

Carlo Gavazzi Impianti
Engineering and Contracting

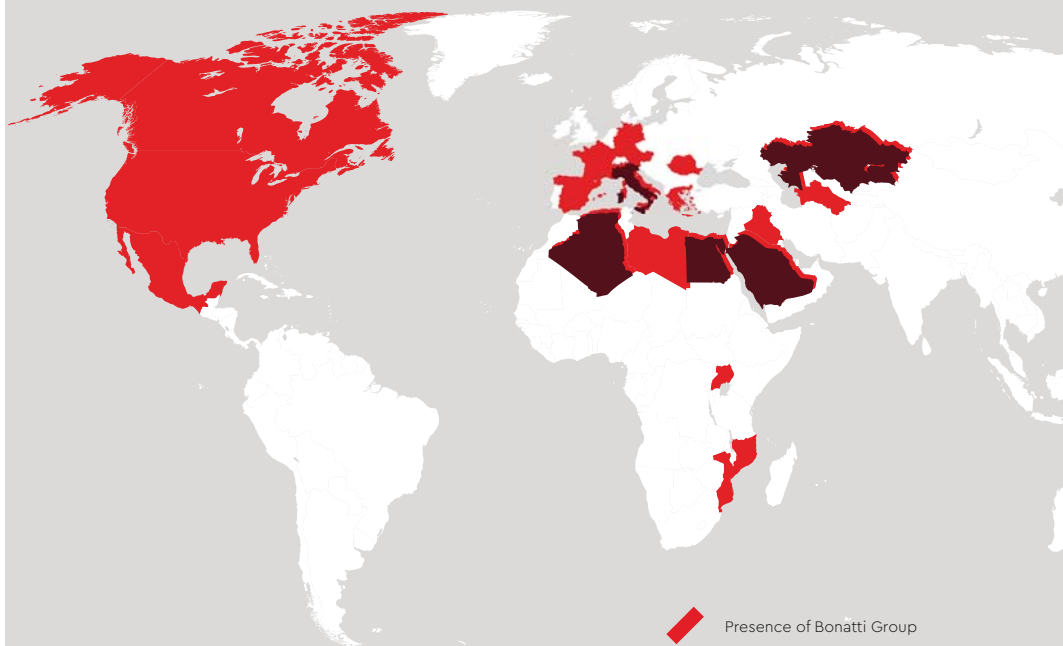
Carlo Gavazzi Impianti, a company of Bonatti Group, is an International EPC Contractor in power, electrical, instrumentation, control and MEP projects.

Our mission, unchanged in the last 80 years of challenging projects, is to meet clients and partners full satisfaction, providing the utmost technology available in the market, complying with the stringent requirements for quality, safety and environmental impact.



Paolo Ghirelli
Chairman & CEO
Bonatti Group

Bonatti Group: a snapshot



ALGERIA, AUSTRIA, CANADA, EGYPT, FRANCE, GERMANY, GREECE, IRAQ, ITALY, KAZAKHSTAN, LIBYA, MEXICO, MOZAMBIQUE, ROMANIA, SAUDI ARABIA, SPAIN, TURKMENISTAN, UGANDA AND USA.

