



COMPANY PROFILE

An Energy Consulting and Power Engineering Firm





Energy and beyond

- ❖ KGS is a power engineering and consultancy company that believes in the importance of providing safe creative solutions for a world witnessing a historical transition to more sustainable, green and renewable energy sources. We believe in adopting new technologies with digital transformation for a better efficient safe and environmentally friendly power sector and resilient economies.
- ❖ KGS is active at every level of the power production journey, regardless of the source, with a great focus on Smart, traditional, co-generated electricity and renewables in addition to power digital solutions.
- ❖ The company has a global reputation for successfully delivering the world's most celebrated and demanding power projects, taking pride in each assignment that we undertake.



Life changing technology >>>

- ❖ Taking into consideration that the global economy is changing rapidly, we address the energy global transition using new sustainable solutions built on the modern modules of the emerging experience economy. We believe that linking the service to experiences, should be evolved because experiences are an independent economic offering.
- ❖ KGS works across a variety of power generation, transmission and distribution technologies and solutions. Our solutions in the field cover Smart power generation, hybrid power systems and the latest trends in renewable energy technologies, performant conventional energy generation plants, onshore and offshore rigs and gas transportation.

Expertise

KGS employs a dedicated team of professionals, well experienced, specializing in financial and technical feasibility studies of power projects and their conceptual design and engineering, power project evaluation, value engineering design & optimization review, project management, supervision of construction, commissioning and operation and maintenance (O&M) of energy generation plants including their related transmission and distribution (T&D) systems, Oil & Gas consultancy services in addition to all renewable energy systems.





Vision and Mission

Vision

★★★★★

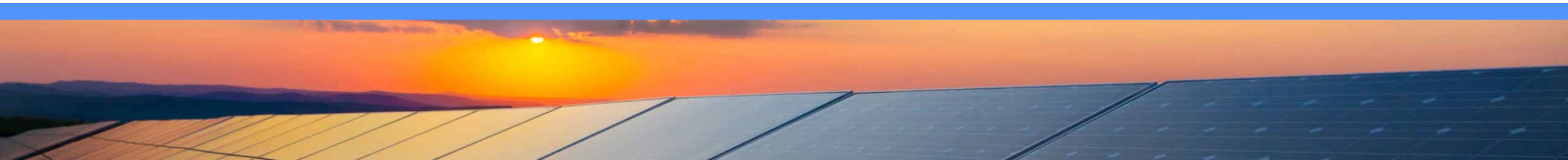
To be a Lebanese leader known for our commitment to our customers, in the design, supply and installation of high-quality, reliable Energy Projects that covers different energy sources such as:

- ❖ Financial and technical feasibility of power projects
- ❖ Renewable Energy Generation
- ❖ Conceptual design and engineering
- ❖ Power project evaluation
- ❖ Value engineering design and optimization review
- ❖ Supervision of construction, commissioning and O&M of energy generation plants
- ❖ Oil and gas consulting
- ❖ Conventional Energy Generation
- ❖ Transmission and Distribution

Mission

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- ❖ Provide financial and technical feasibility of power projects in addition to conceptual design and engineering, Power project evaluation, Value engineering design and optimization review, Supervision of construction, commissioning and O&M of energy generation plants, Oil and gas consulting, Conventional Energy Generation, Transmission and Distribution
- ❖ Promote on/off Grid solar and renewable energy systems with the high-quality brand image
- ❖ Supply safe and reliable Solar solutions with high-quality and efficient PV modules, high-efficiency inverters and high tech. lithium batteries use reliable and renowned equipment while leveraging a wide range of products
- ❖ Become seen as a “Partner in Business” by our customers
- ❖ Enter into synergy with our business partners
- ❖ Motivate employees and increase their engagement



The Founders «»



Mr. Germanos Germanos

is a well-rounded Executive with more than 32 years of local and international experience in Management, Engineering Design, Construction, Commissioning, and Operation & Maintenance of projects across various industries including Power (especially Combined cycle), Paper & Petrochemical (low & high-density Polyethylene)



Mr. Nafez Serhan

is a senior management professional with over 28 years of experience in managing projects related to mixed-use multidiscipline industry projects development and infrastructure. He is skilled in rendering management, engineering & commercial assistance to Industrial, Airports and Metro Projects, Thermal & Combined Cycle Power Generation Plants, Construction/Erection Supervision, O&M, Systems planning and Scheduling.



