

# CEGELEC WORLD

CEGELEC  
MAGAZINE  
No. 18 - WINTER 2009-2010

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Cegelec is a global integrated group providing technological services, with a workforce of 25,000 employees and offices in some thirty countries. Cegelec supports its customers at all stages of their projects, from design in its engineering offices to installation of equipment and infrastructures and their maintenance, leveraged by the skills of its own specialized teams.



90 DAYS

04

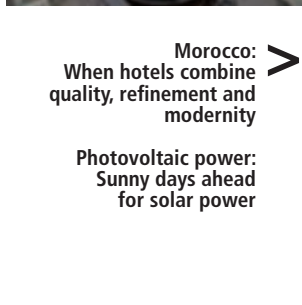
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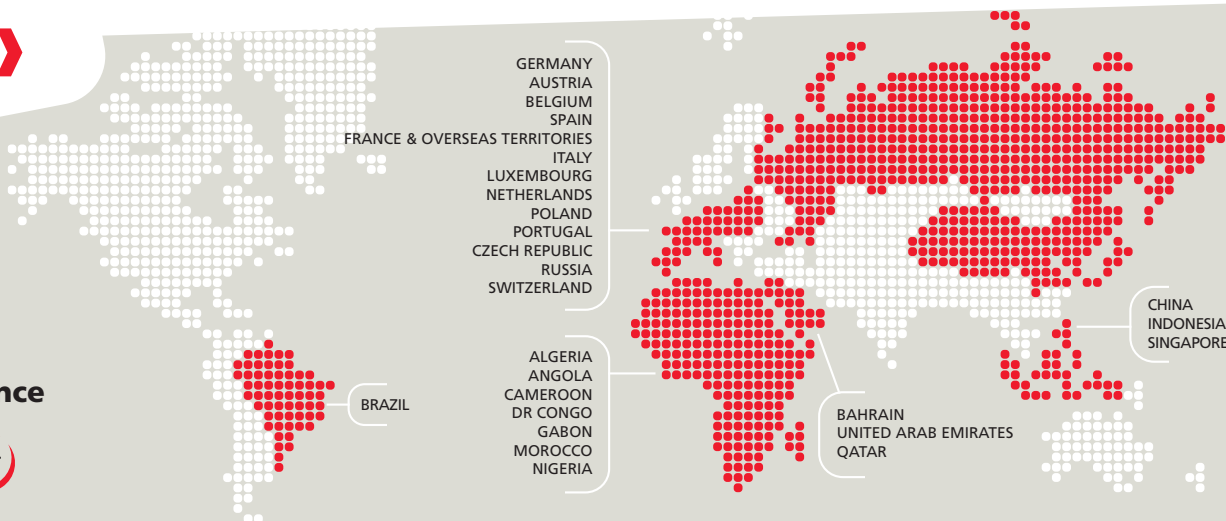
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## Locations >>

Step into a world of excellence



.....  
**Frédéric VAN HEEMS**, Chairman and CEO



## 2010 holds new and exciting outlooks for growth for Cegelec



**A**fter a year in which our business model generally weathered the global crisis well, 2010 holds new and exciting outlooks for growth for Cegelec.

Backed by an ingrained entrepreneurial culture and many years of recognised expertise, Cegelec has all the assets we need to renew our ambitions, whether in terms of service quality for our customers, or in terms of labour relations and with society at large. After my recent appointment as Chairman and CEO, I am firmly convinced and determined to continue in Claude Darmon's footsteps and make the Group a success by creating value for all.

With the change in governance, another major event occurred in September for the future of Cegelec: the announcement of a proposed strategic partnership between VINCI, world leader in concessions and construction, and Qatari Diar, our major shareholder.

Once the information / consultation of personnel representatives processes have ended, and subject to the approval of competent competition authorities, Qatari Diar will sell our Group to VINCI, making Cegelec a wholly-owned subsidiary of VINCI. The current trade names and organisations of Cegelec and VINCI Energies will remain the same.



For Cegelec, joining the VINCI Group is a major opportunity to accelerate our growth, whether in our local business, in our international presence, or in major projects and specialty business lines. It will allow us to meet current market trends better, in which business is becoming increasingly global and complex.

This new drive will be backed by Cegelec's fundamental values, which make us who we are, and what we do, and which our customers appreciate so much: our sense of service, the professional skills of our teams, our stringent business management, our close-to-the-customer approach, and the sense of commitment of our staff.

**QATAR**

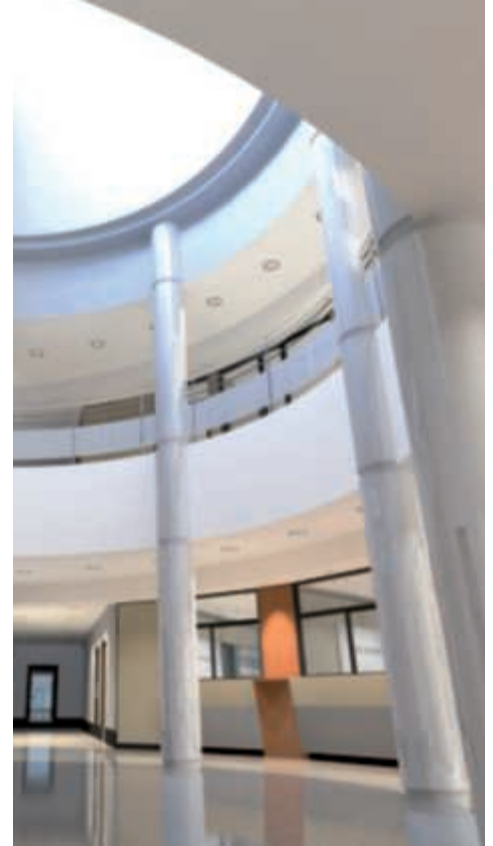
## Construction of a “blast-proof” control building for Qapco

Cegelec has won a turnkey contract (EPC) worth 30 million euros for the design and construction of a “blast-proof” control building for the QAPCO petrochemicals complex, one of the leading Middle East producers of ethylene and low-density polyethylene (LDPE). This building, for which Cegelec performed the preliminary design as part of a previous assignment, will form part of a new production unit located at Mesaieed, Qatar. Scheduled for completion by the end of 2011, the plant will have an annual output capacity of 300,000 tonnes of LDPE.

