

ANDINA TURBOMECAÑICA GENERAL PRESENTATION

Thermal power plants relocation (Gas Turbines, Diesel Engines, Combined Cycles)

Spare parts and services for thermal power plants

Turnkey or partial EPC projects

Full O&M services (gas turbines, diesel engines, combined cycles, steam turbines, coal plants and other types of fossil fuels).

Our company specializes in conventional technology of thermal power plants (gas turbines up to "class E" in open cycle, combined cycle or cogeneration, fast, semi-fast and slow diesel engines, diesel fuel, HFO, NG, biomass or syngas), but also works to a lesser extent in geothermal energy, solar or wind power plants

Our field of action covers the whole world with the exception of countries at war, but with particular emphasis on Africa and Latin America.

Our action is always guided by the objective of sustainable development.



1 General overview :

The Andina Turbomecánica main office is located in Santiago de Chile and we have more than 35 years of experience in the operation, maintenance, construction and commissioning of combined cycle power plants, gas turbines, engines, etc. In mid-2013 Andina Turbomecánica opened a branch in Peru, and in mid-2015, it acquired an Argentinian company with more than 20 years of experience in our field in the vast Argentinian market.

Moreover, having been awarded early 2016 a tender for the integrated O&M of a 40 MW power plant located in Antananarivo, the capital of the country of Madagascar, Andina Turbomecánica opened in this country a 100% subsidiary, Austral TurboMachines.



The purpose of the company is to provide the best service to power generation companies in Latin America and Africa, providing engineering services ranging from small adaptations in gas turbines to turnkey EPCs of combined cycles or medium and low speed reciprocating engines.

Also provide, at competitive prices, all the required special and common spare parts, always committing to deliver top quality products (OEM) and taking advantage of the proximity that our strategic location in both continents confers. Regarding this, our company has new spare parts of gas turbines (FR6B and FR5) in stock, conditioned and ready for quick dispatch from our warehouses.

Today, power generation requires a deep commitment to the environment. Therefore, ANDINA TURBOMECAÑICA developed an important program that includes:

- Development of an emission reduction system based on the integrated SCR process with high efficiency silencers and reduced head loss, suitable for gas turbine gas temperatures and speed in open cycle. The corresponding investment is approximately 30% greater than that of a water injection system, but 3 times less

than a DLN type system. And the associated operation and maintenance cost is neglectable

- Installation of systems for increasing power and efficiency of gas turbines, associated with a reduction from 30% to 50% of emissions.
- Modernization of gas turbine control systems and other generation equipment
- Modernization or replacement of AVR systems for small and big electric generators.

We have more than 35 years of experience in the Operation and Maintenance, construction and commissioning of plants powered by fossil fuels, gas, coal; as well as insular electrical systems equipped with reciprocating engines and gas turbines. We have the following capabilities:

- Maintenance of HFO diesel engines, steam turbines, gas turbines and plant auxiliaries.
- Project management for partial projects as well as turnkey ones.
- Expert engineers in Operation, Mechanical, Electrical Maintenance, Instrumentation and control.
- Conceptual and basic engineering of generation plants and their systems.
- Completion of integrated turnkey works (management, engineering, mechanics, electricity, I&C).

We have the necessary experience to evaluate the operating conditions - performance - of equipment to schedule and execute the planned and emergency interventions, their reconditioning, relocation and optimized operation for the continuous technical-economic benefit of our customers.

We have carried out the evaluation of reciprocating engines, gas turbines, combined cycle and coal-fired thermal plants in China, France, the Philippines, Africa and South America. These inspections are usually composed of:

- Evaluation of historical operation and maintenance information, hours of operation of components and parts. Diagnostics
- Internal inspection of components through videoscopy or disassembly.
- Performance evaluation of components and accessories.
- Budgets analysis.



2 Quality organization

Considering our sustainable development policy, we've performed, from the company creation a strict organization policy and developed between our staff a permanent quality, safety and environment culture (more than a simple « environment respect» policy, our lead is the environment preservation). Thanks to the deep rooting of this culture in our team, Andina Turbomecánica is ISO 9001, ISO 14001 and ISO45001 certified since 2015.



3 Main experiences

3.1 Combustion Inspection of Unit Fr9E CT Santa Lidia.

At the Santa Lidia generation plant, ATM performs a Combustion Inspection of a General Electric Fr9E generation turbine. Main tasks were;

- Disassembly, inspection, replacement and assembly of Flow Sleeve, Liners, transition piece, etc
- First stage nozzle mapping.
- Pressure tests on spray hoses.
- Inspection and tests on check valves
- Inspection, replacement and tests on flame detectors.
- Measurement of backslash, X1, X2, bushing and gap, in IGV, later regulation tests

