

Emanuele Stefano Carrea

PhD Mechanical Engineer

Date of Birth December 3, 1979
Address Via Cesare Cabella 22b/26, 16122 Genova, Italy
Contacts Phone: +39.3288522018 - email: emanue@gmail.com

Experience

- **Power Generation:** Project Engineer and Project Manager with 6 years experience in both conventional and renewable power sources.
Photovoltaic: Plants simulation, EPC and O&M Contracts, Power Purchase Agreements, PV plant performance evaluation, design review and optimization;
Conventional Power plants: Plant energy balances (steady state and off-design), piping verification and Plant Acceptance testing.
- **R&D:** PhD in thermodynamics and applied physics. Integration of heat pumps and renewable energy systems: simulation, development and optimization of prototypes, design of testing facilities for designed prototypes, results analysis.

Competences and attitude

- Strong analytical problem solving attitude, innovation capacity, international consolidation, growth.
- Communicator, team worker and coordinator, federating large groups of people also in international and multicultural environments.
- Action oriented, efficient with quick result achievement, careful planner, fast and independent learning, ethical, eclectic.

Work experience

September
2013 to date

Project Manager and Project Engineer @ Fichtner Consulting Engineers, Stuttgart, Germany

Project manager in consultancy services (Owner's engineering) for the implementation of a pipeline of 1000 MWp connected to the transmission system, in a South East Asian country.
Comparison of locations, options and technologies, economic analysis with cost estimate and civil construction planning, transmission system impact assessment.
Direct support to the customer through the process of Power Purchase Agreement negotiations and stipulation with the National Grid Operator.

Middle east, governmental client. Public tendering process for renewable energies IPPs: technical evaluation of bidders proposals in the tendering process, power purchase agreement negotiations, technical support to financial assessment.

Development of a calculation tool for PV Plants design (PV Technology and plant layout) optimization. For given conditions reflecting the available site, the tool integrates to a well known simulation software; starting from the simulation results, an optimization of the PV plant configuration is performed, aimed at the maximizing/minimizing financial and technical indicators (Energy production, NPV, IRR, LCOE, etc.).

Basic design of an Hybrid PV-Diesel Generator for a multi-national PV EPC contractor for participation to a public tendering process for power supply to a mining site in Africa.

2009 to date

Project Engineer and Project Manager @ Fichtner Italia

Lender's Engineering services for a big Italian Photovoltaic portfolio (>160 MWp).
Technical Due Diligences: Permitting process, EPC and O&M Agreements, Yield Study, Business Model Inputs, Equator principles, Plant acceptance tests, Operation and Management monitoring.

Feasibility study and basic design for a 1000 MWp PV portfolio in South East Asia.

Technical Due Diligence for the acquisition and financing of a large Italian portfolio (>240 MWp).
Technical Due Diligences: Portfolio evaluation, Permitting process, EPC and O&M Agreements, Yield Study, Business Model Inputs, Plant Acceptance tests.

Project manager for several Technical Due Diligences for PV plants acquisition and financing (1 to 10 MW): team management, time, cost and scope control, customer interface.

Owner's Engineering services and basic design for CCGTs in Tuscany (>50 MW): Process simulation, pipes design and Performance test review.

Analysis and impact evaluation for the introduction by AEEG authority of the imbalance norms for renewable power sources on a 30 MWp portfolio.

Factory audits for independent bankability evaluation of several PV modules manufacturers.

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2008-2009	Free Lance Project Engineer @ Lab S.r.l.
	Feasibility study and basic design of air conditioning and operational technical plants for several hospitals in Northern Italy. Basic design of Technical plants and utilities for a manufacturing facility.
2005-2009	Associate Researcher and PhD Student @ University of Genoa
	Heat Pumps: - Development and detail design of a Vapour Compression Solar Assisted Heat Pump prototype; - Steady state and dynamic models of process and components; - Design and installation of a test field for comparative analysis with traditional solar heating systems.
	Refrigeration: - Development and design of prototype of non-invasive low-impact performance measuring equipment for cold stores and large refrigerators.
	Photovoltaic: - Realization of a low-cost test bench for PV cells; - Realization and calibration of a simple reference cell for solar radiation measurement.

Education

2009	PhD @ University of Genoa: Solar Assisted Heat Pump Prototype realization and modelling
2005	Specialization Course @ <i>Von Karmann Institute for Fluid Dynamics, Brussels, Belgium</i> Introduction to Measurement Techniques
2005	Master Degree in Mechanical Engineering @ <i>University of Genoa</i>
2003	Erasmus 1 year @ University of Zaragoza, Spain

Languages

Italian	Native Speaker
English	Fluent
Spanish	Fluent

Computer skills

Productivity	Microsoft Office with Macros; LibreOffice/OpenOffice; Microsoft Windows; Linux; Internet, pc and technology enthusiast
Technical and Simulation	PVSyst, Matlab Simulink, Modelica, EES, K-pro (Power plants simulation), Ansys, Labview.
Drawing	Autocad, Solid Edge, Vectorial design and images editing, Openscad

Hobbies and interests

2012	Technology enthusiast and founder member of the <i>FabLab Genova</i> : open fabrication laboratory
2008 to date	Founder member of the association Snail Aid - Technology for development: - <i>Research and development of new technologies and technologies for impaired people and rural realities</i> - <i>Information and education on renewable energies</i>
2006	Awarded as <i>Lecturer in Refrigeration Systems</i>

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