7,000

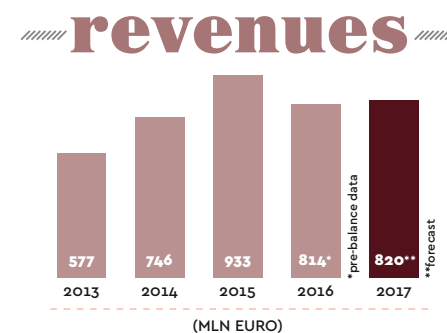
**EMPLOYEES
WORLDWIDE**

4

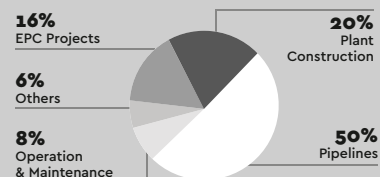
continents

19 COUNTRIES

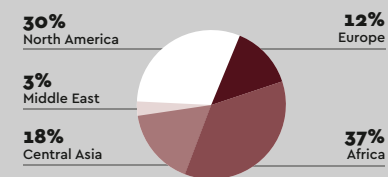
70 years in Oil & Gas



revenues 2016 BY ACTIVITY



revenues 2016 BY GEOGRAPHIC AREA



QHSE

QHSE principles are essential when acting within a competitive market, and must be supported by an effective Quality, Health, Safety and Environment management system. We are committed to ensuring all our staff fully understands and applies these fundamental procedures.

Q / Our primary aim is to satisfy our clients' needs, in order to meet their expectations with high levels of efficiency throughout the project lifecycle. Our goal is to achieve constant performance improvement in accordance with the current state-of-the-art requirements of the ISO 9000 regulations.

HSE / Our mandatory goal is to execute projects to a high HSE standard. Continuous training ensures staff remains up-to-date with the latest HSE standards and regulations. Our HSE culture is communicated top-down, from top management to workers on site.

Our HSE Policy states:

ALL BONATTI EMPLOYEES AND THE EMPLOYEES OF OUR SUBCONTRACTORS ARE ENTITLED, AND INDEED HAVE THE RESPONSIBILITY TO REFUSE TO PERFORM WORK IF THEY FEEL THAT SUCH WORK IS UNSAFE OR POTENTIALLY HAZARDOUS.



& CERTIFICATIONS

SOA certificate n°10675/05/00 issued by SOA RINA*

category	classification	amount €	description
OG1	VII	15.494.000	Civil and industrial construction works
OG9	VIII	Unlimited	Power plants
OG10	VIII	Unlimited	Substation and HV/MV transmission and distribution systems
OG11	VI	10.329.000	Technological systems
OS9	V	5.165.000,00	Traffic signalling systems
OS16	VI	10.329.000	BOP for power plants
OS19	VI	10.329.000	Telecommunication systems
OS22	VIII	Unlimited	Water purification and treatment plants
OS27	III	1.033,00	Electrical traction systems
OS28	V	5.165.000	Thermic and air conditioning plants
OS30	VIII	Unlimited	LV distribution systems: telephone, radio and television systems

* Updates available on www.carlogavazzi.it

Milestones of success

1931

- On 10th December Carlo Gavazzi registers the individual proprietorship in Milan.

1957

- Carlo Gavazzi, active in the instrumentation business since 1931, incorporates Carlo Gavazzi Impianti as a joint-stock company.

1964

- Carlo Gavazzi's first large scale manufacturing plant is opened in Marcallo. Carlo Gavazzi acquires Reactor Controls (San Francisco USA).

1980

- Carlo Gavazzi reaches world leadership in control-rod-drive hydraulic system for boiling water reactors.

1980/1984

- Carlo Gavazzi Arabia is established in Jeddah.

1980's

- Carlo Gavazzi Impianti SpA extends its activities to the electrical systems, starting from the low and medium voltage and then, at the end of '80s up to the high voltage substations; in the meantime it becomes, through the fully owned company Carlo Gavazzi System, the Italian leader of the industrial automation.

1996

- Carlo Gavazzi Impianti SpA, focuses on biomass fuelled power plants.

1997

- Carlo Gavazzi Egypt is established in Cairo, Egypt.

1998

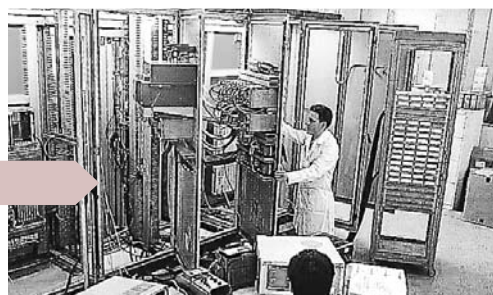
- The company extends its activities to the civil and infrastructural market, starting from electrical and low current systems soon joined by mechanical (HVAC) systems.

