Alstom in UAE

Over 30 years of commitment in UAE

Alstom’s Presence

Key Data:

- More than 700 employees across the UAE:
  - Grid: 314
  - Power: 277
  - Transport: 147

- One Service workshop facility
  - Generator maintenance with the Middle East’s only high-speed balancing facility

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- Gas Turbine Reconditioning for OEM (Original Equipment Manufacturer) and non-OEM
- One Substation Automation Integration and Testing facility
- Five offices in the country (in Dubai, Abu Dhabi, Jebel Ali)

History

Alstom has been supporting the development of the UAE for over 30 years supplying the latest products and services to the country:

1975: Alstom supplied the fume treatment plant for pot lines at Dubai Aluminium (DUBAL)
1991: Delivered GT13 gas power plant to DUBAL
1997: Local office established in Sharjah to be the headquarter for the Gulf region
1997: First add-on steam turbines (Condor & Kestrel) for DUBAL
2000: First 400 kV Gas Insulated Substation (GIS) order in the Gulf at Mussafah from ADWEA
2000: First 220 kV GIS order in the UAE at Sharjah from SEWA
2001: First 220 kV GIS order from ADWEA
2002: First SCADA reference in the UAE in Sharjah
2003: Local Service workshop and office established in Jebel Ali, for gas turbine blading reconditioning
2005: First 1000MW turnkey plant in Sohar aluminium smelter based on the GT13E2
2006: Local service centre further expanded to have a dedicated generator rewinding and repair facility for rotors and stators.
2006: First 2xGT13E2 combined cycle plant sold to DUBAL
2007: Awarded Fujairah II power plant contract, first contract for a GT26 plant in the Middle East
2007: First Flue Gas Desulphurization (FGD) treatment with Fume Treatment Plant at Emirates Aluminium EMAL
2008: Awarded contract for 3 Steam Turbines for Jebel Ali M substation with DEWA
2008: Awarded the contract for the Dubai Al Sufouh tramway, first Citadis tramway contract in the Gulf region
2008: Awarded Contract for GTX Project with DUBAL, based on GT13E2 technology
2009: Local service facility further expanded its operations including installing coating, shot peening and laboratory for gas turbine blading reconditioning and doubling the size of its offices.
2010: Signature of the largest ever contract in UAE for 11x132kV GIS substations for DEWA
2011: Generator workshop further expanded to allow for multiple rotor & stator repair
2011: Awarded contract to provide air quality control equipment for the second phase of the EMAL aluminium smelter in the Al Taweelah industrial zone, Abu Dhabi.
2011: Secured a contract from the Abu Dhabi Oil Refining Company (Takreer) to partially upgrade four Alstom GT13E2 gas turbines installed at the 500 MW Ruwais gas-fired power plant in UAE.
2012: Maintenance contract for Al-Sufouh tramway
2014: Alstom inaugurates Middle East’s first Smart Grid Centre in Dubai
2014: Alstom awarded a €17million contract by Al Habtoor for 132Kv sub-station in Canal Bridge
2014: Alstom awarded a €15 million contract by DEWA for 132Kv sub-station in Wellness village

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2014: Alstom delivers the Dubai Tram

Awards and Certification

Grid:
- ISO 9001:2008 Certification for Automation Unit, Dubai
- ISO 9001:2008 Certification for Systems Unit, Dubai
- ISO 14001:2004 Environmental Certification for Systems Unit, Dubai
- OHSAS 18001:2007 Occupational Health and Safety for Systems Unit, Dubai

Power:
- 2009: Bronze Award for environmental performance from in the Dubai EHS Award sponsored by Trakhees
- 2007: Jebel Ali Free Zone Authority Award for EHS
- ISO 9001:2008 Certification for Thermal Service Jebel Ali workshop, all branch offices and Field Service work
- ISO 14001 Environmental Certification for Thermal Services Workshop in Jebel Ali
- OHSAS 18001 Occupational Health and Safety
- 2012: EHS award from EMAL “Best EHS performance contractor”.
  Award followed by a key EHS milestone in April 2013: 1 Million hours without Lost Time Incident

Power

Alstom Power contribution to UAE.

Flexible power solutions tailored to market needs:
Alstom delivers the components, services and turnkey power plant solutions to produce clean power at a cost-efficient price regardless of regional boundaries.

