# **GROUP ACTIVITY**

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# Overview

## **GROUP GENERAL ORGANISATION**

Alstom serves the power generation market through its Power Sector, and the rail transport market through its Transport Sector. Alstom designs, supplies and services a complete range of technologically advanced products and systems for its customers, and possesses a unique expertise in systems integration and through-life maintenance and service. In fiscal year 2009/10, orders amounted to €14.9 billion and sales to €19.7 billion. On 31 March 2010, the backlog amounted to €42.6 billion.

Alstom believes the power and transport markets in which the Group operates are sound, offering:

- solid long-term growth prospects based on customers' needs to expand essential infrastructure systems in developing economies and to replace or modernise them in the developed world; and
- attractive opportunities to serve the existing installed base.

Alstom believes it can capitalise on its long-standing expertise in these two markets to achieve competitive differentiation. Alstom is strategically well positioned for the following reasons:

- Alstom has global reach, with a presence in around 70 countries worldwide;
- Alstom is a recognised technology leader in most of its fields of activity, providing bestin-class technology; and
- the Group benefits from one of the largest installed bases of equipment in power generation and rolling stock, which enables it to develop its service activities.

An international network coordinates the presence of Alstom throughout the world. This network supports the Sectors in their business development and sales.

On 31 March 2010, Alstom had a total of approximately 76,500 employees worldwide.



# **MAIN EVENTS OF FISCAL YEAR 2008/09**

# Robust results in a difficult commercial environment

Alstom's commercial activity over fiscal year 2009/10 was heavily impacted by the global economic downturn, with orders declining sharply under the effect of the worldwide recession. On the operational side, the Group remained focused on project execution and tight cost control and achieved an outstanding performance, improving both its revenues and its operating margin.

Order intake at €14.9 billion declined substantially as lack of visibility led customers to postpone a number of infrastructure projects. By contrast, the fiscal year 2008/09 had benefited from an exceptional surge in demand, with orders received at a record level of €24.6 billion. Alstom's backlog remains strong at €42.6 billion, representing 26 months of sales.

The main commercial successes recorded this year included:

- for Power, contracts for the construction of the largest combined-cycle power plant in the United Kingdom, including 5 GT26™ and the associated operation and maintenance contract, a turnkey coal-fired power plant in Slovenia, equipment for a thermal power plant in Germany and hydro pumped-storage power plants in Switzerland;
- for Transport, large orders for regional trains, suburban trains and tramways in France, tramways and metros in Brazil, metros in the Netherlands, regional trains in Germany and several signalling projects around the world.

Delivering its high quality backlog, the Group achieved record operational results. Sales increased by 5%, on an actual and organic basis, reaching €19.7 billion. Income from operations improved at €1,779 million, a 16% increase, and operating margin rose from 8.2% to 9.1%. The quality of orders in backlog and the attention paid to project execution played a major part in this performance. In addition, specific actions were taken to cut costs and increase the flexibility of the industrial base.

During the fiscal year 2009/10, net profit (Group share) increased by 10% to €1,217 million.

The Group's free cash flow dropped to €185 million but remained positive, the good operational performance having more than compensated the deterioration of working capital resulting from lower order intake.



# Pursuing strategic priorities for development

Adapt the Group's cost structure to the commercial environment

Since the start of the financial crisis, a programme to reinforce the control of selling and administrative expenses has been implemented across the Group. A series of short-term specific actions delivered positive results; in addition, several initiatives were taken to boost the efficiency of support functions and optimise sourcing and supply chain management.

In response to the economic uncertainty, Alstom adapted the management of its workforce, strictly limiting new recruitments to backlog execution, reducing fixed term contracts and using specific measures in some countries. The Group also adjusted the capacities of some of its industrial sites to their workload, downsizing sites for the production of boilers in the Czech Republic and for rolling stock in the United States of America and Brazil.

As a result of these measures and despite a growing activity, selling and administrative expenses decreased from €1,392 million in 2008/09 to €1,331 million in 2009/10, representing a decrease in percentage of sales from 7.4% to 6.8%. Total headcount decreased from 81,500 at the end of March 2009 to 76,500 at the end of March 2010.

## Expand and modernise the industrial footprint

In 2009/10, Alstom invested €470 million in capital expenditure programmes (excluding capitalised development costs) to expand its industrial base on key geographical markets and to adapt its footprint to the evolution of demand.

For Power, main capital expenditure programmes included:

- the completion of the Group's largest utility boiler manufacturing site in Wuhan (China). The facility is operational since 12 November 2009;
- the construction of a new site and the capacity expansion of the hydro turbine facility in Tianjin (China);
- the construction in Chattanooga (Tennessee, United States of America) of a new facility to manufacture steam turbines for nuclear and thermal applications as well as gas turbines, generators and related equipment;
- the completion of a new plant in Brazil jointly with Brazilian group Bardella, to manufacture equipment for local hydro projects;
- the expansion of a gas turbine component repair and reconditioning workshop in Jupiter (Florida, United States of America);
- the completion of Elblag foundry in Poland, which will increase the production capacity of key components of turbines.

For Transport, capital expenditure remained focused on modernisation of key products lines as well as productivity improvement. Major investment programmes conducted over the year included:



- manufacturing capacity increase for very high speed trains, tramways and metros at various sites in France and Poland:
- productivity improvement in various manufacturing facilities for key components in France, Belgium, Germany and Italy.

In December 2009, Alstom and Bharat Forge Ltd (BFL), a global leader in manufacturing and metal-forming, firmed up their agreement in principle signed in November 2008 to set up a joint venture company based in India to manage the whole process from engineering and manufacturing to selling and commissioning of 600 MW to 800 MW turbine island for coal-fuelled power plants. The implementation of this agreement will complement Alstom's local presence in boiler manufacturing, turn the Group into a major player in the fast growing Indian energy market and strengthen its position in Asia.

On 1 March 2010, Alstom and Transmashholding (TMH), Russia's largest railway equipment manufacturer, firmed up the strategic partnership agreement that they had agreed on in March 2009. Both partners signed:

- a Share Purchase Agreement under the terms and conditions of which Alstom acquires a
   25% stake + 1 share in Transmashholding's parent company, Breakers Investment BV.
   This acquisition is subject to the fulfilment of certain conditions;
- an amendment to the current Shareholders' Agreement on the company's management governance;
- a Master Cooperation Agreement which specifies the terms according to which their joint activities in developing and manufacturing new rolling stock and components for railway equipment are to be carried out.

As part of the strategic partnership agreement, a representative of Alstom Transport was appointed Transmashholding's new deputy managing director. He was joined in Russia by a team of experts in manufacturing, engineering, human resources and financial control.

A 50/50 joint engineering company - "Tekhnologii Relsovogo Transporta – TRT" has already been set up and registered in Russia. This company will create in Russia centres of excellence for designing and manufacturing railway system equipment and key components, integrating the latest technologies developed by Alstom Transport and TMH. This engineering centre is already working on the design of an electric passenger locomotive, the EP-20, capable of speeds of up to 200 kph, which will serve as a platform for a future range of new Russian locomotives for various uses.

#### Sustain and reinforce technological leadership

During fiscal year 2009/10, Alstom kept a strong Research & Development (R&D) effort at €614 million (excluding capitalisation and amortisation effects), in line with last year record level of €621 million, to strengthen its technological leadership and improve its product offering.

The Group continued the intensification of its programmes in the field of Carbon Capture and Storage (CCS) and is currently validating the selected technologies through a number of pilot and



demonstration projects around the world, working closely with key partners toward full scale commercialisation. Several successes were recorded this year:

- Alstom and American Electric Power (AEP) dedicated on 30 October 2009 a fully integrated 58MWth CCS extension at Mountaineer power station (West Virginia, United States of America) which will capture and store 100,000 metric tons of CO<sub>2</sub> per year. In December, AEP was granted an award from the U.S. Department of Energy to expand the CCS facility in order to sequester up to 1.5 million metric tons of CO<sub>2</sub> per year using Alstom technology.
- In October, Alstom and We Energies announced that the pilot tested at Pleasant Prairie Power Plant had demonstrated the predicted performance of the chilled ammonia carbon capture system, which captured 90% of carbon dioxide from the flue stream coming from the coal-fired power plant, testing the technology in real-world conditions.
- The advanced amine CO<sub>2</sub> demonstrator developed with the Dow Chemical Company in its facility in South Charleston (West Virginia, United States of America) successfully started in September and will generate the necessary data for the optimization of this technology.
- Alstom Power also signed an agreement on 15 October 2009 with the Canadian utility TransAlta Corporation to create a large scale capture and storage facility at Keephills 3 power plant in Alberta (Canada) which will sequester around 1 million metric tons of CO<sub>2</sub> per year.

In parallel, Alstom worked towards innovation targeting production efficiency and energy management, with the following outcomes:

- further developments of the GT24<sup>™</sup>, GT26<sup>™</sup> and GT13E2<sup>™</sup> gas turbines, including performance upgrade packages, combustion system improvements to reduce emissions and increase fuel flexibility, and features to allow further enhancement of the operational flexibility of these machines;
- upgrade of steam turbines;
- rejuvenation of Alstom's automation offering and launch of several new products in Energy Management Business, such as the ALSPA Series 6, a new generation of distributed control systems and a new line of Asset Monitoring and Diagnostic (ALSPA Care).

For Transport, R&D investments targeted the development of new environment friendly transport solutions and the upgrade of the existing product range:

- over the summer 2009, the AGV<sup>™</sup> completed a series of tests enabling to validate the new very high-speed platform. These tests have been followed by a trial trip at a maximum speed of 300 kph on the high speed track Rome-Naples (Italy). The successful outcome of the test allowed the validation of the dynamic behaviour of the train ordered by Nuovo Trasporto Viaggiatori (NTV). Tests are now continuing in order to obtain the validation of the signalling solution for the Italian network;
- in February 2010, Alstom presented in Nantes (France) its new Dualis™ model of tramtrain. Designed to meet the needs for greater fluidity between urban and suburban transport, Dualis™ operates the link between a city centre and its suburbs without the need for off-loading. It is indeed capable of operating on a tramway network as on a



- regional rail network thanks to adaptations incorporated in terms of safety, power, and comfort:
- the new PRIMA II<sup>™</sup> locomotive was unveiled in June 2009, in Belfort (France) before being tested in Germany. The first units were delivered in Morocco in October, where they performed trial tests in operating conditions;
- in June 2009, Alstom opened a bogie test and validation centre in Switzerland which can accommodate complete bogies, including underframe, suspensions, transmission and engines.

Integrate environmental challenges in the offering

Providing clean, smart and efficient solutions in Transport and Power generation is at the heart of Alstom's strategy.

In the Power Sector, besides steady R&D efforts in CCS to strengthen technology leadership and develop demonstrators, this objective also means deploying CO<sub>2</sub>-free and renewable technologies as well as improving production efficiency and energy management.

In the Wind activity, Alstom has developed a new 3 MW wind turbine called ECO 110, with the first prototype installed at the end of 2009. It will match the growing needs for larger on-shore turbines. As part of its R&D plan, Power has also initiated the development of wind offshore technology with the aim of entering notably the United Kingdom market. Alstom focuses on developing a large 6 MW offshore wind turbine specially designed to meet these requirements. Prototypes and preseries are planned to be available in 2012-2013, for series production to start in 2014.

In May 2009, the Group made a first step into the ocean energy market through a licensing cooperation agreement with Clean Current Power Systems Incorporated, a private Canadian company specialised in the design and testing of tidal stream energy technology. Both parties engaged to closely cooperate in order to further develop technology, deploy demonstrator units and subsequently position Alstom as both equipment and turnkey provider for tidal stream farms. Commercialisation of tidal products is expected by 2012.

In Nuclear, Alstom remains the number one supplier of steam turbine and generator sets. The Group has major nuclear projects in backlog, including conventional islands for EPR projects in China and France and a retrofit project for the Koeberg nuclear power station in South Africa and pays a particular attention to their proper execution. As demand on the nuclear market is expected to grow fast in the coming years, Alstom can rely on its demonstrated skills with 30% of nuclear power plants worldwide using Alstom turbine-generators sets, and on its state-of-the-art ARABELLE™, the world largest steam turbine in operation.

