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1. THE COMPANY
1. The Company

AKTOR - The Largest Construction Company in Greece -
A local and international major player

By realizing milestone projects in Greece, AKTOR S.A., has been established as the most powerful construction company in the country offering a broad range of constructional services. AKTOR is member of ELLAKTOR Group, which was ranked 103rd in ENR’s list for the top 225 Global Contractors, published in Aug. 2011. At the core of AKTOR’s activities lies the construction of works which stand out both in terms of the high quality of the end product as well as in terms of the efficiency of the production process, which in turn results in the saving of time and money for the client and increased profitability for the company. Having as a competitive advantage the accumulated experience obtained through its dynamic participation in the execution of the major public infrastructure and building projects as well as large private projects in Greece, AKTOR is expanding its strong presence in the local and international market and strengthens its position in the South Eastern Europe and the Middle East, through a strategically designed philosophy of expansion. Capitalizing on its long standing, multifaceted know-how in the construction industry and based on its skillful and specialized workforce, on the company-owned, state-of-the-art equipment and its constantly growing client base, AKTOR successfully responds to contemporary market demands for excellent quality and high speed in the completion of projects requiring complex technological solutions. At the same time AKTOR expands its activities in new fields, broadening the range of services offered and resulting in steadily maintaining the leading position it has conquered in the construction sector.

Strategy and Prospects

Over the coming years the company’s strategy will pivot around the following axes:

Galvanising its leading position in project construction throughout Greece
• To preserve its leading position in public and private projects.
• To enhance its positioning in Co-financed Projects.

Vertical Integration
• Operation - maintenance of projects.
• Development of quarrying and other activities.

Expansion abroad
• Europe (Romania, Bulgaria, Russia, Albania, FYROM, Serbia, Italy).
• Middle East (United Arab Emirates, Kuwait, Saudi Arabia, Oman, Qatar).
• North Africa.

Other business areas
• Mining activities.
• Facility Management.
1. The Company

Management
AKTOR’s Board of Directors is consisted today of the following persons:
Chairman: Dimitrios Koutras
Managing Director: Dimitrios Kallitsantis
Members: Leonidas Bobolas
Anastasios Kallitsantis
Loukas Giannakoulis
Maria - Anastasia Karatzas
Vasileios Papamarkos
Timoleon Karefyliakis
Alexandros Georgopoulos
Panagiotis Malamitsis
Polychronos Papadimitriou
Konstantinos Mavropoulos
Ioannis Bournazos

Human Resources
The company’s specialized and highly qualified manpower is a great asset for AKTOR, with its ability to effectively respond to the highest requirements of any post.
AKTOR’s staff in Greece exceeds 2,250 professionals, of which over 400 are certified engineers. The corresponding figures abroad are 1,150 professionals and 3,750 technical workmen.
The company follows an active policy of staff recruitment, advancement, support and training with the aim of constantly improving the delivery of projects and services in all fields of the company’s business.

Quality
AKTOR implements Quality Management Systems on all projects it undertakes and executes. The Quality Management System of the company combines vision with realism and imagination with hard work. It is one of the first companies in the industry to have received the ISO 9002 certification in 1996 and it later upgraded its system according to ISO 9001.

Its philosophy in assuring and managing quality has been adopted by the entire staff of the company, even at the most remote building site, thanks to the active involvement of its employees, under the guidance and coordination of the Total Quality Management Department and the interventions of its accredited inspectors. One of the employees’ tasks is to find and highlight all possibilities of improving work practices and quality and the implementation thereof, while creative participation is encouraged throughout the project. Each project is handled with respect, due to its uniqueness and as an extent of accumulated experience.

This philosophy of AKTOR is passed down to its affiliated companies through their ISO 9001 certification, accreditation of workshop inspections and tests and CE accreditation of structural building material. AKTOR is committed to satisfying its customers’ demands, ensuring that its personnel acquires an understanding of those demands, to the extent that each employee is involved. Furthermore, it has received numerous awards.

Health and Safety
AKTOR implements a prevention, health and safety policy at its workplace. This policy is implemented in each area of the company’s business activities, as well as those of its affiliates and its key objective is to continue promoting health and safety in the workplace and to prevent accidents by assessing business risks and taking appropriate measures. Within the scope of this policy, AKTOR has been certified according to OHSAS 18001 certificate in June 2004, thus ensuring health and safety at work.

Within the scope of taking general measures to protect employees, AKTOR has safety engineers, occupational physicians, nurses and trained first aid teams for emergencies at every building site, who ensure the safety and health of employees, while doctors and engineers organize regular employee meetings to inform them about the implementation of health and safety rules in the workplace.
1. The Company

Environment

Respecting and protecting the environment serves a strategy for the company’s long term and eco-friendly development. Compliance with national and European legislative requirements, as well as continuous improvement of the company’s environmental performance are the axes on which its environmental policy moves, contributing at the same time to overall sustainable development. As part of continuous and on-going improvement of its environmental performance, the company implements its Environment Management System, which is certified according to EMAS 76/2001, and being certified according to ISO 14001 since June 2004. The results of these efforts are essential and they are presented in detail in the “Environmental Statement” published on AKTOR’s website (www.aktor.gr) and on the Group’s website www.ellaktor.com.

GREENBUILDING – ENERGY SAVING

Within the scope of its philosophy to promote sustainable development, AKTOR has applied the specifications of the GreenBuilding program at the Group’s headquarters from the construction phase, thus contributing to an energy saving of 26% in its buildings and placing AKTOR in the GreenBuilding Partners category. Investing in the environment has proven to produce significant benefits, beyond those concerning the environment. AKTOR makes efforts to promote the principles of its GreenBuilding program to all interested parties; however, any success achieved is directly linked to the business intention of its counterparties-customers.

AKTOR - AWARD FOR ENVIRONMENTAL MANAGEMENT OF CONSTRUCTIONS

In 2009, AKTOR participated in the third Hellenic Business Award for the Environment contest (as well as in the two former ones) which was organized in Greece and which corresponds to the European Business Award for the Environment contests which are organized in all member-states of the European Union. These awards have become a European institution since 1987 and their aim is to recognize and promote corporate practices for the protection of the environment, as well as to raise the awareness of companies in environmental issues. Within the scope of the 2009 contest, AKTOR presented an integrated Sustainable Development Strategy and received First Award for the environmental management which the company exercises in the construction sector, thus maintaining its advantage of being one of the most eco-friendly construction businesses in Greece. Following all the above, AKTOR aims to transit from its current phase to the “sustainable construction” phase: a construction that benefits the environment, society and economic prosperity.

Corporate Social Responsibility

The company’s investment in human resources, in a cleaner environment, in health and safety, but also in its relation to society, is part of the company’s initiatives, which are incorporated in AKTOR’s long-term corporate social responsibility program.

Part of the corporate social responsibility program is the preservation of the cultural heritage of regions that are of a particular natural beauty, participation in charities, being a sponsor in environmental congresses and in sports and other environmental activities, supporting research programs, multi-technical schools, supporting sport activities of the company’s employees, providing private medical insurance to its employees, etc.
1. The Company

Equipment

The equipment owned by AKTOR includes heavy earthworks machinery, road paving equipment, cranes, special tunnel boring machinery, building construction machinery, quarry plants, concrete and asphalt plants, marine equipment, as well as various other smaller standard and specialized machinery.

The company owns state-of-the-art equipment for tunnel boring (Roadheader, JUMBO drilling machines, anchor placement machines, shotcrete GUNITE machines, tunnel loaders and dumpers, etc.).

All this equipment, which amounts to €150m, is in perfect condition and subject to constant renewal and increase. Specialized technicians are responsible for maintaining the equipment on the sites and in the main maintenance and servicing facilities, in a total area of 100,000m² at the region of Attica.
2. CONSTRUCTION
A. Building Projects
One of AKTOR’s key areas of activity during recent years, has been the construction of modern business administration premises in both private and public sectors. Ergonomic office spaces, new technologies, innovative design in combination with bioclimatic solutions and building management systems, offer the optimum management and maintenance of buildings which leads to significant improvements in the quality of business life in general.

New Town Hall, Thessaloniki
The New Thessaloniki Town Hall, which was designed by the architect D. Birs, has been constructed on the 14,588m² site of former army buildings, providing 4,765m² coverage over a total built-up area of 27,000m² and with a maximum height of 17m. The building incorporates modern audiovisual systems and a conference centre. The car park is spread over a lower ground level and three underground levels accommodating a total of 870 cars. The open area includes 5,200m² of greenery.

Karela office building, Paiania, Attica
Construction of a new office complex in Paiania, Attica, on a plot of approximately 36,000m². The complex has been designed as a ‘green’ building and will be certified with a LEED Silver Classification. The building consists of three (3) upper levels and three basement levels with a total area of 62,000m². The three upper levels comprise office areas, meeting rooms and auxiliary staff areas. The three basement levels house the parking areas (620 spaces), plant rooms, recycling area, storage facilities and a data room.

National Bank of Greece Headquarters, Athens
The building, which was designed by the architect M. Bota, consists of a ground floor and five upper levels providing a total floor space of 6,500m², as well as four basement levels extending underneath the ancient Acharnes Street. Antiquities are highlighted in a semi-open area.

Alpha Bank Headquarters, Athens
A high specifications building at the city centre, which reflects both the dynamics of a modern company building and the classic austerity of a Bank. The building, which is the Bank’s main branch, houses its entire administrative services. Its total surface is 9,000m² and consists of 8 levels.

Alpha Satellite TV Office Building, Athens
This building complex is situated along the Attikis Odos Highway in the direction of Athens International Airport, at the Panagiotis location near Peania. It consists of three buildings covering a total area of 22,594m², 7,260m² of which form an underground parking area, EIM facilities and 800m² of studios. The remaining 14,334m² belong to Cosmotelco, a subsidiary of Alpha TV. Alongside the buildings is a 7,000m² open-air car park.

ELLAKTOR Group Headquarters, Athens
The new greenbuilding of the ELLAKTOR Group headquarters was erected at 25, Ermou Street in Kifissia. It is a three-storey office building with ground floor and three basement car parking levels. The surrounding area is asphalt paved with parking lots and green zones. The building is of conventional structure made of reinforced concrete. The plot’s total area is 13,516m² and the building’s area is 30,672m².

A. Building Projects

Office Buildings
Ministry of Press and Media, Athens
This complex is built on a 4,580m² land plot and consists of two independent, curved multi-storey buildings with three underground levels including 240 parking spaces. The first building comprises a ground floor plus six further levels, covering a total area of 8,929m² with 7,826m² of independent underground areas. The project included the landscaping of the surrounding area with planting and irrigation, as well as the construction of a nursery school. This building will accommodate the Ministry of Press and Media. The second building consists of a ground floor and three further storeys, covering a total area of 2,020m² as well as a 1,764m² independent underground level which is part of the first building’s basement.

Office Building of Alpha Bank - Athinon Avenue, Athens
The new bioclimatic office building of Alpha Bank located at Athinon Avenue consists of four underground levels of a total area of 17,400m² and the main building structure of a total area of 4,220m² arranged in two longitudinal, parallel three-story wings that intercommunicate at every level by means of transversal footbridges.

The steel roof of the building bears a skylight, constructed lengthwise. The uniform roofing system creates an atrium in the heart of the building that enables the penetration of air and natural light. The atrium accommodates all public activities and traffic.

In the adjacency of the main building at the ground floor level, a corner bank branch in combination with a free standing glazing system marks the presence of the building from Athinon Avenue.

Star Channel Office Building, Athens
The Star Channel building - new office complex, TV studio, showroom and car repair shop - was erected in K. Kifissia. The multi-storey building houses office spaces, TV studio, service, showroom and parking area. The building is of conventional structure made of reinforced concrete. The plot’s total area is 9,344m² and the building’s area is 23,320m².

Bank of Greece - Administration Building, Athens
Modern office building with a total operating area of 16,180m² spread over the following levels:
Six underground levels predominantly for parking, ground floor areas A and B for museum use, a total of eight floors of office space and loft housing the E/M installations.

VIAMAR Office Building, Athens
Office building at Pireos St. accommodating the Financial Crime Control Service (BΔΗΣ). This is a six-storey building with two underground levels. The superstructure floor area is 16,000m², plus 8,000m² of underground area.
A. Building Projects

The construction of functional storage combined with new technologies, is an important tool for every business involved in logistics. The careful integration of functional storage spaces with various logistics' applications and new relative technologies, adds validity to any property and expands its life span at the same time. AKTOR’s specific know-how, secures the Company an important position in this field of specialized constructions.

Aldi Logistics Centre, Thessaloniki
The total surface is 70,700m² and the project included the construction of the dry storage, refrigerator and freezer areas. The roof of the warehouse is of a steel construction and was developed on a grid 20m x 20m with a total of 132 blocks. Each block is sitting on two main trusses on bearings which are mounted on prefabricated columns. The total weight of the steel construction is 3,500 tons, the total quantity of concrete is 22,000m³ and the total quantity of gravel piles, Φ800, is 215,000m. The construction of functional storage combined with new technologies, is an important tool for every business involved in logistics. The careful integration of functional storage spaces with various logistics' applications and new relative technologies, adds validity to any property and expands its life span at the same time. AKTOR’s specific know-how, secures the Company an important position in this field of specialized constructions.

Procter & Gamble Industrial Standard Distribution Center, Athens
This steel building was built on a site with a total area of 68,000m², having a storage space of 26,000m² with a building free height of 12m. The shell of the building is cladded with polyurethane panels and the bearing slab is made of reinforced concrete. The building is being serviced by 31 hydraulic loading ramps.

Unimac New Industrial Building - Warehouse, Athens
The total surface is 8,512m² and the project regards the construction of a new industrial building on a land area of about 17,000m². The construction involved two adjacent buildings: one of the buildings is of a conventional construction with four levels, and the other building is a one-storey steel framed structure with a height of ~12,00m.

Fourth Group Warehouse, Viotia
The total surface is 25,000m² and the project included: the ground level building structure that houses a distribution center and offices and the upper structure, the structural frame of which is made of structural steelwork. The roof assembly is of sheet metal cladding type with double layer rock wool and membrane insulation system. The overall project also included an office building of a composite structure and landscaping works with road network as well as planting works.