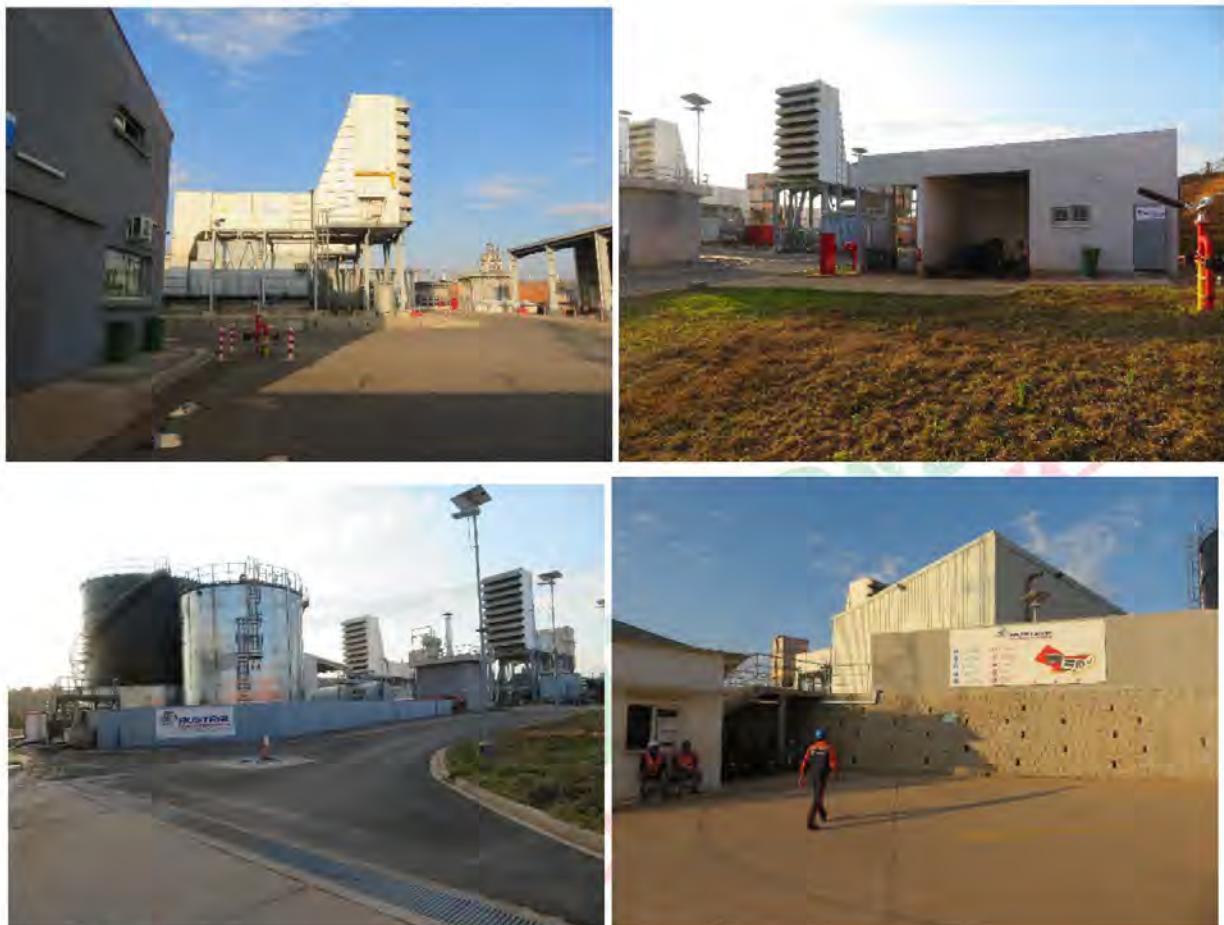
The turbine was commissioned 2 days ahead of schedule without any problem.



3.2 Operation and Maintenance of a 50 MW power plant at Antananarivo, Madagascar. Jovenia.

The EPC initially selected by the power plant owner for its construction (relocation of two TAC GE PG5341P running on diesel) having failed, the owner retained ATM to resume construction, complete it and carry out Commissioning (both TAC were converted to operate on HFO and the control system replaced). This service having been a success, ATM was entrusted with the O&M of this plant for a period of 2 years.

At the end of 2019, the O&M contract was renewed for 3 renewable years. At the end of 2020, despite the extreme difficulty in operating and maintaining the machines (site located in the middle of the capital, fuel, total absence of qualified subcontractors on the island), the average availability of machines was over 99 % over the year 2020, and 99.6% over the average of the three years of the contract.



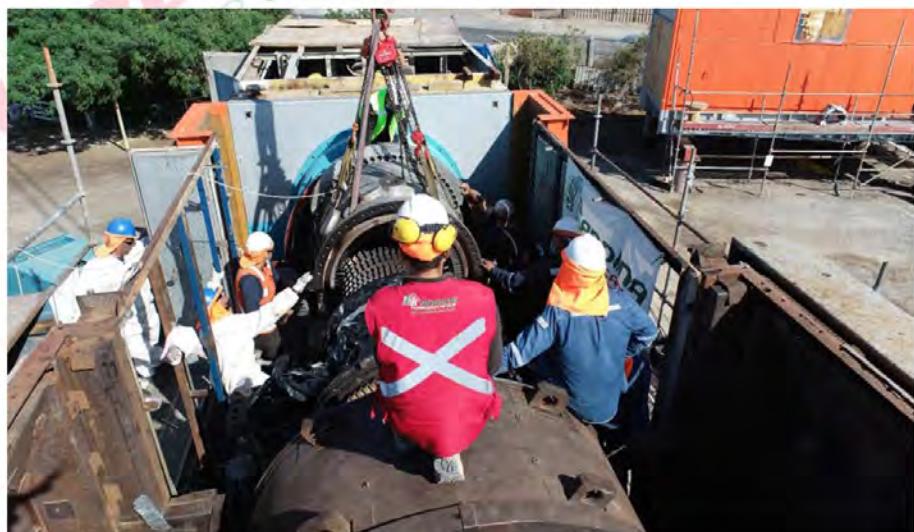
3.3 Renovation Unit FR6B of 40 MW Arica, Chile

