Alstom Presence in Mexico

INFORMATION

- 7 facilities installed in Mexico: two manufacturing facilities, two Service Centers, a Regional Center of Renewable Steam Plants and two Corporate Offices.
  - Corporate Offices of Alstom Power and Alstom Transport in Mexico City.
  - Corporate Offices of Alstom Grid in Mexico City.
  - Steam Turbines components factory in Morelia, Michoacán.
  - Regional Execution Center of Renewable Steam Plants in Morelia, Michoacan.
  - Power Service Center in Monterrey, Nuevo Leon.
  - Grid Service Center in Toluca, State of Mexico

- 1,700 employees
Power

Alstom has supplied nearly 20% of Mexico's installed base, generating over 10,500 MW. Our world manufacturing center in Morelia, Michoacan, makes a major contribution to Mexico's competitiveness, employing highly-qualified Mexican engineers and exporting 80% of production to various parts of the world. It manufactures turbine components (diaphragms, rotors, vanes and casings) for thermoelectric, nuclear-electric and geothermal power stations, and assembles and balances turbines.

Our Regional Execution Center of Renewable Steam Plants is also in Morelia. For the first time ever, Alstom invested a large sum and developed infrastructure outside Europe and the United States to bring all its regional geothermal engineering capacity together in one place.

The fuel, coal, combined cycle, single cycle, nuclear and geothermal-based power generation plants Service Center is located strategically in Monterrey, Nuevo Leon, in order to provide service for projects in the north of Mexico and the border States.

HIGHLIGHTS:

- 2003 - Los Azufres II (Geothermal)/ four 25 MW units. The project included installation of turbines, substation, generator, cooling system and control center. Michoacán.
- 2004 - Chicoasen (Hydroelectric): Extension of the current plant, with the addition of three new units providing an extra 930 MW on top of total hydroelectric capacity. Chiapas.
- 2004.- Monterrey II and III (Gas): Monterrey II, with two 225 MW units, with an installed capacity of 450MW; Monterrey III, with four 250 MW units, with a capacity of 990MW. Nuevo Leon.
- 2007 - Laguna Verde (Nuclear): Refurbishment and modernization of steam turbines, new electric turbo-generators and a new turbine for the safety and control system. The project has increased the generation capacity by 20%.
- 2009 - Los Humeros II (Geothermal): Generating station with two 25 MW units. The project includes installation of turbines, substation, generator, cooling system and control center.
- 2010 - Manzanillo (Fuel oil): Modernization of steam turbines for the gas conversion project for units 1 and 2 of the Manzanillo Fuel-Fired Plant.
- 2013 - Sureste I Phase II (Wind) 34 wind turbines (ECO 100)

Grid

Alstom Grid has had a major presence in Mexico since the 70's through AEG Mexicana, S.A. de C.V. Alstom created the Alstom Grid sector in 2010 when it took over the transmission business of Areva T&D, providing the company with remarkable experience and know-how in energy networks and automation systems (power electronics, high voltage and continuous direct current connections). Over 40% of electrical sub-stations are equipped with Alstom Grid products.

The Alstom Grid factory in Toluca brings together manufacturing, service and automation facilities. The factory specializes in designing and manufacturing high-voltage circuit breakers, disconnectors, transformers and capacitor banks, and also provides training in operation, maintenance, modernization, technical support, repairs and electrical network automation products. Alstom Grid also has a Solutions unit in Mexico City that specializes in Turnkey Projects.

HIGHLIGHTS:

2010 - Capacitive Compensation: Eleven 115 kV and 292.5 MVAr compensation sub-stations.

2011 - Culiacan-Los Mochis: Change of voltage on the Culiacan-Los Mochis transmission line, made up of three 400 kV transmission lines and two 400/230 kV sub-stations.

2011 - Distribution South: Building and installation of four 115 and 13.8 kV distribution sub-stations, with an overall capacity of 90MVA, and 5.4 MVAr medium-voltage compensation and 22 high and medium-voltage feeders; three high-voltage 115 kV lines with 9.83Km-C.

Alstom Mexico, March 2014
lam-communication@alstom.com
2012 - PIF 1114-1-3 Seven new sub-stations and eleven Transmission Lines in the states of Puebla, Veracruz and Oaxaca. Project performed in conjunction with Sademex, Ingeniería y Construcción.

2013 - Diana Substation The Supply of one SF6 gas substation underground 230 kV for the Paseo de la Reforma in Mexico, City.

Transport

Alstom’s transport division has been present in Mexico since 1967, when it built the first Metro Line. Alstom is leader in Turnkey Infrastructural projects for Metro Mexico City, and has supplied the entire signalling system, including the one for the line 12. Alstom has supplied more than eighty trains for the Mexico City subway since 1968 and more than 40% of the trains are fitted with Alstom traction systems. Alstom is the main supplier of rectification substations for the subway system.

Alstom Transport provides track and locomotive maintenance services for Mexico’s main freight operators. It has supplied the Traffic Control Center for Ferrocarriles Mexicanos in Guadalajara and is currently performing a number of long-term locomotive maintenance contracts for Ferromex, Ferrosur and Ferrovalle.

HIGHLIGHTS:

Alstom has supplied 100% of Mexico City’s subway signaling systems on line 1 to line 9, line A, line B and line 12

2008 - Maintenance and repair of +150 locomotives over ten years with Kansas City Southern Mexico.

2008 - Maintenance and repair of +150 locomotives over eight years, with Ferrosur Locomotives.

Mexico City Line 12 Turnkey Project in a consortium with ICA and Carso companies.

2014 - Turnkey Project for line 3 of Metrorey in Monterrey in a consortium with Garza Ponce and Moyeda Construction firms.

