



elemed



Exclusive commercial presentation for **ELEMED**

/ Power Electronics

More than 30 years designing and manufacturing power electronics.
We manufacture Medium & Low Voltage drives and soft starters.
We are #1 in USA and UK in Utility scale solar inverters.



+8GW installed
Worldwide presence
+45 countries

- Worldwide presence in more than 45 countries.
- Capacity to develop megaprojects:
 - Solar plants of +500MW.
 - Solar thermal +200MW.
- +8GW of installed solar power.
- +12GW production capacity for 2018.
- Presence in all industrial sectors:
Mining, Water, Oil & Gas, Energy, Metal and Cement.

/ Power On Support

Our customer orientation philosophy it is not a business unit with economic objectives, it is the way that our customers maximize its benefits.



**Excellence
In technical
service**

- ENGINEERING SUPPORT
- COMMISSIONING ASSISTANCE
- 3 YEAR WARRANTY
- 24/7 CUSTOMER SUPPORT
- 24/7 ONSITE ASSISTANCE
- SPARE PARTS WARRANTY

/ Vertical integration

Design, manufacturing, assembly of all components.
Electronics and metalworks.

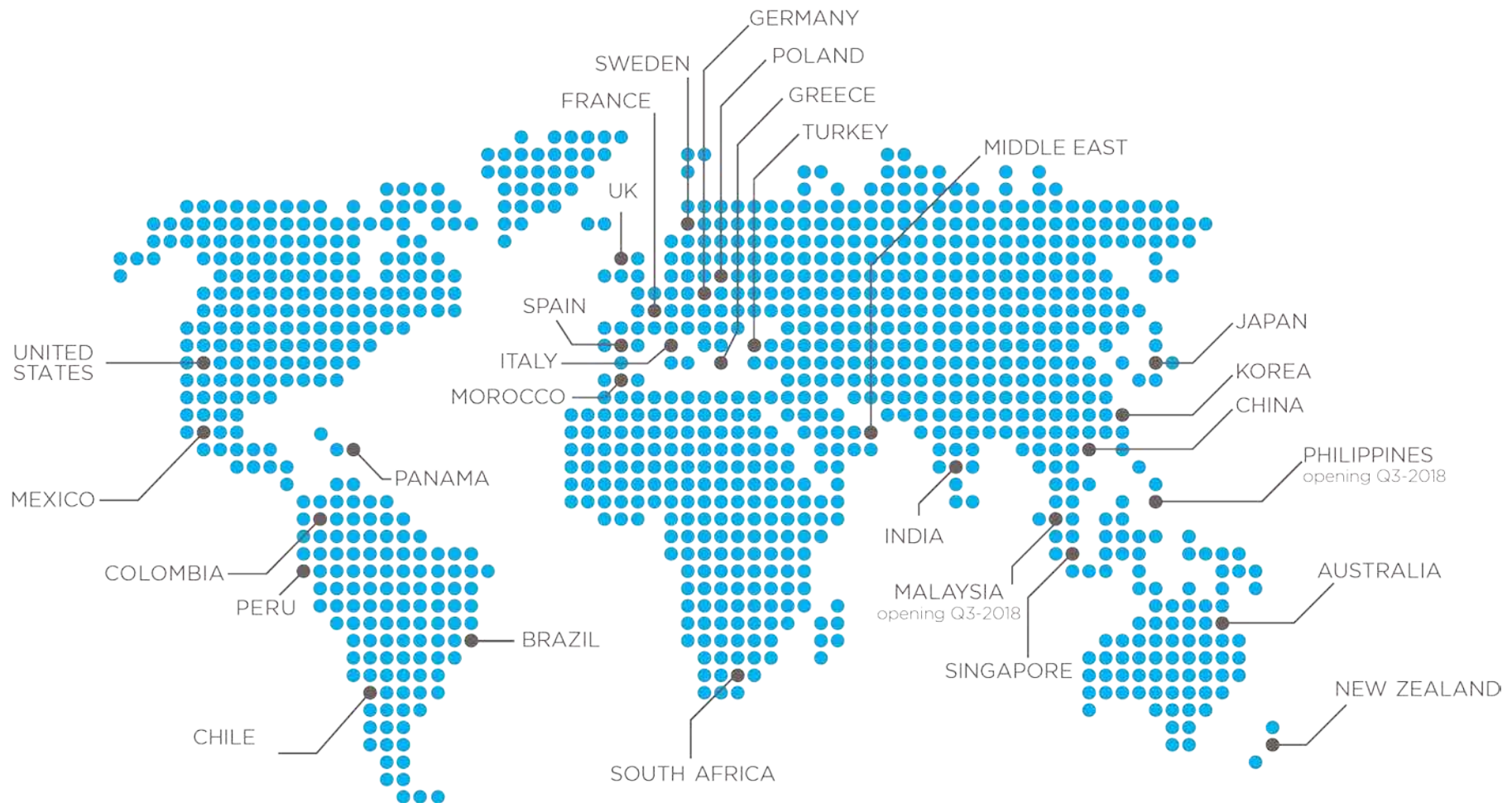


**Excellence
In technical
service**

- VERTICAL INTEGRATION OF ALL THE PROCESSES.
- FLEXIBILITY TO INNOVATE BEFORE COMPETITORS.
- WE CAN ADAPT PRODUCTS TO CUSTOMER REQUIREMENTS.
- SHORT DELIVERY TIMES.

