



## **Company Profile**



**Company**

- **1975 :**

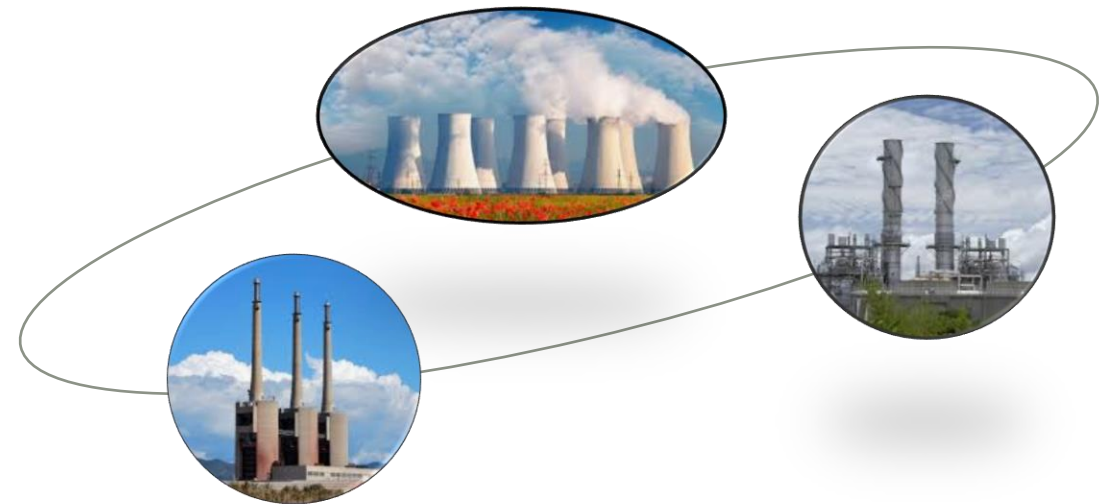
Located in Muskiz, Spain, the group was founded in 1975 initially focused towards offering solutions to the newly rising sectors of casting, oil refineries and energy producers, handlers and distributors.

