

TEN

Trans Mediterranean
Engineering
Network

Company Profile

A new company for a new context

TEN Ltd - Via Gioacchino Volpe, 92 – 56121 Pisa (PI) - Italy

Michelangelo Celozzi – Executive President

michelangelo.celozzi@fci-engineering.com



shareholder structure

Turnover

3 Million €/y about
(total turnover realized in the energy sector
by the shareholders)

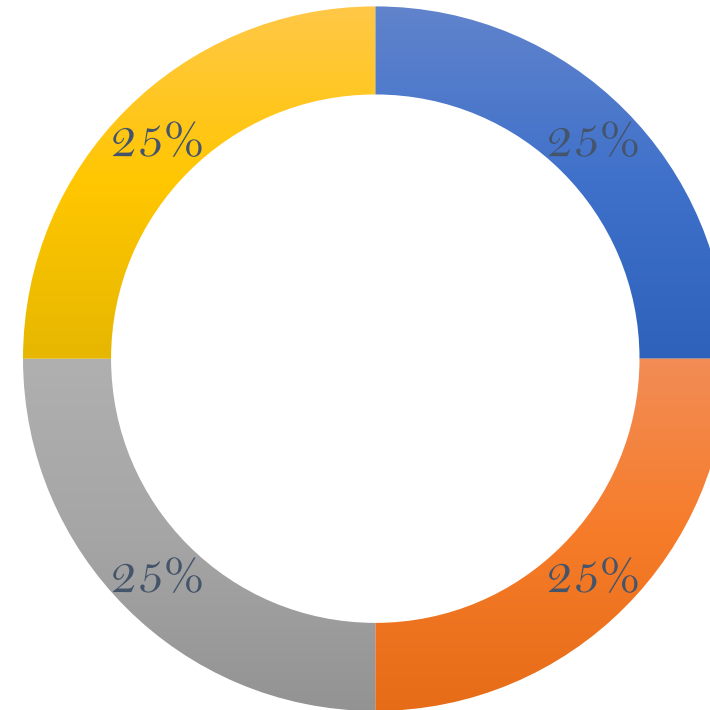
Staff

25 Engineers
(Shareholders' Members or Employees)

References

longstanding expertise
(domestic and international market)

TEN Ltd.



■ FCI Engineering

■ Enginet Engineering

■ 3E Ingegneria

■ ESC Studi Elettrici

Market Approach

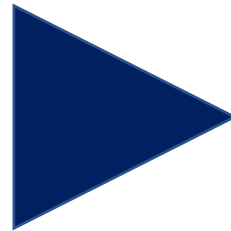
TEN is a **new Engineering Company**, born to respond to the **new challenges** posed by the **Energy Transition** and the **post-pandemic recovery plans**.

A context marked by **critical challenges** for Italy and the Mediterranean Countries, in which productive and economic relationships deeply changed, requiring the **businesses to react**

facing and managing the risks of an uncertain future
starting from our know-how

Energy Transition

European Green Deal and
Recovery Plans



Know-how specialized the energy sector

Strong increase in electricity consumption and related electrical infrastructure

This is our job

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About us

The TEN's shareholders are four engineering companies.

The unifying factor is the **common origin**: the wealth of experience acquired by the founding shareholders within the Enel Group.

A legacy branding the new company.

