



COMPANY PROFILE



WELCOME TO MAS

We are pioneers in the Energy Sector for more than 45 years

We provide technologically Advanced Power Management and Control & Supervisory Solutions for Power Production & Distribution, Oil & Gas, Marine and Heavy Industry.

Our focused specialization, extended know-how and flexibility enable us to develop tailor-made solutions and deliver complex turn-key projects that optimize operational reliability, efficiency and availability of engines and turbines around the world.

Innovators at heart, we lead the developments in the Energy Sector by creating state-of-the-art systems that enhance the optimum operation and maximum penetration of Renewable Energy Sources in complex Power Grids.

With an R&D team of specialized engineers and software developers, we boast about being one step ahead and leading the way to the Energy Sector's Industry 4.0 evolution.

MAS AT A GLANCE



EXPERIENCE

45+ years

EXPERTISE

4+
industries

MARKET SYNERGIES

25+
countries

PARTNERSHIPS

35+
*years Woodward Exclusive
Full Service Distributor & Business Partner*

DISTINCTIONS

12+
*International
& Domestic Awards*



OUR VISION

OUR VISION

To play a leading role in the technological transformation of the Energy Sector.

OUR MISSION

We create reliable and innovative technology products and solutions that enable Energy Producers and Consumers to meet the operational and environmental challenges.

We lead the way to the future, taking our customers on board

The liberation of the energy production, along with the ultimate goal to embrace environmentally friendly forms of Energy, is drastically transforming the Energy Sector. Changes in operational business models call for better control of distributed power production, while the evolution of technology is reshaping the industry for both producers and consumers.

Technological insight and accurate & readily available information are today's competitive advantage among Power Producers operating in a free market. MAS, characterized by its solid pioneering approach over the years, has always been a step ahead of the industry, creating strong leverage towards evolution, providing its clients with the needed technological edge.

True to our vision, we invest more than 30% of our profitability in R&D. Aiming at a greener future, MAS invests in know-how and technology for advanced Battery Energy Storage Systems and Energy Management Systems that will take Hybrid Power Plants to the next level. MAS's participation in several research programs for sustainable Power Production Technologies is also a big part of its commitment to a greener world.

MAS engages latest Industry 4.0 technology to provide Intergraded Grid Management Systems of the future, where Production Technologies Management, Demand Management and Distributed Localized Power Storage will converge.

Our Solutions Guarantee:

Latest technology systems: in line with future technological evolution

Reliability & Availability: less down time, optimal utilization

Efficiency: less energy loss, better downstream process values

Asset Re-capitalization: extension of machine lifetime & improved Return On Investment

Operational Safety: latest industry standards & regulations compliance

System Integration: seamless interoperability with existing peripheral systems

OUR FOOTPRINT

Since the company's establishment in 1974, MAS has strategically expanded its operation in over 25 countries worldwide.

GREECE
CYPRUS
ISRAEL
TURKEY

THE BALKANS:

ALBANIA
BOSNIA & HERZEGOVINA
BULGARIA
CROATIA
KOSOVO
NORTH MACEDONIA
MONTENEGRO
ROMANIA
SERBIA
SLOVENIA

CIS COUNTRIES:

ARMENIA
AZERBAIJAN
BELARUS
GEORGIA
KAZAKHSTAN
KYRGYZSTAN
MOLDOVA
RUSSIA
TURKMENISTAN
TAJIKISTAN
UKRAINE
UZBEKISTAN

OUR EXPERTISE

We offer complete Power & Energy Control Solutions

From simple on machine equipment to sophisticated management software

OEM Approved Control & Protection Systems for:

- 2 & 4 stroke engines
- Gas, Steam and Hydro Turbines
- Power Plants & Compressors stations

Comprehensive Solutions for:

- Power Management
- Load Sharing
- Load Shedding

Advanced Software for:

- RES Management Systems (Hybrid, Solar, Wind)
- Generation Management Systems (GMS / AGC)
- Energy Management Systems (EMS)
- Demand Response Management Systems (DRMS)

OUR ATTRIBUTES

We thrive on specialized technology to develop state-of-the-art solutions for Power Producers & Consumers



Specialization

Our core element

- Acknowledged expertise prevalence in Prime Movers, Control, as well as Power & Energy Management Systems
- Award-winning team of engineers and software developers, recognized as one of the best in Europe by clients and competitors
- Strong portfolio of sophisticated turn-key solutions in different industries
- Proven solutions in Control Applications for Turbine and Engines
- Certified as Recognized Turbine Retrofitters (RTR)
- Continuous investment in people, via highly specialized training programs
- Exclusive Woodward Central Distributor, Service Facility and Authorized Training Centre

Technology

Our leverage

- State-of-the-art SCADA, Generation Management Systems (GMS)
- Proven pioneering technology, based on continuous R&D investment
- Advanced Hybrid Power & Energy Management as well as Grid EMS solutions that excel in the market
- Award winning innovations (Across®)
- Leading partner in European Research Initiatives for clearer and efficient technologies