The Group also works at improving production efficiency and energy management with the aim of achieving the goal of 50% plant efficiency for steam plants and 60% for combined-cycle gas fired plant. It also offers a broad portfolio of solutions to limit emissions (Air Quality Control Systems, Energy Management Systems, integrated retrofit solutions) from new and existing power plants.



In Transport, Alstom dedicated a significant part of its R&D effort to promote sustainable rail transport systems. The lifecycle process has been improved through the use of easy-recyclable materials such as steel, aluminium and copper. New generation train range like the AGV™, the PRIMA II™ and last CORADIA™ models are 95% recyclable. They are also the subject of an ISO 14025 environmental product declaration, which allows their environmental impact to be evaluated throughout their lifecycle.

Efforts also focused on reducing train energy consumption. By introducing composite materials in the CORADIA™ trains to lighten them and by improving effectiveness of their traction systems, energy consumption of CORADIA™ train has been reduced by 10 to 15%. Through power recovering braking systems, the AGV™ and the last generation of Alstom trains are capable of producing and using their own electricity: when the energy generated by the motors during the braking phase is not consumed by the train, it can be fed back into the electric grid. Noise was also a field of active research: the noise inside the AGV™ at 360 kph is the same as that of its main competitors at 300 or 320 kph.

## Be responsible for the employees and the environment

### Training and Communities

Alstom pursued its efforts on training through the five Alstom University campuses around the world, with 80 training courses offered in seven languages. Fiscal year 2009/10 showed a marked increase in the total number of sessions (close to +15%) and in the number of employees trained face-to-face (over +13%). Alstom also actively supported the creation and development of Communities and collaboration activities by employees with the further development of the Alstom Collaborative Way.

## Environment, Health and Safety

Alstom continued its efforts in Environment, Health and Safety (EHS) in 2009/2010 with data for the fiscal year 2009/10 being audited for the first time.

In the Health and Safety area, Alstom continued to focus on its programme "Zero Severe Accident", launched in 2008, and greatly reduced the number of work-related accidents, achieving an injury frequency rate of 2.3<sup>1</sup>.

Alstom launched also several environmental friendly programmes and initiatives to reduce its own footprint. Two years ago, the Group announced its objective to reduce the intensity of energy and greenhouse gases from its operations by 20% by 2015. The intensity of CO₂ emissions decreased from 30 tons CO₂ per € million sales, in 2008, to 28 tons at the end of December 2009. Major objectives are also set up by the Group to reduce water consumption, Volatile Organic Compounds (VOC) emissions, and improve waste recycling by 2015.

number of accidents with time lost to injury per million hours worked



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# Ethics & Compliance

The development of the integrity culture is a top priority for the Group. New initiatives are continuously taken to let ethics and compliance rules, based on Alstom values - Team, Trust and Action -, fully permeate the organisation worldwide. The Code of Ethics, updated in March 2010, has been distributed to all employees. To ensure a good understanding and a strict application of the rules, detailed guidelines have been published on Gifts and Hospitality, Political Contributions, Charitable Contributions and Sponsorship. Training has been reinforced through the e-learning module "e-Ethics", for which completion is mandatory for all the 35,000 Managers & Professionals. Moreover a community of approximately 200 Ethics & Compliance "Ambassadors" is being appointed to support internal programmes.

#### Alstom Foundation for the Environment

Through the Alstom Foundation for the Environment, created in November 2007, the Group has continued to actively support projects in the field of environmental protection. In June 2009, the Foundation selected 13 new projects for 2009/10 among 72 projects submitted from 32 countries, including China, Brazil, India and Venezuela.

#### Entering the transmission market

On 20 January 2010, Alstom and Schneider Electric signed with Areva the agreement for the acquisition of its Transmission & Distribution (T&D) business. This agreement was the result of the exclusive negotiations which started on 30 November 2009 and after the completion of the consultation of the relevant employee representatives. The proposed transaction was approved by the European Commission on 26 March 2010. It remains subject to the approvals of competition authorities in some countries and of the French Commission des Participations et des Transferts.

Alstom and Schneider Electric intend to work closely with the management of Areva T&D in order to implement a rapid and smooth integration. Areva's Transmission activities will be included into a new Sector, alongside Power and Transport.



### **GENERAL COMMENTS ON ACTIVITY AND RESULTS**

# **Consolidated key financial figures**

General comments on the Group's activity

The following table sets out the Group's key performance indicators for 2009/10.

Total Group	Group		% Variation		
Actual figures	Year ended	Year ended	March 10 / March 09		
(in € million)	31 March 2010	31 March 2009	Actual	Organic	
Order backlog	42,561	45,670	(7%)	(10%)	
Orders received	14,919	24,580	(39%)	(40%)	
Sales	19,650	18,739	5%	5%	
Income from operations	1,779	1,536	16%	15%	
Operating margin	9.1%	8.2%			
Net profit - Group share	1,217	1,109	10%		
Free cash flow	185	1,479	(87%)		

In 2009/10, Alstom maintained strong operational results whereas the order intake was heavily impacted by the economic downturn.

As a result of the economic crisis, the market for new power plants and equipment slowed down significantly in all regions. Recovery pace varies from one country to another, with emerging countries recovering more rapidly. Hydro's orders substantially decreased as two of its main markets, Brazil and China, dropped from very high levels last year. Coal and combined cycle markets have been impacted similarly by the economic downturn. Renewable market conditions improved particularly in China and the United States of America, with strong incentives for investments in new power generation projects in these regions, in particular for wind; by contrast, a number of projects in Europe were delayed due to the unavailability of financing.

Nuclear investments have been concentrated mainly in China and delayed in other regions but nuclear power generation is expected to grow as more countries decide to invest in this CO<sub>2</sub>-free and base-load technology. The service market remained more resilient but was also adversely affected by the global downturn as lower electricity consumption resulted in lower utilisation rate of the power plants; additionally, fewer orders for new power plants led to a decrease of related operation and maintenance contracts.

The Transport market continued to be supported by strong fundamentals such as urban congestion, mobility needs and environmental concerns. Stimulus packages targeted to rail transportation have accelerated some specific projects, notably in Europe and the United States of America but delivering their full effects will take time. Markets for very-high speed and mass transit showed continuous growth while freight activities slowed down.

As a consequence of the decline in commercial activity, the working capital deteriorated significantly leading to a low level of free cash flow.



#### Orders received and backlog

Order intake was strongly affected by the global drop of the economic activity in 2009/10 and totalled €14.9 billion, down 39% compared to the record level of €24.6 billion booked in 2008/09. At the end of March 2010, the backlog remains at a high level of €42.6 billion, representing 26 months of sales.

During the year, Power booked €9.4 billion of new orders, down 43% compared to last year. Major orders included the construction of the largest combined-cycle power plant in the United Kingdom (including 5 GT26™) and the related operation and maintenance contract, a turnkey coal-fired power plant in Slovenia, equipment for a 900MW thermal power plant in Germany, the retrofit of a coal-fired power plant in Poland, two large contracts for hydro pumped-storage power plants in Switzerland, energy management systems in South Africa, boilers in India, the supply of key equipment for hydro power plants in Canada, nuclear steam turbine retrofits in the United States of America and wind farms in Spain and the United Kingdom.

Transport recorded €5.5 billion of orders during the year, including suburban double-decker train sets, regional trains and tramways in France, tramways and metros in Brazil, metros in the Netherlands, regional trains in Germany and Spain and several signalling projects around the world.

#### Sales

Thanks to the execution of its strong backlog, Alstom's sales reached a new high in 2009/10, at €19.7 billion, a 5% increase compared to the €18.7 billion recorded last year.

Power achieved sales of €13.9 billion, a 6% year-to-year increase, thanks notably to the trading of contracts for an oil-fired power plant in Saudi Arabia, combined-cycle power plants in the United Kingdom, the Netherlands, Algeria and the United Arab Emirates as well as large coal-fired power plants in South Africa, Poland and Germany.

For Transport, sales totalled €5.7 billion, up 1% compared to 2008/09. Largest contracts traded included metro cars in the United States of America, Brazil, Spain and Turkey, double-decker TGV<sup>2</sup> in France, regional trains in France and Germany, locomotives in Morocco and China and turnkey tramways in Algeria.

#### Income from operations

Reflecting the Group's backlog quality and its tight control on costs, income from operations reached €1,779 million, an increase of 16% compared to last year, and the operating margin rose from 8.2% to 9.1% of sales:

 Power income from operations rose to €1,468 million (+18% compared to last year). The operating margin improved from 9.6% to 10.6%.

<sup>&</sup>lt;sup>2</sup> TGV is a trademark of SNCF.



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 Transport posted an income from operations at €414 million, versus €408 millions last year (+1% compared to last year). The operating margin remained stable at 7.2%.

Net profit - Group share

Net profit (Group share) reached €1,217 million, a 10% year-to-year increase, the progress of the income from operations being partially offset by the deterioration of the financial income, while tax rate decreased from 25% last year to 24% in 2009/10.

#### Free cash flow

The Group's free cash flow amounted to €185 million this year compared to €1,479 million in 2008/09. Lower order intake adversely impacted the working capital, which partially offset the good operating performance. In 2008/09, the working capital improved significantly as a result of the record level of order intake.

#### Net cash

The Group maintained a net cash position at €2,222 million at 31 March 2010 versus €2,051 million at 31 March 2009. This includes a positive free cash flow generation of €185 million, a dividend payment of €323 million (excluding minority interests) in July 2009 and the impact of increases of capital for € 204 million, notably for the payment in shares of the 50% stake in Alstom Hydro held by Bouyques.

#### Liquidity

At 31 March 2010, Alstom had a robust liquidity position with gross cash amounting to €4.4 billion and an undrawn credit line of €1.0 billion. Over the fiscal year, Alstom issued three bonds totalling €1,750 million and repaid a bond maturing in March 2010 for an amount of €275 million.

# Key geographical figures

# Geographical analysis of orders by destination

Total Group					% Variation Mar 10/09	
Actual figures, in € million	Year ended 31 Mar. 10	% of contrib	Year ended 31 Mar. 09	% of contrib	Actual	Org.
Europe	9,207	62%	11,718	48%	(21%)	(20%)
North America	1,987	13%	2,509	10%	(21%)	(21%)
South and Central America	717	5%	1,574	7%	(54%)	(56%)
Asia/Pacific	1,933	13%	2,537	10%	(24%)	(25%)
Middle East/Africa	1,075	7%	6,242	25%	(83%)	(84%)
Orders received by destination	14,919	100%	24,580	100%	(39%)	(40%)



In Europe, orders received amounted to €9,207 million in 2009/10, a 21% year-to-year decrease. For Power, main orders booked over the year were a large combined-cycle gas turbine in the United Kingdom, including 5 GT26™ and the related operation and maintenance contract, a high efficiency coal-fired turnkey power plant in Slovenia, equipment for a thermal power plant in Germany, the integrated retrofit of a coal-fired power plant in Poland, two large orders for hydro pumped-storage power plants in Switzerland, wind farms in Spain and the United Kingdom and operation and maintenance contracts on gas plants in the United Kingdom. For Transport, major contracts included regional and suburban trains in France, regional trains in Germany and Spain, CITADIS™ for several French cities, metro cars for the Amsterdam metro and several signalling projects. Europe accounted for 62% of the Group's orders this year.

In North America, €1,987 million of orders were recorded, a 21% decrease compared to last year. Contracts booked by Power in the region included steam turbine retrofit orders in the United States of America, equipment for hydro power plants in Canada, a 25MW geothermal power plant as well as air quality control systems in Mexico. North America contributed to 13% of the Group's orders in 2009/10.

In South and Central America, orders reached €717 million compared to €1,574 million in 2008/09, during which exceptionally large orders for hydro projects had been recorded in Brazil. Main contracts booked over the year were for metros and light rail vehicles in Brazil. South and Central America accounted for 5% of the Group's orders in 2009/10.

