

## curriculum vitae



### PERSONAL INFORMATION

Name and Surname	<b>Giuliano Rancilio</b>

### Work experience

• Date (from – to)	2018 - ongoing
• Name of firm	Politecnico di Milano – Dipartimento di Energia
• Type of employment	Research assistant Feb 2021 – ongoing: Assegno di Ricerca “Sistemi di accumulo e mercati elettrici” Research activities on power system and electricity markets, with focus on their evolution for decarbonisation and integration of renewable energy sources. Battery Energy Storage Systems modelling for provision of grid services, including vehicle-grid integration. Regulatory evolution towards a distributed architecture: aggregation of distributed energy resources, energy communities.
• Main activities and responsibilities	<b>Teaching activity in the MSc courses:</b> <ul style="list-style-type: none"><li>- “Smart grids and regulation for RES”, code 093473 (since 2020 as official teaching support);</li><li>- “Energetica Generale”, code 089785 (since 2023 as official teaching support);</li><li>- “Regulation of electric power systems”, code 097733.</li></ul> <b>Other teaching activities:</b> <ul style="list-style-type: none"><li>- Seminars in Politecnico di Milano MSc Course “Building Services and Building Energy Modelling”,</li><li>- Lectures in Master Enel Strategic and Innovative O&amp;M Management,</li><li>- Lectures in Master MIP, Percorso Executive in Energy Management,</li><li>- Lectures in Enel Total Rewarding bootcamp: Technology of Future,</li><li>- Tutor for project work in Enel Second Level Specializing Master Smart Grids.</li></ul> <b>Consultancy activities:</b> Collaboration n.42-2018 (DENG): “Attività di ricerca e approfondimento tecnico circa la regolamentazione europea sui requisiti per la partecipazione di unità con contenuto limitato di energia al servizio di regolazione primaria di frequenza”. Collaboration n.36-2020 (DENG): “Sviluppo di uno strumento di modellazione e simulazione per

	<p>l'analisi tecnico-economica di iniziative di business nell'ambito dei progetti pilota UPI, UVAM e Fast Reserve di TERNA S.p.A.”.</p> <p>A list of the main activities and customers:</p> <ul style="list-style-type: none"> <li>• ARERA: support on the analysis of the procurement of Frequency Containment Reserve via energy storage systems at EU level.</li> <li>• areti S.p.A.: consultancy in the framework of the study “Stima dei consumi elettrici delle utenze connesse alla rete di distribuzione di Roma e non sottoposte a misurazione”.</li> <li>• CVA: research and consultancy activity in the framework of the study: “Analisi degli Asset CVA rispetto all'evoluzione del Contesto Regolatorio”</li> <li>• Eni: research activity in the framework of the JRC Eni-Polimi “Strumenti per la modellizzazione tecnico-economica di BESS (Battery Energy Storage Systems) e per il monitoraggio delle prestazioni in campo”.</li> <li>• EP Produzione S.p.A.: consultancy in the framework of the contract “Studio di fattibilità per installazione nuovo sistema di accumulo presso 2 Centrali della società EP”.</li> <li>• MOTUS-E: consultancy activity in the framework of the contracts “Studio per la revisione della struttura tariffaria relativa alla ricarica dei veicoli elettrici” and “Sfide e opportunità per il vehicle-grid integration al 2030”.</li> <li>• MRC Consultants: consultancy in the framework of the contract “Analysis of business models for commercial storage in Italy”.</li> <li>• Regione Lombardia: technical consultancy in the framework of the contract “Servizio di Assistenza Tecnica in Ambito Economico, Sociale, Tecnologico e Finanziario nella Costruzione del Piano Regionale Energia Ambiente E Clima (Preac)”.</li> </ul>
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• Date (from – to)	March 2019 – August 2019
• Name and address of firm	European Commission, Joint Research Centre (JRC) – Unit C.3: Energy Security, Distribution & Markets – Ispra (VA), Italy
• Type of employment	Traineeship: “Storage for Ancillary Services”
• Main activities and responsibilities	Responsible for the operation of a large-scale battery system located in Smart Grid & Interoperability Lab in Ispra site within the research project.