At the end of 2021, ATM carried out the complete renovation (Major Inspection and reconstruction of damaged components) of a GEC ALSTHOM Fr6B Generation Unit, delivering the unit and all its auxiliaries refurbished and ready to be shipped and subsequently installed at their destination. This generation unit was stored for almost 15 years waiting to be installed. This task was developed by a multidisciplinary team of professionals who covered all the various tasks in the renovation of this unit.

In this project, work was carried out was:

- Turbine and alternator control system change (TMS1000).
- Conversion to gas.
- Replacement and inspection of turbine and generator bearings.

- Rotor disassembly and cryogenic cleaning of components.
- Major maintenance of the alternator.
- Maintenance of auxiliary and power reducers.
- General maintenance work on auxiliary equipment.



3.1 Tè Power plant in Conakry Commissioning

In 2020, we commissioned and finalized the construction of the Tè Power plant in Conakry, equipped with 6 MAN 18V32 / 40 engines, with the collaboration of a team from Shanahan Energie in charge of administration.



3.1 O&M of the Balingué, Bamako

In partnership with the French ACEPP company and EDM (owner), we performed the commissioning and the O&M of this power plant equipped with 4 10 MW Wärtsilä 18V38B reciprocating engines during its 3 first years of operation. The O&M was then transferred to EDM.



3.2 Tamaya, 10 Sulzer16ZAV40S installation and commissioning

In 2010 and 2011, together with our sister company (same owner), we performed the installation and commissioning in turnkey contract project of the Tamaya power plant that is powered by 10 gensets Sulzer 16ZAV40S.

The equipment had been relocated from China and the engines were duly refurbished by Wärtsilä before the recommissioning.



3.3 Replacement of Flender Graffenstaden Power gearbox Comodoro Rivadavia, Argentina. Pan American Energy

ATM, as the sole representative of Flender Graffenstaden in the southern American cone, performed the Flender Graffenstaden TX61-1CV power gearbox replacement service at the request of CT Cerro Dragon belonging to Pan American Energy.

In addition, in this intervention ATM performed a Power Reduction-Generator alignment.



3.4 Turnkey supply of the Power Generators group (GE backup) Public Health Institute, Ñuñoa, Chile.

ATM carried out the basic and detailed engineering of the system, the supply of the equipment, its turnkey installation, as well as the Commissioning.

Since then, it has performed preventive maintenance on the generator sets installed at the ISP (Chilean Public Health Institute) power plant. This room has a 2 MW of power.



3.5 Frame 5 Borescope PGT10 Tres Puentes Thermal Power Plant Punta Arenas, Chile. EDELMAG.

ATM carried out a boroscopy inspection of a Hitachi Frame 5 turbine at CT Tres with a power of 25.6 MW. This generation equipment had 17 compressor stages and 2 turbine stages. Inspection was made in: compressor blades, turbine blades and exhaust area.



3.6 Generator Rotor earth fault investigation of the Nueva Renca Thermal Power Plant, Chile. GEM.

The same day the failure occurred, ATM sent a specialized team to the plant that diagnosed the failure by borescopy and electrical tests.

After this diagnostic stage, ATM presented an offer for the replacement of the equipment with an identical used one available immediately with one of our international clients, as well as an alternative of integral rewinding of the rotor and repairs of the stator in a delivery period of less than 3 months.



3.7 AVR Failure assistance in Nueva Renca thermal power plant, Chile. GEM

ATM appeared at GME's Nueva Renca Thermal Power Plant to solve a fault originating in the 1500 kVA Emergency Auxiliary Diesel Generator Group. This activity was carried out after a synchrony failure due to loss of excitation in the rotor fields, triggering protections, leaving this equipment UNAVAILABLE. In this work, tests were carried out on selectors, generator DVR, transformers and signal cables. After these, a test is requested from the control room, changing the condition of the generator set to AVAILABLE, waiting to start operation when required.



3.1 Update of control and change system of AVR Central San Isidro

ATM was awarded a tender for the replacement of the AVR, synchronizer and power stabilizer (PSS) on Mitsubishi gas and steam turbines of the combined cycle of San Isidro, Chile, which belongs to ENEL.

The installed equipment was manufactured by the Mexican company SEPAC, which participated in its installation under the direction and coordination of ATM.

The new equipment was integrated into the Diasys Netmation control system by the ATM I&C Department, which allowed total remote control from the operator screens in the control room.