In Asia/Pacific, orders of €1,933 million were recorded, a 24% decrease compared to last year. In India, in collaboration with its licensee Bharat Heavy Electricals Limited (BHEL), Power received orders for 800MW and 660MW coal boilers, as well as orders for air quality control equipments for industrial applications and for a coal plant. It was also awarded a 4 x 125 MW hydro project. Transport booked a signalling contract for the new Bangalore metro network in India. In China, Transport booked several contracts for advanced train control systems and Power won orders to supply emergency diesel generators for nuclear power plants for which the conventional island was previously awarded to Alstom and for two 600 MW steam turbines. In the rest of Asia/Pacific, Power recorded new orders for service contracts in Singapore, Indonesia, South Korea and Thailand on Alstom GT24™, GT26™ and GT13™ equipment and for a hydro plant in Bhutan. Asia/Pacific represented 13% of the Group's orders in 2009/10.

In Middle East/Africa, the Group recorded contracts for €1,075 million, a 83% decrease compared to the exceptional level of last year during which large steam power plants were booked in Saudi Arabia and South Africa. In South Africa, Power received contracts for distributed control systems for two coal power plants for which twelve steam turbine and generator sets were booked in previous financial years. In Saudi Arabia, Alstom won two contracts for Sea Water Flue Gas Desulphurization systems. Transport was awarded a contract to supply CITADIS™ for Casablanca's future tramway network in Morocco as well as infrastructure and signalling contracts for the Cairo metro system in Egypt. Middle East/Africa accounted for 7% of the Group's orders in 2009/10.



# Geographical analysis of sales by destination

Total Group					% Variation Mar 10/09	
Actual figures, in € million	Year ended 31 Mar. 10	% of contrib	Year ended 31 Mar. 09	% of contrib	Actual	Org.
Europe	9,811	50%	9,705	52%	1%	2%
North America	2,736	14%	2,943	16%	(7%)	(7%)
South and Central America	952	5%	1,088	6%	(13%)	(14%)
Asia/Pacific	2,251	11%	2,557	13%	(12%)	(14%)
Middle East/Africa	3,900	20%	2,446	13%	59%	<i>58</i> %
Sales by destination	19,650	100%	18,739	100%	<b>5</b> %	<b>5</b> %

Sales in Europe amounted to €9,811 million, a 1% increase compared to last year, representing 50% of the Group's total sales. Main contracts traded over the year included contracts for combined-cycle power plants in the United Kingdom and the Netherlands, and for large coal-fired plants in Poland and Germany, as well as contracts for double-decker TGV in France, metros in France, Spain and Turkey, regional trains in France and Germany.

In North America, sales amounted to €2,736 million, a 7% decrease compared to last year, accounting for 14% of the Group's total sales and included sales of boilers, air quality control equipment and metros in the United States of America as well as the supply of a metro system for Mexico city.

Sales in South and Central America decreased by 13% at €952 million and represented 5% of the Group's sales over the year. Main contracts traded concerned hydro power plants and metro cars in Brazil.

Sales in Asia/Pacific reached €2,251 million, a 12% decrease compared to last year. Most of the sales stem from the supply of equipment for a hydro power plant in Vietnam, turbine islands for nuclear power plants in China and a turnkey gas-fired plant in Australia. For Transport, locomotives were delivered in China.

Sales in Middle East/Africa increased by 59% to reach €3,900 million. Power executed major contracts in Saudi Arabia, South Africa, the United Arab Emirates, Algeria and Tunisia while for Transport, key contracts traded included deliveries of tramways in Algeria and locomotives in Morocco.



# Geographical analysis of sales by origin

Total Group					% Variation Mar 10/09	
Actual figures, in € million	Year ended 31 Mar. 10	% of contrib	Year ended 31 Mar. 09	% of contrib	Actual	Org.
Europe	13,783	70%	13,133	70%	<i>5</i> %	6%
North America	2,631	14%	2,858	15%	(8%)	(9%)
South and Central America	767	4%	660	4%	<i>16</i> %	<i>15</i> %
Asia/Pacific	1,433	7%	1,650	9%	(13%)	(16%)
Middle East/Africa	1,036	5%	438	2%	137%	126%
Sales by origin	19,650	100%	18,739	100%	<b>5</b> %	<b>5</b> %

Europe still represents the main centre of production and project execution with 70% of total sales by origin at € 13.8 billion.

## OUTLOOK

Power remains focused on developing in high growth areas, keeping the lead in clean power and leveraging opportunities in the installed base. Transport aims to strengthen its positioning in mature markets, whilst targeting emerging ones with suitable solutions. Along with the integration of Transmission's activities into the Group, Alstom will seek to boost its growth through selective acquisitions if opportunities arise.

Alstom's operational priorities are geared towards leveraging its competitive advantages to get profitable orders as well as adapting to the load whilst maintaining flexibility. Focus remains centred on quality, project execution and strict cost control.

In the current context, Alstom has set a new operating margin forecast between 7 and 8% over the next two years, based upon proper contract execution and gradual recovery of demand.

The foregoing are applicable to the Group's current structure. They are "forward-looking statements" and as a result they are subject to uncertainties. The success of the Group's strategy and action plan, its sales, operating margin and financial position could differ materially from the goals and targets expressed above if any of the risks described in the Risk section of the Registration Document for fiscal year 2009/10, or other unknown risks, materialise.



# Sector review

# **Power Sector**

The Power Sector offers a comprehensive range of power generation solutions from integrated power plants for all types of fuels: water, wind, fossil, nuclear, geothermal, biomass, and all types of turbines, generators, boilers, emission control systems, as well as a full range of services, including plant modernisation, maintenance and operational support.

# Offering

All components produced by Alstom can be integrated in order to build the most efficient and the cleanest power solutions for the customers.

The Power Sector designs, manufactures, supplies and maintains a broad range of products in the power generation industry for coal, gas, oil and biomass power plants. It also supplies wind and hydro equipment as well as conventional islands for nuclear power plants

The Sector also provides a complete range of services, support and equipment to the thermal power generation industry on a global scale. The Sector offers a wide range of services, including:

- power plant management: tailored service packages including Operation and Maintenance (0&M) agreements for plants' full life cycles;
- consulting and support: technical services, training, monitoring and diagnostics, performance analysis;
- performance improvement: modernisation, upgrades and lifetime extension;
- Alstom has an extensive experience in retrofitting existing power plant equipment. This
  knowledge is of great value as the worldwide installed base is ageing and needs to operate
  under ever more stringent environmental regulations.
- field service: outage management, field repairs, erection, commissioning, construction and supervision; and
- new spare parts, improved and reconditioned components.

The Power Sector operates in all geographic markets with more than 200 units in 70 countries and has a worldwide manufacturing footprint:



#### In Europe:

- steam and gas turbines as well as generators in Birr (Switzerland), Belfort (France), Elblag and Wroclaw (Poland), Mannheim and Bexbach (Germany), Budapest (Hungary);
- heat recovery steam generators in Setubal (Portugal);
- hydro turbines and generators in Grenoble (France)Birr (Switzerland) and Bilbao (Spain);
- Alstom Wind is headquartered in Barcelona (Spain) and have operations offices in Toulouse (France). Wind turbines are manufactured in several sites in Spain.

#### In Asia:

- turbines and generators in Beijing (China);
- boilers in Durgapur (India) and Wuhan (China);
- heat recovery steam generators in Surabaya (Indonesia);
- hydro turbines and generators in Baroda (India) and Tianjin (China);

Aiming to expand also towards Asia, Alstom Wind has also established a local team dedicated to wind business in Beijing, China.

Alstom and Bharat Forge Ltd (BFL), a global leader in manufacturing and metal-forming, signed a shareholders' agreement on the creation of a joint venture company in India which will manage the whole process from engineering and manufacturing to selling and commissioning state-of-the-art 600 MW to 800 MW supercritical turbine island power plant equipment

#### In North and South America:

- hydro turbines and generators in Taubate (Brazil) and Tracy (Canada).

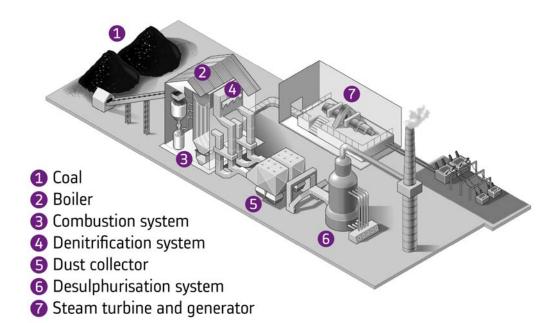
In 2008, Alstom Hydro and Bardella created a 50/50 joint venture called Indústria Metalúrgica e Mecânica de Amazônia (IMMA) which has built a plant to manufacture hydromechanical equipment in Porto Velho, state of Rondonia; this plant is now operational.

Steam and gas turbines and generators are manufactured in Morelia (Mexico). A new facility in Chattanooga (USA) will be inaugurated in June 2010 to fully manufacture steam turbines for nuclear and fossil power plants for new and retrofit projects as well as gas turbines.

Alstom Wind operations offices are also located in Sao Paolo (Brazil) and in Richmond (USA). The industrial footprint will be further developed worldwide with the opening of two new units, one in Brazil (State of Bahia) and one in the USA (Texas) which will be fully operational by 2011.

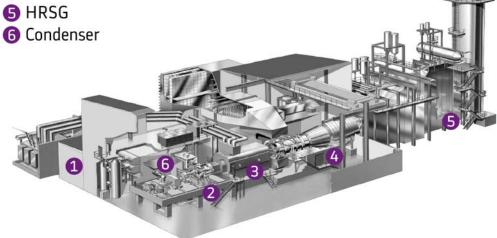


# **Coal power plant**



# **Combined cycle power plant**

- Control systems
- 2 Steam turbine
- Generator
- 4 Gas Turbine





## Gas

Alstom has leading experience and knowledge in gas fired simple cycle, combined cycle and cogeneration projects-based on Alstom gas turbines. Today, Alstom-built gas fired power plants produce over 100 GW of power for various power generation, heat and industry applications.

#### **INTEGRATED SOLUTIONS**

### Integrated simple cycle power plants

Today, simple cycle power plants are used whenever power generation capacity needs to be built rapidly. Alstom is the key supplier for many customers who are looking for reliable commitments and on-time delivery.

#### Integrated combined cycle power plants

For customers who look for efficient, flexible and competitive power generating capacity, Alstom Plant Integrator™ concept proposes combined cycle power plant designs with optimised installation times, high-performance, low emissions, high operational and fuel flexibility features. The Alstom-made reference modules are adaptable to various site conditions and to individual power plant requirements.

Alstom's project capabilities and references also encompass special applications, for example: the cogeneration for district heating, industrial processes or desalination; the conversion of simple cycle into combined cycle power plants, and the conversion of steam power plants into combined cycle power plants.

#### **PRODUCTS**

#### **Gas Turbines**

Alstom's high performing, low emissions, operationally and fuel flexible gas turbines (ranging from 56 to 292 MW) are successfully operating in simple, combined and/or cogeneration applications.

Alstom's gas turbine products are:

- GT26 (292 MW) for 50 Hz
- GT24 (193 MW) for 60 Hz
- GT13 E2 (182 MW) for 50 Hz
- GT11N2 (115 MW) for 50 and 60 Hz
- GT8 C2 (56 MW) for 50 and 60 Hz



## **Turbogenerators**

As a leader in air-cooled technology, Alstom has set the trend with TOPAIR by designing a simple, robust and highly reliable air-cooled turbogenerator. The largest air-cooled turbogenerator in operation is a TOPAIR at 340MW.

The upper range of gas turbine combined cycle applications are covered by Alstom's hydrogen-cooled TOPGAS with outstanding reliability and efficiency resulting in low life cycle costs for Alstom's customers. TOPAIR together with TOPGAS turbogenerators are the result of a continuous, evolutionary development that has pushed the limits of power output while maximising efficiency. At the same time, it is characterised by simplicity and ease of operation and maintenance.