Company Structure

Partners/Suppliers

Managing Director

Partners/Distributors

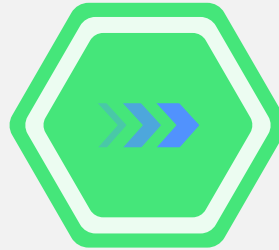
Secretary

Commercial operation
& Sales

Procurement &
Logistics

Installation &
Commissioning

Engineering



Safety, Environment, QA & QC programs

- ❖ KGS Safety and Environmental (S&E) program integrates safety and environmental requirements and controls into all work activities
- ❖ KGS implements Quality Assurance (QA) & Quality Control (QC) program effectively and efficiently and integrates this program across projects`



Dedicated & Committed

KGS provides on-site support to power plant operators, energy generation plant developers, industrial facility operators, equipment manufacturers, contractors and power distribution utilities.

Committed to sustainable development, our power experts have experience in all types of combined cycle, thermal and renewable energy generation, and power transmission and distribution technologies.



Exceptional level

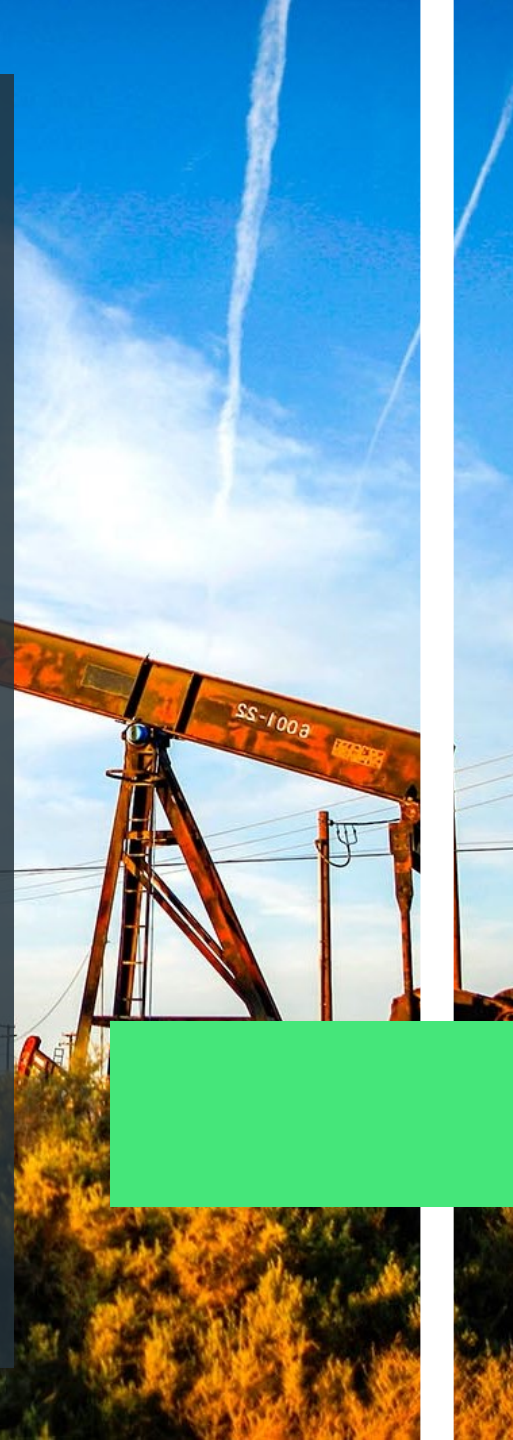
KGS has a proven track record of consistency, dependability, innovation and excellence. We have teams of dedicated and enthusiastic individuals on hand to make any project a total success.

As a result, our clients trust us to deliver successful services, while providing the highest level of engineering and supervision expertise.