The company that was originally called **PAL, S.A.**

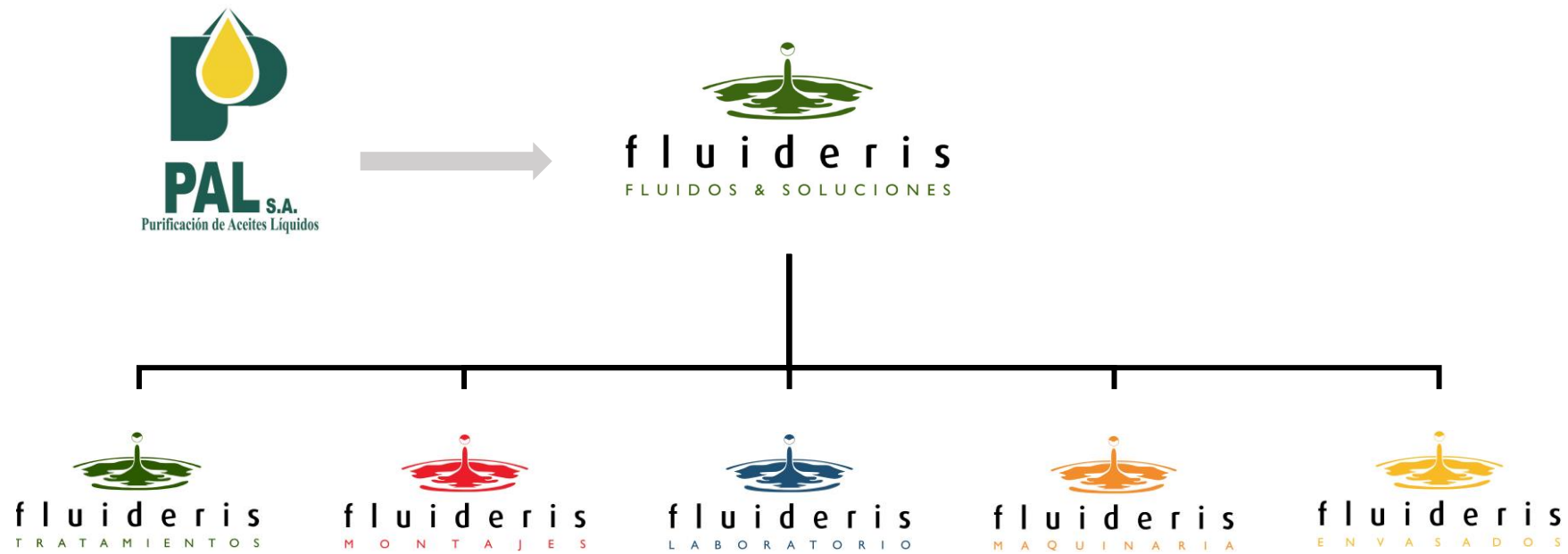


## 1975 - 2007: Growth

- **Increase of interventions** to satisfy the growing demand of customers in different fields → **FLEXIBILITY**
  - oil treatment services
  - laboratory services
  - manufacture of filtration systems
- **Extension in the services** in order to expand to different areas. Specialization according to the market demands → **ADAPTABILITY**
  - energy generation and distribution
  - iron/steel casting
  - chemical and oil industries
- **Continuous updating and adaptation** → **INNOVATION**
  - permanent modernization of the processes
  - customization to the clients requirements

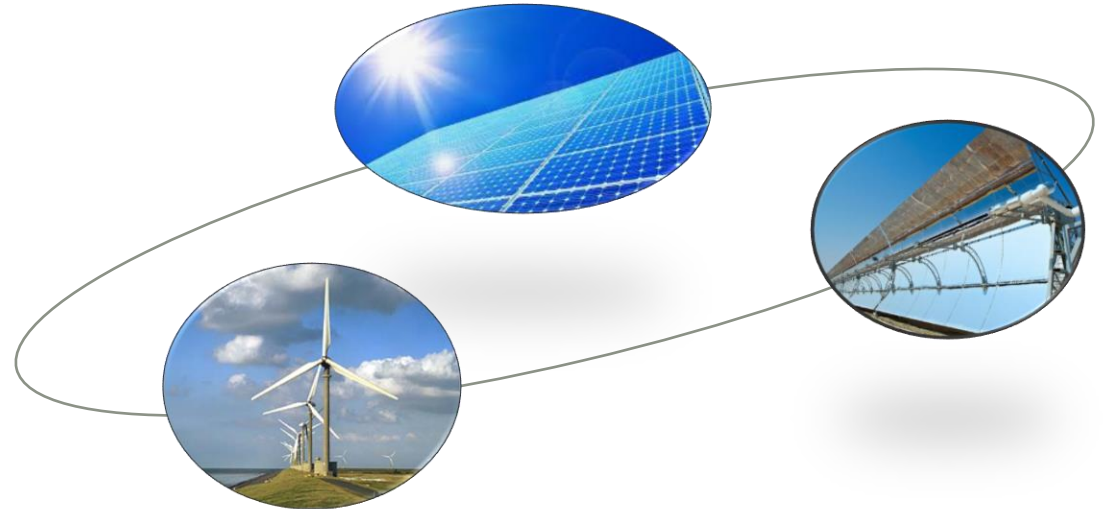


- **2007:** PAL, S.A. changes into PAL FLUIDERIS HOLDING, S.L., with the creation of 5 subsidiary branches

