

**Advanced,  
powerful  
and  
interoperable**  
communication  
and  
automation  
technology

for  
Critical Infrastructure  
MV & HV Substations  
Distribution Grids  
Telecommunications  
Generation Dispatch  
Smart Meters  
Consumers  
Oil & Gas  
Power Plants  
Renewables  
Energy Traders  
Industry  
Railways  
...  
and many more

Welcome  
to

**iGrid T&D**

SMART SOLUTIONS FOR SMART GRIDS



GRID CONTROL



HV SAS



GENERATION



GATEWAYS





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# IGRID T&D

## BACKGROUND

**iGrid T&D** unites an interdisciplinary team of professional experts with a diverse experience and deep knowledge in substation automation and the control of high and medium voltage grids as well as generation plants.

Subsequently, we specialize in **real-time data acquisition & control solutions** with a strong commitment to the seamless integration of communication protocols. Our main software products are our SCADA and gateway applications, whereas our focus on the hardware side are RTUs, gateways and protocol converters.

In 2017, iGrid T&D joined **Thytronic Group**, Italian market leader for protection relays, with headquarters in Milan and a sales branch in Turkey.

iGrid T&D headquarters are located in Barcelona with sales branch in Bangalore (India).

## MISSION

Become a reference global player in the automation of next generation energy grids.

## VISION

Facilitate the automation of energy infrastructures across the globe, from power generation plants to secondary distribution grids.





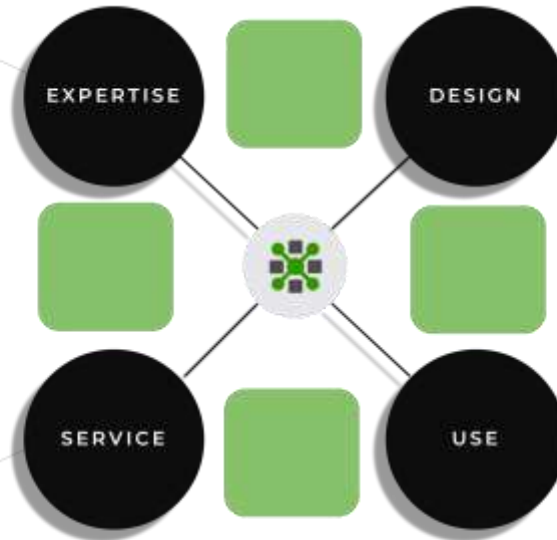


## OUR CORE BUSINESS VALUES

What we focus on and distinguishes us from competitors

### Advanced

In-house and joint R&D with international partners and academic institutions



### Efficient

Interoperable, versatile and adaptive design to offer the "lightest" solution possible

### Flexible

Full client satisfaction thanks to truly agile application engineering

### Customizable

User-friendly tools and interfaces for real empowerment





# IGRID T&D

## INTEROPERABILITY

Our products are being used worldwide, from Chile to Indonesia, thanks to their capability to communicate with any kind of meter, protection relay, BCU, PLC, or control center, taking advantage of the long list of supported protocols, including IEC60870-5-101, IEC60870-5-104, DNP3.0, IEC60870-5-102, IEC60870-5-103, DLMS, Modbus RTU/TCP, Profibus, Procome and IEC 61850 amongst others.

## IEC 61850 PRODUCTS

Since it is one of the most promising and fastest growing standards, we are particularly devoted to solutions based on IEC 61850. Accordingly, our solutions can be used as either data clients or data servers, or also both at the same time, collecting data from protection relays along with other IEDs (old or new) and mapping them into IEC 61850 logical nodes and devices.

## DIVERSE EXPERIENCE

The broad variety of projects we have implemented around the world with partners from all kinds of industries has helped us develop exceptionally powerful and secure solutions for numerous applications.

By combining this knowledge with our expertise and creativity, we want to drive the transition to new era of energy control.

## OUR ACTIVITIES

All our activities are carried out from our headquarters in Barcelona, also including the hardware production and support



SCADA, gateway and control center software applications for substations, power plants and entire grids



RTU, gateway and distributed I/O hardware devices for remote control and automation networks



Advanced custom engineering and product development for specific client needs



Inhouse R&D on the forefront of smart grid technology, enriched by numerous international and academic projects



# PRODUCTS



## iRTU Family

iRTUs have internal I/O capabilities and are frequently employed as bay controllers or substation gateways, collecting and processing data from old and new IEDs as well as reporting directly to the control center. For full interoperability, they are capable of communicating with all common protocols and mapping old serial IEDs to IEC 61850 logical nodes.