Under the new contract, awarded by Uhde, a ThyssenKrupp Technologies company, Cegelec will be responsible for all the building’s facilities and electrical infrastructures. The Group has also been entrusted with redeployment and upgrading of all the systems related to existing facilities, in particular the emergency shutdown system, the distributed monitoring systems, closed circuit television, fire and gas detection and extinguishing systems, and the public address and general alarm system.

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**GERMANY**

## The facade of the Bayer tower converted into a giant screen

Formerly the tallest office building in Germany (122 metres), the Bayer tower has set a new record by becoming the biggest giant screen in the world! Located in Leverkusen, the former head office of the industrial firm has undergone a luminous face-lift in less than three months managed by Cegelec, which was in charge of all the electrical engineering section, including lighting work. Among other possibilities, the giant screen, which has been fitted with 5.6 million LED lamps, can display the Group’s logo over a 40-metre diameter, and disseminate messages.

For this spectacular achievement, Cegelec took up a twofold challenge: work in a very short lapse of time and coordination of two project owners, Bayer and the company Ag4.

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**FRANCE**

## Maintenance on French naval tug boats in the roads of Toulon

The Fleet Support Department of the French Navy has awarded Cegelec a MRO contract (maintenance, repair and overhaul) of its fleet of tug boats and pusher tugs in the roads of Toulon (France), 18 boats in all.

The contract, which contains an availability clause, and runs until the end of 2013, covers maintenance engineering and, during technical shutdown periods, provision of the preventive and corrective services required for satisfactory operation of the fleet.

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DEMOCRATIC REPUBLIC OF THE CONGO

# The current between Inga and Kinshasa... is more positive

Capital of the Democratic Republic of the Congo with eight million inhabitants, Kinshasa is developing rapidly and has equally fast-expanding energy demands. For its electricity supply, the city depends on the output of the Inga hydroelectricity plant and virtually only one power line, which has suffered from a lack of maintenance, as well as erosion and landslides. As part of a project backed by the World Bank, Cegelec has been mandated by the Ministry of Finance of the Congo to upgrade the 220kV electric power line.

This large-scale project covers several types of operations: renovation of HV substations, with the supply and installation of power circuit-breakers, surge arresters, etc., renovation of the line itself, with the repair of 700 pylons, digging of 56km of trenches, performance of erosion control works, etc.

In addition, in order to perform the work in the shortest possible time and under optimum conditions, Cegelec set up a local assembly team, a tool yard, and a fleet of vehicles.

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FRANCE

## Renovation of a tunnel in Lyons

Cegelec has been awarded a contract for the renovation of the 1.8km long Croix-Rousse tunnel in Lyons (France), initially commissioned in 1952. The contract chiefly concerns the renovation of electrical, ventilation, signalling and monitoring and control equipment for the current two-way tunnel (two-lane dual-carriageway). It also concerns a second tunnel, drilled parallel to the first, which will be reserved for public transport and environmentally-friendly modes of travel (bicycles, pedestrians, etc.).

The new tunnel will be the first built over more than 1km specifically designed for this type of travel, with an interactive system allowing artists to project their works on the roof of the structure. Cegelec has in-depth knowledge of the infrastructure of the Croix-Rousse tunnel, for which the company was awarded a contract for repair and safety improvement work in 2005.