2006

- Bonatti SpA takes over Carlo Gavazzi Impianti SpA and its affiliates.

2013

- Carlo Gavazzi Impianti Algeria is established in Alger.



Company overview

SECTORS OF ACTIVITY

POWER

POWER GENERATION AND DISTRIBUTION



INFRASTRUCTURE & TRANSPORT

AIRPORTS, METRO, RAILWAYS, HOTELS, HOSPITALS,
HIGH-TECH BUILDINGS



OIL & GAS

UPSTREAM, MIDSTREAM, DOWNSTREAM



INDUSTRY

CHEMICAL AND PETROLCHEMICAL COMPLEX, STEEL
MILL, CEMENT FACTORY



SKILLS

COMPANY'S STRENGTHS:

- IN-DEPT "PROJECT ALLIANCE" STRATEGY
- MANUFACTURER INDEPENDENT APPROACH
- MULTI-DISCIPLINE COMPETENCIES FLEXIBILITY TO INDUSTRY STANDARD
- EXTENSIVE EXPERIENCE IN BROWN FIELD , REVAMPING AND REVERSE ENGINEERING

POWER TRANSMISSION AND DISTRIBUTION (HIGH VOLTAGE SUBSTATION, MEDIUM AND LOW VOLTAGE SYSTEM)

THAT HAS MADE IT POSSIBLE TO
GROW IN TURN-KEY HI-TECH
COMPLEX PROJECT AS:

POWER

POWER PLANTS (> 75 MW)

ELECTRICAL

LV-MV-HV Substation &
Distribution (> 420 KV)

INSTRUMENTATION & CONTROL

Main Automation Contractor
(MAC > 100.000 I/Os)

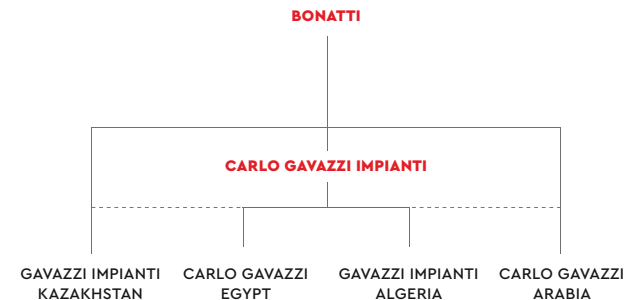
MEP

HospitalS, Hotels, Transport,
Infrastructure (>300.000 sqm)

POWER GENERATION (CONVENTIONAL, OPEN CYCLE, COGENERATION, BIOMASS-FUELLED, RENEWABLE)

E&I&C SYSTEM (AUTOMATION, INDUSTRIAL TELECOMMUNICATION, MAIN AUTOMATION CONTRACTOR)

MEP SYSTEM (MECHANICAL, HVAC, ELECTRICAL, LOW CURRENT SYSTEM, FIRE FIGHTING, MEDICAL, PLUMBING)



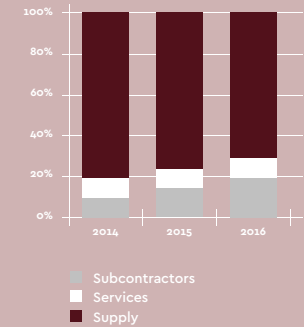
Key capabilities

CARLO GAVAZZI IMPIANTI STRENGTH IS DUE TO ITS LONG STANDING PROJECT MANAGEMENT CULTURE WITH THE APPLICATION OF INNOVATIVE TOOLS, POWERED BY ITS TALENTED ENGINEERING, PROCUREMENT AND CONSTRUCTION DEPARTMENTS.