## iControl SCADA

iControl SCADA is the most comfortable and simple tool to monitor and control any grid, substation or generation plant. Its intuitive interface helps you save time while automating your electrical facility and it offers many essential features, such as busbar coloring, redundant control schemas, RBAC or the IEC 61850 protocol.



## iGWlite

The iGWlite was specifically designed for protocol conversion and other gateway functionalities in energy applications and it can thus handle the full iGrid protocol stack. Although it takes little space on a DIN-Rail, it provides 1 Ethernet and 1 RS485/RS422 port and it can carry an optional RS-232 port (copper or fiber) or a 2G/3G/4G modem.



## iGW Family

iGWs provide particularly strong protocol conversion and automation features (incl. IEC 61850). The SII Series features an embedded Ethernet switch with 4 Ethernet ports and RSTP/ HSR/ PRP redundancy. iGWs are thus the perfect choice to set up, automate or retrofit generation plants and high voltage substations requiring complex data conversion between several protocols.



## iGW-VM Software

The iGW-VM is a substation automation gateway application with particularly strong communication capabilities, available for Debian Linux and Windows. It supports redundant architectures and can act as extremely scalable bay controller, RTU, substation gateway, or communication front-end for SCADA systems, connecting to more than a thousand IEDs.



with IEC 61850 GOOSE



## iRTUe Expansions

iRTUe remote expansion units can be freely connected to iRTU/ iGW devices and third party master units to fulfill all sorts of command and acquisition requirements.

They can communicate with IEC 61850 GOOSE messaging or Modbus TCP/RTU and offer flexible I/O board configurations, such as 48 DI, 16 relays, 16 AI, 24 DI + 8 relays, 24 DI + 8 AI or 8 relays + 8 AI.