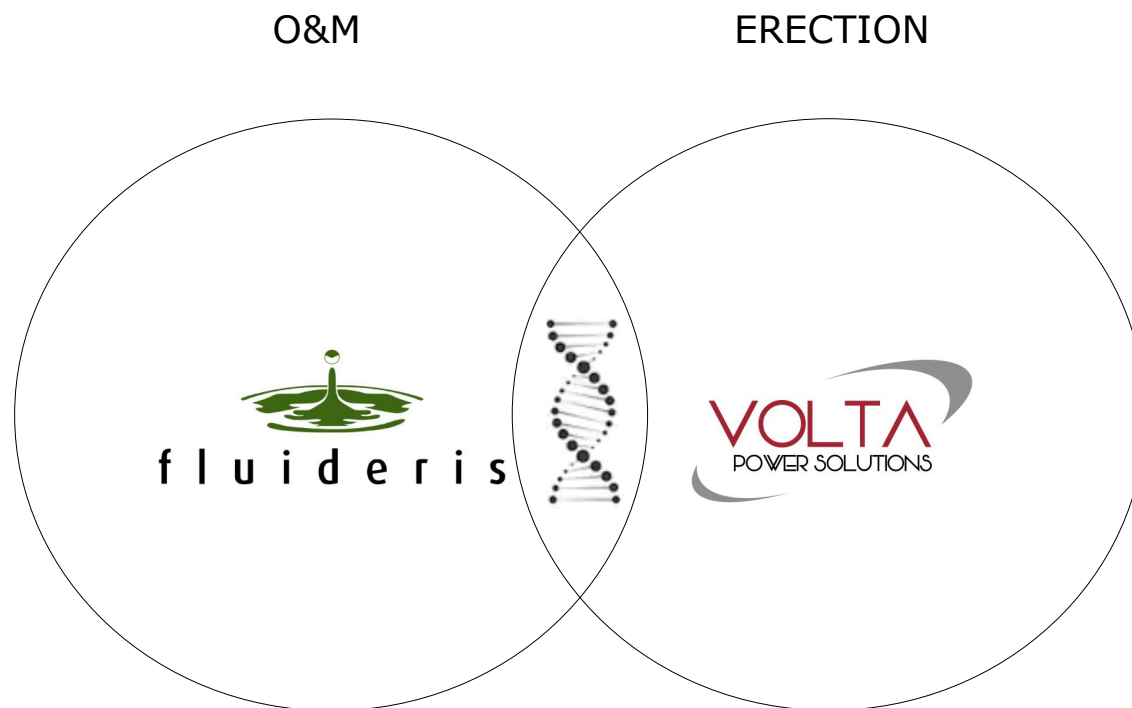


- **2007-2019:** Growth

- **Increase of interventions** to satisfy the growing demand of customers in different fields → **FLEXIBILITY**
  - Mechanical assembly
  - Integral maintenance
- **Extension in the services** in order to expand to different areas. Specialization according to the market demands → **ADAPTABILITY**
  - Green energy generation and distribution
  - Renewable energy plants erection
  - Monitorization and remote operation & control
- **Continuous updating and adaptation** → **INNOVATION**
  - Permanent modernization of the processes
  - Customization to the clients requirements



- **2019:** Creation of FLUIDERIS O&M and VOLTA POWER SOLUTIONS



## ▪ Services Index.

### **Integral Service according to the expectations and needs of the client.**

- ✓ Engineering
- ✓ Mechanical assembly
- ✓ Low and high voltage electrical installation
- ✓ Integral maintenance
- ✓ Technical advice

**Actions in different fields,** from design engineering, installation, commissioning and maintenance.

- ✓ Warranty, regulatory and quality inspections.
- ✓ Analysis and treatment of transformer fluids and other equipment (interventions adapted to demand and characteristics of each customer's equipment and of the installation, filling of power transformer oil, core testing, reactance, dielectric oil conditioning, particle filtering, dehydration, degassing, regeneration, etc.).
- ✓ Electrical maintenance under nuclear regulations.
- ✓ Assembly and maintenance of substations and transformation centers.
- ✓ Assembly and maintenance of renewable energies.
- ✓ Assembly and maintenance of industrial and power generation plants.
- ✓ Monitorization and remote operation & control on power Transformers.





- **Staff skilled and qualified**

- ✓ Specific training in the management of the processing units to be used according to its components, environment, and special characteristics of the installation.
- ✓ As built
- ✓ COMPEX, ATEX...



## ▪ Scope



- ✓ Power Centers, MCC & Auxiliary Distribution
- ✓ Power & Distribution Panels
- ✓ Switchgear,
- ✓ Motor starter
- ✓ Uninterruptable Power Supply Systems (UPS) & Batteries
- ✓ Metering, Protection & Relays, Alarms
- ✓ Erection & instalation Cable tray, unistrut, Conduit
- ✓ Erection & instalation control station, junction boxes
- ✓ Pull, dress & termination earth Cables
- ✓ Pull, dress & power Cables
- ✓ Pull,dress & control Cables
- ✓ Final Banding
- ✓ Gland & termination power cables
- ✓ Gland & termination control cables
- ✓ Test power cables
- ✓ Test control cables
- ✓ Light fittings



## ▪ Scope



- ✓ Erection & connection Pressure Transmitters.
- ✓ Erection & connection Temperature Instruments.
- ✓ Erection & connection Level Instruments.
- ✓ Erection & connection Flow Instruments.
- ✓ Erection & connection Vibration sensor, Velometers & Speed Sensors.
- ✓ Erection & connection Push Buttons, Selectors, Lamps, Hand Switches.
- ✓ Erection & connection Remote Local Indicators.
- ✓ Erection & connection Dust Transmitter.
- ✓ Erection & connection Position Transmitter.
- ✓ Erection & connection Weight transmitter.
- ✓ Erection & connection Torque Transmitter.
- ✓ Erection & connection Limit Switches.
- ✓ Loop checks.
- ✓ Erection valves.
- ✓ Erection & connection motor actuated valves.