Customization

Our unique offering

- Complete range of products and services to select from, stemming from MAS vertical integration
- Unique, tailor-made solutions to address customized needs, thanks to MAS flexible structure
- Established and proven solutions that embrace pioneering IT tools & methodologies, while staying compatible with existing OT systems
- Deep understanding of clients' needs, focusing on perfection and consistency in order to ensure strong, long-lasting, win-win partnerships
- Top-tier engineering company for on-demand problem solving
- 24/7 availability of our taskforce for troubleshooting and support
- Tailor-made training programs, designed on customer requirements

TURNKEY SOLUTIONS

Complete Solutions for demanding Power Producing Installations

We are a leading company in developing Advanced Control Solutions for Engine and Turbine Installations in Power, Oil & Gas, and Marine sectors. We offer OEM Approved Unit Control Systems and comprehensive Power Plant Management Solutions. Our team of highly trained and specialized engineers and developers deliver challenging projects in the Energy Sector on a turnkey basis:

New Installations:

- Robust expertise in the design of custom-made Advanced Technology Systems and the complex Unification and Integration Systems, offering a strong advantage over standard OEM solutions
- Trusted by large Operators and Integrators for the design and installation of challenging Control and Power Management Systems, for diverse systems such as Hybrid Power Stations, Unmanned Hydro Power Plants, High Availability Backup Power Plants and Refinery Installations

Retrofits / Upgrades:

- Complete retrofit and customized projects of existing Turbine Machinery for Power Plants and Refinery Facilities
- Solid, extensive experience in Thermal & Hydro Power Plants upgrades
- Focused expertise on re-capitalization of existing installed assets via upgrades of all aged systems to extend the Power Plants' life

- Engine and Turbine Control and Protection solutions, starting from on-machine equipment up to process control integration
- Plant / Station Management Systems including Power Management, Load Shedding systems, Load Sharing and overall Integration
- Compressor Anti-surge and load sharing solutions
- Turbomachinery maintenance
- Substation RTU systems

TURNKEY SOLUTIONS



POWER OIL & GAS HEAVY INDUSTRY

Engine & Turbine Control

- Tailor-made control designs for optimal performance, efficiency and safety
- Full range of tightly integrated control systems, from the smallest engine to the largest heavy fuel engine in Power applications
- Approved and Installed OEM Solutions for small and large turbomachinery, both in Power Production and Compressor Applications
- Specially designed systems for Steam and Hydro Turbines, enhancing operation life of aged installations

