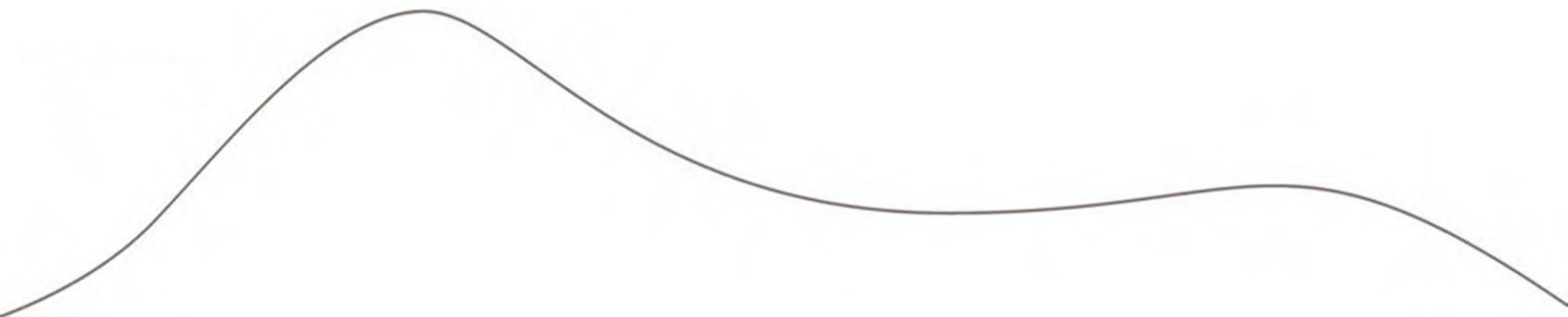




## COMPANY PROFILE



# COMPANY OVERVIEW

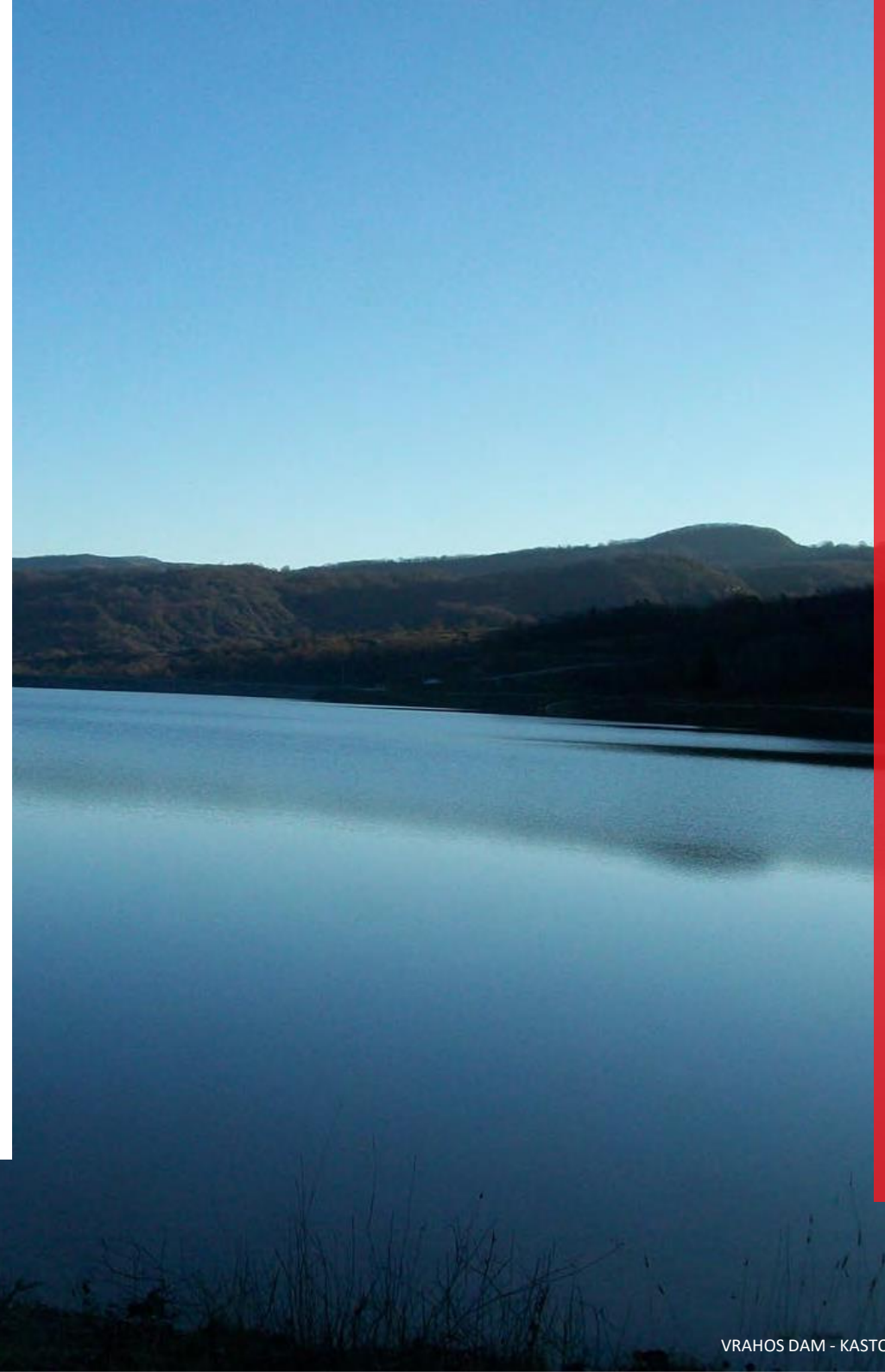


**G**aiaComm, established in 2006, is an independent consulting and technical contracting firm specializing in renewable energy, geotechnical and civil engineering. The company engages in a diverse array of projects, with a particular focus on specialized geotechnical works, civil engineering, renewable energy, and environmental monitoring systems. As the successor to Gaia Geotechnical Contracting a firm with a robust 15-year legacy in Greece's construction industry GaiaComm continues to uphold a tradition of excellence in their services.

## Historical Background and Evolution

Gaia Special Geotechnical Contracting was renowned for its comprehensive expertise in critical construction disciplines, including core drilling operations, foundation investigations, soils & rock remediation and stabilization, and tunnel excavation. The company's extensive portfolio covered both private and public sectors, earning a formidable reputation as a reliable geotechnical partner in complex projects.

Transition to GaiaComm in 2006 marked a strategic evolution, broadening its services offerings to incorporate geotechnical, environmental monitoring systems and renewable energy services. This expansion was complemented by a strong emphasis on technological integration, utilizing advanced systems for control, measurement automation, data processing, and sophisticated interpretation methods. These advancements underscore GaiaComm's commitment to delivering cutting-edge services.





SERVICES







## Geotechnical Engineering:

The Company offers a comprehensive suite of geotechnical engineering services, supported by decades of industry expertise and a number of specialized machineries. As both a contractor and a service provider, the company is equipped to handle all aspects of geotechnical projects, from initial investigations to the final execution of complex construction tasks. The company's ownership of advanced equipment, including drilling rigs, grouting and specialized in-situ testing apparatus ensures that all operations are performed with precision and efficiency.

