

Curriculum Vitae Marta Victoria

PERSONAL DATA

Date of birth	02/05/1984	Nationality	Spanish
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SCIENTIFIC PROFILE

I am a multidisciplinary researcher working as an Associate Professor at Aarhus University with previous research experience in Spain, Canada, and Denmark. My research focuses on two topics. First, the modelling of large-scale energy systems with high renewable penetration. Here, I combine data science, engineering, meteorology, optimization theory, complex networks, economics, and environmental policy to design future energy systems. I co-develop [PyPSA-Eur](#), an open networked sector-coupled model of the European energy system. Second, I investigate novel approaches in solar photovoltaics and how to integrate large shares of solar electricity into the grid. I have published 46 papers (14 as first author and 7 as last author) including 2 in Nature Communications, 4 in Joule, 8 in Progress in Photovoltaics, 5 in Applied Energy and 1 in Energy Convers. Manag. My papers have been cited 2570 times, resulting in an h-index of 25. I have also co-authored 4 patents and edited a MSc-level textbook.

EDUCATION

May 2014 Ph.D. at Solar Energy Institute - Technical University of Madrid.
I did my PhD on high efficiency photovoltaic modules at one of the most prestigious research centers in solar photovoltaics, founded in 1979. My supervisor, Gabriel Sala, was awarded the [Becquerel prize](#) in 2013, while I was his PhD student.

Sep. 2007 B.Sc. and M.Sc. in Aerospace Engineering, Technical University of Madrid.

ACADEMIC EMPLOYMENT

Jan 2022 – present Associate Professor, Department of Mechanical and Production Engineering, Aarhus University
I teach M.Sc. courses on Energy Systems, Solar Energy and Thermodynamics.

Jun 2019 – Dec 2021 Assistant Professor, Department of Mechanical and Production Engineering, Aarhus University

Nov 2017 - May 2019 Postdoc Researcher on Modelling the Sector-coupled European Energy system, Department of Engineering, Aarhus University.

Mar 2015 - Oct 2017 Postdoc Researcher on modelling and characterization of high-efficiency photovoltaics, Solar Energy Institute, Technical University of Madrid.

ACADEMIC AWARDS AND HONORS

Nov 2022 DFF-Sapere Aude Young Research Leader

Jun 2022 IEEE Stuart R. Wenham Young Professional Award
[Presented at the 48th IEEE Photovoltaic Conference](#), the award recognizes individuals who have made significant contributions to the science and technology of photovoltaic energy and show significant promise as a leader in the field.

Jan 2015 Outstanding Doctorate Award assigned by the Technical University of Madrid to the top PhD theses.

Feb – May 2011 Visiting Fellowship at the SunLab, Center for Research in Photonics, University of Ottawa (Canada).

RESEARCH MANAGEMENT EXPERIENCE

- DFF Sapere Aude – Project EXTREMES 2023-2026 (Highly renewable energy systems under extreme weather events). With a budget of 6.1 mio DKK, it includes the supervision of 2 PhD students.
- PI of System Modelling Group at the Novo Nordisk Foundation CO₂ Center 2022-2028. This includes the supervision of 2 PhD students every year.

- AURORA (Achieving a New European Awareness, 2021-2025), funded by H2020. The AURORA project develops energy communities in four European universities including Aarhus University where I am the PI. The total project budget is 4.6 mio EUR. I administrate 700,000€ which includes the supervision of a PhD student and a coordinator for the energy community.
- Contribution to proposal writing of HYPERFARM project (Hydrogen and Photovoltaic Electrification of Farm, 2020-2025). HYPERFARM is funded by the EU Horizon 2020 program. Total project budget: 5.200.000 €. I manage 200.000€ including the supervision of a postdoc researcher.
- Contribution to proposal writing and manager of AU activities within the GRIDSCALE project (2021-2024). Funded by the Danish Energy Agency, GRIDSCALE has a total budget of 40 mio DKK (AU budget 5.5 mio DKK) and includes a PhD project ("*The role of long-term energy storage in low-carbon energy systems*") which I supervise.
- Work Package leader in project RE-INVEST "Renewable Energy Investment Strategies: A two-dimensional interconnectivity approach", funded by Innovation Fund Denmark, 2017-2022, 27 mio DKK.

SELECTED PUBLICATIONS

- M. Victoria, N. Haegel, I. M. Peters, R. Sinton, A. Jäger-Waldau, C. Cañizo, C. Breyer, M. Stocks, A. Blakers, I. Kaizuka, K. Komoto, A. Smets, *Solar photovoltaics is ready to power a sustainable future*, Joule 5 (2021), <https://10.1016/j.joule.2021.03.005>
- M. Victoria, K. Zhu, T. Brown, G. B. Andresen, M. Greiner, *Early decarbonisation of the European energy system pays off*, Nature communications 11 (2020) <https://www.nature.com/articles/s41467-020-20015-4>
- M. Victoria, K. Zhu, T. Brown, G. B. Andresen, M. Greiner, *The role of storage technologies throughout the decarbonisation of the sector-coupled European energy system*, Energy Conversion and Management 201 (2019) <https://doi.org/10.1016/j.enconman.2019.111977>
- M. Victoria, G. B. Andresen, *Using validated reanalysis data to investigate the impact of the PV system configurations at high penetration levels in European countries*, Progress in Photovoltaics 27 (2019) <https://doi.org/10.1002/pip.3126>

SUPERVISION EXPERIENCE

- Supervisor of Ricardo Fernandes for his PhD project ("*Modelling CO₂ capture and conversion technologies in highly renewable energy systems with high spatial and temporal resolution*") at Aarhus University. January 2023-present
- Supervisor of Sina Kalweit for her PhD project ("*Modelling CO₂ capture and conversion technologies in industrial clusters*") at Aarhus University. December 2022-present
- Supervisor of Ebbe K. Gøtske for his PhD project ("*The role of long-term energy storage in low-carbon energy systems*") at Aarhus University. May 2021-present.
- Supervisor of Parisa Rahdan for her PhD project ("*Modelling the European energy system with a focus on distributed generation and consumption patterns*") at Aarhus University. February 2022-present.
- Co-supervisor of Tim T. Pedersen for his PhD project ("*Exploring the near-optimal space solution in energy systems*") at Aarhus University in 2020-2023.
- Co-supervisor of Kun Zhu for this PhD project ("*Sector-coupling in emerging large scale renewable energy networks*") 2017-2020 at Aarhus University
- Co-supervisor of Guido Vallerotto for his PhD thesis "*Achromatic Doublet on Glass Fresnel lenses for Concentrator Photovoltaic Systems*" presented in May 2019 at the Technical University of Madrid and awarded Summa cum laude.

ACADEMIC SERVICES

- 2018-present Member of the Scientific Committee of the European Photovoltaic Solar Energy Conference (EUPVSEC) and the IEEE PVSC Conference (USA).
- May 2019 Main organizer of the 9th International Workshop on Open Energy Modelling, Aarhus 22-24 May 2019
- 2020- present Member of the Research Committee at my department (MPE)
- 2022- present Member of the PhD Committee at my department (MPE)