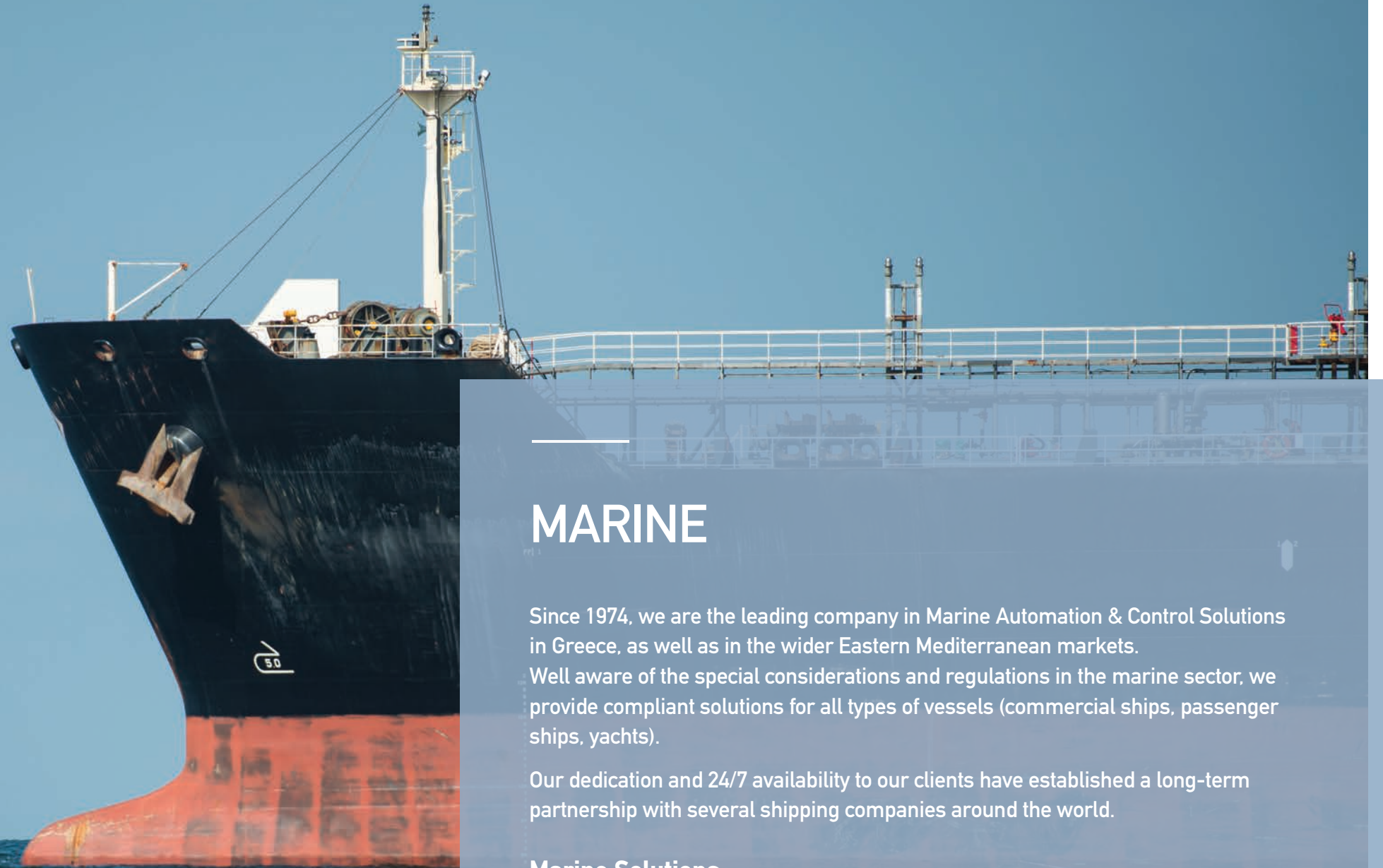
Power management

- Frequency and Voltage Regulation for the most demanding Power Generation Applications
- Unique Power Management solutions for Hybrid installations with several power production sources, such as Solar, Wind, Hydro and Thermal units
- Proven algorithms on Energy Management in Isolated Grids
- Advanced Load Sharing and Load Shedding for Demand Management Solutions

Compressor Control

- Advanced Incipient Surge Detection Algorithms for peak efficiency and protection
- Compressor Load Sharing Algorithms to ensure optimal machine efficiency
- Integrated Turbine & Compressor Control Systems, designed to increase reliability and availability

TURNKEY SOLUTIONS



MARINE

Since 1974, we are the leading company in Marine Automation & Control Solutions in Greece, as well as in the wider Eastern Mediterranean markets.

Well aware of the special considerations and regulations in the marine sector, we provide compliant solutions for all types of vessels (commercial ships, passenger ships, yachts).

Our dedication and 24/7 availability to our clients have established a long-term partnership with several shipping companies around the world.

Marine Solutions:

- Engine Control Systems
- Authorized service for all Woodward governor systems, as per our exclusive partnership with Woodward
- Unified (maneuvering) solutions suitable for new and existing vessels, of any type or size
- Maneuvering and Bridge Control Systems
- Power Management and load sharing upgrades
- Alarm & monitoring systems

CONTROL SYSTEMS



High performance equipment for demanding applications

Aiming to offer latest technology equipment, we choose to represent only leading manufacturers.

Our specialized technical support provides insight to our clients for the selection of the right equipment, minimizing operational cost, commissioning time while improving availability, efficiency, reliability and longevity of the machinery.

We provide a wide range of products, including:

- Technologically innovative products that enable engines, turbines and compressors to consistently achieve optimal operation and thus maximize efficiency, performance, reliability, safety and sustainability, whilst minimizing emissions
- Safety Systems that ensure the protection of your prime mover, as well as the driven equipment, such as generators and compressors
- Power Management Solutions that cover the diverse needs of modern Electrical Grids and Communication-Intensive Distributed Power Generation
- High performance Control Valves, Actuators and Fuel Delivery Systems
- Latest technology RTU systems



Exclusive Full Service Distributor & Business Partner

Woodward is a world leader in prime mover control system for the aerospace and industrial markets. Their industrial related systems and components enhance the performance of Industrial Gas and Steam Turbines, Reciprocating Engines, Compressors, Wind Turbines, Electrical Grids and other energy related industrial equipment.

MAS SA is the Woodward's Full Service Distributor & Business Partner for Greece, the Balkans, Israel, Turkey, Russia and CIS Countries.

This extended partnership, based on professionalism and performance, enriches our expertise and gives us access to prolongedly tested and results proven systems, as well as top quality equipment.

These synergies from our partnership with Woodward, enhance our leverage in offering optimal solutions to our clients at the right cost.

Our clients rely on us to address and solve challenges related to global efficiency initiatives – from reducing emissions, to increasing energy efficiency and helping them introduce alternative energy sources.

- **Full-Service Distributor:** we maintain an extensive inventory of Woodward controls and spare parts, provide engineering, upgrades, applications, installation, retrofit, systems integration, parts, service, repair and field services to end-customers throughout our designated territories. We supervise and maintain business relations with sub-AISF's.
- **AISF – Authorized Independent Service Facility:** sales of new controls, providing service and repairs within a territory
- **ATC – Authorized Training Center:** offering approved training on Woodward products
- **RTR – Recognized Turbine Retrofitter:** specialized in upgrades and retrofits of engine and turbine control systems, using Woodward's innovative control, actuation, and valve technologies

PRODUCT RANGE

Highest quality at the core

Actuators

- Electrical Actuators
- Electro-Hydraulic Actuators
- Varistroke VS1
- Hydro-Mechanical Actuators

Governors

Gas & Diesel Engine Control systems

- Speed Control units (Digital/Analog)
- Sensors & Switches
- Throttle and Fuel Regulation Valves
- Ignition Systems & Exciters
- Solenoids and Accessories

Power Management Products

- Genset Controllers
- ATS, AMF and Parallel application controllers
- Synchronizing & Load Share Controllers
- Solutions for even the most complex application schemes

Electrical Protection systems

- Reliable Solutions for Distribution and Generator applications
- Wide range of protection relays suitable for low, medium and high voltage applications