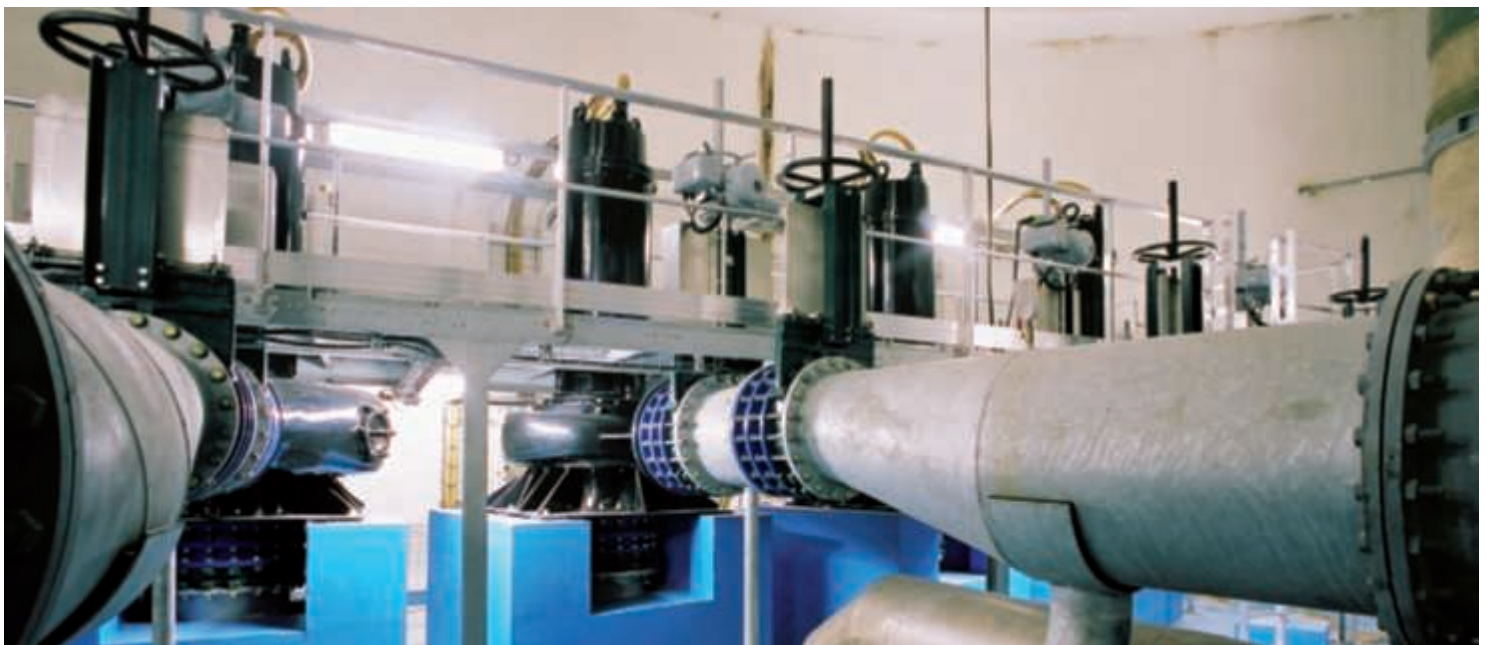
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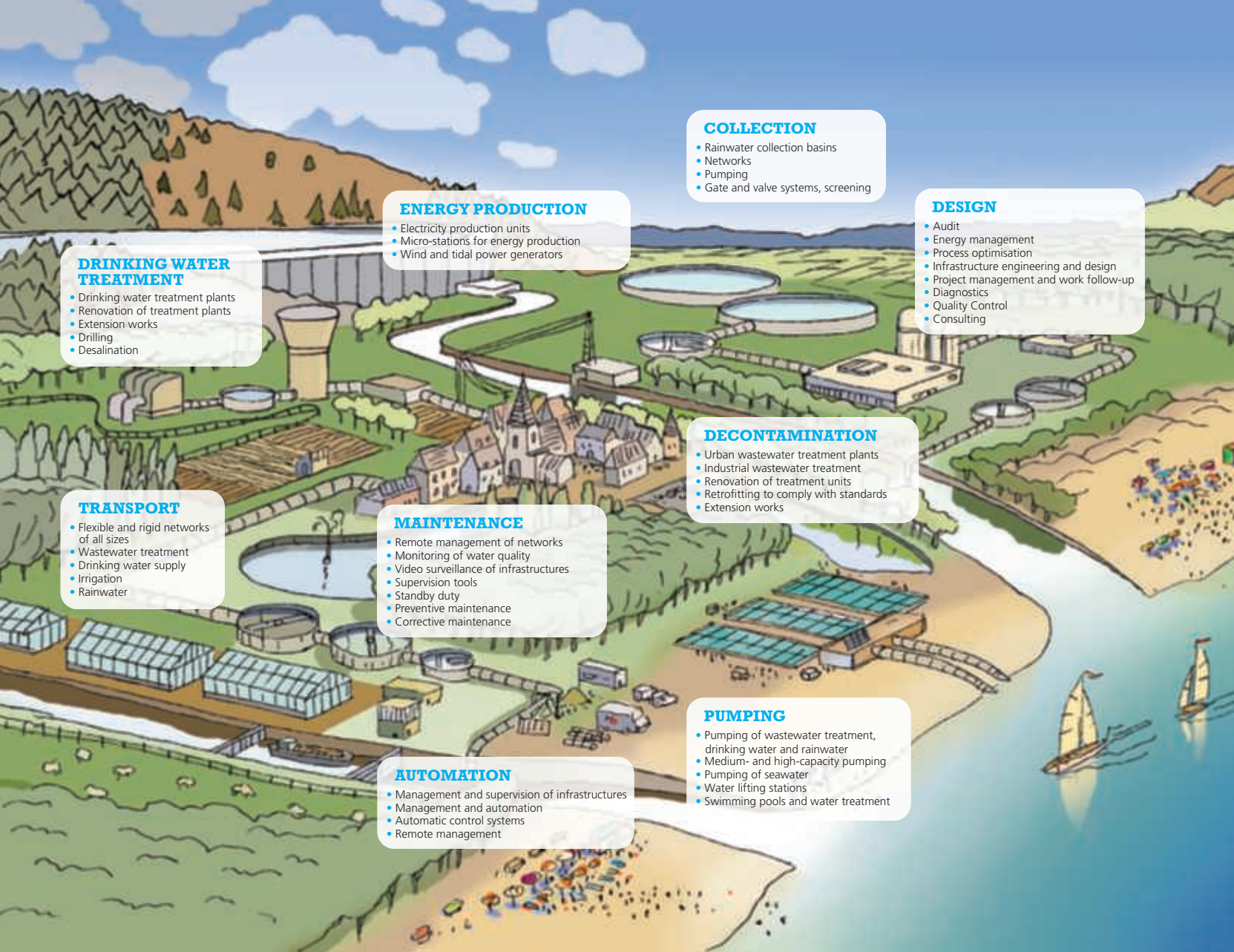
## WATER ENGINEERING

# COMPREHENSIVE EXPERTISE

The water cycle requires the kind of expertise that is thoroughly mastered by Cegelec, a company which has been working in the field for more than thirty years. The hydraulic infrastructures and technical equipment required involve specific technologies and special expertise for their design, implementation, and maintenance. Whether for one-off services or as turnkey project manager, Cegelec is involved in every area of the water cycle, from pumping stations to wastewater treatment plants, drinking water production plants and water supply facilities. The experience acquired is now also applied by Cegelec to special mobility projects in regions of the world where water needs are extremely acute.

