



# APLICACIONES TECNOLÓGICAS | LIGHTNING & EARTHING



Local storm detection



Air terminals and accessories



Earthing



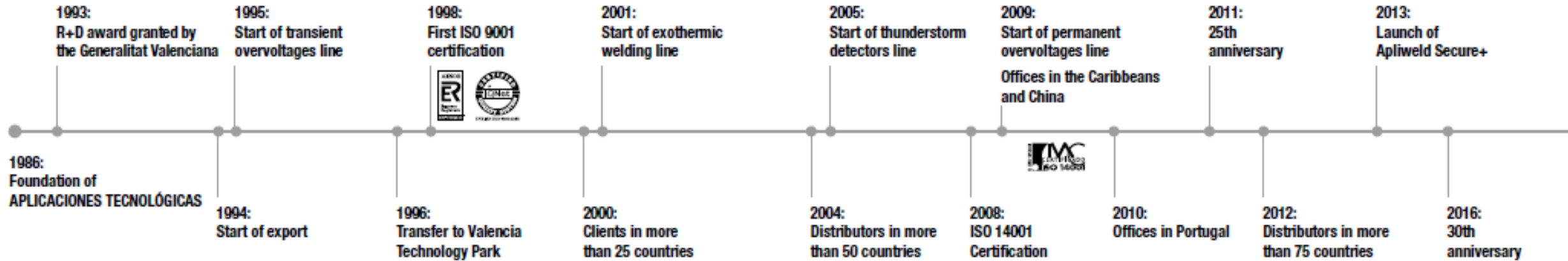
Exothermic welding



Transient overvoltages



Permanent overvoltages



## R+D+i: Effort and investment



20% of personnel dedicated to R+D projects

12% of anual turnover invested over the last 10 years

38 ongoing projects

50.74% Project to product conversion rate

## Internationalization

More than 100,000 locations protected with our products

We export over 65% of our total turnover

3 local subsidiary companies abroad

30% of personnel dedicated to international activities

Commercial and technical network in over 80 countries



## We are MANUFACTURERS:

We fully cover all industrial processes of our six product families: conception, design, engineering, production and distribution.