# **HRSG (Heat Recovery Steam Generator)**

Alstom offers a complete range of HRSG, optimized for cycling and constructability, that provide high performance in all modes of operation. More than 600 HRSG behind gas turbines of 50MW and above were supplied from Alstom's own manufacturing facilities, including drum-type and advanced once-through HRSG, thus providing Alstom with unparalleled experience in this field.

#### Steam

With over a century's experience in building coal-fired power plants, Alstom has the expertise, the technology and the product portfolio to meet its customers' specific requirements, combining high performance and reliability with total environmental compliance, including reduced water consumption.

More than 30% of boilers sold to date worldwide use Alstom technology, totalling over 750 GW of equivalent capacity and making Alstom a leader in the boiler industry (source: Alstom). Alstom's experience includes both subcritical and supercritical steam pressures and a broad range of fuels including coals from around the world. Alstom has developed fuel-firing systems that provide for high efficiency with low emissions.



Alstom has installed more than 1,400 steam turbine generator sets of over 100 MW capacity, totalling over 480 GW around the world and is a European leader for the supply of large capacity ultra-supercritical units. Over 100 turnkey steam power plants built by Alstom supply more than 500 GW worldwide and Alstom's fleet represents over 20% of the world's installed steam turbine capacity (source: Alstom). Covering nuclear, fossil, and cogeneration applications, Alstom offers reaction and impulse turbine technologies. Alstom steam turbines for power generation solutions are available as back-pressure or condensing turbines with and without controlled steam extractions for a wide range of applications, including independent power producers and utility power stations, turbine retrofits, and other industrial processes and mechanical drive installations.

**INTEGRATED SOLUTIONS** 

Alstom provides a comprehensive range of flexible integrated solutions for various outputs. The steam power plants can efficiently burn a wide range of coal as well as oil and biomass, in a single or multi-unit arrangement using different types of boilers.

Alstom's Plant Integrator™ approach calls on proven solutions tailored to meet each customer's

specific needs.

Due to the broad combination of different elements and technologies used in coal-fired power plants, these projects are inherently complex and require specialist expertise. Alstom manages large-scale and complex projects, providing the entire range of services from technical

engineering and sub-contracting, construction and commissioning.

Alstom's technology provides optimum performance for all steam cycles from 100 MW. Its cutting-edge expertise with ultra-supercritical technologies ensures higher efficiency. Alstom's position as a leading supplier of environmental control systems significantly reduces the environmental impact of the power plants. Moreover, Alstom's new steam power plants are now

designed to be CO<sub>2</sub> capture ready.

**PRODUCTS** 

**Steam Turbines** 

Alstom offers a comprehensive portfolio of highly reliable, efficient and operationally flexible steam turbines for all fossil-fired power plant applications, with outputs up to 1,200 MW.

Steam turbines for steam power plants:

• STF100: 700 – 1,200 MW



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• STF60: 500 - 800 MW

• STF40: 250 - 500 MW

• STF25: 100 – 350 MW

Steam turbines for combined cycle power plants:

• STF30c: 150 - 400 MW

• STF15c: 100 -200 MW

Steam turbines for cogeneration (*i.e.* steam extraction for industry or district heating) and desalination:

• COMAX: 100 - 400 MW

**Small Steam Turbines:** 

Alstom also offers a range of highly flexible, efficient and reliable steam turbines for renewable energy (waste-to-energy, solar thermal, biomass), power generation, cogeneration and industrial applications below 100MW.

MT: 50-100 MW

• TM2: 50MW class steam turbine for solar thermal applications

## **Turbogenerators**

Alstom has more than 100 years' experience in designing and manufacturing turbogenerators. As an experienced, global supplier, the Group provides a full range of turbogenerator leading technologies for coal-fired power plants:

- GIGATOP 2-pole covers a power output range from 400 MW to 1,400 MW at 50Hz and from 340 MW to 1,100 MW at 60 Hz;
- TOPGAS covers a power output range from 300 MW to 530 MW at 50 Hz and from 250 MW to 450 MW at 60 Hz;
- TOPAIR covers a power output range from 150 MW to 400 MW at 50 Hz and from 90 MW to 300 MW at 60 Hz.
- TOPACK covers a power output range from 40 MW to 150 MW at 50Hz and from 40 MW to 90 MW at 60 Hz.



Alstom's GIGATOP 2-pole is the most powerful turbogenerator running at full speed and has been supplied to some of the largest coal-fired power plants in the world. The GIGATOP 2-pole turbogenerator delivers the needed power at an optimum efficiency and it has demonstrated extremely high reliability in operation resulting in low life cycle costs for Alstom's customers.

#### **Boilers**

Alstom offers a broad range of performance utility boilers and related equipment for an extensive range of fuels, providing highly efficient, reliable and operationally flexible operation with low emissions. This equipment range includes :

- suspension-fired boilers, up to 1,200 MW, using advanced pulverised coal firing technologies;
- · circulating fluidised bed (CFB) boilers, up to 600 MW; and
- equipment for boilers, including air preheaters, coal mills and ash handling systems.

# **Environmental Control Systems**

Alstom's expertise in boiler technologies and firing systems provides the perfect blend of knowledge to ensure that each fuel burns cleanly. Alstom has designed a family of low-NO<sub>x</sub> tangential and wall-fired combustion systems to significantly abate emissions, such as nitrogen oxides.

Alstom is the world leading supplier of air quality control systems to the power generation industry and for many other industrial applications (Source: Alstom). The wide range of post-combustion solutions addresses all customers' existing and future emission-compliance needs for all traditional pollutants:

- control of sulphur dioxide (SO<sub>2</sub>): greater than 98% reduction;
- control of nitrogen oxide (NO<sub>x</sub>): greater than 90%;
- control of particulates: Alstom is PM 2.5 compliant;
- · control of mercury emissions: up to 90%.

The next challenge will be the capture of carbon dioxide (CO<sub>2</sub>). Alstom is testing and demonstrating various oxy-combustion and post-combustion solutions on an industrial scale (see Research & development section). Alstom is now proceeding with the industrialisation of those technologies.



# CO<sub>2</sub> Capture and Storage

Alstom has several pilot projects currently running using several technologies of  $CO_2$  capture solutions that give one of the best energy efficiency for an acceptable cost of installation and maintenance for the operator. The Sector focuses mainly on post-combustion and oxy-combustion technologies as these applications cover both new built power plants as well as existing fleet. The availability and efficiency performances for these technologies are promising. They should allow the capture of  $CO_2$  emissions from commercial scale power plants from around 2015 depending on the technology.

Post-combustion technology is the most advanced technology today. It consists of separating CO<sub>2</sub> from exhaust gases using a solvent. Two technologies are pursued by Alstom: advanced amines, in cooperation with Dow Chemical, and chilled ammonia. These technologies can be applied to both coal-fired power plants and to combined cycle gas-fired power plants. The various pilot projects and industrial demonstrations already under way will measure the energy use of these technologies and should confirm their economic advantages.

The oxy-combustion method consists of burning a solid fuel in a mixture of pure oxygen and recycled  $CO_2$  instead of air. This combustion produces a concentrated stream of  $CO_2$  which can be easily stored. Conditions for retrofitting existing fleets with oxy-combustion technology are currently being studied. Also, important technological breakthroughs are being prepared, such as chemical looping, a new and promising form of oxy-combustion currently undergoing bench tests at Alstom.

The third path, called pre-combustion, consists of transforming by gasification a fuel rich in carbon (coal or petrol derivatives) into a synthetic gas made up of carbon monoxide and hydrogen. Carbon monoxide is then converted into CO<sub>2</sub> and hydrogen using water. Hydrogen is burned in a combined cycle gas turbine power plant. Alstom has decided not to invest at a large scale in the gasification process itself as this technology cannot be applied to the existing fleet. This technology may potentially be successful in a "poly-generation" mode producing synthetic gas (or hydrogen if equipped with carbon capture), synthetic fuels as well as other by-products, including electricity and consequently Alstom has launched development programmes to enable its gas turbines to burn hydrogen-rich gases.

Alstom has already signed several agreements with utilities and oil companies for pilot CO<sub>2</sub> capture plants using both oxy-combustion and post-combustion methods.



#### Post-combustion:

- a 5 MWt post-combustion pilot plant (using chilled ammonia) in association with the Electric Power Research Institute (EPRI) for We Energies in the United States (coal). This pilot has completed its tests as scheduled and achieved great results, as recognised by the EPRI;
- a 5 MWt post-combustion demonstration plant (using chilled ammonia) for E.ON in Sweden (oil and gas);
- •a collaboration between Alstom and The Dow Chemical Company (Dow) to design and construct a pilot plant using a new advanced amine technology to capture CO<sub>2</sub> from the flue gas of coalfired boiler at a Dow-owned facility in West Virginia, USA. This plant is now operating. A joint development and commercialisation agreement with Dow has been signed for advanced amine scrubbing technology for the removal of CO<sub>2</sub> from low pressure flue gases particular to fossil fuel fired power plants and other major industries.
- a 58 MWt post-combustion product validation unit (using chilled ammonia) for American Electric Power (AEP) in the United States (coal) to be followed by the design, construction and commissioning of a commercial scale CO<sub>2</sub> capture system of over 200 MWe. The latter was officially selected in December 2009 for public funding by the US Department of Energy (DoE).
- a 40 MWt post-combustion test and product validation facility (using chilled ammonia) for Statoil in Norway (gas);
- an agreement with TransAlta in Canada to develop and construct a commercial CO<sub>2</sub> capture and storage facility (>200MWe) to retrofit a coal-fired power plant. The power plant is currently under construction, while the detailed engineering of the CO<sub>2</sub> capture system is on-going;
- an agreement with PGE Elktrownia Belchatów SA in Poland for a 260 MWe carbon capture plant to capture CO<sub>2</sub> produced by the new 858 MW lignite-fired units currently being built by Alstom for Elektrownia Belchatów:
- a study on Advance Amine CO<sub>2</sub> capture in Archer Daniel Midlands industrial site in Decatur, Illinois, USA.

## **Oxy-combustion:**

- a 30 MWt oxy-firing demonstration plant for Vattenfall in Germany (lignite); this unit has been in operation since 2008.
- a 32 MWt oxy-firing demonstration (boiler retrofit) unit for Total in France (gas); this unit has now been in operation since January 2010.



- a feasibility study for a 260 MWe oxy-firing demonstration unit at Jänschwalde power plant in Germany (lignite) for Vattenfall.

Alstom and Schlumberger sealed a joint agreement to conduct carbon capture and storage readiness studies for power plants. These innovative studies will include a technical analysis of a power plant to identify how it should be adapted to accommodate an Alstom CCS system. The studies will also include an evaluation of potential CO<sub>2</sub> storage sites for the power plant, as well as an evaluation of required investments for future CO<sub>2</sub> transport and storage. The offer is designed to facilitate the future conversion of power plants to CCS and the securing of environmental permits as well as optimising time-to-market periods and associated costs.

Alstom has acquired the Wiesbaden engineering office of the former Lummus Global, a leading provider of technology for the hydrocarbon processing industry, in Germany. The unit, renamed Alstom Carbon Capture GmbH, is now integrated into Alstom's CO<sub>2</sub> Capture Systems activity. Alstom Carbon Capture GmbH has extensive experience in numerous fields of chemical processing applications, especially for the oil and gas, petrochemical and chemical processing industries. This acquisition greatly strengthens Alstom's capacity to execute carbon capture projects.

Other partnerships are also currently under discussion. Alstom thus intends to take a worldwide leadership position in CO<sub>2</sub> capture, as is already the case in other "clean energy" areas.

# Nuclear

Nuclear energy is becoming more and more topical in many countries. Alstom is a world leader in equipment and solutions for conventional islands for nuclear power plants. More than 30% of installed nuclear power plants have Alstom turbine-generator sets (Source: Alstom).