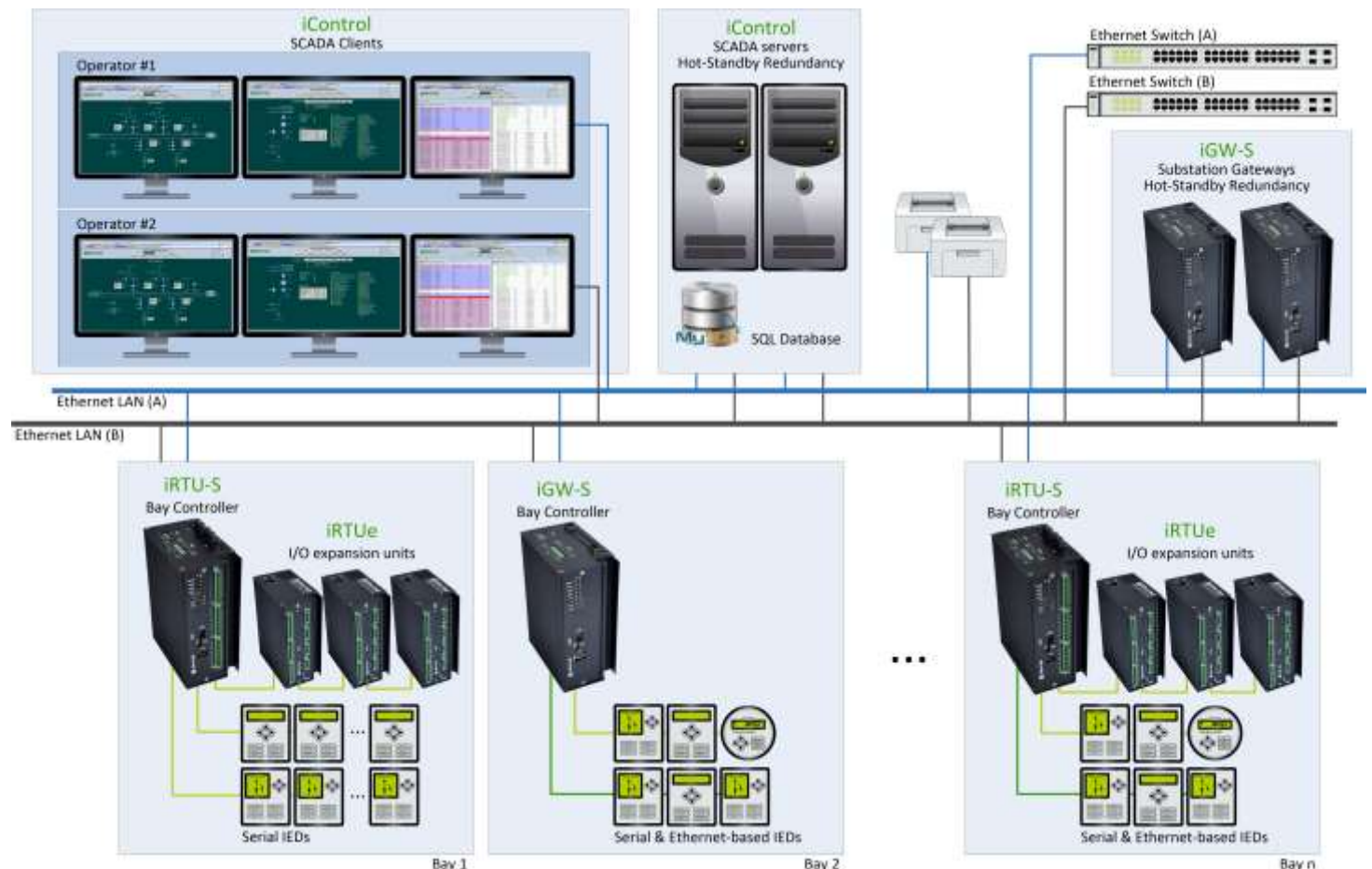


# iGW & iRTU FAMILIES

Secured and modular remote telecontrol units suitable for all energy environments and power distribution systems, such as HV substations, MV grids, power plants or railway networks.

- High scalability and optimal adaptation to any particular need
- Advanced functionalities such as load shedding, microsecond timestamping, PRP redundancy or PLC automation with IEC 61131-3
- Multiple communication options: up to 4 Ethernet ports, 4 serial ports, and (optional) internal 4G, 3G and GPRS modems
- Full interoperability with new and legacy IEDs and master stations – all models come with a full range of protocols including IEC 60870-5-101/102/103/104, IEC 61850 (MMS & GOOSE), Modbus RTU/TCP, DNP3.0 (serial and TCP), IEC 62056-21, DLMS, Procome and Profibus DP
- Embedded Ethernet switch (optional) with (2) 10/100 BaseTx, (2) FX100 fiber optics and RSTP/PRP/HSR redundancy

iRTU & iGW Series products may perform different functions within a network depending on their configuration. They can be used as remote telecontrol units, substation gateways, I/O IEDs, bay controllers, protocol converters, etc.





# iCONTROL SCADA

Thanks to its strong communication core and industry focus, iControl offers many advanced and adaptable functionalities for numerous applications.

## SQL DATABASE

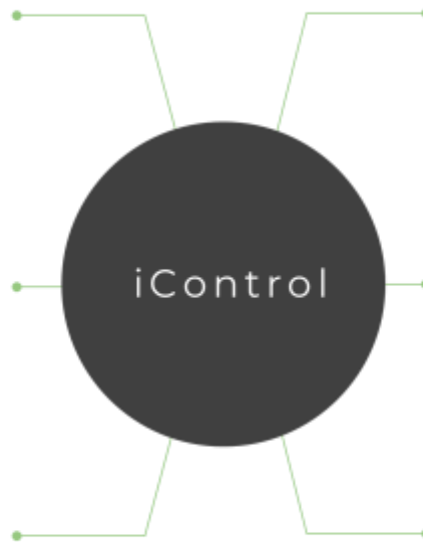
All information collected and generated by iControl can be stored in an SQL database for system analyses and reporting.

## REPORTING

It can automatically generate customizable reports and send them to 3<sup>rd</sup> parties in the network or over the internet.

## WEB VIEWER

iControl can be monitored remotely from anywhere through its web application.



## WORKSTATION

The workstation is used to test, playback or simulate certain actions/ events and report the Quality of Service (SAIDI/SAIFI).

## PLC AUTOMATION

Its PLC capabilities based on IEC 61131-3 can be used to provide customized automation functions for all kinds of applications.

## iCONF

iConf perfectly complements iControl, facilitating the set-up, fine-tuning and PLC programming.