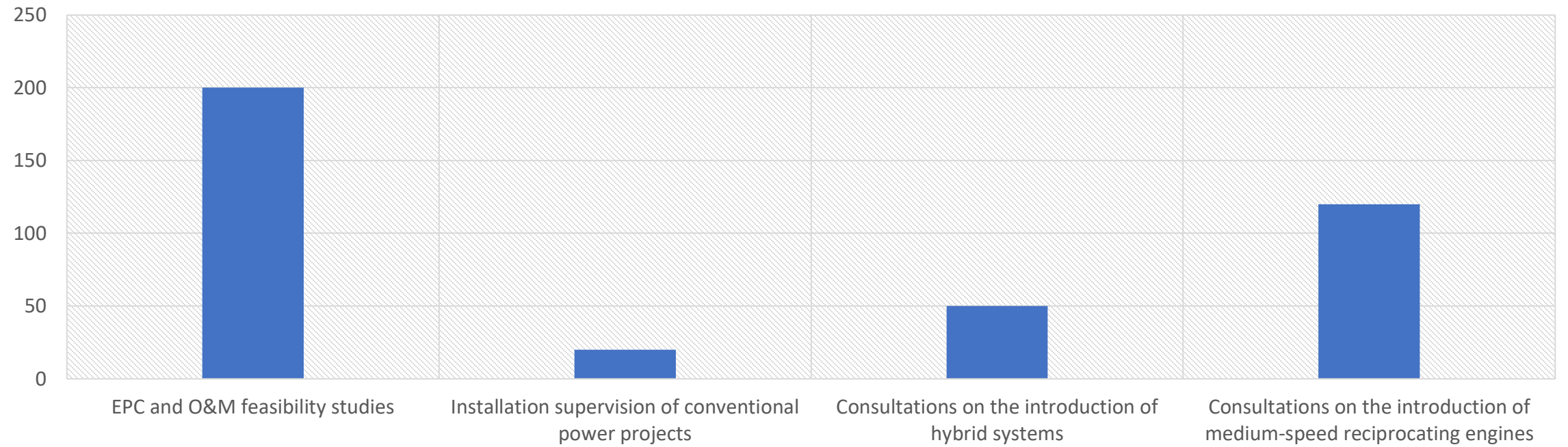
KGS believes in

- ❖ Providing solutions-oriented projects that give an exceptional experience in the world of energy.
- ❖ Promoting on/off Grid solar system with high-quality brand image.
- ❖ Supplying safe and reliable solar solutions with high quality and efficient PV modules, high-efficiency inverters and high tech. lithium batteries use reliable and renowned equipment while leveraging a wide range of products.
- ❖ Becoming the “Partner of choice” by our customers.
- ❖ Entering into synergy with our business partners.
- ❖ Motivating employees and increasing their engagement.





Achievements ★★★★★



Our Services



1. Renewable and green energy systems consultancy and execution

- ❖ KGS believes that renewable resources represent the future of sustainable clean energy, and most importantly it represents the solutions that fit within the matrix of our beliefs because we trust that harnessing the power of nature responsibly will help in preserving the earth's resources.
- ❖ People and companies do not seek systems and engineering iconic energy solutions, they seek sustainable energy services that help them in their daily life and future plans. That's why KGS provides solutions and services in the solar and other renewable energy resources backed by the most advanced technologies.
- ❖ To provide such solutions and great experiences, KGS partnered with global pioneers in the world such as FAAM, FRIEM and FuturaSun.





And we focus on delivering engineering solutions that blend with natural renewable resources:

1 Clean energy

2 Sustainability

3 Global Partnerships

4 Power of Nature

5 Preserving the
earth's resources

6 Advanced technology

7 Engineering solutions that blend with
natural renewable resources



Partners Overview >>>

KGS focuses on building partnerships with European partners to provide latest new solutions in the world of Energy.

Our partners are on the forefront of energy technological innovations.



About Futura Sun - Italy



- ❖ FuturaSun is Italy's hub of the photovoltaic industry
- ❖ 25 years of guaranteed performance
- ❖ specialize in the production of high-performance photovoltaic modules and we operate in more than 70 countries

FuturaSun was established in 2008 by a team of managers in Veneto, Italy's hub of the photovoltaic industry.

However, FuturaSun is not one of those many solar companies which enjoyed extremely rapid growth during the years of the photovoltaic boom: The team actually started the company just at the time when the first signs of the sector's decline began to show in Italy, only to plummet in the subsequent years. So, while several big players disappeared from the photovoltaic scene, FuturaSun has continued along its journey of growth, initially taking small steps and gaining momentum later.

Today FuturaSun sells globally, and has achieved double-digit sales growth year on year.