Alstom offers integrated conventional islands as well as specific products. Alstom has one of the best turbine technologies and is the only turbine manufacturer able to fully design, engineer and manufacture all the main equipments of a conventional island for any type of civil nuclear reactor.

## **NUCLEAR SOLUTIONS**

Alstom's core competencies cover all phases of implementation of the power conversion systems, starting from licensing, conventional island basic and detail design, including general layout, civil work studies, supply of equipment, engineering of electrical equipment and control, documentation and training, technical assistance to erection up to commissioning and performance testing.



#### **PRODUCTS**

#### **Steam Turbines**

Alstom has installed more than 180 steam turbines for nuclear plants, making it a clear market leader (source Alstom). These turbines are in operation worldwide and have demonstrated a high level of reliability and performance.

The ARABELLE™ steam turbine is central to Alstom nuclear technology. Widely acknowledged as the most advanced in the market, the "half-speed" turbine offers outstanding power output (900 to 1,800 MW) and uses exclusive welded-rotor technology, widely used throughout Alstom's gas and steam turbine portfolios. This technology ensures unparalleled efficiency, resistance to corrosion, longevity (up to 60 years) as well as optimal operation and maintenance regimes, resulting in reduced costs and highest availability.

The world's largest operating steam turbines are four Alstom ARABELLE™ turbines running in EDF plants in France: Chooz B1 and Chooz B2 (commissioned in 1997; each with an output of 1,550 MW); Civaux 1 and Civaux 2 (commissioned in 1999 and 2000; each rated at 1,550 MW). These turbines have already notched up 200,000 operating hours and boast an outstanding reliability rate (99.97%). Alstom will reach another world record with Flamanville 3, (rated at 1,750 MW) the first Evolutionary Pressurised Reactor (EPR) in France.

## **Turbogenerators**

Alstom is the world's most experienced turbogenerator supplier for nuclear applications, with worldwide operational experience since the 1960s and 175 units delivered. About one third of the world's nuclear fleet are today equipped with Alstom's turbogenerators. 24 units have been ordered over the past 4 years, including Flamanville 3 in France, Hong Yan He in China as well as UniStar in the USA. The world largest turbogenerators in operation today are Alstom's GIGATOP 4-pole covering an output range from 900 MW to 1,800 MW, in both 50 and 60 Hz markets. GIGATOP 4-pole, the turbogenerator behind Alstom's proprietary ARABELLE™ steam turbine, sets the benchmark for reliability and efficiency.



# **Thermal Services**

Benefiting from over 100 years experience and from the largest installed base of power generation equipment across the globe, Alstom offers extensive service and retrofit solutions for all types of equipment and all power plants, from field service and daily maintenance, consulting, spare parts and component upgrade, component and integrated retrofits up to full plant operation. Based on its comprehensive knowledge of all types of equipment, their integration at the plant level and its global fleet experience, Thermal Services delivers effective solutions for Alstom and other manufacturer's equipment in order to help customers maximise the value of their assets over their lifetime.

#### GLOBAL TECHNOLOGY AND LIFE CYCLE MANAGEMENT

Alstom technology is present in 25% of power plants globally through all major equipment (gas turbines, steam turbines, generators, boilers and environment/air quality control systems). This unique technological knowledge is further developed through significant R&D investment specifically dedicated to the installed base, with a particular focus on efficiency and environmental aspects in order to offer innovative solutions to customer's challenges.

#### **LOCAL PRESENCE**

With more than 17,000 employees present globally through a network of over 60 local service centres in 70 countries, and 25 centres of technical expertise, Alstom's footprint and broad industry expertise enable it to support customers in an efficient and responsive manner around the world.

### **SOLUTIONS FOR ALL TYPES OF PLANTS**

## Gas power plants

Effective solutions for gas turbine simple and combined cycle plants are based on a complete knowledge of product and component integration. Alstom ensures optimised performance, flexibility and compliance with the strictest emission regulations through component improvements, lifetime extension packages and around-the-clock Operations and Maintenance (0&M) support.



## Steam power plants

Covering the full range of steam power plants, Alstom provides optimum performance for all steam cycles. From components to full system upgrades and retrofit, the flexible pre-engineered solutions meet today's growing environmental and economic demands for the world's ageing installed base.

## **Nuclear power plants**

With 30% of the total installed base and several of the world's largest power producers on the books, Alstom is a major global player in nuclear power plants. Customers can depend on Alstom's expert know-how of the conventional island power train and associated electrical and mechanical services.

#### **Industrial power plants**

As a long-time partner, Alstom provides a wide range of service solutions for industrial plants. Its expertise covers the full range of industrial applications. Industrial customers can therefore focus on their core processes with the confidence that comes from working with a leading service.

#### **COMPLETE PRODUCT PORTFOLIO**

With a complete portfolio covering the entire plant lifecycle, Thermal Services helps its customers maximise plant performance, availability and reliability, meeting their business goals in asset lifecycle management, performance improvements, risk management, cost management and environmental compliance.

As an Original Equipment Manufacturer (OEM), Alstom is the best qualified to maintain, upgrade and repair its own installed base – as well as components and systems from third-party suppliers.

#### **Consulting & support**

Alstom Power helps customers maximise plant performance, availability and reliability through innovative services such as performance and lifetime assessments, training, monitoring and diagnostics.

#### **Parts**

From new or reconditioned parts to customised components, Alstom Power supplies a wide range of spare parts. Its extensive Original Equipment Manufacturer (OEM) knowledge, service R&D programmes and field experience enables Alstom to deliver the highest quality and design. Highend parts management is handled through a sophisticated database, with full parts traceability and data accessibility. Centralised warehousing means fast delivery and competitive pricing.



#### **Retrofit solutions**

With an entire generation of power plants built in the last 10 to 40 years facing a series of existing and future emission regulations and a worldwide increase in power demand, utilities are seeking solutions to optimise performances of their assets to changing market conditions. In order to fulfil these obligations, increase power output by boosting power plants' efficiency and availability, as well as extend their lifetime and improve the reliability and availability of the main equipment, Alstom provides its customers with flexible state-of-the-art technologies, ranging from comprehensive retrofits for boilers, turbines, generators and air quality control systems to plant upgrades.

# **Hydro Power**

As part of a global cooperation between Alstom and Bouygues, a joint venture (50%-50%), Alstom Hydro, was created in 2006. Effective March 2010, Alstom Hydro is fully owned by Alstom as Bouygues exercised its exit option in December 2009.

Today, Alstom Hydro, which has more than 7,000 employees, is the worldwide market leader for hydropower solutions and services, with around 25% of the global hydropower installed capacity (400 GW of turbines and generators) (Source: Alstom).

#### **HYDRO POWER SOLUTIONS**

Hydropower is the world's most important source of renewable energy, representing over 16% of the global electricity production, while using only 33% of the potential economic global hydropower capacity.

With over 100 years of experience and know-how, Alstom Hydro currently offers the world's most comprehensive range of power generation services and equipment that can cover all hydropower schemes from small to large, from run-of-river to pumped storage power plants, from individual equipment to complete turnkey solutions.



Alstom Hydro offers the customers a single point-of-contact to coordinate and interact with all related parties (consulting engineering, civil engineering, etc.) and acts as the consortium leader for major projects (where required), taking full responsibility for the project and its optimisation.

Alstom Hydro's power plants combine reliability with very high efficiency, converting more than 90% of available energy into electricity.

For medium and small power ranges, Alstom Hydro has also developed a range of turnkey solutions based upon standardised electromechanical equipment for industrial and agricultural applications, to satisfy all requirements from 5 MW to 30 MW.

#### **PRODUCTS**

Alstom Hydro's wide and advanced product range enables the Company to provide cost effective hydropower solutions for any application for both new and installed power plants.

# Turbines up to 900 MW

Alstom Hydro provides a full range of hydro turbines, with maximum power capacities of 900 MW. This range includes Francis, Kaplan, Pelton, Bulb and Pump turbines to meet all customers needs and applications.

### Generators up to 1,000 MVA

Alstom Hydro's generators can produce up to 1,000 MVA depending on the type of hydro power application. The range includes large, medium and small hydro generators, bulb generators, motor-generators, ring motors and excitation systems.

# **Hydro-Mechanical Equipment**

Alstom Hydro designs and manufactures hydro-mechanical equipment for hydro power plants as well as for waterways and irrigation systems.

## **Balance of Plant and Control Systems**

Alstom Hydro's core competencies in control systems span all types of hydro power plants to optimise power production. In this field of strategic products for power generation applications, Alstom Hydro has developed and qualified specific control system solutions as well as dedicated machine control equipment, in order to guarantee safe, optimised power plant operations.



# **Wind Power**

Alstom believes in wind as a viable source of clean power to help meet today's energy challenges, and aims to become a major player in this field. The acquisition in 2007 of Spanish wind turbine company Ecotècnia provided Alstom the perfect foothold to enter this activity.

Since 1981, Ecotècnia had been a pioneer in the development of wind power as a reliable source of clean power, and grew from a small local wind equipment supplier into Alstom Wind, an international manufacturer that currently designs, assembles, installs, and commissions a wide range of onshore wind turbines spanning from 1.67 MW to 3 MW.

To date, Alstom Wind has installed or is installing more than 1,850 wind turbines in 100 wind farms (in Spain, France, Italy, Portugal, UK, Japan and India), corresponding to a total capacity of over 2,200 MW, i.e. about 2% of the worldwide installed base (Source: Alstom).

#### WIND SOLUTIONS

Alstom offers integral wind farm solutions, covering site development activities, system or key component design and manufacturing, assembly, installation, and O&M services.

#### **PRODUCTS**

The Alstom portfolio offers the appropriate choice of wind turbine to match different wind farm locations and wind speeds. Products, which range from 1.67 MW to 3 MW turbines, are divided into the ECO 80 and the ECO 100 platforms.

In the field of the ECO 80 platform, Alstom Wind offers a wide range of 1,67 MW wind turbines for wind speeds ranging from low to medium/high, with rotor diameters of 74 m (ECO 74) to 80 m (ECO 80) and 86 m (ECO 86).

The ECO 100 platform is composed of the ECO 100 wind turbine, the first 3 MW onshore wind turbine suitable for class II-A sites available on the market, and the ECO 110. The ECO 100 (100 m diameter) for class II has already been installed in several wind farms, and the prototype of the ECO 110 for class III sites is already in operation; it will be available by end 2010.

All Alstom Wind products feature the company's patented ALSTOM PURE TORQUE <sup>TM</sup> concept, a unique mechanical design concept in which the hub is supported directly by a cast frame on two bearings, whereas the gearbox is fully separated from the supporting structure. As a consequence, the deflection loads are transmitted directly to the tower whereas only torque is transmitted through the shaft to the gearbox. This configuration reduces gearbox breakdowns, thus increasing reliability levels, and reducing maintenance costs.



# **Energy Management Solutions**

The Energy Management Business is dedicated to the delivery of IT solutions for the automation and control of power generation assets: steam, gas, nuclear and renewables. It is a major component of the Plant Integrator™ and Clean Power offering of Alstom Power.

These solutions aim at optimising the efficiency, quality and availability of power generation plants and fleet, thus providing the means to get the best output from power plants, the right amount of power at the right time, and the desired voltage or frequency in a safer environment.

Alstom Power's Energy Management Solutions rely on two areas of expertise:

- Automation and Control Products: a suite of electronic products (controllers) and software applications to control, monitor and supervise all power plant area.
- Automation Engineering Services: a network of specialised automation and process engineers to define, implement, commission and maintain those systems.

#### **OFFERING**

Alstom's ALSPA® (Alstom Power Automation) product line extends across the entire plant, from the control room with plant management operation and optimisation tools, through plant and machine automation to asset management and remote diagnostic systems. It includes:

Distributed Control System: ALSPA® Series 6

Turbines and Generators control systems: ALSPA®

Monitoring and diagnostic control systems: ALSPA® CARE

Virtual Power Plant : ALSPA® VPP

Isolated Phase Buses: ALSPA® Enerbus



# **Industry characteristics**

The world's installed power generation capacity as of 1 January 2009 was estimated at around 4,774 GW. The chart below sets out the breakdown of this installed base by technology.

