

Professional Experience

- 07/2022 – ongoing **Economic Analysis Department**
Faculty of Economics and Business Studies,
University of the Basque Country (Bilbao, Spain)
Associate Professor: Microeconomics and Macroeconomics (undergraduate students, Spanish and Basque); Energy Markets and Environmental Economics (graduate students, English); Macroeconomics (graduate students, Spanish).
- 01/2017 – ongoing **Basque Centre for Climate Change (Bilbao, Spain)**
Associate research fellow. Research in Climate Policy, Energy Economics, Energy Policy and Renewable Energy.
- 09/2018 – 07/2022 **Economic Analysis Department**
Faculty of Economics and Business Studies,
University of the Basque Country (Bilbao, Spain)
Assistant Professor: Microeconomics and Macroeconomics (undergraduate students, Spanish and Basque); Energy Markets (graduate students, English); Macroeconomics (graduate students, Spanish).
- 01/2017 – 09/2018 **Applied Economics III Department**
Faculty of Economics and Business Studies,
University of the Basque Country (Bilbao, Spain)
Interim Professor: Actuarial Statistics and Statistics (undergraduate students, Spanish and Basque).
- 03/2016 – 01/2017 **Basque Centre for Climate Change (Bilbao, Spain)**
Post-doctoral researcher. Research in Climate Policy, Energy Economics, Energy Policy and Renewable Energy.
- 07/2011 – 02/2016 **Foundations of Economic Analysis II Department**
Faculty of Economics and Business Studies,
University of the Basque Country (Bilbao, Spain)
Applied economic research: renewable energy policies in Spain
Teaching assistant: Microeconomics (undergraduate students, Spanish); Econometrics (graduate students, English); Energy Markets (graduate students, English).
- 01/2008 - 09/2010 **Santander Bank (Madrid, Spain)**
Headquarters. Experience in data base management and technical analysis.

Education

- 02/2016 **PhD in Economics**
(with honors and international mention)
University of the Basque Country (Bilbao, Spain)

09/2011	Master in Economics: Empirical Applications and Policies (with honors) University of the Basque Country (Bilbao, Spain)
12/2008	Master in Finance, Institutions and Markets University Centre of Financial Studies, CUNEF (Madrid, Spain)
04/2008	BS in Telecommunications Engineering University of the Basque Country (Bilbao, Spain)

Languages

Spanish	Mother tongue
English	Fluent (C1, Certificate in Advanced English)
Basque	Fluent (C1, Gaitasun maila - Hizkuntza Eskola Ofiziala)
German	Independent user (B2, Goethe Institut)

Scientific Publications

2023	<i>"Who bears the risk? Incentives for renewable electricity under strategic interaction between regulator and investors"</i> . P. Alcorta, MP Espinosa, C Pizarro-Irizar. <i>Resource and Energy Economics</i> 75, 101401.
2023	<i>"Pricing policies for efficient demand side management in liberalized electricity markets"</i> . A Ciarreta, C Pizarro-Irizar. <i>Economic Modelling</i> 121, 106215.
2023	<i>"Is it all about supply? Demand-side effects on the Spanish electricity market following Covid-19 lockdown policies"</i> . C Pizarro-Irizar. <i>Utilities Policy</i> 80, 101472.
2020	<i>"Assessing stakeholder preferences on low-carbon energy transitions"</i> . Cristina Pizarro-Irizar, Mikel Gonzalez-Eguino, Wytze van der Gaast, Iñaki Arto, Jon Sampedro, Dirk-Jan van de Ven. <i>Energy Sources, Part B: Economics, Planning, and Policy</i> 15(10-12), 455-491.
2020	<i>"Renewable energy regulation and structural breaks: An empirical analysis of Spanish electricity price volatility"</i> . A Ciarreta, C Pizarro-Irizar, A Zarraga. <i>Energy Economics</i> 88, 104749.
2020	<i>"Health co-benefits and mitigation costs as per the Paris Agreement under different technological pathways for energy supply"</i> . Jon Sampedro, Steven J. Smith, Iñaki Arto, Mikel González-Eguino, Anil Markandya, Kathleen M. Mulvaney, Cristina Pizarro-Irizar, Rita Van Dingenen. <i>Environment International</i> 136: 105513.
2020	<i>"Lost (and found) in Transition: Expert stakeholder insights on low-carbon energy transitions in Spain"</i> . Alevgul H. Sorman, Xaquín García-Muros, Cristina Pizarro-Irizar, Mikel González-Eguino. <i>Energy Research & Social Science</i> 64: 101414.