Multi-Busbar PV Modules



BIPV Modules

FuturaSun Products

- ❖ FuturaSun Multi-Busbar PV Modules
- ❖ FuturaSun Back Contact PV Modules
- ❖ FuturaSun Glass PV Modules
- ❖ FuturaSun BIPV Modules
- ❖ FuturaSun Repowering PV Modules



FAAM



About FAAM - Italy

- ❖ FAAM is known for highly efficient reliable European products
- ❖ Euro 1 certificate
- ❖ Original manufacturer product beyond 10 years warrantee

FAAM has been present in the European battery market since 1974 with customized solutions and a complete Circular Economy model. FAAM produces both lead-acid and lithium-ion batteries, with a strong focus on research and development.

In Teverola, FAAM has set up a highly innovative plant for the production of cells, modules and lithium-ion batteries.

Again, in Teverola, FAAM is building the first Gigafactory in Southern Europe, and the only one in Italy, for the production of high-performance and green lithium cells and batteries.

FAAM investments are strongly pursuing the strategic goal of delivering innovative, safe and eco-friendly products in the market, controlling the entire production value chain.

FAAM Products

- ❖ FAAM LiHOME Sun Storage Inverter
- ❖ FAAM Energy Storage Systems
- ❖ FAAM Li-ION Cell
- ❖ FAAM LC01 CELL
- ❖ FAAM Kombi Module
- ❖ FAAM LiSTORAGE 10.2
- ❖ FAAM LiSTORAGE LSi4880
- ❖ FAAM LiSTORAGE LSh4880
- ❖ FAAM LiRACK
- ❖ FAAM LiTRACTION
- ❖ FAAM Li-BESS 10.2
- ❖ FAAM STA OPzS Flooded Batteries
- ❖ FAAM HPS Flooded Batteries
- ❖ FAAM STG OPzV VRLA Gel Batteries
- ❖ FAAM FTG VRLA Gel Batteries
- ❖ FAAM FLG VRLA Gel Batteries
- ❖ FAAM FLL VRLA AGM Batteries
- ❖ FAAM FMR VRLA AGM Batteries
- ❖ FAAM FHP VRLA AGM Batteries
- ❖ FAAM FTS VRLA AGM Batteries

VRLA GEL / AGM

FLOODED

Li-Rack 10.2

Li-ION Cell



About FRIEM - Italy

- ❖ FRIEM is well known for its energy storage solutions with European standards
- ❖ Euro 1 certificate
- ❖ Original manufacturer product beyond 10 years warrantee

FRIEM has expertise and reliability in the global electric energy converter market. In 1950 Mr. Angelo Pagliai endowed with a tenacious entrepreneurial attitude, laid the foundation of FRIEM. Enhancing experience, reputation and know-how, today the third generation of the shareholders, who wear even the role of managers, is going to organize an industrial group that is intended to evolve with continuity into its own history. Today FRIEM Group, through the affiliated company F&F, provides the market with products and solutions for renewable energies (energy storage). Moreover, the subsidiary Eyes serves the sustainable mobility market with EV charging systems and vehicle electrification.



FRIEM Products >>>

- ❖ FRIEM RECon Line Concept – Single or Combined
- ❖ FRIEM Recon Station (RST)
- ❖ FRIEM RECon 30
- ❖ FRIEM RECon 2.30
- ❖ FRIEM RECon 75HV
- ❖ FRIEM String Box
- ❖ FRIEM RMS - RECon Monitoring System
- ❖ FRIEM BESS (Battery Energy Storage Systems)
- ❖ FRIEM HYCon-Line converters
- ❖ FRIEM HYCon 10
- ❖ FRIEM HYCon 30
- ❖ FRIEM HYCon 2.30
- ❖ FRIEM HYCon D84
- ❖ FRIEM HYCon D168
- ❖ FRIEM HYCon D-Line
- ❖ FRIEM EMS - Energy Management System
- ❖ FRIEM HYCon Station Plug & Play solution

HYCon-Line converters



Recon Station (RST)



HYCon Station Plug & Play solution



RECon Line



2. Financial and technical feasibility of power projects

KGS Financial and Technical Feasibility Studies include:

- ❖ Project financial models with projections, cash flows, payback periods and leveled costs
- ❖ Determination of the technical capability to carry out the project
- ❖ Evaluation of technologies to be used
- ❖ Definition of course of action for the realization of the power project





4. Power project evaluation

KGS provides independent audit types of services that are custom tailored for each assignment to effectively evaluate power plants and report problems or risks before those issues escalate into financial losses to our clients. Our inspection teams have extensive power industry experience and are always successful in identifying items that have been overlooked or could surface later to jeopardize budgets or schedules. KGS has worked on behalf of power plant owners and contractors to:

