

PERSONAL INFORMATION

Andriy Vasylyev, Energy Modeler



WORK EXPERIENCE

Energy Analyst and Modeler (Intern), International Energy Agency

Date: 2025/03 – present (6 months)

International Energy Agency (IEA). Website: <https://www.iea.org/>. Paris (FR).

- Validated the performance of the open-source PyPSA-Eur model by benchmarking it against historical ENTSO-E Transparency Platform, ensuring reliability and credibility of simulation results.
- Conducted sensitivity analyses to assess the impact of varying VRE (Variable Renewable Energy) capacities on system behavior.
- Supported the organization of technical workshops and contributed to stakeholder engagement efforts.
- Monitored and analyzed regulatory developments in Ukraine aimed at promoting Distributed Energy Resources (DER) and improving energy network resilience.

Area of Expertise: Power Grid Modelling

Energy Market Analyst, KTE

Date: 2024/06 – 2024/12 (6 months)

Key To Energy (KTE), Italy. Website: <https://keytoenergy.it/en/>, Rome (IT)

- Automated the tracking process for ancillary services market performance, with a particular focus on European platforms PICASSO (aFRR) and MARI (mFRR).
- Assessed the techno-economic viability of energy storage systems within these balancing markets, supporting future integration strategies.
- Collaborated with senior energy modelers on modelling the Italian national electricity grid using PLEXOS, contributing to robust long-term system simulations.
- Co-developed scenario definitions aligned with Italy's 2024 National Energy and Climate Plans (NECP) issued by the Ministry of Energy.

Area of Expertise: Energy Market Analyst, and Power Grid Modelling

Physics teacher, Istituto Majorana-Giorgi

Date: 2024/02 - 2024/5 (3 months)

Istituto Superiore Statale Majorana – Giorgi. Genoa (IT)

- Delivered six weekly classes (18 hours/week), fostering student engagement and improving subject understanding.
- Developed strong communication and interpersonal skills by adapting teaching methods to diverse learning needs.
- Gained valuable insights into team dynamics, motivation, and empathy through continuous interaction with students. An experience that contributed significantly to both personal growth and professional development

Area of Expertise: Teaching

EDUCATION

PhD, Energy System Modelling

Date: 2022/10-Present, (3 years)

University of Genoa (IT). Webpage: <https://unige.it/>

- Developed techno-economic models for energy systems using Mixed-Integer Linear Programming (MILP) with piecewise linearization techniques, with a focus on operational optimization and degradation of Li-ion Battery Energy Storage Systems (BESS).
- Led the design and implementation of MEDO (Multi Energy Dispatch Optimizer), a MATLAB-based tool for dispatch modeling of hybrid energy systems, supporting multiple energy carriers such as electricity, heat, and hydrogen.
- Integrated Excel as a user-friendly interface for data input and scenario management in MEDO, enabling flexible modeling and performance analysis of technologies under off-design conditions.
- Validated MEDO within the EU Sinnogenes project, contributing to the modeling of the island of Ikaria's electrical network and assessing system flexibility and optimal dispatch strategies.

Master Degree, Mechanical Engineering

Date: 2019/09 - 2022/10, (3 years)

University of Genoa (IT). Webpage: <https://unige.it/>

Bachelor Degree, Mechanical Engineering

Date: 2016/09 - 2019/10, (3 years)

University of Genoa (IT). Webpage: <https://unige.it/>

PERSONAL SKILLS

Languages

Italian	Ukrainian	English
Mother tongue	Mother tongue	Good

Job-related skills

- Advanced knowledge of the MATLAB programming language, with extensive experience in developing numerical and optimization models.
- Ongoing improvement of Python programming for scientific computing and data analysis.
- Solid understanding of the modelling and simulation of complex energy networks, both through open-source tools like PyPSA and through custom-built models developed from scratch in the MATLAB environment.
- Proficient in structuring code in a modular and reusable way to ensure maintainability and scalability.
- Effective time management and task planning to meet project deadlines.
- Scientific writing skills and experience in preparing research articles for publication.

PUBLICATIONS

A. Vasylyev, A. Vannoni, A. Sorce - "Optimal Dispatch of Li-Ion Battery Energy Storage, Reviewing and Considering Cycling and Calendar Aging Models", Applied Thermal Engineering (2024).

DOI: <https://doi.org/10.1016/j.applthermaleng.2025.125597>

A. Vasylyev, A. Vannoni, A. Sorce - "Best Practices For Electricity Generators And Energy Storage Optimal Dispatch Problems", Journal of Engineering for Gas Turbines and Power (Boston, USA 2023).

DOI: <https://doi.org/10.1115/1.4063529>

A. Vasylyev, A. Sorce - "Optimization of reversible heat pumps utilizing waste heat from electric power plants", 79° congresso nazionale ATI (Genova, Italy 2024).

DOI:10.1088/1742-6596/2893/1/012048

A. Vasylyev, M. Passalacqua, L. Mantelli, M. Rivarolo, A. Sorce-“Piecewise-linear MILP optimization for energy systems design on board hybrid ships ”, 79° congresso nazionale ATI (Genova, Italy 2024)
DOI: 10.1088/1742-6596/2893/1/012040

A. Vasylyev, A. Vannoni, A. Sorce -“ Optimal dispatch of battery energy storage considering Cycling and Calendar ageing”,Conference SUPEHR23 (Savona, Italy 2023).
DOI: <https://doi.org/10.1051/e3sconf/202341401004>

M. Cavo, L. Mantelli, M. Rivarolo, A. Vasylyev -“ A MILP approach for hybrid energy systems design for sustainable maritime mobility”,Conference ECOS (Gran Canaria, Spain 2023).
DOI: <https://dx.doi.org/10.52202/069564-0131>

A. Vasylyev, A. Dubey, N. Andriopoulos, K. Malamaki, A. Sorce – “Long-Term Strategy To Optimize Res Penetration In Isolated Grid”

A. Vasylyev, M. Passalacqua, M. Bozzolo, M. Machaj, D. Bellotti, A. Baldinelli, F. Pineider, A. Sorce – “Strategies For Solar-Driven Fresh Water And Hydrogen Production In Island Scenarios”