### Foundation Investigations:

GaiaComm conducts extensive foundation investigations to assess subsurface conditions, critical for the design and construction of stable foundations. These investigations include drilling boreholes, conducting Standard Penetration Tests (SPT), and performing various in-situ tests. The company's drilling rigs are capable of reaching the appropriate depths, allowing for a thorough understanding of soil and rock characteristics. The samples collected is meticulously analyzed and interpreted by GaiaComm's engineers, who provide recommendations that are integral to the safe and effective design of foundations.

### Core Drilling Operations:

Specializing in core drilling, GaiaComm extracts core samples from underground to examine the subsurface stratigraphy. This operation is crucial for understanding the material properties of the soil and rock layers, especially in complex or high-stakes construction environments. GaiaComm's equipment of core drilling rigs is able to handle a wide range of terrains and depths, ensuring accurate and undisturbed core samples. Once extracted, these samples undergo rigorous labora-

tory analysis to determine their strength, composition, and other geotechnical properties. The resulting data is interpreted by GaiaComm's team, providing critical insights into the suitability of the ground for various construction activities.

### Grouting and Ground Improvement:

GaiaComm offers specialized grouting services designed to enhance soil properties, increase load-bearing capacity, and control groundwater movement. Techniques such as permeation grouting, compaction grouting, and voids grouting are employed, with each method tailored to the specific requirements of the project. The company's own grouting machinery allows for precise application, even in challenging conditions, ensuring the stability and longevity of the treated ground.

### Anchoring and Micro Piling:

With expertise in both anchoring and piling, GaiaComm provides solutions that support and stabilize structures, particularly in areas with complex soil conditions. The company operates micro piling rigs capable of installing driven and bored, micro-piles. Additionally, GaiaComm's anchoring solutions include the use of ground anchors to reinforce slopes, retaining walls, and other critical structures. These operations are essential for ensuring the safety and stability of buildings and infrastructure in geotechnically challenging environments.





