Alstom in Hungary

Over 140 years of contribution to Power Generation in Hungary

Alstom’s Presence in Hungary

**Transport - Budapest HQ**
- Transport Information Solutions (TIS)
- Transport Sales

**Transport TLS sites - Budapest**
- Metro Service, Fehér út
- Metro Service, Kelenföld

**Headquarteer - Budapest**
- Alstom Hungary Headquarter

**Thermal Power - Budapest HQ**
- Industrial Turbine Development Centre
- Thermal Services
- Thermal Power Sales
- Renewable Power Sales

**Grid - Budapest HQ**
- Grid Sales

KEY DATA:
- ALSTOM Hungary Co. Plc.
- Country President: Mr. László Deák
- 1 Headquarter, 2 Sites
- 145 employees + over 65 strategic subcontractors
- All Alstom Sectors are present in Hungary
  - Alstom Thermal and Renewable Power
  - Alstom Transport
  - Alstom Grid

Alstom Hungary, November 2013
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History

1868 – Mr. László Láng founded his plant and appeared on the market with steam engines
1905 – Manufacturing of steam turbines with the Zoelly-system impulse turbines.
1910 – Extension of product portfolio with boilers and Diesel motors, while also manufacturing equipment for the chemical and food industries.
1930 – Manufacturing of modern turbines under a licensing contract with the Swiss turbine factory, Brown Boveri (BBC). Output grew to 32 MW.
1945 – The plant manufactured 50 and 100 MW turbines of its own design to Poland, Germany, China, Vietnam and Cuba.
1960 – The product line was supplemented by condensers, high and low-pressure pre-heaters and heat exchangers.
1970 – Manufacturing and inaugurating of 12 pcs of 200 MW steam turbines that comprise the backbone of energy production of Hungary.
1980 – The Láng Machine Factory is especially successful in the Finnish and Polish markets. Among these, the manufacturing of 150 MW steam turbine with feed tank equipment in Helsinki, the capital of Finland, is worth mentioning.
1990 – ABB Láng Ltd. the power plant division of the Láng Machine Factory became the 100% property of Asea Brown Boveri
1994 – The company was renamed ABB Power Generation Ltd.
2000 – The birth of ABB ALSTOM POWER Hungary Co. Plc. with the merger of the energy segments of the Swiss-Swedish company ABB and the French ALSTOM.
2000 – ABB ALSTOM POWER Hungary Co. Plc, becomes 100% property of ALSTOM
2008 – Alstom Signalling Ltd. merges with Alstom Hungary Co. Plc.
2010 – All Sectors of the Alstom Group – Power, Transport and Grid – are present in Hungary. The activities of the individual Sectors are implemented within the legal entity of Alstom Hungary Co. Plc.
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Locations and capabilities

Budapest - Headquarters
- Alstom Hungary Co. Plc. is located in a central office building in Budapest
- Alstom Hungary Headquarters is
  - Headquarters for Alstom Transport Hungary
  - Headquarters for Alstom Thermal and Renewable Power Hungary
  - Headquarters for Alstom Grid Hungary
  - Centre for Alstom Transport Information Solutions Competence Centre
  - Centre for Alstom Thermal Power Industrial Steam Turbine Development Centre
- Main activities
  - Research & Development
  - Engineering
  - Servicing
  - Project Management
  - Sales

Budapest - Transport Information Solutions (TIS) Competence Centre
- TIS Competence Centre in Budapest performs a wide range of railway software testing services including traffic control systems, trackside signalling, interlocking and ERTMS products.
  - Software Module Testing
  - Software Integration Testing
  - Software Requirement Testing
  - (Sub-)System Validation Testing
  - Software Source Code Verification
  - Document Verification
- Main activities of the unit
  - Software engineering
  - Research & Development

Budapest – Thermal Power Industrial Steam Turbine (IST) Research & Development Centre
- IST Research & Development Centre in Budapest develops the new portfolio of Alstom’s Geared Reaction Steam Turbines (4100-9200 rpm, 10-55 MW range). Development includes the core turbine, auxiliary equipment and turbine control systems
- Main activities of the unit
  - Engineering
  - Research & Development
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Budapest – Thermal Power Service
- The Thermal Power Service unit of Alstom Hungary performs full scale servicing of turbines, turbogenerators and generators as well as for other turbine island equipment should it be OEM of non OEM.
- Main activities of the unit
  - Engineering
  - Servicing

Budapest – Metro Depot, Fehér út (Line 2)
- Activities of Alstom in the Metro Depot of Metro Line 2 include
  - Service and maintenance of Metropolis metros (110 cars)

