

Postdoctoral Positions in “Energy markets and modeling under climate change risks” at Universidad Adolfo Ibáñez (Chile)

Applications are invited for two postdoctoral positions within the project “*Adapting to the Uncertainties and Risks of Climate Change: Advanced Methods and Models for Energy Systems and Markets*”. The project is based at Universidad Adolfo Ibáñez in Santiago, Chile, and is funded by ANID (the main public funding agency in Chile). We look for applicants in the areas of stochastic optimization, energy and environmental markets, as well as climate models.

Successful candidates will join a team of applied mathematicians and engineers with experience in operations research and economics, in a multi-disciplinary effort to develop tools for the adaptation of energy systems and markets to the physical, financial and transitional risks posed by climate change. The position is for one year, with a possible extension to two years. Knowledge of Spanish is not required.

Project Background

Energy systems play a key role in the world economy. The U.S. National Academy of Sciences selected “electrification” as the most important engineering achievement of the 20th century. Currently, energy systems face two major challenges due to climate change: transformation and adaptation.

Transformation refers to the need of reducing the impact of energy systems on global warming as a result of the use of fossil fuels. This challenge is already being addressed by governments and private companies through environmental policies. The second challenge, which is the focus of this project, has to do with the adaptation of energy systems to the physical, financial, and transitional risks derived from climate change. A changing climate imposes unprecedented challenges to private investors, utilities, and governments. Renewable energy technologies based on solar, wind, and hydro resources are playing an increasing role in the decarbonization of energy systems, yet they strongly depend on climate conditions and are highly susceptible to uncertainties and risks imposed by this changing environment. Nevertheless, adaptation in the energy sector is not just required because of extreme weather events; changing economic and financial conditions in the transition to a low-carbon economy also pose challenges for decision makers in governments and private firms.

We aim to develop new mathematical models and computational methods to help private and public sector to adapt energy systems and markets to the uncertainties and risks imposed by climate change. Our research addresses three main targets:

1. To model and classify the different uncertainties and risks associated with climate change.
2. To develop energy planning models under uncertain conditions using modern optimization tools.
3. To design new energy and environmental markets and regulatory models considering features such as broad uncertainties, risk aversion, and asymmetric information.

The project combines techniques from operations research, climate modeling, and financial economics to develop an integrated approach. Some of the partners involved in the project include energy companies, government agencies, and consulting firms.

Benefits and Application

Funding is available to support up to two postdoctoral positions. Postdoctoral researchers will receive a competitive salary for up to two years, plus additional travel support. The interested candidate must hold a Ph.D. in mathematics, computer science, operations research, economics, engineering or a related field. Application packages must be sent to applications_aniillo@alumnos.uai.cl before **November 10, 2021** and must include:

1. A letter of intent outlining his/her expected contribution to the project, in which of the three goals stated above the candidate would like to work, and suggestions for topics of interest within the scope of the research objectives.
2. A Curriculum Vitae, including a list of recent publications, and a short summary of the main topic of the doctoral dissertation.
3. A list of Ph.D. courses taken and the most recent transcript.

In addition, the candidate should either arrange for two letters of recommendation from people acquainted with the candidate's research skills to be sent directly to applications_aniillo@alumnos.uai.cl , or send names and contact details of two people from whom the letters can be requested.

A subset of the candidates will be shortlisted based on the strength of their CV and their fit with the project. They will be invited for an interview and their references may be contacted. We expect that accepted candidates can start working in the project as soon as January 2022, or at a later date upon agreement.

For further information, please visit <https://orecc.cl>. Further inquiries can be sent via email to applications_aniillo@alumnos.uai.cl.