3.2 Alignment supervision and commissioning of Auxiliary gearbox Flender Graffenstaden AA51DA gas turbine 23 of the Alto Valle Thermal Power Plant. Neuquén. Argentina. "ORAZUL"

ATM, in its capacity as the sole representative of Flender Graffenstaden in the southern American cone, performed the Flender Graffenstaden AA51DA auxiliary gear change service at the request of CT Alto Valle belonging to ORAZUL. In addition, ATM performed an auxiliary gear-turbine alignment in this intervention.



3.3 Generadora Metropolitana-Standardization of IGV Actuator CT Santa Lidia. Chile.

ATM performed standardization of the IGV Actuator at the Santa Lidia Thermal Power Plant belonging to Generadora Metropolitana. In this intervention, the correct calibration of the IGV opening, both mechanical and the signal sent for visualization in the control room of the plant, was verified. Once this was confirmed, the blocking installation was carried out on the hydraulic actuator stem.



3.4 Maintenance of Emergency Diesel Generators Nueva Renca Thermal Power Plant, Chile. GEME

Over the last 3 years, ATM has been carrying out maintenance on the back-up generator set of the Thermal Power Plant. This consisted of changing the lubrication and cooling fluids of the machine; as well as the corresponding filters, including the fuel filter.



3.5 Replacement of the PGT10 turbine power gearbox at La Pampilla Thermal Power Plant, Repsol. Peru.

ATM replaced the PF 100D Flender Graffenstaden power gearbox in the TG50 of the La Pampilla thermal power plant. In this intervention, in addition to changing the gearbox, assistance was provided for the alignment of the Generator-Power Gearbox.



3.6 Boroscopic Inspection FR9E Santa Lidia Generadora Metropolitana Thermal Power Plant. Chile. GEME.

ATM carried out a boroscopic inspection of the Frame 9E unit located at the Santa Lidia Power Plant in order to determine its condition or status. This General Electric type 9E machine burns diesel and its generation is 132 MW.



3.7 Maintenance of air compressors Minera Yamana GOLD in El Peñón, Antofagasta. Chile.

For the past 5 years, ATM has been in charge of scheduled and corrective maintenance of the air compressors at the Yamana Gold and Silver mine in Antofagasta.



3.8 Supervision, inspection and replacement of Flender Graffenstaden VF63 gearbox bearings. Valle Hermoso Thermal Power Plant. Cochabamba. Bolivia. "ENDE"

ATM performed a major inspection service for the Flender Graffenstaden VF63 power gearbox at the request of ENDE Valle Hermoso Thermoelectric Power Plant. In this intervention, dimensional controls, change of bearings, tests of penetrating inks and assembly/disassembly of the machine were carried out.



3.9 Maintenance of Air Compressors and dryers at Atacama Thermal Power Plant, Mejillones and Taltal, Antofagasta. Chile.

Over the last 3 years, ATM has been in charge of the scheduled and corrective maintenance of the air compressors and absorption dryers of the power plants. ENEL in the Antofagasta region.



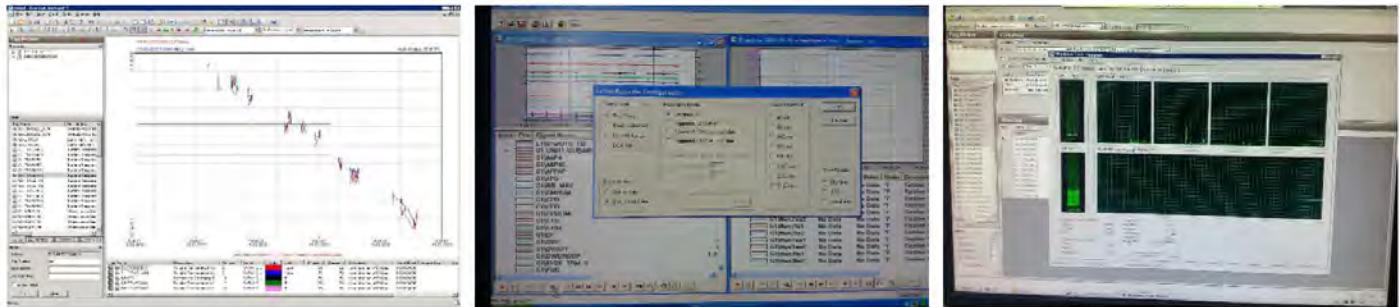
3.10 Repair Gearbox Renold Limited 8/0. Recoleta. Chile "INTECVENT".

ATM performed inspection and major maintenance of endless reduction gear of a conveyor belt. Works were carried out on the Wheel, drive pinion, bearings and seals of the machine.



3.11 CEN tests Santa Lidia Thermal Power Plant Metropolitan Generator. Chile. GEME

ATM trained GEME personnel on the use of the historian query tools (Historian Client), creating an ON LINE spreadsheet in Query for rapid data collection of turbine wheel temperatures during the tests required by the CEN, allows know if we are close to the stability criterion in a power step and ATM support for the data collection process in the power tests requested by the CEN.