MAIN AREAS OF APPLICATION



ENERGY



OIL & GAS



WATER



TRANSPORT



MANUFACTURING INDUSTRY



INFRASTRUCTURES

MAIN AREAS OF APPLICATION

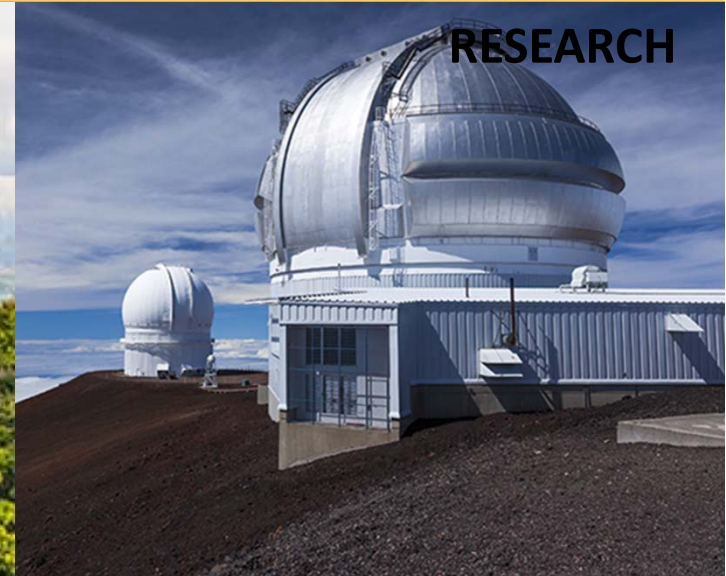
RESIDENTIAL & SERVICES



HISTORICAL HERITAGE



RESEARCH



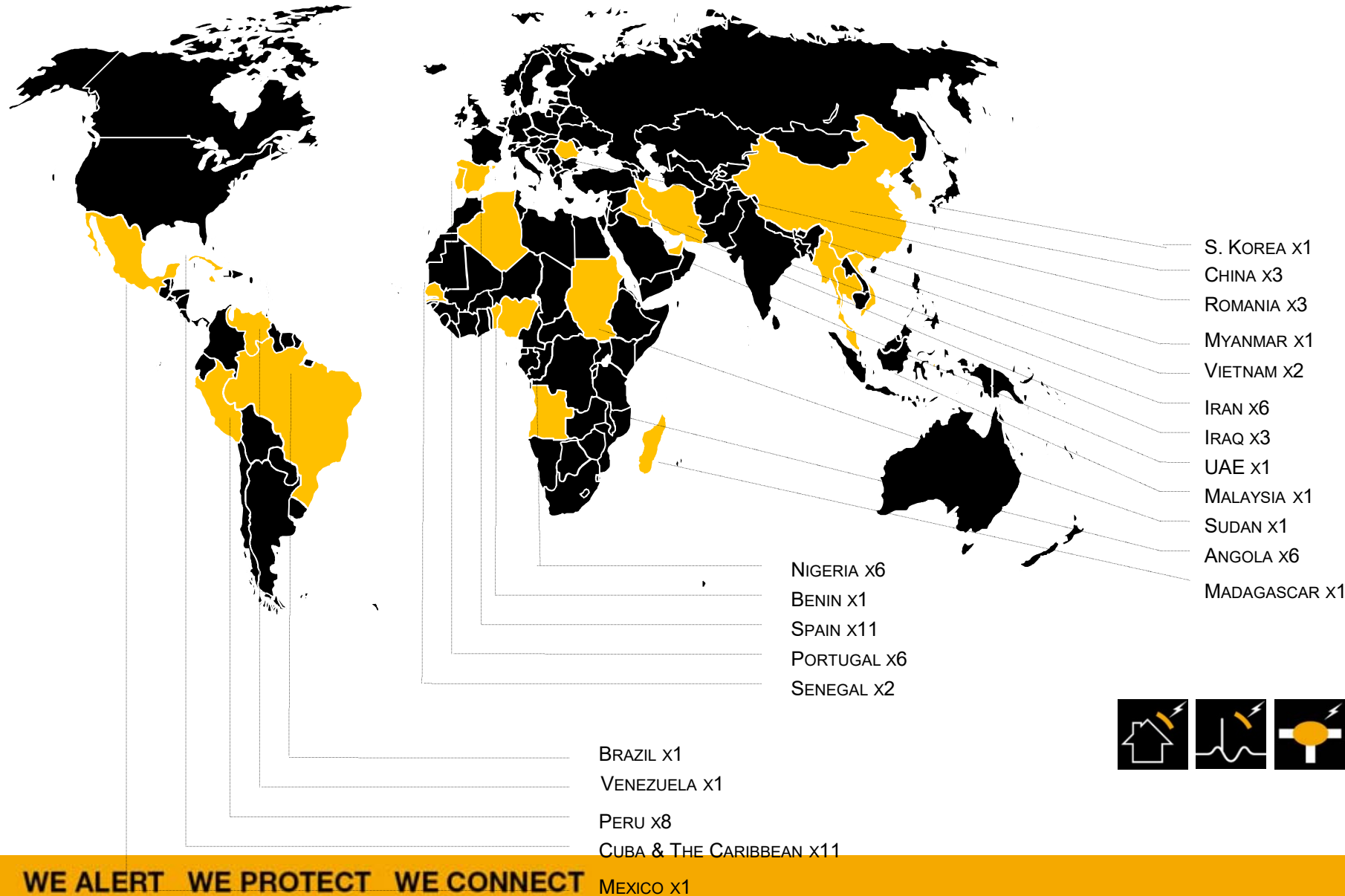
DEFENCE & CIVIL PROTECTION



TELECOMMUNICATIONS



OIL & GAS: MORE THAN 70 REFERENCES IN OVER 20 COUNTRIES



## 1.-EXTERNAL PROTECTION

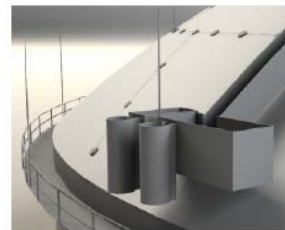
Despite their metallic structure, Domes are not self-protected according to IEC62305



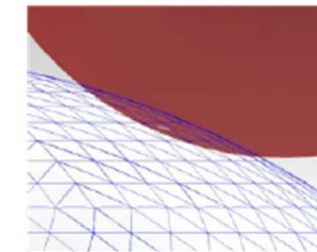
El Palito Refinery Stroke by Lightning. Carabobo, VENEZUELA.

### •Air terminals and mesh solution

- Quick fixation to Geodesic domes.
- Entirely adapted to the Structure.
- Rods Installed at nodes



Rolling Sphere Method Design according to IEC62305-3 with the most exigent Lightning Protection Level (LPL I)



