



*Bringing energy construction in pioneering
and harsh conditions leveraging technical
competence and local knowledge.*

*We aspire to be energy companies' solution
provider.*

We trust in energy evolution.

Andrea Colombo
Chief Executive Officer

A handwritten signature in blue ink, appearing to read 'A. Colombo', located below the printed name and title.

MY ID: FIGURES

13 local companies

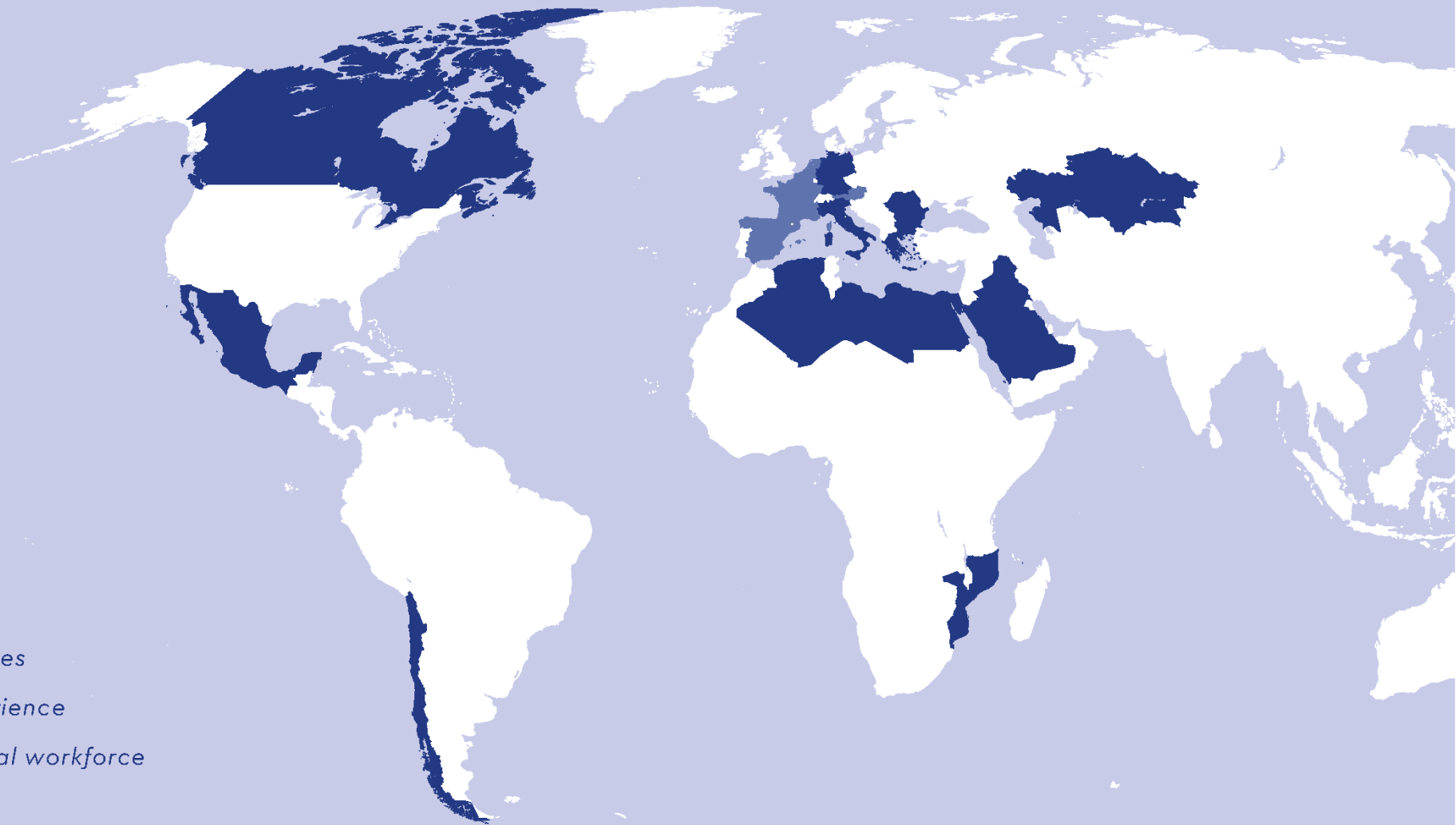
75 years of experience

97% average local workforce

6,500 employees

21,750,000 hours worked in 2021

655,000,000 euro: revenues in 2021



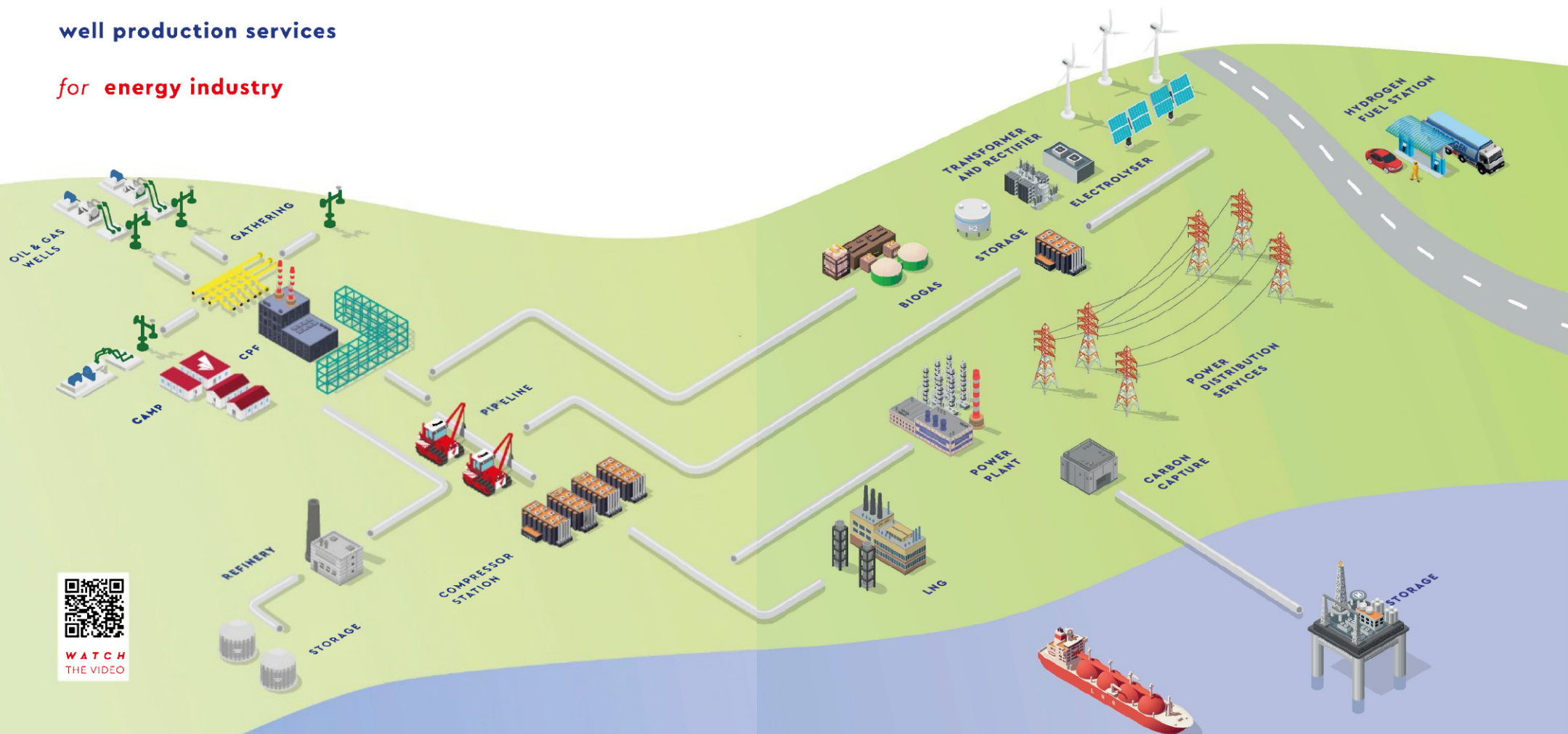
WHAT WE DO

EPC & stand alone construction
of plants and pipelines

operation & maintenance

well production services

for **energy industry**



WATCH
THE VIDEO

OUR TOTAL-APPROACH CONTRACTOR

Our "total approach" to projects is key-factor in customer satisfaction.

Construction-focused engineering and fit-to-purpose constructability at every step are guarantee to our clients of the best quality and cost-effective execution.

Our model consists in managing the entire project lifecycle in direct execution throughout all phases: starting from engineering, procurement and logistics, to civil construction, mechanic and piping erection and E&I installations, up to commissioning and start-up activities.

Bonatti's goal is to be country-embedded, complying with HSEQ best practices and adopting a sustainable approach in all its activities.



ENGINEERING: FOCUS ON CONSTRUCTION

Our "total-approach" model allows us to control and integrate each phase of the execution of the project. It all revolves around engineering, where constructability and operability drive the project lifecycle.

Our design competences cover:

- pipeline design
- gathering systems,
- oil and gas treatments
- compression and pumping stations,
- power stations
- water treatment facilities
- biogas plants
- green hydrogen production systems
- CCUS systems
- HV electrical transmission systems

Combined with project management, this approach provides solutions in delivering the most complex projects, reduces schedule delays and cost overruns, while complying with safety and quality requirements.

Managing every detail at the construction site – from logistics to commissioning and start-up, workforce planning and smart construction techniques – ensures that our clients' expectations are fully met.

