

EDUCATION

Ph.D. in Technology, Purdue University, United States, 2022

Dissertation: "Alternatives to reduce grid disturbances caused by the rapid increase in distributed energy resources."

Master in Industrial Management with major in Finance Management, University of Concepcion, Chile, 2015

Thesis: "Analysis of cointegration among the sectoral indices of the Chilean stock market and the Index of Selective Price (IPSA), applied to recession periods versus those without international recession."

Industrial Engineer, University of Concepcion, Chile, 2014

Thesis: "Feasibility Study of the Biobio Science and Technology Park, focused in the Social and Economic Impact in the country."

PROFESSIONAL EXPERIENCE

Project Manager and Consultant – MatchEnergia, Chile, 2022-Current

Provide strategic consulting and lead the team of consultants that focuses on evaluating the opening of MatchEnergia's operations in the United States, based on the analysis of the current operation of the electricity markets. MatchEnergia is a company that focuses on power purchase agreements between generators and medium and large consumers of electricity.

Project Coordinator - REU Program, Purdue University, 2021-Current

The goal of the REU program is to provide underrepresented engineering and engineering technology students with a research experience that combines the best aspects of academic applied research and business practices. My main role in the program is to be a mentor for the students, co-teach some of the research and entrepreneurship modules, and keep track of the tasks assigned to the students.

Graduate Assistant, Latino Cultural Center, Purdue University, 2022

My primary functions are to represent the Latino Cultural Center by collaborating and coordinating student leadership activities, programs, and services. Co-Teach in the "Avanzando Through College" (a mentoring program for first-generation college students). Serve as liaison with the Graduate School and the Latino Graduate Student Organization.

Graduate Research Assistant, Purdue University, 2020-2021

Research has focused on two main topics: predictive maintenance of solar systems and peer-to-peer energy trading for topics, literature reviews, and article writing. Second, analyze the electricity market and the integration of renewable energies in the grid

Cofounder & CEO, Potencial, Chile, 2017-2018

The Startup's main activity is the design and development of electrostatic device, "MPZero", to reduce emissions of particulate material. Devices are developed on a residential and commercial scale that allows reducing emissions from biomass combustion. Energy efficiency consulting and installation of residential and commercial photovoltaic systems are also provided.

Engineer of Energy Efficiency, Ministry of Energy, Chile, 2016

In charge of implementing the energy efficiency program in the Biobío region: training the community, monitoring and generating new projects on energy efficiency in the public and private sector.

Project Engineer, Cluster Solar House, University of Concepción, Chile, 2015

Managed the project of a sustainable house developed by the School of Architecture. This included photovoltaic generation, home automation and water treatment.

Lead Engineer, Solar Car Project, University of Concepción, Chile, 2014

Lead the management team, the project involved design, and construction of a solar racing car, to compete in the Atacama Solar Challenge.

PROFESSIONAL DEVELOPMENT

LATInE: Latinx Trailblazers in Engineering: The goal of the program is to prepare future trailblazing faculty in engineering with a focus on preparing outstanding scholars who are also committed to increasing the success of Latinx engineers. October 2021

Foundations in College Teaching Certificate Program: The Foundations Certificate provides an overview of evidence-based teaching practices and strategies. Sep-Oct 2021.

Purdue National Science Foundation I-Corps program: A program for applied research endeavors focused on discovering clients and transitioning ideas, products, or other intellectual activity to market. Oct-Nov 2020.

The Engine Blueprint program (created by MIT): A program to explore the business opportunities of scientific advancements. It is focused on technology risk mitigation and market discovery and selection. Sep-Oct 2020.

VOLUNTEER AND LEADERSHIP EXPERIENCES

Mentor, National Science Foundation's Innovation Corps, 2022

Mentor, Evergreen Climate Innovations, 2022

President, Purdue Fulbright Association, 2021-2022

President, Purdue Chilean Association, 2019-2020

Vice- President, Chilean Association of Industrial Engineering Students, 2012

President, Student center of Industrial Engineering, University of Concepción, Chile, 2011

FELLOWSHIPS

Bilsland Strategic Initiative Fellowship, Purdue University, 2022.

FULBRIGHT–CONICYT: Equal Opportunities Doctoral Fellowship, 2016.

Government Scholarship: “Bicentenary”, for undergraduate education, 2008.

FUNDS AWARDED

“Intellectual property” Fund , Government of Chile, Fund for patenting of a particulate material capture system, (\$11,500 USD), 2018.

“Capital Semilla” Fund, Government of Chile, Fund for innovation and entrepreneurship, (\$38,000 USD), 2016.

