

**ENERGY TRANSFORMS US,**  
LET'S TRANSFORM ENERGY





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# GROUP OVERVIEW



## PLC at a glance

The PLC group is a market leader in the design, installation and maintenance of **electrical infrastructures and renewable energy production plants**.

Led by PLC S.p.A., the various subsidiaries provide solutions for the production of energy from the entire range of renewable sources: **wind, photovoltaic and bioenergy**.

Through its companies, the PLC Group is present in all phases of the renewable energy value chain, from development and design to turnkey construction, up to long-term O&M management. This consolidated presence has allowed PLC to sell its projects to qualified investors, taking care of their complete authorization, turnkey construction and long-term O&M activities.

Today, PLC presents itself as a multi-technology **Independent Service Provider** with a strong international vocation.

The corporate group has its registered office in Milan, main operating offices in Acerra (Naples) and secondary operating offices in Apulia, Lazio, Sicily and Sardinia.



# History

At the end of the 90s the renewable energy sector started to develop in Italy. Thanks to the collaboration with realities such as IVPC and Schneider Electric, PLC System establishes itself as one of the reference players in the sector of installation of **electrical infrastructures serving renewable energy production plants**.

**PLC Service was born** from a company branch of PLC System, whose core business is represented by the sector of tests on AT equipment, thermography and Global Service.

PLC Service presents on the Italian market a **"turnkey" maintenance service** of the *"Balance of Plant"*, with very high levels of reliability.

PLC **enters the South African market** by building several electrical substations and then expanding in 2013.

The shares of PLC System and PLC Service are sold by the shareholders to the new holding of the Group: **PLC Group S.p.A.** In the same year **PLC Service Wind** was born.

PLC S.p.A. acquires 51% of **Monsson Operation Ltd. Ireland**, a leading international player in the renewable energy market. The following year, PLC S.p.A. acquires all the shares, passing to hold 100% of the company.

Debut of **New Projects**, the business unit dedicated to the **digitization of the operational processes** of all company functions in the "Operation and Maintenance" (O&M) field applied to renewable energy.

1996



The PLC project was born in 1996 on the initiative of **Francesco Esposito**. After a long professional experience with the major operators of the Italian electricity market, Esposito founded **PLC System** in Casandrino (Naples), together with his family's financing partners.

2000



2005



PLC System establishes itself as one of the main players in the "turnkey" installation of the BOP (Balance Of Plant) for **photovoltaic power plants**.

2006



2010



PLC begins to approach the market as **EPC** (Engineering, Procurement and Construction).

2012



2014



Thanks to the introduction of new professional figures, PLC is transformed into a **managerial company**. A corporate reorganization is launched which leads to the creation of a holding company that controls the various *legal entities*.

2016



2017



A **division specialized in the inverter field**, was born within PLC Service, with the aim of internally managing activities with a higher technological content. In the same year, PLC System acquires **Idroelettrica 2014 S.r.l.** and the process for **listing on the Italian Stock Exchange** is initiated.

2018



2020



PLC S.p.A. completes the purchase of the majority of the share capital of **Schmack Biogas S.r.l.**, confirming the desire to be a leading player in the renewable energy market.