Procurement

PROCUREMENT COVERS THE ENTIRE CYCLE FROM RFQ UP TO DELIVERY AT SITE OF MATERIALS & EQUIPMENT. WE ISSUE MORE THAN 1000 PURCHASE ORDERS PER YEAR

PROCUREMENT BREAKDOWN		
	in Number	in Value
Complex Item	9%	70%
Equipment	32%	25%
Bulk Materials	59%	5%
Total	468	11M€



APPROVED VENDORS

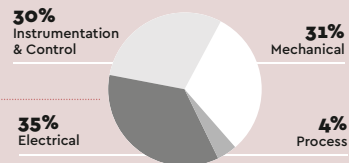
Ready 1100
Annually Used 204

Engineering

ENGINEERING WITH SKILLS IN THE MECHANICAL / ELECTRICAL / INSTRUMENTAL FIELDS WITH A WORK FORCE OF MORE THAN 100.000 MAN/HOUR PER YEAR

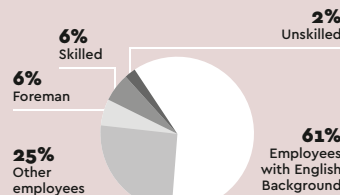
ENGINEERING QUALIFICATION

ENGINEERING DEPARTMENT
100.000 IN-HOUSE MANHOUR/YR



PERMANENT STAFF 125

10 APPROVED OUTSOURCE ENGINEERING COMPANIES 120.000 MANHOUR/YR



COMPANY
MANPOWER
QUALIFICATION

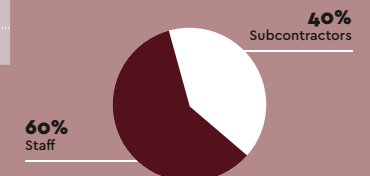
Construction

ERECTION WORKS WITH A CAPACITY UP TO 500.000 MAN/HOURS PER YEAR AND THROUGH THE SISTER COMPANIES UP TO 5.000.000 MAN/HOURS PER YEAR

CONSTRUCTION MANPOWER		
	in Number	in Hour
Staff	100	180.000
Sub Contractors	150	285.000
Total	250	465.000
Sister Companies	>2.000	4.500.000

RECRUITMENT PORTFOLIO

CVs' Database 1.200
Approved Subcontractors 70
Subcontr. Annually Used > 30%



Main projects



MEP



ITALY

NEW FAIR MILANO

**THE CLIENT: NEW PERO - RHO FAIR POLE
SCARL (MILANO)**

**Scope of work: EPC & commissioning of the
electrical and control systems at the Milan Fair
- Completion 26 months.**

Performance

project includes the supply of the auxiliary
systems:

- Lighting plants
- Motive power
- Fire detection
- Sound scattering
- TVCC
- Earthing

and a truly massive installation:

- gross paved surface of 530,000 sqm
- overall surface of 2,000,000 sqm
- 640 distribution switchboards
- 80 UPS
- 2,700 km cables
- 384 km cable trays/conduits
- 20,000 lighting fixtures
- 5,000 fire detectors/loudspeakers/cameras
- 15 km bus ducts
- 120 TVCC plants

ITALY

**NEW HEADQUARTER OF THE CALABRIA
REGION GOVERNMENT, CATANZARO**

THE CLIENT: REGIONE FUTURA SRL

**Scope of work: engineering, procurement and
construction of the mechanical, electrical & low
current (special)systems and plumbing.**

Performance

EPC contract awarded in association with Bonatti
SpA related to a wide office building (56,000 m2
approx.) for the President of the Calabria region
his staff and for employees's offices. The site
includes almost 1,000 offices and two parking
areas.



MEP

INSTRUMENTATION & CONTROL



ELECTRICAL



ITALY

NEW SANDING AND PAINTING BOOTHS
THE CLIENT: FINCANTIERI SPA

Scope of work: multi-disciplinary engineering, starting from construction works to end with all the mechanical, electric and technological systems, according to the project parameters and conditions shared with Fincantieri. The supply of all materials and equipment necessary for correct work execution, testing, installation, commissioning and start-up, training and final certification.