- 2018 *"Is renewable energy a cost-effective mitigation resource? An application to the Spanish electricity market"*. Maria Paz Espinosa and Cristina Pizarro-Irizar. *Renewable and Sustainable Energy Reviews* 94, 902-914
- 2018 *"Health co-benefits from air pollution and mitigation costs of the Paris Agreement: a modelling study"*. Anil Markandya, Jon Sampedro, Steven J Smith, Rita Van Dingenen, Cristina Pizarro-Irizar, Iñaki Arto and Mikel González-Eguino. *The Lancet Planetary Health* 2(3), 126-133.
- 2017 *"Optimal regulation of renewable energy: A comparison of Feed-in Tariffs and Tradable Green Certificates in the Spanish electricity system"*. Aitor Ciarreta, Maria Paz Espinosa and Cristina Pizarro-Irizar. *Energy Economics* 67, 387-399.
- 2017 *"Has Renewable Energy induced competitive behavior in the Spanish electricity market?"*. Aitor Ciarreta, Maria Paz Espinosa and Cristina Pizarro-Irizar. *Energy Policy* 104, 171-182.
- 2014 *"Is green energy expensive? Empirical evidence from the Spanish electricity market"*. Aitor Ciarreta, Maria Paz Espinosa and Cristina Pizarro-Irizar. *Energy Policy* 69, 205-215.

Book Chapters

- 2023 *"Green jobs in the Spanish renewable energy sector: an input-output approach"*. Manuel Tomás, Ignacio Cazcarro, Julen Montilla, Cristina Pizarro-Irizar, Iñaki Arto. In *Handbook on the Economics of Renewable Energy*. Pages 138-157. Ed. Edward Elgar Publishing.
- 2019 *"On a rollercoaster of regulatory change—risks and uncertainties associated with renewable energy transitions"*. Alevgul H Sorman, Cristina Pizarro-Irizar, Xaquín García-Muros, Mikel González-Eguino, Iñaki Arto. In *Narratives of Low-Carbon Transitions*. Pages 121-138. Ed. Routledge.
- 2014 *"Switching from feed-in tariffs to a tradable green certificate market"*. Aitor Ciarreta, Maria Paz Espinosa and Cristina Pizarro-Irizar. In *The Interrelationship Between Financial and Energy Markets*. *Lecture Notes in Energy* 54, 261-280. Springer.

Other publications

- 2022 *"Análisis de impacto de alternativas para la financiación de las energías renovables en España"*. Mikel González-Eguino, Xaquín García-Muros, Iñaki Arto, Cristina Pizarro-Irizar. *Cuadernos Económicos de ICE* 104: 111-135.
- 2020 *"Análisis de impacto del Plan Nacional Integrado de Energía y Clima (PNIEC) 2021-2030 de España"*. Mikel González-Eguino, Iñaki Arto, Alejandro Rofríguez-Zúñiga, Xaquín García-Muros, Jon Sampedro, Kurt Kratena, Ignacio Cazcarro, Alevgul H. Sorman, Cristina Pizarro-Irizar, María José Sanz-Sánchez. *Papeles de Economía Española* 163: 9-22.

- 2014 *"La nueva reforma del mercado eléctrico español: eficiencia y austeridad"* (The new reform of the Spanish electricity market: efficiency and austerity). Aitor Ciarreta and Cristina Pizarro-Irizar. Cuadernos Económicos de ICE 88, 97-126.
- 2013 *"Políticas para la reducción del déficit tarifario"* (Policies to reduce the tariff deficit). Maria Paz Espinosa and Cristina Pizarro-Irizar. Papeles de Economía Española 134, 117-126.
- 2012 *"Efecto de la energía renovable en el mercado diario de electricidad: escenario 2020"* (The effect of renewable energy in the Spanish daily electricity market: 2020 scenario). Aitor Ciarreta, Maria Paz Espinosa and Cristina Pizarro-Irizar. Cuadernos económicos de ICE 83, 101-11.
- 2012 *"The Effect of Renewable Energy in the Spanish Electricity Market"*. Aitor Ciarreta, Maria Paz Espinosa, Cristina Pizarro-Irizar. Lecture Notes in Information Technology 9, 431-436.