3.12 Emergency Boroscopic inspection FR9FA Nueva Renca Thermal Power Plant, Chile. "GEME".

ATM appeared in the new Renca thermal power plant due to a failure that occurred in the FR9FA unit, Generadora Metropolitana requested ATM support to carry out an emergency boroscopy of the combustion part to identify the root cause of the problem.



3.13 KWE- CM-80 HP- gearbox maintenance. Chile "INTECVENT".

ATM performed maintenance on the 80 HP KWE gearbox, to which work was done to change bearings and seals, in addition to dimensional controls.



**3.14 Cincinnati gearbox maintenance MILACRON INC. CM80 HP.
Extruder Plant. Independence. Chili. "VEKA"**

ATM carried out a visual inspection at the VEKA plant since the machine was making unusual noises, then it was uncoupled and transferred to the Andina workshops to carry out major maintenance work on them.



**3.15 Borescope Service Feeding Pumps Byron Jackson (HDB) of
the Nueva Renca 2 Thermal Power Plant Boiler. Renca. Chile
GEME.**

ATM carried out a boroscopic inspection of the 2 Byron Jackson boiler feed pumps installed since 1998. The Nueva Renca thermal power plant at that time had about 125,000 hr. of operation.



**3.16 Maintenance GE Motor/Generator Generator group PUYANG.
Llay Llay. Chili. "Agricola Gonzalez Pacheco".**

ATM carried out major maintenance of the Generator/Engine with a change of the crankshaft rear seal and filters to the group belonging to the PUYANG model PFC313S generating unit. This group has a power of 313 KVA.



3.17 Inspection of PG PG9171E clutch/fuel pump at Los Guindos 2 thermal power plant. Cabrero. Chile "Inprolec"

ATM performed a technical inspection service on the operation of the auxiliary gearbox at INPROLEC request at the Los Guindos 2 Thermoelectric Power Plant (bi-fuel, Gas/Diesel). During the commissioning process, the electromagnetic clutch for the coupling of the liquid fuel suffered a breakdown, apparently as a result of a lack of lubrication. The objective of Andina Turbomecánica's intervention was, therefore, to diagnose the origin of the lubrication failure and to correct it.



3.18 Borescopic inspection of FRAME 9E Gas Turbine and Generator at Los Vientos Thermal Power Plant. Llay Llay. Chile GEME.

ATM performed the borescope service on the turbine, compressor and generator.



**3.19 Power gearbox maintenance Flender Graffenstaden TX61-1CV.
Cerro Dragon Thermal Power Plant. Commodore Rivadavia,
Argentina. Pan American Energy.**

ATM performed the major inspection service for the Flender Graffenstaden TX61-1CV power gearbox. This plant is located 70 kilometers from the city of Comodoro Rivadavia in the province of Chubut, Argentina.



3.20 Inspection Major gearbox FR9E. Argentina "YPF"

The supervision service of the Major Inspection of the auxiliary gearbox Flender Graffenstaden model ZA30ZZ, s/n 6852 corresponding to the TG02, was carried out at the request of YPF at the El Bracho Thermoelectric Power Plant. This plant is located in the city of El Bracho, which belongs to the province of Tucumán in Argentina.

This gearbox is installed on a GE PG9171E gas turbine. It is worth mentioning that these works were carried out in parallel to other activities at the Central facilities.



3.21 Cryogenic cleaning and borescopic inspection of generator unit Frame 5, Diego de Almagro. Chile "SW Consulting".

ATM appeared at the TRANSELEC electrical substation in Diego de Almagro after a ground fault occurred in the Frame 5 unit. This intervention was an emergency to detect a fault in the unit's generator. Additionally, cryogenic cleaning of the alternator stator and borescopic inspection were carried out in order to rule out problems in the alternator.



3.22 GENNEIA/2017-0812 – Auxiliary SKODA Gearbox Maintenance- El Bracho Thermal Power Plant, Tucumán. Argentina "Geneia"

ATM performed major maintenance on the Škoda model TS auxiliary gearbox. These works consisted of the complete inspection of the equipment and the main lubrication pump. After the intervention in it, it was left in optimal operating conditions, respecting the tolerances reported by the manufacturer.



3.23 O&M of Central LMX – France

This steam plant equipped with 2 Alstom units of 250 MW with pulverized coal boilers was located in France and one of the key engineers of our company was successively its Maintenance Manager and then Operation Manager for several years, reaching ever higher availability levels. of 95%.