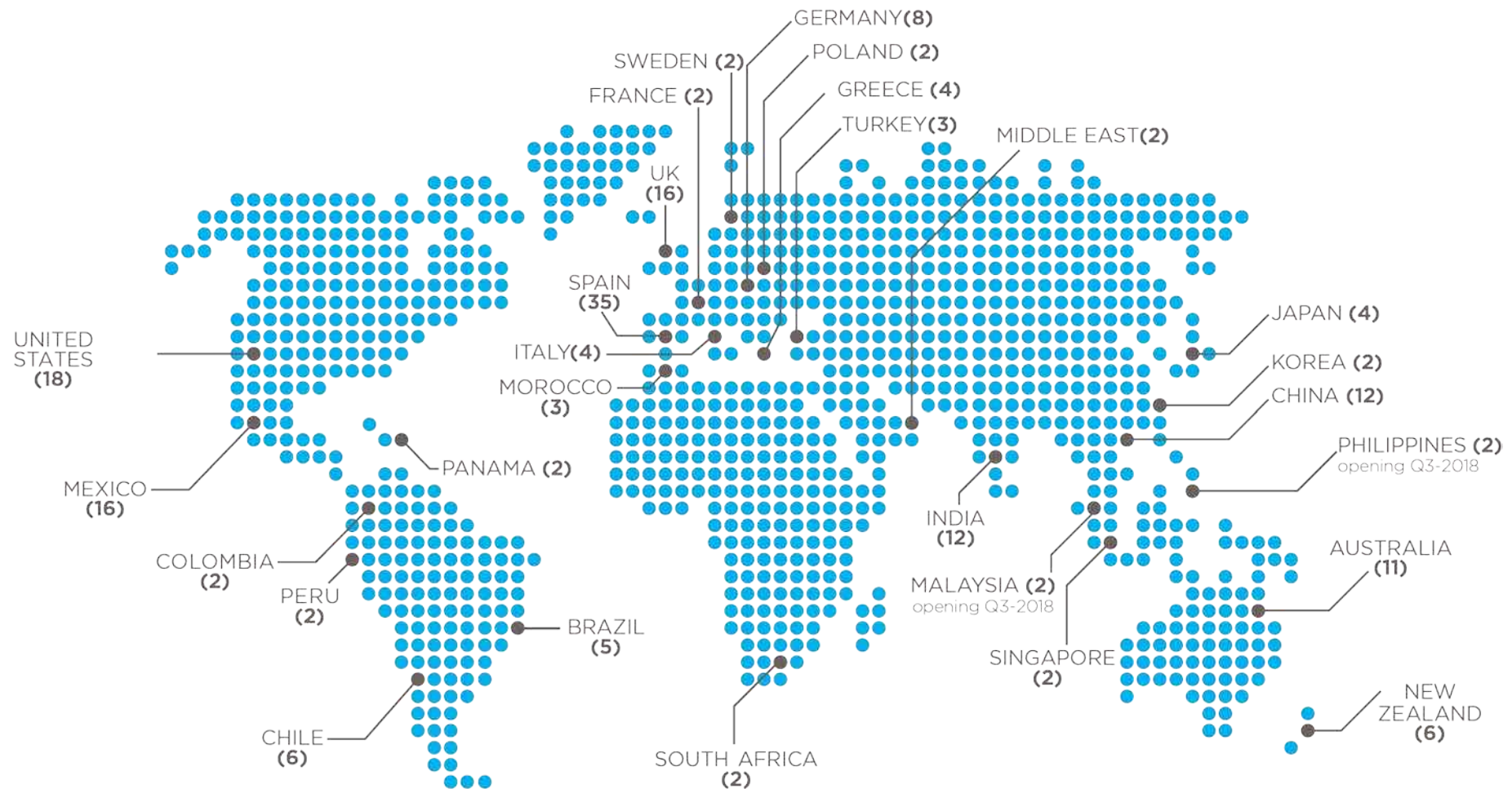
Power Electronics

Worldwide presence



Power Electronics

Service network



/ Local partner in Greece



Fully trained in all industrial products.
Installed projects in Greece.

www.uteco.gr

/ Climate change

Greenhouse gases
Solid waste
Pollution emissions



GLOBAL
WARMING



Droughts
Desertification



/ Environmental impact at ports



- /*** Polluting impact from heavy fuel.
- /*** Dust drifting in neighborhood.
- /*** Noise.
- /*** Health of workers.
- /*** New air pollution control measures from port authorities.

/ Cold ironing

European Environment policies, with the directives such as 2016/802 SOx emissions, 2014/94 alternative fuels or COP21 Paris Agreement.

Cold ironing permits emergency equipment, refrigeration, cooling, heating, lighting and other equipment to receive electrical power while ship stays at port.