Gas Turbine Control Systems

- Standard or Custom Programmable Controls
- Simplex/Redundant/TMR applications

Steam Turbine Control Systems

- Standard or Custom Programmable Controls
- Simplex/Redundant/TMR applications

Compressor Control Systems

- Standard or Custom Programmable Controls
- Simplex/Redundant applications
- One to Five Stages Applications

Turbine Fuel Control Valves

- Air Valves
- Gas Valves
- Liquid Valves
- Water Valves

Machine Safety Systems

- Overspeed Units
- SIL-2/SIL-3 Protection Units
- Trip Block Valves with extremely low response time (1msec)

Fuel Skids

Woodward applies a strict Quality Assurance program to maintain standards for its company and its Business Partners. The program includes specialized training, shared project experience, company audits on commercial processes, administration, procedures and technical capabilities. **MAS exceeds Woodward's standards**, as we have been granted with Woodward's Award for Best Partner Performance.

For more than 150 years, Woodward strategically focuses its resources and expertise on offering systems that have been prolongedly tested and have proven to perform under extremely demanding circumstances. In other words, only **proven systems and solutions** are offered by the company. Our extended exclusive partnership with Woodward gives us access to technological tests, insights and performance information that further enrich our expertise.

We thus have the unique advantage to provide only proven solutions to our clients, ensuring success, avoiding trials and errors and, thus, minimizing costs and time.



SOFTWARE SOLUTIONS



Innovative software platform, specially designed for the needs of the Energy Market

We are pioneers that offer break-through technologies and tools, driving the Fourth Industrial Revolution and leading transformation of the Energy Sector.

Our innovative software solutions are specifically designed and developed to address the highly specialized and targeted requirements of the Power & Energy Field, while our focus is on the development of unique platforms that will best meet current & future needs.

We provide established and proven solutions that embrace IT tools & methodologies, while keeping compatibility with existing OT Systems.

By combining the latest IT technology and Industry-specific tools and methodologies, we ensure optimal performance, customization, and ease of use for the operators. In addition, the architecture and technology used, ensures that our solutions can grow to accommodate any future requirements (functional or technological) without the need to invest in new satellite applications and/or solutions.

SOFTWARE SOLUTIONS



ACROSS is a unified Digital Energy Ecosystem *across* the energy sector value chain, from production, storage, transmission & distribution, to consumption.

At a glance:

- Real-time Operations Monitoring and Management from production to consumption
- Energy-related logic and embedded MAS know-how
- Unified KPIs
- Data transformation and analysis for operating and industrial data
- Strategic decision making, based on data to improve organizational efficiency
- Active load management
- Baseline management
- Energy forecast
- Management of energy efficiency measures
- Monitoring of greenhouse gas emissions

Innovations & Customer Benefits

- Simplicity with embedded logic
- No development skills needed to set up and maintain
- Industry Best-Known practices providing ready-to-use solutions
- Minimum configuration costs
- Visual Code Editor allowing non-developers to write & run own code

ACROSS is the platform that hosts MAS's sophisticated solutions for:

Power Production

The Power Production Suite provides all needed logic and tools to monitor and manage any kind of power production facility, as well as storage. Predefined pages, objects, dashboards and reports offer a single platform to manage both the operational and business aspects of a diverse energy portfolio.

Energy Management

The Energy Management Suite (EMS) adds functionality for Network Operators and Producers. It offers powerful algorithms that help producers manage forecasts, plan production and offer Energy to the electrical grid and Network Operators. EMS links energy management to automation, allowing different energy data to be grouped, buffered, and visualized.

Grid Management

The Distribution Service Operator suite (DSO) includes Demand Management algorithms, resolving the power equilibrium of designated geographical areas, networks, and selected installations in real time. The DSO suite also manages the negative Power Balance by controlling the demand side via commands to Prosumers (Producers & Consumers) and other controllable network loads.

Market Management

The Market Management Suite provides functionality for a free market with diverse energy sources and complex rules. The MMS suite is the optimal solution for competitive price bidding, for a Virtual Power Plant (VPP).

EV Charging Management

The EV Charging Management suite offers an agnostic charger manufacturer technology for network and power operators, to manage the fast-growing demand for Electric Vehicle (EV) charging. An additional functionality is the Vehicle-to-Grid (V2G) Management module for bidirectional Electric Vehicle power flow.

Enhanced integration characteristics:

ACROSS Hosting

ACROSS provides hosting flexibility to any preferable solution based on installation requirements, scalability, cost, speed, connectivity, reliability and security, such as on-Premises (Private Cloud), Across Cloud Solution or Hybrid.

ACROSS Third Party Integration Tools

The ACROSS Third Party Integration Tools embedded in ACROSS, ensure that the Digital Energy Ecosystem is designed to be an open, flexible and scalable platform that can interconnect to any existing system and host any custom-built application, without sacrificing performance and security.