History

1905 First sale of transmission products registered in Mexico.

1957 Incorporation of AEG Mexicana de Electricidad, S.A. (later became Alstom T&D, S.A. de C.V.)

1967 Contract to supply rubber-wheel trains for line 1 Metro Mexico City.

1969 Inauguration of line 1 Metro Mexico City.

1970 Supply of signaling systems for line 2 and start of the construction of line 3 Mexico Mexico City.

1977 Manufacture, assembly, testing and commissioning of the first high-voltage equipment by AEG Mexicana, S.A. de C.V.

1980 Incorporation of TURALMEX by a joint venture with Nacional Financiera (NAFINSA) and B.B.C., BROWN, BOVERI & COMPANY, LIMITED (BBC). BBC sells its shares to NAFINSA before starting operations in 1983.

1982 Lines 4 and 5 of Metro Mexico City come into operation. Alstom supplies rolling stock and signaling system.

1987 Alstom was chosen from among ABB, MHI and Siemens to form an association with NAFINSA: Alstom (49) and NAFINSA (51%).

1988 First orders received from the Federal Electricity Commission to build two 350 MW equipment for units 3 and 4 of the Carbon II Thermal Power Plant in Coahuila.

1989-94 Signaling equipment for lines 8, 9 and A (steel-wheel trains) of Metro Mexico City.

1991 First contract to build a Turnkey Power Plant: Tuxpan, units 3 and 4.

GEC Alstom acquires the shares of NAFINSA, creating GEC Alstom Mexico.

1993 First reconditioning contract signed by Metro Mexico City subway for 25 rubber-wheel trains.
1994 Commencement of Turnkey Projects for Electrical Substations by AEG Mexicana, S.A. de C.V.
1995 Design, propulsion and information systems for thirteen FM95A steel-wheel trains for Metro Mexico City.
1996 Modernization of thirty rubber-wheel trains (MP68) for Metro Mexico City.
1998 First Rail Service for Private Locomotives.
AEG Mexicana, S.A. de C.V. changes its name to ALSTOM T&D, S.A. de C.V.
ALSTOM T&D, S.A. de C.V. takes over the business of CEGELEC and merges with GEC Alstom T&D Balteau, S.A. de C.V.
1999 Alstom T&D, S.A. de C.V. merges with GEC Alstom T&D Elmex, S.A. de C.V.
2000 Alstom buys the shares of ABB to form Alstom Power México S.A. de C.V.
2004 Alstom T&D, S.A de C.V. becomes Areva T&D, S.A. de C.V.
2006 All corporations in Mexico merge to become Alstom Mexicana, S.A. de C.V.
2007 Modernization and maintenance contract for 25 rubber-wheel trains MP82.
2008 First Turnkey Project to build infrastructure of line 12 of Metro Mexico City.
2010 Purchase of Areva T&D Energy Transmission Lines and New Division of Alstom: Alstom Grid.
2012 Entry in service of the first Air Pollution Control System.
2014 Alstom received the “Social Responsibility Recognition” (ESR)

**Corporate Social Responsibility**

**EJUTLA, OAXACA**

2009 – The purpose of this project was to supply electricity to the Ejutla Community in the State of Oaxaca. Eleven hybrid 500 watt power generation systems (wind and solar) were built in association with Grupo para Promover la Educación y el Desarrollo Sustentable, A.C. (GRUPEDSAC), to supply power to 23 local families. Training courses were also given to replicate these systems.

**CERRO ALTO, VERACRUZ**

2010 – The purpose of this project was to help conserve and maintain the biodiversity of the central coastal area in Veracruz, being one of the world’s most important migratory routes for birds of prey, used by over 4.5 million birds each migratory season. In association with Pronatúra A.C., 186 hectares of the natural reserve in Cerro Alto Gallegos were conserved thus ensuring a second year of nesting. An area of local flora and environmental education centers were also provided.

**LOS PRADOS DE VALLE JANOS, CHIHUAHUA.**

2010 – The purpose of this project was to promote green technology, sustainable breeding (reintroduction of bison) and environmental awareness in Prados de Valle Janos, Chihuahua. In association with The Nature Conservancy a green technology center was set up with, and educational programs on local ecosystems and conservation of species were also provided. Twenty-three bison were reintroduced into the reserve and now there are thirty one.

**LA PATRONA, VERACRUZ**

2011 – The purpose of the project was to promote eco-techniques and provide training in nutrition in order to improve the quality of life of the local community by using land correctly, and achieving self-sufficiency in food and economy. Initially, twenty families were benefited with the project and there are plans to extend it to the entire community of La Patrona in Veracruz. In association with GRUPEDSAC, two “Patsari” (wood burning) stoves have been built using ferrocement, plus a water tank, orchards, dormitories and a multi-function room.

Alstom Mexico, March 2014
lam-communication@alstom.com
EL ORO, ESTADO DE MÉXICO

2012/2013 - Establish a participatory action plan for the preservation of Ambystoma Granulosum specie in Brockman Dam (El Oro, State of Mexico), by creating strategies that can preserve this specie, along with environmental community activities that will improve the quality of life. The project is being put in place by GRUPEDSAC and National University (UNAM) researchers.

CORPORATE SOCIAL RESPONSIBILITY RECOGNITION

Alstom was awarded with the "Corporate Social Responsibility Certificate" (ESR), given by the Mexican Philanthropy Center (Cemefi) and by the Mexican Alliance for Corporate Social Responsibility (AliaRSE). Such distinction is granted to companies in Mexico that promote and support the principles associated with corporate social responsibility as part of their culture and business strategy regarding certain areas, such as quality of life within the organization, business ethics, social responsibility management, liaison with the community and the environment. The ESR distinction acknowledges the culture and vision held by Alstom in Mexico to contribute towards improving the quality of life of families in the country by means of social responsibility actions and initiatives.