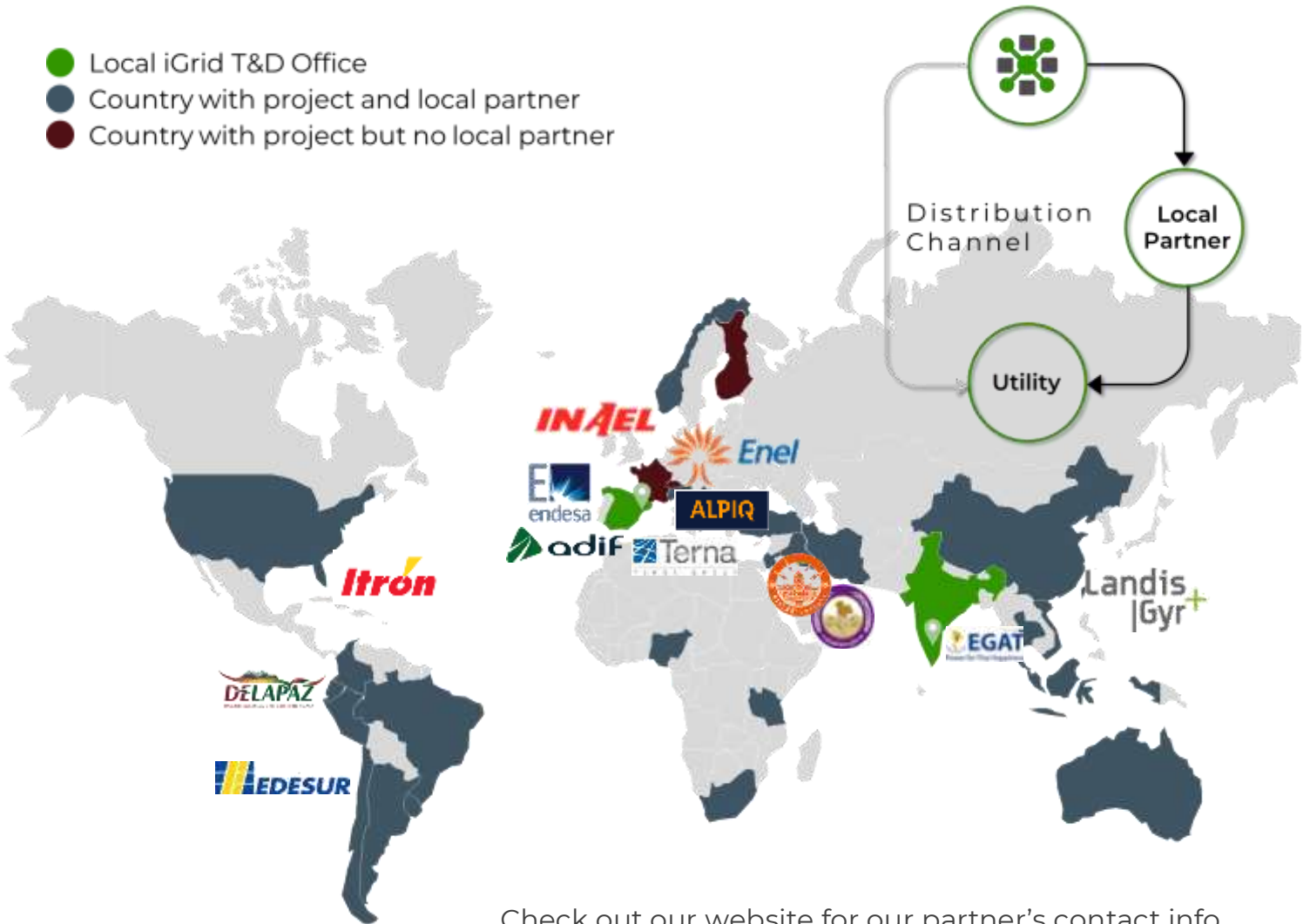






# WORLDWIDE PARTNERSHIPS & CLIENTS

- Local iGrid T&D Office
- Country with project and local partner
- Country with project but no local partner