3 engineering centres:

Fano, Italy

Milano, Italy

San Miguel de Allende, Mexico

700,000 hours/year
engineering capacity

in the last 5 years:

25 EPC projects executed

30 compressors installed

3,800 km of pipelines laid



MAIN SAFETY ACHIEVEMENTS

West Qurna 2
for Lukoil

1,000,000
man-hours worked
without incidents (LTI)



Aksay, Kazakhstan

5,000,000
man-hours worked
without incidents (LTI)

West Nile Delta, Egypt
Plant Development for BP

3,000,000
man-hours worked
without incidents (LTI)



Elmerk Shutdown
for Groupement Berkine

1,300,000
man-hours worked
without incidents (LTI)



GROWTH BY TRAINING

For us is paramount to add value to its presence in the territories we operate by craft training our staff.

*training executed in 2021: **142,000** hours*

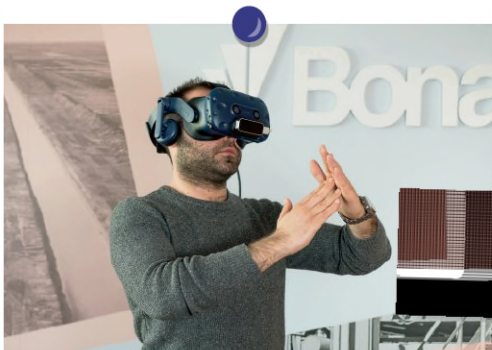
Egypt

E&I training in compliance with
GOWA certification



Mozambique

capacity building for local communities:
training for welders and operators to be
capable to works on our sites, safely.



Virtual training method to achieve
the highest safety standards

Mexico

HSE training



Kazakhstan

Submerged Arc Welding (SAW)
training sessions
for F22 high thickness
at Karachaganak Field



Italy

Oil&Gas lab for newly recruited engineers
at POGaME school in Cortemaggiore



ENVIRONMENT

The life and wellbeing of every person, and therefore of every Country and organization, depends on how well we care for the environment.

Being aware of this makes us respect the ecosystem and the territories where we work: it is one of our primary goals.



Mexico
celebrating the World Environment Day

Mexico

reforestation on the right-of-way
of the Tula - Villa de Reyes
pipeline



Greece

cultural heritage management
to preserve archeological finds

SA8000 VOLUNTARY STANDARD



Bonatti is certified according to the SA8000 voluntary standard. This is an important achievement, that confirms Bonatti among the main Italian companies in the construction sector and in the energy supply chain for its attitude to human rights and social accountability policies.

The SA8000 voluntary standard requires organizations to develop, maintain, and implement social accountability criteria to be applied to all company's operations and activities. The criteria of SA8000 management system were developed by a panel of different industries to create a common standard for social accountability compliance. SA8000 is based upon the principles of international human rights standards as described in International Labour Organization conventions, the United Nations Convention on the Rights of the Child and the Universal Declaration of Human Rights.

Such certification is the frame for monitoring and improving our social accountability management system, in terms of its inherent performances, which Bonatti is committed to. Such accountability must be concretely measured and must drive the organisation's behavior.



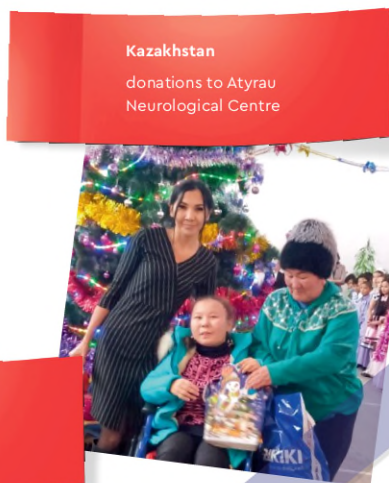
SOCIAL INITIATIVES IN FAVOR OF LOCAL COMMUNITIES



WATCH
THE VIDEO



Kazakhstan
donation of a mechanical
ventilator for Aksay hospital



Kazakhstan
donations to Atyrau
Neurological Centre



Mexico
a programme based on environment learning labs,
with direct experiences and recreational activities



Mexico
project, coordinated by the
"Todos Juntos - San Miguel de la
Gente" association,
for resurfacing of a road



Mozambique
donation to Cabo Delgado's
terrorist attacks victims



PIPELINES

**Proven track record
in gas and fluid transportation
facilities construction.**

Our total-approach model allows to control and integrate each phase of the execution of the project. Managing every detail at the construction site – from logistics to start-up, workforce planning and smart construction techniques – ensures that our clients' expectations are fully met.

Through our wide-ranging experience, we have significantly improved our performance in plant construction for energy industry, due to the acquisition of new technologies, the optimization of construction methodologies, and the extensive range of lessons learned.

A large fleet of construction equipment combined with a sizeable team of skilled personnel headed by experienced project teams qualify us as a strong and reliable partner in the following fields:

- Civil Construction
- Mechanical Erection
- Electrical, Instrumentation and Telecommunication Works
- Pre-commissioning
- Commissioning
- Start-up Assistance





WATCH
THE VIDEO

MEXICO EL ORO – MAZATLÁN PIPELINE

EPC pipeline for TRANSPORTADORA DE GAS NATURAL DEL NOROESTE (TC Energy)

430 km
24 inches

Delivered 6 months ahead of schedule

Welding: up to 302 joints per day with an average final repair percentage rate of 0.6%

El Oro Mazatlan pipeline supplies natural gas from the El Encino – Topolobampo pipeline to the main cities in the State of Sinaloa.

The route, parallel to the Pacific coast, covers a distance of 430 km and includes more than 400 crossings, as well as a challenging mountainous section around the coastal town of Mazatlan.

CHILE / ARGENTINA GASODUCTO ATACAMA

Pipeline Construction for GASODUCTO ATACAMA / GASODUCTO CUENCA NORESTE

595 km
20 inches

- The scope of work included the crossing of the Andes at 5,000m, currently the highest pipeline even built
- Bonatti was responsible for both the Chilean and the Argentinian sections, working in partnership with local contractors





**WATCH
THE VIDEO**

KASHAGAN, KAZAKHSTAN PIPELINE REPLACEMENT

Replacement of oil and gas trunklines in onshore, swamp and shallow water sections for NCOC

Total personnel at peak: 1,372 people
Total man-hours worked: 3,297,984
Local workforce employed: 90%
Lost time injury frequency: 0,06

- In the winter, the air temperature drops to -30 °C with extreme blizzard conditions
- The water depth ranges from 4 m at Kashagan Oil Field to 0 m near the shore; the sea becomes ice-bound in winter
- The shallow water and swamp section crosses a special environmental region, installation work is not allowed between 1 April and 15 July
- The welding requirements and acceptance criteria were ultra-demanding, with close to zero porosity. Bonatti's ROB.E 10:01 mechatronic welding system satisfied the demand for high quality
- Project completed **3 months ahead of schedule**

PIPELAYING

total length installed: 90.4 km

onshore stretch: 52.2 km (conventional method)

swamp stretch: 8.2 km (push and pull method – impracticable soil conditions)

shallow water stretch: 30 km (push and pull method)

WELDING PERFORMANCE

Pipe material installed: API 5L X65 15.9 MM + CLAD INCONEL 625 3,0 MM (iso grade cra clad cs pipeline 3183 L415)

Welding best performance: 30 (joints per day with BNT ROB.E 10:01 automatic welding system)

Total joints: 1,288 (executed with BNT ROB.E 10:01 automatic welding system)



WATCH
THE VIDEO

MOZAMBIQUE ROMPCO LOOP LINE 2

Gas pipeline construction for SASOL

127 km
26 inches

Total personnel at peak: 600 people
Hours worked: more than 1 million
Mozambican Workforce: 86,7%
Safety performance: zero incidents
Pipe transportation: 1,5 million km on public roads without accidents

Key Features:

- The project was executed by ENHL-Bonatti, our Mozambican affiliate company, established in 2013. This combination is able to provide a full range of services to the oil & gas industry in Mozambique with strong cooperation with local players
- Logistics was the most important issue of the project: the construction area is 40 km from Funhalouro, which is the only populated town near the living camp

Delivered 3 months ahead of schedule

BAJA CALIFORNIA, MEXICO PROYECTO «EGRO»

EPC of a pipeline and of a compressor station for IENOVA

The EGRO Project is part of Gasoducto Rosarito system: this energy transportation infrastructure will be located in Baja California. The overall system consists of 3 segments with a total length of 302 km and several compression stations: it interconnects with pipeline systems in the United States.

The scope of work includes:

- Tijuana – Mexicali pipeline (200 km / 30 inches)
- 1 compressor station





GERMANY EUGAL PIPELINE

Gas pipeline construction for GASCADE (JV GAZPROM / BASF)

292 km
56 inches

- EUGAL pipeline runs parallel to the OPAL gas pipeline and aims to enhance the distribution of gas in the heart of the European Continent
- Executed with Bonatti SAFE-T-REX 130 pipelayers
- **Delivered 7 months ahead of schedule**



TIMIMOUN, ALGERIA GAS GATHERING

EPC for GROUPEMENT TIMIMOUN

- Extensive rock excavation
- 18 wells
- The Timimoun field is one of the most important areas for development in southwest Algeria, with a strategic importance for the future of the country's energy industry
- Logistics are a critical point: the site is located in a particularly remote part of the Algerian desert, situated between Adrar and Timimoun. Oughroud, the closest built-up area, is 120 km away and there is no road leading to the site
- Extreme environmental conditions (over 60°C and frequent sand storms)

CANADA TRANS MOUNTAIN EXPANSION PROJECT (SPREAD 5B)

Oil pipeline construction and pre-commissioning for TRANS MOUNTAIN PIPELINE L.P.

- The 5B Spread (85 km) consists of rugged terrain that requires extensive engineering and construction planning
- Bonatti utilizes a trenchless method under multiple watercourse and road crossings to minimize disruption to the surrounding area





GREECE TRANS ADRIATIC PIPELINE

EPC Pipeline for TAP (SOCAR, SNAM, FLUXYS, ENAGAS, AXPO)

365 km
48 inches

- Extremely challenging geographic conditions
- Mountain slopes up to 30°
- This pipeline connects Western and South Eastern Europe to the abundant gas sources of the Caspian basin

BNT ROB.E 10:01: OUR IN-HOUSE DESIGNED AND MANUFACTURED MECHATRONIC WELDING SYSTEM

Cutting-edge technology to deliver top performances

The latest pipeline automatic welding system BNT ROB.E 10:01 is the result of a process of research and study carried out in the field for over 25 years.

