTED BY THE WATERLOO INSTITUTE
FOR SUSTAINABLE ENERGY

Tuesday, November 17, 2015

10:30 – 11:30 am

DC 1304

DESIGN OF A PARTICIPATORY- MODEL/MICROGRID/SMART- FARM SYSTEM FOR THE MAPUCHE INDIGENOUS COMMUNITIES

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In Chile there exist several isolated indigenous communities without energy supply service. In particular, some Mapuche indigenous communities (the predominant ethnic group in Chile) live under these conditions at the south of the country. The challenge of this project is to determine how to enhance the living conditions of Mapuche communities considering the socio-cultural traditions of these communities into the technological solution.

This presentation describes a methodology for the design and implementation of a microgrid which allows the energy supply for Mapuche indigenous communities. The novelty of this microgrid lies in a design that is compatible with their socio-cultural aspects, allowing an active community participation in all stages of the project development. The project takes advantage of the communication and energy infrastructure of the microgrid for the design of a Smart-Farm system, which seeks the productive development to improve the life quality of the Mapuche rural communities. The proposed Smart-Farm system is initially composed by a cattle monitoring and rational use of water since the communities proposed these applications as their needs. The participatory socio-environmental diagnosis is developed to identify potential and existing barriers for its insertion into these communities. Also, the potential impact evaluation over the social welfare and community development is considered. Finally, the project proposes a participatory and community self-managing model to ensure its sustainability while preserving and promoting the culture.

Biography



Doris Sáez Hueichapan (S'93–M'96–SM'05) was born in Panguipulli, Chile. She received her M.Sc. and Ph.D. degrees in electrical engineering from the Pontificia Universidad Católica de Chile, in 1995 and 2000, respectively. She is currently an Associate Professor at the Department of Electrical Engineering, University of Chile.

Doris is an Associate Editor of IEEE Transactions on Fuzzy Systems. She is co-author of Springer-Verlag books: “Hybrid Predictive Control for Dynamic Transport Problems” (2013) and “Optimization of Industrial Processes at Supervisory Level: Application to Control of Thermal Power Plants” (2002).

Her research fields are predictive control, fuzzy control design, fuzzy identification, control of transport systems and control of renewable energy plants.