## Geotechnical Engineering:

### Slope Stabilization:

Slope stabilization services prevent landslides and erosion in both natural and man-made environments. Utilizing a combination of retaining walls, soil nails, and geosynthetic materials, the company designs and implements stabilization measures that are customized to the unique challenges of each site. With its own machinery, GaiaComm can execute these operations with high precision, ensuring the safety and durability of the stabilized slopes.

### Geotechnical Instrumentation and Monitoring:

To monitor the behavior of soil and structures during and after construction, GaiaComm installs and manages sophisticated geotechnical instrumentation systems. These systems include inclinometers, piezometers, and strain gauges, which provide real-time data on factors such as soil movement, pore water pressure, and structural stress.

GaiaComm's engineers analyze and interpret this data to make informed decisions throughout the construction process and to ensure the ongoing integrity of the structures.



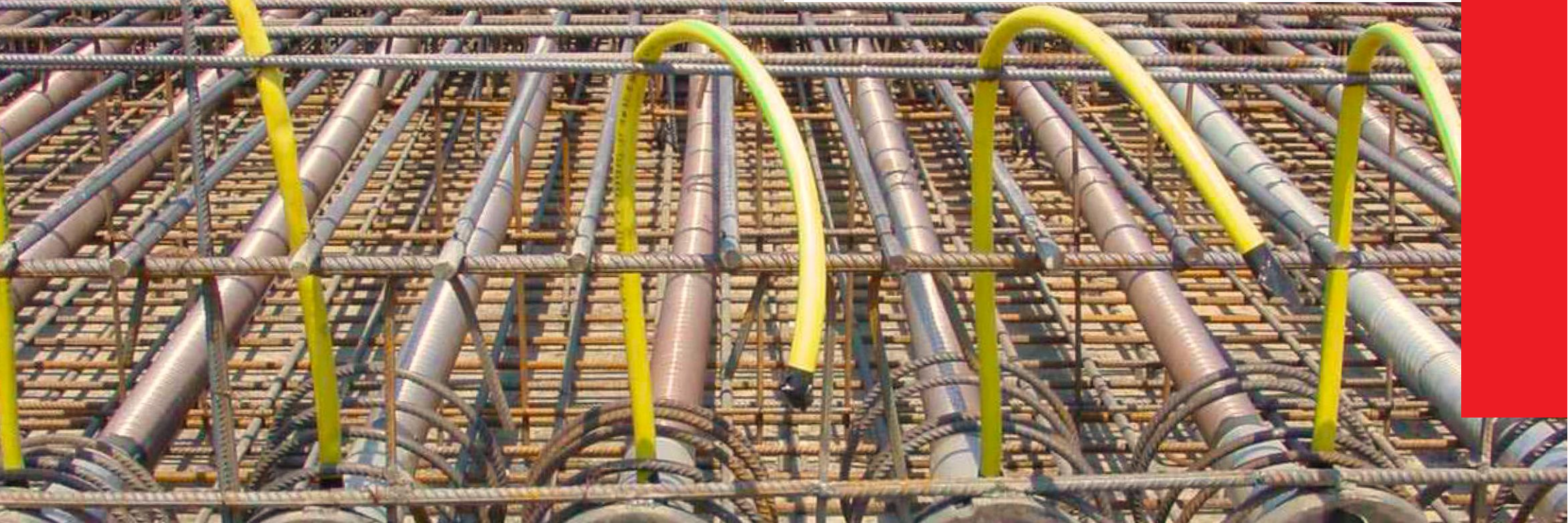




## Civil Engineering:

### Civil Engineering

We offer a very specific range of civil engineering services tailored to meet the diverse needs of our clients across various industries. Our expertise mainly focus on construction works and field operations related to infrastructure projects such as roads, bridges, sewer pipes, and restoration of ancient castles and buildings.





## Renewable Energy Solutions:

GaiaComm offers a comprehensive suite of services in the renewable energy sector, with a specialization in the development and implementation of wind and solar energy projects. Our approach covers the entire project lifecycle, from the early stages of site identification through to final licensing and operational handover. We are committed to helping our clients transition to sustainable energy sources, while maximizing efficiency and minimizing environmental impact.

### Site Identification and Feasibility Studies:

The success of any renewable energy project starts with selecting the right location. GaiaComm leverages its extensive experience and knowledge in the sector to identify the most suitable sites for wind and solar farms. We conduct detailed feasibility studies that consider critical factors such as topography, soil conditions, wind patterns, solar radiation levels, and environmental impact. These studies provide a solid foundation for project planning, ensuring that selected sites are technically viable, economically feasible, and environmentally sustainable.