Check out our website for our partner's contact info

## OUR PARTNERS

### South America



### Asia



### Middle East



### Africa



### Europe





# SOLUTIONS & APPLICATIONS

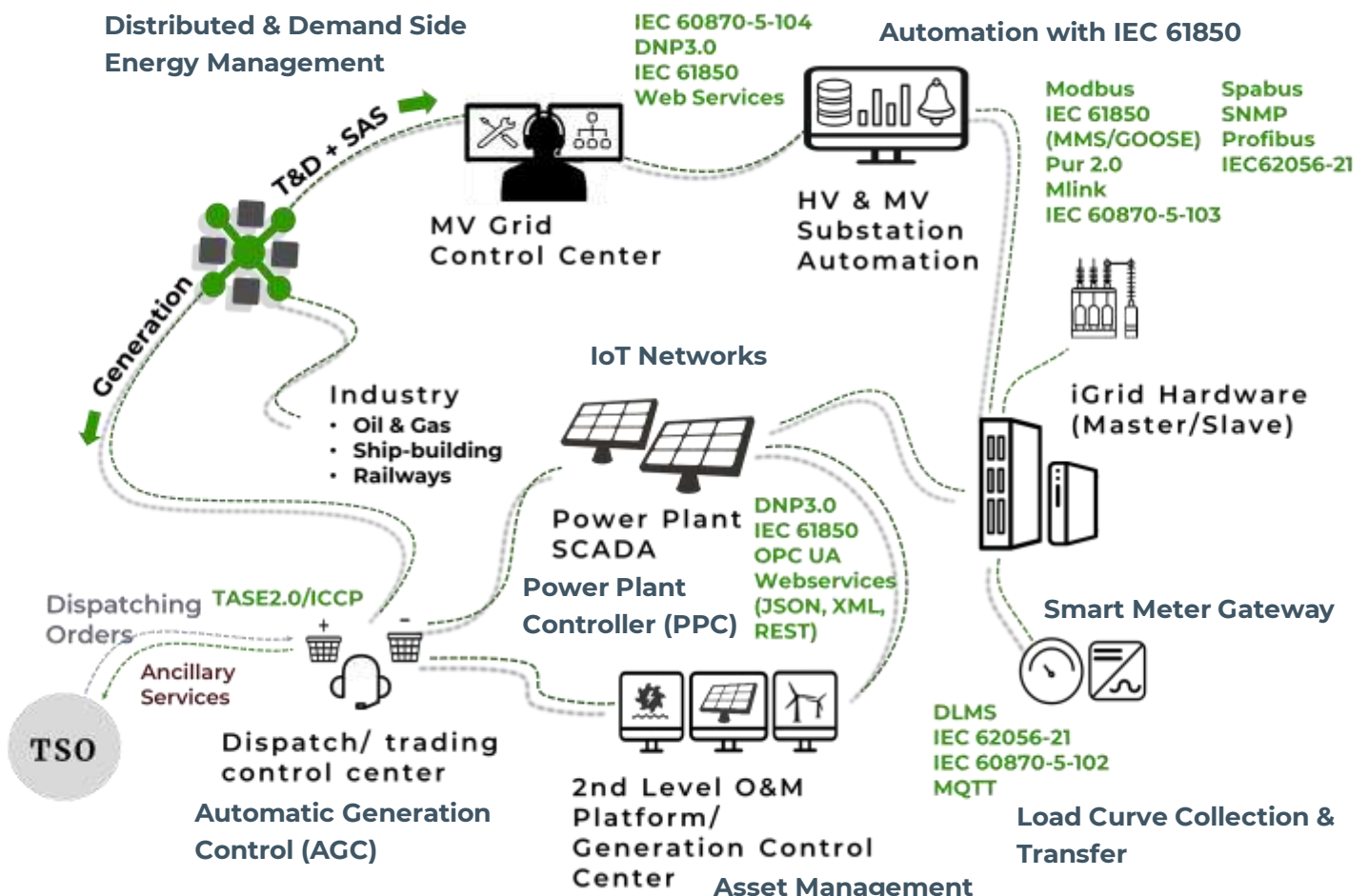
We have carried out hundreds of international projects with customers from many different industries. The acquired know-how and experience is reflected in our products and the professional service of our implementation, training and support engineers.

Most commonly we have dealt with:

- HV substation automation with iRTUs/ iGWs and iControl SCADA, using IEC 60870-5-101/103/104, DNP3.0 and IEC61850
- Smart metering projects using DLMS, IEC60870-5-102 and Modbus RTU/TCP
- MV grid automation with hundreds of substations controlled and monitored by iControl SCADA
- Hydroelectric and PV plant remote control and monitoring with iControl SCADA and iRTUs/ iGWs deployed on the field
- Railway energy network control

## IGRID SOLUTIONS MAP

All of these solutions can be provided by iGrid T&D. Further features, functions and technologies in relation to the application have been added in blue.





# THE IGRID PROTOCOL SUITE

All our systems can handle multiple protocols at once, connecting to various control centers over different media and protocols simultaneously. At the same time, any serial protocol can be tunneled over TCP/IP.

	MASTER	SLAVE
IEC60870-5-101 (control center)	x	x
IEC60870-5-102 (metering)	x	
IEC60870-5-103 (protection relays)	x	
IEC60870-5-104 (control center)	x	x
IEC61850 MMS	x (client)	x (server)
IEC61850 GOOSE	x (subscriber)	x (publisher)
DNP3.0 Serial and TCP	x	x
DLMS (meters)	x	
IEC62056-21 (meters)	x	
ModbusRTU	x	x
ModbusTCP	x	x
Profibus DP	x (limited)	
SNMP (IT infrastructure)	x (basic)	x (basic)
SpaBus / Mlink / Procome	x	
PUR2.0	x	x
MQTT (IoT connectivity)		x
OPC		x
TASE2 / ICCP		x



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