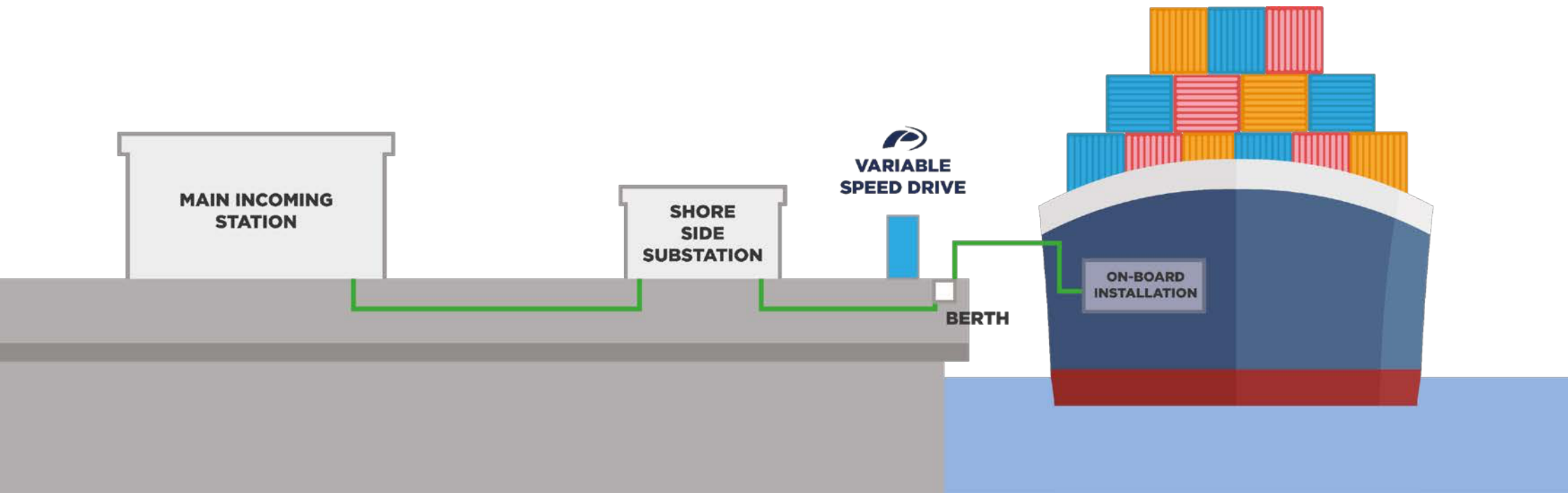
/ Power Electronics commitment



- /** The experience of 30 years in power control makes us the ideal partner for shore-to-ship power supply solutions.



/ Power Electronics commitment



/ Power Electronics solutions



SD700
VARIABLE SPEED DRIVE
Up to 2200kW
230V to 690V



XMV600
MV VARIABLE SPEED DRIVE
2,3kV to 13,8kV

**INDOOR AND OUTDOOR
VERSIONS**

/ Power Electronics solutions



- /** The SD700 and XMV660 variable speed drives are specially adapted for the Cold Ironing application.
- /** They are able to adapt the sea port electrical energy for matching the vessel needs.
- /** Voltage and frequency can be adapted for each vessel need while berthed.
- /** The variable speed drives provide a steady voltage and frequency input ensuring the correct operation of vessel facilities.
- /** Low harmonic solutions reducing THDi levels below 5%.
- /** Thanks to a specific software for this application, it supplies stable energy, with all the necessary protections for a safe facility for all the people involved.

/ Power Electronics operation



- /** It works like an AC power supply, whose input is energy from the seaport grid, (V and F) and whose output is energy, (V and F) adapted for the power supply required for each vessel.
- /** Variable speed drives modify the input voltage and frequency, to be adapted to the vessel requirements. Depending on where the vessel has been manufactured, vessel will work with internal devices with different requirements.
- /** Thanks to the regulation loops, the energy supplied is totally stable. The drive uses a close loop control to supply always the same voltage, at the same frequency.