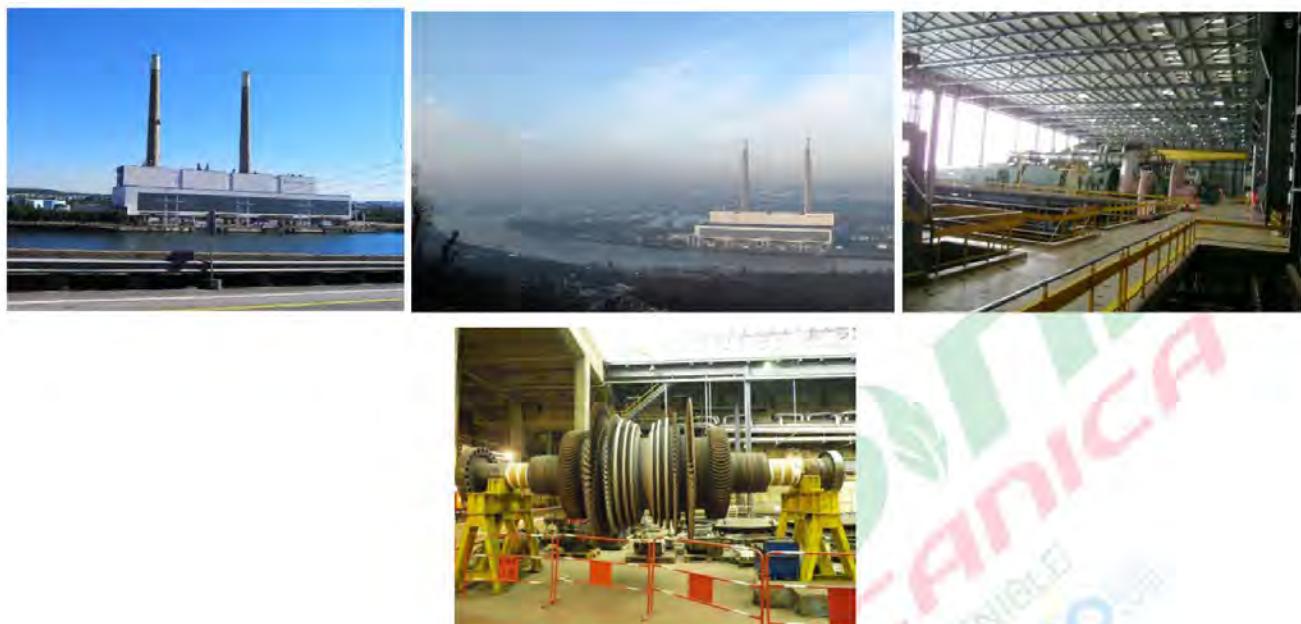
Today the plant is decommissioned.



3.24 O&M of Central PCE – France

This steam plant equipped with 4 600 MW Alstom units with heavy oil boilers was located in France and one of the key engineers of our company was its Maintenance Manager for several years.

Today the plant is decommissioned.



3.25 San Isidro AVR replacement and upgrade, Quillota, ENEL Chili.

Combined cycle powered by one Mitsubishi 701FD gas turbine and a Mitsubishi steam turbine. Diasys Netmation control system.



3.26 GT, generator and HV path control systems replacement CT NOOR 1, Antananarivo, Madagascar.



3.272 Sulzer 16ZAV40S diesel engines provision

In 2016, after having performed an technical assessment at the Kaloum 3 power plant in Conakry, ATM provided to the US company AIS 2 Sulzer 16ZAV40S diesel engines to be used in the power plant rehabilitation project.



3.28 Supply, installation and commissioning of a 1000 kVA generator set for the Chilean Public Health Institute (Instituto de Salud Pública ISP).

In 2020 and early 2021, during the global coronavirus pandemic (COVID-19), ATM supplied, installed and commissioned the 1000 kVA backup generator set for the Institute of Public Health of Chile.



3.29 CONARSA

Commissioning and then Operation of a 400 MW Combined Cycle in in the city of Pilar, Córdoba province, Argentina. 2 TG Siemens STG5-2000E, 2 Cerrey boilers, 1 TV Franco Tossi. From 2011 to 2017.



3.30 6 Sulzer 16ZAV40S diesel engines provision

In 2019, after having performed the disassembly and partial refurbishment of the related BOP, ATM provided to the Chinese company Royce Power 6 Sulzer 16ZAV40S diesel engines to be used for their Philippines power plant rehabilitation.



3.31 FR6B of Tit Mellil, ONE Morocco, Major Inspection.

In partnership with the company CFATEC, we carried out the major inspection of the TG2 of the CT of Tet Mellil belonging to ONE. This turbine is equipped with a GE Speedtronic Mark V Control Command system which had to undergo a complete renovation.



3.32 Conversion of the MODBUS communication protocol, Alto Valle CT, Orazul, Argentine.



3.33 Microrec control system trouble shooting and general maintenance, CT Pointe des Carrières, EDF, Martinique.



3.34 Trouble shooting and maintenance of water injection system unit FR5, EDF, Martinique.



3.35 Guaracachi.

Supervision of the reconstruction of a 125 MW hydrogen cooled Siemens generator after a main explosion. Rewind of rotor and stator, cooling system re-engineering, installation and commissioning. Central Guaracachi, Ciudad de Santa Cruz, Bolivia.