Conferences as speaker

- 2023 "Gender gap in the energy sector. Evidence from Spain". Presented at the 18th Conference of the Spanish Association for Energy Economics. Castelló, Spain (24-26 May, 2023).
- 2023 "Quantifying the value of reduced investment risk under different green energy support policies". Presented at the XI International Academic Symposium: Green investments for the energy transition. Barcelona, Spain (7 February, 2023).
- 2022 "Is it all about supply? Analysis of demand-induced effects in the Spanish electricity market after different lockdown policies to tackle Covid-19". Presented at the 17th Conference of the Spanish Association for Energy Economics. Alcalá, Spain (25-27 May, 2022).
- 2021 "An option analysis of renewable support mechanisms". Presented at the 2021 IAEE International conference. Online, (7-9 June, 2021).
- 2018 "Pricing policies for efficient demand side management in Spain". Presented at the 43rd Simposio Asociación Española de Economía – Spanish Economic Association. Madrid, Spain (13-15 December, 2018).
- 2018 "Pricing policies for efficient demand side management in Spain". Presented at the 15th International Conference Developments in Economic Theory and Policy. Bilbao, Spain (28-29 June, 2018).
- 2018 "Implications of different mitigation portfolios on stakeholder preferences". Presented at the 41st International IAEE Conference. Groningen, Netherlands (10-13 June, 2018).

- 2018 *“Implications of different mitigation portfolios on stakeholder preferences”*. Presented at the 13th Conference of the Spanish Association for Energy Economics. Zaragoza, Spain (1-2 February, 2018).
- 2017 *“Is Renewable Energy a cost-effective mitigation resource against climate change? An analysis of the Spanish electricity market beyond the merit-order effect”*. Presented at the 12th Conference of the Spanish Association for Energy Economics. Salamanca, Spain (2-3 February, 2017).
- 2016 *“Optimal regulation of renewable energy: A comparison of Feed-in Tariffs and Tradable Green Certificates”*. Presented at the 41th Symposium Spanish Economics Association. Bilbao, Spain (15-17 December, 2016).
- 2014 *“Evolve or die: New bidding strategies for Combined Cycle electricity plants after the introduction of Renewable Energy”*. Presented at the 14th European IAEE Conference. Rome, Italy (28-31 October, 2014).
- 2014 *“How costly is the promotion of renewable energy? An application to the Spanish electricity market”*. Presented at the 9th Conference of the Spanish Association for Energy Economics. Madrid, Spain (3-4 February, 2014).
- 2013 *“Is green energy expensive? Empirical evidence of the Spanish electricity market”*. Presented at the 13th European IAEE Conference. Düsseldorf, Germany (18-21 August, 2013).
- 2013 *“Switching from feed-in tariffs to a tradable green certificate market”*. Presented at the 8th Conference of the Spanish Association for Energy Economics. Valencia, Spain (17-18 January, 2013).

Speaker by invitation

- 2021 Round table: *“Un análisis en profundidad del Fondo Nacional para la Sostenibilidad del Sistema Eléctrico”*. Organized by the Alianza por una Recuperación Sostenible. Online (22 January, 2021).
- 2018 Discussant: *“El mercado eléctrico español y su interconexión con el mercado eléctrico alemán”*. XVI Workshop en Banca y Finanzas Cuantitativas. Madrid, Spain (9-11 July, 2018).
- 2013 Round table: *“Perspectivas laborales: qué necesita el sector por parte de los jóvenes, y qué esperan los jóvenes del sector”*. Segunda Jornada de la Sección de Estudiantes y Jóvenes Profesionales de la AEEE. Madrid, Spain (19 September, 2013).
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Organization of Conferences