The critical points in this project are represented by the construction plants that ensure workplace health and limit pollution emissions in consideration of the use of paints, solvents and sanding abrasives in processing. It should also be considered that the use of these substances make the involved rooms rather dangerous and partially subject to ATEX classification.

ITALY

NAVIGATION GROUND AIDS
THE CLIENT: "SACBO - ORIO AL SERIO AIRPORT - BERGAMO - ITALY"

Scope of work: rehabilitation & installation of "Navigation Ground Aids" at Orio al Serio Airport Taxiway 28 e SALS 10.

Performance

The on site activities has been executed on 24/7 schedule during the imposed 68 days of partial ramp closures (phase 1&2) and the 22 days total ramp closure (phase 3).

Installation of LED medium intensity taxiway lighting, including new conduit, fixtures, regulator and taxiway directional and hold short signs (airfield wide), stop bar.

Key figures:

- 2,300 transformer MV/LV
- 1,800 LED airfield ground lights
- 120 LED luminous guidance signs
- 500 Km of cables (LV circuits, MV circuits, grounding network)

ALBANIA

400/200/110 KV SUBSTATION OF TIRANA (TIRANA 2)
THE CLIENT: PMU / MECE (FINAL CLIENT OST)

Scope of work: engineering, procurement, civil works, installation & commissioning of the 400/220/110 kv substation.

The project was acquired by the temporary consortium association constituted by: Ansaldo T&D and Carlo Gavazzi Impianti.

Tirana 2 is the most important substation in Albania since connects strategically the Albanian grid to the European grid. The substation (three voltage levels 400 kV, 220 kV and 110 kV) designed 100% with double bus bars, has a total of 24 bays, 2 three-phases autotransformers 300 MVA 400/220 kV and 2 three-phases autotransformers 90/120 MVA.

The first 23 bays (5 bays x 400 kV + 11 bays x 220 kV + 7 bays x 110 kV) have been energized in July 2011 after 26 months from start of project.



ELECTRICAL

POWER



ITALY

**COMBINED CYCLE COGENERATION
THERMOELECTRIC POWER PLANT AT ITALY
FACTORY IN AUGUSTA (SIRACUSA)
THE CLIENT: SASOL**

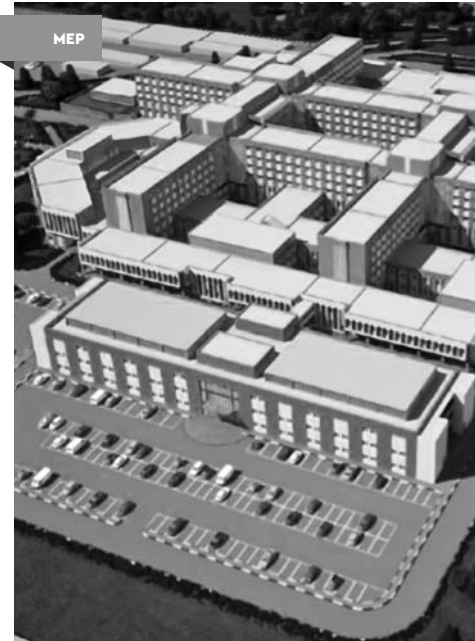
Scope of work: installation of Combined Cycle type Cogeneration Thermoelectric Power Plant (gas turbine, recovery boiler, steam turbine) of nominal capacity 40 MW.

Performance

The electricity will be used primarily by the factory, and the excess will be re-injected into the network by a modification to the existing plant substation already interconnected with the 150 kV national network.

The heat energy will supply the factory users in the form of steam bled from the heat cycle. The Cogeneration Plant will be fed by natural gas, supplemented with other fuels available at the plant (process off-gas burnt in post-combustion). The project will be executed in 21 Months.