Depot Building Complex for Electric Trolley Busses (ILPAP), Athens
This Building Complex of total area 21,895m² covers 10,500m² and it is built on a 26,400m² land. The project included accommodation facilities for electric trolley busses, Parking area for 180 trolley busses, Inspection and Repairing facilities, Lifting facilities, Vehicle lubrication system, Diesel tanks and Fuel pumps, vehicles Paintshop (paint oven), Traffic control system, NO - NO2 Detection and Control system, High and Low pressure vacuum, Exhaust emission system and Vacuum cleaning system for busses. The operation of the mechanical and electrical equipment as well as the building's facilities are controlled, monitored and optimized by a Building Management System. The project also includes landscaping of surroundings and “green roof” works with planting and irrigation systems.

“Graphic Arts S. Karydakis” Printing House, Athens
The total surface is 7,093m² and the project involved the construction of a building that is intended to accommodate press facilities, as well as office and storage spaces. The circulation within the building is being done through a staircase. The construction of the building has been done through a combination of reinforced concrete for the vertical structural elements and lightweight structural timber for the roof, made of composite woodwork.
A. Building Projects

Halyvourgiki - New Plant Elefsina, Athens
Works included the construction of a new rolling mill building of 27,000m², with machinery seating, foundations of 15,000m², 2,400m² auxiliary 3-storey electric cabin for the rolling mill plant, installations for a continuous casting machine, fume treatment plant foundation, as well as new facilities at the old melt shop, water treatment plant for the rolling mill and melt shop and construction of rainwater drainage network as well as construction of an internal road.

Corinth Pipe Industry
Plants in Thissi Industrial Park, Viota, covering a total area of 75,000m². The project involved four structurally steelwork framed industrial buildings, a power production centre and an office building.

NBG Real Estate Development
Warehouses
Magoula, Athens
AKTOR S.A. was a 50% participant in the construction of the new NBG Real Estate Development S.A. warehouse buildings (total surface area approx. 50,000m²) located in Magoula, Athens. The complex includes two 10m tall warehouse buildings with a total built-up area of 30,000m², as well as a basement measuring 23,000m². The load bearing structure is made of reinforced concrete while the roof is structural steel. External works consisted of the landscaping of an outdoor parking area, as well as the construction of extensive perimeter roads.

Titan Warehouses, Thessaloniki
Construction of the shale pre-homogenisation silo for the new clinker unit of the Thessaloniki Plant. The silo comprises a metal shed (43m span, total area 6,900m²) seated on reinforced concrete long strip footing and covered with trapezoid metal sheets. Rails for the shale conveyors were installed on foundations constructed along the inner silo area.

Carrefour Marinopoulos Logistic Centre
Spata, Athens
A structurally steelwork framed structure having a total area of 20,000m². Modern loading / unloading equipment with electro-hydraulic ramps is included in the warehouses. Particular care was given to security and fire fighting systems.
A. Building Projects

With its lengthy experience in the construction of supermarkets, shopping centres and shops and its ability to offer fast-track completion, AKTOR is the most reliable choice for any private investor wishing to meet objectives both accurately and punctually.

Notos Galleries Home, Athens
This project required the reconstruction of two existing buildings situated on Athinas and Sophocleous Street as well as the integration of two landmark buildings at Kratinou and Streit Street. With the completion of all works, the building now constitutes a modern, state-of-the-art, multi-functional space of 17,000m² spread over eleven levels with two atria.

IKEA, Kifissos Avenue, Athens
The total surface is 152,000m², while the basement area is 103,000m². The upper-structure area of IKEA is 24,000m² and the upper-structure area of the Retail Stores is 25,000m². During the project construction many archeological findings were discovered.

Carrefour Shopping Mall, Patras
Complete construction of a shopping center with a basement consisting of a Carrefour hypermarket with a commercial arcade and shops of an approx. total area of 20,000m² on a 100,000m² plot in Perivola area in Patras and the landscaping of the surrounding area with internal roads, parking spaces for 1,200 vehicles and greenery.
An increase in the demand for higher standards of living has boosted the construction of model residential units. AKTOR has been able to invest on its extensive experience in order to create housing complexes that meet such contemporary requirements in full. Bioclimatic solutions, effective materials and polymorphic communal areas can all offer nowadays’ families added security and higher standards of living.

Blue City, Oman
The Blue City (Al Madina A’ Zarqa) is the largest development in the Sultanate of Oman and one of the largest of its kind in the Middle East Area. It is situated in a coastal area of unique natural beauty, 90km west of the capital Muscat. The city will, at ultimate stage, accommodate 200,000 inhabitants and occupy an area of 32km\(^2\). It is envisaged to be constructed in 10 stages until 2020.

Phase I of Al Madina A’ Zarqa is a mixed use development which combines mainly residential and touristic elements of a total of 1,400,000m\(^2\) of built-up area, spreading over an area of 2.2km\(^2\). It consists of the following elements: Three 5-star hotels of a total of 670 keys, 5,200 apartment units, 400 villas, a shopping centre, Public Amenity buildings: A City Hall, Nursery, a Primary School, a Mosque, a Police Station, a Fire Station and a Post Office. An 18-hole PGA golf course, associated Infrastructure including a road network of approximately 8km.

Phase I is designed as a contemporary interpretation of traditional Omani Architecture and is currently being built by AECO Development LLC (a 50% owned subsidiary of ELLAKTOR S.A.) as the Design and Build Contractor. This phase shall be developed until 2014.

A. Building Projects

Housing Complexes

Olympic Village
Thrakomacedones, Athens
Construction of significant part of the Olympic Village at Thrakomacedones.
The company undertook the construction of section A of the Olympic Village (280,000m\(^2\)), which includes 555 residences, infrastructure works and landscaping architectural works. The residences were used initially by the athletes attending the Olympics and subsequently adapted to their long-term use before being delivered to beneficiaries of the Labour Housing Organization, the project owner.

“Eden”
Luxury Housing Complex
Palio Faliro, Athens
This modern building complex, which includes a shopping centre, offices and apartments, is located at the heart of Palio Faliro.

“Esperides”
Luxury Housing Complex
Kifissia, Athens
The “Esperides” model housing complex in Kifissia, Kifissia, was a pioneering venture in its field, comprising 45 luxurious residences, all with a view onto the central garden and access to the outdoor swimming pool.
With a view to contributing towards the improvement of tourist activity within Greece, AKTOR made the strategic choice of participating to the construction of new hotel units and restoration of old ones, all to the highest international specifications.

Renovation of the Athens Hilton, Athens
This is a project of historic significance for the city of Athens. The refurbished Hilton of 55,000m² built up area, is now back in service, not only with totally upgraded interior and exterior areas, but also benefiting from the addition of a brand new 74-room wing, new event, conference and exhibition halls, as well as four restaurants and two bars. The main aim of the project was to create more open areas with natural lighting, and the overall design concept being one of "plain elegance."

Tourist Facilities, Hotels, Casinos

Hyatt Regency Hotel & Casino, Thessaloniki
Construction of a luxury 5-star hotel and conference centre, covering a total area of 22,000m². The building complex combines classic with modern design. The hotel was built on a 75,000m² piece of land, of which 53,000m² make up the grounds, with their special planting and free-shape 1,500m² swimming pool. This high-standard project was implemented with absolute precision within the specified 17 month schedule. In addition to the 3,500m² main hall the casino includes a second 1,000m² VIP hall with a separate restaurant. For the public there is a restaurant offering a choice of five open "cuisines", an indoor bar and an auditorium which can also be used to stage musical events. The project was completed within 11 months.

Costa Navarino
Two 5 star luxurious hotels, The Romanos Navarino Dunes Resort: The Luxury Collection and Westin Navarino Dunes Resort, were built within a 1,300,000m² of seaside landscape, featuring: 603 Rooms, 157 Suites, 2 Presidential Suites of 650m² each, a Conference Center with a capacity for 2,000 guests, a SPA and Health Club, mixed-use athletic facilities, AQUA PARK, 7 main, 2 children’s and 300 private pools, as well as a 14,000m² of artificial ponds and lakes area, a shopping arcade, as well as an outdoor movie theater and two day nurseries. Moreover, a 200,000m² of surrounding landscape was transformed into hard surfaces and planted with 4,000 trees and 300,000 shrubs. In the scope of the environmental plan, the largest geothermal network in Europe (125,000m horizontal geothermal heat exchanger) has been constructed, as well as Biological Treatment using MBR technology with a clean water production capacity of 1,500m³ per day which can be used for irrigation of the golf courses.

Mount Parnes Funicular - Upper and Lower Terminals & new Car Park Mont Parnes, Athens
The modernization and reconstruction of the historic Parnitha Mont Parnes involved the upgrading of the funicular and the construction of a new underground parking area. The new funicular has 20 cabins with a capacity of 2,000 passengers/hour. The project also included the construction of the upper and lower funicular stations.
A. Building Projects

Latest developments in the sphere of conference tourism and cultural events, require high-specifications' building facilities.
In response to this growing demand technologically advanced new buildings can be constructed or existing structures substantially upgraded using a combination of high grade materials and advanced techniques and design. AKTOR’s dynamic interventions in this sphere always demonstrate the utmost respect to the environment and specific characteristics of each space, harmoniously combining existing tradition with timeless functionality.

Cultural Centre Lazaristes Monastery,
Thessaloniki
This theatre has exceptional acoustics and is equipped with perfect technical theatrical equipment. The project also involved the construction of the Thessaloniki Centre for Contemporary Art. E.P.C. contract.

Athens MEGARON (Opera and Concert Hall): Civil Engineering, Electromechanical Works including the Technical Stage and Theatrical Lighting
Extension of the existing Athens Concert Hall comprising 140,000m² of new halls, foyers, a conference centre, exhibition areas, music library, restaurants and new parking facility with 750 spaces and utility areas. The complex (along with the existing 35,000m² building) is situated mainly underground below a 20,000m² garden with plants and trees, a children’s playground and a marble atrium. E.P.C. contract.
New Acropolis Museum, Athens
The New Acropolis Museum has been designed by the internationally renowned architect B. Tschumi in collaboration with the Greek architect M. Fotiadis, following an International Architectural Contest. It is a 30,000m² building on a 21,000m² property. It includes specially designed exhibition rooms for the presentation of all significant findings from the Acropolis area, a periodic exhibition hall, a 200-seat presentation room, a restaurant as well as parking and ancillary areas arranged in four underground levels. The highlight of all exhibition areas is the magnificent glass hall which is hosting all Parthenon sculptures. A particular feature of this building is the fact that all archaeological findings from the specific piece of land have been integrated and highlighted in its design.

Foundation of the Hellenic World - “Theatron” and “Tholos” Buildings, Athens
Expansion of facilities at the premises of the Foundation of the Hellenic World. The project comprises a 14,000m² two-storey underground parking and utility area and a 130-seat virtual reality projection hall (“Tholos”) with auxiliary facilities for the public spread over its two main floors.

Cultural Centre
American Community School, Athens
The school’s new cultural centre includes a 570-seat theatre with a 150m² stage, dressing rooms, a stage prop production room, translation booths and control room. The facility includes a 300m² restaurant seating 500 persons, which can also be used for cultural events.
The increase in free time and the variety in leisure and entertainment, call for recreation areas featuring multiple facilities. It was this emerging need to combine entertainment with other recreational facilities that urged the company to begin the construction of entertainment centres in which cinemas, meeting areas, restaurants, shops and artistic venues, converge in a highly aesthetic environment, representing a focal point for the whole community. AKTOR has significantly raised the standards in this particular area of construction.

“Kosmopolis” Leisure and Entertainment Complex Marousi, Athens
The new “Kosmopolis” leisure and entertainment complex in Marousi comprises 12 cinemas as well as shops and underground parking on four levels. Its architectural design was based on the development of an open-air central square area on the ground floor which leads to the shops and the foyer of the cinemas. The large size of the cinema auditoria required their construction below ground level as a means of avoiding any detrimental aesthetic or environmental impact.

Operas in Plovdiv, Bulgaria
The upgraded building is designated to accommodate all of its initial functions as well as new ones such as offices, shops, multifunctional spaces and recreation. The building is divided in three zones, one entrance with the foyer, the theatre hall and the stage. The foyer zone houses the building’s spaces for reception as well as all other functions related to the public in general. It is laid out in four levels and a basement which is available for rent. The theatre hall, built in four levels also, accommodates offices and storage rooms on the upper two levels.

The stage zone consists of the stage wing, which also contains various rooms on two levels above the stage and the dressing room wing. The latter has six levels and houses the rehearsing and dressing rooms.

ADNEC Exhibition Hall Phase 2, Abu Dhabi
The Phase 2 development of ADNEC consists of constructing 4 additional exhibition halls, multipurpose hall with seating facility for more than 5,000 people, 2 multi-storey car parks with space of more than 8,000 vehicles.

The gross floor area of the project is 305,000m².
A total of 100,000m³ concrete, 15,000t of steel reinforcement and 200,000m² of precast elements.
The Phase 2b was the construction of a 16 storey, 4 star hotel with a GFA of 67,000m².
A. Building Projects

Contemporary health service requirements demand the very best in accommodation and technological equipment. AKTOR is in a position to transfer and combine experience acquired in other areas of its activity, to the construction, operation and ongoing technical support of large hospital units. The company designs and creates automation management and control systems, reliable networks and mechanical as well as “smart” electrical solutions, which offer a vital combination of reliability, flexibility and functionality.

“ELPIDA Association”
Oncological hospital for children, Athens
Construction of oncological hospital for children of a total area 14,798m² on a plot of 9,290m² of the Agia Sophia childrens’ hospital in Goudi area in Athens. The hospital is comprised of 5 buildings and has a capacity of 136 beds.

General Hospital, Lamia
This hospital has a capacity of 300 beds and was built alongside the existing Lamia Hospital. The two buildings are functionally integrated. The land’s total area is approx. 74,000m², of which the built-up area is approx. 35,000m². The landscaping of the surrounding area was also included in this project.