Designed to weld pipes of above 10" in diameter, of any thickness and composition, our automated system has been refined at the construction sites to ensure the profitability of our clients.

any composition,
including clad steel pipes

any thickness

diameter from
10" up to 56"



WATCH
THE VIDEO



BONATTI MCL MACHINE: OUR ENGINEERED AND MANUFACTURED IN-HOUSE COATING EQUIPMENT

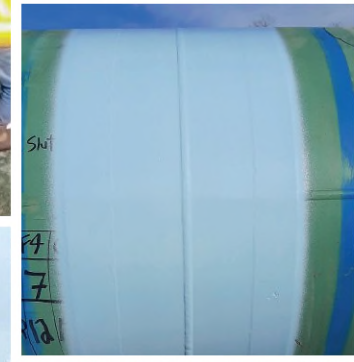
Coating operations are necessary to achieve a complete pipe-laying workflow: this phase guarantees protection and anticorrosion function to the welded joints.

Due to the experience achieved in our construction sites during decades of executed projects, we were able to analyze in detail the coating activity with the aim of raising the level of quality outcomes.

The total control of coating operations and their industrial reproducibility are a key-element to guarantee the maximum quality of pipeline construction to our clients. We thought about engineering and automation of the coating process: this is how our "Bonatti MCL Machine" was born.

Our "MCL Machine" applies an even, smooth and uniform coating that provides repeatable quality throughout the length of any project. To guarantee uniformity of coating thickness the speed of movement is precisely controlled. Such system has improved features for the monitoring of material parameters, along with automatic checking of the pumping equipment to ensure that the material is being applied at the correct conditions and in the correct mix-ratio, at all times during and after the application.

Using an automated system reduces costs for both working activities and material, whilst providing a significantly safer and green application process to traditional hand applied techniques.

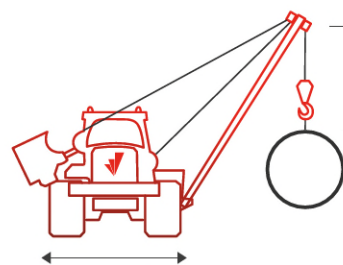


BNT SAFE-T-REX 130: OUR IN-HOUSE DESIGNED AND MANUFACTURED PIPELAYER

A new safety performance industry standard

Our pipelayer optimises the work both at construction sites and at workshops. The BNT SAFE-T-REX 130 ensures the safety of all the staff present at the site.

For this, we have been awarded the IPLOCA Health and Safety Award. Moreover, what makes our pipelayer stand out is undoubtedly its 130-ton lifting capacity.



Optimum weight distribution

40 cm wider
than the main market reference

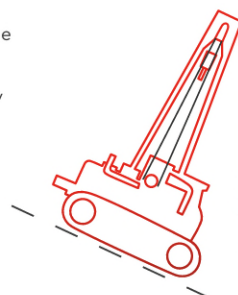
Lower center of gravity
for maximum maneuverability



WATCH
THE VIDEO

**Wireless lift
locking system**
to ensure no tampering
or wiring error during
laying operations

130-ton lifting capacity



Hydrostatic technology on board
for maximum safety in case
of mechanical problems



- 2 work modes** for maximum control of load capacity and laying parameters
- Electro-hydraulic system** to ensure maximum reliability in critical conditions
- Full monitoring** of the skills, qualifications and experience of the operators
- Full control** of machine parameters via satellite any time in any part of the world
- Maintenance facilitated** by machine design
- Unique dashboard** to control every machine parameter at a glance

PLANTS

Efficiently managing complexity both in EPC and stand-alone construction projects. We have full control of the entire project lifecycle in direct execution throughout all phases.

Our total-approach model allows to control and integrate each phase of the execution of the project. Managing every detail at the construction site – from logistics to start-up, workface planning and smart construction techniques – ensures that our clients' expectations are fully met.

Through our wide-ranging experience, we have significantly improved our performance in plant construction for energy industry, due to the acquisition of new technologies, the optimization of construction methodologies, and the extensive range of lessons learned.

A large fleet of construction equipment combined with a sizeable team of skilled personnel headed by experienced project teams qualify us as a strong and reliable partner in the following fields:

- Civil Construction
- Mechanical Erection
- Electrical, Instrumentation and Telecommunication Works
- Pre-commissioning
- Commissioning
- Start-up Assistance





ALRAR, ALGERIA GAS SEPARATION AND BOOSTING

EPC, commissioning and start-up for SONATRACH

Alrar is a gas and oil field operated by Sonatrach since 1987. The Separation and Boosting Compression Plant is built in order to maintain the production and extend the lifetime of the field.

The scope of work includes civil, mechanical and E&I works for:

- Slug catcher
- Low pressure compression (3+1 PGT25 gas compressors)
- High pressure compression (3+1 PGT25 gas compressors)
- Liquid handling facilities
- Produced water handling and treatment
- All required utilities, as the plant will be stand-alone

Key Features:

Civil works:

- Concrete: 25,000 m³
- Excavation: 434,000 m³

Mechanical works:

- Piping: 6,000
- Steel Structures: 3,000 tons
- Equipment: 5,800 tons

Electrical and instrumentation works:

- Cables: 1,500 km

- Personnel at peak: 2,500



KARACHAGANAK, KAZAKHSTAN 4TH INJECTION COMPRESSOR

EPC for KARACHAGANAK PETROLEUM OPERATING B.V. (KPO)

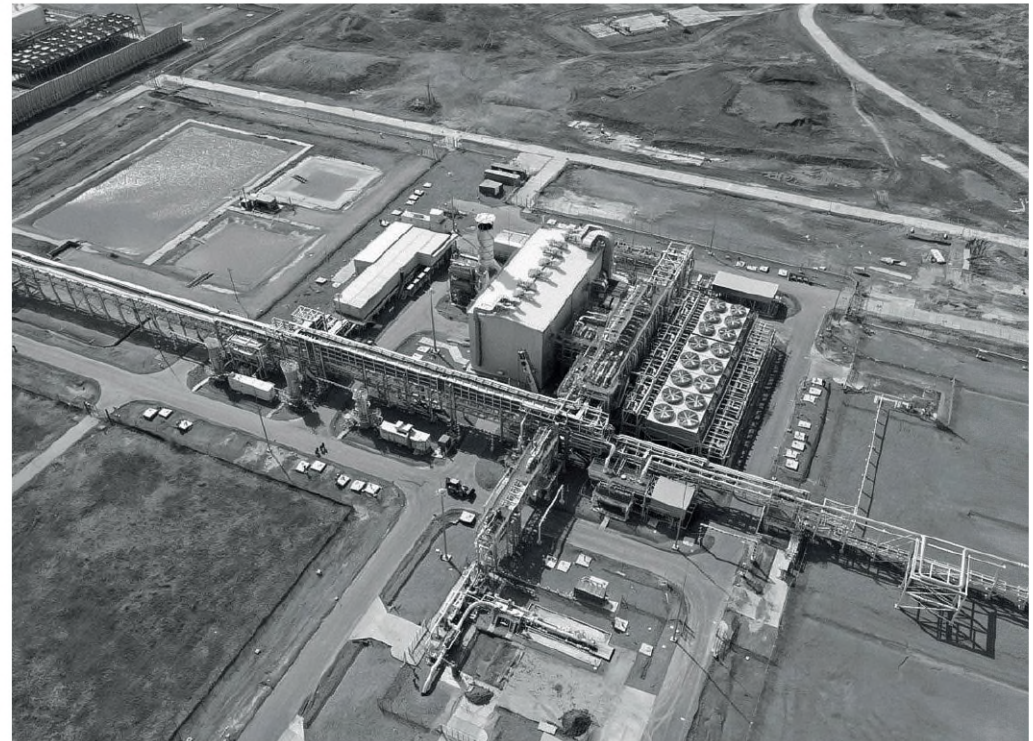
- Fast-track project for the installation of a GE MS5002D gas turbine in Karachaganak Field, in the Uralsk Region where environment is characterized by extreme temperatures that can go down to -30° C
- The project definitely represents a great challenge due to technical and design difficulties and its remote location.

The requested construction schedule was particularly challenging

MLN, ALGERIA GAS CAPACITY INCREASE

EPC (Phase-4 Development Project) for PERTAMINA ALGERIA EP

- Being located in an operational field, Bonatti performed the activities in particularly challenging conditions such as brownfield and live plant, avoiding disturbances to the ongoing production
- The aim of the GCIP Project is the development and upgrading of the existing facility for future expected gas treatment and oil production at 2020 by installation of the new 2 × 37,5 MMscfd compressors, a dehydration train and their related systems





HEILBRONN AND ALTBACH, GERMANY COMBINED CYCLE COGENERATION PLANTS

EPC for EnBW (Public Utility of Baden Wurttemberg Land)

- The new sister plants are part of the fuel switch program according to which current coal-fired power plants will be replaced by natural gas-fired power plants
- Each of the two plants will produce electricity for over 650 MW and, in parallel, hot water for district heating of the related urban agglomerations
- The two plants are already planned for a future transformation in order to be powered by a mixture containing hydrogen to an increasing extent up to 100% in 2030

WAFA, LIBYA INLET GAS COMPRESSOR STATION

EPC (civil, mechanical and E&I works) for MELLITAH OIL AND GAS B.V. (ENI)

Overall power of the gas compressor station: 94MW

The project, made up of 2 parallel work streams is aimed at maintaining oil and gas production of the field

- Installation of 4 GE frame 5 gas turbines which boost the gas arriving from the wells to the existing treatment plant
- Upgrade of the existing gathering system
- Installation of a new control system for the additional facilities and integration with the existing one





WATCH
THE VIDEO

RAMONES AND FRONTERA, MEXICO COMPRESSOR STATIONS

EPC for GASODUCTO DE NORESTE (PEMEX – IENOVA)

Frontera Compressor Station (Ciudad Camargo, Tamaulipas) and Los Ramones Compressor Station (Los Ramones, Nuevo Leon): overall power 90MW.