Pumps of the Cormailles Well [Intermunicipal Wastewater Authority for Paris and its suburbs (SIAAP)]





### DRINKING WATER TREATMENT

- Drinking water treatment plants
- Renovation of treatment plants
- Extension works
- Drilling
- Desalination

### ENERGY PRODUCTION

- Electricity production units
- Micro-stations for energy production
- Wind and tidal power generators

### COLLECTION

- Rainwater collection basins
- Networks
- Pumping
- Gate and valve systems, screening

### DESIGN

- Audit
- Energy management
- Process optimisation
- Infrastructure engineering and design
- Project management and work follow-up
- Diagnostics
- Quality Control
- Consulting

### TRANSPORT

- Flexible and rigid networks of all sizes
- Wastewater treatment
- Drinking water supply
- Irrigation
- Rainwater

### MAINTENANCE

- Remote management of networks
- Monitoring of water quality
- Video surveillance of infrastructures
- Supervision tools
- Standby duty
- Preventive maintenance
- Corrective maintenance

### DECONTAMINATION

- Urban wastewater treatment plants
- Industrial wastewater treatment
- Renovation of treatment units
- Retrofitting to comply with standards
- Extension works

### AUTOMATION

- Management and supervision of infrastructures
- Management and automation
- Automatic control systems
- Remote management

### PUMPING

- Pumping of wastewater treatment, drinking water and rainwater
- Medium- and high-capacity pumping
- Pumping of seawater
- Water lifting stations
- Swimming pools and water treatment

Essential to life, water is indispensable for human activities. But resources are unevenly distributed in the world. There are many isolated needs, far from cities and watercourses. *“Armies in the field often operate in isolated theatres, far from any source of drinking water,”* says Claude Marcus, Defence Adviser for Cegelec. *“To provide men with this essential supply, they must have high-performance treatment solutions. Especially when the source is of poor quality – highly polluted – or completely unfit for consumption such as sludge or seawater.”*

This was the key challenge of the invitation to tender by the French army, won by the Group in 2008. This is an interesting example, because it reflects how Cegelec applies more than thirty years of expertise in the whole water cycle combined with its experience in the design of stand-

alone and mobile treatment plants, especially for the defence sector. The company acted as turnkey project manager to provide the most suitable and often innovative solutions for its client’s needs.

The original demand was for a system capable of producing 9,000 litres per day for a company of 300 men, plus the capacity to pack water in one-litre rations, the whole system being designed to fit into a small truck with its trailer. In parallel, Cegelec also designed a wastewater treatment system – for grey and black water – to provide the army with a complete solution for the water cycle, from consumption to the output of pure water.

Due for validation in the near future, the station can be extrapolated for other capacities and other applications.

The armies of several countries are interested in it, but also civil operators having to cover temporary needs, such as NGOs faced with wastewater treatment requirements, contractors in charge of works on networks, etc.

### PUMPING STATIONS: HIGH-VALUE-ADDED SERVICES

This project would never have been won without the day-to-day work of specialist teams on the entire water cycle within the Group’s various business units.

Starting with water collection and transfer. Cegelec’s skills in this field range from electro-mechanical engineering to industrial information systems and supervision, not to mention in-depth expertise in pumping per se.

■■■



« .....  
Where we stand out from our competitors is in associated research with high-value-added services

Marcel DERUE,  
Head of Sales Development  
for the Paris region



5600 PE wastewater treatment plant with solar drying in Brittany.

Ultraviolet treatment at the Méry-sur-Oise (near Paris) water plant (SEDIF).



■ ■ ■  
 The Paris basin (Ile-de-France region), the most densely populated area of France, is crossed by one major river (the Seine) and numerous smaller rivers, resulting in a wide range of activities in the water sector. For example, Cegelec works for the Intermunicipal Wastewater Authority for Paris and its suburbs (SIAAP), the Ile-de-France Water Board (SEDIF) and EAU DE PARIS, respectively in charge of drinking water distribution in the Paris region and in the capital itself.

Several major contracts have recently been won. In Choisy-le-Roi, the Group is renovating the booster pumps (those taking water from the Seine) for the drinking water production plant. In Neuilly-sur-Marne, Cegelec has been awarded, one after the other, contracts for two new electric lift pump sets (for transferring water to reservoirs and water towers), renovation of the two existing electric pump sets and for four electric pump sets, as part of the renovation of the booster unit. These various projects are carried out on occupied sites, and can last from twenty to twenty-four months.

*"Where we stand out from our competitors," specifies Marcel Derue, Head of Sales Development, based not far from Paris, "is in associated research with high-value-added services covering civil engineering, acoustic, vibration and hydraulics studies and functional analysis of all the equipment of a large pumping station."*

Another skill deployed by the company involves the renovation of pipelines, which requires special techniques depending on the materials and the pipe diameters involved. Techniques include inspection by camera, injection of an internal shell, and leading-edge trenchless tunnelling techniques that "push" the pipeline underground.

**WASTEWATER TREATMENT PLANTS: PROXIMITY, TECHNICAL EXPERTISE AND AVAILABILITY**

The turnkey construction of wastewater treatment plants is a longstanding area of expertise of Cegelec's centre of competence at Lannion in the Côtes-d'Armor region of France. Its target: small and medium capacities of 500 to 30,000 population equivalents.

Cegelec brings to bear its special assets in this area, including proximity, technical expertise and availability. *"We are positioned between the majors and the independent operators," explains Didier Evano, Development Director for Western France. "Our size makes Cegelec a reassuring company to work with: we listen to what local authorities want, and are appreciated for our dependability. Compared with our competitors, we are also the only company to offer turnkey project management capabilities, incorporating our own services with high technical added-*

« .....  
**We are positioned between the majors and the independent operators**

Didier EVANO, Development Director for Western France

» .....  
*value such as electromechanical engineering, industrial information systems, automatic control systems, etc., into the civil engineering work performed by a partner."*

Illustrations of this range from the construction in the Côtes-d'Armor region of the Louannec wastewater treatment plant, including a solar type sludge drying facility, to the Locquirec plant, which is currently being commissioned, with an innovative membrane filtration technique, the first of this type to be installed by Cegelec.

■ ■ ■

**ZOOM**

**A dam for Singapore**

The Marina Bay dam in Singapore, completed in 2008, has allowed the city to acquire a major water reserve. To meet this major challenge, a large-scale structure was required, which took three years to build. Cegelec supplied the electrical installations and fire protection systems as well as work on the ventilation system instrumentation and monitoring.