General Hospital, Kalamata
Construction of a 330 beds hospital with a total surface of 22,000m², fully equipped to the highest standards and comparable with the most modern of European medical units.

General Hospital, Rhodes
Design and construction of a 335 beds hospital facility that consists of 13 wings and covers a total area of 41,620m², on a 106,000m² plot.

“Aghios Loukas” Clinic, Thessaloniki
Refurbishment and modernization of the existing hospital along with the development of two new wards either side of the current building. The current building (6,240m²) has a total surface of 5,240m². The total extension measures 18,350m², of which 7,240m² involve a three-storey underground parking area with 232 spaces. The remaining 11,110m² area was used for the construction of the hospital extensions. The landscaping of the surrounding area was also included in this project.

General Hospital, Iassos, Athens
Operational upgrading, extension and conversion of the existing “IRA” Maternity Clinic into a General Hospital. In specific terms, the project included the construction of 10 new replacement operating theatres, 2 intensive care units and the reconstruction of new wards with a capacity of 170 beds.

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City Hospital
Dubai Healthcare City, UAE

The project which has been executed for Welcare World Health Systems comprises the execution, completion and remedying of any defects of a ground floor plus ten-storey building and two levels of basement car park for approx. two hundred cars. It has a total capacity of 210 beds. The total built-up area is 44,600m².

Supply, installation, testing and commissioning of electromechanical works was also part of Al Ahmadiah - Aktor’s scope of work.

In March 2011 the project won the Award of the National Winner (UAE) at the “MEED Quality Awards for Projects”.

424 General Military Hospital
Thessaloniki, Greece

The hospital complex is built on a 168,000m² property with a built-up area of approx. 100,000m² and serves the whole area of Northern Greece. The complex is composed of the Main Hospital Building, the Radiotherapy Building, the Technical Support Building, the Exemption Center, Auxiliary Buildings and two helipads. The Main Hospital Building, built with two basements, a ground floor and four upper levels, fully accommodates 414 beds and houses a number of departments, such as Intensive Care Units, Diagnostic and Treatment Departments, Operating Theaters, Nursing Wards, Prisoner Care. In the lower basement of the Main Hospital Building, a “Sheltered Hospital” has been constructed according to very strict technical specifications, that includes amongst others 8 operation theaters, 290 nursing care beds and 96 Intensive Care Beds. In case of warfare, the Sheltered Hospital can afford a complete 14 day energetic and electromechanical autarchy. E.P.C. contract.
A. Building Projects

The traditional school, is now belonging to the past. Contemporary educational facilities require far more environmentally friendly, pleasant and functional structures. The construction, renovation or modernization of such facilities requires specialized knowledge, experience, sensitivity and artistry.
AKTOR demonstrates all of these attributes and puts them to good use wherever required.

Police Training Centre,
Komotini
Design and construction of buildings and landscaping of the site to facilitate the housing and operation of a police academy for 1,500 people.

Ziridis School Buildings
Peania, Athens
The Ziridis school buildings, of approx. 16,000m², were constructed in an area of 80,000m² with environmentally friendly materials, equipped with modern educational systems and included facilities such as sports courts, an auditorium, indoor pool and restaurant.

Schools

School for Communication Studies
American College,
Athens
Conversion of the boarding house into a School for Communication and Dramatic Arts by creating modern teaching rooms, offices, a modern black box theatre and an open amphitheatre.
The construction work was carried out on four levels totalling an area of 4,000m². It included building and electromechanical works.

American School of Dubai
The project comprises the construction, completion and maintenance of a campus and school premises for the American School of Dubai with total construction area of 45,105m², covered walks, stairs terraces: 5,869m², roof top play areas of 4,033m² consisting of Class Room Blocks, Gymnasium Block, Auditorium Block, Libraries, Swimming Pools, Landscaping and Playgrounds.

Hospitals - School Buildings

Arsakeio School,
Patras
Construction of the new Arsakeio primary school building on a privately owned 40,000m² property, total built area of 7,800m². The materials and construction method used have produced an environmentally friendly and integrated building.

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A. Building Projects

Airport buildings incorporate structures with particularly strict specifications in terms of security, sound insulation, uninterruptible operation, as well as special mechanical installations. Through its close involvement in the construction of Athens “Eleftherios Venizelos” International Airport, AKTOR has acquired extensive experience in this very specialized field of construction.

Construction of Facades Main Terminal
Athens “Eleftherios Venizelos”
International Airport

The main material used in the facades is granite, supported by means of a special aluminium system that is able to follow any movements of the bearing structure caused by temperature fluctuations or an earthquake. At the E/M installations level a trapezoid metal sheet was installed on a box frame containing 5cm thick thermal insulation. A special aluminum louver system was constructed for the supply/dischage of air. Passenger boarding bridges were coated with rock-wool panels and special finishes made of formed aluminium sheets. On the landside, marble tiles were laid on an independent self-supporting metal structure. Exactly the same concept was applied to the satellite building.

Olympic Airways Aircraft Maintenance Hangar, Athens “Eleftherios Venizelos”
International Airport

Total area of 70,000m². The main hangar’s roof is made of structural steelwork, a 300m-long construction (2 x 150m spans) and weighs 9,500 tons in total. The roof was assembled on the ground and then raised in sections, each weighing 1,400 tons. E.P.C. contract.

Main Terminal
Athens “Eleftherios Venizelos” International Airport

Reinforced concrete works, prefabrication of bearing structure, masonry, floor coatings.
A. Building Projects

New Doha International Airport - Emiri Hangars, Cargo Facility, Cargo Agent Building, Qatar

**Emiri Hangars:**
Two aircraft storage hangar buildings: one to accommodate three wide body aircraft and one to accommodate four narrow body aircraft.

**Cargo Facility:**
A cargo terminal including an automated ULD storage system with four-level elevated transfer vehicle systems and a consignment system storage area capable of processing 1.3 million tons per year. The building also houses specialized storage areas including but not limited to cold-storage rooms, freezer rooms, medical products storage room, strong rooms, mortuary room, and kennels, truck loading/unloading docks and offices. This facility will include ULD screening system for transfer cargo.

**Cargo Agent Building:**
A two-storey building including truck loading/unloading docks, storage and offices.
The total weight of the steel structure is 16,000 tons. E.P.C. contract.

**Cargo Terminal Overview**

New Doha International Airport - Aircraft Maintenance Hangar, Qatar

An aircraft maintenance hangar with wide-span to provide flexibility for different types of aircraft and a workshop/storage building. This building includes heavy and light maintenance bays, fixed equipment, workshops in two levels and hangar bays to accommodate aircraft of Codes C through F including the A380. The heavy maintenance bays have a 180 meter free span roof and the light maintenance bays have a 220 meter free span roof which makes it the largest free span hangar worldwide. A separate storage building for hazardous materials and aircraft tires is also included. The total weight of the steel structure is 23,000 tons. E.P.C. contract.

**Aircraft Maintenance Hangar**

Emiri Hangar
AKTOR has executed a large number of EPC projects for the 2004 Olympic Games in Athens such as:

- **The Aesthetic Integration of the Olympic Sport Complex of Athens (O.A.K.A.),** designed by the Architect and Civil Engineer Santiago Calatrava.
- **The Olympic village,** part of the overall project for the construction of 555 residences, infrastructure and landscaping works.
- **The Media Village** a residential complex with 202 houses which accommodated 1,600 journalists.
- **The International Broadcasting Centre (I.B.C.),** studios and broadcast facilities for the international media.
- Several **Infrastructure Projects** related to the Olympic Games:
  - access improvements around the Olympic Sport Complex of Athens (O.A.K.A.) (a substantial transportation project to facilitate access to the Olympic Complex)
  - the partial covering of the Kifissos river and the accompanying motorway construction,
  - the extension of Kimis Avenue from the motorway to the Olympic Village, the principal access route to the Olympic Village,
  - upgrading of the traffic light system of the Athens Metropolitan Area,
  - the Suburban Railway infrastructure works from the Acharnon transportation hub to Athens “Eleftherios Venizelos” International Airport,
  - the extension of Athens METRO lines from Ethniki Amarya to Stavros including tunneling and electromechanical works.

AKTOR was assigned the project of the Aesthetic Integration of the Athens Olympic Sport Complex (O.A.K.A.). It was completed in approx. 16 months and included a series of world class structures, outstanding in terms of both their technical complexity and the minimal time available for completion. These structures included:

### Olympic Projects, Sports Facilities

#### Olympic Stadium

**Roof Construction**

The Olympic Stadium’s roof is a landmark for the city of Athens, both in terms of its architectural design by the Architect and Civil Engineer Santiago Calatrava and the sheer construction requirements (with regard to time and engineering constraints). The roof’s 304m free span is the largest in the world and the total weight of the steel structure alone is approx. 19,000 tons, covering an area of approx. 25,000m².

The roof was assembled in two parts outside the Olympic Stadium, located 60m and 75m away respectively. The two parts were then slid to their final position on reinforced concrete beams seated on a series of piles, and finally joined together in situ.

The steel structure consists of two pairs of arches with circular cross-sections of 3.25m (upper arch) and 3.60m (lower arch), and girders of 87m and 55m respectively. The approx. 310m-long arches were transported in 6m sections by sea from abroad and were then welded or bolted together on site. The lower arches have lateral steel beams with cross-sections varying from 40 - 65m long and a maximum height of 3.60m.

Aesthetic Integration of the Athens Olympic Sport Complex (O.A.K.A.): Special Constructions
Almost 13,000m of wire ropes, their diameter ranging from 40 to 104mm, were used to connect the two arches with each other and with the girders. The roof’s steel structure then accommodated a pioneering roofing system consisting of varied special aluminium profiles and transparent light blue-coloured polycarbonate sheets, each 1m x 5m, as well as all E/M installations (lighting, loudspeakers, CCTV, etc.).

AKTOR was also responsible for the execution of the landscaping works surrounding the Olympic Stadium, as well as the necessary networks (drainage, water supply, etc.).

Works Related to the Olympic Games’ Opening and Closing Ceremonies

In minimal time AKTOR designed and constructed a series of works to serve the needs of the Games’ opening and closing ceremonies. These included:

• The Olympic flame’s torch and all the E/M installations necessary for igniting and maintaining the flame, for the duration of the Games.
• A 20m deep well with a 25m diameter at the centre of the stadium’s field linked with the area under the stands via an underground tunnel, including a metal storage area and an elevator with 40-ton capability.
• The swift dismantling and reconstruction of the entire sports area, including the pioneering grass palette system.
• All of the seating (spectators, VIP and VVIP).
• The “spidernet web” of approx. 30 wire ropes above the Olympic Stadium.
• 8 new suites for the Games’ sponsors.
• The “control rooms” - 3 metal booths above the Olympic Stadium for the co-ordination of the Opening and Closing ceremonies.
• The metal infrastructure for the four giant display screens used during the Olympic Games.

The actual completion time for the entire project did not exceed 15 months, of which worksite activities (including the construction of the velodrome roof and the Agora) accounted for approx. 11 months, including the intervention of an unusually harsh winter.

During this period the following activities were completed for the Stadium’s roof alone:

• Production of 5,000 construction drawings, 15,000 detailed drawings and 1,500 erection drawings.
• Production and erection of 19,000 tons of permanent and 5,000 tons of temporary steel structures.
• Installation of 13,000m of wire ropes.
• Construction of 18,000m of concrete piles and 25,000m³ of reinforced concrete.
Velodrome

The Velodrome was originally constructed by the Group (AKTOR) in 1991. In view of the 2004 Olympic Games, a new steel roof was constructed and the existing facilities were renovated. The new Velodrome roof was also designed by Santiago Calatrava and covers the arena and spectator stands, encompassing a total area of 11,500m². The roof’s steel structure was constructed at a distance of 136m from the Velodrome’s central axis and then slid into place on two reinforced concrete beams seated on series of concrete piles. It consists of two pairs of circular cross-section arches, each with a span of 145m and an apex of 45m.

The roof accommodates a composite cover system (heat / humidity insulation), a wooden false ceiling, all E/M facilities (lighting, CCTV, loudspeakers, etc.), as well as a strip of opaque polycarbonate panels similar to the ones of the Olympic Stadium.

Refurbishment works to the Velodrome’s existing facilities incorporated the athletes’ areas, changing rooms, workshops, offices, VIP rooms, press centre, competition arena, spectator areas, stands and the wooden track.
Agora

The Agora designed by Santiago Calatrava was constructed north of the Olympic Sports Complex's main square and consists of a series of repeated elements of sharp-crested steel arches. The Agora's footprint traces out a curved shape with an axial length of 475m covering a total area of approximately 12,000m². The arches are spaced at 4.80m intervals and are of two types: the first being 26m wide and 21.65m high, and the second 26m wide and 18.265m high. They are linked together with L-section steel purlins in order to achieve the required shading effect.
A. Building Projects

Media Village, “Lofos Edison”

Phase A': Media Village
During the Olympic Games it was used as a Media Village, accommodating some 1,600 media professionals.

Phase B': Residential Complex
Following the necessary post-Olympic modifications, the project’s final transformation into a housing complex was completed in June 2005. The village was constructed on a 120,000m² plot and incorporates 202 luxurious residences (maisonettes and apartments). The Estate includes underground areas of a total area of 15,500m² which comprise parking for 287 cars and auxiliary spaces. The total landscaped area is 22,500m².

Olympic Village
Construction of a significant part of the Olympic Village in the Thrakomakedones area. The company undertook the construction of the first Section of the Olympic Village, extending over 280,000m², consisting of 555 apartments, infrastructure works and landscaping. During the Olympic Games the apartments were used for the accommodation of the athletes. Following the games, the buildings were remodelled for the apartments to be handed over to beneficiaries of the Workers Housing Organization, the project’s owner.
International Broadcasting Centre (I.B.C.)

Design and construction of the premises that accommodated the approx. 100 radio and TV stations and 10,000 journalists working and broadcasting during the 2004 Olympic Games.

The building is situated just east of the Olympic Sports Complex (O.A.K.A.), towards Kifissias Ave. It includes an underground car park, studio facilities, a canteen and offices. The load-bearing basement structure was made of reinforced concrete, while the infrastructure is made of structural steelwork elements. The specific requirements for the Olympic Games involved temporary overlay work (indoor arrangements, stronger cooling and electrical loads, etc.) as well as operation support and maintenance work during this period.

