



## RES4AFRICA MEMBERS



POLITECNICO DI MILANO



POLITECNICO DI TORINO



Enel Green Power, established in December 2008, is the Enel Group company that develops and manages energy generation from renewable sources at a global level, with a presence in Europe, the Americas and Africa.

Enel Green Power is a major global operator in the field of energy generation from renewable sources, with an annual production of 32 TW/h, mainly from water, the Sun, wind and the Earth's heat, meeting the energy consumption of over 11 million families and avoiding 17 million tonnes of CO2 emissions per year.

Enel Green Power has an installed capacity of more than 10.000 MW, produced by 740 plants in 17 countries and with a generation mix that includes wind, solar, hydro, geothermal and biomass.

Enel Green Power is committed to contributing to sustainable development. Enel Green Power believes that renewable sources play a central role in promoting the competitiveness of the production system of several countries and to ensure secure energy supplies. Indeed, widespread electricity generation from water, the Sun, wind and the Earth's heat helps improve a country's energy independence, while also protecting the environment.

Enel Green Power aims to grow by substantially increasing its installed capacity and enhancing each country's technology mix, aimed at highlighting specific local peculiarities and building on Enel's expertise in this sector.

In countries having a retail organisation, Enel Green Power also work for families and companies in order to achieve energy self-production, -consumption and -management.

[www.enelgreenpower.com/en-GB](http://www.enelgreenpower.com/en-GB)



With offices in 158 countries and more than 210,000 people, PwC is among the leading professional services networks in the world. PwC help organisations and individuals create the value they're looking for, by delivering quality in assurance, tax and advisory services.

Some facts about PwC:

- In FY14, PwC firms provided services to 417 companies in the Fortune Global 500 and 462 in the FT Global 500.
- In 2014, we were named the 3rd most attractive employer in the world for business students by Universum.
- For the year ending 30 June 2014, PwC's gross revenues were US\$34 billion, up 6%, a strong performance in the face of some challenging circumstances.

PwC Italy's professionals are proactively involved in the Global Power & Utilities Centre of Excellence, a place where the collective Power & Utilities expertise of PwC is brought together with a targeted focus on our clients and major market issues. On a regional level, PwC Central Cluster Renewable Energy Group (CCREG) is focused on gathering all of the pertinent experts working in European and African practices, providing economic outlooks, market research, and strategic planning on RES and energy efficiency issues.

The African region is at the core of our attention, with active collaboration among PwC Italy, other European practices and those in the Middle East and Africa.

[www.pwc.com](http://www.pwc.com)



Met NewEn is a company of Maire Tecnimont Group specifically devoted to play a primary role in the global scenario of Renewable Energies.

Met NewEn is an highly skilled and specialized player worldwide acting as a reliable and independent counterpart for major operators of Renewable Energies sector, having moreover flexible access to the capabilities, the expertise and the global presence of the Group. Met NewEn is well prepared to offer to its international clients high-quality services along the whole value chain: from development and design to Engineering, Procurement and Construction (EPC).

Met NewEn is particularly equipped to deliver in all the continents, on a LSTK basis, best available technology plants to generate power on a large scale from Wind, Solar and Biomass sources, at the highest level of cost competitiveness and environment friendship.

<http://www.mairetecnimont.com/en>



Enerray, founded in 2007, is an Italian company leader in the design, development and management of medium and large-scale photovoltaic plants, for its own plants and those owned by third parties. As a company of the Maccaferri Industrial Group, an industrial corporation active since 1879, the company provides turnkey solutions for industrial roofing, shelters, on-ground installations and greenhouses, competing as a reliable partner, that can guarantee the best performance and function of the plants. EPC and O&M services of Enerray are based on a well-established and continuously growing experience, acquired on various plants and on an overall power of more than 250 MWp and 550 MWp others under construction. The company has strongly increased its order portfolio, establishing leadership on the market both as an EPC and as O&M Contractor. Enerray owns subsidiaries in Romania, Turkey, Saudi Arabia, Jordan, Morocco, Egypt, Mexico, Brazil, Costa Rica, Chile, Thailand and is active and develops markets in other countries in the Americas, Africa and Asia.