2023	<i>Organizing Committee.</i> XXXVII Jornadas de Economía Industrial of the Spanish Association for Economics. Bilbao, Spain (7 – 8 September, 2023).
2023	<i>Scientific Committee.</i> 18th Conference of the Spanish Association for Energy Economics. Castelló, Spain (24 – 26 May, 2023).
2022	<i>Scientific Committee.</i> X Conference of the Spanish-Portuguese Association of Resources and Environmental Economics (AERNA). Barcelona (1-3 September, 2022).
2022	<i>Organizing Committee.</i> 17th Conference of the Spanish Association for Energy Economics. Alcalá, Spain (25 – 27 May, 2022).
2022	<i>Scientific Committee (chair).</i> 17th Conference of the Spanish Association for Energy Economics. Alcalá, Spain (25 – 27 May, 2022).
2021	<i>Scientific Committee.</i> IX Conference of the Spanish-Portuguese Association of Resources and Environmental Economics (AERNA). Lleida (2-3 September, 2021).
2021	<i>Scientific Committee.</i> 16th Conference of the Spanish Association for Energy Economics. Online (29-30 June, 2021).
2020	<i>Scientific Committee.</i> 15th Conference of the Spanish Association for Energy Economics. Toledo, Spain (29-31 January, 2020).
2019	<i>Organizing Committee.</i> 14th Conference of the Spanish Association for Energy Economics. A Coruña, Spain (30 January - 1 February, 2019).
2019	<i>Scientific Committee.</i> 14th Conference of the Spanish Association for Energy Economics. A Coruña, Spain (30 January - 1 February, 2019).

International experience

05/2014-07/2014	Visiting researcher at the Competence Center Energy Policy and Energy Markets of the Fraunhofer Institute for Systems and Innovation Research ISI in Karlsruhe (Germany).
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Thesis direction

2021-ongoing	“Challenges for the transition to a low carbon electricity system“. Student: Peio Alcorta. University of the Basque Country. Co-directed with Maria Paz Espinosa.
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2023-ongoing *“El impacto fiscal de la transición energética en el País Vasco: modelización, cuantificación y propuestas de actuación ante el desafío de la descarbonización en la Unión Europea”*. Student: Nerea Urrutia. University of the Basque Country. Co-directed with Mikel Erkoreka.

Master thesis direction

2023 *“La importancia de decidir la educación extraescolar”*. Student: Alejandra Torres. Master en Economía: Instrumentos del Análisis Económico. University of the Basque Country. Co-directed with Nagore Iriberry.

2023 *“The Fiscal Implications of Energy Transition in the Transport Sector: A Case Study of the Basque Country”*. Student: Nerea Urrutia. Master in Economics: Empirical Applications and Policies. University of the Basque Country. Co-directed with Mikel Erkoreka.

2022 *“An Analysis of the Tourism Demand in the Dominican Republic From 2001 to 2021”*. Student: Stephanie Reyes. Master in Economics: Empirical Applications and Policies. University of the Basque Country. Co-directed with Aitor Ciarreta.

2022 *“Electricity price forecasting using sale and purchase curves: The X-Model. Evidence for Spain”*. Student: Jorge Rey. Master in Economics: Empirical Applications and Policies. University of the Basque Country. Co-directed with Peru Muniain.

2022 *“ A discriminatory auction for the day-ahead electricity market: its effect on windfall profits”*. Student: Aitor Díez Ormazabal. Master in Economics: Empirical Applications and Policies. University of the Basque Country. Co-directed with Maria Paz Espinosa.

2021 *“The relation between electricity and natural gas spot prices in Spain: cointegration and volatility spill-over analysis”*. Student: Luis María González Sánchez. Master in Economics: Empirical Applications and Policies. University of the Basque Country. Co-directed with Aitor Ciarreta.

2021 *“Gender gap in the energy sector. Evidence from Spain”*. Student: Agata Ewa Mlodawska. Master in Economics: Empirical Applications and Policies. University of the Basque Country. Co-directed with Ainhoa Vega.

2020 *“Green jobs in the Spanish renewable energy sectors: an input-output approach”*. Student: Julen Montilla. Master in Economics: Empirical Applications and Policies. University of the Basque Country. Co-directed with Iñaki Arto.