The building covers a total area of 132,000m², its construction required 110,000m³ of concrete, and the total weight of the steel load-bearing structure is 10,300 tons. The building has 1,600 underground parking spaces. During the Games air conditioning installations were required to meet a capacity of 7,200 cooling tons, while the facility drew upon 36,000 KVA of electrical power capacity, with 25,000 KVA back-up electrical power from generators.

A. Building Projects

In recent years the demand for sporting facilities has become more imperative than ever, both in the big cities and the provinces. This development is the result of a combination of various individual factors: mass demand for athletics, an increase in the variety of sports and number of people pursuing them, the growing importance of sporting events and greater demands from spectators and athletes for high standard facilities. AKTOR is now reaping the benefits of its early involvement in this area and is currently the leading player in this field of construction, one which remains a top priority.

Olympic Projects, Sports Facilities

Olympic Sport Complex of Athens (O.A.K.A.)
Swimming Pool

This complex comprises both indoor and outdoor swimming pools. Its reticulated roof, like that of the gym, set new global standards in construction methodology at the time that was constructed.

Olympic Sport Complex of Athens (O.A.K.A.)
Gym

The indoor gym with a 15,000 - 18,000 seating capacity, has a main competition area of 69.60m length, 39.20m width and 30m height. It consists of warm-up facilities of approx. 4,000m², administration and maintenance offices, athlete support sections, VIP sections and press sections. The multifunctional uses of the gym have been foreseen and taken into account in the original designs. It is constructed of reinforced concrete with its roof made of a steel space frame.
A. Building Projects

Greece’s priceless wealth of culture and pressing desire for its careful preservation have generated significant demand in projects requiring a particularly high degree of sensitivity and craftsmanship. The company utilizes the most modern scientific methods to study and approach the specific particularities of each monument, and each and every intervention is performed with the utmost accuracy and reliability.

AKTOR’s highly specialized workforce has many years of experience with the company in this field, enabling it to carry out the most demanding heritage projects, such as refurbishment and renovation works and even the relocation of entire buildings.

Cultural Centre, Lazaristes Monastery, Thessaloniki
Built by the order of the Catholic Monks of Saint Lazare in 1870, the monastery was seriously damaged during the 1978 earthquake in Thessaloniki and was subsequently restored by AKTOR. The exemplary design and quality of the works were highly praised by the Curator of Contemporary Monuments.

Relocation of a Hellenic Railways Building, Thessaloniki
A minor elevation (4cm) enabled the old building of the Hellenic Railways Organization to be relocated to make way for the widening of the western entry road into Thessaloniki. Once the building was supported with reinforced concrete and crossing beams it was released from its foundation and slide on rails secured by a system of stainless steel and teflon. The shifting of the 2,000-ton intact building lasted 4 days - proceeding at a pace of 10m a day - and was accomplished by means of jacks and metallic constructions on a grid of reinforced concrete. Once the building reached its final position it was embedded into its new foundation.

Relocation of the Entire Church of the ‘Monastery of Assumption of Holy Mary (Koimisi Theotokou) Tornikiou’ in Grevena, Greece
The relocation of the entire structure of the byzantine monument of the Monastery of the Assumption of the Holy Mary (Koimisi Theotokou), Tornikiou in Deskati, in Grevena, was successfully completed in September 2011 by AKTOR in collaboration with Mr. Dimiros Korras, the architect in charge. The execution of this highly sophisticated project was considered necessary in order to save the byzantine church from the construction of the Ilarion dam by the Greek Public Power Corporation and the subsequent flooding of the greater area, for the creation of an artificial lake. The church stood on the specific location for more than six centuries. The monument was moved approximately 125m, against a 25% uphill gradient; its new location being 27m higher than the original spot. The foundation was detached by boxing a metal grid in the existing stone bed plate without the slightest cracking of the priceless murals inside the monastic church which dates back to the 14th century. The entire structure of the Monastery, weighing 300 tons, was pulled to its new location on steel rails with the aid of hydraulic jacks. Following completion of the relocation, the surrounding landscape was also architecturally restored.

Relocation of Historic Buildings and Landmarks
Megisti Lavra Monastery, Mount Athos
Highly specialized works were required for the restoration, maintenance, repair and reconstruction of the Megisti Lavra Monastery buildings which were constructed in 963 along with the construction of infrastructure networks and power houses.

Piraeus Municipal Theater
Piraeus, Attica
Design and execution of the complete restoration of the Municipal Theater in Piraeus, a historic 19th century building. The works included the structural reinforcement of the old stone walls, the reconstruction of newer floors, the restoration/reproduction of the old decoration (ceiling and wall friezes, gypsum mouldings, marble pillars and pediments), replacement of the old mechanical and electrical installations, supply and installation of new modern stage machinery, stage lighting and audio visual systems. Total building area 9,800m².

Chemical School Building of the University of Athens

The building of the Chemical School was designed by the Bavarian architect Hermann Ziller. The erection of the building began in 1887 and was completed two years later. Works initially included demolitions - stripings of light partitions, door and window frames, old E/M installations and internal and external finishes. Structural and seismic adequacy was ensured by works performed at the bearing structure of the building with cast in place concrete for the reinforcement of the foundations, grout injections to homogenize the stone walls, gunite mantles and use of complex materials (glass fiber textile, carbon fiber). Refurbishment works of the Chemical Laboratory included new E/M installations, firefighting, plumbing and sewage networks, HVAC systems, electrical installations. Facades of the building were restored to their previous state (reconstruction of the decorative elements and replacement of the old wooden frames).
The rapid increase in the volume of cars in circulation has long aggravated traffic flow in major urban centres, although authorities have been slow to grasp this particular nettle. Nonetheless, AKTOR has been involved in tackling this issue from the outset, in the construction of appropriate parking facilities with capacities ranging into the thousands.

Parking Facilities

Athens Car Parks S.A.
Paediatric Hospital
“Aghia Sofia” Square
Capacity: 651 spaces

Rizari & Vas. Constantinou St.
Capacity: 661 spaces

Canningos Square
Capacity: 491 spaces

Underground Parking
Athens Concert Hall
Capacity: 750 spaces

Parking Facilities

Parking at the 424 Military Hospital, Thessaloniki
Capacity: 950 spaces

YMCA Automated Car Parking Facility, Thessaloniki
Automated Underground Car Parking Facility, with a ground floor and 3 underground levels and a total capacity of 1,021 spaces (of which 63 are conventional spaces on the ground floor) and a total area of 24,272m². Average time of customer service 90 seconds. Special Features: car parking automation equipment (8 vehicle transportation towers, control room, etc), automated management system (controlling the car parking equipment, the CCTV, the entrances (3) and exits (2), the customer support equipment and the cashiers, the electrical generators and the firefighting and fire detection system), waiting room, and access for people with special needs. In operation since January 26th, 2005.

McArthurGlen Designer Outlet Car Park, Athens
Capacity: 1,350 spaces

Multi Storey Car Parking in Abu Dhabi, ADNEC, Exhibition Halls, Phase 2B
Capacity: 6,700 spaces
A. Building Projects

AKTOR has a large and well-organized Electromechanical Department which is staffed with highly qualified technical personnel.

The company implements electromechanical projects of any nature, from the most routine requirements through to highly specialized and complex endeavours, offering clients fully integrated solutions, value engineering and innovative systems as well as full maintenance services for completed installations.

New Doha International Airport, Cargo Facility, Qatar

New Acropolis Museum, Athens

Al Sofouh Towers Dubai, UAE

The scope of work of AL AHMADIAH AKTOR LLC comprises the supply, installation, testing, commissioning and completion of all MEP works.

Located inside the Dubai Media City, this prestigious project consists of one office and one residential tower, of 13 and 32 floors respectively.

The development includes a basement level, a ground floor and three podium levels.

The total built-up area is of 100,000m².

Ibn Battuta Gate Hotel, SPA and Apartments Project, Dubai, UAE

The scope of contract comprises all Electrical, Mechanical and Plumbing Works as well as other associated works. The project is located in the emirate of Dubai in the United Arab Emirates on plot number 390 near Ibn Battuta Mall - Jabel Ali, one of the leading projects in Dubai which is becoming one of the regional landmark developments in the Middle East. The Ibn Battuta Gate is a mixed use development. It has a total area of 205,000m² approximately and includes the following main components:

- Office Building with a total area of approximately 80,000m², distributed over a ground and 11 administrative floors in addition to 2 car parking basement floors.
- Hotel and long term use furnished apartments with approximate area of 125,000m², an upper 5 star hotel contains 394 guest rooms in addition to restaurants, nightclubs, business centers, etc.

Armada Towers Dubai, UAE

The scope of work for the Armada Towers project comprised the supply, installation, testing and commissioning of the following systems:

- HVAC
- Fire Protection
- Fire Alarm
- Security
- General Services
- Plumbing
- Electrical

The project is located within the Dubai Media City, Dubai, United Arab Emirates.

In the Armada Towers, AKTOR undertook the design, supply, installation, test and commissioning of the MEP installation for the hotel and serviced apartments.

The total area is 106,000m², which includes the hotel and apartments, and is located within the Dubai Media City, Dubai, United Arab Emirates.

New Acropolis Museum, Athens

Athens MEGARON
(Opera and Concert Hall)

One of the largest opera stage systems in Europe, with 4 synchronized platforms (30 ton capacity, travel 20m), 8 smaller platforms, 9 stage trolleys and approx. 100 other lifting mechanisms. E.P.C. contract for the theater stage.

New Doha International Airport, Cargo Facility, Qatar

M.E.P. Projects / Electromechanical Installations in Building Projects
AKTOR is the most specialized company in landscaping, green works and tree planting in Greece. Landscaping, tree planting, lawn growing for open spaces and sports fields, the installation of automatic watering systems, slopes management, plant production and project maintenance make up merely one facet of the company’s activities in green works.

Green area landscaping projects undertaken by the company include the relevant works on Athens Ring Road, the Imitos Western Peripheral Motorway, the North South Motorway, the Hellenic Railways’ Organisation (OSE) network and the Ano Liosia sanitary landfill, amongst others, while the company has planted more than 3.5 million trees and shrubs over the past few years.

Green Works
Athens Ring Road (Attiki Odos)

A wide range of plants has been used along the Attiki Odos as a means of developing a user-friendly, green environment around the motorway. The approx. 1.1 million trees, shrubs, ground covering and creeping plants are maintained on a daily basis by a team of agronomists and gardeners who ensure that all the necessary care (lubrication, use of pesticides, spraying etc.) is carried out in order to promote their health and proper growth.
Athens MEGARON Landscaping Works and Plantings
In the surrounding area of the Athens Concert Hall a high specifications park has been created using a special, (from a construction point of view) planting and grass area. Plantings of trees of a very big size and age took place, fulfilling the need of immediate public use. The plantings are surrounded by a large area of grass and bushes which give out a special character to the new shape of the area.

Landscaping Works,
North South Motorway (P.A.T.H.E.)
Almiros - Evangelismos Section
The project lies along part of the Patras - Athens - Thessaloniki - Evzoni highway (Almiros - Evangelismos section - 92 km). It involves the planting, irrigation and maintenance of the motorway’s New Jersey type central reservation, horizontal lateral hard shoulder lanes, bank and trench slopes of the interchange and parking areas. The densely planted areas are irrigated and maintained through state-of-the-art irrigation control system (scada), pump stations and drilling equipment.

Environmental Landscaping
Athens “Eleftherios Venizelos” International Airport
This was a project with many particularities due to its various different uses (access, assembly of people, passenger and cargo service areas, specially designed areas for the take-off / landing of aircrafts, safety surrounding area, commercial use, parking). The maintenance of 24km² of green areas requires the application of specialized and advanced technologies. It includes landscaped areas of natural-self-sown plants and plantings of 3,500,000 plants of various growing rates (soil covers, bushes, trees).

Landscaping Works
A residential complex of high quality and aesthetics which served as the Press Village during the 2004 Olympic Games. The complex has large common areas surrounded by plants and covered with lawn. The individual gardens of the complex include plant-fences, large trees and lawn. Fast-growing plants were cultivated and a state-of-the-art irrigation system was installed.

A. Building Projects
A. Building Projects

Kyknos Quarry Rehabilitation
Ano Liossi, Athens
Area: 160,000m²
Embankment volume: 4,000,000m³
Planting: 35,000 saplings

Quarry Rehabilitation Works
on Mount Pentelikon, Athens
Area: 622,000m²
Embankment volume: 2,142,000m³
Planting: 56,500 saplings

Landscaping

Restoration of Makrygianni St., Athens
Makrygianni Street was fully redeveloped and converted into a low traffic street. The architectural design stipulated marble paving of the widened sidewalks and a central corridor of approximately 5m paved with hollow pavers. The marble pavements of sidewalks are interrupted by hollow paver zones that are perpendicular to the direction of the street and delineated with marble curbs. The existing row of trees was preserved and two more rows of trees are stipulated towards the center of the street. Routes for the blind and persons with disabilities were formed on all sidewalks. The existing municipal lighting network was upgraded with light fixtures similar to those on D. Aeropagitou Street. New surface water gullies are constructed. There was an emphasis on avoiding public utility works (PPC, OTE, EYDAP, HLPAP, Municipality of Athens) after the completion of the project.

Quarry Rehabilitation
Petroupoli, Athens
Area: 110,000m²
Embankment volume: 1,650,000m³
Planting: 21,000 saplings

Apostolou Pavlou St., Athens
This project follows on from the pedestrianization of D. Aeropagitou Street and extends over a total area of 25,000m², measuring 950m in length.

Restoration of Network of Pedestrianized Areas and Communal Spaces Unification of Athens' Archaeological Sites
Dionysiou Areopagitou St.
This project included the construction of a pedestrian walkway and green surroundings over an area of approx. 30,000m² and 660m in length. A complete series of infrastructure networks covered all requirements in terms of fire safety, irrigation, public lighting, PPC, OTE, EYDAP, natural gas and archaeological sites.