2021



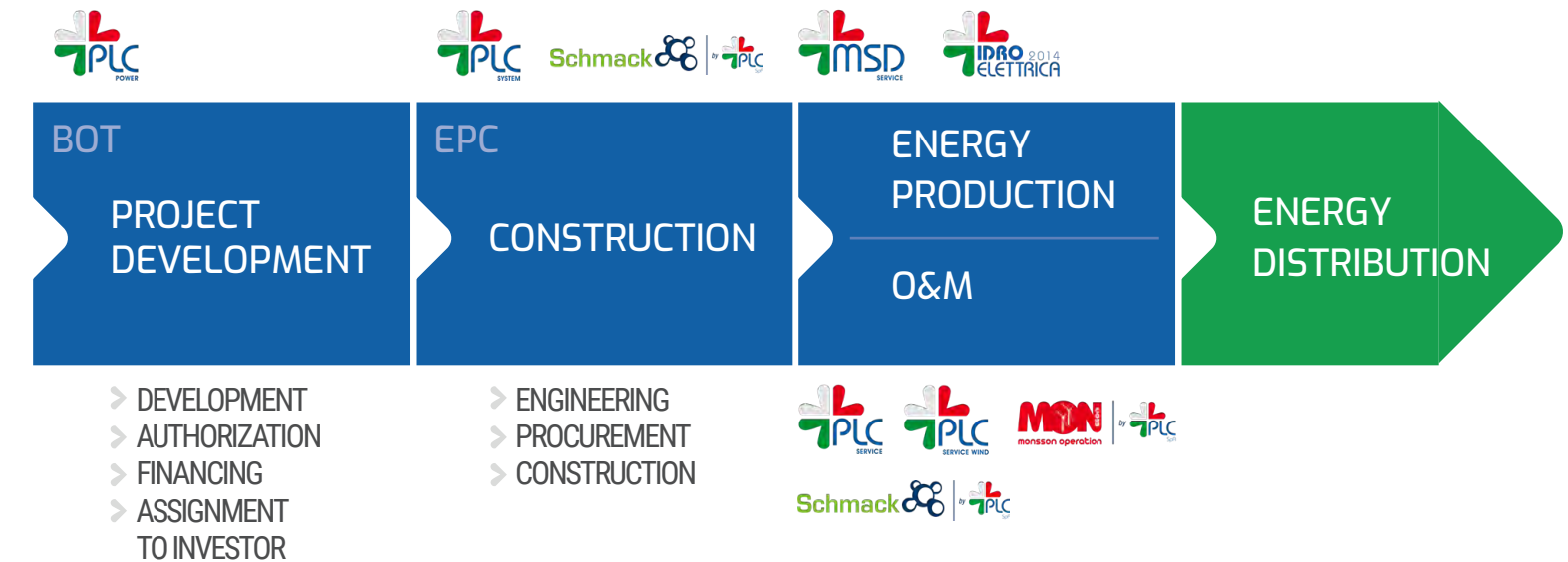


# BUSINESS MODEL

PLC offers various solutions for the design, installation and maintenance of energy plants, in the renewable energy and electrical infrastructure sectors.



## Building the future with the right partner



THE VALUE CHAIN OF RENEWABLE ENERGIES CAN BE DIVIDE IN:

1. DEVELOPMENT AND PROJECT
2. BUILDING OF THE PLANTS
3. PRODUCTION OF ENERGY AND MAINTENANCE OF PLANTS
4. DISTRIBUTION OF ENERGY

PLC, through the companies that make up the group, is active in the first three stages of the value chain.





# Engineering, Procurement and Construction

A General Contractor to build the future

The PLC group acts as General Contractor for the construction of renewable energy plants, carrying out all EPC (*Engineering, Procurement and Construction*) activities and providing a highly specialized service. In particular, through the various subsidiaries, the PLC group deals with:

- Design, supply, assembly and commissioning of **electrical stations AT/MT, primary substations, MT substations** and other electrical infrastructures
- Construction of **turnkey user substations**
- Construction of **RTN network sorting stations**
- Assembly, installation and commissioning **HVDC converter stations**
- Full BOP of **wind turbines**
- EPC and Full BOP of **photovoltaic systems**
- Construction of **anaerobic digestion plants for agriculture**
- Construction of **anaerobic digestion plants for organic waste**







## Operation and Maintenance

Efficiency and performance  
at the highest levels

The PLC group offers various packages of services and activities, fully adaptable to the needs of each customer, in the renewable energy and electrical infrastructure sectors.

Acting as **O&M provider**, the group provides periodic monitoring of the plants, ensuring maximum production efficiency and carrying out an ordinary, extraordinary and predictive maintenance service, in addition to the replacement of components.

The systems are **monitored 24h / 24h by a special control room**, guaranteeing the highest levels of performance. The operator also receives monthly reports that indicate the performance of the plant.

To date, considering all the services provided to customers, the PLC group manages **over 8.4 GW** attributable to wind farms, photovoltaic systems and electrical infrastructures.

### PREVENTIVE MAINTENANCE

Regular maintenance helps prevent equipment failures that can cause power loss and extend the service life of the infrastructure. The activities are carried out every six months, annually or biennially based on a detailed plan shared with the customer.