- 6 Solar Titan 130 turbo compressors
- Total man/hours: 2,000,000
- Zero incidents
- 50% time reduction for start-up of compressors
- Project executed in 10 months

LOS RAMONES COMPRESSOR STATION

- Buildings (main control building, power generation building, auxiliary building, battery rooms, etc...): 8
- Welded inches: 65,000
- Km of E&I cables pulled: 200
- Metering and regulating skids: 3
- Solar Titan 130 turbocompressors: 2
- Capstone microturbine 800 KW: 2

FRONTERA COMPRESSOR STATION

- Buildings (main control building, power generation building, auxiliary building, battery rooms, etc...): 8
- Welded inches: 63,000
- Km of E&I cables pulled: 280
- Metering and regulating skids: 1
- Solar Titan 130 turbocompressors: 4
- Capstone microturbine 800 KW: 3



WEST NILE DELTA, EGYPT PLANT DEVELOPMENT

Mechanical erection, electro-instrumental works, telecommunications, fire-fighting systems and commissioning activities for BP

Cable trays: 125 km
Cables: 1,700 km
Connection boxes: 1,500
Structures: 800 tons
Piping: 20 km
Piping spools: 9,800

- West Nile Delta Project is a major gas development located just off the north coast of Egypt
- 100% of processed gas will be conveyed into national grid; the expected gas production is 1.2 billion cubic feet per day (+25% of Egypt's total production)

CORINTH, GREECE NEW NAPHTHA COMPLEX IN MOH REFINERY

Construction for MOTOR OIL HELLAS SA

- Piping Prefabrication: 230,806 DI
- Support: 289 tons
- Piping Painting: 45,259 sqm
- Steel Structures Erection: 5,277 tons
- Equipment Installation: 265 N. Items
- Piping Erection: 85,114 DI

Additional works:

- Steel Structures Erection in Greenfield area
- Steel Structures Erection in Brownfield area

- Activities performed in particularly challenging conditions such as brownfield and live plant, avoiding disturbances to the ongoing production





ZOHR, EGYPT FAST-TRACK DEVELOPMENT

E&I works in onshore area PETROBEL

People: 1,000
Egyptian Workers: 99%
Cables: 1,620 km
Instruments: 2,389
Lighting system equipments: 2,124

- The Zohr gas field is an offshore natural gas field located in the Egyptian sector of the Mediterranean Sea
- The field is estimated to lie in an area of 100 square kilometers (39 sq mi) and it is located at a depth of 1,450 meters (4,760 ft)
- The field was discovered in 2015 by the Italian energy company Eni and is the largest ever natural gas find in the Mediterranean Sea
- The total gas in place of the Zohr gas field is estimated around 850 billion cubic meters

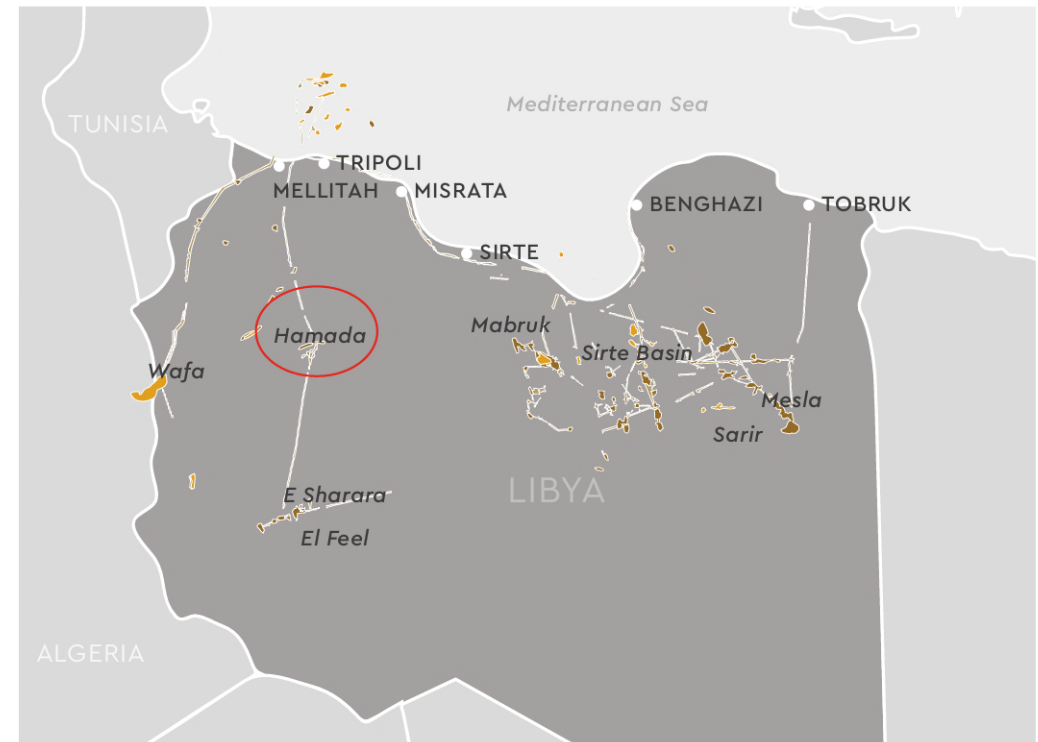
HAMADA BASIN, LIBYA NORTH HAMADA (AREA 47) DEVELOPMENT

EPC of an oil gathering system for NAFUSAH

Nafusah (100% owned by NOC Libya) is developing the Hamada Region, located 200 km south of Tripoli.

The new gathering system links to the early production facility:

- 9 oil wells
- 2 water wells





HASSI R'MEL, ALGERIA GR4 COMPRESSOR STATION

EPC for SONATRACH

Hassi R'Mel is a gas hub in Algeria on which all the pipelines collecting gas produced in the Southern fields converge and from which gas pipelines carry gas to the north to be exported.

Civil, mechanical and E&I works for:

- 1 metering station
- 4 gas compressor trains (25MW each)
- Plant utilities, control room and substation

Main data:

- Civil Works: Concrete 9,000 m³
- Piping: 2,000 tons
- Steel Structures: 1,500 tons
- Cables: 510 km of in rock excavation



TERMINI IMERESE (SICILY), ITALY «ETTORE MAJORANA» POWER PLANT

Multidisciplinary EPC project related to supply and erection of the balance of plant (mechanical-electrical-instrumental and automation activity) and to the installation of the two 150 MWe open cycle turbines for ENEL

The project has the aim of supporting the safety of the Italian distribution system and the supply of electricity to cover the load peaks in each area of the Italian grid. The plant is located on the north-western coast of Sicily about 35 km from Palermo.

Main features:

- The intervention assigned to Bonatti and its subsidiary Carlo Gavazzi Impianti involves the replacement of 2 of the 4 existing open-cycle thermoelectric units with 2 new turbogas units designed with the most advanced criteria of efficiency and environmental compatibility, in full compliance with the sector's "Best Available Techniques Reference document"
- This "fast-track" project merges the multidisciplinary specialist skills of Bonatti in construction and mechanical assembly with the engineering and electro-instrumental competencies of Carlo Gavazzi Impianti
- The commitment to involve local companies and workers is a priority of the project

VENICE AREA, ITALY «PALLADIO» POWER PLANT

Mechanical erection works (CCGT installation) for ENEL

In the framework of Capacity Strategy Project, Enel is carrying out a modernization of Italian power plants, including new OCGTs/CCGTs, to be installed in existing sites. The project involves the "Palladio" Power Plant (800 MW CCGT), located in Fusina (municipality of Venice).

Main activities:

- Mechanical erection of the new CCGT cycle unit 7 (equipped with a Gas Turbine GT36-S5)
- Structure and pipe systems
- Material management
- Specialized lifting equipment