### Wind Resource Assessment and Analysis:

GaiaComm is certified under EN ISO 17025 since 2006, enabling us to perform rigorous and precise wind measurements essential for the successful development of wind energy projects. Our certification underscores our commitment to maintaining the highest standards of accuracy and reliability in wind data analysis. We design, construct, install and maintain our own wind monitoring systems, which are customized to meet the specific needs of each project. These systems include meteorological masts equipped with advanced sensors and data logging systems that measure in detail wind characteristics like speed, direction, temperature, barometric pressure and turbulence over extended periods. This comprehensive data collection allows GaiaComm to provide complete wind resource assessments, which are critical for determining AEP of wind energy projects and optimizing turbine placement.







## Renewable Energy Solutions:

### AEP estimation – Energy Studies:

We specialize in delivering detailed wind energy studies that are critical for the successful planning and implementation of wind power projects. Our services begin with meticulous wind resource assessments, where we install meteorological towers equipped with high-precision anemometers and wind vanes at multiple heights to gather accurate wind speed and direction data over extended periods. In addition to traditional methods, we employ advanced remote sensing technologies like LiDAR (Light Detection and Ranging) to capture comprehensive wind profiles, especially in complex terrains or offshore locations.

Our expert team conducts rigorous data analysis using statistical and computational models to characterize wind regimes, including Weibull distribution parameters, turbulence intensity, and wind shear coefficients.

We utilize industry-leading software tools such as WAsP Engineering WindPRO, and CFD modeling to simulate wind flow and optimize turbine placement through micrositeing. This process accounts for factors like wake effects, terrain roughness, and obstructions to enhance energy yield predictions.

We also perform long-term energy production assessments by correlating short-term onsite measurements with historical weather data using Measure-Correlate-Predict (MCP) techniques. This reduces uncertainty and improves the reliability of our energy yield estimates. Our studies include extreme wind analysis and fatigue load assessments to ensure that the selected turbine models are suitable for the site's specific wind conditions.

Our comprehensive wind energy study reports provide actionable insights, including detailed maps, graphs, and statistical analyses that inform decision-making for project developers, investors, and other stakeholders. By offering precise wind characterization and energy production forecasts, we enable our clients to maximize their project's efficiency, optimize return on investment, and ensure compliance with environmental and regulatory standards.



## Renewable Energy Solutions:

### Design and Engineering:

Following site selection and environmental assessments, GaiaComm undertakes the detailed design and engineering of the renewable energy systems. For wind energy projects, our services encompass wind turbine layout and optimization, energy yield assessments, and all complementary infrastructure studies. For solar projects, this includes the design of photovoltaic (PV) systems layout, energy yield assessments, and all complementary infrastructure studies. Utilizing advanced modeling tools, we optimize the performance and efficiency of the systems, ensuring that they deliver maximum energy output with minimal environmental impact.

### Development - Licensing and Regulatory Compliance:

At GaiaComm, we understand that ethical integrity and strict compliance with all relevant legislation are fundamental to the successful implementation of renewable energy projects. Our approach to licensing and regulatory compliance is rooted in a deep commitment to uphold the highest standards of transparency, honesty, and responsibility.

Navigating the complex landscape of licensing and regulatory requirements is essential for bringing renewable energy projects from concept to reality. GaiaComm provides expert guidance throughout the entire licensing process, ensuring that every legal and regulatory obligation is met with precision and diligence. Our experienced team is dedicated to preparing and submitting all necessary documentation, including environmental permits, designs and construction licenses, in full accordance with local, national, and international regulations.

The Company is committed to operate within the framework of the law, ensuring that all aspects of our projects reflect our core values of integrity, accountability, and respect for our clients, the environment and society. Through our unwavering dedication to ethical practices and legal compliance, we contribute to the sustainable development of renewable energy solutions that benefit both our clients and the broader community.

### Environmental Impact Assessments (EIA):

In line with our commitment to environmental stewardship, GaiaComm performs comprehensive Environmental Impact Assessments (EIA) for all renewable energy projects. These assessments evaluate the potential effects of the projects on local ecosystems, water resources, and communities.



## Renewable Energy Solutions:

Our team works closely with environmental engineers and regulatory bodies to ensure that all environmental regulations are met and that any potential impacts are mitigated through careful planning and design. By conducting thorough EIAs, we ensure that our renewable energy projects are not only technically and economically sound but also environmentally responsible.