2020 *“Impact of the phase out of French nuclear plants on the Spanish electricity market”*. Student: Cynthia Vera. Master in Economics: Empirical Applications and Policies. University of the Basque Country. Co-directed with Aitor Ciarreta.

- 2020 *“Who bears the risk? Analyzing the strategic interaction between regulators and investors when setting incentives for renewable electricity”*. Student: Peio Alcorta. Master in Economics: Empirical Applications and Policies. University of the Basque Country. Co-directed with Maria Paz Espinosa.
- 2018 *“An option analysis of the Spanish renewable energy support mechanisms”*. Student: Andrea Giralt. Master en Banca y Finanzas Cuantitativas. University of the Basque Country. Co-directed with Maria Paz Espinosa.
- 2016 *“Is Renewable Energy a Cost-effective Mitigation Resource against Climate Change? An analysis of the Spanish Electricity Market beyond the Merit-Order Effect”*. Student: Gabriel Peto. Master in Economics: Empirical Applications and Policies. University of the Basque Country. Co-directed with Maria Paz Espinosa.

Grants and Prizes

- 2018 **PhD Extraordinary Award and International Mention**
Granted by the University of the Basque Country.
- 2013 **Best Student Paper Award**
8th Conference of the Spanish Association for Energy Economics.
- 01/2012 – 02/2016 **PhD grant**
Funded by the Basque Government.
- 2011 **Best Student Award**
Master of Economics: Empirical Applications and Policies (University of the Basque Country).

Others

Reviewer for Climatic Change, Energy Policy, Energy Economics, Environmental Innovation and Societal Transitions, Ecological Economics, Journal of Cleaner Production, The Energy Journal and Utilities Policy.

Seminars in Karlsruhe (2014), Vigo (2015) and Bilbao (2017).

Member of the Evaluation and Accreditation Board of the Andalusian Knowledge Agency during 2015.

Treasurer of the Spanish Association for Energy Economics (AEEE) from February, 2018 to June, 2019.

Member of the board of the Spanish Association for Energy Economics from June, 2019 until June, 2021.

Basque Country delegate of the Spanish Association of Energy Women (AEMENER) since November 2020.

Member of the Academic Committee of the Master in Economics: Empirical Applications and Policies since November, 2021.

Member of the Academic Committee of the PhD program in Finance and Quantitative Economics (Finanzas y Economía Cuantitativas) since November, 2022.

Member of the Equality Commission of the Faculty of Economics and Business Studies since November, 2021.

EHUgune collaborator in the University of the Basque Country since July, 2021.

Participation in research projects funded by the European Commission (TRANSrisk from 2016 to 2018, Adjust from 2022 to 2026), the Spanish Government (ECO2012-35820 from 2013 to 2015, ECO2015-64467-R from 2017 to 2019, RTI2018-093352-B-I00 from 2019 to 2021, PID2019-108718GB-I00 from 2020 to 2023 and PID2022-139458NB-I00 from 2023 to 2026) and the Basque Government (IT-783-13 from 2015 to 2018, IT1336-19 from 2019 to 2021, IT1461-22 from 2022 to 2025).

Principal investigator in research projects funded by private institutions (Ayudas a la Investigación Fundación Iberdrola from 2013 to 2014) and the University of the Basque Country (INF 21/26 in 2021).

Participation in R+D contracts funded by IDAE (Instituto para la Diversificación y Ahorro de la Energía, public body) in 2019, Iberdrola (private energy company) in 2018-2019 and 2019-2021, and ARARTEKO (public body) in 2017.

Teaching (undergraduate): Actuarial Statistics (2017), Dynamic Macroeconomics (2020, 2021, 2022, 2023, 2024), Intermediate Macroeconomics (2019, 2020, 2021), Macroeconomics (2018, 2020), Microeconomics (2014, 2015, 2018), and Statistics (2017, 2018).

Teaching (master): Econometrics (2015), Energy Markets (2019, 2020, 2021, 2022, 2023, 2024), Environmental Economics (2024), Macroeconomics (2021, 2022, 2023).

Docentiaz 2020, score: 80,83/100.

Participation in teaching innovation projects: national (2014-2016, UPV/EHU), international (2018-2021, European Commission).

Participation in the ENLIGHT consortium since 2021.