Installed base by plant type as of 1 January 2009



Source: Alstom, UDI.

Investments needed in new power plant construction generation over the next decades are expected to be extremely important: according to IEA (International Energy Agency) (WEO 2009), they should represent an average of more than €225 billion per year over the period until 2030.

#### MARKET EVOLUTION

After a period of intense growth in power infrastructure investment in the United States of America in the late 1990s, the world economy has been driven since 2003 by unprecedented growth in Asia – especially China and India – where the demand for new power plants is strong. This market shift – a decline in North America, growth in Asia – also resulted in a technology switch from gas to coal and hydroelectric power, which account for a large proportion of the available resources in this region.

2007 and 2008 were both exceptional years for power markets in almost every region and across all technologies. The demand in Asia was particularly high and centred on hydro and coal plants, the latter achieving notable success in South Africa and Europe as well. The high level of gas plant orders in Europe and Middle East, which accounted for roughly one quarter of the total market, resulted in a fairly balanced technology split. Furthermore, 2008 was also a record year for CO<sub>2</sub> free technologies, with more than 50 GW of hydro and 25 GW of wind, as well as a flow of orders for new nuclear power plants. Over these two years, the power market was dominated by the Asia/Pacific region with more than a 60% market share, followed by the Middle East and Europe.



In 2009, the financial and economic crisis significantly affected electricity consumption worldwide, especially in countries where economies rely strongly on industrial output. The global financial crisis also impacted the financing of projects. Additionally, the combination of lower power demand and pre-crisis ordered capacity coming online pushed reserve margins higher in several regions.

Nevertheless, initial signs such as the recent return to growth in electricity consumption are positive indications that the global economy may be beginning to recover, with key emerging economies in Asia at the forefront of the process.

Long term drivers for power investments remain strong: in most industrialised countries, the ageing fleet is pushing the need for replacement. Environmental concerns remain a key driver, as illustrated by the increased focus placed on these issues in most government "stimulus packages". In addition, many emerging economies still require further power capacity to match demand. At present, Asia is likely to remain the biggest market globally whilst the rest of the world market will be distributed among the Middle East and Europe, which remains gas dominated but with a coal market in Germany and Eastern European countries. Markets will also grow in the Americas, with increasing needs in Latin America and a new investment cycle to start in North America targeted towards gas, nuclear and wind.



The graph below shows the expected power generation market over the next five years, covering Alstom's scope of activity:

## Power generation market in the next five years

## Average of 220/240 GW p.a.

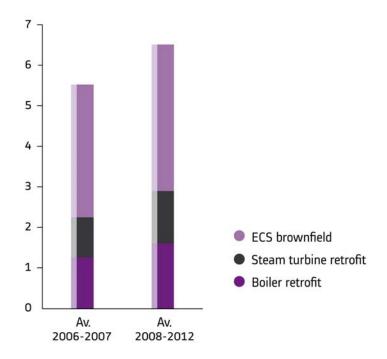


Source: Alstom

Environmental products and retrofit markets should offer strong opportunities in developed countries, mainly driven by more stringent regulations and ageing of the installed base.



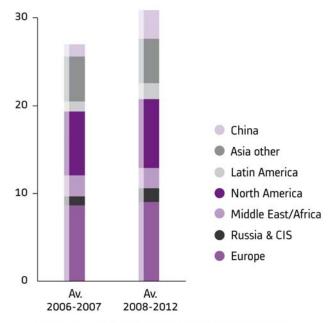
#### Brownfield environmental and retrofit market in billion euros



Source: Alstom.

The service market slightly declined in 2009, primarily due to lower plant utilisation rates as a consequence of weaker electricity consumption. Long-term drivers remain solid: in Europe and North America, an ageing installed base has increased the requirement for regular equipment maintenance, lifetime extension and performance upgrade. In developing markets such as China, India or the Middle East, the growing number of new power plants will progressively boost service needs. Everywhere, environmental concerns highlight the need for lower emissions in existing power plants. Furthermore, fossil fuel prices, which are expected to remain structurally high in the coming decades, are also contributing to the demand for services.





Note: excluding inflation, Thermal Power Plants >20MW only.

Source: Alstom.

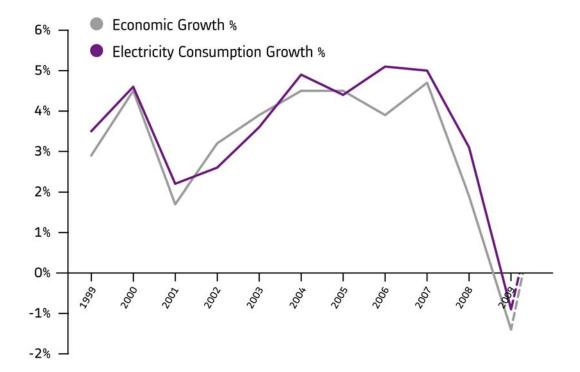
### **MARKET DRIVERS**

Demand for power generation equipment tends to be driven by a variety of complex and interrelated factors, notably:

# **Economic growth**

Power consumption and Gross Domestic Product (GDP) are closely linked. Economic development is driving the consumption of electricity, particularly in countries with rapid industrialisation.





The difficult economic environment has adversely impacted electricity consumption; over the first three quarters of 2009, industrial production saw a dip in several of the major Asian developing countries, such as India, Vietnam and most notably in China, where power consumption declined for the first time in six years.

From these low levels, final domestic demand has recently seen very strong progression in key emerging countries. Nonetheless, the economic recovery is still in its early stages and the future holds uncertainties. Current positive developments are largely the result of policy decisions and actions, and it remains difficult to predict when private demand will be strong enough to be able to phase out the stimulus packages.

### **Environmental concern**

Environmental concerns have been the most widely debated topic over recent years. The environment is becoming the main driver for new plants and the installed base market in several regions of the world. A real change in behaviour is noticeable, with more stringent regulations being implemented all over the world. Climate change is a fact now accepted by the majority of scientists, politicians and the general public, with greenhouse gases such as  $CO_2$  seen as the major root cause. The power sector, being one of the biggest emitters of  $CO_2$ , is looking at ways to considerably reduce its carbon footprint. Legislators are beginning to put in place the policies that will be needed to drastically reduce  $CO_2$  emissions in the medium- to long-term.



#### CO<sub>2</sub> emissions from fossil fuel combustion



Source: IEA. World Energy Outlook 2009

The Energy and Climate Change Package adopted in December 2008 by EU legislators represents a significant example of such legislation. The package includes a Directive on geological storage of CO2 (to be transposed by the Member States by June 2011) and a renewables Directive (to be transposed by the Member States by December 2010). The new Directives will help direct investment towards renewables and low carbon technologies. In addition, the European Energy Programme for Recovery has provided money for Carbon Capture and Storage (CCS) and renewables projects.

This will considerably influence Alstom's markets, with the prospect of significant new development in renewable power (hydro, wind, etc) and support to CCS throughout all EU27 countries.

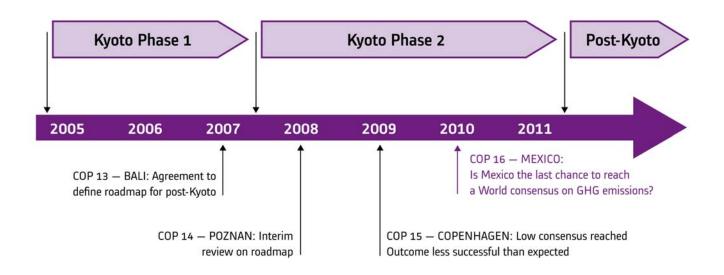
#### EU climate and energy package



In the United States of America, current focus is on implementing various projects funded by the American Recovery & Reinvestment Act (ARRA). ARRA provided money for a broad spectrum of technologies, ranging from Carbon Capture and Storage (CCS), smart grid demonstrations and renewables development.



In China, the Medium and Long Term Development Plan for Renewable Energy issued in September 2007 established targets for the development of various sources of renewable energy up to 2020, calling for the percentage of renewable energy to rise to 15% of total energy consumption by 2020.



These environmental concerns have not only created increased demand for clean-coal technologies, but also for retrofitting of existing power plants and the integration of environmental control systems, a field in which Alstom is particularly strong.

The outlook for the environmental equipment market is positive worldwide, with current years being stronger for DeSox systems in North America and in Europe due to compliance deadlines.

## Ageing installed base of power plants

The ageing installed base along with stricter environmental regulations and increased fuel prices should lead to a higher demand for retrofit. In recent years, demand for maintenance and refurbishment has been strengthened by a general trend among power producers to seek increased performance, lower operating costs and extend the life cycles of their existing plants. This increase in demand to upgrade and retrofit facilities could benefit power plant manufacturers such as Alstom. The Group believes that its large worldwide installed base will be a significant



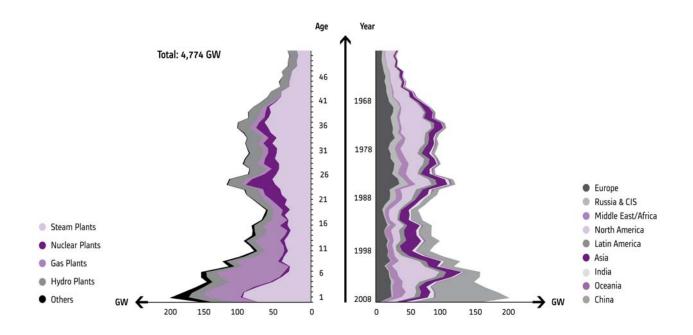
source of future growth for its Power activities, especially in Europe and in the USA, but increasingly in other regions such as Asia or the Middle East. The growing number of old plants reaching retirement age will continue to drive the market for servicing and retrofits as utilities strive to replace components to maintain current levels of installed capacity, or take the opportunity to increase the capacity of power plants to simultaneously address rising power demand.

By carrying out an integrated analysis of power plant equipment, operation and maintenance, individual plants can be improved to run more efficiently, thus cutting fuel costs, enhancing performance and allowing drastic reduction of CO<sub>2</sub> emissions.

According to the Group's analysis based on data published by Utility Data Institute (UDI-USA) and proprietary sources, Alstom has installed major power generation equipment in about 25% of the world's installed power generation equipment. The Group considers its experience of installing, retrofitting and servicing this large installed base of equipment as key to securing further retrofit and customer service contracts and supporting sales of the Power Sector in the future.



#### Age pyramid of world installed capacity



Source: Alstom, UDI.

## Fuel price and availability

The availability and price of fuel, oil, coal, natural gas, uranium and biomass, is not a driver of electricity demand, but is a key factor influencing the portfolio of generating technologies by power companies. While fuel markets in recent years have been characterised by higher prices and concerns over supply security, the financial crisis and economic slowdown have had a temporary dampening effect. Reduced economic activity, especially among heavy industrials, has put downward pressure on fuel demand and prices. Official reports show that global demand for oil fell in both 2008 and 2009 from the previous year. While a rebound is expected in 2010, oil consumption is likely to still be below 2008 levels. Shifts in oil demand have resulted in huge price swings, falling from a historic high of \$143/barrel in 2008 to less than \$40 in early 2009. Since then prices have stabilised around \$80. Volatility in demand and price is no longer limited to oil, as natural gas, coal and uranium have also experienced wider swings in use, availability and price, thus directly impacting investment decisions for new power plants.



Uneven distribution of reserves is also an important factor shaping fuel markets. The Middle East contains the largest oil reserves and remains the primary global producer, while the United States of America, Western Europe and Asia/Pacific are the largest importers. Demand growth for oil has been especially strong in China. The situation is somewhat different for natural gas, as once again the Middle East holds the largest reserves, but Russia, which holds around 25% of identified gas reserves, remains the largest exporter given its extensive supply infrastructure. Future developments of natural gas will focus on continued growth of production from unconventional sources, especially from shale wells, to be joined by additional capacity for liquefied natural gas (LNG). Although these reserves require considerable investment to bring them to worldwide markets at sufficient scale and competitive cost, they represent a vast supply of new natural gas. Coal remains an abundant energy source in many regions, with China, the USA, India, Australia, South Africa, Russia and Europe all having large proven reserves and the necessary supply infrastructure to bring it to market. Price volatility and supply security concerns for all fossil fuels, along with a growing call to reduce greenhouse gas emissions, have led many countries to include nuclear power in future generation plans. This is for both maintaining the existing nuclear fleet and to build new reactors.