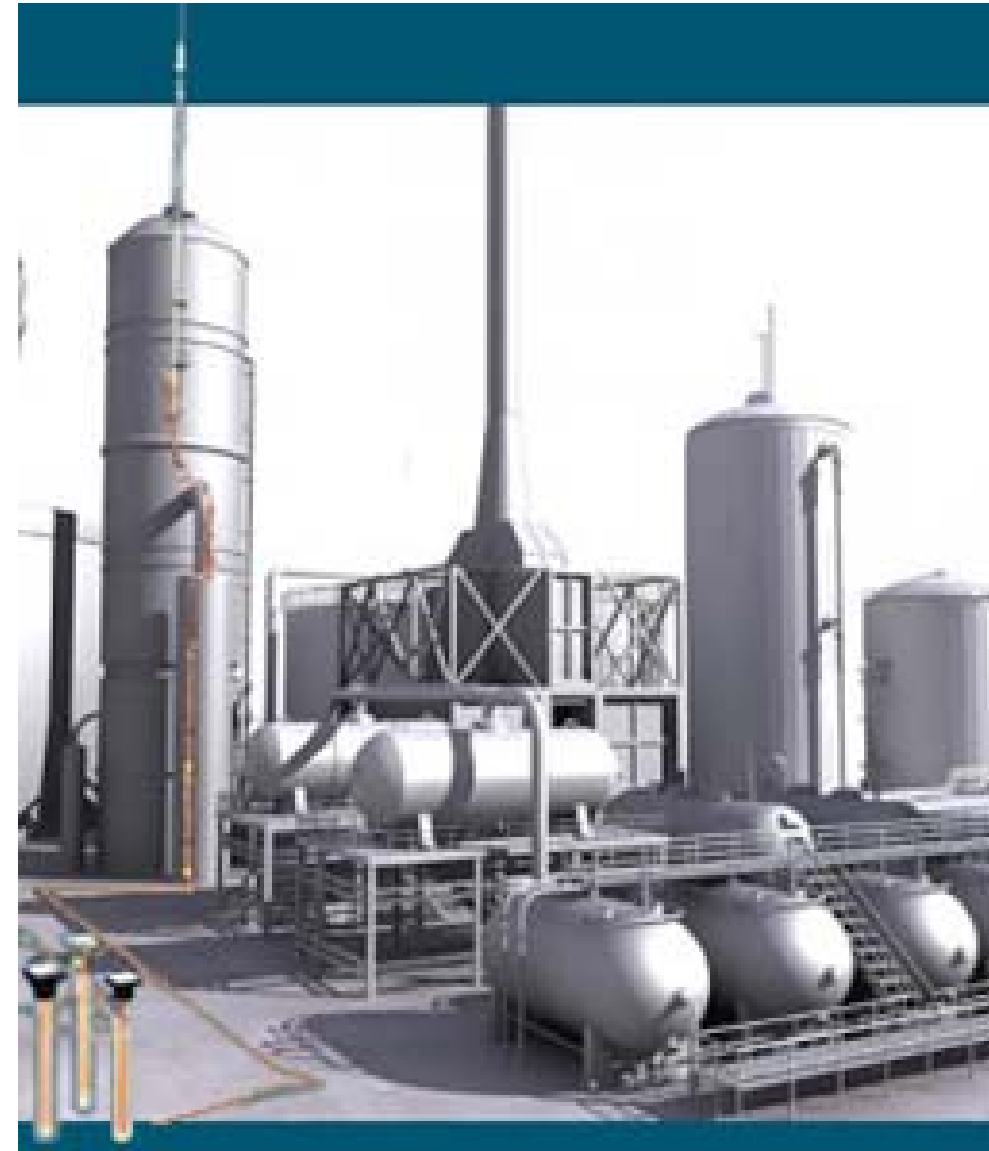
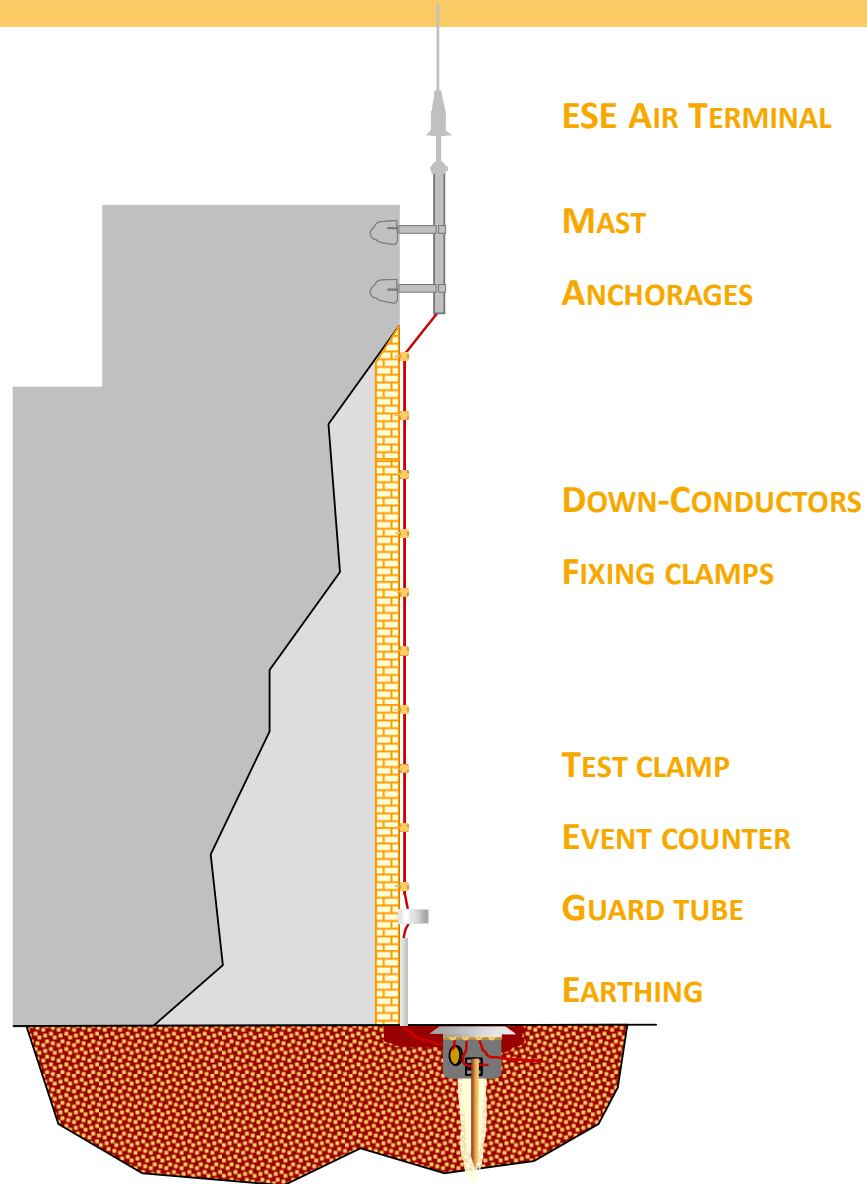
## ESE DAT CONTROLER® REMOTE



- **Latest** generation Early Streamer Emissor.
- Totally **autonomous** system. Solar powered.
- AENOR product certification under **UNE 21186** specific regulation for ESE terminals. Tested in official and **independent laboratories**
- **Certified resistance** under extreme environmental conditions (salt mist and humid sulphurous atmosphere tests).
- Withstand Current Certificate for **20 impacts of 100 kA** (10/350µs).
- Certified performance under **rain conditions**, with a casings insulation above 95%. These tests have been performed according to standard UNE-EN 60060-1:2012

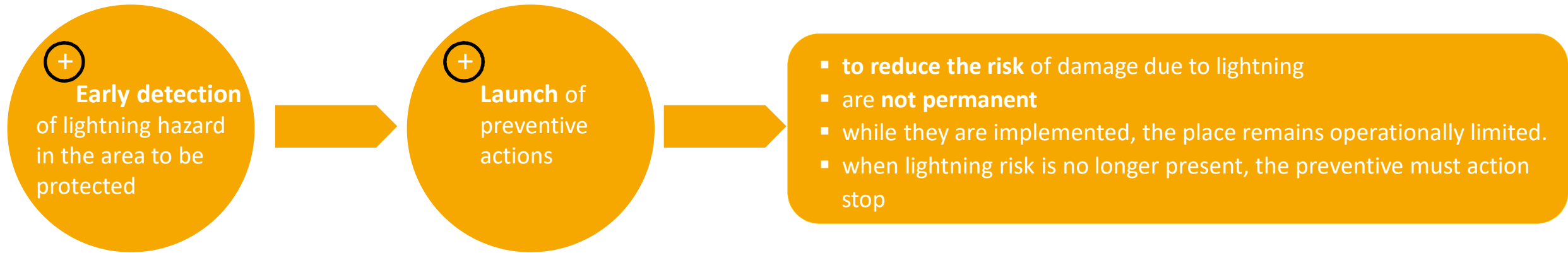


# 1.-EXTERNAL PROTECTION. LIGHTNING PROTECTION SYSTEM SCHEME



## 2.-PREVENTIVE PROTECTION

Preventive protection is based on :