Site restoration not only accentuates the aesthetics of a specific project but also contributes more generally towards the upgrading of the entire surroundings, thus improving a vicinity's quality of life in general.
AKTOR has conducted very significant restoration work in areas of great cultural value, the most important being the project in Dionysiou Areopagitou and Apostolou Pavlou Street that was performed for the organization Unifications of Archaeological Sites in Athens. One major landscape restoration project involved the restoration of quarries in the Attica Basin, in which AKTOR participated as the leader of the Attiki Oodos Joint Venture. The project’s overall budget was €2 million, involving a total earth-fill volume of 22,452,000m³ and the planting of 216,000 plants.
B. Infrastructure Projects
B. Infrastructure Projects

The Athens Ring Road is one of the largest in Europe. It is a modern highway measuring 65.2km in length, which was constructed by a Joint Venture consisted of Greek companies, whose leader was AKTOR. The project was completed prior to the Olympic Games in June 2004, and the concessionaire will continue its operation until 2024.

The Metamorfossis Interchange links Attiki Odos with the Athens - Lamia Motorway, its 4 grades serving traffic to and from all possible directions. The Interchange was delivered in March 2001 to an entirely positive reception.

The Egaleo Interchange and Mavri Ora tunnels have been operating in the Ano Liosia area (near the Egaleo Interchange) since November 2003. The approx. 400m twin tunnels (three lanes per direction) have been constructed according to the latest quality and safety standards. They are an integral part of Attiki Odos, facilitating movement of the Athens population and drastically reducing the traffic load of the Thessaloniki - Patras corridor through Athens.

The Athens “Eleftherios Venizelos” International Airport Interchange

The Athens “Eleftherios Venizelos” International Airport interchange links Attiki Odos with the Koropi - Spata Highway and serves all traffic to and from the Airport, as well as traffic to and from Markopoulo, Lavrio, Koropi, Glyfada, Athens and Elefsina. This is a modern 3-grade interchange providing free flow to all circular traffic. The project was delivered in March 2001.
Kifissias Avenue Interchange, Athens

The Kifissias Avenue Interchange with its characteristic roundabout and 3 grades links Attiki Odos with one of Athens’ main transportation corridors, Kifissias Avenue. This is a high-standard, high-capacity interchange that provides access to Attiki Odos from the Municipalities of Maroussi and Melissia. It also provides a direct link between Attiki Odos and the immediately adjacent areas, forming a local hub for the development of the tertiary sector (services, retail, entertainment etc.)
**B. Infrastructure Projects**

Imittos Western Peripheral Motorway with a total length of 13.4km is part of Attiki Odos and was completed in September 2003. It starts from the South of Kessariani and ends at two branches that connect it to Attiki Odos at two points: Chalandri and Pallini. For the environmental protection half of its length consists of tunnels and cut & cover sections constructed with high standards of quality and safety.

Katechaki Avenue Interchange
The Katechaki Avenue Interchange is the northern terminus of the Imittos Western Peripheral Motorway, providing access to and from Katechaki Avenue. The dual design of the interchange ensures free traffic flow in all directions, to and from the Imittos Western Peripheral Motorway and the road axes of Kesariani, Alimos, Argyroupolis and Mesogeion Avenue / downtown Athens.

Athens “Eleftherios Venizelos” International Airport
South Gate Interchange
This interchange is at one end of Attiki Odos, approx. 4km before the Airport entrance. It provides a highly functional standard link for the properties directly adjacent to the Airport, thus promoting the area’s burgeoning commercial development.

Kymis Avenue Interchange
This interchange lies within the Municipality of Iraklio, at the northern terminus of Kymis Avenue. It provides free flow access to Attiki Odos from northern Athens, i.e. from Galatsi, Lamprini, Patissia, as well as from the Municipalities of Psychiko, Filothei, N. Ionia, Iraklio, Maroussi and Pefki. The structure’s design and construction allow for a future extension of Kymis Avenue to the north, in order to complete access to the Athens - Lamia Motorway and provide fast access to the Olympic Village in Thrakomakedones.

Kantza Interchange
This Interchange lies within the Municipality of Pallini, providing fast access via Attiki Odos to the developing areas of Pallini, the area south of Marathonas Avenue, as well as to the immediate Kantza area. The interchange’s design, construction and operation meet the high operational standards of the Kampas Estate and Yalou properties, owned by REDS S.A. which are intended for commercial use.
The linking of the Peloponnese peninsula to western mainland Greece, first envisaged by Charilaos Trikoupis in the 19th century, has finally become a reality 115 years later with the construction of the Rion - Antirrion Bridge.

On the basis of its extensive and varied experience in the field of bridge construction - unique amongst Greek companies in its sector - AKTOR headed the front line in this monumental and difficult challenge.

The bridge's total length is 2,883m, of which the cable-stayed structure spans 2,252m. The seabed around the foundations of the central piers lies at a depth of 65m and the pylons rise to between 145m and 165m above sea level. The height of the free centre-span is 52m, ensuring the clear passage of all ships. The construction of the Bridge constituted a particularly complex challenge in view of the combination of a number of unfavourable conditions: the unusual depth of the bridge's foundations, poor resistance of the seabed and the high degree of seismic activity and tectonic movement in the area.

The main construction works commenced in October 1998 and were completed by August 2004, reducing the average crossing time between the Peloponnese and the mainland from 45 to only 5 minutes.
MOREAS S.A., having as a main shareholder AKTOR CONCESSIONS (71.67%), is the concessions company that undertook the financing, design, construction, operation and maintenance of the motorway project “Korinthos - Tripolis - Kalamata” and “Lefktro - Sparti” section. The project is one of the most important on-going PPP projects of the country with a total length of 205 km, and will constitute one of the major factors towards the economical flourish and population growth of the Central and Southern Peloponnesian region. MOREAS joint venture, responsible for the construction of the project, with AKTOR (71.67%) as a leader has already completed the improvement of the existing Korinthos - Tripolis highway section, while, at the same time, is expediently constructing the new highway sections to Kalamata and Sparti, always with respect to the natural and human focused environment.

Korinthos - Tripolis section, Ancient Nemea Interchange

Korinthos - Tripolis section, Sterna Interchange

Athinaio - Lefktro Section, Malota Cut & Cover

Kyparissia Branch of the Old National Road Junction in the Allagi Region

Korinthos - Tripolis - Kalamata Motorway and Lefktro - Sparti Branch (Moreas)
Aegean Motorway S.A. has undertaken, through a Concession Agreement, the financing, design, construction, operation and maintenance of a modern, according to the European Union Specifications, highway. The project constitutes a part of the P.A.TH.E. highway, with a length of 230 km, that begins from the region “Raches” of Fthiotida Prefecture and spans up to the “Kleidi” region of Imathia Prefecture. The Group through AKTOR CONCESSIONS S.A. is participating to Aegean Motorway S.A. with the percentage of 20%, while AKTOR is participating to the construction of the overall project with the percentage of 19.3%.
Olympia Odos, (the road axis linking Elefsina - Korinthos - Patras - Pyrgos - Tsakona) constitutes the largest PPP motorway project of Greece. The project represents a new, modern and comfortable highway, with a total length of 365.4 km, through which a more direct and safe connection between Elefsina and Tsakona of Messinia region, will be created. The project will contribute towards the improvement of the overall mobility at the south western part of Greece, by significantly decreasing the travel time and by facilitating through an easier way, business activities and cooperations at the regions of Peloponnese and Western Greece. Out of the 365.4 km of the project, 283.7 km are being constructed from the beginning, while the rest 81.7 km are being improved and upgraded. The Group through AKTOR CONCESSIONS S.A. is participating to Olympia Odos with the percentage of 17% and AKTOR is participating to the construction of the overall project with the percentage of 17%.
Egnatia Odos, one of Europe’s largest road projects, is the main road axis linking Greece’s western gateway to Italy (Port of Igoumenitsa) with its easternmost gateway to Turkey in Kipi (Evros), including various branches to the Balkan countries along its course. It represents a new international East-West transport axis, incorporating numerous tunnels, bridges and interchanges. AKTOR was responsible for the construction more than 300km of Egnatia Odos.

Arachthos - Peristeri
The project involved the construction of the Driskos Twin Tunnel (4.580m) and the Egnatia Odos Motorway Interchange at Mikro Peristeri, as well as the construction of a 3km road with two cut & cover tunnels and an overpass on River Metsovitikos.

Lefkopetra - Veria Kouloura
Kastania mountain motorway. Length 21.5km, width 22m, with six twin tunnels, two twin viaducts, two interchanges, two road bridges, tens of structures, overpasses and underpasses, earthworks (pit volume 5.6 million m³).
The project’s construction time was 5.5 years and it was delivered in December 2004.

Dodoni Tunnels
Two parallel tunnels, each 3.5km in length. Their construction involved cutting through incongruent chalky formations and through karst-filled rocks with water and mud, which created severe construction difficulties and demanded specialized expertise and extraction equipment. The tunnels are built close to the Dodoni archeological site and one of its main functions is to provide full protection of the area. The tunnels’ entries are located to the east of the archeological site and the exit south-west of the city of Ioannina.

Iasmos
Komotini
This project is part of the Egnatia Odos Highway and involves the 17km section between the Iasmos and Komotini Interchanges. It is a free four-lane dual carriageway with a central reservation and emergency lanes - total width 24.5m.
In addition to this section of highway, construction involved a full sideway network and sections of all vertical regional roads. The site includes major structures, such as the 415m twin Kompsatos River bridge and the twin underpass of the National Road No. 2 of 115m length, as well as numerous small and medium-sized structures.
Kavala Deviation, Greece
The total project extends over approx. 30km. It involved improvements to older contracted sections, cut & cover structures in an unstable area before Agios Syllas, 6 viaducts, a new ring road and the Aspra Chomata Interchange.
The North South Highway is the single most important road axis within Greece, extending over a length of 730km and linking Patras to Athens and, in turn, Athens to Thessaloniki, simultaneously forming part of the major Trans-European Network.

AKTOR is responsible for the construction of 105km of the total length of the North South Highway.

Kakia Skala
Upgrading and widening (three lanes and an emergency lane in each direction with a New-Jersey-type central reservation) of the existing New National Motorway at Kakia Skala, Megara. Structures were constructed along a 7km section in a narrow, steep-sided gorge. Traffic continued to flow along the New National Motorway along with the simultaneous use of the Old National Motorway and the existing Railway Line. The project included the construction of five tunnels with a total length of 4,400m (including cut & cover sections), equipped with state-of-the-art EFM security and management systems, eight 800m escape tunnels, three 400m bridges, an interchange at Kineta, a significant number of retaining walls, a major river training structure in the Kineta area and numerous culverts and minor structures.

Ag. Konstantinos Deviation
Construction of PATHE motorway in section Ag. Konstantinos - Knimida Tunnel Exit at a length of 11.3km. The scope of contract work included: Construction of two twin tunnels of approx. 700 and 2,500m length, respectively. Construction of two interchanges. Complete construction of the road, namely: earthworks, road surfacing, asphalt works, technical structures (12 bridges, 31 box culverts, tube-reinforced soils and shoring works), tunnels and tunnel service buildings, sewage and drainage works, signaling-safety works, tunnel EFM works, junction and tunnel face electrical lighting as well as green works on the road traffic island, on slopes, tunnel faces and other motorway areas.

Kastro - Martino
The project involved the conversion of the existing section of the Athens-Lamia National Motorway to a free motorway and associated projects (earthworks, structures, road paving, asphalt-laying works, signage, lighting). Major structures included the Martino Interchange, the viaduct at KM position 114 + 800 and two major parking areas at KM position 118 + 000.
AKTOR was involved in the borings for two extensions of the existing Athens METRO lines, from Ethniki Amyna to Stavros and between Monastiraki and Egaleo.
The 5.3km section between Ethniki Amyna and Stavros involved tunnel boring using a TBM and included the construction of the intermediate stations at Holargos, Nomismatolopio and Halandri.
The 4.3km section linking Monastiraki with Egaleo involved the boring of the main tunnel and bypass tunnel to the depot using NATM as well as the construction of three new stations at Votanikos, Eleonas and Egaleo by means of the open pit method.
AKTOR was also involved in the construction of the station at Ag. Antonios in the Peristeri region, while in Joint Venture with SIEMENS A.G. and VINCI CONSTRUCTION GRANDS PROJECTS (AKTOR participation 70%) it has undertaken the extension of METRO Line 2, Ag. Dimitrios - Elliniko section.

Monastiraki - Egaleo METRO Line
This 4.3km project links up with the existing Ermou Street Metro line and terminates at the Alsos Shaft via three new stations “Votanikos”, “Eleonas” and “Egaleo”. It forms the Metro extension to the south-western suburbs of Athens (Agia Varvara, Korydallos, Nikea, Piraeus).

ATHENS METRO. LINE 2, Aghios Dimitrios- Elliniko Extension
This Athens METRO extension 5.5km long, includes the construction of a 4,700m main tunnel tube bored by TBM-EPB Boring Machine, of four new Cut & Cover Stations namely Ilioupoli, Alimos, Argyroupoli and Elliniko; seven shafts, a 274m long Cut & Cover train Depot; a 211m access tunnel, as well as all E/M works (including Power supply, Traction power, HVAC & Tunnel ventilation, Automation, Safety Systems, Telecommunication Systems, PA, CCTV) and Trackworks.

ETHNIKI AMYNA - STAVROS (Douk. Plakentias) METRO Line
The length of the line extension from the Ministry of Defence station (“Ethniki Amyna”) to Stavros, where it reaches Attiki Odos, is 5.3km. It follows the course of Mesogeion Avenue below ground to Holargos and then along to the National Mint, continuing up to Doukissis Plakentias Street and includes five new stations: Holargos, National Mint, Aghia Paraskevi (under construction), Halandri & Doukissis Plakentias.