In the UAE, the Fujairah II GT26 plant, the first GT26 plant used for both power and industrial process - desalination, is able to operate with a wide range of power output (40% to 100%) to sustain the high demand of air conditioning in summer versus lower needs in winter, while maintaining full desalination output.

The plant, in operation since 2011, produces 2000 MW power output and 130 MIGD (591 million liter) of potable water.

In the UAE, Alstom also provides efficient and flexible power solutions for aluminium industry. In order to secure the constant power demand of the smelter, electricity generation should be highly reliable. Alstom has several references in Aluminium industry in Middle East, including GTX project with Dubal (Dubai Aluminium)

Flexible services portfolio:
Alstom has also a leading position in the service market for Alstom gas and steam turbines and generators and equipment from other Original Equipment Manufacturers (oOEM).

The services of Alstom Power include:
- Gas Turbines reconditioning
- Generator rewind and repair

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- Balancing facility for a nominal speed and over speeding balancing rotors
- Full range of field services for all power and industrial plants

Field services in Jebel Ali Free Zone, Dubai, is a competence center equipped with highly skilled professionals and experienced specialists who execute, supervise and guide the erection activities, inspection, testing, commissioning of gas turbines, steam turbines and generators. The facility provides full-services to our customers in the region within the shortest lead time.

The local hub is also equipped with specialist tooling, equipment, testing and diagnostics tools and instruments required for outages, tests and inspections.

Power’s references in the area include:

- Emirates Aluminium Company (EMAL) – Al Taweelah Industrial zone, Abu Dhabi
  Alstom installed four Gas Treatment plants and two Fume Treatment Plants for Phase one of the Emal smelter. These systems were successfully commissioned in 2010 and are currently the largest installed in any smelter worldwide. The EMAL smelter complex project is the largest industrial project outside the oil and gas industry in the UAE.

- ADWEA – Fujairah II –2000 MW (5 x GT26 + 3 ST 220 MW + 5 HRSG) Alstom’ first project involving the use of its GT26 turbine in the Middle East and its first Independent Water and Power Producer (IWPP) contract in the region. In order to optimize the performance of this combined-cycle power and desalination plant, Alstom took advantage of the ‘Plant Integrator’ approach. Manufacturing gas turbines, turbogenerators, steam turbines, condensers and heat recovery steam generators, Alstom chose the best combination of components and optimized the total design to suit the demands for the project.

- DUBAL – GTX 150 MW (1 x GT13E2 + 1 HRSG)
- Fujairah Asia Power Company (FAPCO) – maintenance of 2000 MW power and 130 MIGPD seawater desalination plant
- Dubai Aluminium (DUBAL) – Long-term Service Agreement (LTSA) major and minor overhaul of 16 Alstom generators
- Al Hidd Bahrain – Upgrade of existing GT13E2 gas turbines to the MXL technology
- DEWA: Jebel Ali M substation (3 x 220 MW steam turbines), and Jebel Ali L substation (2 x 220 MW steam turbines)
- Al Ghaneim International Kuwait – Az-zour Power plant equipped with 5 GT13E2 and generator Topair, LTSA for GT13E2 units spare parts, reconditioning and manpower.
- DUBAL – Condor & Kestrel Add On (3 x 125 MW steam turbines+ 6 HRSG behind 6 GT9E gas turbines)
- DUBAL – Kestrel II 450 MW (2 x GT13E2 gas turbines + 1 steam Turbine 125 MW + 2 HRSG)
- DUBAL – Modernization of Kiln 1 to 5 (Fume Treatment)
- DUBAL – Fume treatment plant for pot lines 7B, 9B and 5B & 6B
- EMAL – Fume treatment & flue gas desulphurization plant (Phase I and Phase II)
- All generators for SEWA: 10 x 125 MW generators and 10 x 50 MW generators

Power’s on-going projects include:

- Al Ghanim International – Kuwait:
  Steam-tail add-on supply in 2013 for Az-Zour gas-fired power plant, adding 400 MW to the existing 800 MW power plant capacity (5 HRSG and 2 steam turbines)

- Emirates Aluminium Company (EMAL) – Al Taweelah Industrial zone, Abu Dhabi
  In the second phase of this project, Alstom provides air quality control equipment for the aluminium smelter. Alstom designs, engineers, supplies, installs and commissions two gas treatment plants and one fume treatment plant. These plants will capture, filter and recycle corrosive gas produced by the smelter, improving air quality and conforming to environmental requirements.