- ❖ Perform the necessary investigations to opine if a newly constructed facility is mechanically or Substantially Complete and ready to be placed into commercial operation.
- ❖ Analyse the historical records and perform plant inspections and interviews to assist and participate in power plant asset acquisition due
- ❖ Review newly constructed power plant “punch-lists” to opine priority of defects, deficiency and warranty items.
- ❖ Perform necessary document reviews, plant interviews and inspections to determine plant staff operational readiness.
- ❖ Check project execution methods or programs including construction, engineering, commissioning, deliverables, scheduling methods, communications between project participants, and various areas of risk analysis and project management performance so as to opine or suggest areas of improvement.
- ❖ Perform necessary investigations to analyse and opine change order
- ❖ Check project conditions and issues to prevent or resolve construction.
- ❖ Review new project proposals, owner specifications, contract terms and conditions, contractor qualifications, choices of major equipment, constructability, schedule impacts or specific areas of participation.
- ❖ Perform periodic project status reviews to confirm “on-track” progress, and identify differing conditions, potential impacts or risks.
- ❖ We provide our clients with objective, unbiased information and solid recommendations to allow them to make the necessary prudent decisions that will avoid costly problems.

5. Value engineering design and optimization review



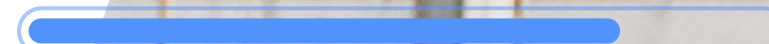
- ❖ KGS provides confidential, third-party independent audit services that are focused on a review of designs and identification of areas that do not comply with the contract requirements or are not the most cost-effective designs for the application. Our power plant and industry experience give us the “trained eyes” to identify inappropriate designs to safely reduce project installation costs.
- ❖ The KGS design audit program will identify cost-in-effective design. Cost in-effective design encompasses areas of over-design, redundant and excessive equipment and materials, design exceeding the contract deliverables, or improper selection of materials. Our engineers review the detailed design drawings and contract specifications at the initial issue or during the normal internal “squad check” review cycle. We examine the design product from an operational, constructability and design option basis to determine the least costly means to accomplish the desired objective without impairing safety, performance, reliability or ease in plant operations. Verification of compliance with contractual, technical or permit requirements is also an integral part of the service.
- ❖ The KGS design audit introduces a beneficial “check and balance” step into the design engineering cycle to assure a cost-effective design product. The fact that our audit is external, unbiased and completely performance-based offers a unique but proactive challenge to engineers



6. Supervision of construction, commissioning and O&M of energy generation plants

KGS, for many years, has provided troubled project “turnaround” services for energy generation plant projects suffering from over-budget conditions, equipment or design deficiencies, overburdened management, owner interference, schedule delays or other problems. We bring the necessary power industry expertise to the client’s team, assess the problems quickly and address the critical needs to regain control and move the project back on track. We have worked with contractors, engineers and equity owners to resolve the following energy generation plant conditions:

- ❖ Management re-staffing and schedule acceleration due to poor construction management
- ❖ Project management re-staffing due to poor owner representation
- ❖ Schedule logic re-sequencing due to major equipment delays
- ❖ Bad and inoperable designs
- ❖ New equipment technology-related delays
- ❖ Owner interference disruption
- ❖ Hazardous site locations
- ❖ Inexperienced plant operations and maintenance staff





We are capable of (but not limited to) creating more efficient or work around schedules, changing manpower and supervision work streams, and correcting inefficient designs. We have the field experience, contract(s) intelligence and strategic alliances to provide our clients with quality advice and cost-effective solutions to mitigate or remedy their problems.

KGS is experienced in operations and maintenance practices. We have managed energy generation plants operations and maintenance and participated in the development of plant staff training and permanent procedures. We recognize the importance of our clients having well-trained and qualified power plant operations and maintenance staff and provide the following related services:

- ❖ Development of plant-specific operations and maintenance procedures
- ❖ Development of plant-specific training and qualifications
- ❖ Supplemental Operations and Maintenance personnel
- ❖ O&M contract and scheduling
- ❖ Equipment overhauling and rehabilitation
- ❖ Optimization of plant efficiency, performance and production



KGS acknowledges the disruption, dysfunction or inefficiency impact risks that can occur as the result of changes in key project personnel on a power project. We have worked in the power industry for 30+ years, have participated in numerous power plant projects and have an established network of experienced personnel and strategic alliances to provide qualified staff augmentation or replacement personnel to our clients.