- /** SD700 or XMV660 protection systems guarantee the protection of the vessel facilities in the event of a short circuit.

/ Power Electronics achievements



- /* Reduction of air, water and acoustic pollution in the sea port community. Auxiliary diesel vessel engines are not needed any more.
- /* Power Electronics VSD provide protections implemented in the power supply (overvoltage, overcurrent).
- /* Solutions for all types and sizes of container and passenger terminals.
- /* Power Electronics variable speed drives comply with the requirements demanded by marine regulations.
- /* The drives can be installed **outdoor** with no need of electrical room.

/ Power Electronics outdoor solutions

Cyclone drive cooling system for an outstanding outdoor performance



PLAY >

- / DROP, PLUG AND PLAY DRIVES**
- / FULLY ASSEMBLED AND TESTED ON FACTORY**
- / REDUCE CIVIL CONSTRUCTION AND LABOUR COSTS**
- / EASY O&M: NO NEED FOR TECHNICAL SERVICE TO REPLACE POWER MODULES**
- / REDUCED MAINTENANCE TASKS: FULL ACCESS & FILTERLESS SYSTEM**
- / +3000 OUTDOOR INVERTERS INSTALLED SINCE 2012**



Power Electronics reference in Genoa



Onshore supply converter at Genoa harbour.

Installation of two variable speed drives to supply main load at 60Hz, one in Medium Voltage for the main load and the second one for the Auxiliary Low Voltage load.

/ Power Electronics references in ports



Enagas (Huelva, Spain)
XMV660 OUTDOOR
Variable speed drive for LNG pumping.



Enagas (Barcelona, Spain)
XMV660 OUTDOOR
Variable speed drive for LNG pumping.

/ Power Electronics references in ports



Saggas (Sagunto, Spain)

XMV660

Variable speed drive for LNG pumping.



/ THANK YOU FOR YOUR ATTENTION