TEN's management: the four engineers leading TEN's shareholder companies

3E

Ingegneria

G. Saraceno

CEO

F C I

Engineering

M. Celozzi

Executive President

ESC

Electrical Studies

R. Gomez Martinelli

Executive Vice Presidents

ENGINET

Engineering

G. Manzoni

Scope of Work

<i>System Engineering</i>	<i>Studies and Research</i>
<i>Business Development</i>	<i>Grid, Load Flow and Dynamic Analysis (active and reactive power flows)</i>
<i>Business Plan</i>	<i>Power System and Grid Expansion</i>
<i>Business Models</i>	<i>Technologic innovation – market intelligence</i>
<i>System Analysis (architecture, SWOT Analysis)</i>	<i>RES Penetration Analysis and Design</i>
<i>Market Analysis</i>	<i>Cost Benefit Analysis</i>
<i>Plants' Design</i>	<i>Technical Assistance</i>
<i>Power Plants (Conventional and RES)</i>	<i>PMC – Project Management Consulting</i>
<i>Stations and Converter Stations</i>	<i>Feasibility Studies (technical and economic)</i>
<i>International Interconnections (business models, operating rules)</i>	<i>Market Integration (interface management)</i>
<i>AC, DC, and Hybrid AC/DC systems integration</i>	<i>Energy Exchange Platforms Development</i>
<i>Power Lines (AC and DC, OH, Underground, Submarine)</i>	<i>Commissioning Activities and Work Supervision</i>
<i>Internal User's Grid</i>	<i>Tests and Trials</i>
<i>Energy Storage - small, medium and large size</i>	
<i>Cogeneration Plants / Distributed Generation</i>	

Strength

Resources and references shared of shareholders, making available a **staff** of more than twenty specialized engineers (between members and employees), for a total **shareholders' turnover** of over 3 Million Euro.

Expertise, experience, references, computing resources and software tools to ensure uniform and **advanced standards of Engineering services**, sharing their costs.

Flexibility in the use of resources, to ensure Partners and Customers the maximum ability to meet their needs.

Reduced risk through market diversification (location of the projects, by **reducing** and **providing a greater degree of flexibility** as regards the **optimum allocation of the resources**).

TEN is active in the Mediterranean, Africa and Latin America, as specialist covering the **entire range of Electrical Engineering**: business development, feasibility studies, network analysis, design of power generation, transportation, distribution and storage plants in Very High, High, Medium and Low Voltage, DC, AC and DC/AC Hybrids.

Next Steps

- **Develop partnerships for improving the presence on the foreign market, mainly in the Mediterranean (Proximity Strategy, not only geographic)**
- **Increase activities in Italy, to strengthen credibility abroad**
- **Leverage Energy Transition for enhancing market presence**

1. **Med-TSO Master Plan of the Mediterranean Interconnections: ten-year expansion study (2014).**
2. **Introduction of RES generation in the South-East Mediterranean Countries (EC Project Paving the Way for the Mediterranean Solar Plan 2010-12)**
3. **MEDGRID study of an “Electric Corridor” from Africa (Maghreb) to Central Europe, through Italy (2013-14)**
4. **Saudi Electricity Corporation - Central-West HVDC interconnection HVDC Link ± 600 kVdc 2x1500÷2000 MW. Detailed Specifications for the manufacturers. (2012)**
5. **Network expansion studies for new wind generation in Eire - North Ireland. (2011)**
6. **Interconnection between Northern and Central part of the Chile power systems (2012)**
7. **Governmental Commission for the Italy-Switzerland blackout of 2003**
8. **European Commission for the German-European black-out of 2005**
9. **Brazil: planning of 500 KV transmission system, for the evacuation of large hydropower generation,**
10. **Iran: benchmarking of AC and DC solutions for the bulk transmission of nuclear power plant production (Tavanir)**

11. **Argentina: expansion plan of the HV network of the province of Buenos Ayres;**
12. **Mozambique: rehabilitation study of the Cahora Bassa HVDC link;**
13. **Zaire: World Bank Consultancy for SNEL on Inga Shaba Project**
14. **Russia - Kazakhstan: joint Italy-Russian studies for the project of UHV transmission**
15. **Mediterranean Electric Ring (MEDRING) expansion and dynamics studies for the electrical network of the South and East Mediterranean Countries (funded by the European Commission,)**
16. **Chairmanship of the Eurelectric SYSTMED group for the interconnection of Europe and Morocco, Algeria, Lybia, Egypt, Jordan, Syria, Turkey**
17. **AL FAW Grand Port (Iraq, 2014) - Client: PEG - Beneficiary: Energy Ministry of Iraq . Final design and tender documents for electrical part supplying of all the port infrastructures and related generation (280 MW) and underground transmission (12 km, 132 kV) / distribution 70 km, 33 kV) systems.**
18. **Scandale 12 MW wind farm and MV/HV substation (2012 – to date, Italy) - Client: Novenergia. Feasibility Study and Preliminary Design**
19. **Livorno HV substation (2013, Italy) - Client: TERNA. Feasibility study, preliminary design.**
20. **RUZIZI transmission lines and dams rehabilitation (2012 – 2014, Congo, Burundi and Rwanda) - Client : Organisation pour l'Énergie des pays des grand Lacs, UE. Feasibility Study, Final Design, Tender Documents, ESIA of Kamanyola Station, Transmission Lines, and Cascade Coordination Centre. Investigations, Design and studies of rehabilitation works for the Dams.**