While fuel is expected to be in abundant supply, uncertainty over future prices and long-term security remains. Therefore, global power companies are deciding that the best way to ensure the most reliable, secure and cost efficient delivery of electric energy is to develop and maintain a balanced portfolio of multiple generation technologies.

## **Energy management**

Energy management is a key element of the power market. The massive expansion of intermittent technologies, such as wind and solar power, requires solutions to ensure a continuous electricity supply and adequate grid connections. Automation and plant management systems will need to be integrated into the higher level systems used by traders and plant portfolio operators. This will allow them to improve their operational decisions on how to optimally allocate their plant production, arbitrating between coal, gas, wind, hydro, as well as in the future demand side participation. However, energy management is not just about using renewables effectively and ensuring grid connection; a vital part of energy management is also what is commonly referred to as the smart grid. This broad concept refers to modernisation of the whole electricity delivery system - in brief an improved electricity supply chain that runs from a major power plant all the way to private residences. The concept of smart grid is to add monitoring, analysis, control and communication capabilities to the national electricity delivery system to maximise the throughput of the system while increasing the energy efficiency.



# **Competitive position**

The Power Sector holds leading positions in all of its Businesses worldwide.

In gas turbines, Alstom is facing competition from three major global groups: General Electric, Siemens and Mitsubishi Heavy Industries.

In steam turbines, the Sector competes with General Electric, Siemens, Mitsubishi Heavy Industries and Toshiba as well as with players from emerging countries, such as Shanghai Electric, Harbin and Dongfang from China and BHEL in India.

In the utility boilers segment, the main competitors are Mitsubishi Heavy Industries, Babcock & Wilcox, Babcock Hitachi, Foster Wheeler, Doosan and the above-mentioned suppliers from China and India.

In emissions control systems for electrical power producers, the main competitors are Fisia Babcock, BPI, Babcock & Wilcox, Lurgi, Siemens-Wheelabrator, Mitsubishi Heavy Industries, Babcock Hitachi, Black & Veatch and Austria Energy & Environment.

In emissions control for industrial application, the Sector mainly competes with Hamon, FLS Airtech, Solios, Mitsubishi, Voest Alpine, Enfil and BHA.

In hydroelectric power generation, the main competitors are Voith-Hydro, Andritz Hydro, as well as Harbin Dongfang and BHEL.

Alstom Wind's main competitors at present are Vestas, General Electric, Gamesa, Suzlon/Repower, Enercon and Siemens.

In power plant control systems, the main competitors are ABB, Siemens, Emerson, Yokogawa and Invensys.

Besides Alstom, the following companies are present in the "after sale" market:

- the Original Equipment Manufacturers (OEMs) of power generation equipment, concentrating mainly on servicing their own machines;
- independent service providers offering varied service products to OEM customers, including some reverse-engineered replacement parts;
- many local field service companies with activities mostly limited to maintenance planning and execution.



The Power Sector's competitive strengths include:

- Its leadership positions in various areas (steam turbine and generators, conventional islands of nuclear power plants, retrofit solutions, hydro solutions and equipment) with a global presence and references;
- its unique capability to supply optimised turnkey plants by integrating all major components from in-house technology: turbine, generator, boiler, condenser, environmental systems, electrical and control systems;
- its extensive experience in heavy duty and mid-range gas turbines, with a portfolio of proven machines;
- its strong market position and extensive experience in all types of boiler technologies, including clean coal combustion;
- the largest installed base of OEM equipment in operation within power plants worldwide (Source: UDI-Alstom).

# **Research & development**

The Power Sector has a long term Research & development (R&D) programme for developing and/or acquiring the best available technologies that will provide optimum efficiency, environmental and commercial benefits to power plant operators worldwide, now and in the future.

Alstom has been carrying out an intensive R&D programme over the past years to meet the technological and economic challenges of capturing the  $CO_2$  created by fossil fuel-based electricity production. In the medium term, the company will be able to offer solutions for all fossil fuel-based power plants to capture  $CO_2$  emissions.

While the development of CO2 capture solutions is a priority, Alstom remains committed to the foundation of its business and the continued improvement of energy efficiency is key among its research and development efforts.

In parallel, the Sector has continued to work on the development of the GT24, GT26 and GT13E2 gas turbines, including performance upgrade packages, combustion system improvements to reduce emissions and increase fuel flexibility, and features to allow further enhancement of the operational flexibility of these machines.



The Sector is also involved in development projects, partly funded by the European Union and the US DoE, to develop materials for very high efficiency steam turbine power plants, which are intended to operate at live steam temperatures of 700°C and above. Alstom's projects focus on the manufacturing methods and testing of new materials for boilers and steam turbines, with a number of test rigs operating in existing power plants and at dedicated test facilities. A substantial portion of these development projects is now complete, enabling Alstom to offer products for 700°C+ applications in the near future.

In the Wind activity, the Sector has developed a new 3 MW wind turbine called ECO 110, with the first prototype installed at the end of 2009. It will match the growing needs for larger turbines. As part of its R&D plan, it has also initiated the development of wind offshore technology with the aim of entering notably the UK market, where the newly created offshore wind farm's R3 zone has been located. Alstom Wind focuses on developing a large offshore wind turbine specially designed to meet this country's requirements. The prototypes and preseries are planned to be available in 2012-2013, for series production to start in 2014.

Alstom Hydro's dedicated R&D organisation is continuously improving product development in order to better meet customer needs. Global technology centres create in-house Alstom Hydro product designs. They contribute to breakthroughs in the fields of oil-free turbine components, generator oblique elements, variable speed technologies and double-stage adjustable pump turbines. Three global technology centres are today in operations, two dedicated to turbine technologies in Baroda (India) and in Grenoble (France) and one in Birr (Switzerland) focusing on generators.

Always at the forefront of the technological innovation, Alstom entered in 2009 the tidal energy market by signing a licencing cooperation agreement with Clean Current Power Systems Incorporated, a private Canadian company specialised in the design and testing of tidal energy technology. Besides an exclusive worlwide license for ocean and tidal stream application for Clean Current's patented technology, the agreement includes provisions for continued close cooperation to further develop technology. Alstom plans to commercialise its first tidal stream products by 2012.

In the Energy Management Business, Alstom Power focuses on the rejuvenation of its automation offering and the launch of several new products in 2009, such as the ALSPA Series 6, a new generation of Distributed Control Systems and a new line of Asset Monitoring and Diagnostic: the ALSPA Care. Two new strategic partnerships were signed during the year: with Microsoft for the development of new visualisation software for the Plant Control Room as well as with B&R (Bernanke and Rainer) for the development and manufacturing of a controller range specifically designed for the renewable market segment.



Alstom Power will pursue its expansion strategy for energy management solutions in Northern and Eastern Europe and Asia. Major development will focus on automation solutions for the efficient integration of renewable energy sources and higher power plant flexibility. These solutions will help utilities to optimise their fleet operations. Alstom Power will finally introduce its new system for the control of the Virtual Power Plants based on the development of renewable and storage capacity in urban environment.

In Service, R&D programmes focus mainly on a wide range of upgrade designs for plant components (gas and steam turbines, boilers, environmental systems); a unique set of inspection technologies, based on advanced in-house competencies in inspection robotics; the development of a comprehensive range of monitoring and diagnostics systems; methods and technologies to reduce outage duration and related cost for the benefits of its customers; specific technologies to increase plant efficiency.

Alstom's R&D efforts are essentially driven by current and future market needs in its product areas. To ensure that this is so, R&D resources are an integral part of its businesses.

The new "R&D execution" organisation includes more than 1,700 people and is dedicated to 80 critical technologies.

The "R&D execution" centres are located in 32 locations:

- in Europe: Switzerland, France, UK, Hungary, Germany, Russia, Norway, Sweden, Finland, and Poland;

- in Asia: India and China:

in North America: USA.

In addition to its internal resources, Alstom actively seeks links with leading academic institutions to access facilities, expertise and research talents. Across the world, the Group has established relations with some forty universities where active R&D collaboration is underway.



# Strategy

#### **Clean Power**

Combating climate change is truly a global issue and one that all sectors of government, industry and the community at large must address. However with 40% of  $CO_2$  emissions emanating from the power generation sector, and with global electricity demand expected to massively increase by 2030, the power industry must take a leadership position and play a key role in significantly reducing its emissions. The global scientific community shares a common view that, in order to limit further increases in the earth surface temperature, the concentration of  $CO_2$  in the atmosphere must be stabilised in the mid to long-term – at a level which should not exceed 450 ppm.

Alstom's commitment to providing solutions to meet this challenge is a long-standing one. There is no single solution and it will take a range of approaches. Strong leadership from regulators is required to establish a global regulatory framework and create the foundations of certainty in which the industry can properly plan for and operate in the future.

The first approach for the reduction in CO<sub>2</sub> emissions focuses on the technology mix. No single form of power generation will address the dual challenge of securing the supply of reliable and affordable power supply and affecting a rapid transformation to a low carbon system of energy supply. It will take all types of generation technologies including fossil fuels, nuclear and renewables. With the most comprehensive and balanced portfolio of generation equipment in the market including the removal of traditional pollutants, Alstom is well positioned to assist plant operators apply the most appropriate technology mix to meet their market conditions.

The second approach is that of production efficiency and energy flow management. In this field Alstom looks to solutions for both the installed base and for new plants. With 60% of the total of CO<sub>2</sub> emissions in 2030<sup>\*</sup> coming from existing plants, solutions must continue to be developed and implemented to increase the efficiency of plants operating today. The more efficient a plant is, the less fuel it consumes to produce the same electrical output – an area of increasing priority in a time where security of fuel supply is a growing concern – and the less emissions it generates. Alstom's comprehensive range of integrated retrofit solutions offer its customers a varied and innovative range of products that can be applied to their existing asset base, increasing their efficiency, output and extending the plant life. Alstom is also continually improving on existing technologies. With customer focus on plant economics and environmental impact, all new plants offered by Alstom today provide significant improvements on yesterday's technology. Alstom is



working towards innovations that aim to achieve the goal of 50% plant efficiency for steam plants and 60% for combined cycle gas fired plants – a significant improvement in comparison to technologies currently available.

The third approach to address the climate change challenge is the application of Carbon Capture and Storage (CCS) technologies. With fossil fuels accounting for more than 60% of electricity production in 2030\*, CCS is essential.

Alstom continues its significant R&D efforts in the field of CCS and is currently validating the technologies at a number of pilot and demonstration projects throughout the world, working closely with its partners toward full-scale commercialisation which should be available to market around 2015. During this validation process of the CCS solutions, to avoid the risk of stranded assets, Alstom offers its customers a "CO<sub>2</sub> capture Ready" plant concept. This concept takes into account the needs of customers who purchase plants today that will ensure they are not financially penalised when the technology becomes available. Capture ready will limit the time for plant outages and unnecessary expenses and ease the integration at the time of installation of the CO<sub>2</sub> capture system.

Addressing the climate change challenge will take a global approach and Alstom is confident that its strategy of "Clean Power Today" will meet this challenge.

#### Installed base

The Sector's ambition is to be recognised as the global leader in plant maintenance and plant long-term service.

This objective is underpinned by a market-driven organisation centred on meeting customers' needs, by differentiation through technology, and by the provision of innovative products and services delivering value to the customer.

The development of the Sector's portfolio aims at meeting customers' requirements not only at the individual components level, but also encompasses the entire power plant. Innovation concentrates on solutions that extend plant components lifetime, improve power plants overall performance and reduce their environmental impact.