Wastewater treatment plant in Nouméa, New Caledonia

■ ■ ■ But the French teams also work in close cooperation with the Group's other business units in other regions of the world, including Morocco and New Caledonia: thanks to the synergies created between them, Cegelec has won the contract for the extension of the largest wastewater treatment plant in the territory, at Anse Vata, in Nouméa.

#### **ASSOCIATED ELECTRICAL WORKS: A BOOMING MARKET**

In the Benelux, where the Group's operations are far more recent, but equally promising, as explained by Patrick Jacobs, Deputy General Manager for the region: *"Cegelec was already well known as a contractor in the Benelux. But for the past five years, we have been expanding into water treatment, the scope of work covering engineering, electricity and instrumentation. This is a booming market, especially in small plants for industrial firms that treat their own effluents directly."*

Cegelec thus combines with specific water operations its broader skills in the fields of electricity and electromechanical engineering. Among the projects underway, the Group has been awarded a contract by Veolia Water Systems for major electricity, instrumentation and HVAC engineering works for two major wastewater treatment plants near The Hague: the Harnaschpolder and Houtrust plants.



Pumping station near Mechra Belksiri in Morocco.



Remote management results in optimisation of water and energy consumption but also a longer service life for the plant, because of the lower workload

Ahmed RAHMANI,  
Managing Director of Cegelec in Morocco.



Linked to one another, they can treat around 50 million litres of wastewater treatment per hour, serving half a million people and some 40,000 businesses.

Other projects performed by Cegelec in Europe include the modernisation of the largest Austrian wastewater treatment plant, in Vienna, set up without any interruption in operation, as part of a contract awarded by Simmering, and the installation of a SCADA system for a new facility located south of Warsaw, on behalf of Degrémont.

#### **REMOTE MANAGEMENT TO CONSUME BETTER AND LESS**

Saving water resources, which is the major priority in certain regions of the world, has led to new developments in distribution systems. This is the case in Morocco, where Cegelec performs operations covering the entire water cycle. The introduction of remote management of networks by a SCADA system completed an ambitious project initiated by King Hassan II in the early 1960s, involving the irrigation of one million hectares of agricultural land. Remote management is a decisive step forward, making it possible to consume more efficiently

Control station at the Choisy-le-Roi water plant (near Paris).



**Water and Cegelec also means...**  
Skills in hydroelectric power production infrastructure throughout the world, automation of locks in Germany, the setting-up of electromechanical port infrastructures...

and less, thereby saving precious water resources. "The process allows us to adjust consumption depending on the time of day, to match needs very closely", emphasizes Ahmed Rahmani, Managing Director of Cegelec in Morocco. "Remote management is coupled with automation of the facilities, motor-driven pumps that operate together or separately. It results in optimisation of water and energy consumption but also a longer service life for the equipment, because of the lower workload." The latest project in this field for the Cegelec teams includes the implementation of a remote management system for pumping and treatment plants to supply Nouakchott, the capital of Mau-

ritania, from the Senegal river. Completion is scheduled for 2010.

#### **WATER, A GLOBAL ISSUE**

Water is a global issue, on the humanitarian, ecological, economic and geopolitical levels, to which different answers must be given depending on the local context. Backed by its experience and skills, Cegelec is making a contribution to this issue.

In Ghana, only a few months ago, the Group achieved a fine performance in a project carried out to tight deadlines, in tropical temperatures, for the Belgian firm Denys. It concerned a complex comprising two stations 8km apart, one for pumping and the second for treatment, linked by high-voltage cables and by optical fibre. Cegelec, in charge of the electrical installation, successfully assembled components sourced in the Netherlands, Poland and France. A fine example of integration! ■

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#### **> Find**

all the Group's skills in the entire water cycle:

[www.cegelec.com/water](http://www.cegelec.com/water)

## Morocco

# When hotels combine quality, refinement and modernity

The hotel industry is booming in Morocco, and Cegelec is taking part in the dynamic market, with numerous tourist infrastructure development schemes. In this sector alone, more than 60 million euros worth of orders have been won by the Group's Moroccan subsidiary in the past two years.

Among the most frequent services: HVAC engineering, plumbing, heating, high and low currents, both for new buildings and for renovation works.

Some fifteen large-scale hotel complexes have been built or are undergoing construction, such as the Mazagan complex which involves five hundred rooms in El Jadida, or the first hotel for the Four Seasons chain to be set up in Morocco, in Marrakesh.

Another prestigious customer reference is the Mamounia luxury hotel in Marrakesh (see inset), which reopened in September after three years of work, in which Cegelec was awarded a contract to renovate the air conditioning, controlled mechanical ventilation (CMV) and smoke control systems. The complex comprises over two hundred rooms, suites and riads, four restaurants, a business centre, a spa, and two swimming pools, so the overall construction project was a complex one. The aim was to conserve the delicate harmony between traditional Moroccan architecture, the Arab-Andalusian style of the period and the refinement of the location, while incorporating the most recent technologies to meet very high quality and comfort requirements. ■

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Mazagan complex in El Jadida.



Lobby of La Mamounia in Marrakesh.

## Three years of renovation work on the Mamounia luxury hotel in Marrakesh

"We wanted to offer visitors to the Mamounia a magical experience appealing to all five senses," explains a hotel manager in charge of this major project", but customers increasingly want high technology."

La Mamounia has therefore sought to combine elegance and sophistication with the latest multimedia equipment. "The solutions provided by Cegelec were right on line with the project," notes the manager, adding "Cegelec is a group that fully corresponds to the expectations of our customers, so our viewpoint is highly positive".

The delegated contractor management for the renovation project was entrusted to Primarios, and all the teams wanted to make it a resounding success.

La Mamounia now has a partnership approach with Cegelec and is currently finalising a maintenance contract covering all the facilities and equipment that the group has supplied and installed.