MEP



ALGERIA

**MILITARY HOSPITAL ALGIERS
THE CLIENT: MINISTRY OF NATIONAL DEFENCE
OF ALGERIA**

Scope of Work: engineering, supply, installation and commissioning of the whole technological systems including HVAC, electrical and low current (special) systems.

Performance

Bonatti Group has drawn on its international experience in the healthcare sector to deliver a facility that meets the demanding brief for a modern high level service hospital. Besides the technical issues involved with a complete up-grade of an existing hospital structure, the challenging aspect of this project is that it will remain fully operational during construction activities.

New technological building for a total electrical power of 6 MW approx; total cooling capacity of 8 MW and total heating capacity 10 MW. Carlo Gavazzi Impianti will execute all MEP activities (40% of overall scope of work).

ALGERIA

**5 STAR HOTEL MARRIOTT IN CONSTANTINE:
MEP SYSTEMS
THE CLIENT: CSCEC (CHINA STATE CONSTRUCTION
ENGINEERING CORPORATION)**

Scope of work: MEP systems including design, supply and installation of all HVAC, electrical medium and low voltage, hotel management, video surveillance, fire detection and alarm, anti-theft and anti-intrusion, plumbing and sanitary systems.

Performance

The project launched by the Algerian state-owned company SIH (Société d'Investissement Hôtelière) is for the construction of a five star luxury hotel complex in Constantine which will be managed by the Marriott chain.

The project includes the construction of nine buildings for a total of 182 rooms occupying an estimated 78,000 m2 on a site of around 132,500 m2.

The aim of the project is to improve the hotel in Constantine, which will be the 2015 Arab Capital of Culture.



MEP

ALGERIA

**EXTENSION OF FOUR ELECTRICAL SUB-STATIONS
THE CLIENT: EXTENSION OF FOUR ELECTRICAL
SUB-STATIONS**

Scope of work: engineering, supply, installation and commissioning of: steel structures, high voltage equipment, protection & control systems, telecommunication & telecontrol systems.

Performance

The project is related to the extension of four electrical sub-stations located in Salah Bey, Bordj Bou Arreridj, Ramdane Djamel et Djelfa (east side of Algeria).

Carlo Gavazzi Impianti expertise and know-how in the field of High Voltage plants, will allow to perform the erection phase with the plants energized (400.000 Volts at Salah Bey) avoiding power shut-down and achieving the goal to complete the project in only 18 Months.



ELECTRICAL

POWER



ALGERIA

ALRAR POWER PLANT
THE CLIENT: SONATRACH

Scope of work: engineering, procurement, installation & commissioning of a cycle power station.

Contract awarded to the open consortium formed by Bonatti SpA and Carlo Gavazzi Impianti SpA.

The plant is made up of three gas turbine generators rated 18 MW including the dedicated 66 kV gas-insulated substation.

The Alrar power plant serves both industrial and civil users, contributing to the development of the area.

Scope of work includes electrical, instrumentation & control systems, telecom and fire fighting packages.



MEP



ITALY

BRESCIA SUBWAY

THE CLIENT: ASM METROBUS BRESCIA

Scope of work: EPC & commissioning of the technological systems not specifically related to trains circulation.

3D simulations performed to verify ventilation effectiveness against the possible fire scenarios both in station and in tunnel.

Automatic driverless subway line with 17 stations and 1 depot for trains parking and maintenance. Stations are connected by tunnel for 13 km (three types: open, cut&cover and fully underground) with a volume spanning from 1,000 to 11,000 m3.

The project includes the supply of the ventilation tunnels and stations, power center and distribution, fire detection, access control, fire fighting and plumbing systems.