• Date (from – to)	May 2018 – August 2018
• Name of firm	Laboratorio Energia e Ambiente Piacenza (LEAP)
• Type of employment	Collaboration
• Main activities and responsibilities	Research activity on the Italian Ancillary Services Market.

• Date (from – to)	June 2018 – July 2018
• Name of firm	ITIS G. Cardano – Pavia
• Type of employment	External Commissioner
• Main activities and responsibilities	External Commissioner – Computer Science for Commission PVITIA002. Production and evaluation of Written and Oral Test for final High School examination.

<b>Education and training</b>	
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• Date (from – to)	February 2019 – June 2022
• Name and type of organisation providing education and training	Politecnico di Milano
Duration of the program of study	3 years (PhD)
• Principal subjects/occupational skills covered	<p>Electricity Markets in the presence of RES, energy storage systems and e-mobility charging processes</p> <p><i>Assessment of Balancing Market design for effective exploitation of Distributed Energy Resources, with focus on energy storage systems. Development of numerical models for analysis of provision of ancillary services. Investigation of relevant regulatory framework. Analysis of system costs related to innovative ancillary services schemes. Participation to the H2020 inteGRIDy project, in the San Severino Marche pilot project.</i></p> <p>PhD Thesis title: <i>Abate the barriers: opening electricity markets to storage and RES</i></p>
• Title of qualification awarded	PhD in Electrical Engineering

Final mark obtained	Cum Laude
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• Date (from – to)	October 2015 – April 2018
• Name of institution	Politecnico di Milano – Sede di Piacenza
Duration of the program of study	2 years (MSc)
• Principal subjects/occupational skills covered	Energy Engineering, Renewables and Sustainability. Innovative track focusing on low-carbon sources and their effective exploitation. Electric conversion, Power system, Smart grids, Power system regulation, Electrochemical energy conversion and storage, Advanced energy systems and low carbon systems, Chemical processes, Control systems, Turbomachinery and ICEs, Ecology, Flue gas treatments, Bioenergy, Advanced mathematics, Technologies for building systems MSc Thesis: <i>Battery energy storage systems for ancillary services provision</i> - Prof. Marco Merlo
• Title of qualification awarded	MSc in Energy Engineering – LM30
Final mark obtained	110/110

• Date (from – to)	October 2012 – September 2015
• Name of institution	Politecnico di Milano
Duration of the program of study	3 years (BSc)
• Principal subjects/occupational skills covered	Energy Engineering Thermodynamics, Physics, Chemistry, Electric principles, Fluid Dynamics, Computer Science, Management, Math, Energy systems, Electric machines, Hydraulic Machines
• Title of qualification awarded	BSc in Energy Engineering
Final mark obtained	88/110

• Date (from – to)	September 2007 – July 2012
• Name of institution	Liceo Scientifico C.Cavalleri, Parabiago
Duration of the program of study	5 years (High School)
• Principal subjects/occupational skills covered	Scientific High School
• Title of qualification awarded	Maturità Scientifica
Final mark obtained	95/100

<b>publications</b>	
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Type	Book chapter
Author(s) and title	Giuliano Rancilio, Andrea Vicario, Marco Merlo, Alberto Berizzi <i>Battery Energy Storage Systems Contribution to System Frequency for Grids with a High Renewable Energy Source Penetration</i>
Language	English
Publication place	Power System Frequency Control – Modeling and Advances
Date of publication	January, 2023

Type	Journal article
Author(s) and title	G. Rancilio, F. Bovera, M. Merlo <i>Revenue stacking for BESS: fast frequency regulation and balancing market participation in Italy</i>
Language	English
Publication place	International Transactions on Electrical Energy Systems, Vol. 2022, 1894003
Date of publication	June 2022