Enerray's strong know-how and association with a major industrial Group confirms Enerray as a reliable technological partner from a project's bankability perspective. The Company's experience enables it to provide its customers with a high quality service, who can then rely on a long-lasting PV system with a guaranteed and verifiable performance. Enerray is able to provide support starting from the preliminary and feasibility phases. Its skilled and qualified staff is able to find the best technical solutions and achieve the highest performance, highlighting the economic and financial aspects which optimize the project. Sound partnerships have been drawn up with leading PV component suppliers to provide its customers with the best supply conditions for PV modules, inverters, support structures and transformers.

[www.enerray.com](http://www.enerray.com)



Enertronica Spa is a company listed on the Milan Stock Exchange that operates in the Energy sector. Its mission is creating value for shareholders by operating with a green, Eco-sustainable and modern approach.

In order to obtain this result the whole activity is based on a few but clear lines of development: internationalisation and know how. Enertronica is a little multinational and it is present on some main markets where the renewable energy sector is developing, as South Africa, Romania, Namibia and Singapore. It is also active in Italy where it aims to operate in the new frontier of the energy savings and of the distributed production of energy. Enertronica carries out its activities through subsidiaries and units that operate according to thematic and geographical areas.

Enertronica designs and produces anchoring systems of high quality for photovoltaic power plants. In less than 3 years, Enertronica has created ground-mounted plants for several tons of MWp, so it boasts a high experience in design sector and in constructing mounting rail for photovoltaic plants. The design is carried out within the company that is staffed by highly experienced structural designers.

Enertronica carries out trading and sale activities of electricity and natural gas and implements energy efficiency measures aimed to limit energy consumption, to a rational use of energy and of renewable resources. From its entry into the market Smartutility aims to offer to the final customer a different service, not offered by traditional suppliers, by proposing transparent solutions according to the customer's ever-shifting demands, and useful solutions for the implementation of energy consumption and energy auto-production from renewable sources.

[www.enertronica.it/eng/](http://www.enertronica.it/eng/)

# Italgen

Italgen - Italcementi Group operates in the international market of the renewable energy sector. It was established in 2001 as a spin-off of Italcementi with the aim of producing and distributing electricity from renewable energy sources either in Italy or abroad. Its purpose is to combine business with a great commitment to the environment, adopting the Best Available Technologies in line with the sustainable development policy of Italcementi Group.

Italgen currently produces electricity in Italy through 14 hydroelectric power plants mainly located in the north of Italy, interconnected through a network of approximately 400 km of corporate power transmission lines. Its hydropower plants have been gradually modernized and they are all currently registered EMAS (Eco Management and Audit Scheme) and certified to ISO management system standards 9001 and 14001. The Company additionally counts 1 photovoltaic plant in Italy, whereas 1 hydropower plant is currently under development.

In recent years Italgen has been focused on sustainable projects of international development, achieving 2 wind farms in Bulgaria and 1 wind farm in Morocco, besides 1 concentrated solar power plant and an additional wind farm currently under development in the country. As for Egypt, Italgen is currently involved in the construction of a wind farm (120 MW) and in the development of an additional one (200 MW) in Gulf El Zeit (Red Sea).

In line with Italcementi Group Vision, to be a world-class local business, Italgen's mission is to participate actively to make a better future for all its stakeholders by playing a pioneering role in Renewable Energy.

[www.italgen.it](http://www.italgen.it)



Pöyry is an international consulting and engineering company. It serves clients globally across the energy and industrial sectors and provide local services in our core markets. Pöyry delivers management consulting and engineering services, underpinned by strong project implementation capability and expertise.

Pöyry' focus sectors are power generation, transmission & distribution, forest industry, chemicals & bio-refining, mining & metals, transportation and water. Pöyry has an extensive local office network employing about 6,000 experts. Pöyry's net sales in 2015 were EUR 575 million and the company's shares are quoted on NASDAQ OMX Helsinki (Pöyry PLC: POY1V).

Pöyry provides services across the full project lifecycle, solving complex challenges faced by the world's toughest industries. Clients depend on its deep expertise and performance-driven focus to deliver sustainable results - together.