## 2.-PREVENTIVE PROTECTION

Some cases where it could be applied

Prevention of **lose in industrial processes** and operations

Prevention of serious accidents involving **hazardous products** (inflammable, radioactive, toxic, explosive).

Prevention of **workplace risk and labor regulations** adherence

Once the hazard is detected, some possible preventive actions to be applied:

- ✓ Personnel evacuation
- ✓ Switch off main supplies
- ✓ Switch on UPS or power generator supplier
- ✓ End/Postpone high risk activities
- ✓ Run devices and computers in “safety mode”



## ATSTORM® system comprises:

DOUBLE SENSOR SYSTEM

MULTIPLE DETECTION SYSTEM

COMMUNICATION SYSTEM

ACQUISITION AND PROCESSING SYSTEM

ALERTS SYSTEM



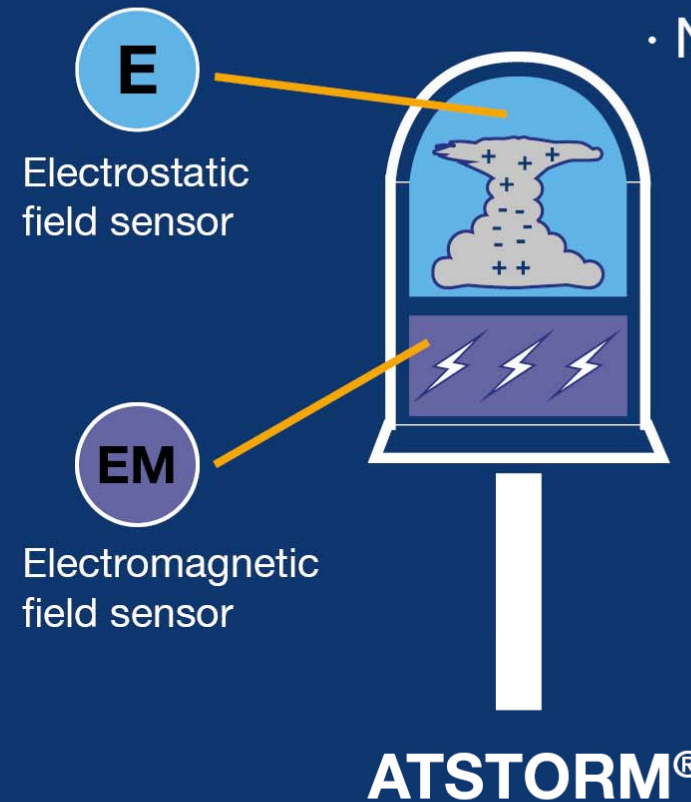
## WE FOCUS ON WHAT MATTERS MOST

### **E** LIGHTNING FORMATION ABOVE SITE:

- TENS OF MINUTES FOR EARLY ALERT WARNINGS

### **EM** DETECTION OF LIGHTNING STORM APPROACHING SITE:

- 40 km RADIUS



- Fully electronic
- No moving parts



The ATSTORM® System **configuration** and the detection units needed are determined by an ad-hoc project analyzing the climatic, geographic, environmental and morphologic characteristics of the target area.

The redundancy of detection units allows our acquisition and processing system to carry out a **balanced self-compensation** of the obtained values that ensures an **unprecedented exactitude**.

## COMMUNICATION

Conducted through VPN ensuring the **safest** and most **reliable** protocol.

**Redundance** through 2G/3G and LAN communication.



## SERVERS

**Protected** IT infrastructure:

**Secured servers in redundant** locations to ensure data and functionality of the system.

**Private** broadband communication network.

To ensure communication and correct system functioning, the batteries ensure a 7-day **autonomous** supply in total dark conditions.

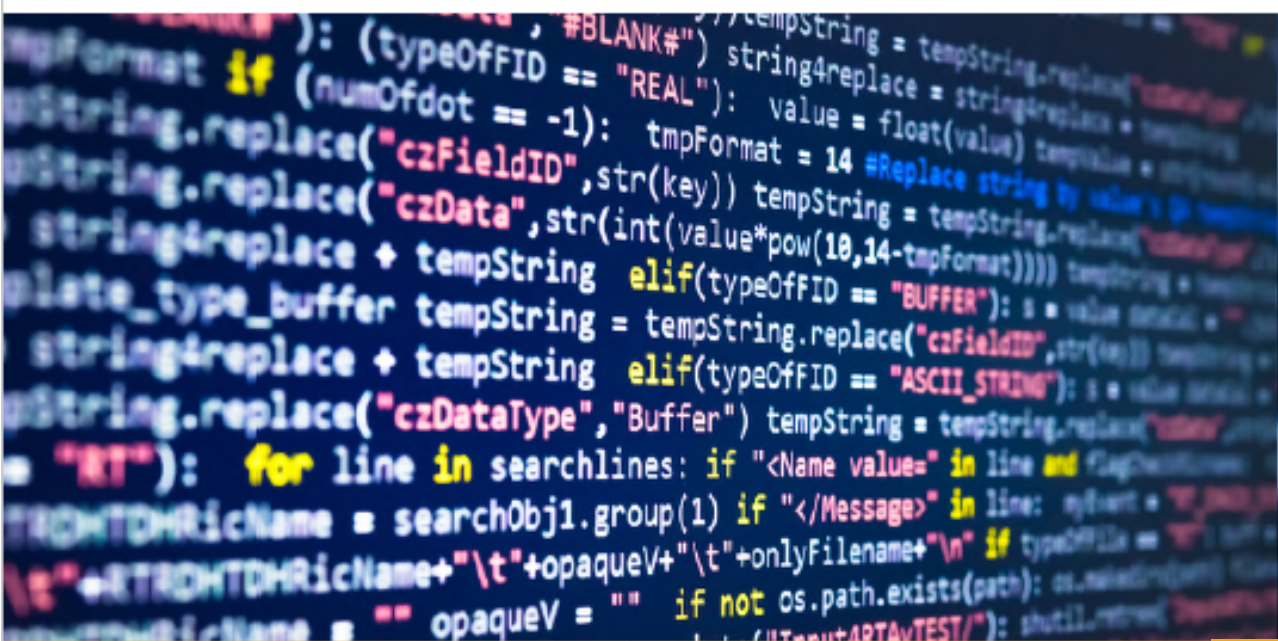
Additionally, an AC power supply unit is imbedded to act as **back up** of the power system, ensuring its **Continuous Operation**.