MAS CASE STUDIES



Our indicative portfolio

Complete Power Plant Control Systems



- 27** Thermal Plants
- 6** Hydro Plants
- 2** Hybrid Plants

Unit Control Systems

250+ engines

14 Steam Turbines

12 Gas Turbines



Hybrid EMS / BMS installations

- 2** Solar, Wind Thermal & Battery
- 1** Wind & Hydro

Wind Farm Control & Monitoring Systems



80

Dispatching / Power Management Systems

6 (RES, Hydro & Thermal Power)



Loadbalancing / Demand Management Systems

20



Plant Management Systems



30+

Generation & Energy Management System



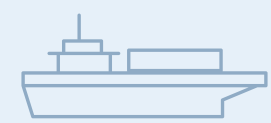
2
(>500,000 I/O's)

Back-up / Peak Power Plants

16



Shipping automation projects



20

CASE STUDIES | HIGHLIGHTS

NAERAS, IKARIA

Prime Power Plant - Hybrid

Naeras is a pumped storage clean energy plant on the island of Ikaria, Greece, one of only two hybrid energy projects in Europe that combine wind and hydraulic power. MAS provided ACROSS Digital Energy Ecosystem to ensure the continuous operation of production units and the most efficient management of energy in the grid throughout the year. The ACROSS Energy Management analysis Suite (EMS) is responsible for the simultaneous management of one Wind Park (W/P), two Hydroelectric Power Stations, three Water Reservoirs, one Pump Station with twelve pumps and the Energy Control and Load Distribution Center for the Hellenic Electricity Distribution Network Operator (HEDNO). The ACROSS Market Management Suite (MMS) receives the hourly production / absorption measurements per month and per unit and invoices the quantities of energy produced / absorbed of the hybrid power station.

EDESSEOS, EDESSA

Prime Power Plant - Hydro

MAS delivered a complete telemetry system, where the user is able to fully manage an unmanned small hydro power plant from another, larger power station. This system is tailor-made for a specific power station and has been successfully implemented at Edesseos HES. Remote control is performed from Agras HES, using a computer that accepts operator's commands and transmits them to Edesseos. The system is PLC-based for all control and monitoring functions for safe operation of hydro turbine and electrical generator. New subsystems were also installed, including new excitation system, new synchronization system, new MCC switchboard, new pond status PLC, new dedicated local HMI and a new dedicated SCADA system. Communication between the power stations is performed via dedicated optical fiber cable (as primary) and GSM (as back up).

27 ISLANDS, HEDNO

Prime Power Plant - Software

MAS platform is installed in 27 Power Stations of the Non-Interconnected Islands (NII) to ensure the supervision of the entire production of the distributed and partially controlled Renewable Energy Stations (RES). This is achieved through the development of intelligent algorithms that take into account the ever-changing conditions in the islands. MAS offers several systems for the implementation of the market operation and settlement, as well as supervision and monitoring of the system operation for Non-Interconnected Islands System and Market Operator (NII SMO). The Local Energy Control Center (ECC) constitutes the infrastructure for the management of the NII Power System and communicates with the Central ECC, which generally supervises and monitors its operation.

LARISSA GENERAL UNIVERSITY HOSPITAL

Larissa's Hospital backup system provides automatic startup, frequency / voltage control and load sharing between generators during grid disturbances. MAS executed engineering, installation and commissioning of emergency generators' control system, combined with a PLC that controls the substations' breakers transferring. Additionally, MAS has installed a modern SCADA system for the supervision of the total installation. System's first operation was at 2010 and the last upgrade was executed at 2020.

HELPE REFINERY, ELEFSINA

Oil & Gas Industry | Retrofit

MAS proceeded with Controls Upgrade of two Gas Turbines. Old, analog systems dated back to the 80's, were replaced by a modern, digital system designed for the specific application. The system includes dedicated SCADA for turbine control and monitoring from various positions inside the refinery.

AL SALAMAH, M/Y

Marine

Auxiliary Engine Speed control units upgrade, Auxiliary Engines Power Management & Supervision Control system upgrade were some of the services performed by MAS on this enormous Motor Yacht.



CASE STUDIES

Energy | Prime Power Plants

1. Thermal

Thermal plant projects involve Power Management (frequency/voltage control, load sharing & shedding etc.), Protection & Control system upgrade for gensets (actuators, governing systems, mechanical protections, HMI systems etc.), generation protection upgrade plus Scada - from overcurrent to generator differential protection, generation excitation control system upgrade and others.