21. NAO – Rehabilitation and upgrading of electrical distribution system MV and LV (2011 – 2012, Sierra Leone) - Client: National Authorising Office (NAO) – National Power Authority (NPA). Feasibility studies, Preliminary Design, Tender Documents, Assistance during procurement, Supervision of the execution of the installation work
22. Two 400/150 kV substations in Torremaggiore and Deliceto (2012, Italy) - Client: WKN. Feasibility study, preliminary design.
23. Tecate Hydro Power Plant connection to the national grid (2011, Mexico) - Client: ENEL GREEN POWER. Preliminary design and technical specification.
24. Geothermal Apacheta Power Plant to the national grid (2011-2014, Chile) - Client: ENEL GREEN POWER. Preliminary design, technical specification, tender document, topographic survey
25. 400/132 kV substation in Pordenone (2010 – 2011, Italy) - Client: Terna (italian Tso) . Feasibility study, Preliminary and Final design, tender documents for electrical part supplying.
26. HVDC 500 kV interconnection Italy Albania (2009-2012, Italy) - Client: ENEL Produzione SPA. Preliminary and final design.
27. AC 220 kV interconnection (merchant, OHL) Italy Austria (2008-2011, Italy) - Client: Alpe Adria Energia. Preliminary, final design and authorization
28. Feasibility study and final design of four 380 kV OHL for Terna SpA (2001- 2010)
29. Long-term Planning of the Electrical System of Chile, taking into account solutions through UHAC "highway" at 765kV or HVDC's link, with a capacity of around 12.000 MW
30. benchmarking of AC and DC links to interconnect the Central and Northern regions of Chile,

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References

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31. HVDC link Colombia - Panama, final design
32. HVDC links among Saudi Arabia and Egypt, preliminary design
33. **Assessment of the Maximum Capacity of Non-Conventional Generation (CMGNC) to be installed in the interconnected system of Peru (SEIN).**
34. **Power system modeling: RES user models (wind and photovoltaic), by using the main software for network simulations (PSS/E; PowerFactory DigSILENT).**
35. "HVDC link Project MONITA – HVDC cable link between Italy and Montenegro +/- 500 kVdc 2x600MW". **Harmonic Impedance Studies (HIS). Additional studies of Load-Flow, short-circuit and dynamic.**
36. **Consultancy Services for the upgrade of the HVDC power-flow model in the FLOWDC-SPIRA software**
37. **Development of the Battery Energy Storage System model for EMT studies, compatible with the software EMTP-RV**
38. **Upgrade of the Defense Plan of the Electric System of Jordan.** Resolution of the maximum Power Plant size admissible in the system.

Main Customers

A2A, Italia	NEPCO – Jordan	Elettronica Santerno S.P.A. – Italy
Alpe Adria Energia, Italia	COES – Perù	Cobra Perú
Enel Green Power, Italia	Coordinador Independiente Del Sistema Eléctrico Nacional - Chile	CEI (Comitato Elettrotecnico Italiano)
Enel Produzione, Italia	Engie Energia Peru	CESI, Italia
Terna, Italia	Engie Eps – Electro Power Systems S.A. – Italia	EDF Italia
Peg Engineering & Contracting DMCC - UAE	Weidmann Electrical Technology Ag – Ch	EDISON - SONDEL - Italia
NovEnergia, Luxembourg	FIMER S.p.A. – Italia	EDIPOWER, Italia
Organisation Pour L'énergie Des Pays Des Grand Lacs – Burundi	Hitachi Industrial Engineering Emea S.R.L.- Italia	SONELGAZ (Società Algerina Eletticità E Gas), Algeria
National Power Authority (NPA) – Sierra Leone	Abb Power One Italy S.P.A. – Italia	GRTN – (Gestore Della Rete Elettrica Nazionale), Italia
WKN AG, Germany	Advanced Integrated Energy Ltd – Israel	MIP (Politecnico Di Milano), Italia

Thanks for your attention