ENERGY MAINTENANCE

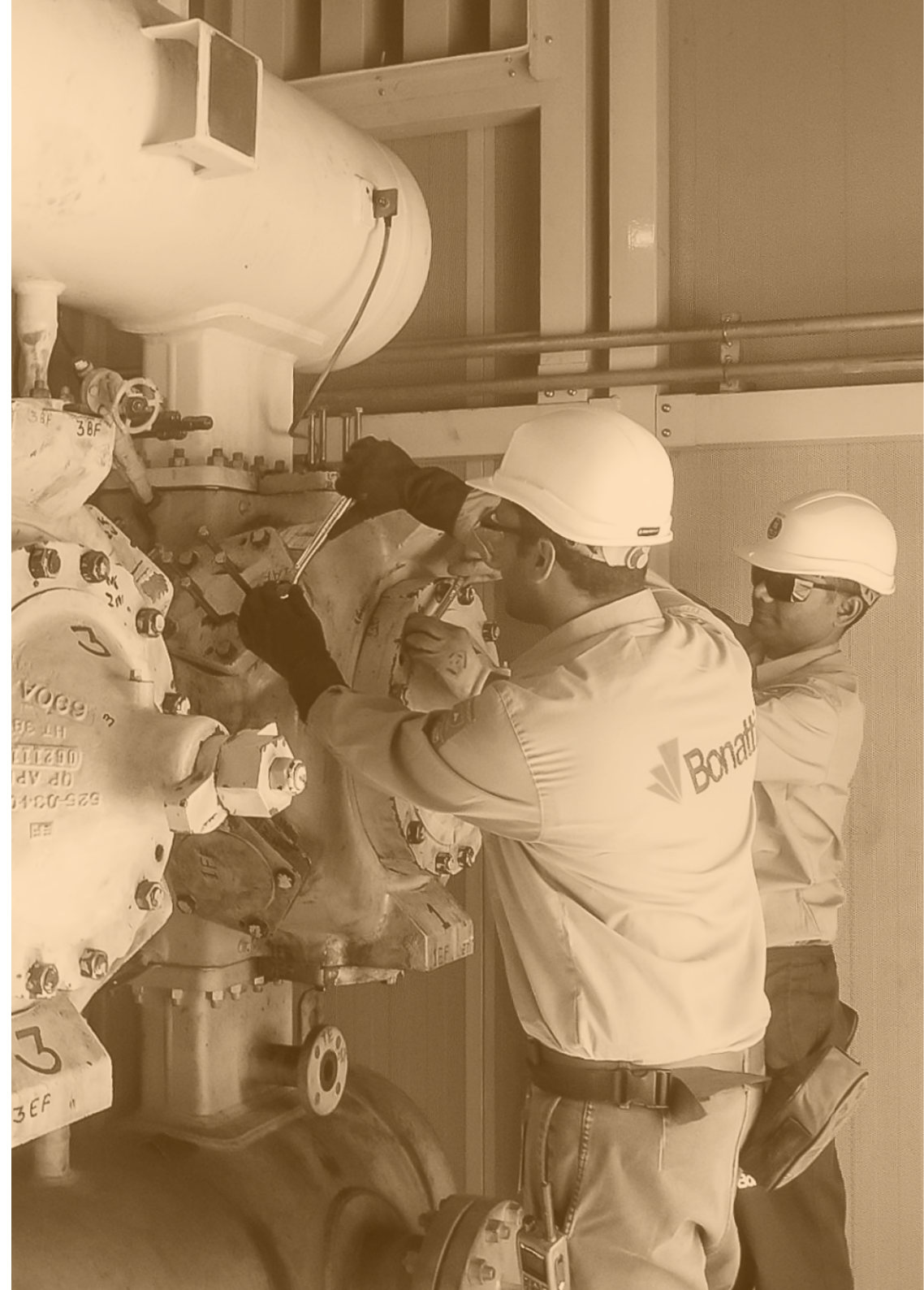
Driven by "pioneer attitude",
we follow our client's needs
through troubleshooting and lessons learned.
Our vision for innovation is based
on optimizing know-how capitalization
and on investments in new competencies skills.

Our company provides a wide range of activities, aimed to reduce asset life cycle costs in compliance with integrity goals. Support is given all along the production process: from wellhead to oil&gas treatment plant both in on-shore and off-shore sites.

Our aim is to provide turn-key solutions in the form of global contract based on full logistic means, necessary technical assets, technical support and permanent skilled staff, including proper local content strategies and training support.

Through a "full responsibility approach" we grant a wide range of technical solutions for any customer operational needs, such as:

- Operation & Maintenance
 - General Maintenance Services
 - Assistance to operation
 - Rotating equipment maintenance
 - Installation & Commissioning
 - Maintenance and Inspection Engineering
 - CMMMS
 - Fabric maintenance
 - Modifications, improvements and debottlenecking





TEMPA ROSSA, ITALY GENERAL MAINTENANCE

General Maintenance activities supporting the operations for TOTALENERGIES

Temparossa is a hydrocarbon field in the Southern Italy. Its current configuration consists in 6 well-sites with gathering network, one oil center and one LPG center.

Main assets:

- LPG centre
- Wellsites
- Flowlines
- Export pipelines
- Interconnection pipelines

Main activities for CPF and oilfield facilities:

- Preventive/corrective maintenance and inspection works
- Procurement of spare parts, tools, materials and services
- Clearance and logistics management
- Subcontractors management
- Fabric maintenance
- Modification, improvement and upgrades

Bonatti is involved since plant start-up.

MLE, ALGERIA CPF GENERAL MAINTENANCE SERVICES

General maintenance services, highly specialized technical assistance, HVAC, E&I, mechanic, shut down activities and well production services for FCP – FIRST CALGARY PETROLEUM (ENI)

- The field in the Berkine Basin has a daily production capacity of 9 million cubic metres (318 million cubic feet) of gas, 15,000 barrels of oil and condensate, and 12,000 barrels of LPG (liquefied petroleum gas)
- The field is located 1,000 kilometres (625 miles) southeast of Algiers

Main activities for CPF and oilfield facilities:

- Preventive/corrective maintenance and inspection works
- Procurement of spare parts, tools, materials and services
- Clearance and logistics management
- Subcontractors management





MELLITAH COMPLEX, LIBYA

GMS AND ASSISTANCE TO OPERATIONS

General Maintenance Services for MELLITAH OIL & GAS

The Mellitah Complex is one of the largest gas treatment plants in the world. It is located about 100 km west of Tripoli on the Mediterranean seashore.

The plant is constituted by two sections:

- Wafa Coastal Oil Plant (treats crude oil from Wafa Desert field and Sabratha Platform)
- NC41 Gas Plant (treats gas from Wafa Desert field and Sabratha Platform).

NC41 and Wafa Coastal Plant can produce about 11 BSCM/year of gas and about 120,000 BPD of oil. The crude oil is loaded into tankers via the Jetty and the SBM terminal. Gas from Sabratha Platform, after being treated to remove H₂S, and the gas from the Wafa Desert field are exported by the Greenstream Compressor Station.

Main features:

- Global service since 2004 (construction of the Complex also executed by Bonatti)
 - Maintenance engineering
 - Planning & scheduling
 - Spare parts management
 - Repairs management
 - Predictive, preventive, corrective maintenance execution
 - Assistance to operations
- Full partnering approach (client & contractor teams completely integrated)
- OEM remote assistance managed directly by Bonatti
- Plant modification & upgrades
- Plant shutdown & turnaround
- Training plan for local resources fully integrated in the scope of work

Bonatti living & operation yard:

- Capacity for more than 600 people
- Warehouse and storage yard for materials
- Workshop for pre-fabrication activities
- Equipments and tooling availability
- Offices & HSE training facilities



SABRATHA OFFSHORE PLATFORM, LIBYA MAINTENANCE MANAGEMENT ASSISTANCE CONTRACT

Maintenance management, procurement, field maintenance services and technical support for MELLITAH OIL & GAS

The platform is located 110 km offshore from the Mellitah Complex. It includes all the facilities required for preliminary separation and treatment of the gas produced from Bahr Essalam Field.

Plant capacity:

- GAS Export: 27.5 M m³/day
- FGC recovered gas: 450 KSm³/day
- Condensate Export: 4,620 m³/day

Main activities for CPF and oilfield facilities:

- Preventive/corrective maintenance and inspection works
- Procurement of spare parts, tools, materials and services
- Clearance and logistics management
- Subcontractors management

MELLITAH GAS COMPRESSOR STATION, LIBYA OPERATION & MAINTENANCE

Maintenance service and assistance to operations for GREENSTREAM

Gas from Sabratha Platform and the gas from the Wafa Desert field, after being treated to remove H₂S, are sent by the GreenStream Compressor Station to Sicily through a 600 km sub-sea pipeline.

The station delivers 30,000,000 scm of gas to Italy daily

Main features:

- Global service since 2004 (EPC of the compressor station also executed by Bonatti)
 - Maintenance engineering
 - Planning & scheduling
 - Spare parts management
 - Repairs management
 - Predictive, preventive, corrective maintenance execution
 - Assistance to operations
- Full partnering approach (client & contractor teams completely integrated)
- OEM remote assistance managed directly by Bonatti
- Plant modification & upgrades
- Plant shutdown & turnaround





WEST QURNA 2, IRAQ GENERAL MAINTENANCE SERVICES

Maintenance, repair, operation, modification and commissioning services for LUKOIL

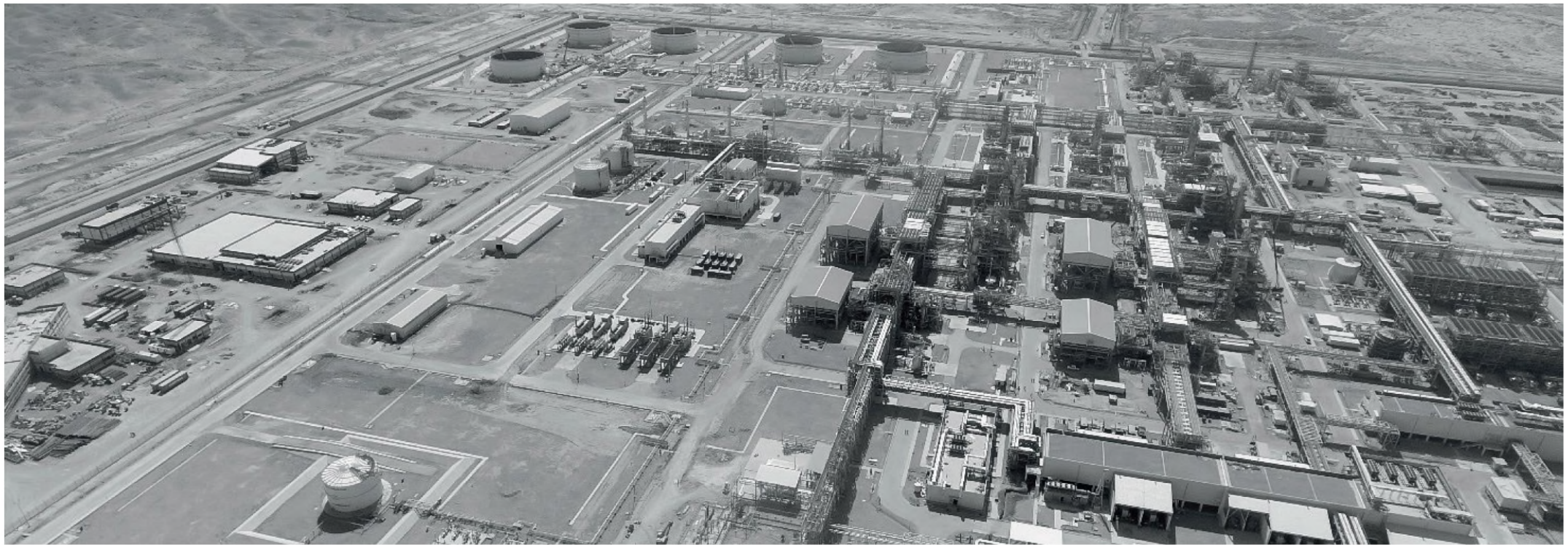
The West Qurna 2 field is located in the Southern Iraq, near the Euphrates and the Tigris confluence, 85 km north-west from Basrah. It is one of the largest Iraqi oil fields and is believed to hold 43 billion barrels of recoverable reserves.