Suburban Railway Station - Athens “Eleftherios Venizelos” International Airport
The station is located on a special 30m - wide site within the central reservation of the dual carriageway linking the airport with the Athens Ring Road (Attiki Odos).
It comprises the main terminal and sheltered platforms and is linked with the existing pedestrian bridge. The main terminal is an impressive sight, with its octagonal grid formation of beams supported by a radial suspension system.
ATHENS-PIRAEUS ELECTRICAL RAILWAY ("ESAP"), METRO LINE I RENOVATION PROJECT

The ESAP - Metro Line I - is more than 140 years old. AKTOR is currently involved in the overall renewal of both the substructure and the superstructure of 23km of double rail track, between the “Faliron” station in Piraeus and the “Kifissia” station in northern Athens.

General layout of the project located in the metropolitan area of the city of Athens. During construction, special care and provision had to be made for the ancient ruins encountered locally (the Athens - Piraeus long walls, etc).

In each work area, the trains are diverted onto a single track for bidirectional movement, supervised by a SIL4 certified local autonomous Interlocking system working in parallel with the existing SICAS-VICOS signaling systems. After the completion of the track works, the original signaling equipment is reinstalled, recommissioned and assessed by an Independent Safety Assessor (ISA).

An old stone built tunnel, of 650m, has been structurally reinforced by using a specialized shotcrete technique.

The superstructure consists of new ballast track using extra abrasion resistant ballast for 2 x 3km and RHEDA2000 ballastless slab track system for a total length of 2 x 18km including 2 x 3km of track through existing tunnels. The new rails are continuously welded UIC54 while the third rail is being replaced with a stainless steel/ aluminium composite one with full protective coverage.

The works are implemented under heavy rail traffic conditions (trains every 3 minutes) and close to electrical traction power conductors (750V DC) under the most stringent safety conditions.

A totally new Automatic Train Supervision System (ATS) including a Passenger Information System (PIS) will be interconnected with the existing ESAP operating systems.

Highly specialized staff and heavy machinery worked day and night under difficult circumstances.
AKTOR is actively involved in railway projects aimed at modernizing and expanding the network in Athens and throughout the rest of Greece.

The company is responsible for the construction of all infrastructure works for the Suburban Railway from Menidi to Athens “Eleftherios Venizelos” International Airport, a total distance of approx. 35km, and also all of the infrastructure for the Aharnes Traffic Centre (SKA) as well as the Airport Rail Terminal. AKTOR is also responsible for all infrastructure, signalling and telecommand projects of the SKA - KIATO section, over a total length of 120km.

Additionally, AKTOR was assigned the construction of the renovation and refurbishment of the railway stations in Athens and Piraeus.

Moreover, AKTOR has undertaken the construction of the New Railway Line from Lianokladi to Domokos.

Hellenic Railways Organization (OSE) Projects, Aharnes Traffic Centre (SKA) - Kiato Section
AKTOR is the joint venture leader for the construction of the new high-speed line linking the Aharnes Traffic Centre (SKA) with Kiato via the newly constructed railway stations. The project includes the construction of the superstructure and its supporting structures, as well as operation and installation of modern signalling, telemanagement and telecommunications systems providing safe traffic management. It also includes the E/M installations for 7.5km of tunnels.

New Lianokladi - Domokos High-Speed Railroad Line from Kilometric Point 14+000 to Kilometric Point 25+000
This project which pertains to the construction of infrastructure for the New Lianokladi - Domokos High-Speed Railroad Line, from Kilometric Point 14+000 to Kilometric Point 25+000, is a section of the entire NHSRRL infrastructure construction project from Kilometric Point 0+000 to Kilometric Point 52+000. This is the most difficult section of the Athens - Thessaloniki line. The existing Railroad Line from Tithorea RR Station passes between Mt. Oiti and Kallidromo, it then descends to the Sperhios valley heading towards the Lianokladi RR Station. The Railroad Line from kilometric point 14+000 to 25+000 also includes the construction of 5 railway bridges of total length 1,796m, as well as the construction of an underground bore twin tunnel, of total length (including the technical works of the entrance and the exit) 6.407m the right tunnel and 6.370m the left tunnel. It then climbs up to the Domokos plateau and descends to the Plains of Thessaly heading towards the Domokos RR Station. The NHSRRL is a section of the Athens - Thessaloniki RR Axis, which is the only Railroad Line connecting Southern with Northern Greece and Greece with other countries through Turkey, Bulgaria and the former Yugoslavia region.

Tempi Railway Bridge
This bridge was constructed over the River Pinios parallel to the Tempi tunnels. Prestressed beams of approx. 250m were used for the bridge and seated on piles. This project is part of the overall upgrading of the railway lines.

Steel Arch Railway Bridge, Ikonio

Hellenic Railways Organization (OSE) Projects Kakia Skala Section
Construction of infrastructure for the New Lianokladi - Domokos High Speed Railway Line from Kilometric Point 25+000 to Kilometric Point 52+000
The Project starts at Kilometric Point 24+460,00 close to Aghios Stephanos community at the border of the dried lake Xyniada at an altitude of approximately 465m and ends at Kilometric Point 51+300,00 at the passenger terminal of the existing Domokos RR Station. Total length of the RR line is approximately 27km and constitutes a section of the entire NHSRRL infrastructure construction project from Kilometric Point 0+000 to Kilometric Point 51+300. The project objective includes: Earthworks (excavation: 5,545,000m$^3$) railroad embankments: 5,000,000m$^3$ (including surcharging), geotechnical embankment foundation projects, engineering projects (5 road bridges - total length 260.50m, railroad bridges - total length 1,503.6m, at-grade intersections, 8 underground railroad tunnels - total length 3,049.18m with undergrounding tunneling of 2,476.50m and 2 Cut & Cover railroad tunnels - total length 308.44m), hydraulic works and works at crossing road network.
AKTOR has extensive experience and expertise in the field of tunnelling engineering works. The company is currently carrying out more than 15 tunnelling projects totalling 25km in length throughout Greece. These include hydraulic, railway, road and underground subway tunnels, as well as the configuration of subterranean spaces.

AKTOR deploys the very latest excavation and retaining methods and machinery. Regarding the NATM (New Austrian Tunnelling Method) AKTOR owns a significant amount of specialized machinery: JUMBO drilling machines, anchor drilling and placement machinery, shotcrete machines, tunnel loaders, dumpers etc. If the specific geophysical properties of a given project so require, AKTOR can deploy its privately owned roadheader machine and special excavators, while the company is also co-owner of a TBM machine for METRO tunnel boring. Over time AKTOR's personnel has acquired considerable specialized experience in the field of tunnel construction, valuable expertise which is constantly being enhanced by the company's continuing involvement in the most demanding of underground projects.

B. Infrastructure Projects

Egnatia Motorway, Metsovo - Panagia
The Metsovo - Panagia section of the Egnatia Odos Highway includes the following tunnels: Anilio twin tunnel (2,200m), Metsovo twin tunnel (3,550m), Malakasi A twin tunnel (350m), Kostarakou single tunnel (750m), Malakasi B single tunnel (325m) and Malakasi C twin tunnel (150m).

North South Motorway (P.A.TH.E.), Kakia Skala Tunnels
Construction of five tunnels with a total length of 4,400m (including cut & cover sections), equipped with state-of-the-art E/M security and management systems, as well as eight escape tunnels (800m in total).

Olympia Odos Motorway, Korinthos - Patras section, Platanos tunnels

North South Motorway (P.A.TH.E.), Neohori Twin Tunnels
Full construction of two 700m and 2,500m twin tunnels including construction of service buildings and E/M operations.

Moreas Motorway, Neohori Twin Tunnels
Egnatia Motorway, Lefkopetra - Veria - Kouloura Tunnels

Construction included a total of 12 portals and 3,180m of single carriageway tunnels (two lanes without an emergency lane, carriageway width 8m). Tunnel construction was completed under extremely unfavourable geological conditions and included its final lining, E/M operation, traffic monitoring system and control and recording system.
Already enjoying extensive and profound experience in the construction of almost all types of bridges, AKTOR is constantly expanding this expertise with research into latest methods and technological innovations in this field: prefabrication, launching of prefabricated beams, cantilever construction, sliding incremental launching etc. The construction of the Evripos Bridge, the first cable-stayed bridge in Greece, has been a singular achievement for the country’s entire construction industry.

**Nestos Bridges**
The creation of an artificial lake above the Thassos Hydro-Electric Project dam in the River Nestos, close to Drama, necessitated the construction of a number of bridges to reroute local traffic. The construction of these bridges proved to be a complicated task due to their heights and curved tracing requirements. To restore traffic towards Sidironero and Papades the Group constructed five bridges using sliding formworks in cantilever for the deck and climbing formworks for the piers, reaching a height of 75m. The principal bridge over Nestos has a total length of 298m.

**Evripos Bridge, Halkida**
Evripos Bridge is the first cable-stayed bridge ever constructed in Greece. With a central cable span of 215m, side spans of 90m each and a total length of 695m including the access bridges, it reaches across the southern end of the Evripos Straits. It is considered one of the most beautiful bridges in Europe due to its distinctive design, featuring meticulous construction and a very thin 45cm compact deck.
AKTOR is constructing a significant number of highways in the Balkans and the UAE. More specifically, AKTOR and its subsidiaries operate in Albania, Bulgaria, Romania, Serbia and UAE, contributing to the improvement of the transport efficiency and the upgrading of the local highway network management and traffic safety.

**Trakia Highway LOT 3, Bulgaria**

Trakia Highway stretches from Nova Zagora (Ezero) to Yambol (Chatzidimitrovo). It is 36km long and passes near 3 towns and 13 villages. It includes a dual carriageway with two lanes of traffic in each direction, a central reservation and an emergency lane. The project’s major construction units are 123 small structures & irrigation channels, 7 Agricultural Overpasses, 4 Overpasses & Road junctions, 3 Agricultural underpasses, 1 Overpass on a Road Junction, 1 Overpass over Railway lines, 1 Bridge over a River, 1 Underpass and 23 related electrical power distribution projects.

**Dubai Fujairah Freeway Contract 3, Dubai, UAE**

Construction by AL AHMADIYAH AKTOR L.L.C. of 11km of a 6 lane freeway through the mountainous regions of the Emirates of Fujairah and Ras Al Khaimah. The cut and fill portion of the project involves excavation of around 4,000,000m³ of earth and rock while the embankment construction totals approximately 3,000,000m³. The structural portions of the project include the construction of 4 reinforced concrete post tensioned girder bridges which were launched using a 120t launching truss system, 1 post tensioned box girder bridge, a number of culverts and reinforced earth walls.

**Road traffic decompression works on axis DN1Α between KM 8+100 - KM 17+100 and northern part of Bucharest ring KM road / Item 7: Extension of the existing Bucharest ring road via the construction of the part between DN7 and DN1Α, Romania**

The design and build project consists of road works, construction of various technical works, construction of drainage networks, improvement of intersections / overpasses with railway lines, various works relating to the railway such as parallel roads, parking lots, retaining walls etc., road signalling, construction of bridges, electromechanical works and environmental works. The total length of the extension is 2.7km, with four lanes in total, two lanes in each direction of 2.50m width each.

**Rehabilitation works on axis DN17 Bistrita Nasaud / Suceava county limit to Iacobeni KM 116+00 - KM 155+00, Romania**

The project is located in Northern Romania, in Suceava county. The DN17 Road Axis connects two of the largest cities of the country, Cluj-Napoca and Suceava; the contract (Contract 4R09) involves the rehabilitation of 39km out of the total length of 330km. The project includes protection and relocation services, road works, bridges and overpasses, railway level crossings, electromechanical works and environmental works.

**Construction of tunnels on the Tirane - Elbasan Highway, Albania**

The scope of works of this project is the construction of two tunnels, as part of the new, dual carriageway road linking Tirane and Elbasan. The highway begins in the south of the Tirana urban area. The two tunnel galleries, one for each direction, are located at KM position 15 + 000 of the new road and have a length of 2,800m in the Tirane-Elbasan direction and 2,300m in the opposite direction.
Urban development and increased business activity create the need for projects to upgrade local hydraulic systems. Rainwater must find its way to the sea easily and quickly, while the management of urban and industrial waste requires a separate network leading to waste treatment plants. AKTOR has been involved in the construction of many networks in Athens as well as in other cities around the country.

AKTOR was involved in the significant project to cover the Kifissos riverbed, one of the first contracted works that began years ago. The covering of part of the River Kifissos combined with the parallel extension of its riverbed has solved the major drainage problem that previously afflicted the western suburbs of Athens, while simultaneously facilitating local traffic flow with the construction of a new motorway above its course.

The Attiki Odos project also involved significant hydraulic works to facilitate the safe drainage of rainwater along the highway.

**B. Infrastructure Projects**

**Hydraulic Projects, Greece**

**Construction of Drainage Pipe using Pipe Jacking Method of Athens Ring Road (Attiki Odos)**

The main rainwater header line (total length 1,450m) is the direct collector of all the rainwater collection structures of the area upstream from Attiki Odos, in the Municipality of Acharnes. It was constructed in a microtunnel by means of the pipe jacking method.

**Operation of Smokovo Dam and Projects for Water Transfer and Distribution, Karditsa**

The project included structures at the exit of the Leonartion Tunnels, flooding structures for the Smokovo Dam, as well as the water transfer and distribution projects for the irrigation of zone S2 (approx. 6,000,000m³).

**Coverage of the Kifissos River, Athens**

This was a combination of a hydraulic and road construction project:

a) The hydraulic project included the widening and deepening of the River Kifissos along a 1,660m stretch with covered sections totaling 260m in length, the restructuring of a 115m stretch of the Nikea streambed for the purposes of the road projects and Kifissos estuary structures at the Nikea and Kiklovoros - Pr. Danil streams.

b) The road project involved the full construction of the 1,660m New Kifissos Motorway along the boundaries of the Municipality of Rentis, side roads and sections of all transverse local roads, as well as the construction of a grade-separated junction at Ag. Anna.

**Enhancement of the Mornos - Ylikis Joining Aqueduct, Kremada - Asopos - Kleidi - Dafnoula section**

This is a safety precaution project designed to safeguard sufficient water supply to Athens from Yliki Lake in the case of a potential water shortage in Mornos or problems along the Mornos Canal.

This project (designed, constructed, tested) also involved the construction of two 12,000m³/h and 24,000m³/h pump stations, overflow and power destruction structures and the installation of approx 12km long steel pipes (special equipment required), digital and analogue data transfer cable, an automated control system and the construction of a 3,200m³ reservoir and necessary roadworks to serve the network.

