Leonardo Bozzoli

Current position	3rd year Ph.D. student
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EDUCATION

Nov 2021 – Ott 2024

PhD in Sustainability and Risk management of Integrated Decarbonization Technologies for Energy Transition.

Ph.D. programme: Engineering and Information Technology for Structural and Environmental Monitoring and Risk Management (EIT4SEMM) - University of Bologna

Sectors: Energy transition, renewable energy valorisation, energy vectors, multicriteria evaluation, sustainability, transmission systems

Supervisor: Prof. Valerio Cozzani

Description: the research aims at the valorisation of offshore and remote areas renewable energy sources through the production of energy vectors. A first tool is developed to optimize the renewable energy source exploitation, by simulating a wide number of combinations of different converters (wind turbines, wave energy converters, photovoltaic panels) and selecting the optimal one through multi-criteria decision analysis, considering technical, economic and environmental aspects. A second tool to select the best alternative energy vectors is developed, considering electrical energy in the form of HVAC and HVDC and chemical vectors such as methanol and hydrogen. Also, for this tool, the multi-criteria decision analysis is adopted in order to select the optimal energy vector considering and quantifying technical, economic and environmental implications, as well as the dynamic coupling of the produced power with the process for the production of the targeted energy vector. The methodologies aim to consider a wide number of aspects such as physical and social constraints. Then, the methodologies are applied to several case studies to test their sensibility and robustness.

Jan 2024 – Jun 2024

Visiting PhD - DTU Construct department

Danish Technological University

Sectors: Energy transition, renewable energy valorisation, energy storage systems, multicriteria evaluation, sustainability

Supervisor: Prof. Ahmad Arabkoohsar

Description: the work aimed to conduct a comprehensive study on the integration of Energy Storage Systems (ESS) with renewable energy sources for power generation. Following an in-depth literature review of available ESS technologies, the compilation of data on the environmental impact, cost, and performance of the selected ESSs was carried out. Data were Integrated in the tool developed to optimize renewable source exploitation. By incorporating ESSs, the method evaluates the best combination of energy converters and storage systems to reliably meet load requirements. Several case studies were conducted, demonstrating the tool's potential for reducing both cost and environmental impact in hybrid renewable systems.

Dec 2017 – Mar 2020 **M. Sc. in Energy Engineering**

University of Bologna

Thesis Title: "Analysis of renewable sources-based energy systems aimed at the offshore methanol production", focused on create a case study of an offshore plant to produce methanol using renewable energy provided by wind, sun and wave converters

Supervisors: Prof. Valerio Cozzani, Prof. Valeria Casson Moreno, Dr. Mariasole Cipolletta

Sept 2014 – Dec 2017 **B. Sc. in Energy Engineering**

University of Bologna

Thesis Project: "Blockchain: a chance for the future", focused on the operating and the possibility of application in the energy sector.

Supervisors: Prof. Cesare Saccani, ing. Giovanni Anceschi, Francesca Frigieri

WORKING EXPERIENCE

Nov 2024 – present Sustainability and Risk Assessment of technologies for energy transition

Activities: Development and application of methodologies for assessing the sustainability and risk of decarbonization technologies - particularly for renewable energy systems - through ex-ante tools, quantitative trade-off analysis, and targeted case studies.

Sept 2020 – Aug 2021 Engineering Company Lorenzo Giorgi S.a.s., Pegognaga (MN), Italy

Project engineer

Activities: Technical assessments of building efficiency and performances, Heating, Ventilation and Air Conditioning systems design, heating systems design, building thermal insulation design and CAD design

PUBLICATION OF JOURNAL PAPERS

- Bozzoli L., Cipolletta M, Casson Moreno V., Cozzani V.: "Analysis of an Integrated Energy System Aimed at the Offshore Production of Methanol", Chemical Engineering Transactions, vol. 96, pp. 97-102, 2022, DOI: 10.3303/CET2296017
- Cipolletta M., Dialyna E., Bozzoli L., Casson Moreno V., Tsoutsos T., Cozzani V.: "Optimized Renewable Energy Mixes: Facing Energy Scarcity in Remote Islands", Chemical Engineering Transactions, vol. 99, pp. 235-240, 2023, DOI: 10.3303/CET2399040

LECTURES IN INTERNATIONAL CONFERENCES

- Bozzoli Leonardo: "Design of an offshore renewable energy-based process for hydrogen production by electrolysis", GRICU 2022 – Ischia, held on 5th September 2022
- Bozzoli Leonardo: "Analysis of an Integrated Energy System Aimed at the Offshore Production of Methanol", E2DT – Milano, held on 26th October 2022
- Bozzoli Leonardo: "Optimized Renewable Energy Mixes: Facing Energy Scarcity in Remote Islands", ICHEAP16 – Napoli, held on 22nd May 2023

TEACHING AND TUTORING EXPERIENCE

Feb 2025 - Sept 2025	**Tutor of "Sustainable Technologies for Energy Resources"** M. Sc. in Energy engineering, University of Bologna, Bologna
Sept 2024 - Feb 2025	**Tutor of "Clean Technologies for Energy Transition"** M. Sc. in Energy engineering, University of Bologna, Bologna
Feb 2024 - Sept 2024	**Tutor of "Sustainable Technologies for Energy Resources"** M. Sc. in Energy engineering, University of Bologna, Bologna
Feb 2023 - Sept 2023	**Tutor of "Sustainable Technologies for Energy Resources"** M. Sc. in Energy engineering, University of Bologna, Bologna
Feb 2022 - Sept 2022	**Tutor of "Sustainable Technologies for Energy Resources"** M. Sc. in Energy engineering, University of Bologna, Bologna
Nov 2021 - present	**Co-supervisor of B. Sc. and M. Sc. students for final thesis preparation** Chemical engineering, University of Bologna, Bologna

LANGUAGES

Italian	Native speaker
English	C1

DIGITAL COMPETENCES

- MATLAB
- SolidEdge
- AUTOCAD
- Thermoflow
- Comsol Multiphysics
- Aspen HYSYS

Il presente curriculum viene reso ai sensi e per gli effetti degli articoli 46 e 47 del d.P.R. n. 445/2000. Si autorizza il trattamento dei dati personali ivi contenuti limitatamente alla procedura in oggetto.