**Continuous improvement** of the algorithms that process the sensors' readings, increasing gradually their adaptation to the monitored local characteristics.

This scheme will be widely **accelerated** when multiple readings from the same site are processed.

**Permanent supervision** over the Detection Units readings and the system alert services.







## REMOTE RELAY MODULE

It allows total flexibility of arrangements of Public Addressing systems: Strobelights, Sirens, Pannels, etc..  
Or other elements as UPS units, etc..

### 3.-EXOTHERMIC WELDING



## Apliweld® STATE OF THE ART EXOTHERMIC WELDING

High End exothermic welding powder

Revolutionary tablet format

#### Shrinking labor risks

- ✓ Remote starting
- ✓ No flammable material

#### Saving costs

- ✓ Single reference vs Multiple Refs.
- ✓ Downsizing storage problems & costs

#### Simple work

- ✓ Easy to use
- ✓ Allows work with wind
- ✓ Minimizes waste

### 3.-EXOTHERMIC WELDING



QUALITY

VERSATILE

+ Working crews can make multiple joints with just One reference

SAFE

+ NON Explosive

+ NON Flammable



## 4.-INTERNAL PROTECTION

Conceived to protect electronic equipment from:

**DISRUPTION**

+ Interruption of system operation, data loss, etc..

**DAMAGE**

+ Burn or destroy equipment as well as causing fire

**DETERIORATION**

+ Reduction of effective life and increasing failure risk



+ We engineer and manufacture over 500 references of Surge Protection Devices



## 4.-INTERNAL PROTECTION

UPS System

Voice & Data Communication

Weather Monitoring System

Surveillance System

Safety Communication System

Radio Communication

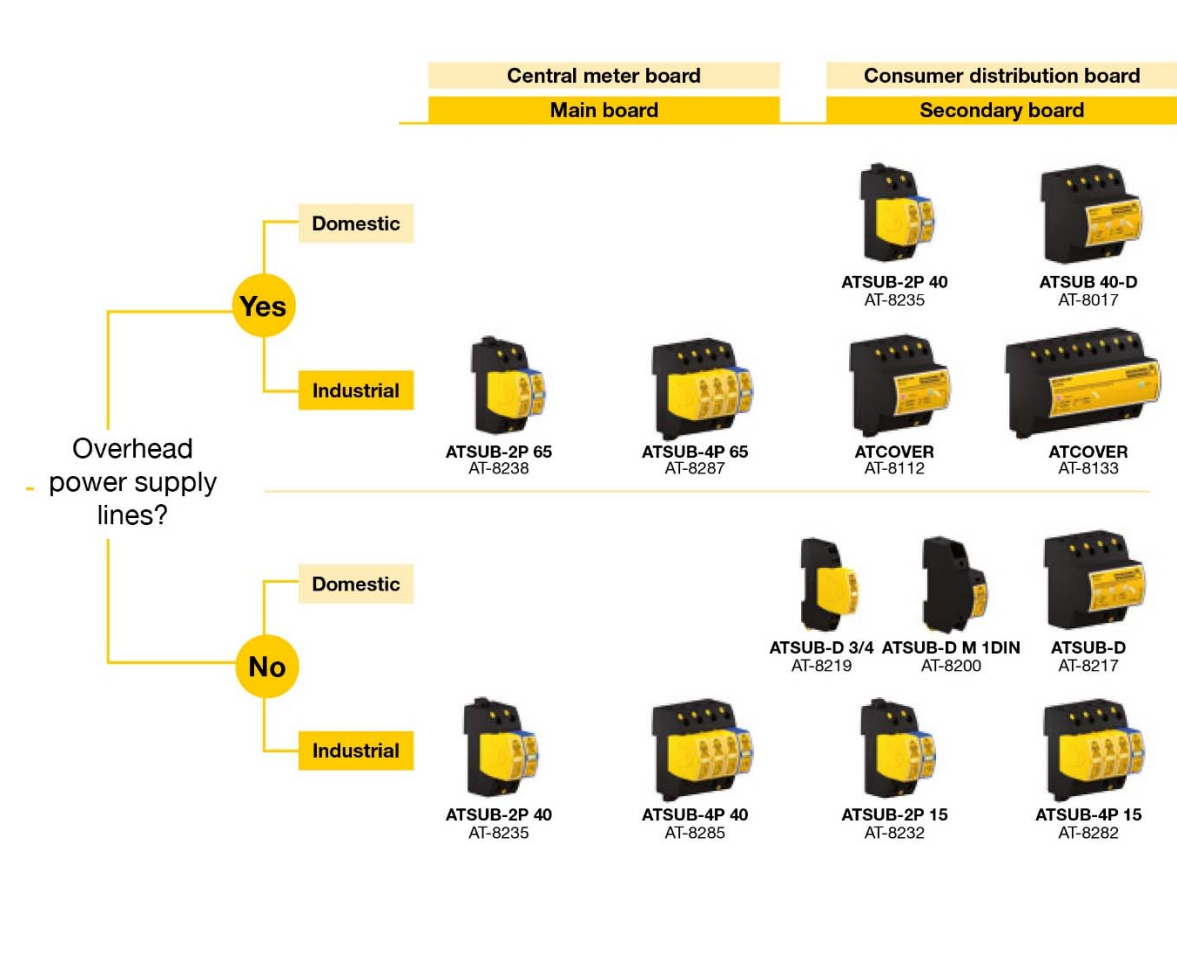
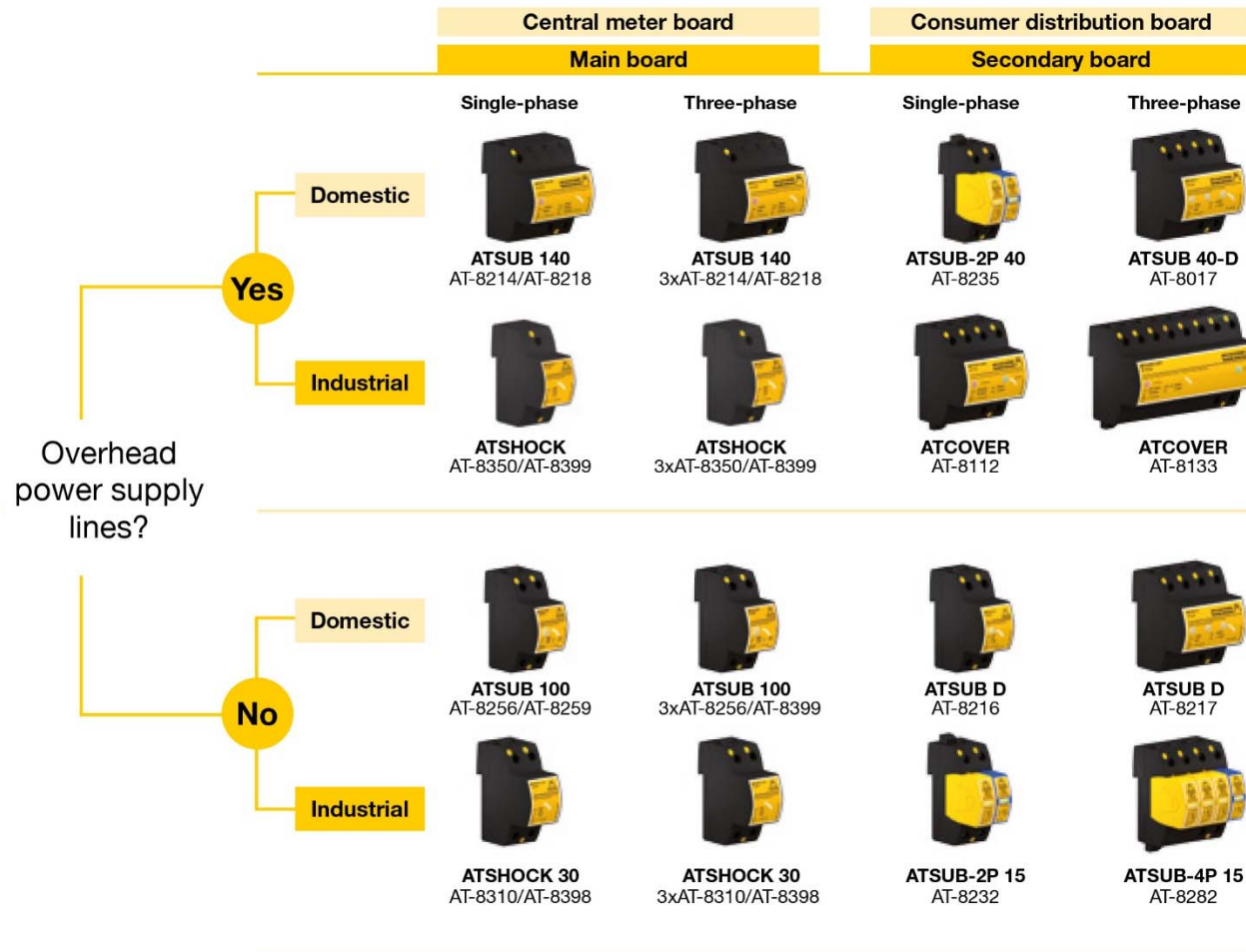
Point-to-point &  
Point-to-Multipoint Link



## 4.-INTERNAL PROTECTION. Selection guide



Is there any external lightning protection?