Client	Project	Scope	Units - TTL Power	Year
PPC	Chios APS	Engineering, installation and commissioning of isochronous control, power management system and Scada application (Supervision of power plant)	7 - 64 MW	2010
		Engineering, installation and commissioning of unit control, protection and supervision system for 2x Sulzer diesel engines	2 - 24 MW	2014
PPC	Samos APS	Engineering, installation and commissioning of unit control, protection and supervision system for 3x Cegielski/Sulzer diesel engines	2 - 16 MW	2008
		Supervision of power plant (Power Generators Electrical measurements - Alarms - Events, Feeders Electrical measurements - Alarms - Events - Protection Relay)	6 - 48 MW	2009
		Expansion of the existing power management system with two additional Wartsila generators. Engineering, installation and commissioning of isochronous control, power management system and Scada application (Supervision of power plant)	2 - 16 MW	2011
		Engineering, installation and commissioning of unit control, protection and supervision system for 3x Cegielski/Sulzer diesel engines	1 - 8 MW	2011
		Expansion of the existing power management system with one additional Wartsila engine. Supervision of Power Generator (Electrical measurements - Mechanical measurements - Alarms - Events)	2 - 16 MW	2013
		Electrical Protection System upgrade for one generator (old ZAZ - GTD type) and SCADA application upgrade	2 - 16 MW	2020
SOLERGON	Ikaria LPS	Supervision of power plant (Power Generators Electrical measurements - Alarms - Events, Feeders Electrical measurements - Alarms - Events - Protection Relay)	9 - 16,5 MW	2015
PPC		Supervision of Power Generator (Electrical measurements - Mechanical measurements - Alarms - Events)	1 - 3 MW	2016
		Engineering, installation and commissioning of isochronous control, power management system and Scada application (Supervision of power plant)	5 - 9 MW	2017
PPC	Kos APS	Engineering, installation and commissioning of isochronous control, power management system and Scada application (Supervision of power plant)	7 - 91 MW	2009
		Protection, Control System and Scada upgrade for three diesel engines, Maker: Hanjung-Man 7K60MC-S. Scada upgrade application for 2 diesel engines HSD/MAN 9K60MC-S	5 - 68 MW	2020
PPC	Lesvos APS	Engineering, installation and commissioning of isochronous control, power management system and Scada application (Supervision of power plant)	8 - 75 MW	2011
		Engineering, installation and commissioning of unit control, protection and supervision system for 1 Fincantieri diesel engine	1 - 11 MW	2014
		Engineering, installation and commissioning of unit control, protection and supervision system for 1 Sulzer diesel engine	1 - 11 MW	2016
		Electrical Protection System upgrade for one generator (old ZAZ - GTD type) and SCADA application upgrade	1 - 8 MW	2020

Client	Project	Scope	Units - TTL Power	Year
PPC	Thira APS	Engineering, installation and commissioning of isochronous control, power management system and Scada application (Supervision of power plant)	6 - 35 MW	2008
		Protection, Control System and Scada upgrade for three diesel engines, Maker: Wartsila	3 - 12 MW	2013-14
		Expansion of the existing power management system with two additional gas turbine generators	1 - 11 MW	2014
PPC	28 greek islands	Engineering, installation and commissioning of isochronous control, power management stations and Scada application (Supervision of power plant) for 4 island autonomous production stations. Scada application upgrade for 24 island autonomous production stations	488 MW	2021-22
PPC	Limnos APS	Engineering, installation and commissioning of isochronous control, power management system and Scada application (Supervision of power plant)	6 - 22 MW	2009
PPC	Kastelorizo LPS	Engineering, installation and commissioning of isochronous control, power management system and fully autonomous station operation	5 - 0,8 MW	2003
		Supervision power plant (Power Generators Electrical measurements - Alarms - Events, Feeders Electrical measurements - Alarms - Events)	5 - 0,8 MW	2009
PPC	Simi LPS	Engineering, installation and commissioning of isochronous control, power management system and Scada application (Supervision power plant)	6 - 5,6 MW	2007
STALKO ABE		Supervision power plant (Power Generators Electrical measurements - Alarms - Events, Feeders Electrical measurements - Alarms - Events)	8 - 8,5 MW	2015
PPC	Gavdos LPS	Engineering, installation and commissioning of isochronous control, power management system, fully autonomous station operation and Scada application	4 - 0,4 MW	2006
		Supervision & Control of power plant (Power Generators Electrical measurements - Alarms - Events, Feeders Electrical measurements - Alarms - Events)	4 - 0,4 MW	2009
PPC	Syros APS	Engineering, installation and commissioning of Station Scada application (Supervision of power plant)	5 - 12 MW	2009
		Engineering, installation and commissioning of unit control, protection and supervision system for 1x Cegielski/Sulzer diesel engine	1 - 6 MW	2015
PPC	Rhodes APS	Diesel Engine Speed Control Upgrade for 3x Pielstick engines	3 - 66 MW	2014
PPC	Milos APS	Supervision of power plant (Power Generators Electrical measurements - Alarms - Events, Feeders Electrical measurements - Alarms - Events)	6 - 20 MW	2010
PPC	Paros APS	Supervision of power plant (Power Generators Electrical measurements - Alarms - Events, Feeders Electrical measurements - Alarms - Events)	10 - 88 MW	2010
		Engineering, installation and commissioning of unit control, protection and supervision system for 1 Fincantieri diesel engine	1 - 11 MW	2014
		Engineering, installation and commissioning of unit control, protection and supervision system for 1 Sulzer diesel engine	1 - 11 MW	2016
PPC	Kalymnos APS	Engineering, installation and commissioning of isochronous control, power management system and Scada application (Supervision of power plant)	1 - 2 MW	2012

CASE STUDIES

2. Hydro

Replacing obsolete Generating Unit Control (GUC) systems, upgrading speed governors, offering a SCADA system that allows the monitoring of all plant entities, locally and remotely, are some of the solutions MAS provides for a Hydro Power Station.