Main facilities involved:

- Central Processing Facilities (CPF)
- Well Pads (WP)
- Euphrates River Water Intake (WI)
- Gas Turbine Power Plant (GTPP)
- Pipelines (in- and outside of contract territory)
- Accommodation Camp (AC)

Main activities:

- Mechanical maintenance
- Electrical maintenance
- Instrument maintenance
- Services for pipeline systems
- Management of change (MOC)
- Workshop & overhaul services
- OEM vendor services
- GTPP operations
- Field power distribution system operation



BADRA FIELD, IRAQ OPERATION & MAINTENANCE

General Maintenance Service for CPF, oilfield facilities and gas turbine power plant for GAZPROMNEFT BADRA

The oil field is located 160 km southeast of Baghdad. The plant contains 3 oil trains and 2 gas trains that process the production from 22 offsite wells. The plant is fully self-sufficient, with power supply, water wells, RO units, air and nitrogen packages and fire station. Main plant components are backed up by redundant equipment to minimise downtime.

Main activities for CPF and oilfield facilities:

- Preventive/corrective maintenance and inspection works
- Procurement of spare parts, tools, materials and services
- Clearance and logistics management
- Subcontractors management

Power plant, main features:

- 5 Gas Turbines with total base load of 125MW
- The generated power supplies energy to Badra Oil Field, Badra Base Camp and Badra city
- The fuel gas used for power generation comes from the gas plant process itself
- The plant is equipped with Intake Air Cooling System (TIC), in order to maintain turbine base load of 25 MW during hot season
- The skid uses a refrigeration package with 3 screw compressors (800 KW each)

Main activities for power plant:

- General maintenance
- Combustion Inspections
- Hot gas path inspection
- Major overhaul
- Detailed inspections using borescope and vibration monitoring devices
- Technical support services for turbine troubleshooting
- Manpower for plant operation activities



PRODUCTION AREA MUNTENIA, ROMANIA GENERAL SURFACE SERVICES

Operation & maintenance, material management, facilities operation and firefighting services for OMV PETROM

In a geographic area of 50,000 km² Bonatti maintains a large network of hydrocarbon storage and transportation infrastructure.

Main assets:

- 8 oil treatment centers
- 2 gas treatment centers
- 3,400 km of pipelines
- 7 compression stations
- 11 tank farms and associated gathering lines
- 8 workshops with more than 40 tool machines
- 5 water and steam injection plants
- 700 km electric power lines
- 2,579 wells
- 1,000 people involved
- Establishment of a maintenance and engineering hub

Main activities:

- Preventive and corrective maintenance
- Repairs
- General overhauling
- defect detection
- Installation, replacement and dismantling works
- Inspection of all surface equipment
- 24/7 operation, management and monitoring of the facilities (with operator license obtained from the Romanian Government)
- Firefighting services

SHUTDOWN & TURNAROUND ACTIVITIES

Extensive experience
in managing crucial events.

Shutdowns and turnarounds are a complex activity that combines high technical/engineering difficulties with the demanding schedules that are necessary to guarantee plant production continuity as far as possible.

Bonatti, as recognized best-in-class provider for such services, fully understand Customers' needs to minimize production loss, by adopting all necessary HSEQ criteria.

We can provide the following full services:

- Data collection
- Planning
- Engineering & procurement
- Execution
- Technical reporting





EL MERK, ALGERIA TRIENNIAL PLANT SHUTDOWN

Planning and execution of the turnkey shutdown of the central production facilities (CPF) for GROUPEMENT BERKINE

The field is located in Block 208, 90 km south of the Sonatrach/Anadarko-operated Hassi Berkine South facility and more than 1,000 km from the Algerian coast.

Main data:

- Total personnel at peak: 905
- Working time: 24/7
- Total manhours: 700,000
- Construction of the temporary living camp: 5 months

Execution timing:

- Pre-Shutdown 26 days
- Shutdown 30 days

CPF – main process and utility systems involved:

- Inlet slug catchers and separators for oil and condensate
- 2 oil/condensate trains
- 1 oil/condensate re-run system
- 1 NGL train
- 1 LPG re-run system
- Gas injection compression
- Water treatment packages
- Utility systems

CENTRO OLIO VAL D'AGRI, ITALY MAJOR SHUTDOWN ACTIVITIES

Engineering, planning, spare parts procurement, construction, and maintenance activities for ENI

COVA Plant is located in Southern Italy (Basilicata Region), and occupies an area of approx. 180,000 sqm. It is the largest onshore treatment plant in Western Europe: crude oil is stored in tanks and then transferred via pipeline to Taranto Refinery, while natural gas is pumped into the Italian distribution network. Water is sent to authorized treatment plants after removal of any hydrocarbon residuals.

The scheduled maintenance includes preliminary activities and full shutdown.

Specialized technicians: 600

Duration: 75 days

Execution: 24/7





MELLITAH, LIBYA 2018 SHUTDOWN AND UPGRADE PROJECT

Typical maintenance shutdown activities plus 3 WP relevant to improvement projects for MELLITAH OIL & GAS

The field is located in Block 208, 90 km south of the Sonatrach/Anadarko-operated Hassi Berkine South facility and more than 1,000 km from the Algerian coast.

Main data:

- Total personnel at peak: 430
- Working time: 24/7
- Total manhours: 90,000
- Execution timing: 19 days

Main activities:

- 16 vessel internal inspections
- 17 leakage points eliminations
- 40 root valves replacement
- 1 Cooling Tower Basin internal cleaning
- 3 PSV calibration
- 4 tube bundles replacement on Lean Amine Trim Coolers
- 11 electrical and instrumentation corrective activities
- 2 UPS upgrading with CEG Assistance
- 30 PM activities

WPs:

1. Replacement of HP Absorber
2. Unit 51/52/53-330 replacement of 12 valves and trim replacement of 10 control valves

EL MERK, ALGERIA 2021 TURNKEY PLANT SHUTDOWN

Planning and execution of the turnkey shutdown of the central production facilities (CPF) for GROUPEMENT BERKINE

The field is located in Block 208, 90 km south of the Sonatrach/Anadarko-operated Hassi Berkine South facility and more than 1,000 km from the Algerian coast.

Main data:

- Total personnel at peak: 982
- Working time: 12 - 7/7
- Total manhours: 800,000
- Construction of the temporary living camp included in the scope of work

First mobilization was on October 2019, with PMT & QAQC team. Due to Covid-19 global pandemic, planning & preparation phase was delayed and execution phase postponed to 2021.



PRODUCTION SERVICES

Increasing clients' production rates and optimizing costs.

Our Well Production Service unit is offering more than 15 years experience in providing rental solutions to on-shore operators demanding fast-track increase of production.

The main services are:

- Multiphase pumping
- Water injection
- Salt dilution and chemical injection
- Gas storage and boosting

The "BOO – Build-Own-Operate" model we propose allows customer to shift from capital expenditure towards operational costs, adding gross production and ensuring a positive cash-flow. Moreover, such approach, fully "skin in the game", facilitates the creation of an actual partnership, contributing to further production enhancement.

By a perfect combination of EPC-skills and O&M-expertise, Bonatti WPS provides fast, reliable, safe and zero-environmental-impact solutions to meet client expectations along the various phases of the service: from conceptual design and selection of the most suitable application, through fast mobilization and start-up on site, up to a 24/7 assistance for a top performance and for an immediate response in case of any problem during the operations.

Our fleet is composed by:

- more than **50** multiphase pumping systems
- more than **30** water/chemical injection skids



WATCH
THE VIDEO



MULTIPHASE PUMPING SYSTEMS

This technology allows to boost a multiphase fluid by using a single skid system instead than more complex plant (water/oil separator and gas compressor solution), including a "no-flare" embedded application.

In 2021 our fleet averagely produced for our clients:

- **150,000 BBL/d** of oil
- **280 MMscf/d** of gas

Main advantages:

- Help the production of wells or manifolds
- Fast mobilization time
- Pumps work up to 100% GOR

Main features:

- High design flexibility
- All equipment are skid mounted

Typical applications:

- Remote and marginal wells production boosting
- Boosting station in presence of multiphase fluid
- Alternative application Vs. ESP, in presence of multiphase fluid



WATCH
THE VIDEO

*low temperature
application*

TECHNOLOGIES

*high temperature
application*



Small Size:
based on Progressive Cavity Pumps technology



Main technical features:
Pump flow: from 11,000 to 29,000 EBPd*
Pump differential pressure: up to 60 bar
Gas Volume Fraction (GVF): up to 97%
Pump Installed Power: up to 180 kW
Remotely monitored



Medium Size:
based on Twin Screw Pumps technology



Main technical features:
Pump flow: up to 100,000 EBPd*
Pump differential pressure: up to 60 bar
Gas Volume Fraction (GVF): up to 100%
Pump Installed Power: 750 kW
Remotely monitored



Big Size:
based on Twin Screw Pumps technology



Main technical features:
Pump flow: up to 420,000 EBPd*
Pump differential pressure: up to 65 bar
Gas Volume Fraction (GVF): up to 100%
Pump Installed Power: up to 2,500 kW
Remotely monitored

*Note: The "E" in front of the flow unit stands for "Equivalent" or in some cases called "Actual" flow, i.e. flow at suction pressure and temperature (when gas portion is compressed to "Suction" as opposed to "Standard").