**Water Supply Treatment Plant for the cities of Heraklion and Aghios Nikolaos, Crete**

Aghios Georgios Water Reservoir, Lassithi, Crete
ELLAKTOR Group is a leader in the field of liquid and solid waste disposal projects throughout Greece and abroad. Its unrivalled ability to provide integrated services from the conception, design and construction phases through to the actual operation of these projects stems from the group’s considerable experience, know-how and specialization in this sphere. The significant know-how of AKTOR relevant to environmental projects, not only constitutes the foundation for the company’s further dynamic growth in this field within Greece, but also forms a vital prerequisite in the search for new partnerships aimed at expanding its activities throughout Europe as well as internationally.

AKTOR has acquired extensive and valuable experience through its participation in the construction of the Psyttalia Wastewater Treatment Plant of Phase B (biological treatment and sludge treatment facilities), the construction of the Sludge Thermal Drying Plant in Psyttalia, the construction of the Co-generation Unit in Psyttalia, as well as the Operation and Maintenance of the Plant since 1999, along with the sea transportation and management of the sludge that is being produced.

### Psyttalia Wastewater Treatment Plant
**Athens, Greece**

The wastewater treatment plant of Psyttalia, is the final recipient of domestic sewage and pre-treated industrial wastewater of the greater Athens area, with a hydraulic capacity of 27m³/s and treatment capacity of 5.6 million PE. The plant is located at the area of Akrokeramos and on the island of Psyttalia, 2km west of Piraeus Harbor. The preliminary treatment facilities of the incoming sewage are located in an area of 63,000m² at Akrokeramos, while the biological wastewater treatment, tertiary treatment and sludge treatment facilities are located on the island of Psyttalia, on a surface of 563,000m². Since the normal operation of the B' Phase Works (biological, tertiary and sludge treatment) in summer 2004, the treatment efficiency in terms of the organic load is 95% and 75-80% in terms of nitrogen.

The treated effluent is discharged via two submersible pipelines in the Saronic Gulf at a depth of 63m.
Jebel Ali Sewage Treatment Plant, Dubai, UAE
Satuated close to the Al Maktoum International Airport of Dubai, the project comprises the detail engineering, construction, commissioning, and start-up of a 300,000m³/day wastewater treatment plant to be located on a 67Ha open desert site to the south of the existing Jebel Ali Lahbab Road. The Jebel Ali STP includes the following work components: Site Works, Tanker Reception Station, Preliminary Treatment, Primary Treatment, Secondary Treatment, Tertiary Treatment, Effluent Storage and TSE Pumping Station, Sludge Treatment (Thickening, Dewatering and Drying), extended Odour Control, Building Works. The client was the Municipality of Dubai, while in March 2011 the project won the Award of the National Winner (UAE) at the “MEED Quality Awards for Projects”.

Sewage Treatment Plant, Bucharest, Romania
The plant is designed and constructed to treat the wastewater of the Greater Area of Bucharest including some industrial wastewater. The plant treatment capacity is for approximately 2,000,000 Equivalent Population. The wastewater treatment consists of preliminary treatment (coarse and fine screening, grit removal), primary treatment (primary sedimentation) and biological treatment including Nitrogen and Phosphorous, as well as sludge treatment facilities (thickening, anaerobic digestion, dewatering). The client was the Bucharest Municipality.
Wastewater Treatment Plant, Thriassio, Attica, Greece
The plant is designed and constructed to treat the wastewater of the Greater Thriassio Area of Attica including the treatment of industrial wastewater. The treatment capacity of the plant is for an Equivalent Population of 117,000. The wastewater treatment consists of preliminary treatment (coarse & fine screening, grit & grease removal), primary treatment (primary sedimentation), biological activated sludge treatment including nitrogen and phosphorous removal, sludge treatment (primary sludge thickening with gravity tanks, surplus sludge thickening with DAF, thickened mixed sludge, anaerobic digestion, digested sludge mechanical dewatering), as well as a co-generation plant which utilizes the biogas generated from the anaerobic digestion process.

Construction and Operation of the Household Waste Management System in Saint Petersburg, Russia
The Solid Household Waste Processing Plant of St. Petersburg will treat mixed solid household waste, in order to minimize the volume of waste (residue), recover energy through the production of secondary fuel with very high biomass content and provide recyclables (ferrous and aluminium metals, paper, PET, PP, PE, plastic foil) and stabilized material as landfill covering material. The fuel with high biomass content will be utilized in an adjacent biomass fired co-generation plant to provide electricity (13 MWe) and heat. Recovery of recyclables and production of landfill covering material as well as energy production will be achieved combining the following technologies:
1. Biological treatment – biodrying
2. Mechanical separation and conveying
3. Optical separation
4. Biomass power plant
Biomass fuel will be utilized in a grate-fired installation to produce steam which will expand through a steam turbine to produce electricity. The excess thermal energy, after covering the plant's own thermal needs will be converted to hot water and supplied to the district heating network.
The total capacity of the plant is 350,000 tons per year expandable to 800,000 tons per year. The total installed power is 10 MW and the recyclables amount to more than 20% of the input mixed municipal solid wastes.
Central Hospital Waste Incineration Facility, Athens, Greece
Construction and operation of the first central hospital waste incineration facility in Athens, a unique project of its kind for Greece, with a total capacity of 30 tons per day.

Restoration of Old Waste Disposal Site
Athens, Greece
Restoration of the largest old waste disposal site in Greece covering a total area of 370,000m².

Sanitary Landfill
Construction in Western Attica - Part II, Greece
Total area 275,000m² with 6,000,000 tons waste capacity.
B. Infrastructure Projects

Dam construction is yet another field in which AKTOR enjoys considerable experience. The company participated in the construction of the Thissavros hydroelectric project on the River Nestos, producing the largest rip-rap dam in Greece and the greater Balkan region.

Thissavros Dam on the River Nestos
This is one of Europe’s largest rip-rap dams. The Thissavros hydro-electric project comprises a rip-rap dam of 175m maximum height and 10,000,000m³ total volume, including a 6km gallery network for the injection of concrete and drainage. Approx. 220,000m³ of concrete was required for the construction of the spillway. More than 15,000,000m³ of various materials were handled and laid over 300,000m³ of concrete.

Papadia Dam, Florina
The total rockfilled dam volume is 3,500,000m³, its height approx. 75m, crest length & width 540m/12m respectively and the total volume of the water reservoir 14,000,000m³. The dam includes two grouting tunnels, each approx. 200m long. The dam structure includes a diaphragm waterproof plastic concrete wall under the core wall foundation (area 5,700m², depth 36m) and a 278m concrete weir of variable (14-35m) thickness.

Aposelemis Dam, Heraklion
The Aposelemis Dam (height 62.50m, crest length 650m), located in south east of Heraklion is constructed to provide water in the greater Heraklion and Aghios Nikolaos area. The total volume of the earthworks for the construction of the dam were approximately 4,000,000m³, while the capacity of the water reservoir will be 27,000,000m³.

Pentalofos Dam Vithos, Prefecture of Kozani
Constructed to supply water to the Vito area, the dam reaches a height of 37m with a reservoir capacity of 5,500,000m³. The construction of the dam itself was preceded by the construction of a diversion channel for the river. It includes a deep grout curtain, a drainage/grouting channel, a weir, an intake structure and a plunge basin. The water intake will be used for power generation by a IMW power plant.
Ports and marinas of all types and sizes have been developed around Greece's coastline and its islands to serve the country's various transportation and docking needs. AKTOR is anticipating increased activity in this field among the others.

AKTOR has already completed the construction of the port project to serve the new PPC power station in Atherinolakkos, Crete. The project included the development of a 285m berth for the docking and unloading of tankers, a smaller fishing harbour with a 190m quay and extensive dredging and coastal protection works.

AKTOR, via one of its subsidiaries, is currently constructing a project at the Port of the island of Corfu, as well as participating in the new port project at Patras. AKTOR has previously also worked on the construction of other port projects such as Samos Port Shelter, the Souda Water Sports Centre and port works at the mouth of the River Kifissos.

**B. Infrastructure Projects**

**Mykonos New Port**
Marina’s internal breakwaters construction (length 1,500m). Renovation of surrounding area, construction of islets electromechanological infrastructure and restoration of the breakwater in Mykonos new port.

**Kifissos River Mouth, Athens**
The completion of the Kifissos River estuary at Faliron Bay required the construction of a 500m trunk, a 108m crucible infill and a 100m basin. The superstructure is made of cast concrete, while prefabricated blocks of up to 55m² were laid on 20m deep sand and rock-fill layers for the underwater structures. A total of 90,000m³ of concrete and 700,000m³ of rock-fill were required.

**Port Construction Atherinolakkos, Crete**
This PPC project is located on the south - eastern side of Crete, 45m east of Ierapetra. In addition to the construction of the port and fishing harbor, it involved landworks for the sites where PPC has built a power station.

**Port works in the 1st and 2nd section of the New Patras Port - Building works on Land areas**
The physical object of the project includes the construction of four dock stations, 167.85m, 188.55m, 218.70m and 219.10m long, respectively with vertical front from caissons 20.90m long and 11.0m wide, the construction of breakwater 1,176m long made of same type of caissons as the quay wall, which shall be seated on rock-filling prism, as well as the positioning of quay wall foot slabs in the 1st and 2nd section. Also, the shaping of the final bottom at -11m from sea level, the shielding of port works with natural apron blocks, the construction of protective wall in the North and South section with natural apron block shielding and the road construction works, internal and external traffic road at the New Port, as well as parking spaces. It also comprises the rainwater drainage hydraulic works, E/M works in the land zone of the New Port (high and low current network, water supply, irrigation and fire-fighting networks, road lighting, New Port lighting pylons, etc), works for surrounding space layout as well as building facilities, which shall cover a total area of 6,959m².
B. Infrastructure Projects

A main condition for dealing with the adverse consequences of traffic congestion in urban areas (loss of man-hours, increase of pollution, psychological effect on drivers and passengers etc.) was the construction of junctions in the crossings of vital road arteries and also the development of high speed arteries. The company was in the forefront of this new tendency in Greece, right from the very beginning, at the end of the 70s, and since then it has never stopped successfully constructing large and complicated junctions, mainly under difficult circumstances (heavy traffic).

1st Ring Road, Kuwait City

It concerns the construction of phase 1 (out of three) of the 1st closed Ring Road in the historical centre of Kuwait, with a length of 4.5km by the Joint Venture of AKTOR COPRI ENTERPRISES W.L.L. The project consists of the construction of 2 main underpasses, total length 1.85km; 10 road bridges with a total area of 18,000m²; 3 utility conduit routing bridges, total length 400m; rainwater and grey water channels, including 1,500m of micro tunnelling, reconstruction, restoration of all existing water supply, power (11, 33, 132 & 300 KV) and telephone conduits in the area.

5th Ring Road, Kuwait City

The project involved the construction of the 5th Ring Road in Kuwait, i.e. the widening / reconstruction of the existing road along a 3,200m section by the Joint Venture of AKTOR COPRI ENTERPRISES W.L.L. Construction included the following structures: one at-grade and two grade-separated junctions, two troughs with a total length of 1,300m, three footbridges and seven viaducts with a total area of 3,800m².

Interchange of the roads P. Ralli - Thivon, Athens

Construction of 3 vehicle bridges with a total length of 2,000m. Construction of a water supply and sewage networks, as well as special anti-flood works in the extended area.

Koukaki Interchange, Athens

Design and construction of two twin vehicle bridges with a width of 10.55m and a length of 185m, with 800m long access ramps, two pedestrian bridges and four groups of staircases - ramps. Also, the project included the construction of an underground pedestrian crossing in Lagoumitzi street with a length of 40m and a width of 10m.
C. Industrial Projects
AKTOR has extensive experience in industrial and electromechanical projects and offers integrated solutions covering design, construction, testing, operation, maintenance for:

• Fuel Pipelines and Installations
• Natural Gas Terminals and Networks
• Automation and SCADA Systems Installations
• Communications Networks
• Industrial Installations
• Electromechanical Installations for Buildings and Sports Facilities
• Electromechanical Installations for Tunnels - Roads - METRO
• District Heating Networks

Lukoil Neftochim Burgas Refinery, Bulgaria

- Construction of a Hydrodesulphurization and Desaromatization unit HDS-HDA (XO-3).
- Construction of a Gasoline Desulphurization-Prime G (XOB-1).
- Civil works: Procurement of materials and construction of all civil works including a 7,000m³ substation and satellite building.
- Equipment erection: 3,200 tons.
- Preparation of shop drawings and supply of material, fabrication and erection of steel structures of Ca 2,300 tons.
- Piping & Carbon steel, Stainless steel, Alloy steel in accordance with PED (97/23/EC). Total weight 1,650 tons. Total length 63,500m. Diameters 1/2" to 24".
- Electrical and I/C erection works total cable length 450,000m.
- Insulation: supply of materials and erection Ca 35,000m².
- Pre-commissioning, Commissioning and Start-up activities for both units.

Relocation of Natural Gas Pipes
Public Natural Gas Enterprise, Attica, Greece
Construction of high and average-pressure 30" and 14" natural gas pipeline bypasses with special equipment ensuring uninterrupted gas supply.

JP-5 Fuel Transfer Line Construction and Storage Tanks Replacement at NSA Souda Bay, Crete, Greece
6km of 150mm diameter welded carbon steel fuel pipeline from the NATO Marathi Fuel Depot to the POL Storage Facility at NSA Souda Bay; construction of two 1,900,000 litre steel-lined concrete cut and cover tanks with pumps and filtration; installation of the Automated Gauge System (ATG) for the storage tanks and of the leak detection system for the storage tanks and pipeline.

Construction and Upgrading of Oil Refinery Units
Hellenic Petroleum / EKO, Greece
Reconstruction of oil refinery units, installation of new towers and modern compressors and addition and upgrading of automation systems in the control centre.

Extension and Automation of Loading Terminals
Hellenic Refineries, Greece
Addition of new tank truck loading terminals at the Aspropyrgos and Kalochori Refineries. Automation of the loading system, construction of modern loading control terminals and installation of oil flame recovery units.