## 4.-INTERNAL PROTECTION. Selection guide

### TELEPHONE AND DATA PROTECTION

#### Telephone lines

##### Screw



**ATFONO**  
AT-9101

##### RJ11



**ATFONO RJ11**  
AT-9104

##### RJ45



**ATFONO RJ45**  
AT-9108

##### KRONE



**ATFONO KRONE**  
AT-9109

#### Data lines

##### Screw



**ATLINE**  
AT-9205 - AT-9280

##### DB9



**ATDB9**  
AT-2300

### COMPUTER AND COAXIAL PROTECTION

#### Computer lines

##### CAT 5E



**ATLAN**  
AT-2107  
AT-2207



**ATLAN-C 8**  
AT-2221



**ATLAN 24/16/8**  
AT-2206  
AT-2209  
AT-2208



**ATLAN CAT6**  
AT-2213



**ATLAN 12/8/4 CAT6**  
AT-2211  
AT-2212  
AT-2217

##### CAT 5E POE



**ATLAN POE**  
AT-2204



**ATLAN 24/16/8 POE**  
AT-2223  
AT-2224  
AT-2225

##### CAT 6 POE



**ATLAN CAT6 POE**  
AT-2210



**ATLAN 12/8/4 CAT6 POE**  
AT-2226  
AT-2227  
AT-2228

#### Coaxial lines

##### Coaxial



**ATFREQ**  
AT-2102 - AT-2126

5.- REFERENCES. UPSTREAM



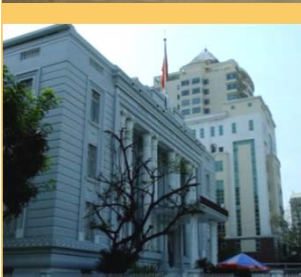
Corp. Build, Lisbon  
PORTUGAL



FORAJ SONDE ERNEI  
Targu Mures, Romania



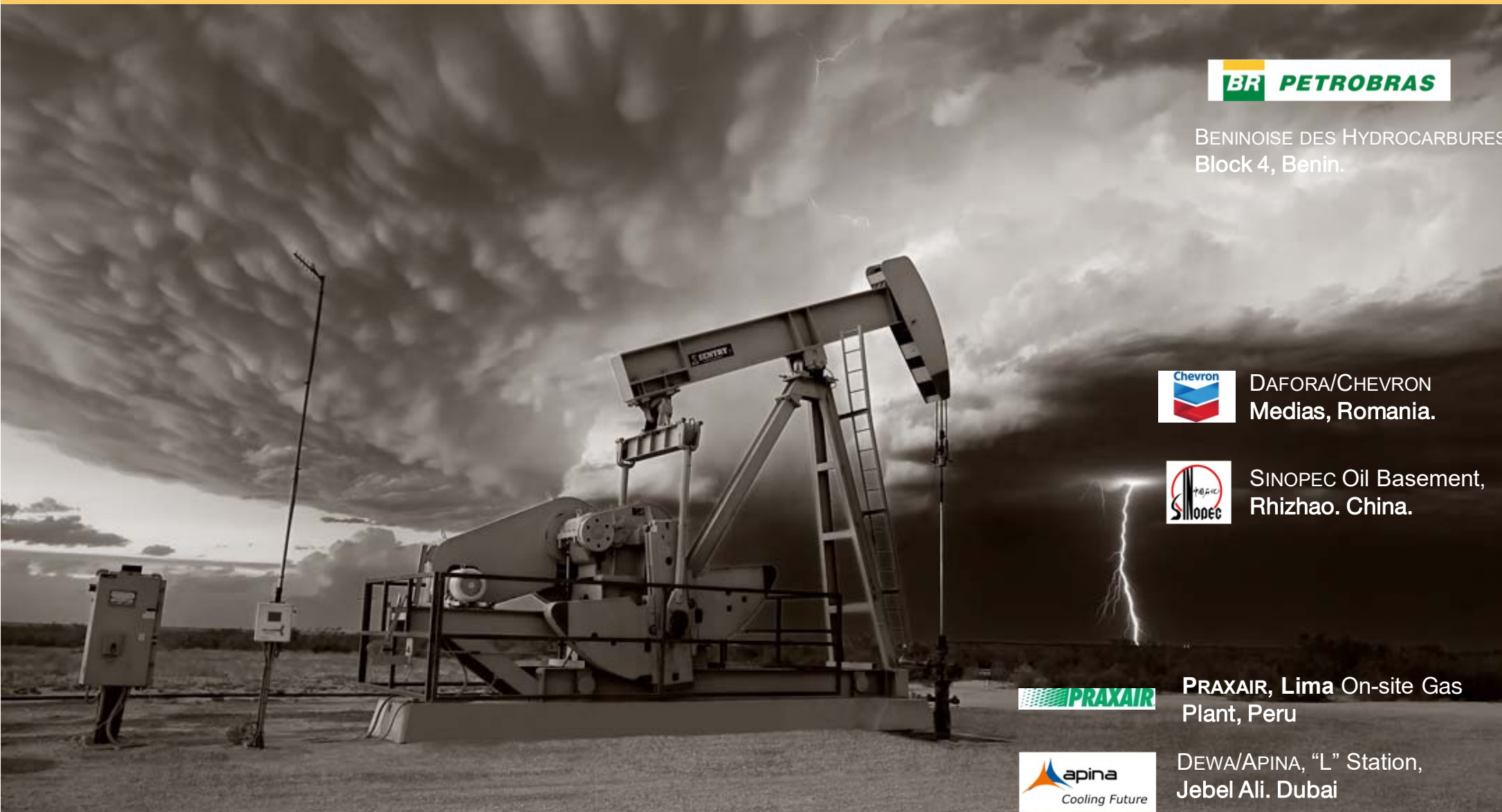
T-76 NATIONAL 1320-UE  
NIGERIA



PETROLIMEX, HO CHI MINH  
VIETNAM



5.- REFERENCES. UPSTREAM



BENINOISE DES HYDROCARBURES  
Block 4, Benin.



DAFORA/CHEVRON  
Medias, Romania.



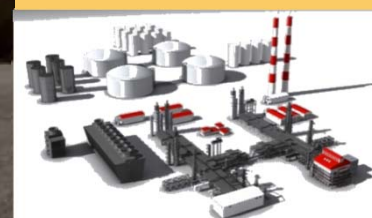
SINOPEC Oil Basement,  
Rhizhao. China.