WELL PRODUCTION SERVICES, MAIN FEATURES

- The most updated technology that fits with Client production needs
- Ultra-fast mobilization / start up: from 10 days, depending upon in-Country equipment availability and production needs
- A dedicated project management team: from early design to site installation
- Full control of the whole supply chain
- Modularized solutions (production enhancement)
- Dedicated construction team
- Dedicated commissioning team: minimum start up
- A local team 24/7 ready to solve any trouble
- Full control of operations: 24/7 monitoring system based on satellite transmission



GREEN SYSTEMS

Supporting the new energy vision with a multidisciplinary approach.

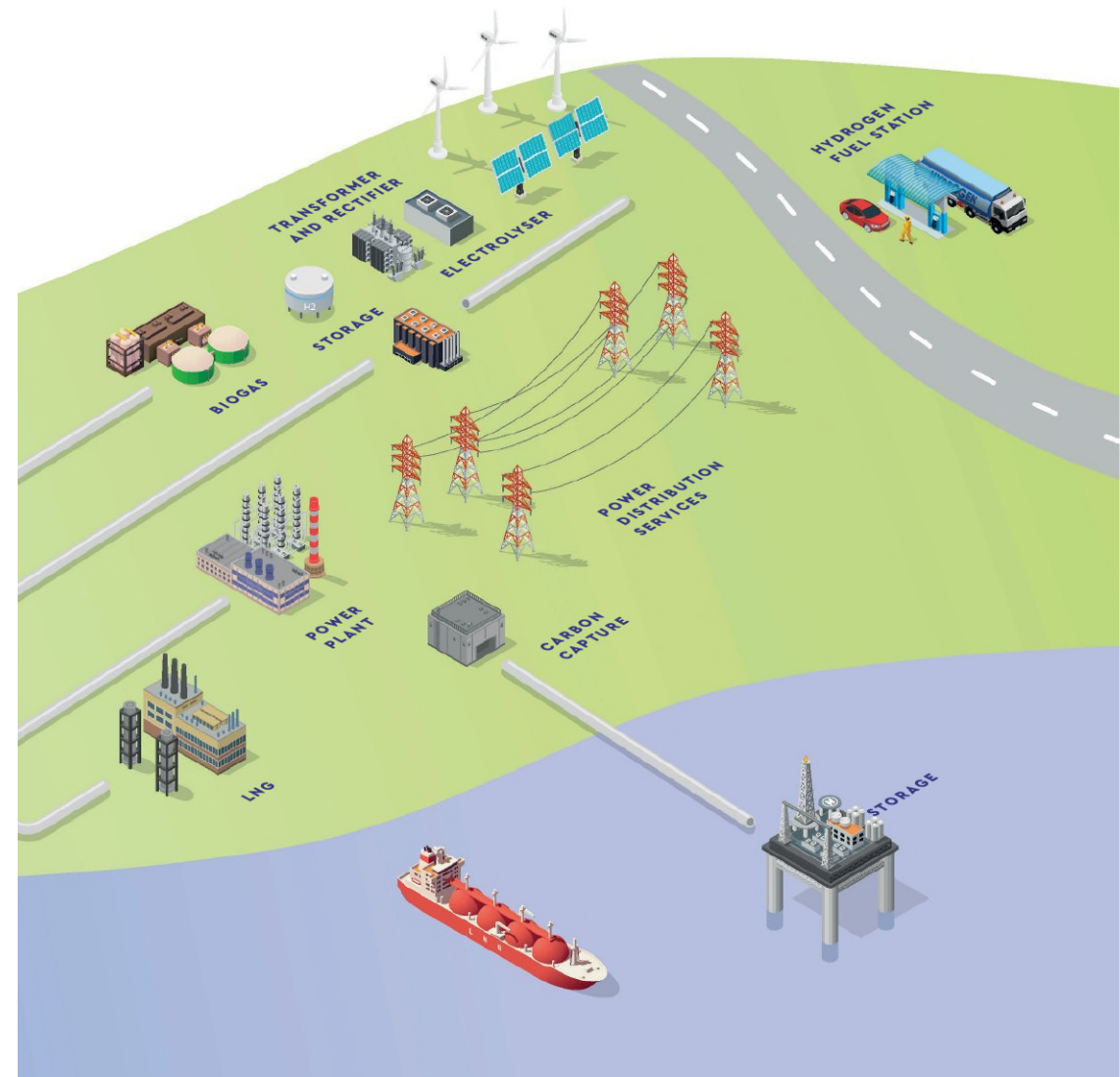
We trust in energy evolution: that means we know that sustainability will drive the next standard of our industry. In this scenario we want to support this new vision becoming the «one shop stop» contractor for the provision of sustainable systems for energy production.

Our Green Systems Business Unit leverages on the capabilities of Bonatti Engineering Centres of Fano (Italy), Milan and Mexico City. We can support our clients starting from selection of the best technology providers and managing the entire project life-cycle of the project, providing engineering, procurement, construction, commissioning, start-up and operation & maintenance of the plant.

Bonatti is your "cradle to operation" of sustainable energy systems.

As EPC Contractor we act in:

- Hydrogen
- Biogas and Biomethane
- Carbon capture utilization and storage (CCUS)
- Energy efficiency systems (cold ironing, retrofitting of existing power plants, etc)



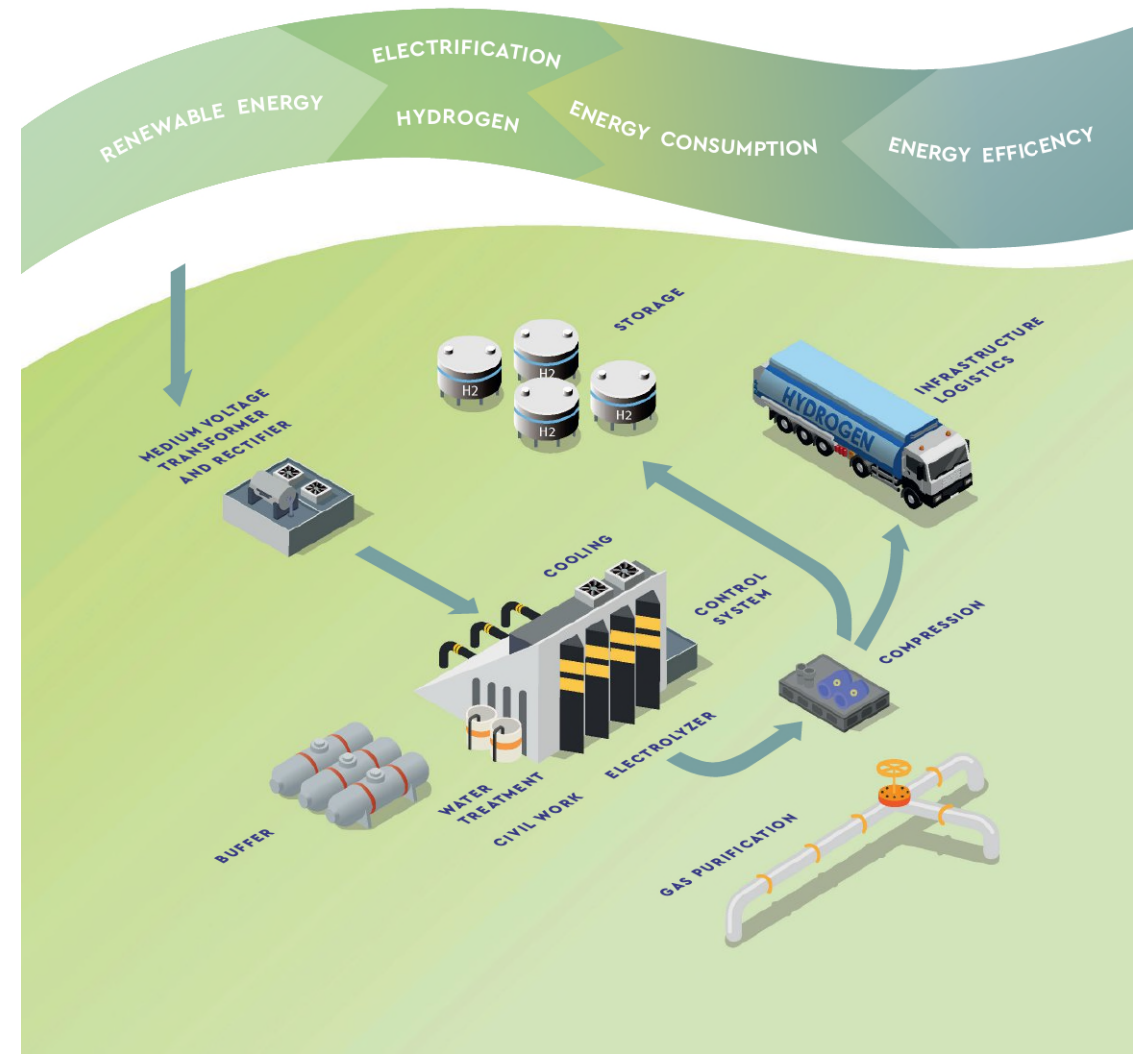
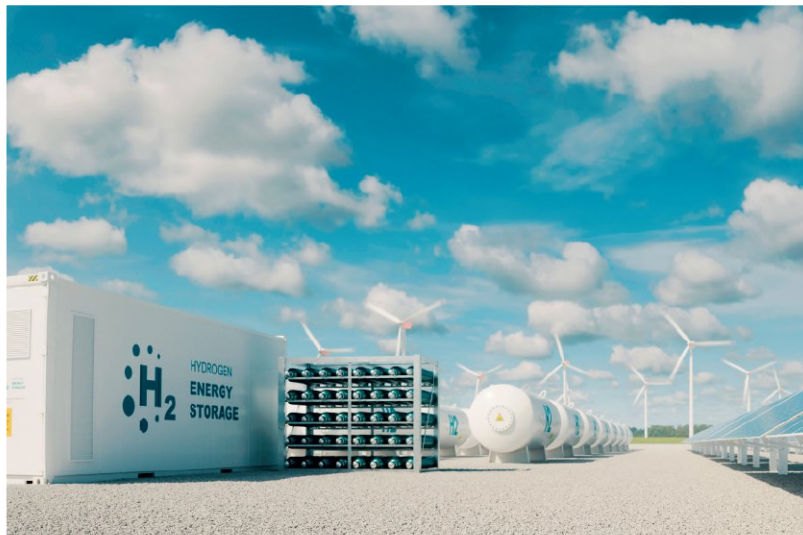
HYDROGEN

European Union has committed to reach carbon neutrality by 2050. Electrification & Renewable can have a significant impact on the 55% of the CO₂ emissions.