Client	Project	Scope	Units - TTL Power	Year
PPC	Kremasta	Speed governor upgrade for 2 units	4 - 440 MW	2008
		Data Collection, Supervision & monitoring of HPS	4 - 440 MW	2010
		Engineering, installation and commissioning of GUC power plant control and supervision system	4 - 440 MW	2013
PPC	Kastraki	Speed governor upgrade for 4 units	4 - 320 MW	2009
PPC	Stratos	Speed governor upgrade for 2 units	2 - 80 MW	2012
		Engineering, installation and commissioning of GUC power plant control and supervision system	2 - 80 MW	2014
PPC	Ladonas	Speed governor upgrade for 2 units, engineering, installation and commissioning of GUC power plant control and supervision system	2 - 70 MW	2015
PPC	Asomatoi Polifitos Pournari	Engineering, installation and commissioning of GUC power plant control and supervision system (6 HPS)	2 - 110 MW 3 - 375 MW 3 - 300 MW	2019

3. Hybrid

The combination of different energy sources constitutes a hybrid installation. Managing this productive combination is an important factor for its functionality.

Client	Project	Scope	Capacity	Year
EUNICE	Tilos	Supervision & Control of Hybrid Station (Wind Generator, Photovoltaic Park, Batteries), EMS	0,45 MW	2019
PPC	Ikaria	Supervision & Control of Hybrid Station (Wind Park,), EMS	2,5 MW	2021

4. Software

Our innovative software solutions are designed, developed and finally configured to meet the specific requirements of each facility.

Client	Project	Scope	Capacity	Year
PPC	Control Center	Supervision of 27 thermal power plants (Power Generators Electrical measurements - Alarms - Events - Fuel Flow, Feeders Electrical measurements - Alarms - Events - Protection Relays)	490 MW	2010-17
HEDNO	Control Center	Supervision of 27 Electrical Systems (Power Generators Electrical measurements - Alarms - Events, Feeders Electrical measurements - Alarms - Events, Wind Parks, Photovoltaic Parks)	490 MW	2019 ongoing
HEDNO	Island Facilities, like Limnos, Thira, Lesbos, Milos, Chios, etc.	Supervision and Control of Electrical System (Thermal Power Plant, Wind parks, Photovoltaic parks, EMS - depending on what each island facility has)	480 MW	2019 ongoing

PPC* Public Power Corporation (GR)

Energy | Renewable Sources

Renewable Energy Sources (RES) are a key component to sustainability and green economy. The management of RES to ensure adequate energy reserves and provide a constant rated frequency and voltage, is a demanding task due to RES production instability. Here, at MAS, we provide the tools to manage RES production.

Client	Station	Scope	Capacity	Year
JASPER WIND	Naxos	Supervision & Control of Wind Park	7,56 MW	2010
PPC RENEWABLES	Samos	Supervision & Control of Wind Park	1,6 MW	2012
PPC RENEWABLES	Paros	Supervision & Control of Wind Park	3,0 MW	2012
AIGAIOILEKTRIKI S.A.	Chios	Supervision & Control of Wind Park	0,6 MW	2014
AIGAIOILEKTRIKI S.A.	Chios	Supervision & Control of Wind Park	0,56 MW	2014
AEIFORIKI DODEKANISSOU S.A.	Kos	Supervision & Control of Wind Park	3,6 MW	2015
ROKAS CONSTRUCTIONS SA	Kos	Supervision & Control of Wind Park	4 MW	2015
ROKAS CONSTRUCTIONS SA	Leros	Supervision & Control of Wind Park	4 MW	2015
AEIFORIKI DODEKANISSOU S.A.	Patmos	Supervision & Control of Wind Park	1,2 MW	2015
PPC RENEWABLES	Lemnos	Supervision & Control of Wind Park	1,74 MW	2015
ENET	Ikaria	Supervision & Control of Wind Park	2,7 MW	2015
PPC RENEWABLES	Sifnos	Supervision & Control of Wind Park	1,2 MW	2019
PPC RENEWABLES	Samos	Supervision & Control of Wind Park	0,6 MW	2019
PPC RENEWABLES	Chios	Supervision & Control of Wind Park	2,5 MW	2020
PPC RENEWABLES	Psara	Supervision & Control of Wind Park	1,8 MW	2020
HEDNO	Milos	Supervision & Control of Wind Park	2,56 MW	2020
PPC RENEWABLES	Lesbos	Supervision & Control of Wind Park	2,25 MW	2020
HEDNO	Chios	Supervision & Control of Wind Park	0,6 MW	2021

Energy | Backup - Peak Plants

Backup/Peak plants are local power production units that operate in parallel with the grid to maintain energy at a predefined level that is necessary for the facility, e.g. hospitals.

Client	Scope	Units - TTL Power	Year
AHEPA University General Hospital	Engineering, installation and commissioning of emergency generators' control system	2 - 0,48 MW	2002
University General Hospital of Heraklion	Engineering, installation and commissioning of emergency generators' control system	2 - 1MW	2004
ERT - Public Television	Engineering, installation and commissioning of emergency generators' control system. The system first operated during the Athens Olympic games and was used to eliminate radio broadcast shutdown in case of mains failure.	4 - 1,48 MW	2004
University Hospital of Alexandroupolis	Engineering, installation and commissioning of emergency generators' control system	2 - 1,32 MW	2010
Joint Venture PC Development - Ergotem	Engineering, installation and commissioning of peak generators power management system in US Army facility in Djibouti (MV Switchgear refurbishment)	6 - 12 MW	2021

CASE STUDIES

Oil & Gas | Heavy Industry

Mas, understanding the underlining processes, offers specialized designs and delivers customized control & protection solutions for Turbine, Compressor & Power generation units. As Woodward representative, MAS supports with maintenance and on-field service.

