More efficient and profitable renewable energy plants

Proposal for collaborations

isotrol

The pillars that differentiate us

With near 40 years of experience in the Energy Sector, Isotrol has created Bluence to tackle the significant challenges of efficiently managing the expanding renewable energy market. We aim to achieve optimal integration of all generated power into the electric grid, ensuring its stability. Our objective is to help our customers maximize the use of their generated energy, as the ideal partner for the Clean Energy Transition

Renewable Generation

Advanced Technology to increase the efficiency and profitability of renewable assets, to optimize their operation ensuring compliance with grid codes.

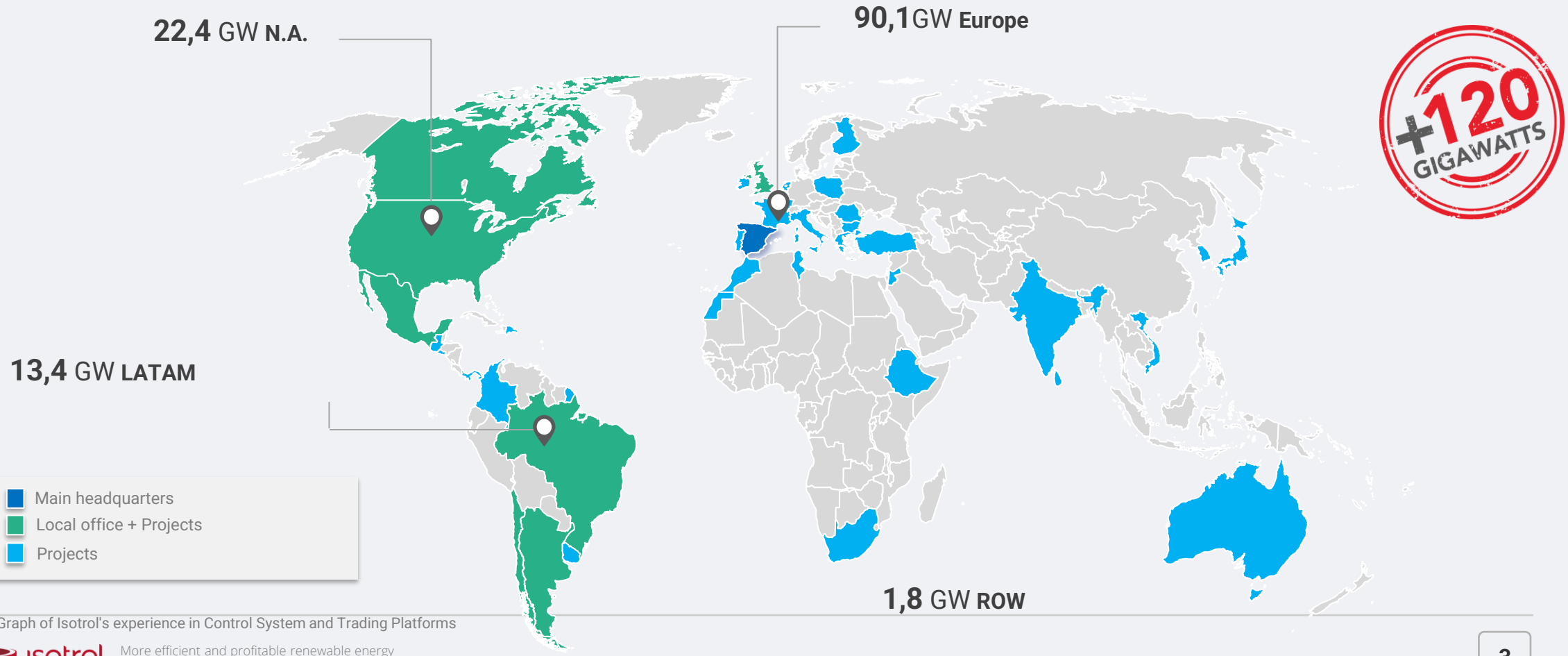
Energy Trading

Optimization the transactions in the electricity market by means of tools based on complex algorithms, data analysis and Machine Learning.