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- Abu Dhabi Oil Refining Company (TAKREER), the oil-refining branch of the Abu Dhabi National Oil Company (ADNOC)
  Alstom is partially upgrading four of the GT13E2 gas turbines installed at the 500 MW Ruwais gas-fired power plant in the UAE. Additionally, Alstom is supplying spare parts and a partial 'MXL' upgrade of the gas turbines.

Customers in the UAE
- DUBAL (Dubai Aluminium)
- DEWA (Dubai Electricity & Water Authority)
- ADWEA (Abu Dhabi Electricity & Water Authority)
- EMAL (Emirates Aluminium)
- SEWA

Transport

Alstom Transport secured the first Turnkey catenaryless tramway project in the Middle East in Dubai: "The Dubai Tram". This project is considered as a flagship project for the Emirate's drive to provide an integrated transportation policy. Alstom Transport is also part of the prestigious Etihad rail project, with its leading ERTMS signaling solutions.

Alstom Transport’s projects include:
- RTA – Dubai Al Sufouh Tramway Design & Build contract inaugurated in November 2014
  Scope: Turnkey project management, consortium leadership, integration of civil works, system engineering, rolling stock (CITADIS™402), power supply, track, Aesthetic Power Supply (APS), platform screen doors, railway signaling, communication systems, depot equipment, ticketing, maintenance during DLP (3 years).
- RTA – Dubai Al Sufouh Tramway Maintenance contract
  Scope includes:
  - Rolling stock (CITADIS™402), phase 1 including 11 units, phase 2 up to 25 units.
  - Infrastructure, full system maintenance: power supply, track, railway signaling, communication systems, depot equipment, ticketing, Aesthetic Power Supply (APS) and platform screen doors.
  - Preventive maintenance, corrective maintenance levels 1-5, accident and vandalism repairs and all overhauls during the 13 year maintenance period, with a further option for 5 more years.
- Etihad rail – Abu Dhabi- Stage 1 of the freight network – Supply of ERTMS level 2 on-board signalling system for diesel locomotives.

Customers
- Road & Transport Authority - RTA (Dubai).
- Etihad Rail – Abu Dhabi (freight network in UAE)

Grid

Alstom Grid in UAE

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Grid is an important contributor to the development and growth of the United Arab Emirates delivering state of art and critical electrical infrastructure projects. It stands among the top three suppliers of Extra-high voltage (EHV), High voltage (HV) and High Voltage Direct Current (HVDC) Transmission equipment in the world.

Alstom Grid’s local units are located in the Emirate of Abu Dhabi, Dubai and Sharjah. These include: Solutions Group Unit, Substation Automation Systems (SAS) Unit, Network Management Systems (NMS) Unit, Service Unit and the state of art Substation Automation Integration and Testing Facility in Sharjah (SAIF Zone).

System capabilities:

Since 1990s, Alstom Grid has had a strong presence in UAE as one of major Original Equipment Manufacturer (OEM) turnkey solutions provider, integrating its Transmission & Distribution products for utilities & industrial customers. Alstom Grid enjoys a market leading position in 400 kV GIS substations with DEWA & ADWEA/TRANSCO.

Our Solutions Group Unit, based in UAE since 2007, has the ambition to autonomously address turnkey solutions in UAE, Qatar & Iraq. The main objective of the localization is to improve our competitiveness and remain in close proximity to our major customers in these countries.

This unit has competent in-house engineering & civil works team to deliver fully engineered substation solutions and currently serves utilities and large industries by providing customer-oriented solutions from 66kV to 400kV with energy efficient & environment friendly Grid products.

Substation Automation Integration and Testing Facility (SAIF Zone):

The facility is supported by competent operations and engineering teams capable of delivering engineering design, testing, validation and integration of control, protection & SCMS cubicles. The facility has the capacity to perform comprehensive and integrated Factory Acceptance Test (FAT) for 400 kV/220/132/66kV protection cubicles (including HV Test) & SCMS with customer witness.