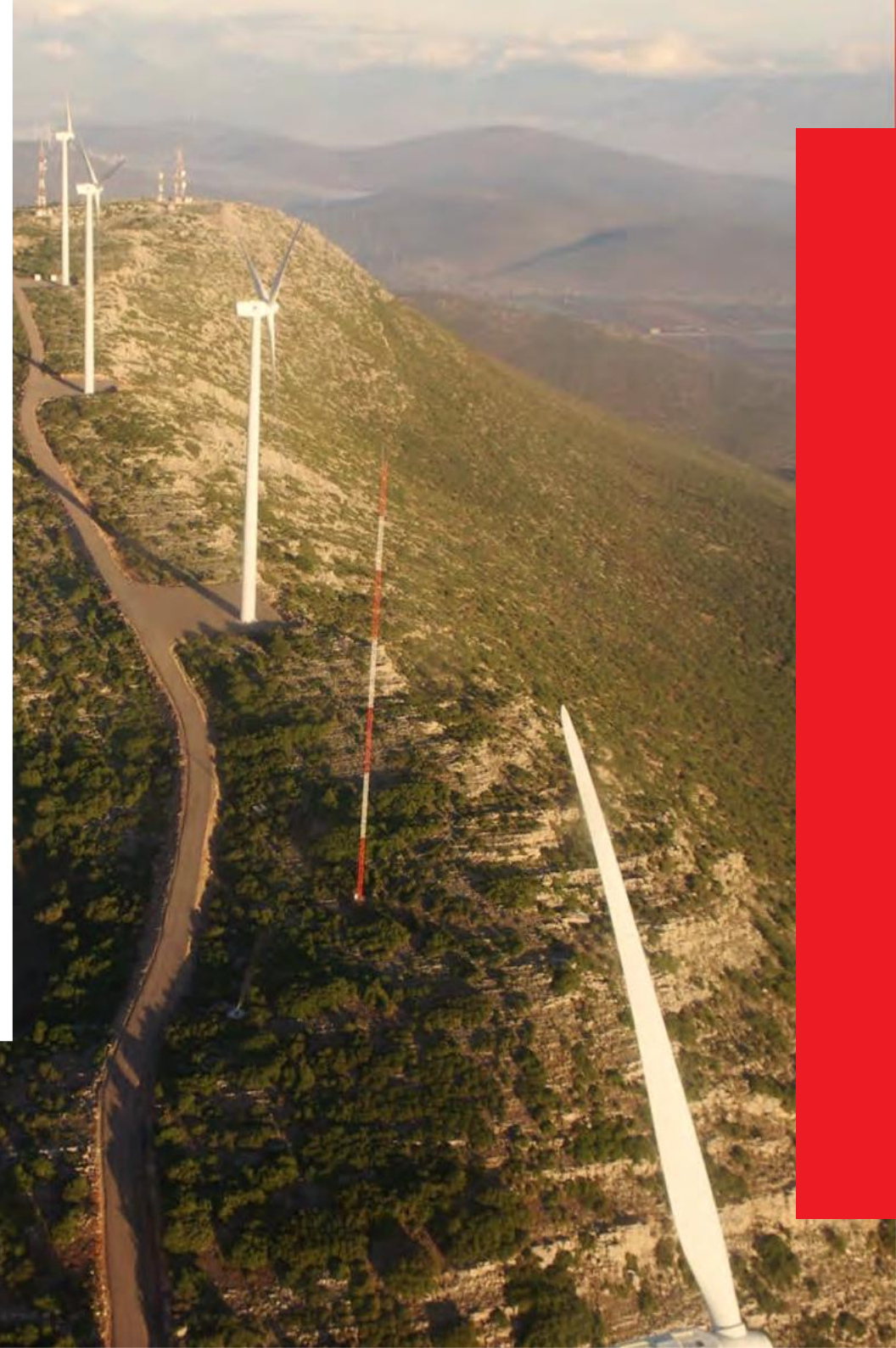
### Consultancy and Advisory Services:

In addition to our engineering and project development services, GaiaComm offers consultancy and advisory services for clients looking to develop renewable energy projects. We provide advice on project feasibility and risk management.

Our consultancy services are customized to meet the unique needs of each client, helping them make informed decisions and achieve their renewable energy goals.

### Advance Wind Monitoring Services:

As part of our commitment to providing complete solutions, GaiaComm designs, constructs, and installs wind monitoring systems for each project. These systems are crucial for collecting high-quality data, which informs both the initial wind resource assessment and ongoing project optimization. Our systems are robust, reliable, and tailored to withstand harsh environmental conditions, ensuring continuous and accurate data collection throughout the project's lifecycle. By integrating our own monitoring systems, we provide our clients with a comprehensive understanding of wind resources, which is essential for the successful deployment of wind turbines.