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Cegelec at work at the Aimé Giral stadium in Perpignan (France).

## Photovoltaic power Sunny days ahead for solar power

France currently has the most attractive financial environment in the world (see interview with the Secretary General of the INES, page 16) for the large-scale development of photovoltaic power production, as well as in other countries such as Japan, Germany, Spain and Italy. Cegelec's expertise in electricity, its capability for selecting equipment and global outsourcing make it a top-level partner.

The first unit of the photovoltaic power plant for Saint-Charles market, in Perpignan, the leading fruit and vegetables retail centre in Europe, was connected to the electricity distribution grid at the end of October. It is the largest integrated roof-mounted photovoltaic power system in the world to date, for which part of the electrical infrastructure development work was entrusted to Cegelec. By 2012, the roofs of the warehouses will support 68,000m<sup>2</sup> of generators (95,000 photovoltaic roof tiles in all) for an installed

capacity of 9MWp\*, i.e. equivalent to approximately 10% of the city's power consumption.

### MAKING ROOFS PROFITABLE

The scheme is a major customer reference for the Group, in which the design and installation of the electrical part of the infrastructures are perfectly consistent with its core business. Luc Normand, Cegelec Sales and Development Manager for southwest France, underlines that "for local authorities and businesses, farmers



and the mass retail trade, roof power – as well as that produced by the covers of sheds and shelters, for example – represents a new and important source of income thanks to the subsidies introduced by central government."

France has introduced an extremely favourable financial aid system for the incorporation of power generation systems on roofs, with a target capacity of 5,400MWp set for 2020: only 300MWp had been installed by June 2009.

...



■ ■ ■

As a further example, in Brittany, Cegelec developed an offer for farmers resulting in 30,000 m<sup>2</sup> of photovoltaic panels to be installed by the end of 2009.

Cegelec's skills in electricity is very useful here, and is even essential in order to optimise energy efficiency: the output of two similar facilities can vary enormously depending on the quality of design engineering and the work performed, in particular to minimise power losses, which are a significant factor in this type of installation.

**“TURNKEY”  
PHOTOVOLTAIC POWER**

Cegelec's offer can go much further and take the form of a veritable “turnkey project”, with full responsibility for an installation from beginning to end. This therefore includes feasibility studies, administrative formalities, aid with financing and, of course, design of the complete photo-

**Olivier Tissier,**  
Chief Technology Officer, Cegelec group

**> Outlooks for high growth**

“The increase in equipment production capacity, industrialisation of the installation processes – where Cegelec has a trump card to play – and the innovations that are bound to appear will result in a reduction in the cost per Wp installed. Combined with an increase in the price of conventional energy due to rising fuel costs, this will result in equal production costs per kWh forecast for 2020 in France, and as early as 2015 in Italy.” The consequence: increasingly strong growth for this method of electric power production.



voltaic power system, selection of suppliers and implementation. Not to mention maintenance for the entire system if required.

In addition to its traditional skills as an electrical contractor, the Group has other trump cards: its capability for global outsourcing, benefiting from the effect of volume purchasing, but also its specialist teams and technology watch services allowing it to select the best equipment from the viewpoint of technical and economic performance.

An expert partner and a well established company, thanks to its extremely dense network of branch offices and work centres, Cegelec is especially well positioned to take on the challenge of photovoltaic power in France. It is also a reassuring partner, thanks to its organisation dedicated to solar power, which allows us to deploy a homogeneous offer throughout France, with qualified correspondents in each of our branch offices.

**POWER PLANTS**

A long-standing market player in conventional power plants, Cegelec is positioning itself in still another market niche, photovoltaic farms.

The option of terrestrial power systems is of special interest to landowners, whether they be local authorities, industrial firms or private individuals, wanting to create new sources of revenue in to regions that are exploited little or not at all. In this case Cegelec acts as in an Engineering, Procurement, Construction (EPC)



## Bordeaux exhibition centre,

The car park of the Bordeaux exhibition centre (20ha, or the equivalent of 27 football grounds!) will be covered, before the end of 2010, with 92,000m<sup>2</sup> of solar panels producing 12 MWp of power. Financed by EDF Énergies Nouvelles, this major project, unprecedented in France, has been initiated by the semi-public company in charge of equipment maintenance for the city's exhibition centre, SBEPEC. Performance of electrical work will be awarded to the business unit in charge of major projects at the Cegelec Sud-Ouest subsidiary.

contract, taking charge of the development with an investor (or as a co-investor) as well as the design, installation and operation of projects subject to stringent regulatory, environmental, technical and landscaping requirements. Constraints very similar to those that the Group has already faced in the development of wind-power farms, an area in which it has been one of the leaders in France and in other regions of the world for more than ten years, and in which it is now transferring its experience to photovoltaic power. A dozen large-scale projects are currently being developed in France. In the Gers region, at Miradoux, a building permit has been obtained for a solar power plant with a capacity of 8MWp which is destined to become one of the biggest in France. In the Landes region, where the forests were devastated by a storm in January 2009, the establishment of a power plant will be used to finance reforestation operations. In the Charente-Maritime region, Cegelec is examining the reuse of former military land for photovoltaic and wind power.

As explains Alain Viard, in charge of photovoltaic farm projects for Cegelec in France, "our approach complies with an essential concern for rural areas: conserving arable land and helping farmers in fi-

.....  
*nancial straits to continue work, thanks to supplementary income; 30,000ha of farmland are taken out of production in France each year".*

Cegelec supports local authorities materialise their commitments in terms of sustainable development by exploiting unused land areas. Terrestrial power farms can thereby contribute to the reclamation of industrial waste land, unoccupied mixed development zones, and quarries at the end of their service life.

### PHOTOVOLTAIC POWER WITHOUT BOUNDARIES

Present in the four corners of the world, Cegelec has numerous opportunities: in the French overseas territories ("DOM-TOM") and for EPC power plant projects in French Guiana, where the company has a solid customer base, but also beyond the boundaries of France.