Client	Scope	Units - TTL Power	Year
ABB Greece	Engineering, installation and commissioning of emergency generators' control system in HELPE refinery facilities in Elefsina	3 - 3 MW	2005
Viohalco	Central Supervision of Electrical Consumption of Viohalco Group factory	N/A	2011
Green Air Energy	Supervision of Tupperware factory at Thiva (3 Air Compressors, Generators)	N/A	2011
Tupras Refineries	Remote support, troubleshooting, for four plants	16	2011
Tupras Refineries	Steam Turbine control upgrade, Supervision & Control of SteaTURBINE (Electrical measurements-Mechanical measurements-Alarms-Events)	1 - 21 MW	2018
Helpe	Gas Turbine unit procurment & maintenance	1 - 17,5 MW	2019
Helpe	Gas Turbine excitation system revamp	2 - 17,5 MW	2020 - now
Papadopoulos Bread	Emergency generators' control systems upgrade	1 - 1,8 MW	2021

Marine

MAS's long history with the Marine sector guarantees our solid expertise in Marine Automation & Control solutions for any type of vessel.

Client	Vessel	Scope	Units TTL Power	Year
ATTICA GROUP	Blue Star Ithaki	Aux Engines Governor Upgrade	3 - 3,85 MW	2007
GOULANDRIS BROS	M/Y Aetea	Aux Engines Power Management Control Upgarde	3 - 0,4 MW	2008
ATTICA GROUP	Blue Star Paros	Aux Engines Governor Upgrade	3 - 3,85 MW	2009
M/Y LE PHARAON	M/Y Le Pharaon	Aux Engines Power Management Control Upgarde	3 - 0,38 MW	2009
LMZ TRANSOIL	M/Y Madi Blue	Aux Engines Power Management Control Upgarde	2 - 0,16 MW	2010
NOMIKOS	M/Y Northwind	Aux Engines Power Management Control Upgarde	2 - 0,16 MW	2011
MARINE ELECTRIC	M/Y Jameel	Aux Engines Power Management Control Upgarde	3 - 0,39 MW	2014
GOLDEN PORT	M/Y Jaan	Aux Engines KW Load Sharing System Upgrade	2 - 0,16 MW	2017
SETE YACHTS	M/Y Al Salamah	Auxiliary Engines Power Management & Supervision Control system upgrade	5 - 4,7 MW	2019
SETE YACHTS	M/Y Al Salamah	Main Engines Governor System Upgrade	2 - 6,5 MW	2020

Services | Partnerships

We make Partnerships that cover engineering solutions, maintenance, repair and upgrade services, including replacement parts, modifications, upgrade and installation of 3rd party Gas & Steam Turbines, Compressors, Motor and generators for Power, Oil & Gas and other industries. We are the exclusive partner of Sulzer Turbo Services Venlo B.V. in Greece.

PROCUREMENT

Client	Project	Scope	Units	Year
PPC	Komotini PP	Alstom GT13E2, Supply of 63 pcs Blades 2nd Stage for GT No.11 (typ. GT13E2)	1	2019
PPC	Helpe	Sulzer GT10A, Procurement of gas generator guide vanes 1st and 2nd stage	1	2021
PPC	Komotini PP	Alstom GT13E2, Repair of gas turbine components	1	2021

INSPECTIONS & REPAIRS

Client	Project	Scope	Units	Year
PPC	Komotini PP	Alstom GT13E2, Recondition of burners of No.11 & 12 gas turbine	2	2019
PPC	Chania PP	Alstom 8B TR- BL S2, Blades and vanes refurbishment	2	2019
PPC	Chania PP	Ansaldo V64.3, Refarbishment of used blades and vanes of NO11&12 Gas Turbine	2	2020
PPC	Keratea- Lavrion PP	GE PG9171E DLN1, Inspection for two sets of First Stage Buckets and refurbishment for one set of Gas Turbine Unit IV	1	2020
PPC	Komotini PP	Alstom GT13E2, zone 2 inspection & repair	1	2021

FIELD SERVICE ACTIVITIES

Client	Project	Scope	Units	Year
PPC	Helpe	Sulzer GT10A, Installation of GT1	1	2018
PPC	Chania PP	Alstom GT8B, inspection and repair of Hot Gas Casing	1	2019
PPC	Helpe	Sulzer GT10A, A-inspection of GT3	1	2020
PPC	Komotini PP	Alstom 13E2, A-Inspection of GT12	1	2021
PPC	Komotini PP	Alstom 13E2, A-Inspection of GT12	1	2021

PPC* Public Power Corporation (GR) | PP* Power Plant

R&D Projects

We are partners in pioneering, European R&D projects that research new technologies, especially those contributing to sustainability.

Project	Scope	Year
FlexnConfu	FLExibilize combined cycle power plant through power-to-X solutions using non-CONventional Fuels	2024
SolarsCo2ol	Demonstrating the use of sCO2 cycles to increase Concentrated Solar Power Plants flexibility, reducing Levelized Cost of Electricity	2024
DarWEN	Development of a Smart Management Platform for the Optimum Dispatch Scheduling of the Water Energy Nexus (WEN) in island regions	2023
CO2OLHEAT	Supercritical CO2 power cycles demonstration in Operational environment, locally valorising industrial Waste Heat	2025

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