# ENVIRONMENTAL MONITORING PRODUCTS





# Environmental Monitoring Systems:

## Geotechnical Monitoring Services:

GaiaComm offers advanced geotechnical monitoring services tailored to the specific needs of infrastructure projects. Our expertise in geotechnical engineering, combined with cutting-edge instrumentation, allows us to provide comprehensive solutions that ensure the safety, stability, and longevity in a wide range of construction projects.

## Foundation Stability and Structural Integrity:

For infrastructure projects such as bridges, tunnels, high-rise buildings, and dams, foundation stability is critical to the overall safety and performance of the structure. GaiaComm installs, and maintains sophisticated geotechnical monitoring systems that track essential parameters such as soil pressure, ground settlement, and structural deformation. These systems provide real-time data, allowing for early detection of potential issues and enabling timely corrective actions to ensure the long-term integrity of the foundation and structure.

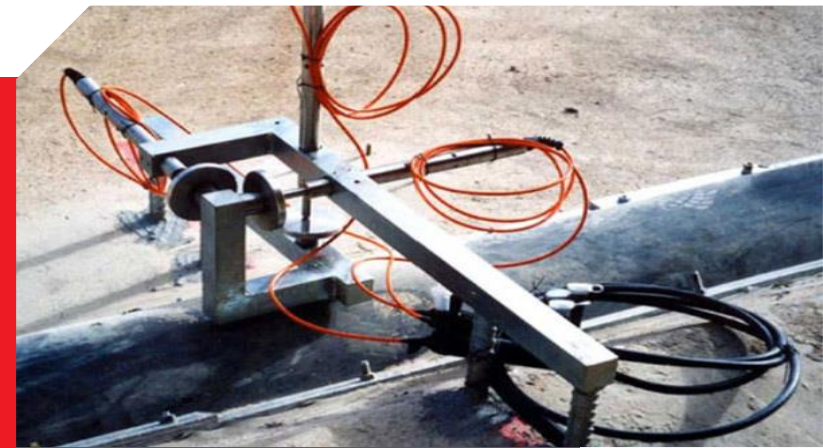


## Slope Stability and Ground Movement:

In projects involving excavation, embankments, or construction on sloped terrain, monitoring slope stability is essential to prevent landslides, erosion, and other ground movement hazards. GaiaComm utilizes a range of advanced monitoring technologies, including inclinometers, piezometers, and tilt meters, to continuously track ground movement and pore water pressure. This data is crucial for assessing the stability of slopes and embankments, ensuring that appropriate measures are taken to mitigate risks and protect both the infrastructure and the surrounding environment.

## Tunneling and Excavation Monitoring:

During the construction of tunnels, deep excavations, and underground structures, real-time monitoring of geotechnical conditions is critical. GaiaComm provides specialized instrumentation to monitor ground movement, tunnel lining deformation, and water ingress. Our monitoring systems help ensure that construction proceeds safely and according to design specifications, while also providing valuable data for optimizing construction methods and managing risks associated with underground work.



# Environmental Monitoring Systems:

## Settlement and Load Monitoring:

Monitoring settlement and load distribution is vital for large-scale infrastructure projects such as bridges, roadways, and large buildings. GaiaComm employs state-of-the-art load cells, strain gauges, and settlement markers to measure how structures respond to applied loads and environmental conditions. This information is key to ensuring that the infrastructure can withstand operational stresses over time, preventing structural failures and extending the lifespan of the project.

## Data Integration and Interpretation:

The data gathered from the geotechnical monitoring systems is integrated into advanced data management platforms, allowing for continuous analysis and interpretation. GaiaComm provides detailed reports and expert recommendations based on these data, helping project stakeholders make informed decisions regarding construction practices, maintenance strategies, and risk management. Our deep expertise in geotechnical engineering ensures that all data is accurately interpreted and used to optimize project outcomes.

## Wind and Solar Environmental Monitoring Services:

In addition to geotechnical monitoring, GaiaComm specializes in environmental monitoring services tailored to wind and solar energy projects. These services are designed to ensure that renewable energy projects are developed and operated in an environmentally responsible manner, complying with all relevant regulations.

## Wind Resource Assessments:

GaiaComm is certified under EN ISO 17025:2017, enabling us to perform highly accurate wind measurements, which are essential for wind farms development. We design, construct, install and maintain custom wind monitoring systems, including meteorological masts with several sensors and data logging units. These systems capture detailed data on wind speed, direction, temperature, barometric pressure etc., which is used to optimize turbine placement and ensure efficient energy production.

## Solar Irradiance and Climatic Monitoring:

For solar energy projects, monitoring solar irradiance and climatic conditions is crucial for predicting energy production and optimizing panel orientation. GaiaComm installs meteorological stations equipped with sensors to track solar radiation, temperature, humidity, and atmospheric pressure. This data is essential for ensuring that solar installations operate at peak efficiency and within environmental parameters.