"Within the European Union, each country has its own policy of incentives," explains Xavier Duclos, Sales Manager in charge of international projects. *Applying the experience acquired in renewable energies, the Group adapts to each local context, targeting markets that have not yet reached maturity but which benefit from at-*

« .....  
 ... Applying the experience acquired in renewable energies, the Group adapts to each local context ...  
 »

Xavier DUCLOS, Sales Manager in charge of international projects in renewable energies.

tractive pricing and purchasing guarantee systems, such as in the Czech Republic, Greece and Macedonia, for example."

Another promising development is the "Mediterranean Solar Energy Plan", one of the flagship projects of the Union for the Mediterranean. Of the projects presented by Member states, ten will be selected to benefit from major financial support for implementation. Against this background, Cegelec is investing in partnerships with manufacturers and developers. ■

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 \* **Wp**: watt-peak, a unit of measurement representing the maximum electric power delivered by a photovoltaic power system for a standard insolation of 1,000W/m<sup>2</sup> at 25°C. It can also be expressed as Wc (from the French "Watt-crête"). The main use of this unit is for comparing the efficiency and price of photovoltaic materials.

# A market boosted by technological and regulatory change

Solar power is destined for a fine future. This is illustrated in particular by the initiatives and references described in our section "Successes". The reasons for this development? A combination of political determination and technical progress. Vincent Jacques le Seigneur, Secretary General of the French organisation INES (National Institute for Solar Power) explains the details.



« Vincent Jacques le Seigneur, Secretary General of the INES »

> **What are the current prospects for solar power in France?**

**V.J.S.** Although France was previously conspicuous for its absence from the boom in photovoltaic power in recent years, the increase in the purchase price paid by the government, the granting of a tax credit and interest-free loans have created the most attractive financial environment in the world. The regulations and legislation are also changing very quickly. We are therefore arriving in a very promising market, in which the technology has made great progress and is less expensive. France looks like it will become a major European market, after Germany of course, which is the undisputed leader in the field, or even Spain, which seems to be at a standstill.

**The INES (National Institute of Solar Power)** was set up in 2006 on the initiative of local authorities in France (in the Savoie and Rhône-Alpes regions) with the major French public research centres (CEA, CNRS, universities), to promote the development of the solar power sector.

It is organised into two sectors – Research & Innovation, Training & Evaluation – and numerous companies are clustered around it. In line with the wish expressed by the President of the Republic on 9 June last, by 2013 the INES should become one of the three major centres in the world in this field.

> **What could be the position of photovoltaic power within the energy mix?**

**V.J.S.** Renewable energies force us to step outside the single-minded approach to power, and to simultaneously consider several sources of energy promoted by various players which may be consumers and producers in turn. Photovoltaic power is an intermittent energy which cannot be an answer to every application but which can act as a supplement for heating and lighting or to power economic activities such as office systems, air conditioning, etc. Another special feature: the base energy is not only abundant but, unlike wind power, is also extremely homogeneous throughout the country. A third benefit is that it is a local energy source. In the near future, when consumers will be to produce and use their own electricity, this will make it possible to limit transmission losses and maintenance costs while making consumers more responsible.

> **What are the advantages that could contribute to the development of photovoltaic power?**

**V.J.S.** As I was saying, the technology is changing significantly, with an increase in the efficiency of the cells and systems and reductions in costs at the same time. All the major nations are committed to a race for innovation because they are aware that this is a colossal source of value. To meet this twofold challenge, the support of the public

sector is essential to ensure the development of a genuine industry.

Another obstacle to be removed concerns connection times, which are still too long. That being said, photovoltaic power has everything it needs to appeal to investors. A solar panel is guaranteed for 20, and sometimes 25 years. Even if eight or ten years are needed to recoup the cost, the rest is pure profit. There is much talk of photovoltaic power for private individuals, but it is also a source of additional income which can be very interesting for businesses, farms, etc. Solar power is intermittent and it is especially abundant when it is not needed, in summer.

Tomorrow, the development of storage could therefore change matters considerably, which is why the simplest and most profitable approach at present is to sell it back to the network operator.

> **In terms of applications, can this power have other applications?**

**V.J.S.** Yes, a power supply for electric vehicles, which can be entirely sourced from solar power. Together with buildings, solar mobility is one of the major challenges and hence one of our R&D priorities at the INES. It is a very interesting path for companies that have their own fleets of vehicles, for example, and which could therefore produce the power they need themselves. ■

Indonesia

# Business assets in a buoyant market

Twenty-five years in Indonesia makes Cegelec a long-standing partner in success via its subsidiary Indokomas, with new projects under way.



Tunu gas field platform contract awarded to Cegelec by Total.

Cegelec's incumbent market, the oil industry, represents 70% of its business in Indonesia, the remaining 30% being divided between energy and telecommunications. Boosted by the dynamic business context in the country, and backed by expertise recognised by its customers, Cegelec's ambitions for growth in the country focus on three main areas.

• **In the oil industry**, the aim is to continue to provide support for its customers and, at the same time, expand alongside new operators in the areas of maintenance as well as electricity and instrumentation.

Cegelec also wants to position itself in a market with very high potential, the gas market.

One of the major projects underway concerns

two production platforms and two liquefaction trains (liquid natural gas) at Tangguh. Cegelec provides electricity and instrumentation maintenance services for the project, employing more than 110 workers on the site.

• **In the energy sector**, Cegelec is reviving its transmission and distribution business, in order to expand its portfolio of private and industrial customers for 150 kV substations. The company is also asserting its presence in the niche market for small turnkey hydroelectric power plants (less than 10MW), as attested by the Ampel Gadding project, delivery of which is scheduled for early 2010.

A market in which it has decisive assets including controlled costs, skills transfer performed based on the standards of an international group, and

the capability to choose the best equipment at competitive prices.