Pöyry's vision is to be the global thought leader in engineering balanced sustainability for a complex world.

To achieve its vision Pöyry aims to be a truly visionary organisation: one that preserves the heritage, reinforces its purpose and stimulates continued renewal. Solid expertise and strong teams are the base of the Pöyry Way. Pöyry people are collaborative, professional, innovative and responsible with their clients, each other and their stakeholders - always aiming for the highest level of quality.

[www.poyry.com](http://www.poyry.com)



Terna is a large operator in electricity transmission grids led by CEO Matteo Del Fante and Chairwoman Catia Bastioli. It is Europe's leading independent grid operator in terms of km of electricity lines managed.

The Group's company structure comprises the holding company, Terna S.p.A., and its two operating subsidiaries: Terna Rete Italia and Terna Plus, each with its own Board of Directors. The service which Terna provides in Italy is crucial to the operation of the entire electricity system and for guaranteeing the supply of electricity to all, companies and private individuals alike.

In playing such a leading role, Terna has responsibility for supplying the entire country's electricity needs, not directly but via those companies that distribute and sell electricity to end-consumers. The sense of responsibility in providing a service of such wide-ranging importance is integral to Terna's company culture.

The Company manages electricity transmission in Italy and guarantees its safety, quality and affordability over time.

It pursues electricity grid development, ever-increasing operating efficiency and integration with the European grid. It ensures equal access conditions for all grid users. It develops market activities and new business opportunities with the experience and technical expertise it has acquired in managing complex systems. It also creates value for shareholders thanks to continual commitment to professional excellence, and a responsible approach to the community, fully respecting the environment and the areas in which it operates.

[www.terna.it](http://www.terna.it)



CESI is an independent center of expertise and a global provider of technical and engineering services to customers throughout the energy value chain, including business and technical consultancy, engineering and operational support. CESI also acts as owner's engineer and provide qualified third-party opinions to power utilities worldwide. Through its top-class modern testing facilities located in Milan, Berlin (IPH GmbH) and Mannheim (FGH GmbH), CESI is among the leading international organizations providing measurements and inspection, testing & certification and design review services to the global power industry.

Technical innovation is at the heart of much of what CESI does. CESI network of more than 1000 highly experienced professionals around the world, working from offices and through representatives in 35 countries, is dedicated to delivering customized solutions. These include providing innovative, yet practical, answers to meet the energy-related challenges of modern equipment and processes. CESI uniquely combine expertise in strategic and policy consultancy with comprehensive technical and technological know-how.

CESI 2013 financial performance was largely positive. In particular, in 2013, CESI and its subsidiaries posted Revenues ("Production Value") of over 112 million Euro, EBITDA of 23,5 million Euro, Net Profit of 2 million Euro, Cash Flow of 5.1 million Euro and a Net Financial Position of 30 million Euro.

[www.cesi.it](http://www.cesi.it)



Convert Italian Spa, based in Rome and factory in Pomezia, is active in the development of industrial technologies for the production of energy from renewable sources since 1981. The company primarily operates in the industrial production of single-axis trackers both as single products or as components for integrated systems recording since 2012 the first patent for its flagship product, the last MX1 today TRJ TK a solution for the daily handling PV panels from sunrise to sunset, which increases by 25% (compared to fixed systems) energy and economic performance of the entire plant.

Convert Italia realized over the last years more than 50 photovoltaic plants of large size in Italy as EPC turnkey way, gaining experience and competence at all stages of the value chain. This experience makes it an ideal partner for those involved in the design and implementation of large photovoltaic systems. Convert is able to cooperate not only supplying components and products of the commercial portfolio, but supporting all phases of engineering, design optimization and supervision for the realization.

Thanks to this expertise, constant investment in research and development and patents that arise, the company is among the top 10 worldwide players and is chosen as technology partner by major investors and international Utility of the electricity sector for the development of large photovoltaic plants in various parts of the world.

Thanks to contracts in Brazil, India, South Africa, Jordan, Namibia, etc., Convert Italy produces 1,35 GW of tracker in 2016 and has programs for 1.7 GW in 2017, making it one of the top five companies in the sector in the world.