“We understand digitization as an opportunity to redesign our customers’ business capabilities and turn them into a smarter and more competitive model by incorporating new services and management models into their processes and providing technologies such as Cloud, Machine Learning, IoT or Big Data”.

Covering the World with our Solutions

Isotrol has outstanding references in more than 41 countries in 5 continents. The know-how gained in our central teams as well as the support and expertise of our local partner network allow us to provide a global and local response, which is strengthened by our 24x7 multilingual support.



* Graph of Isotrol's experience in Control System and Trading Platforms

Renewable Generation

BLUENCE: Smart combination of software tools and specialized services to offer customized solutions adapted to each project´s need

Designed for power plant owners, assets managers, operators, technicians and investors to get the most out of a single plant or a mixed portfolio of renewable energy plants

Bluence Suite

Local Supervision

1 Bluence Local RTU
Data acquisition and storage from site devices

2 Bluence Local SCADA
Local and remote monitoring and control

3 Bluence Plant Control
Control and management of the produced energy

4 Bluence Go&M
Management of work orders, stock and maintenance programs

Central Supervision

ROCC

5 Bluence Control Center
Monitoring, remote control and management of multi-technology and multi-geographic portfolios

4 Bluence Go&M
Management of work orders, stock and maintenance programs

Asset Performance Management (APM)

6 Bluence Asset Management
Optimization of asset management using digitalization and robot operations

7 Bluence Asset Performance Diagnosis
Advanced and predictive diagnostics of all performance losses and unavailabilities

Energy Trading

8 Bluence Autotrader

9 Bluence Trading Platform

CROSS

Bluence Services

Bluence Engineering & Parameterization
Engineering and consulting services for monitoring and control systems
10

Bluence On Field Installation & Commissioning
Installation, integration tests and field validation of the Bluence software and the corresponding hardware.
10

Bluence Control Center Service
24x7 surveillance maintenance and support service
10

Energy Trading

At Isotrol, we work to make the world more sustainable. Companies in the energy sector are pursuing the same goal, and that's why we want to support them. Our technology solutions are designed to help companies to optimize their energy management activities through digital transformation.

We are experts in energy trading at the forefront of developing solutions for energy markets.

Thanks to our technological capacity and expertise, we already help large utilities to gain a competitive edge. Your company can also increase its profits by optimizing decision processes and participation in energy markets.

Bluence Trading Platforms

Real-time response systems: autotrading and robotization.

Bluence GEMS | Simulation and prediction of the electricity markets

Strategic analysis, backtesting and forecasting.

Bluence Trading Services

Proactive business and infrastructure support.

Key Research Current Areas

KRA-1
AI in renewable generation

Optimise AM and O&MPredictive maintenance

Technologies :
Cloud, BigData, ML y DL
Digital Twins

KRA-2
Energy management

EMS + PPC Renewable hybridization with batteries and hydrogen

Technologies:
Optimisation algorithms

KRA-3
Cybersecurity OT

Product certification (62443-4)
Secure protocols, source code quality and deployment.
Risk identification

Technologies:
ML, code inspection...

KRA-4
Trading

Market predictors

Technologies :
ML, AI

R&D – Key research areas

Main Key research areas

Data analytics for renewables

- **AI-based predictive analysis for asset performance diagnosis**
- **Digital twin modelling**
- **BigData and IoT platforms**
- **Data Cleansing**

Smart O&M for renewables

- **Predictive and Root Cause Analysis for PV and Wind**
- **Predictive maintenance: recommendations generation**
- **Image recognition integration with SCADA (thermography,…)**

Grid Integration & Flexibility

- **Energy Management System and hybrid Power Plant Controller**
- **Batteries and Hydrogen integration with renewables**
- **RES integration.** Power plant controller and ancillary services.