In another sector, geothermal power, Indonesia offers some of the best potential in the world. With an already strong presence in renewable energies, Cegelec wants to enter the niche market for schemes ranging between 10 and 100 MW, chiefly via Balance of Plant Electric (BOPE) services.

• **In the mining sector**, because the extraordinary wealth of the Indonesian subsoil represents a real source of growth. Major projects are in the pipeline for Cegelec in coal, nickel and gold mines, in which the power supply to operate them will have to be provided (removal conveyors, automatic machinery control systems, etc.).

## TECHNICAL EXPERTISE AND SKILLS

In a quarter of a century, Cegelec has managed to build, preserve and strengthen its positioning. The Group has demonstrated its ability to locally assimilate expertise in power distribution, automatic control systems, etc. at optimum costs using the best possible solutions.

■ ■ ■

## Cegelec in Indonesia

130 permanent employees

450 interim employees

Turnover in 2008: \$50 million



ZOOM

## A dynamic economy

In the Southeast Asia region, Indonesia posts one of the strongest growth records since 2001. Long closed to foreign investors, it opened up internationally from the 1970s, at the instigation of President Soeharto, and experienced strong economic growth, halted by the Asian financial crisis of 1997. Following the fall of Soeharto, in 1998, the country's institutions were reformed to adopt a more democratic mode of operation.

A politically stable country, the Indonesian economy is stimulated by buoyant business activities such as oil and mining. Driven by domestic demand, its economy has not suffered excessively from the global crisis and currently posts an annual growth rate of 4% to 5%. Indonesia therefore unites all the conditions to attract numerous foreign firms. The experts now consider it to be capable of joining the group of high-growth countries nicknamed BRIC (Brazil, Russia, India and China), in which it would become the second "T"...

### Key figures for the country

**240 million**

inhabitants (4th in the world in terms of population)

**No. 1**

producer of palm oil in the world

**No. 2**

exporter of liquid natural gas in the world

**No. 2**

tin producer

**No. 4**

nickel producer

**No. 7**

gold producer

...

At present the leading foreign electrical contractor in the country, Cegelec employs only Indonesians trained in its methods, with a constant demand for empowerment. Its customers therefore benefit from the two facets of a company with local roots, which offers the guarantees and security of an international group.

Thanks to dynamic growth, Cegelec doubled its turnover between 2004 and 2008. Its ambition on the 2012 horizon is to repeat this performance. Its major assets for success remain more than ever its technical expertise and its skills, a solid foundation for a future that looks highly promising. ■

Cegelec in a maintenance contract for BP's LNG plant in Tangguh.





**FRÉDÉRIC VAN HEEMS**

**CEGELEC GROUP CHAIRMAN AND CEO**

Frédéric Van Heems (HEC, 45) has managed complex operations in international environments, particularly in the fields of distribution and energy. He joined the French newspaper Le Figaro in 1986 and became one of its senior managers in 1990. He moved to the Lagardere Group in 1994 where he was Chairman and CEO successively for Lapker in Hungary and Zendis in France. In 2002, he joined the Areva

Group to become, one year later, Director of the "Georges Besse II" programme, a 3 billion euros investment in a new uranium enrichment plant. Since 2005, based in the US, he was President and CEO of Canberra, worldwide leader in radioactivity measurement systems and solutions.



**BERNARD LEMOINE**

**CHIEF OPERATING OFFICER**

Bernard Lemoine (École Polytechnique and École Normale Supérieure des Télécommunications, 50) joined Alstom in 1983, and in 1999 became Managing Director of the Steam Plants (6,200 employees, turnover of 3.2 billion euros) of ABB Alstom Power. In 2003, he joined Cegelec as Managing Director of Cegelec Europe/ Infrastructure Business before being appointed in 2006

Business President of Global Systems & Services, the Group's division in charge of major projects in the Energy, Oil & Gas, Infrastructure, Transport, Space and Defence sectors.



**PHILIPPE GASTINEAU,**

**President of Cegelec in Qatar**

After being Vice-President of the International Department and the Oil & Gas Division of the Cegelec Group, Philippe Gastineau took charge of the industrial and robotics maintenance, and non-destructive testing activities.

Last July, he was appointed President of Cegelec in Qatar.



**FRANÇOIS LHOUTELLIER,**

**Managing Director of Cegelec in Brazil**

François Lhoutellier, engineer, began his career with Bouygues Construction. After joining Cegelec in 2002 as Director of Commercial Development in France, he was appointed Manager of TSA and the Group's Swiss subsidiary before taking over the management of Cegelec Brazil in August.



**STÉPHANE BRONDINO,**

**Managing Director of Cegelec in Switzerland**

A civil engineer in mining, Stéphane Brondino began his career at Cegelec Paris in 1986. After a 23-year career in six different countries, he has taken over the management of Cegelec's Swiss subsidiary and TSA Telecom this summer.



**ALVARO SESEÑA,**

**Managing Director of Cegelec in Spain**

An electrical engineer, Alvaro Seseña began his career with Grupo Dragados Industrial before joining Cegelec in 2004, as Sales and Development Director of the Spanish subsidiary, becoming its Managing Director this summer.



It is also thanks to **Cegelec**, that the legend of La Mamounia will live on...

**9**  
refrigerating units

**78**  
air treatment plants

**500**  
air treatment units

**140**  
fans

**40**  
pumps

**Several dozen**  
kilometres of piping

over  
**150**  
tonnes of ducting

After three years of major renovation works, the leading luxury hotel in Morocco reopened its doors last September. In charge of air conditioning, ventilation (CMV) and smoke control for its 209 rooms, suites and riads, its restaurants and bars, its swimming pools, the 190 Cegelec employees united their skills and their technical expertise to realise this vast project, respecting Moroccan architectural tradition, the Arab-Andalusian style of the period and the refinement of the location. With customers such as Churchill, De Gaulle, Piaf and so many others, the legend of La Mamounia will live on...