[www.convertitalia.com](http://www.convertitalia.com)



With a history going back 150 years, RINA is a global Corporation serving Clients worldwide; our mission is to support the growth of Client businesses offering consulting & engineering, testing, inspection and certification. Consulting & Engineering services within RINA are provided by D'Appolonia S.p.A. This brand, originally established in 1956, joined RINA in 2011.

D'Appolonia is a team of engineers, consultants, designers, planners and specialists supporting public and private Clients from concept to decommissioning, through consultancy, design, management, operation and maintenance.

The company operates in the markets of Energy, Transport and Infrastructures, Industry and Investor Support.

We provide a wide range of services such as feasibility and specialized studies, design, Project Management, site engineering and operation & maintenance management. In addition, we offer technical capabilities to cover all aspects related to the environment, health and safety, geosciences and innovation for specific applications.

With a staff of about 1000 engineers, scientists and associated professionals located in 20 offices worldwide, D'Appolonia offers high-end services to investors, promoters, operators and contractors, as well as to insurers and public administrations, to support their initiatives.

All D'Appolonia services are performed at the highest professional level, understanding and complying with Client's needs and requirements while taking into due consideration sustainability and health, safety and environmental goals.

<http://www.dappolonia.it>



Environmental Resources Management (ERM) is a leading global provider of environmental, health, safety, risk, social consulting services and sustainability related services. We have more than 5,000 people in over 40 countries and territories working out of more than 160 offices. ERM is committed to providing a service that is consistent, professional and of the highest quality to create value for our clients. Over the past three years we have worked for more than 50 per cent of the Global Fortune 500 delivering innovative solutions for business and selected government clients helping them understand and manage the sustainability challenges that the world is increasingly facing.

For over 40 years we have been working with clients around the world and in diverse industry sectors to help them to understand and manage their environmental, health, safety, risk and social impacts. The key sectors we serve include Oil & Gas, Mining, Power, and Manufacturing, Chemical and Pharmaceutical. All face critical sustainability challenges and our clients in these and many other areas rely on our ability to assist them operate more sustainably which has a positive impact on our planet.

<http://www.erm.com>



Founded in 1950 to design and manufacture High Power Converters, FRIEM continued to develop its know-how in energy conversion for Industrial, Traction and Renewable Energies applications. In 1956 FRIEM produced and installed its first 50kA Rectifier Unit for application in Chlor-Alkali industry. At the absolute forefront in technology, in the early 60's FRIEM was able to manufacture units rated up to 110kA and to design the first high current Thyristor Rectifier. This experience and know-how were applied in the early 70's when FRIEM started the production of Rectifier Units for traction application. With the support of its Partners, FRIEM provides complete Substations Systems with all the main equipment and services. In 1984 FRIEM was able to design and start-up its first Power Supply for a PolySilicon CVD Reactor. Nowadays FRIEM has hundreds of units in service all over the World supplying all the different types of CVD Reactors. In 2009 FRIEM started the production of the ReCon Line, a complete line of Inverters for the Renewable Energies, becoming one of the main manufacturer in Italy and in the World.

Service continuity required by the Electrochemical Industry oriented FRIEM's design towards absolute reliability: quality, safety, latest international standards have always been the base for the design and development of our Equipment.

In order to serve our customers with a wider range of products and solutions, FRIEM has started partnerships and investments with expert Electro-technical Companies. This strategy gives FRIEM an even stronger Local presence, with offices, workshops and representatives in more than 20 Countries all over the World.

[www.friem.com](http://www.friem.com)



Founded in 1956 as an electromechanical company, SAET has been operating for over fifty years in the Energy field, in systems and plants for production, transmission and distribution of electric energy as well as for cement and steel industry. In the late 80's SAET became part of Techint Group, acquiring new working methods and the ability to assume responsibility for Turn-Key systems supplies, on the international market too. In 1993 SAET has been the subject of a management buy-out by its directors who currently are the shareholders and who have the technical and management responsibility of the company. In 2003 SAET became VAR (Value Added Reseller) of General Electric for protection & control: it has the experience of more than 60 plants with integrated P&C. In 2005 it started to supply HV substation up to 420kV and it has realised more than 50 HV turnkey substations integrating power, protection, controls and civil works. In 2012 SAET approached Energy storage market working as system integrator of different electrochemical technologies in 8 projects for a total of 18 MW/90 MWh installations.