## Data Management and Compliance Reporting:

Environmental data collected from wind and solar monitoring systems is managed through integrated platforms that enable real-time analysis and reporting. GaiaComm ensures that all environmental monitoring complies with international standards and regulations. Our systems provide automated alerts, and our engineers generate detailed reports helping clients.





A detailed topographic map of a mountainous region, likely a ski resort, featuring contour lines, elevation markers, and various infrastructure like roads and buildings. A large, semi-transparent 3D terrain model is overlaid on the lower-left portion of the map, showing the rugged topography in shades of green, yellow, and red. A red rectangular box is positioned at the top center of the image, partially obscuring the map. The text 'Technological Integration:' is written in red, bold font, and a paragraph of black text follows it.

## Technological Integration:

We emphasize the use of advanced control systems, automation technologies, and data processing tools to enhance the accuracy, efficiency, and effectiveness of our engineering solutions. This integration is key to our ability to deliver innovative and customized solutions for complex engineering challenges.





TRACK RECORD



## Geotechnical Engineering

The table below outlines a wide range of geotechnical engineering and dam construction experience spanning from 1992 to 2023. The projects listed demonstrate the extensive expertise in drilling, grouting, geotechnical investigations, and installation of geotechnical control instruments, in Greece. These activities include major infrastructural and water management projects such as dams, roads, tunnels, and other geotechnical engineering studies.

Project	Description
Lofos Elassonas Dam	Drilling - Grouting, Installation of dam control instruments.
Marathia Mykonos Dam	Drilling - Grouting, Installation of dam control instruments.
Raches Ikaria Dam	Drilling - Grouting, Installation of dam control instruments.
Ano Mera Mykonos Dam	Drilling - Grouting, Installation of dam control instruments.
Geotechnical Study for Arta-Philippiada Bypass	Sampling drilling and on-site tests for the geotechnical study of the project.
Faneromeni Naxos Dam	Drilling - Grouting, Installation of dam control instruments. Sprayed concrete.
Geotechnical Study for Egnatia Road Polymy- los- Lefkopetra Section	Sampling drilling and on-site tests for the geotechnical study of the project.
Attiki Road & Attiki Odos Geotechnical Study	Sampling drilling and on-site tests for the geotechnical study of the project.
Inio-Machaira Heraklion Dam	Drilling - Grouting, Installation of dam control instruments.
Geotechnical Study for Gromba Tunnel in Trikala	Sampling drilling and on-site tests for the geotechnical study of the project.
Geotechnical Study for the Restoration of Dafni Monastery After the 1999 Earthquake	Sampling drilling and on-site tests.
Vrachos Kastoria Dam	Drilling - Grouting, Installation of dam control instruments.
Supplementary Works for Livadas Reservoir in Tinos	Drilling - Grouting, Construction of water intake structures, membrane replacement.
Parthenios Leros Dam	Drilling - Grouting, Installation of dam control instruments.
Panagiotiko Magnesia Dam	Drilling - Grouting, Installation of dam control instruments.
Kretinia Rhodes Dam	Drilling - Grouting, Installation of dam control instruments.
Livadiou Patmos Dam	Drilling - Grouting, Installation of dam control instruments. Sprayed concrete.



Faneromeni Messara Heraklion Dam	Drilling - Grouting, Prestressed anchoring, Installation of dam control instruments.
Steno Serifos Dam	Drilling - Grouting, Installation of dam control instruments.
Rapedontissa Flood Control Dam	Drilling - Grouting, Installation of dam control instruments. Sprayed concrete.
Retaining Walls in Psychiko Area	Excavation retention with prestressed anchors and sprayed concrete covering.
Mesovouno Kozani Dam	Drilling - Grouting, Installation of dam control instruments.
Roukounas Anafi Flood Control Dam	Drilling - Grouting, Installation of dam control instruments.
Replacement and Renovation of Zones 1A & 1B of the Ozeros Irrigation System in Aetolia-Acarmania	Permanent excavation supports of the pumping station & tank with anchoring and sprayed concrete.
Ozeros Area Irrigation Network, Aitolokarnania	Permanent excavation supports of the pumping station & tank with anchoring and sprayed concrete.
Attiko Metro Line 3 Extension to Aigaleo-Haydari	Drilling - Grouting
Tripoli-Kalamata Highway , Paradeisia-Tsakona Section	Drilling - Grouting
Drakos Cave Kastoria Rehabilitation	Drilling - Grouting, Tunneling, Installation of Geotechnical Monitoring instruments
Sarapio, Chios Dam	Drilling - Grouting, Installation of dam control instruments
Ferekabos, Skiros Dam	Drilling - Grouting, Installation of dam control instruments
Vrahos Dam, Kastoria	Drilling - Grouting, Installation of dam control instruments
Extension 10-28 Runway of Macedonia Airport	Offshore Drilling - Grouting, Installation of Runway 10-28 Geotechnical instruments
Kommara Dam Evros Greece	Drilling - Grouting
Ferekabos, Skiros Dam	Drilling - Grouting, Installation of dam control instruments
Kastania – Alonisos, Dam	Drilling - Grouting, Installation of dam control instruments