### PREDICTIVE AND CORRECTIVE MAINTENANCE

PLC also performs numerous predictive maintenance activities in order to reduce unpredictable plant downtime and to schedule corrective activities. To ensure maximum plant performance, PLC makes use of specialized technicians and engineers distributed throughout the national territory.







# Monitoring and dispatching of plants

State-of-the-art systems for asset control

The PLC group, by means of MSD Service, performs **remote monitoring and plants dispatching orders management**, using two state-of-the-art control centers.

The experience of the PLC team in the monitoring, remote measurement and remote control of electricity production plants powered by renewable sources allows to monitor and dispatch multiple assets, including power infrastructures, wind and photovoltaic plants.

The **Acerra control center**, developed by PLC, allows quick and easy access to the plants connected to Terna's control system for dispatching services.

To date, through the two Control Rooms in Acerra and Costanza, the PLC group monitors approximately 330 assets, for a **total power of over 6.5 GW**.







## Build, Operate and Transfer

From authorization to the turnkey plant

The know-how acquired and consolidated in the development, design, construction and management of renewable energy plants has allowed PLC to sell its projects to qualified investors, taking care of their complete authorization, turnkey construction, as well as O&M activities. long-term.

The PLC group, through its subsidiary PLC Power, develops projects on a greenfield basis or acquires them at an advanced stage of development, transferring them to special vehicle companies (SPVs) which are sold together with the construction package and O&M (Build, Operate and Transfer activities).

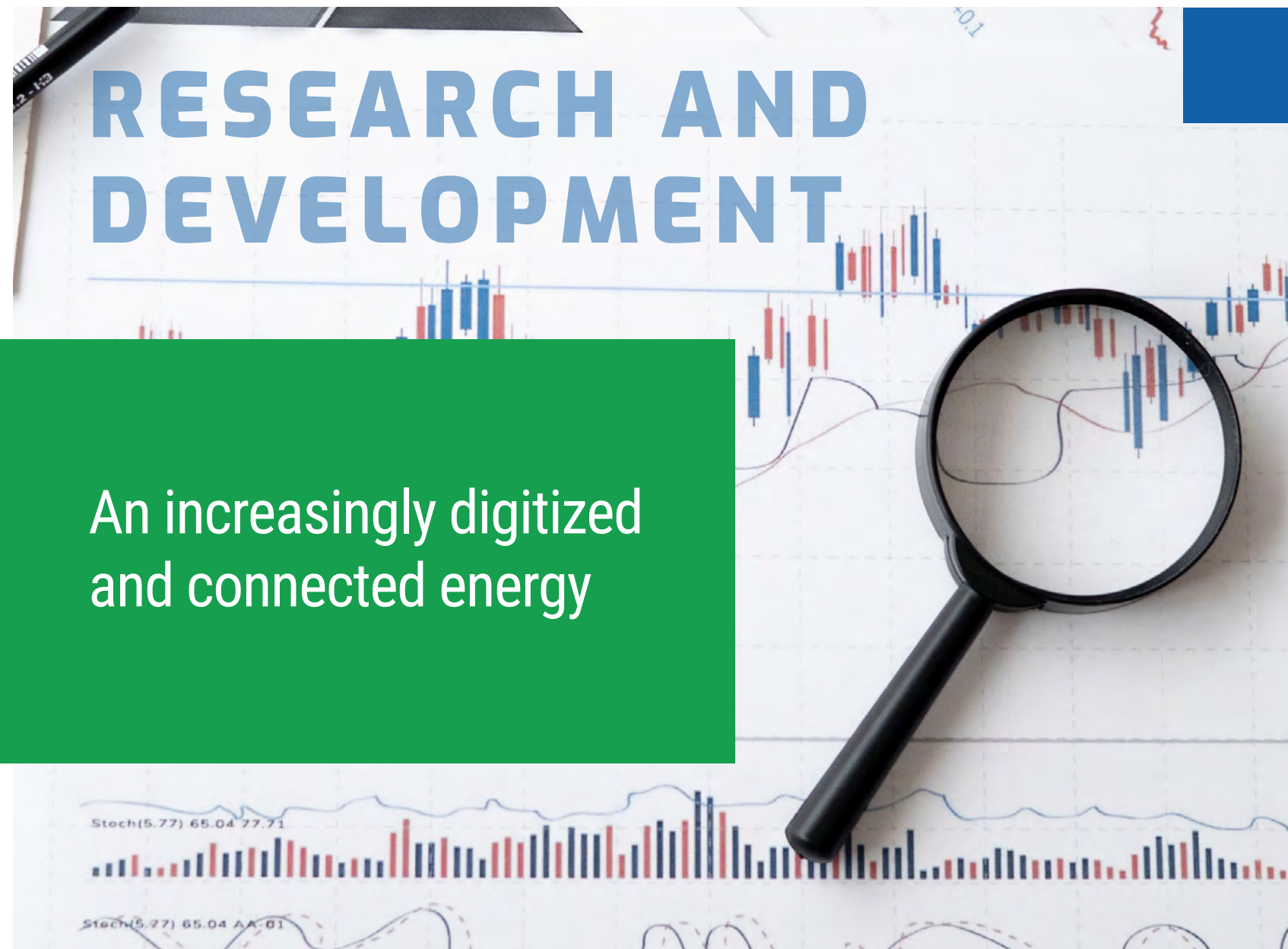
The plants subject to the BOT activity are those that exploit the renewable energies in which the Group operates, in particular wind and photovoltaic plants.