IRAQI KURDISTAN

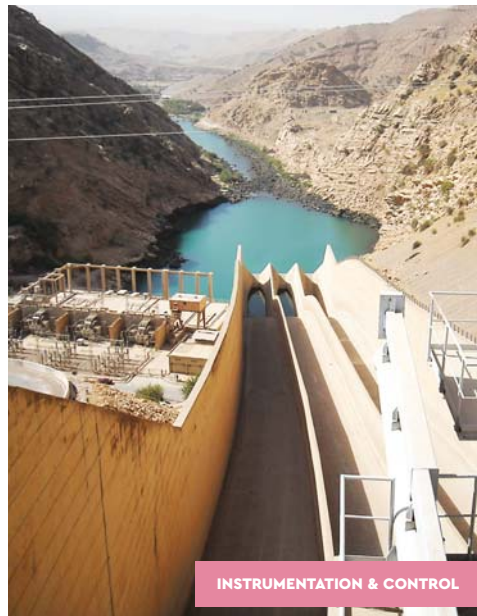
REHABILITATION OF I&C SYSTEMS OF TWO HYDROELECTRIC POWER PLANTS (DOKAN 5X95MW & DERBANDHKAN 3X95 MW)

THE CLIENT: MINISTRY OF ELECTRICITY OF THE KURDISTAN

Scope of work: engineering, procurement, installation & commissioning of protection and control systems.

Main Supply:

- Field instrumentation
- Turbine governors
- Energy meters
- Instrumentation bulk materials
- DCS – control and monitoring system
- Generator, transformer and turbine protection system



INSTRUMENTATION & CONTROL



INSTRUMENTATION & CONTROL



KAZAKHSTAN

BOLASHAK ONSHORE PROCESSING FACILITY (KASHAGAN PROJECT)

THE CLIENT: AGIP KCO B.V.

Scope of work: electrical, instrumentation and telecommunication installation.

Performance

The Bolashak Onshore Processing Facility is one of the largest oil and gas processing plant constructed in the world in the last decade.

- 12,000,000 total man-hours overall
- Staff at peak: 1,900 direct plus 750 indirect workers
- 13 electrical buildings (9 substation + 4 satellite buildings)
- 5,800 km of primary and secondary cables pulled
- 12,000 instruments (calibration on > 4,000)
- 2,700 Junction Boxes and 220 electrical cabinets
- Over 380,000 wiring connections

MEP



ITALY

URBAN REGENERATION OF PARMA RAILWAY STATION

THE CLIENT: MUNICIPALITY OF PARMA

Scope of work: the project is aimed at regenerating and restoring an extensive urban area of Parma around the Railway station and adjacent the historical centre of the city. Works include the complete reorganisation of the railway station, restoration of 'Piazza Dalla Chiesa', a new piazza north of the station, a public transport interchange, two new buildings with a total gross floor area of 19,000 sqm comprised of offices, retail space, a 4 star hotel, residential apartments and three levels of basement carparking for a total of 13,200 sq.m.

Challenges & Performance

One of the main goals of the project is to open the railway station to the centre of the city (for vehicular and pedestrian traffic) and eliminate the physical barrier of the railway line to the new urban area to the north. The project achieved this by creating a large passage 10m high, 70m wide and 110m long beneath the railway line and the existing station building.

Carlo Gavazzi Impianti executed all MEP activities Engineering, Procurement and installation of all technological systems of the railways station.

ITALY

BORGO TRENTO MAGGIORE HOSPITAL, VERONA

THE CLIENT: AZIENDA OSPEDALIERA ISTITUTI OSPITALIERI DI VERONA

Scope of work: engineering, procurement, installation & commissioning of protection and control systems.

Main Supply:

- Field instrumentation
- Turbine governors
- Energy meters
- Instrumentation bulk materials
- DCS – control and monitoring system
- Generator, transformer and turbine protection system

Engineering:

- Basic and detailed engineering

Procurement:

- MV – LV switchboard
- MV – LV transformer
- LV main and secondary distribution boards

- MV – LV main and secondary distribution feeder cables
- UPS and emergency generation system
- Normal and security lighting systems
- Sockets and power distribution systems

Auxiliary & security system:

- Telephone and data systems
- Nurse call system
- Fire alarm system
- TVCC and control access system
- Paging & Public address system
- TV system
- Clock system
- Building management system
- Earthing and lightning protection system

Construction:

Electrical, instrumentation and control erection works Test, commissioning, start-up and training.

