

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 Assistant 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 engineering, meteorology, optimization theory, complex networks, economics, and environmental policy to design future energy systems. Second, I investigate novel approaches in solar photovoltaics and how to integrate large shares of solar electricity into the grid. I have published 29 papers (13 as first-author) including 1 in Nature Communications, 1 in Joule, 7 in Progress in Photovoltaics, 5 in Applied Energy and 1 in Energy Conver. Manag. My papers have been cited 1171 times, resulting in an h-index of 17. I have also co-authored 4 patents.

EDUCATION

May 2014 Ph.D. at Solar Energy Institute - Technical University of Madrid.
I did my PhD on high efficiency concentrating 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

Jun 2019 - present Assistant Professor (tenure-track), Department of Mechanical and Production Engineering, Aarhus University
I teach M.Sc. courses on Solar Energy and Energy systems and Thermodynamics.

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

Feb 2019 Seal of Excellence. Certificate delivered to the Marie Curie project proposal submitted to the call H2020-MSCA-IF-2018.
The Seal of Excellence certifies that the proposal was scored as high-quality in a highly competitive evaluation process.

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

- 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") that I will supervise and a postdoc that I will co-supervise.
- Contribution to proposal writing of HYPERFARM project (Hydrogen and Photovoltaic Electrification of Farm). HYPERFARM is funded by the EU Horizon 2020 program. 2020-2025. Total project budget: 5.200.000 €. I will manage 200.000€ including the supervision of a postdoc researcher.

- Work Package leader in project RE-INVEST "Renewable Energy Investment Strategies: A two-dimensional interconnectivity approach", funded by Innovation Fund Denmark, 2017-2021 DKK27 million
- Work Package 3 leader in project CPVMATCH (Concentrating Photovoltaic Modules using advanced technologies and cells for highest efficiencies). Funded by the EU Horizon 2020 LCE-2014-1, program. 2015-2018. I managed the WP3 budget (696.429€) and co-supervised one PhD student.

SCIENTIFIC FOCUS AREAS

In my PhD and first postdoc, I focused on developing high-efficiency photovoltaic modules including the design, modelling, and characterization of concentrating optics and high-efficiency multijunction solar cells. I decided to change my main research focus, but I keep some research activities in this domain. Currently, my main research area is the development and application of energy models to investigate highly renewable energy systems. This includes new methodologies to convert weather data into wind, solar and hydro generation time series, implementation of techno-economic optimization models, and analysis of climate change impacts on energy systems.

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

- Co-supervisor (together with Ignacio Antón) of Guido Vallerotto for his PhD thesis "Achromatic Doublet on Glass Fresnel lenses for Concentrator Photovoltaic System" presented in May 2019 at the Technical University of Madrid and awarded with Summa cum laude.
- Co-supervisor of Kun Zhu for this PhD thesis "Sector-coupling in emerging large scale renewable energy networks" presented in June 2020 at Aarhus University
- Co-supervisor (together with Gorm B. Andresen) of Tim T. Pedersen who started his PhD project ("Exploring the near-optimal space solution in energy systems") at Aarhus University in April 2020.
- Co-supervisor (together with Luis Narvarte) of Francisco Javier Requejo who started his PhD project ("Use of solar PV for irrigation and unload of rural grids") at the Tech.Univ. of Madrid in Jan. 2021
- Supervisor of Ebbe Khyll Gøtske who started his PhD project ("The role of long-term energy storage in low-carbon energy systems") at Aarhus University in May 2021.

ACADEMIC SERVICES

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| 2018-present | Member of the Scientific Committee of the European Photovoltaic Solar Energy Conference (EUPVSEC) and the IEEE PVSEC Conference |
| 2015-present | Member of the Publication Committee of the International Conference on Concentrator Photovoltaic System (CPV-12 to CPV-15). |
| May 2019 | Main organizer of the 9 th International Workshop on Open Energy Modelling, Aarhus 22-24 May 2019 |