# RESEARCH AND DEVELOPMENT

An increasingly digitized and connected energy



PLC is constantly engaged in **Research and Development** activities to improve the quality of the service offered to customers and to optimize the operation of the Group from an **Industry 4.0** perspective.

The main R&D activities are aimed at **restructuring the organization of work and processes**, with the aim of implementing a real technological leap in the coming years.

The main ongoing projects concern:

- Augmented reality for O&M
- Artificial intelligence for predictive maintenance
- - IoT-based data acquisition from power plants
- Advanced SCADA solutions for O&M
- Workforce management and centralized planning

## AUGMENTED REALITY, ARTIFICIAL INTELLIGENCE AND IOT

In collaboration with an advanced R&D Consortium, PLC is developing Augmented / Virtual Reality and Artificial Intelligence / IoT technologies for advanced maintenance and optimized management of RES systems.

## ADVANCED SCADA SOLUTION AND REMOTE CONTROL ROOM

The project aims to create a highly effective technological control center to centralize specialized know-how to support all departments of the PLC group.





# TECHNOLOGICAL SECTORS

Rethinking energy to  
rethink the planet

The PLC group is the **first Italian company** to provide **solutions for the production of energy** from the entire range of **renewable sources**.





## Wind

Installation, Full BOP  
and O&M of wind turbines

Through its subsidiaries, the Group deals with the development, installation and assembly of wind turbines, remote control, ordinary and extraordinary maintenance of wind farms, as well as of the substitution of wind turbines' components.

It also carries out all the ancillary civil and electrical works for wind farms.







## Photovoltaic

Full EPC, Full BOP, O&M and revamping

Thanks to the deep know-how gained in 15 years of activity in the sector, PLC performs engineering contracts and construction of photovoltaic systems. In recent years, it has then specialized in revamping activities, in order to restore or improve the performance levels of customers' photovoltaic systems.

PLC currently performs O&M on over 150 photovoltaic plants that manage a total capacity of 500 MW. It also deals with other services such as the dispatching of electricity.