“Impacta Energia” Fund, Government of Chile, Public innovation contest with social impact (\$120,000 USD), 2016.

“Capital Semilla” Fund, Government of Chile, Fund for innovation and entrepreneurship (\$38,000 USD), 2015.

PROFESSIONAL SKILLS

Languages: Fluent in Spanish and English.

Software and programming: Eviews, SPSS, R, SAS, MySQL, Python, ARENA and Microsoft Office

Teamwork: Conflict resolution and relationship building.

Communications: Verbal and non-verbal, and listening skills.

Public speaking: Confidence and creation of effective presentation slides.

Flexibility: Patience, perceptiveness and problem solving.

PUBLICATION

Peer-reviewed Journal Articles

1. Soto, E. A., Bosman, L. B., Wollega, E., & Leon-Salas, W. D. (2022). Analysis of grid disturbances caused by massive integration of utility level solar power systems. *Eng*, 3(2), 236-253.
2. Soto, E. A., Arakawa, K., & Bosman, L. B. (2022). Identification of target market transformation efforts for solar energy adoption. *Energy Reports*, 8, 3306-3322.
3. Soto, E. A., Bosman, L. B., Wollega, E., & Leon-Salas, W. D. (2022). Comparison of net-metering with peer-to-peer models using the grid and electric vehicles for the electricity exchange. *Applied Energy*, 310, 118562.
4. Soto, E. A., Bosman, L. B., Wollega, E., & Leon-Salas, W. D. (2020). Peer-to-peer energy trading: A review of the literature. *Applied Energy*, 116268.
5. Bosman, L. B., Leon-Salas, W. D., Hutzel, W., & Soto, E. A. (2020). PV System Predictive Maintenance: Challenges, Current Approaches, and Opportunities. *Energies*, 13(6), 1398.

Peer-reviewed Conference Proceedings

6. McNealey, A., Soto E. A., & Bosman, L. B. (2022, June). A Case for Solar Energy System Dashboards to Validate Performance Warranties. *Proceedings of the 5th NA International Conference on Industrial Engineering and Operations Management Orlando, Florida, USA, June 12 - 14, 2022.*

7. Soto, E. A. & Bosman, L. B. (2021, December). Grid Disturbances Caused by Massive Integration of Solar Systems at Utility Level. Proc. of the International Conference on Electrical, Computer and Energy Technologies (ICECET). IEEE.
8. Bosman, L. and E. Soto (2021). Leveraging Entrepreneurially-Minded Online Discussions to Support an Educator-Focused Renewable Energy Community of Practice. PS2021 Polytechnic Summit & Irish Journal of Academic Practice. TU Dublin, Ireland. June 1 – 4, 2021.
9. Soto, E. A., Bosman, L. B., & Wollega, E. (2021, April). Quantification of Solar Energy Grid Disturbances in the United States. In 2021 IEEE Green Technologies Conference (GreenTech) (pp. 13-18). IEEE.
10. Soto, E. A., Arakawa, K., & Bosman, L. B. (2022, August). Identification of Target Market Transformation Efforts for Solar Energy Adoption. Proceedings of the 5th NA International Conference on Industrial Engineering and Operations Management Detroit, Michigan, USA, August 10 - 14, 2020.
11. Ramirez, J., Soto, E. A., Wollega, E., & Bosman, L. B. (2022, August). Using Machine Learning to Assess Solar Energy Grid Disturbances. Proceedings of the 5th NA International Conference on Industrial Engineering and Operations Management Detroit, Michigan, USA, August 10 - 14, 2020.

In review

12. Bosman, L. B & Soto, E. A. (*Invited to revise and resubmit*). Integrating the Entrepreneurial Mindset into Solar Energy Statistical Analysis and Performance Modeling. *Decision Sciences Journal of Innovative Education*.

REFERENCE CONTACT INFORMATION

Dr. Lisa Bosman, Assistant Professor, Purdue University

Email: lbosman@purdue.edu

Phone: 765-496-0267

Dr. Walter Daniel Leon-Salas, Associate Professor, Purdue University

Email: wleonsal@purdue.edu

Phone: 765-494-7493

Dr. Ebisa Wollega, Associate Professor and Director of Industrial Engineering (BS) program, Colorado State University-Pueblo

Email: ebisa.wollega@csupueblo.edu

Phone: 719-549-2519

Dr. Jason Ostanek, Assistant Professor, Purdue University

Email: jostanek@purdue.edu

Phone: 765-494-9359