Budapest – Metro Depot, Kelenföld (Line 4)
- Activities of Alstom in the Metro Depot of Metro Line 4 include
  - Service and maintenance of Metropolis metros (60 cars)

Awards and Certifications

2007 – Hungarian Pro Environmental Award in recognition for the Hybrid cooling technology at Mátra Power Plant

Alstom Transport Information Solutions certifications
- CMMI Capability Level 2 for 7 process areas
- ISO 9001:2000
- TIS Global ISO 9001:2000
- 1 CISA, 4 ISO 9001, 4 CMMI certified auditors
- CGEIT, CISM, CRISC, ITIL Expert
- 11 certified Test Manager, 4 certified Technical Test Analyst (CTAL), 17 certified Tester (CTFL)
- 3 ALSTOM World Class Engineers

Thermal and Renewable Power

Industrial footprint:
- Research & Development Centre in Budapest for Geared Reaction Steam Turbines
- Project engineering and management competence in Budapest
- Power Automation and Control (PAC)
- Thermal Services – Steam turbine and Generator
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References:
- 65 MW Geared Reaction Steam Turbine – complete production documentation, Sengkang, Indonesia
- 106 MW Steam Turbine – Generator – Condenser – Heat Exchanger block – comprehensive engineering, Chelyabinsk, Russia
- 7.5 MW Regional Tire Burning Power Plant – Polgár, Hungary

Ongoing Projects:
- Paks Nuclear Power Plant (NPP) - 2000 MW – Retrofit of 9 (8 + 1 spare) generators
- ALPIQ Csepel II - 403 MW CCPP (Gas) maintenance
- Mátra 2 Power Plant – 100 MW ST, IP MO and LP supervision
- Budapest Erőmű Plc. - Generator & auxiliaries servicing, maintenance
- HEX – condenser inspections (South Africa, Egypt, Germany)
- Mátra P.P., Vértes P.P., Pécs P.P., Tatabánya P.P. Láng fleet - Repair of different turbine parts (Valve actuators, bearing pedestal oil retaining rings, etc.)
- Spare part supply – Láng and Ganz fleet
- R&D projects – blade design and gland steam system development for oOEM IST
- Vantaa – 80 MW ST MO (Finland)

Transport

Industrial footprint:
- Transport Information Solutions Global Software Testing Competence Centre
  - Railway Signaling and Interlocking systems
  - Railway Train control and monitoring systems, ERTMS Level 2
  - Automatic Train Supervision system
  - Trackside information systems
  - Railway Safety critical software validation and testing
- Metro servicing: Fehér út metro depot, Budapest – metro line 2
- Metro servicing: Kelenföld metro depot, Budapest – metro line 4

References:
- Budapest, Metro line 2: 110 Metropolis metro cars (22 trains)
- Budapest, Metro line 4: 60 Metropolis metro cars (15 trains)
- Budapest, Millennium Underground (line 1): Centralized Traffic Control and Passenger information, CCTV, Security and Ticket vending systems
- Budapest Lajosmizse railway line: FDM telecommunication system
- Budapest-Vienna railway line: ETRMS level 1 deployment –Pilot project
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- Swedish Railways: X60 Train Driver Display
- Sardegna railway: Automatic Train Supervision Network
- Italian Railways: High Speed Line (SCMT) Train control
- Bologna Central railway station: Signalling and Train Supervision system

Ongoing Projects:
- Budapest, Metro line 2: Service and maintenance 22, 5 car train-sets
- Denmark: Automatic Railway Train Supervision Center
- Coradia Train product line: Train control and monitoring systems
- Eskisehir-Balikesir line (Turkey): Automatic Train Supervision system
- Lille Tramway Line1 (France): Wayside infrastructure and Train control system
- Curtici (Romania) - Arad railway line: Interlocking and signaling
- Wuppental (Germany): Train control (ETCS L2) systems
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Grid

References
- Maintenance frame agreement for NIP/MER NMS system at MAVIR (Hungarian TSO)
- Supply of 120 kV circuit breakers trough frame agreement for ELMŰ/ÉMÁSZ (owner RWE) and DÉMÁSZ (owner EDF)
- Supply of 120 and 400 kV disconnectors trough frame agreement for MAVIR
- 120kV Gas Insulated Substation (GIS) for ELMŰ

Ongoing Projects:
- Supply of 120 kV disconnectors through frame agreement for ELMŰ/ÉMÁSZ
- Providing 10 years maintenance of 120 kV SF6 circuit breakers for E.ON
- Supply of MS3000 monitoring system for CG transformers