PRAXAIR, Lima On-site Gas  
Plant, Peru




DEWA/APINA, "L" Station,  
Jebel Ali. Dubai



5.- REFERENCES. DOWNSTREAM & REFINERIES



 REPSOL  
A Coruña, Spain




 BP OIL  
Castellón, Spain



HECSAN GAS REFINERY  
Irán



CHAMINÉ REFINERY  
Sines, Portugal



5.- REFERENCES. DOWNSTREAM & REFINERIES



-  ENAGAS, Palos de la Frontera NGL, Spain 
-  TOTAL, Port-de-France, Martinique FR. 
-  SHELL, Petite Cuoronne, French Guyana.FR 
-  GALP, Porto, Portugal 
-  REPSOL, Puertollano, Spain 

-  EDC, CPP, Venezuela 
-  PEMEX, Coatzacoalcos, Mexico 
-  PETROBRAS, Betim, Brazil 
-  CUPET, Ñico López, Cuba 



-  KRC, Karthoun, S. Sudan 
-  SONATRACH, Arzew, Algeria 
-  PAN OCEAN Ovade-Ogharefe gas processing facility 
-  SONAGOL, Luanda, Angola 
-  SAR, Dakar, Senegal 

-  SK ENERGY, Icheon, Korea 
-  PETRONAS, MG3, Malaysia 
-  Shtar Science & Tech. Group, Rhizhao.China. 
-  ILC, Persian Gulf NGL, Iran 
-  INOC Baji, Iraq 

5.- REFERENCES. DISTRIBUTION & RETAIL



ENAGAS  
Sagunto, Spain



CUPET  
Cienfuegos, CUBA



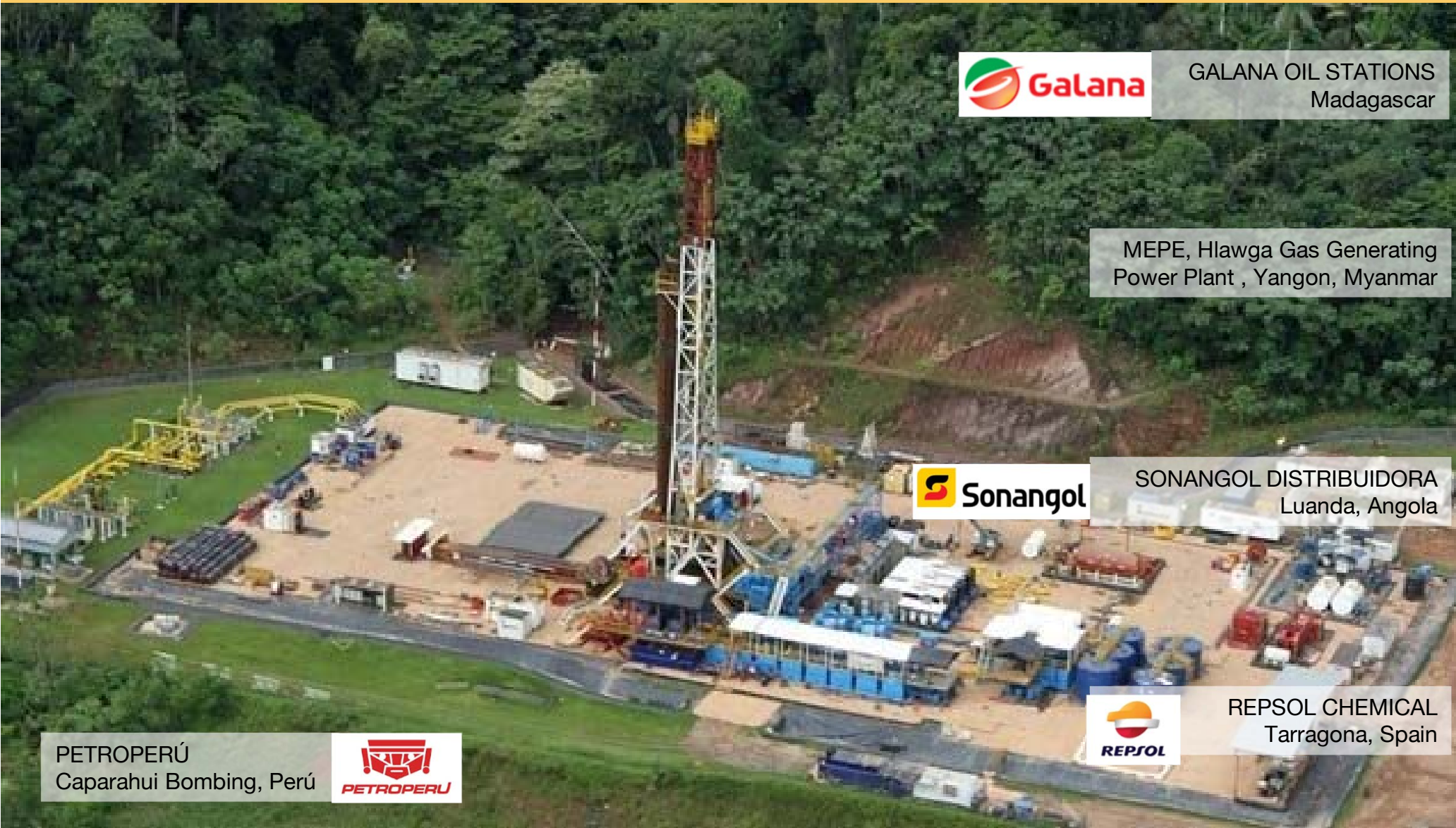
TOTAL  
Costa Rica



GALP  
Madeira,  
Portugal



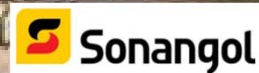
5.- REFERENCES. DISTRIBUTION & RETAIL



GALANA OIL STATIONS  
Madagascar



MEPE, Hlawga Gas Generating  
Power Plant , Yangon, Myanmar



SONANGOL DISTRIBUIDORA  
Luanda, Angola



REPSOL CHEMICAL  
Tarragona, Spain



PETROPERÚ  
Caparahui Bombing, Perú





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