## Geotechnical Engineering

Tsikalario – Dam Naxos Island	Drilling - Grouting, Prestressed anchoring, Installation of dam control instruments.
Kritinia Rhode – Dam	Drilling - Grouting, Installation of dam control instruments.
Chelmos Ski Resort	Drilling - Grouting
Strofades Monastery – Strofades Island	Micro Piles - Drilling – Grouting

## Civil Engineering

Project	Description
Replacement of the sewage pipeline of the Argos - Nafplio Wastewater Treatment Plant.	Eathmoving Works - Excavation supports, offshore installation works
Mithimna Mitilini Castle	Rehabilitation works – Anchoring – Grouting – Aerial Works
Mitilini – Building	Study – Retaining walls
Replacement and Renovation of Zones 1A & 1B of the Ozeros Irrigation System in Aetolia-Acarnania	Permanent excavation supports of the pumping station & tank with anchoring and sprayed concrete.
Ozeros Area Irrigation Network, Aitoloakarnania	Permanent excavation supports of the pumping station & tank with anchoring and sprayed concrete.



## Renewable Energy Projects Development

The company has developed more than 1,450 MW of wind and solar projects through its subsidiary companies and direct collaborations with various investors. Additionally, it maintains an active presence through partnerships in over 500 MW of renewable energy projects. This represents a significant achievement in the renewable energy sector and a substantial contribution to the green energy transition.

In terms of energy output, more than 700MW of wind energy projects, depending on factors such as turbine efficiency and wind conditions, could generate between 2.1 to 2.5 terawatt-hours (TWh) of electricity annually.

Similarly, 750 MW solar PV projects, with sufficient sunshine, could produce approximately 1.1 to 1.6 TWh per year. Together, these projects may generate between 3.2 to 4.1 TWh of electricity annually, potentially providing power to hundreds of thousands of homes, depending on regional energy consumption patterns.

From an environmental perspective, this large-scale shift to renewable energy reduces dependency on fossil fuels, significantly lowering greenhouse gas emissions. By displacing carbon-intensive sources, these renewable projects have the potential to offset millions of tons of CO<sub>2</sub> annually, contributing to global efforts to mitigate climate change.

The geographical location of these projects plays a critical role in their success. Wind energy thrives in areas with consistent wind patterns, while solar projects perform best in regions with ample sunlight. The company has strategically placed these projects in diverse locations, in order not only to maximize efficiency but also enhance energy grid resilience by reducing over-reliance on specific regions.

Economically, the development of both wind and solar projects adds a significant achievement to the company's role in the renewable energy industry. This diverse portfolio helps the company capture a growing market share in the clean energy sector, which is poised for further expansion in country's energy transition.

In conclusion, the development of more than 1.4 GW of wind and solar energy projects underscores the company's role and experience to renewable energy. The expertise gained from these projects encourages the company to expand further in the sector.





## Wind Resource Assessments

Wind resource assessments (WRAs) are critical for the development of wind farms. They determine the potential for wind energy generation at specific locations by measuring wind characteristics, and other atmospheric conditions over a period of time.

## Scale of Assessments

GaiaComm since 2006, has conducted hundreds of wind resource assessments in Greece demonstrating substantial experience and expertise. WRAs typically involve the installation of meteorological masts, LiDAR systems, and data analysis over several years. A large number of these assessments signifies the company's wide reach and influence across various regions in Greece.

The variety of terrains and microclimates in Greece, from coastal areas to mountainous regions, presents diverse challenges. Successful completion of hundreds of assessments suggests the strong capabilities in handling complex environmental conditions over challenging terrain conditions.


## Contribution to Energy Capacity (>3.500 MW)

The company has offered its services for the development of more than 3.500 MW of wind energy projects in Greece. For context, 1 MW can power approximately 650-1.000 households per year. So, 3.500 MW could supply energy to roughly 2.3 million households annually.

This level of involvement represents a significant portion of Greece's renewable energy capacity, contributing to national goals for clean energy and reducing dependency on fossil fuels. Greece has been striving to increase its share of renewable energy as part of the European Union's broader Green Deal and climate goals.







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