## ▪ Substations Maintenance



- ✓ HV Switches.
- ✓ HV Disconnectors.
- ✓ Power transformers.
- ✓ Bushings and connectors.
- ✓ Measurement and protection transformers and REAs.
- ✓ MV Cubicles.
- ✓ Capacitor banks.
- ✓ Lightning arrestor systems.
- ✓ Earth grids.
- ✓ AC power auxiliary services.
- ✓ DC power auxiliary services.
- ✓ Protection relays.
- ✓ Measurement equipment.
- ✓ Remote control.
- ✓ Safety equipments.
- ✓ Fire protection equipments.
- ✓ Generators.
- ✓ Integral maintenance of perimeters, fences, CCTV



## ▪ Transformers Maintenance



- ✓ Transformer erection and disassembly, joints replacement, levels, bushing, valves, Buchholz ,etc.
- ✓ Transformer relocation.
- ✓ Filling treatments of new Transformers of any type (power, furnace, cored, column, reactances, etc.)
- ✓ Transformer and equipments monitorization. SMS communication of critical alarms to maintenance manager cell. Operation display in real time, etc.
- ✓ Oil conditioning UNE EN-60422.
- ✓ Intensive demineralization of the transformer core/active part.
- ✓ Intensive oil degasification with the transformer in service.
- ✓ Oil passivation.
- ✓ Conditioning of synthetic esters and isolating silicone.
- ✓ Analysis and diagnosis of dielectric fluids.



## ▪ Renewable energy plants maintenance



- ✓ Preventive, corrective and conductive maintenance on inverters. Data programming and download. Reprogramming. Air filters and batteries replacement.
- ✓ Maintenance of the perimeter fences, enclosures and TVCC.
- ✓ SCADA plant monitorization.
- ✓ Modem installation according to A72 and 595.
- ✓ LV and MV electrical conductors replacement.
- ✓ Maintenance of meteorological station.
- ✓ Maintenance and servicing of optical fiber.
- ✓ Revamping of modules and inversors.
- ✓ Lawn mowing.
- ✓ Cleaning of panels.
- ✓ Mapping.
- ✓ Thermography, I/V curve, isolation control.
- ✓ Level boxes maintenance.
- ✓ Electroluminescence tests.



## ▪ Oil treatment added value in industrial installations

Oil treatment allows to delay its replacement, lengthening its optimal functioning conditions and consequently lengthening the life of the installation.

### • Cost saving



- ✓ Fluid replacement costs
- ✓ Replacement costs of the system that operates with the fluid
- ✓ Costs related to waste management caused by the substitution of the oil and the replacement of the system
- ✓ Costs associated with maintenance operations due to untreated fluid failures, and production losses with the consequent economic cost

### • Environmental benefits



- ✓ Significant reduction in the volume of waste generated by prolonging the life cycle of fluids and systems
- ✓ Neutralization of potential environmental risk situations due to poor maintenance of the fluid
- ✓ Reduction of electricity losses due to defective functioning of the system

## ▪ Experience



- **Knowledge of the market**
- **Global experience**, in industrial installations in line with national regulations in each country. Substations, combined cycle power plants, chemical plants, biomass power plants and nuclear power plants, fotovoltaic plants, etc...
- **Transformers assembling**, for the main transformers manufacturers, substations & electrical plants erection and maintenance.
- **Oil conditioning** previous to the starting of the machine and either in predictive, preventive, proactive format or correctives (as a result of failure) in turbines, transformers, hydraulic systems, etc.
- **Laboratory support**
- Preventive, corrective and conductive **Maintenance** in all the forementioned plants, including engines, turbines, nuclear, etc.



## ▪ RDI Integration



- **Engineering and investigation**

- ✓ Adaptation and optimization of installations
- ✓ Implementation of new technologies



- **Research on new products**

- ✓ Development of new tools and equipment
- ✓ Research on new processes methodologies



- **Cooperation and agreements with Foundations and Enterprises**

## ▪ References in Spain



### • FLUIDERIS Tratamientos (treatments)

ABB, A.I.E. TRILLO – VANDELLÓS II, ALSTOM, C.N. ASCÓ, COBRA, ENDESA, GE, GES SIEMSA, IBERDROLA, ISOLUX, RED ELÉCTRICA DE ESPAÑA, SIEMENS, TAMINI TRASFORMATORI, UNIÓN FENOSA, etc.

### • FLUIDERIS Montaje (Assembling)

ABB, ALSTOM, C.N. ASCÓ, ENDESA, GE, GES SIEMSA, IBERDROLA, ISOLUX, RED ELÉCTRICA DE ESPAÑA, etc.