KGS is experienced with recruiting, qualifying applicants or providing directly the following professionals:

- ❖ Start-up commissioning managers
- ❖ Instrumentation and Controls commissioning engineers and technicians
- ❖ Mechanical commissioning engineers and technicians
- ❖ Craft superintendents and general foreman
- ❖ System turnover coordinators
- ❖ Punch list completion coordinators
- ❖ Warranty managers
- ❖ Optimization and performance engineers
- ❖ Procedure writers (i.e., commissioning, equipment line-up checklists, system description, start-up manual, operation and maintenance, etc)

We want our clients to have the most qualified and focused professionals contributing to successful completion. If your project is suffering or lacking appropriate management, supervision or craft manpower resources, please contact us. We can probably help you.



7. Oil and gas consulting

KGS has many years of experience in the Oil and Gas Industry, and works closely with main O&G contractors and operators on worldwide scale projects.

Our consultants and specialists are ready to support and provide their expertise for the Engineering, Management and Construction of upstream, midstream and downstream oil and gas facilities, starting from wellheads (Christmas tree) to end-product facilities such as pipelines, refineries, oil terminals and gas processing plants.



At the forefront of technologies



Conventional Energy Generation

- ❖ OCGT and CCGT Power Plants
- ❖ Combined Heat and Power (CHP) Systems



Renewable Energy Generation

- ❖ Solar PV Systems
- ❖ Wind Turbines
- ❖ Waste-to-Energy Power Plants
- ❖ Power Generation from Biofuels
- ❖ Hybrid Power Plants



Transmission and Distribution



- ❖ High Voltage AC/DC Transmission Networks up to 750kV
- ❖ All Respects of Electricity Distribution
- ❖ SCADA, EMS and All Control Centre Technologies

Committed to sustainable development, our power experts are experienced in all types of combined cycle, thermal and renewable energy generation and power transmission and distribution technologies. Our expertise in power covers all forms of thermal and renewable energy generation, and transmission and distribution including:

- ❖ Open and combined cycle gas turbine (OCGT and CCGT) power plants.
- ❖ Environmental upgrades of power generation, combined
- ❖ Heat and power (CHP) systems, and renewable energy plants (energy from waste and biofuels, solar thermal and solar photovoltaic (PV) systems and wind farms).
- ❖ High voltage AC/DC transmission networks up to 750Kv, all respects of electricity distribution, SCADA, EMS and all control center technologies, plus supporting infrastructure technologies.
- ❖ Oil & Gas field of services and expertise.



Success stories

Beddawi 450MW Combined Cycle Power Plant



Client: EDL



Completed: 1999



Category: Combined Cycle Power Plant



Address: Beddawi, North Tripoli City - Lebanon

We provided technical advice throughout the construction of the Beddawi 450 MW combined cycle Power plants. Our role was to provide a review of the design, construction and commissioning of the project. We also carried out frequent reviews of site safety and quality and environmental standards. We conducted factory visits and quality audits.

KGS engineers reviewed the preparation, development, implementation and operation of the project on behalf of EDL, this included an independent and comprehensive review of all available data with regard to the various contracts and the design, construction, commissioning, testing and handover, operation and maintenance of the power plant and associated facilities.

KGS provided comprehensive site supervision services for the project, which is recognized for its role in establishing many industries good practice standards.



Zahrani 450MW Combined Cycle Power Plant



Client: EDL



Completed: 1999



Category: Combined Cycle Power Plant



Address: Zahrani, South Saida City - Lebanon



We provided technical advice throughout the construction of the Zahrani 450 MW combined cycle Power plants. Our role was to provide a review of the design, construction and commissioning of the project. We also carried out frequent reviews of site safety and quality and environmental standards. We conducted factory visits and quality audits.

KGS engineers reviewed the preparation, development, implementation and operation of the project on behalf of EDL, this included an independent and comprehensive review of all available data with regard to the various contracts and the design, construction, commissioning, testing and handover, operation and maintenance of the power plant and associated facilities.

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20MW Diesel Reciprocating Engines Power Plant



Client: Industrial



Completed: 2015



Category: Reciprocating Engines



Address: Sudan, Chamchamal Cement plant

We provided technical advice and site supervision services throughout the construction phase of this 4x 5MW Diesel Power Plant.



THANK YOU



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