Type	Journal article
Author(s) and title	G. Rancilio, F. Bovera, M. Delfanti <i>Tariff-based regulatory sandboxes for electric vehicles charging: impact on tariff and power system in a national framework</i>
Language	English

Publication place	Int J Energy Res. 2022; 46(11): 14794- 14813
Date of publication	June 2022

Type	Journal article
Author(s) and title	G. Rancilio, A. Rossi, D. Falabretti, A. Galliani, M. Merlo <i>Ancillary services markets in Europe: Evolution and regulatory trade-offs</i>
Language	English
Publication place	Renewable and Sustainable Energy Reviews, 154 (2022), 111850
Date of publication	February, 2022

Type	Journal article
Author(s) and title	G. Rancilio, D. Gibin, A. Blaco, R. Casagrandi <i>Low-GHG culturally acceptable diets to reduce individual carbon footprint by 20%</i>
Language	English
Publication place	Journal of Cleaner Production, 338 (2022), 130623
Date of publication	January, 2022

Type	Conference proceedings
Author(s) and title	M. Moncecchi, G. Rancilio, A. Dimovski, F. Bovera <i>Smart Charging Algorithm for Flexibility Provision with Electric Vehicle Fleets</i>
Language	English
Publication place	2021 IEEE 15th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG)
Date of publication	December, 2020

Type	Journal Article
Author(s) and title	F. Bovera, G. Rancilio D. Falabretti, M. Merlo <i>Data-Driven Evaluation of Secondary- and Tertiary-Reserve Needs with High Renewables Penetration: The Italian Case</i>
Language	English
Publication place	Energies 2021, 14(8), 2157
Date of publication	December, 2020

Type	Conference proceedings
Author(s) and title	F. Gulotta, A. Rossi, F. Bovera, D. Falabretti, A. Galliani, M. Merlo, G. Rancilio <i>Opening of the Italian Ancillary Service Market to Distributed Energy Resources: Preliminary Results of UVAM project</i>
Language	English
Publication place	European GRID SERVICE MARKET Symposium, Luzern, Switzerland
Date of publication	December, 2020

Type	Conference proceedings
Author(s) and title	G. Rancilio, F. Bovera, M. Delfanti <i>A techno-economic evaluation of the impact of electric vehicles diffusion on Italian customer billing tariffs</i>
Language	English
Publication place	ICAE Applied Energy Symposium, 100% Renewable, Pisa, Italy
Date of publication	October, 2020

Type	Conference proceedings
Author(s) and title	A. Rossi, F. Bovera, G. Rancilio, D. Falabretti, A. Galliani, M. Merlo <i>Balancing markets and DERs in the Italian regulatory framework: insights on the UVAM Case Study</i>
Language	English
Publication place	European GRID SERVICE MARKET Symposium, Luzern, Switzerland

Date of publication	October, 2020
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Author(s) and title	F. Gulotta, G. Rancilio, A. Blaco, F. Bovera, M. Merlo, M. Moncecchi, D. Falabretti <i>E-mobility scheduling for the provision of ancillary services to the power system</i>
Language	English
Publication place	International Journal of Electrical and Electronic Engineering & Telecommunications (IJEETC), Vol. 9, No. 5
Date of publication	September, 2020

  

Author(s) and title	G. Rancilio, A. Rossi, C. Di Profio, M. Alborghetti, A. Galiani, M. Merlo <i>Grid-Scale BESS for Ancillary Services Provision: SoC Restoration Strategies</i>
Language	English
Publication place	Applied Sciences, 2020, 10(12), 4121
Date of publication	June, 2020

  

Author(s) and title	G. Rancilio, M. Merlo, A. Lucas, E. Kotsakis, M. Delfanti, <i>BESS modeling: investigating the role of auxiliary system consumption in efficiency derating</i>
Language	English
Publication place	Symposium on Power Electronics, Electrical Drives, Automation and Motion (SPEEDAM) 2020, Sorrento, Italy, pp. 189-194
Date of publication	June, 2020

  