### • FLUIDERIS Laboratorio (Laboratory)

ABB, A.I.E. TRILLO – VANDELLÓS II, ALSTOM, CEPSA, C.N. ASCÓ, COBRA, ENDESA, GE, GES SIEMSA, IBERDROLA, ISOLUX, NYNÄS, RED ELÉCTRICA DE ESPAÑA, REPSOL, SIEMENS, SHELL, TAMINI TRASFORMATORI, TOTAL, UNIÓN FENOSA, etc.

### • FLUIDERIS Maquinaria (Manufacture of oil treatment systems)

ABB, VELCON INDUSTRIES, CEPSA, etc.

### • FLUIDERIS Envasado (Oil conditioning and drumming)

CEPSA, NYNÄS, REPSOL, SHELL, TOTAL



TOTAL



## ▪ International References

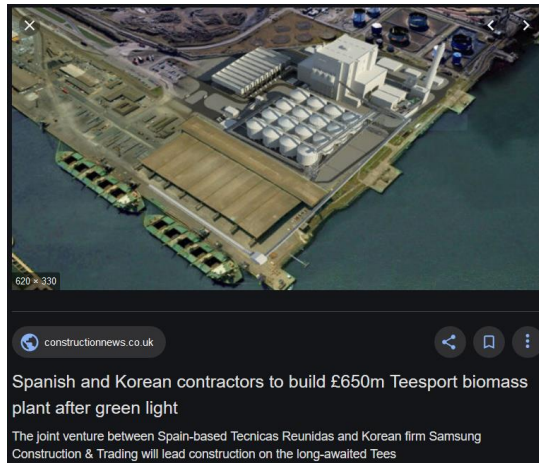
- FRANCE:
  - ✓ ABB - EDF CN CHOOZ (x 5), CN CIVAUX (x 6), CN NOGENT (x 5), CN ST. ALBAN (x 3), CN CREIL (x 3)
  - ✓ CELSA FRANCE (Annual intervention since 2000)
  - ✓ ABB - ALCAN RIO TINTO ST. JEAN DE MAURIENNE (x 1)
  - ✓ ISASTUR - CCC MONTOIR DE BRETAGNE (x 1)
- BELGIUM:
  - ✓ ABB - CN TIHANGE (x 4)
- HOLLAND:
  - ✓ ABB - LABORATORIO PRUEBAS ELÉCTRICAS KEMA (x 7)
  - ✓ ISOTRON - CCC MOERDIJK (x 1)
- EIRE:
  - ✓ ABB - ESB LIMERICK (x2)
- MOROCCO:
  - ✓ ABB - EL AAIÚN (x 1)
  - ✓ ST. INZOUREM
  - ✓ ONE MOHAMEDIA
- QATAR:
  - ✓ ABB - DUKHAN ROAD SUPER (x1)
- CHILE:
  - ✓ ST. COPIAPÓ
- ITALIA
  - ✓ CESI
- MAROCCO
  - ✓ ST. INZOUREM
  - ✓ ONE MOHAMEDIA
- EGYPT
  - ✓ CCC EL KUREIMAT
  - ✓ SUEZ GULF POWER PLANT
- UNITED KINGDOM
  - ✓ MANCHESTER MEDICAL CENTER - CARRINGTON



## ▪ At present:

- Operating in Spain, UK and Chile erecting plants and substations at present.

### TEESSIDE BIOMASS POWER PLANT (UK) 299 MW BIOMASA



**SAMSUNG**



### SET PEAKERS (SPAIN) SOLAR 50 MW



**TSK**

**cobra**

### QUICK STAR PROJECT(CHILE) 495 MW GAS



**TSK**

**PrimeEnergía**

Rolls-Royce and TSK to deliver five power plants, 475 MW of backup capacity for Chile's national electricity grid



- **Works for EDF:**

**CNPE CHOOZ**  
**2.900 MW**



**CNPE SAINT ALBAN**  
**2.600 MW**



**CNPE NOGENT**  
**2.600 MW**



**CNPE CIVAUX**  
**2.900 MW**



- **Works for EDF:**

**CNPE FLAMANVILLE**  
**2.600 MW**



**CNPE PENLY**  
**2.600 MW**



**CNPE CATTENOM**  
**5.200 MW**





▪ **At present:**

- Framework agreement for the maintenance of electrical inverters with Gamesa Electric
- Power plant for the revaluation of urban solid waste in the Dominican Republic, Grupo Zapata
- 104 MW wind power plant in Angola, V&V Rending
- Photovoltaic solar covers, Airgrup
- Replacement of electric power and control panels and execution of installations in expansion of hydrogen generation plant in the Benghazi refinery in Libya, for AGOCO (Arabia Gulf Oil Company)