## Bioenergy

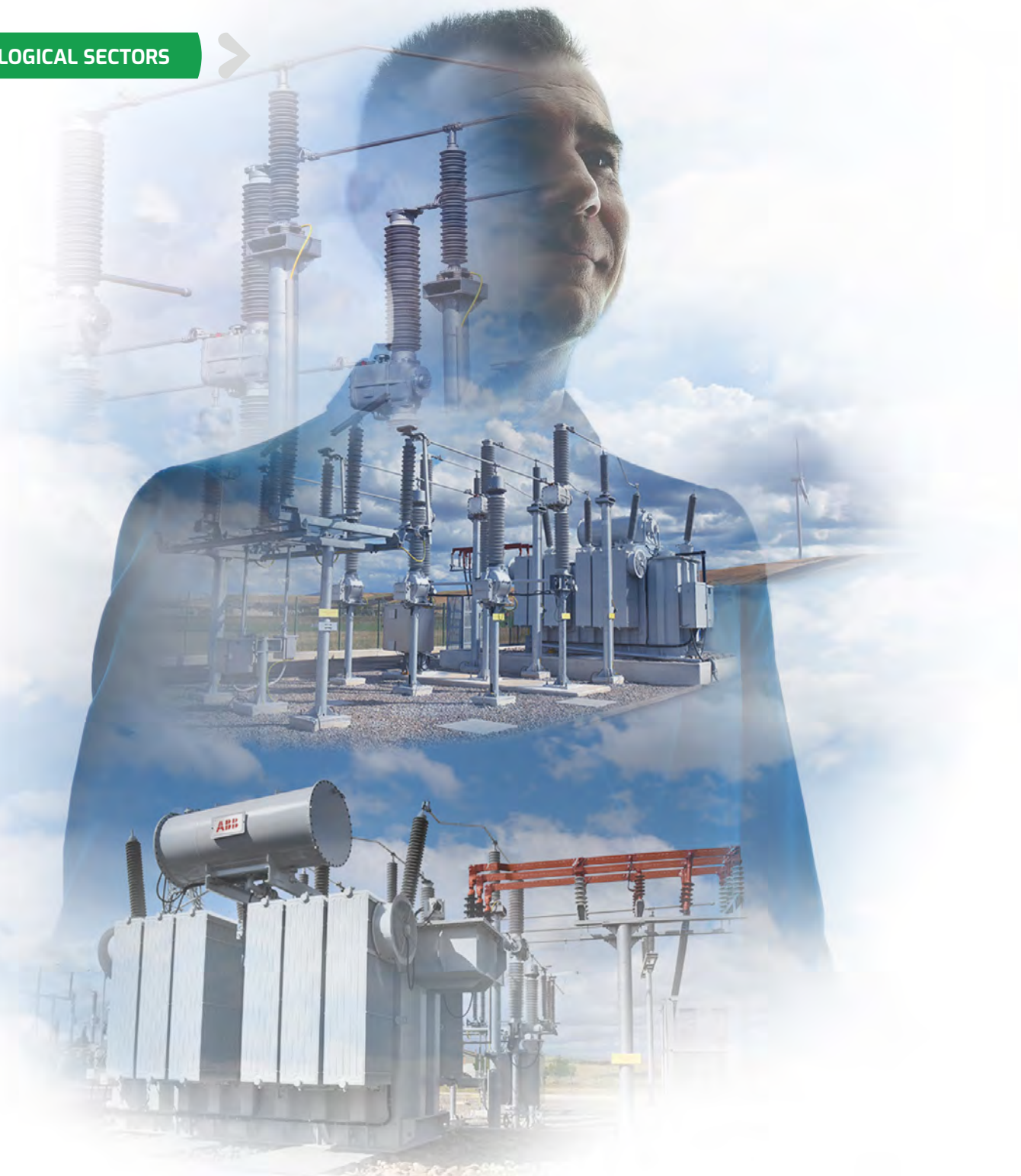
EPC and O&M of plants  
for agriculture and organic waste

PLC, through Schmack Biogas, offers solid and efficient solutions for sustainable energy for farms and livestock.

In the bioenergy sector, the Group builds anaerobic digestion plants for agriculture and livestock farms, anaerobic digestion plants for organic waste and supplies specific components for biogas and biomethane plants.







## Electricity grid infrastructures

EPC, O&M with cutting-edge tools and techniques

PLC uses cutting-edge tools and techniques to design, build, install, manage and monitor RES plants-assisted high, medium and low voltage power plants (wind, photovoltaic, biogas), RTN sorting stations and interconnections.







# COMPANIES



The PLC group is led by **PLC S.p.A.**, a holding company listed on the Mercato Telematico Azionario (MTA Market) of the Italian Stock Exchange, which exercises management and coordination activities on directly and indirectly controlled companies.