Since its inception in 2005, Alstom Grid SAIF zone has successfully delivered integrated cubicles to key utilities, industries and oil & gas customers such as DEWA, SEWA, GCCIA, KAHARAMAA (QATAR), TATWEER (BAHRAIN), EWA (Bahrain), TKAREER (UAE), TRANSCO (UAE), Dubai Metro, MELCO, New Doha Airport (NDIA), Asian Games (Qatar), Hyundai, Hyosung, QSTECH (Qatar Solar), and Ministry of Electricity in Iraq.

Regional hub for Network Management System:

Alstom is world leader for Network Management Systems, allowing its customers worldwide to optimize global grid performance.

In Dubai – UAE, a dedicated team of experts provides tailored solutions in the entire region. It includes:

- Integration of software solutions for control room
- Design and engineering of telecom solutions dedicated to power network

Integrated Smart Grid and Super Grid solutions:

Alstom’s local capabilities in Network Management, Substations Automation and Power Electronics systems allow it to provide Smart Grid solutions. Those enhanced transmission and distribution networks use digital control monitoring and telecommunication capabilities, enabling real time monitoring and management of the transport of electricity from the power plant to the end-users.

Alstom is ground-breaker in Smart Grid and Super Grid technologies, with various projects in the Middle East including:

- Fully integrated grid management solution in Kuwait
- Wide Area Monitoring Systems (WAMS) and stability solutions for GCCIA interconnection project
- Integrated Distribution Management System (IDMS) in Bahrain and Saudi Arabia

Alstom inaugurates Middle East’s first Smart Grid Centre in Dubai / software delivering and training center:

This centre, the first of its kind in the region, will enable Alstom’s customers to locally develop and integrate software and perform factory acceptance tests on site. Customised training on all Smart Grid applications will also be provided, using simulated protected

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customer network data for case studies, ensuring to the most efficient implementation of new technologies as customers use Smart Grid solutions to monitor and manage their own networks.

**Alstom Grid has major references in transmission, which include:**

- **DEWA - Jebel Ali L station** 400kV GIS substation
- **DEWA – Bukadra & Jafza 2 x 400kV GIS substation in Dubai**
- **DEWA - 16 x 132/11 kV GIS substations**
- **ENG- Dhaid substation 400/220kV GIS substation**
- **DUBAL- 2 x 132kV GIS substation**
- **DUBAL potline 6B - Power Electronics (rectifiers) and associated special transformers for DC power supply to electolysis plants**
- **TRANSCO - Tawyeen 132/11kV GIS substation**
- **TRANSCO: Telecom solutions – Supply of telecom links to interconnect Transco grid stations to control center**
- **TECHNIP- Al Dhabbia-Rumeitha, 2 x 220kV GIS substations**
- **TAKREER - GUP expansion (Phase III) 220/132/22/11 kV substation and HV cables**
- **ADWEA – 400kV GIS substation in Mussafah, Al Khazna 2 x 220 kV in Abu Dhabi**
- **SEWA - Load dispatch center – Supply of Grid Management Solutions for Sharjah network**
- **EWA (Electricity and Water Authority) Bahrain – 29 x 66 kV substations, transmission and distribution segment.**
- **ALBA (Aluminium Bahrain) – Potlines 1&2 - Rectifiers replacement**
- **OETC (Oman Electricity Transmission Company) – eight 220 kV GIS substations awarded to Alstom since 2009 to equip Oman transmission backbone**
- **DEWA – Barsha & Horse Race 2 x 400kV substations in Dubai**

**Alstom Grid’s portfolio of ongoing projects includes:**

- **TRANSCO - Ajman 400/132/33 kV substation**
- **TRANSCO - New 220KV switching station at Asab 2**
- **TRANSCO - 400/220/33KV grid station at Bab 2**
- **TRANSCO - Mahawe 400/132/33 KV substation**
- **DEWA – Largest ever contract in UAE for 11x132kV GIS substations**
- **ADWEA: Zakher 220/33 KV GIS substation; Ain Al Faydha1X220/33KV GIS substation**
- **OETC – Oman – 2 x 220/132 kV – 500 MVA transformers**
- **OETC – Oman – Sur - 21 x 220kV GIS bays**

**Customers in UAE**

- **DEWA**
- **ADWEA / TRANSCO**
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- SEWA
- TAKREER
- DUBAL
- Nakheel
- Alstom is also supplier to various EPCs in the country