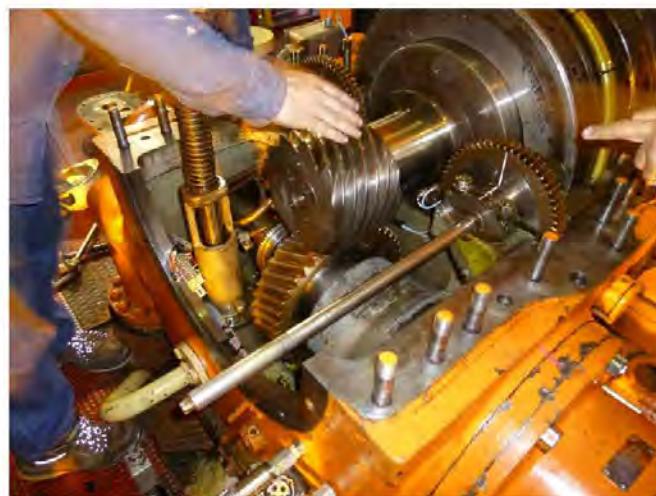
*3.36 Major Overhaul of a 25 MW alternator unit LM2500,
Cooperativa Río Grande, Argentina.*



*3.37 APR pumps, SR01 and stop valves TV2C heavy maintenance ,
ENDESA Gas Atacama, Chili.*



3.38 Steam turbine lube oil pump repair, CT Alto Valle, Orazul, Argentina.



3.39 Gearboxes maintenance of TG FR9E, YPF El Bracho, Argentina.

3.40 Gearbox Maintenance and replacement, Total Austral, Argentina.

3.41 Mapocho el Trebal

Supervision of the bio-gas generation units installation. 4 Jenbacher engines model JMS-620.GS-BL-E25. Mapocho sewage treatment station, El Trebal, Santiago - Chile.



3.42 EGASA Pisco (Pérou).

Major Overhaul of two load gearboxes TRL65CV installed on two ALSTOM Frame 6 units. Alignment correction and commissioning of the 2 units.



3.43 UTE (Montevideo, Uruguay).

PG9171E Major Overhaul at Montevideo en Uruguay.



3.44 EDELMAG (Punta Arenas, Chili).

Hitachi Frame 5 PG 5341 gas turbine conversion to dual fuel and Mark V control system upgrade to dual fuel mode.



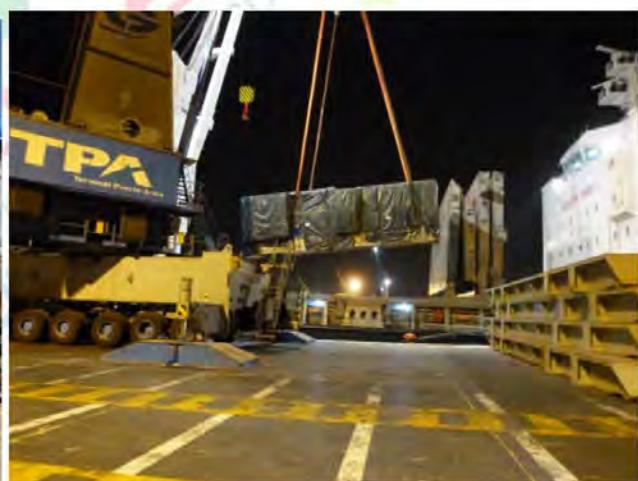
3.45 EGASA Pisco (Pérou).

Two HGPI performance on ALSTOM Frame 6 gas turbines, including 1rst stage buckets replacement.



3.46 TERMONOR.

Relocation of a Thermal Power Plant equipped with a 38 MW Alsthom PG6541B Open Cycle gas turbine with liquid fuel. Refurbishment, disassembly and packing for sea shipping, complete conversion from 60Hz to 50Hz. The Installation and commissioning EPC were programmed with the client, but at the end the project had to be canceled after the unit was delivered.



3.47 IC POWER.

Turn key provision of a gas compression station at Colmito power plant (Royce Royce Trend60).



3.48 Hydroelectric power station Río Hondo.

Technical inspection and diagnosis of the generator, Province of Santiago del Estero, Argentine Republic.

3.49 SHERRITT POWER LTDA.

Installation and commissioning of two Frame 6 turbines and a Frame 5 turbine at Varadero Thermal Power Plant.

3.50 Yacimiento Río Turbio S.E.

Technical direction of commissioning of steam generator No. 2 and No. 3 for Río Turbio Thermoelectric Power Plant. Province of Santa Cruz - Argentina.

3.51 Central Puerto S.A.

Provision of specialized labor for mechanical and electrical maintenance of steam turbogenerators and auxiliary services of their power plants. Buenos Aires, Argentina.

3.52 ABB.

Maintenance (Major Inspection) of two 25 MW Alsthom turbogenerators. Buenos Aires, Argentina.

4 Tests and measurements.

4.1 Central Térmica Dique.

Execution of electrical tests of medium voltage generator - Province of Buenos Aires - Argentine Republic.

4.2 Petroquímica Río Tercero.

Execution of electrical tests for insulation control in 5 MVA and 13.2 kV generator - Córdoba Province - Argentina.

4.3 Central Hidroeléctrica Tucumán.

Test of the magnetic package of the generator of the Escaba – Tucumán Hydraulic Power Plant - Argentina.

4.4 Petroquímica Río Tercero.

Execution of electrical tests for insulation control in medium voltage industrial motors - Córdoba Province - Argentina.

4.5 Central hidroeléctrica Río Hondo.

Test of the magnetic package of a generator of the Río Hondo Hydraulic Power Plant - Province of Santiago del Estero - Argentine Republic.