Together, the companies of the Group are able to provide solutions for the production of energy from all renewable sources: wind, photovoltaic and bioenergy.





## PLC System

Construction of power interconnections and energy plants from renewable sources



**PLC System is a reference player in the design and building activity of high, medium and low voltage power interconnections and of power plants from renewable sources.**

The company is mainly specialized in the industrial plant engineering sector, overseeing the entire production chain, from the design phase to the testing and commissioning of the plant.

PLC System deals with the construction of plants from renewable sources using the turnkey, civil and electrical EPC or BOP formula, for photovoltaic and wind power plants.

## PLC Service

Maintenance of electrical networks and photovoltaic systems



**A primary, independent operator, PLC Service provides the market with a wide range of services and specialized activities concerning the ordinary and extraordinary maintenance of high and medium voltage power interconnections and photovoltaic plants.**

Quality and level of service, reduced intervention time and optimization of the performance of the assets under management are guaranteed through a capillary organization with several local technical hubs and logistic offices in Italy and a centralized Control Room in the Acerra headquarters.

Within PLC Service, the inverter division offers operators in the photovoltaic sector maintenance, diagnostic and repair services for the equipment of the most important brands on the market.

The company is also particularly active in the revamping of photovoltaic systems and power interconnections, including executive engineering.





## PLC Service Wind

Maintenance of wind turbines



**PLC Service Wind completes the presence of the PLC group in the area of plant maintenance, providing a wind turbine management and maintenance service, which is added to the classic Balance of Plant service which has always been conducted by PLC Service.**

The proposed contracts have as their object the **ordinary and extraordinary maintenance of wind turbines** of various technologies.

In addition to O&M activities, PLC Service Wind offers specialized services with primarily the inspection and repair of blades, the replacement of major components, as well as the installation and assembly of medium and large wind turbines.

## Monsson Operation

Maintenance and management of RES plants and power connection infrastructures



**Monsson Operation, member of the PLC group, offers a complete range of solutions for the maintenance, management and dispatching activities of wind and photovoltaic plants and power connection infrastructures.**

The company operates throughout Europe. In addition to ordinary and extraordinary O&M activities, it offers wind turbine installation and assembly services, making use of a dedicated division and teams specialized on the most important brands on the market.





## PLC Power

Build, Operate and Transfer  
of turnkey plants



**PLC Power is the group company that develops plants from renewable energy through the constitution of specific SPVs, selling them qualified investors, together with a long-term construction and maintenance package (BOT).**

Through the *Special Purpose Vehicle* companies, PLC Power follows the entire construction process of a plant, from the project authorization phase to the delivery of the turnkey plant, according to the **Build, Operate and Transfer** method.

With this formula, the PLC group integrates downstream the value chain typical of *Engineering, Procurement and Construction* and O&M activities, directly addressing the final investor market and maximizing the value of its skills.

## Schmack Biogas

Plants for the anaerobic digestion  
of organic waste and for agriculture



**Schmack Biogas is specialized in the construction of biogas and biomethane plants (waste plants and agricultural plants).**

From the feasibility analysis to the design, from the care of the authorization process to the realization, from the assembly to the start-up, up to the ordinary and extraordinary maintenance, the company is able to offer a **complete service**.

Thanks to its team of experts, Schmack Biogas follows the construction of the plant and **monitors every phase of construction**. Trusted subcontractors take care of the construction of the tanks, the laying of the pipes, the assembly of the components, while the internal staff of Schmack Biogas takes care of the **biological start-up of the plant**, to guarantee a stable anaerobic digestion process from the beginning.





# MSD Service

Electricity dispatching services



**MSD Service is an operator in the dispatching services market for distributed and renewable generation plants.**

The technical starting point to support the MSD Service activities is the system for aggregating and sending the measurements in progress of the **Acerra control center**, developed by PLC, which allows quick and easy access to the plants connected to Terna's control system for dispatching services.

The company offers different services. Among these, support to support to the producer so that the latter becomes a market operator and a user of the dispatching, scheduling and sale on the market of the energy produced by optimizing the unbalancing, planning and purchase of energy for the consumption units (charging columns, end customers).

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