45% of CO₂ are related to so called "hard to abate" sector (no scalable electrification, energy intense, CO₂ in production process). H₂ is a key driver to support the de-carbonization path in hard to abate sector.

A NEW PILLAR TOWARDS A FULL DECARBONIZED WORLD

Hydrogen is a complementary energy vector to tackle GHG in the hard to abate sectors.



BIOGAS AND BIOMETHANE

We have developed knowledge of both wet and dry (or semi-dry) biodigester with several technology providers as Veolia, Schrack, Hzi, etc.

The biogas plants have the aim to process the urban solid waste or agricultural waste in order to produce biogas with high content of CH_4 through a biological digestion.

The biogas can be used «as is» through a gas turbine in order to generate power for local users or upgraded to biomethane and then delivered to the national gas grid.

This process can reduce the waste from urban or agricultural wastes creating energy from scraps and therefore it is a strong contributor to the «circular economy» effort.

Biogas production facilities require specific process knowledge to select the best bio-digestion process depending upon the waste composition, the sorting of the wastes to treat, prevention of odorous emissions, biogas upgrade to biomethane.



MILAN AREA, ITALY BIOMETHANE PLANT

EPCM of the Electro-Instrumental and Automation BOP for JV Sorgenia / Agatos

The scope of the work includes the thermal island (biomass boiler) of the biomethane production plant.

This plant will treat 35,000 tons / year of OFMSW (Organic Fraction Solid Urban Waste) and will allow an annual production of approximately 4 million cubic meters of biomethane that will be injected into the Italian national gas network managed by Snam.



CARBON CAPTURE

During the latest decades we gained a wide experience in EPC projects of gas purification plants, gas pipelines and compression stations executed for oil & gas sector. This expertise includes material selection, procurement of complex equipment and packages, construction and commissioning services provided to the major players of energy sector.

Due to this path, we have developed an extremely deep knowledge of complex compression systems that allows to step in the carbon capture usage and storage with a know-how transfer from traditional energy business into a sustainable one as CCUS.

The main steps of a ccus plant can be summarized as follows:

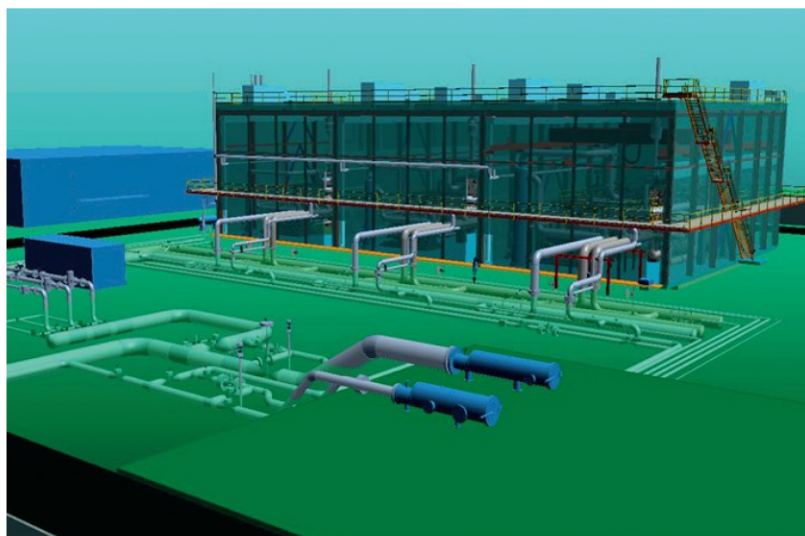
flue gases collection

CO₂ separation and purification

CO₂ compression at supercritical conditions

transfer to storage location via pipelines

The most common technologies for the CO₂ separation are ammonia based (shell process and similar ones) and chilled ammonia ones (such as bh one). New technologies are under development such as ammonium salts or enzymatic adsorption.



Rendering of Porthos Project (Netherlands)

RENEWABLE ENERGY, EXPERIENCES IN BIOMASS PLANTS

Biomass is plant-based material used as fuel to produce heat or electricity. Examples are wood and wood residues, energy crops, agricultural residues, and waste from industry, farms and households.

Approximately 86% of modern bioenergy is used for heating applications, with 9% used for transport and 5% for electricity. Most of the global bioenergy is produced from forest resources. Power plants that use biomass as fuel can produce a stable power output, unlike the intermittent power produced by solar or wind farms.

The IEA (International Energy Agency) describe bioenergy as the most important source of renewable energy. The IEA also argues that the current rate of bioenergy deployment is well below the levels required in future low carbon scenarios, and that accelerated deployment is urgently needed.

In IEA's Net Zero by 2050 scenario, traditional bioenergy is phased out by 2030, and modern bioenergy's share of the total energy supply increases from 6.6% in 2020 to 13.1% in 2030 and 18.7% in 2050.

CROTONE, ITALY BIOMASS POWER PLANT



EPC for Biomasse Italia

BANDO D'ARGENTA, ITALY BIOMASS POWER PLANT



EPC for San Marco Bioenergie

The scope of the work includes in both projects the thermal island (biomass boiler) of the biomethane production plant. The turn-key installation of 2 10MW steam turbine units and relevant wood chips boilers, civil works and plant auxiliary systems are also included.

Both project were executed by Bonatti subsidiary Carlo Gavazzi Impianti.

COMPLEMENTARY SOLUTIONS FOR POWER GENERATION, TRANSMISSION AND DISTRIBUTION

Bonatti's subsidiary Carlo Gavazzi Impianti has full capability in EPC of any type of power plant. The references of Carlo Gavazzi Impianti range from nuclear plants to control system integration up to the recent renewable installations. This condition enables our Group to provide a full spectrum of services for power generation, transmission, automation and distribution fields.

The integration of engineering in all the disciplines with the capacity of directly executing construction and commissioning activities makes available to customers a complete package together with the advantage of a single interface avoiding disruptions and duplication of efforts.

The turnkey approach in power plant building is associated to a wide experience in HV/MV substations, revamping and rehabilitation of substations and grid control.



ALGERIA SONELGAZ SUBSTATIONS

Extension of 4 electrical Substations up to 400kv (Salah Bey, Bordj Bou Arreridj, Ramdane Djamel and Djelf) for SONELGAZ

The Scope of Work includes engineering, procurement and installation of:

- Steel structures
- High voltage equipment
- Protection & control systems
- Telecommunication & telecontrol systems

Key Features: completed in 18 months and avoiding power shut down

ALBANIA TIRANA SUBSTATIONS

EPC of a 400/220/110 kv substation for PMU / MECE (final client OST – Albania National Grid Operator)

Key Characteristics:

- Three voltage levels: 400 kV, 220 kV and 110 kV
- 24 bays
- 2 three-phases autotransformers 300 MVA 400/220 kV
- 2 three-phases autotransformers 90/120 MVA
- 8000mq

Key Features: Tirana 2 is the most important substation in Albania since connects its grid to the European one.

ITALY RFI SUBSTATIONS

Construction, maintenance and upgrading activities on EPC basis of HV substations for RFI (Italian Railway Network Operator)

Key Activities:

- Ancona Substation: maintenance and upgrading of the HV section and Interconnection
- Bari Substation: maintenance and upgrading of the HV section and Interconnection
- Northern Italy System: construction, maintenance and upgrading of multiple substations

OUR ASSETS

21 permanent hubs worldwide

170 hectares surface area for logistics and workshops

300 million euro of owned equipment



San Miguel de Allende, Mexico

Hassi Messaoud, Algeria

Atyrau, Kazakhstan



Heavy duty equipment

OUR FACILITIES

The pre-fabrication sites are strategic in accelerating projects execution

BONATTI WELD LAB

A dedicated area for:

- Technology development and enhancement
- Welding sample and machinery qualification
- Equipment testing and improvement



Hassi Messaoud, Algeria



Aksay, Kazakhstan



Tengiz, Kazakhstan

Valle de México, Mexico





#peoplemade

Bonatti Head Office

Via Nobel, 2/A - 43122 - Parma, Italy
Tel. +39 0521 6091 - marketing@bonatti.it - sales@bonatti.it

All rights reserved © 2022 Bonatti S.p.A. - Capital Stock € 50,696,792,28 wholly paid-up - Bus. Reg. Parma No. 02188130153 - R.E.A. No.130274 - Tax Code No. 02188130153 - VAT No. IT00765080346.

Reproduction and diffusion of the material contained in publication using any type of means whatsoever is prohibited without the written consent of Bonatti S.p.A. All trade and service marks cited within this publication are protected by copyright laws and are the exclusive property of the companies that own them. The Bonatti S.p.A. logo and name and the ones of its own subsidiaries are the property of Bonatti S.p.A., Parma, Italy.

www.bonatti.it

2022

I