4.6 Electrowatt Engineering (Suiza).

Execution of electrical tests for control isolation in alternator of hydroelectric power plant - Province of San Juan - Argentine Republic.

4.7 Aceros Zapla.

Boiler performance test - Jujuy Province - Argentine Republic.

4.8 Electrowatt Engineering (Suiza).

Electrical insulation tests of a generator of the Quellrada Ullum Hydraulic Power Plant - Province of San Juan - Argentina.

4.9 Electrowatt Engineering (Suiza).

Test of a 13.2 / 132 kV transformer, San Miguel substation - San Juan province - Argentine Republic.

4.10 Planta de Genelba, Petrobras.

Leak detection in valves and steam turbine condenser Siemens AG 236.2 MW.
Measurements made with ultrasound equipment - Genelba Power Plant - Petrobras - Cañuelas - Province of Buenos Aires - Argentine Republic.

5 Installation and maintenance

5.1 Tratamientos de Residuos Industriales.

Provision of specialized labor for piping execution in industrial plant - Prov. Buenos Aires - Argentine Republic.

5.2 YPF, Bridas Chauvo.

Technical management of 2x20 MW power plant in Chihuido de la Sierra - Province of Neuquén - Argentine Republic.

5.3 Tratamientos de Residuos Industriales.

Hiring specialized labor for mechanical maintenance in facilities of Industrial Waste Treatment Plant - Province of Buenos Aires - Argentine Republic.

5.4 Papelera Tucumán.

Provision of Curtis TV Siemens wheel blades and hiring of specialized labor for mechanical maintenance in facilities of the Papelera Plant - Province of Buenos Aires - Argentina.

5.5 Clínica Traumatológica Dr. Tomadín.

Project and assembly of new electrical installations to medical establishment - Province of Buenos Aires - Argentine Republic.

5.6 Compañía Argentina de Fósforos.

Electromechanical maintenance industrial sector. Match factory - Province of Buenos Aires - Argentine Republic.

5.7 Petroquímica Argentina.

Technical audit for purchase of petrochemical plant (Polibutenos) in Ensenada - Province of Buenos Aires - Argentine Republic.

5.8 Secretaría de Energía de la Nación.

Recruitment (United Nations) for National Inventory of Greenhouse Gases (energy sector) - All the territory - Argentine Republic.

5.9 Cervecería y Maltería Quilmes.

Repair, replacement of components and commissioning of the BT distribution board of Parque Cervecerio Quilmes - Province of Buenos Aires - Argentina.

5.10 Yacimiento Río Turbio S.E.

Río Turbio Thermoelectric Power Plant - Technical Representation for integral repair of boiler No. 1 - Province of Santa Cruz - Argentine Republic.

5.11 Yacimiento Río Turbio S.E.

Río Turbio Thermoelectric Power Plant - Technical Representation for integral steam turbogenerator repair N ° 3 - Santa Cruz Province - Argentine Republic.

5.12 TGS.

Sale of spare parts for GT unit MS-5002.

5.13 Central Dock Sud.

Sale of spare parts GT Fr.6B for units 7 and 8.

5.14 TGS.

Sale of spare parts and provision of cards for control system GT GE MS 5002.

6 Consulting and engineering studies

6.1 Benito Roggio S.A.

Study of technical and economic evaluation of the Central Güemes. State and O&M costs. Located in Güemes, Prov. Of Salta. Argentinian republic.

Technical-economic evaluation study of the Alto Valle Central. State and O&M costs. Located in Neuquén, Prov. De Neuquén. Argentinian republic.

6.2 Total Austral S.A.

Technical-economic evaluation study of the Luján de Cuyo Central. State and O&M costs. Located in Luján de Cuyo, Province of Mendoza. Argentinian republic.

Technical evaluation of the Polibutenos Argentinos SA Plant, located in Ensenada, Prov. Of Buenos Aires. Argentinian republic.

6.3 IBERDROLA.

Repair of boiler, turbogenerator and auxiliary services of two steam power plants.
Preparation of the tender offer - Cuba.

6.4 YPF S.A.

Direction of the electrical assembly and quality assurance of the work Central Eléctrica
Plaza Huincul - Province of Neuquén - Argentine Republic.

6.5 Ministerio de Economía.

Economic and financial evaluation of the assets and liabilities of Central Dique S.A. -
Province of Buenos Aires - Argentine Republic.

6.6 SPSE.

Technical-economic evaluation of repair and transfer of FIAT TG-16 gas turbine - Santa
Cruz Province - Argentina.

6.7 Total Austral S.A.

Central San Sebastián - Evaluation of electrical measurement and protection systems -
Province of - Tierra del Fuego - Argentine Republic.

6.8 Yacimiento Río Turbio S.E.

Technical Audit Determination of the state of facilities, availability and valuation of
necessary investments in Thermolectric Power Plant - Province of Santa Cruz - Republic of
Argentina.

6.9 Fuerzas Armadas.

Puerto Belgrano Naval Base. O&M costs study with alternative backup turbine
generator 4 MW - Province of Buenos Aires - Argentine Republic.