Trading & Wholesale markets

- **AI-based Markets predictions & simulations and strategy optimization**

Cybersecurity

- **Cybersecurity for operational technologies**: Intrusion Detection Systems and dynamic risk analysis.
- **Software development and deployment certification**

Emergent technologies

- **Robotic Process Automation (RPA)**
- **Blockchain**
- Advanced HMI (Voice on control centers, AR…)

R&D – Projects

PROJECT	DESCRIPTION	LINE	TECHNOLOGY	FUNDING	PERIOD
TALOS	roboTics and Artificial intelligence Living labs improving Operations in PV Scenarios	Renewables	AI, Cloud		2023 2026
GENERDIS	Investigate in innovative technologies that allow a greater integration of renewables, decentralization and less dependence on critical materials.	Renewables	Energy Management & Mobility	CDTI @CDTIoficial	2022 2026
WINDIAG	Predictive models of wind turbine failures using artificial intelligence-based learning techniques. Reinforcement Learning with the feedback of the operator	Renewables	AI	red.es	2022 2024
BIGER	Predictive analysis of renewable generation infrastructure	Renewables	AI		2022 2025
RENSHIELD	Software solution for the detection of cyber threats in the monitoring and control systems of renewable generation facilities and their integration into the network.	Renewables	Cybersecurity	CTA	2021 2023
ELECTRON	Development of an EPES platform capable of enhancing the resilience of power systems against cyber-attacks.	Renewables	Cybersecurity		2021 2023
AI4PV	Design, development and validation of a set of tools for PV plants to Increase operational reliability and efficiency and to improve economic performance	Renewables	AI	EUREKA CDTI @CDTIoficial; Fondo Europeo de Desarrollo Regional (FEDER) Una manera de hacer Europa	2021 2023
CARDHIN	Functional prototype of a Dynamic Inductive Charging System on the road that allows the recharge on the move of electric vehicles while they are driving on the roads. Renewables + energy management system whit storage and H2	Renewables	Energy Management & Mobility	CDTI @CDTIoficial	2020 2023
SMARTWIND	Software platform for cost reduction and optimization of revenues and operating activities in wind farms. Design, development and validation of a state-of-the-art distribution network planning tool based on advanced ML algorithms.	Renewables	AI	eurogia2020 CDTI @CDTIoficial; Fondo Europeo de Desarrollo Regional (FEDER) Una manera de hacer Europa	2020 2023
1C4PV	One intelligent cloud for PV Assets Diagnosis and Maintenance	Renewables	AI	SOLAR-ERA.NET CDTI @CDTIoficial	2020 2022

R&D – Key research areas

Main Topics of interest

TOPIC	Type	Deadline
HORIZON EUROPE - CLUSTER 5 ENERGY		
HORIZON-CL5-2024-D3-01-10 Next generation of renewable energy technologies	RIA	16-01-24
HORIZON-CL5-2024-D3-01-11 AI Testing and Experimentation Facility (TEF) for the energy sector bringing tech	IA	16-01-24
HORIZON-CL5-2024-D3-01-12 Energy Management Systems for flexibility services	IA	16-01-24
HORIZON-CL5-2024-D3-01-14 Condition Health Monitoring in Power Electronics (PE)	RIA	16-01-24
HORIZON-CL5-2024-D3-01-17 development and integration of advanced software tools in SCADA systems for	RIA	17-01-24
HORIZON-CL5-2024-D3-02-06 -innovative community integrated PV Systems	IA	21-01-25
HORIZON-CL5-2024-D3-02-09 Demonstration of innovative floating wind concepts	IA	21-01-25
HORIZON EUROPE - CLUSTER 4 Digital, Industry and Space		
HORIZON-CL4-2024-DATA-01-01: AI-driven data operations and compliance technologies (AI, data and robotic	IA	19-03-24
HORIZON-CL4-2024-DATA-01-03: Piloting emerging Smart IoT Platforms and decentralized intelligence	IA	19-03-24
HORIZON-CL4-2024-DIGITAL-EMERGING-01-04: Industrial leadership in AI, Data and Robotics boosting compe	IA	19-03-24
OTROS - CET Clean Energy Transition		
CM2023-02: Energy system flexibility: renewables production, storage and system integration	R&D	22-11-23
CM2023-03A/03B Advanced renewable energy (RE) technologies for power production	R&D	22-11-23
CM2023-05 Hydrogen and renewable fuels	R&D	23-11-23

“Enhance your profitability”

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