<http://www.saetpd.it>



Electro Power Systems Group started its Technology Incubation and R&D in 2005. In 2013 technology went to market and in 2014 there was the kick-off, addressing technology to energy storage.

The Group's mission is to unlock the energy transition, by mastering the intermittency of renewable energy sources. Being pioneer of Hybrid Storage Solutions that enable intermittent renewable sources to be transformed into a stable power source. And enabling renewables to power society: reliably, affordably and sustainably.

Electro Power Systems Group provides grid operators and renewable energy players with hybrid storage solutions to master the intermittency of renewables, and address the burgeoning demand for primary, secondary and tertiary reserve, reactive power and black-start capabilities, at a lower cost for consumers, cutting electricity bills.

The Group enables renewables as a reliable and affordable stand-alone power source in emerging markets, displacing diesel and oil-fired generation. It fosters a bottom-up, decentralized model of greenfield electrification, providing clean energy 24/7 at cost lower than diesel generation, the only alternative in such areas.

Electro Power Systems Group works in 21 countries, powering more than 100.000 people by its Hybrid Power Plants. Aggregated energy storage installed and under commissioning is equivalent to 46.3 MWh, and the Aggregated power output installed and under commissioning is equivalent to 22.1 MW.

Since 2015, Electro Power Systems Group is listed in the regulated market Euronext in Paris (EPS:PA).

<http://electropowersystems.com/>



**POLITECNICO  
DI MILANO**

Politecnico di Milano is a scientific-technological university which trains engineers, architects and industrial designers. The University has always focused on the quality and innovation of its teaching and research, developing a fruitful relationship with business and productive world by means of experimental research and technological transfer.

Research has always been linked to didactics and is a priority commitment which has allowed Politecnico di Milano to achieve high quality results at an international level as to join the university to the business world. Research activity moreover constitutes a parallel path to that formed by cooperation and alliances with the industrial system.

Knowing the world in which you are going to work is a vital requirement for training students. By referring back to the needs of the productive, industrial world and public administration, research is facilitated in following new paths and dealing with the need for constant and rapid innovation.

The alliance with the industrial world, in many cases favored by Fondazione Politecnico and by consortiums to which Politecnico belongs, allows the university to follow the vocation of the territories in which it operates and to be a stimulus for their development.

The challenge which is being met today projects this tradition which is strongly rooted in the territory beyond the borders of the country, in a relationship which is developing first of all at the European level with the objective of contributing to the creation of a "single professional training market".

[www.polimi.it](http://www.polimi.it)



**POLITECNICO  
DI TORINO**

Politecnico di Torino is known both in Italy and abroad as a leading institution to study engineering and architecture. Tradition combines with innovation to make its campus a stimulating environment offering a wealth of opportunities.

Our university has around 32,000 students, with 50% from outside the region and about 15% who are foreign - the highest percentage in Italy. Our degrees are internationally recognised and students can choose to follow degree courses taught in English or, thanks to our links with some of the most prestigious universities around the world, undertake periods of study abroad as part of their course.

Students choose Politecnico di Torino for its established reputation, for being highly selective and sometimes even “tough”. However, we do reward students for merit and provide a strong basis for future career success. Students who are looking for a thorough education which is relevant to the job market or who are interested in research with a multidisciplinary approach will be attracted to what our university has to offer. Graduates from Politecnico of Turin receive an education that goes far beyond technical knowledge.

Politecnico di Torino offers a multicultural study environment and has a close relationship to businesses, which share our premises and work with us on many projects giving students the opportunity to gain work experience while still at university.

Politecnico di Torino is therefore a true research university, where education and research combine to meet the real needs of the local area and economy and most importantly those of the students.

[www.polito.it](http://www.polito.it)



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