Mechanical Erection Works for Interconnecting at HELPE/E.I.C, Hellenic Petroleum, Greece
The Scope of Works includes the Erection of a Nitrogen Line including vessels, PSA Unit, Air Compressors etc., installation of process pumping stations, fire water pumps, and air coolers, as well as process and utility piping works, steam tracing, painting and insulation.
C. Industrial Projects

Through the implementation of projects on the country’s major road axes - North South Highway, Egnatia Odos Highway, Athens Ring Road - AKTOR has acquired considerable expertise in electromechanical works relating to road and railway projects, telecommand systems and operation automation, as well as in motorway toll station automation systems. Not only is AKTOR a highly specialized leader in the construction of such projects but the company has also been successful in penetrating the related maintenance and operation business.

Another new market has emerged with the development of fibre optic telecommunications networks, and AKTOR has been a top player in this area from the very outset, boasting state-of-the-art equipment and experienced and qualified personnel.

AKTOR’s participation in the electromechanical works of the Athens METRO extensions has signalled the company’s entry into yet another field offering rich prospects for projects both at home and abroad. With technologies currently developing at such a rapid pace and projects requiring ever increasingly complex electromechanical installations and automation processes, AKTOR’s primary focus is on maintaining its advantage as a clear front-runner in developments in this field. The company is also becoming a dynamic force in terms of the provision of maintenance and operation services for electromechanical installations.

Electromechanical - Industrial Installations

Electromechanical Installations of Tunnels Control and Operation Room
Athens Ring Road (Attiki Odos)
Athens Ring Road is equipped with numerous E/M installations, lighting, irrigation, tunneling, traffic management systems, automated tolling systems, SCADA applications and a modern supervision and control system.

Electromechanical Installations of Kakia Skala Tunnels
Ministry for the Environment, Physical Planning & Public Works, Greece
E/M installations, traffic management systems, SCADA, supervision and control centre at the Kakia Skala tunnels.

Electromechanical Installations Control Centre for the Aktio - Preveza Submerged Tunnel
Ministry for the Environment, Physical Planning & Public Works, Greece
Design, procurement, installation of E/M systems, traffic management systems, SCADA, supervision and control centre at the underwater Aktio - Preveza sea tunnel. Access roads were also included.

Field Electrical and Instrumentation Works for the Existing ELEFSIS Refinery Upgrade Plant, Hellenic Petroleum, Greece
Extension and upgrade of the Electrical Installations (MV, LV) at the ELEFSIS Refinery in various existing and new Units. Calibration, Installation, Testing and Commissioning of all Field Instruments, cable ways, cabling and instrumentation piping of upgrading works.

Upgrading of Traffic Lights System & Creation of Traffic Control System, Ministry for the Environment, Physical Planning & Public Works, Greece
Design, procurement and installation of traffic supervision and automatic management systems for greater Athens.
C. Industrial Projects

AKTOR has been responsible for the implementation of Greece’s most significant and innovative projects to date in this field, such as Europe’s largest Combined Heat and Power Generation Station to be fuelled by landfill refuse gas and the nationally unique district heating project based on the production of thermal energy from biomass. The deregulation of the country’s power generation market has opened the door to private investments in power generation plants that utilize renewable forms of energy, which will not only help reduce the country’s reliance upon conventional raw material for power generation but also provide an important contribution towards protection of the environment.

AKTOR’s strategy envisages its participation in the construction of a series of power generation projects exploiting renewable energy sources alongside natural gas.

District Heating for the Area of Greater Amyntaion - Transfer Pipes, Greece

Construction of a transfer pipe from the district heating pump station of the Amyntaion steam power plant to the outskirts of Levea and Fitolis to provide heating for the population of these areas.

Thiisi Power Plant, Greece

The Construction Joint Venture “EDISON/AKTOR” has undertaken from the Group ELPEDEISON S.A. (EDISON, HELPE, ELLAKTOR) an E.P.C. Contract for the project “Thiisi Power Station, 420MW”, including Design, Detail Engineering, Procurement, Construction, Commissioning.

The project is a Gas Fired Combined Cycle Power Plant at Thiisi Viotia, Greece, including also a 400KV Substation and a double High Voltage Transmission Line. Turbines (GT/ST/GEN) are from ANSALDO, HRSG from NOOTER ERIKSEN, ACC from GEA and step-up Transformers from TAMINI. The two J/V’s Companies had established a common Management staff, for the realization of the Project, who organized, coordinated and followed up the Works, the Detailed Engineering, the Procurement Activities, the Subcontracts for the erection and the commissioning activities. Gas Turbine, Boiler and Steam Production, Main Trafo’s and H.V. Substation are already commissioned. The Power Plant began its commercial operation in August 2010.

Assembly of Power Generation Equipment

Combined Heat and Power Station from Landfill Gas, Ano Liossia, Athens

Development of a new Combined Heat and Power Station from Landfill Gas with 4.2 MW installed capacity, located in the Ano Liossia industrial area of Athens.

Hot Water Production Facility from Biomass District Heating Meegalopolis, Greece

Design and construction of the district heating network and the peak saving and back-up biomass-fired boiler facility with 2IMW capacity for the city of Megalopolis.

Power Generation Plants, District Heating
AKTOR’s wholly owned subsidiary BIOSAR Energy S.A is among the biggest EPC Contractors in the European solar market, currently active in Greece, Bulgaria and Italy and soon expanding its activities to other European countries and Middle East. BIOSAR offers turnkey solutions for the design, supply, construction and maintenance of medium & large-scale PV plants, as an EPC contractor. In figures: in Greece BIOSAR has 75MWp connected and 45 MWp under construction; in Italy BIOSAR has 25MWp connected and 59 MWp under construction; in Bulgaria BIOSAR has 4MWp connected, 17 MWp under construction and a further 85MWp plant has been contracted (in Bulgaria works are carried out by the Bulgarian Consortium BIOSAR Energy - AKTOR).
The demand for aggregates, concrete and asphalt mixes generated by new constructions and project maintenance alike, is increasing on a daily basis throughout the country, as well as the necessity for quality in the construction of private projects.

Having foreseen this development well in advance, AKTOR entered this area of supporting activity early on via its subsidiary HELLENIC QUARRIES S.A., dynamically penetrating the profitable market for aggregates and asphalt mixes as in many cases the productivity of its installations exceeds the company's and its subsidiaries' own immediate construction needs.

The company already owns and operates aggregates production facilities in the prefectures of Achaia, Ioannina, Larissa, Magnissia, Fthiotida and Veria, while is planning to open new ones in other key areas of Greece (Athens, Thessaloniki, Crete).
The continuously increasing demand in minerals and metals by rapidly developing countries such as China, India and Russia and the perspective of exploiting the metal-rich territory of Greece and the greater Balkans’ area led to AKTOR’s decision to enter the field of the mining industry. AKTOR has the know-how, human resources and equipment required for engaging in such activities.

Today, AKTOR holds 2.7% of the share capital of ELDORADO GOLD CORPORATION (ELD), a mining company listed in the stock exchanges of Toronto (TSX), New York (NYSE) and Australian (ASX), as well as 5% of the share capital of HELLAS GOLD S.A.

Within the scope of consolidating a strategic alliance with EUROPEAN GOLDFIELDS (EGU), it was agreed on June 5, 2007 to exchange 30% of HELLAS GOLD S.A. share capital (from a total of 35% held before) with 19.9% of EUROPEAN GOLDFIELDS (EGU) share capital. In October 2011 AKTOR sold 13,000,000 European Goldfields shares at 10 C$ per share (i.e. 7.07%) to Qatar Holding. Finally EGU agreed to proceed to a transaction with ELD (December 2011) and the transaction was approved by EGU’s and ELD’s Extraordinary General Meeting (21st February 2012).

HELLAS GOLD S.A.

In January 2004 HELAS GOLD S.A. made a contract with the Greek State with regard to the mining rights of “KASSANDRA MINES”. Since October 2005, HELAS GOLD holds the exploitation license of the “Mavres Petres” mine in the village of Stratoni (Chalkidiki). Using sulphide ores mined from “Mavres Petres”, marketable lead/silver and zinc concentrates are extracted at the ore enrichment plant of Stratoni. Moreover, in January 2006 HELAS GOLD S.A. submitted a fully-fledged business plan regarding exploitation of the Olympiada and Skouries mines as well as for the construction and operation of a gold metallurgical plant in the Stratoni area. In July 2011 the environmental permit was granted to Hellas Gold through a Joint Ministerial Decision, thus giving the green light for projects to start shortly after.

### Existing Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratoni</td>
<td>0.3 mt Lead + Zinc / 10 moz Silver</td>
</tr>
<tr>
<td>Olympias</td>
<td>4.1 moz Gold / 1.4 mt Lead + Zinc 59 moz Silver</td>
</tr>
<tr>
<td>Skouries</td>
<td>3.6 moz Gold / 0.7 mt Copper</td>
</tr>
</tbody>
</table>

### Next Generation of Projects

- **Piavitsa**: exploration programme confirms broader zones of mineralization with higher grade cores
- **Fisoka**: 3 porphyry targets with strong magnetic signatures
- **Tsikara**: 5 magnetic targets located approx. 5 km from Skouries

**Focused immediate drilling programme, totaling 35,400m**

- Drill testing at 3 targets in 2012 to define maiden resource
- Add additional reserves at Olympias
4. FACILITY MANAGEMENT
The complexity of modern projects, the time in which they must become operational and the growing trend for greater private participation in project production and management have led to new opportunities not only in the provision of services in the areas of project organization and management, but also in their maintenance and operation.

The maintenance and operation of large and complex projects may now be handled only by the most experienced and flexible of crews, offering a combination of state-of-the-art equipment and specialized staff. AKTOR’s long history of involvement in large-scale projects and the company’s insistence upon the continuous acquisition of experience and expertise mean that it is in a unique position to meet such stringent demands. Its executives are highly specialized in operations, its technical personnel thoroughly qualified in the latest of modern technologies and its equipment for project maintenance is absolute state-of-the-art.

The expansion of AKTOR’s activities in this area of services is a primary objective regarding future developments in the following fields:

- Industrial Units
- Natural Gas Installations
- Automation Installations
- Data Transmission Networks & Automation
- Tunnels & Roads
- Intensive Courses for Technical Personnel on Project Maintenance

AKTOR has entered into joint business ventures with public sector companies in the areas of highway and tunnel management, operation and maintenance (National Road Fund - T.E.O.) with the firm belief that this partnership will create better business opportunities for both parties.

4. Facility Management

- Hospitals
- Large Building Complexes
- Malls and Expo Centers
- Stadiums and athletic fields
- Airport Specialized Systems & Infrastructure
- Photovoltaic Parks and Tracking Systems

Hellenic Exchanges Group, Greece
Operation and maintenance of offices and data center infrastructure.

Maintenance of Electromechanical Installations, Athens Ring Road (Attiki Odos)
Maintenance of all E/M installations, toll systems, SCADA system and the data transfer networks for Attiki Odos.

Lamia General Hospital - Maintenance and Operation

National Bank of Greece
Full Maintenance of 73 buildings all over Greece. Maintenance of HVAC systems and elevators at 279 branches all over Greece.
5. PROJECT MANAGEMENT
5. Project Management

AKTOR’s integrated professional services, being vertically organized, offer a structured and controlled approach to construction project management, for the delivery of successful projects. AKTOR efficiently manages solutions during all stages of project development from inception to completion, from the planning and conceptual design to the detail design and construction stages, fulfilling cost, time and quality requirements. AKTOR’s project management approach allows to successfully complete important projects on-time, within budget and to the intended level of quality, minimizing at the same time risks by:

- Controlling the scope of work
- Avoiding delays
- Optimizing the use of project funds
- Time Scheduling
- Optimizing the project’s design.

The company’s comprehensive project management services during all stages, yield the greatest possible benefit to clients, by maximizing investment returns.

Renovation of the Athens Hilton
Project Management of the renovation works at the Hilton hotel in Athens. Total built-up area of 55,000m². Upgraded interior and exterior areas, addition of a brand new 74 room wing, new events, conference and exhibition halls, as well as four restaurants and two bars. The main aim of the project was to create more open areas with natural lighting, and the overall design concept being one of “plain elegance”.

Blue City, Oman
The Blue City (Al Madina A’ Zarqa) is the largest development in the Sultanate of Oman and one of the largest of its kind in the Middle East Area. It is situated in a coastal area of unique natural beauty, 90km west of the capital Muscat. The city will at ultimate stage, accommodate 200,000 inhabitants and occupy an area of 32km². It is envisaged to be constructed in 10 stages until 2020.
Phase I of Al Madina A’ Zarqa is a mixed use development which combines mainly residential and touristic elements of a total of 1,400,000m² of built-up area, spreading over an area of 2.2km².
It consists of the following elements: Three 5-star hotels of a total of 670 keys, 5,200 apartment units, 400 villas, 1 shopping centre, Public Amenity buildings; A City Hall, Nursery, a Primary School, a Mosque, a Police Station, a Fire Station and a Post Office. An 18-hole PGA golf course, associated Infrastructure including a road network of approximately 8km.
Phase I is designed as a contemporary interpretation of traditional Omani Architecture and is currently being built by AECO Development LLC (a 50% owned subsidiary of ELLAKTOR S.A.) as the Design and Build Contractor. This phase shall be developed until 2014.

Hellenic American Educational Foundation
Project Management of the overall renovation and modernization works at the “Benakio” Building of the Hellenic-American Educational Foundation (Athens College, Psychico College), with respect to the existing historical building’s structural shell. The works included: demolition works, reinforcement of the structural frame, construction of new walls and floors, construction of new windows and doors, elevations’ maintenance and restoration works, as well as new electromechanical installations. The project was completed in four constructional phases, from November 2008 until July 2010.

ALPHA BANK Headquarters, Athens
Project Management of the construction of a high specifications building at the city centre of Athens, which reflects both the dynamics of a modern company building and the classic austerity of a Bank. The building which is the Bank’s main branch, houses its entire administrative services. Its total surface is 9,000m² and consists of 8 levels.