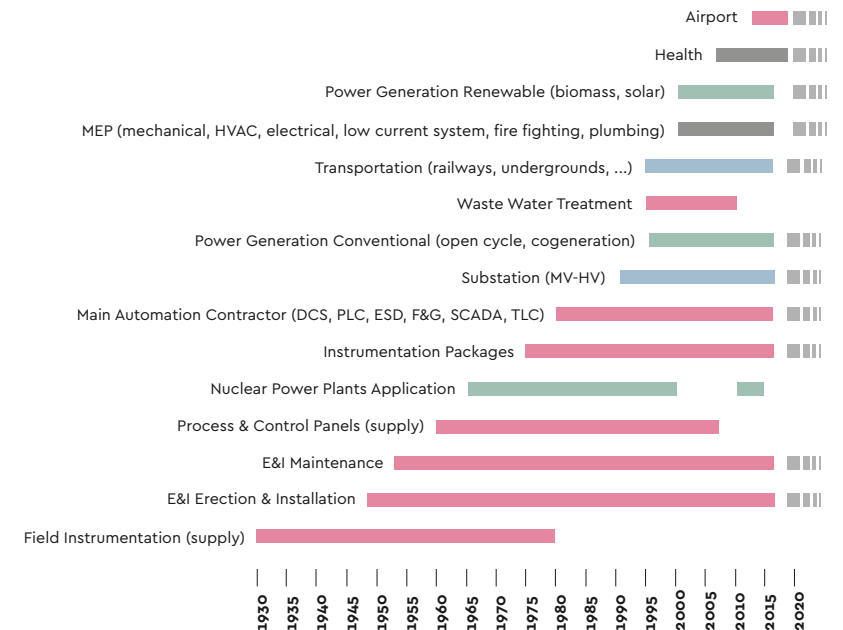
MEP





"80 years of challenging projects... and beyond"

■ Power
■ Electrical
■ Instrumentation & Control
■ MEP



OUR CLIENTS

A.S.T. (Ulisse)
ABB
Acciai Speciali Terni
AEM Torino
AGIP KCO
Akralux
Akrasun
Alstom Power
Amgas
Ansaldo Caldaie
Ansaldo Energia
Ansaldo trasporti
Aramco Gulf Operation Co / Arabian Oil Company
Astaldi
Atitech
Azienda Ospedaliera Verona
Biomasse italia
CEEG / GRTE
CERN – European Organisation for Nuclear Research
Cira
Colt Telecom
Comitato Olimpiadi Torino 2006
Condea Augusta
Consorzio di Bonifica del Sannio Alifano
CSCEC (China State Construction Engineering Corporation)
Di Vincenzo Dino
Elettra GLT
Enel
ENI
Enipower
European Commission CCR – Ispra (Italy)
Fincantieri SpA
Foster Wheeler
Gespi
Greenstream – ENI Group
H3G
Impregilo
Italferr
Italiana Coke
KJO
Kvaerner
Mellitah Oil & Gas BV
Ministère de la Défense Nationale – Algérie
Ministry of Electricity of the Kurdistan Regional Government
Ministry of Infrastructure – Italy
Ministry of Interior – Italy
Municipality of Milan
Municipality of Parma
Nuovo Polo Fiera MI
PMU / MECE
Regione Calabria
RFI
Rizzani de Eccher
San Marco Bioenergie
Sasol
Sceco-Sec-Erb
Sertubi
Sete Technical Service SA
Sogin
Sonatrach
Sonelgaz
Stazione Scarl
TCO (TengisChervrOil)
Terna
TPL Rome
Turbocare
Turbotecnica (GE Group)

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