Author(s) and title	I. Poursanidis, G. Rancilio, E. Kotsakis, G. Fulli, M. Masera, M. Merlo, <i>A design framework for Citizen Energy Communities in Cities: exploring PV-storage synergies</i>
Language	English
Publication place	11th IEEE PES Asia-Pacific Power and Energy Engineering Conference 2019 (APPEEC), Macao, China
Date of publication	December, 2019

  

Author(s) and title	F. Bovera, A. Blaco, G. Rancilio and M. Delfanti, <i>Assessing the Accuracy of Different Machine Learning Classification Algorithms in Forecasting Results of Italian Ancillary Services Market</i>
Language	English
Publication place	16th International Conference on the European Energy Market (EEM), Ljubljana, Slovenia
Date of publication	September, 2019

  

Author(s) and title	M. Delfanti, A. Blaco, F. Bovera, M. Pozzi, G. Invernizzi, G. Vielmini, M. Moncecchi, G. Rancilio, D. Falabretti, R. Komaie, M. Merlo <i>Grid-Tie and Off-Grid Operations for an Innovative Microgrid Realized in Leonardo Campus of Politecnico di Milano</i>
Language	English
Publication place	2019 IEEE 5th International forum on Research and Technology for Society and Industry (RTSI), Florence, Italy, pp. 103-108.
Date of publication	September, 2019

  

Author(s) and title	G. Rancilio, A. Lucas, E. Kotsakis, G. Fulli, M. Merlo, M. Delfanti, M. Masera, <i>Modeling a Large-Scale Battery Energy Storage System for Power Grid Application Analysis</i>
Language	English
Publication place	Energies, 2019, 12
Date of publication	August, 2019

  

Author(s) and title	G. Rancilio, M. S. Pasquadibisceglie, M. Merlo, F. Bovera, D. Falabretti and M. Delfanti, <i>Limited Energy Reservoirs: analysis of the proposed methodology for opening Frequency Containment Reserve to energy storage in EU</i>
Language	English
Publication place	2019 IEEE International Conference on Environment and Electrical Engineering and 2019 IEEE

	Industrial and Commercial Power Systems Europe (EEEIC / I&CPS Europe), Genova, Italy
Date of publication	June, 2019

Author(s) and title	M. Delfanti, F. Bovera, D. Falabretti, M. Merlo, G. Rancilio, <i>BESS located in Primary Substation for RES integration and ancillary services provision.</i>
Language	English
Publication place	International Conference on Electricity Distribution (CIRED) 2019, Madrid, Spain
Date of publication	June, 2019

## certifications

Certifications of language knowledge	TOEFL IBT – 01/08/2015 – 93
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## Personal skills and competences

Mother tongue	Italian
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Other language(s)
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	<b>English</b>
• reading	Good
• writing	Good
• speaking	Good

Computer skills
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Type	Software
• OS	Windows, Linux
• Coding	Matlab, Simulink, Python, SQL
• Word processing	MS Word, MS Powerpoint
• Spreadsheet	Excel
• DB	MySQL Workbench, Oracle
• CAD	Autodesk Inventor, Solid Edge, Solid Works, SketchUp
• Graphic, Video, Photo	Creative Suite Adobe

<b>volunteering</b>	
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• Date (from – to)	2020 – ongoing
• Role	Member of the City Council of the City of Parabiago
• Association	riParabiago – Local political party
• Main activities and responsibilities	<ul style="list-style-type: none"> <li>Group leader in the City Council for riParabiago;</li> <li>Member of the Commission “Affari Istituzionali e Generali - Bilancio - Programmazione e Finanze”;</li> <li>Member of the Commission “Lavori Pubblici - Urbanistica - Ambiente”;</li> <li>Member of the Electoral Commission.</li> </ul>

I authorise the processing of data in accordance with GDPR 2016/679 of 27 April 2016 (European Regulation on the protection of individuals with regard to the processing of personal data).

Milano, 27/7/2023

Signature: 