<sup>\*</sup> IEA scenario 2009



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The installed base of power plants is facing a rapidly changing environment. Market deregulation, need for increased environmental performance, or impact of the growing production from renewable sources are making adaptations and upgrades necessary to keep existing plants competitive. To support its customers in this effort, Alstom is constantly investing to bring innovative technology solutions on the market for the installed base, at all stage of the plant life and for all type of components (Integrated Lifecycle Management concept).

Beyond the maintenance and the modernisation of Alstom's own installed base, which is core to business, noble parts for other original equipment manufacturers will also contribute to generating long-term growth opportunities for Power.

The Power strategy in the service field for all fuels includes acquisition opportunities where these can generate synergies with existing businesses. Potential acquisitions will be considered in order to support specific initiatives, consolidate local footprints or execution capabilities, or add new products and technologies to the Sector's service portfolio.

# Plant Integrator<sup>™</sup>

The Plant Integrator™ concept is Alstom Power's unique way of creating more value for customers. As both equipment designer and integrated solution provider, Alstom combines outstanding expertise at a component and plant level with excellent worldwide references.

Through close collaboration with customers, Alstom is able to deliver value propositions allowing customers to meet their business objectives.

There are four Plant Integrator™ factors to help increase the project net present value for customers:

- optimised investment;
- shorter lead times and secure project delivery schedule;
- higher plant efficiency, reliability and availability for increased energy output; and
- lower operating and maintenance costs.



The Plant Integrator™ approach is particularly efficient for the retrofit of the installed base. In depth plant knowledge and expertise in product and component integration enables Alstom Power to offer comprehensive integrated retrofit solutions to increase plant performance throughout its life cycle. Component improvements or upgrades and life extension packages ensure optimised plant output, operational flexibility, and compliance with the most stringent emission regulations.



# **Key financial data**

The following table presents key performance indicators for Power.

Power			% Var	iation
Actual figures	Year ended	Year ended	March 10 / March (	
(in € million)	31 March 2010	31 March 2009	Actual	Organic
Order backlog	23,318	26,164	(11%)	(15%)
Orders received	9,435	16,466	(43%)	(43%)
Sales	13,901	13,054	6%	6%
Income from operations	1,468	1,248	18%	16%
Operating margin	10.6%	9.6%		
EBIT	1,377	1,172	17%	
Capital employed	2,204	1,469	50%	

# Comments on activity during fiscal year

#### Orders received

As a result of the economic crisis, the market for new power plants and equipment slowed down significantly in 2009/10 in all regions. Recovery pace varies from one country to another, with emerging countries recovering more rapidly.

Hydro's orders substantially decreased as two of its main markets, Brazil and China, dropped from very high levels last year. Coal and gas markets have been impacted similarly by the economic downturn.

Renewable market conditions improved particularly in China and the United States of America, with strong incentives for investments in new power generation projects in these regions, in particular for wind; by contrast, a number of projects in Europe were delayed due to the unavailability of financing.

Nuclear investments have been concentrated mainly in China and delayed in the United States of America and in Europe. However, the renaissance of this technology is more and more promising as more countries decide to invest in this CO<sub>2</sub>-free and base-load power generation.

The service market remained more resilient but was also adversely affected by the global downturn as lower electricity consumption resulted in lower utilisation rate of the power plants and fewer new power plants projects led to lower volumes of related operation and maintenance contracts.



Orders received			% Var	iation
Actual figures	Year ended	Year ended	March 10	/ March 09
(in € million)	31 March 2010	31 March 2009	Actual	Organic
Thermal Systems & Products	4,290	8,830	(51%)	(52%)
Thermal Services	4,018	5,154	(22%)	(22%)
Renewables	1,127	2,482	(55%)	(56%)
Power	9,435	16,466	(43%)	(43%)

In fiscal year 2009/10, Power was awarded contracts for all types of fuel for a total of €9.4 billion, a 43% decrease compared to the record performance achieved the previous year. This reflected the general situation of the market where decisions for new investments were postponed.

Europe remained a dominant market for Power with orders totalling €5,124 million, a 13% decrease compared to last year. Key projects booked in Europe included a large gas combined cycle project in the United Kingdom (5 x GT26™ turbines and long term service agreement contract), a turnkey steam power plant in Slovenia (600MW) and equipment (a boiler and a steam turbine) for a 900 MW coal plant in Germany. The need for efficiency, life-time improvement and for emissions reduction led to the award of contracts for the integrated retrofit of an existing coal plant in Poland, the repowering of a gas plant in France and operation and maintenance on gas plants in the United Kingdom. In Renewables, Alstom won two large contracts for hydro pumped-storage plants in Switzerland and a number of wind farm projects in Spain and the United Kingdom. Europe represented 54% of orders received in 2009/10.

Orders in North America decreased by 3% to €1,703 million. In the field of emission control, Power was awarded projects to remove sulphur dioxide and particles emitted from coal-fired power plants in the United States of America and to equip a Mexican unit with electrostatic precipitators to remove particles. Additionally Alstom received several orders for steam turbine retrofits for nuclear power plants in the United States of America. It also received contracts for equipment for hydro power plants in Canada. Alstom achieved a come-back in the fast growing geothermal market with the award of 25MW plant (complete engineering, procurement and construction) in Mexico. North America accounted for 18% of orders received in 2009/10.

In South and Central America, Alstom booked €209 million orders, a 83% decrease compared to last year, during which very large hydro orders were recorded in Brazil. This year order intake included contracts for the retrofit of a boiler in Brazil. South and Central America represented 2% of orders received in 2009/10.

In Asia/Pacific, order intake was €1,549 million compared to €2,091 million in 2008/09. In India, in collaboration with BHEL, Power received orders for 660 MW and 800 MW coal boilers and orders for air quality control equipments for the industry, in particular aluminium, and for a conventional steam plant. In Renewables, the Sector was awarded a 4 x 125 MW hydro project. In China, the growing nuclear market led to orders for emergency diesel generators for EPR power plants, for which the conventional island was already awarded to Alstom last year. Power also won the supply of two 600MW steam turbines. In the rest of the region, new orders were recorded for service contracts in Singapore, Indonesia, South Korea and Thailand on Alstom



GT24<sup>™</sup>, GT26<sup>™</sup> and GT13<sup>™</sup> equipment and for a hydro plant in Bhutan. Asia/Pacific accounted for 17% of the Sector's orders in 2009/10.

In Middle East/Africa, Power recorded orders for €850 million, a 84% decrease compared to the exceptional level of last year during which steam power plants were booked in Saudi Arabia and South Africa. Power won several contracts for gas turbines: one GT8™ and two GT13™ in Middle East and another GT13™ in Nigeria, where a service contract was also awarded on another gas plant. In South Africa, Power received contracts for Distributed Control Systems for two steam power plants for which twelve turbines were booked in previous financial years. In Saudi Arabia, due to the increasing need for air quality control system, Alstom won two contracts for Sea Water Flue Gas Desulphurization systems.

Country	Description			
Canada	Supply of turbines and generators for hydro power plants			
China	Emergency diesel generators for nuclear power plant			
Germany	Steam turbine and boiler for a 900MW coal plant			
India	Supercritical boilers (2 x 800MW and 3x660MW)			
India	Turbine/generator units (4 x 125MW) for a hydro power plant			
Jordan	2 x GT13™ gas turbines and generators for a 285MW power plant			
Mexico	Turnkey contract for a geothermal plant			
Poland	Retrofit of a coal-fired power plant			
Singapore	GT26™ Operation and maintenance contract			
Slovenia	Turnkey 600MW lignite coal-fired power plant			
South Africa	Alspa Series 6 Distributed Control System for coal-fired power plants			
Spain	Supply of 23 Eco 80 wind turbines for a 38 MW wind farm			
Switzerland	2 contracts for variable speed pumped storage power plant			
United Kingdom	Design and construction of a gas fired combined cycle power plant			
	including 5 x GT26™			
United Kingdom	GT26™ Operation and maintenance long term service agreements			
USA	Various steam turbine retrofit for nuclear power plants			

#### Sales

In 2009/10, sales in the Power Sector reached €13,901 million, a 6% increase compared to the previous year. Thermal Systems and Products accounted for most of this performance with sales increasing by 10% at €7,746 million. Sales in Thermal Services were also in progress at €4,353 million. Level of activity in Renewables remained stable at €1,802 million.

Sales			% Variation	
Actual figures	Year ended	Year ended	March 10	/ March 09
(in € million)	31 March 2010	31 March 2009	Actual	Organic
Thermal Systems & Products	7,746	7,038	10%	10%
Thermal Services	4,353	4,219	3%	3%
Renewables	1,802	1,797	0%	0%
Power	13,901	13,054	6%	6%



Sales in Europe continue to account for the main part of Sector's total sales during the period at €6,033 million, 5% higher than the level recorded last year. Main contracts traded over the year included contracts for combined-cycle power plants in the United Kingdom and the Netherlands and for large coal fired plants in Poland and Germany.

Sales in North America decreased by 11% to €1,943 million. They were mostly fuelled by the execution of contracts for boilers and air quality control equipment in the United States of America.

Sales in South and Central America at €670 million showed a 16% decrease compared to the same period last year. Major contracts traded included equipment for hydro power plants in Brazil.

Sales in Asia/Pacific amounted to €1,726 million. Contracts for the turbine island of a nuclear power plant in China, supply of equipment for a hydro power plant in Vietnam and contract for a turnkey gas-fired plant in Australia generated most of the sales in Asia/Pacific.

Sales in Middle-East/Africa reached €3,529 million, up 62% from last year as major contracts were traded in Saudi Arabia, South Africa, Algeria, Tunisia and the United Arab Emirates.

Power					% Variation	Mar 10/09
Actual figures, in € million	Year ended 31 Mar. 10	% of contrib	Year ended 31 Mar. 09	% of contrib	Actual	Org.
Europe	6,033	43%	5,744	44%	<i>5</i> %	7%
North America	1,943	14%	2,188	17%	(11%)	(11%)
South and Central America	670	5%	799	6%	(16%)	(17%)
Asia/Pacific	1,726	13%	2,141	16%	(19%)	(21%)
Middle East/Africa	3,529	25%	2,182	17%	62%	60%
Sales by destination	13,901	100%	13,054	100%	<b>6</b> %	<b>6</b> %

Income from operations and operating margin

Power income from operations reached €1,468 million, compared to €1,248 million last year, a 18% increase. The operating margin rose from 9.6% to 10.6% thanks to the quality of the backlog, the focus on project execution and tight cost control.



# **Transport Sector**

The Transport Sector serves the urban transit, regional/intercity passenger travel markets and freight markets all over the world with rail transport products, systems and services. Alstom designs, develops, manufactures, commissions and maintains trains, and develops and implements system solutions for rail control. It also designs and manages the creation of new railway lines, and offers maintenance and renovation programmes to keep customers' assets safe and productive. The Sector markets each of these as stand-alone offerings or combined within turnkey system solutions, according to each customer's requirements.

# Offering

## Trains (rolling stock)

Alstom addresses all segments of passenger rail transport worldwide from tramways to very high speed trains with customised solutions configured from standard platforms. Alstom serves the freight-by-rail segment with locomotives, rail control systems and parts as well as maintenance support.

The rolling stock product line includes eleven manufacturing centres and five engineering centres as listed below:

- Very High Speed trains based in La Rochelle, France: design centre for trains that operate at speeds over 250 kph, including the TGV<sup>3</sup>. In early February 2008, the Group launched the new AGV™ very high speed train;
- Intercity trains based in Savigliano, Italy: in charge of PENDOLINO™ tilting trains, CORADIA™ "MINUETTO<sup>4</sup>" and X'TRAPOLIS™. These trains operate at speeds ranging from 140 kph to 250 kph;
- Regional trains based in Salzgitter, Germany: in charge of the CORADIA™ family of electrical and diesel multiple units as well as the double-deck trains. These operate at speeds ranging from 100 kph to 180 kph;
- Urban trains based in Valenciennes, France: design centre for the new generation of CITADIS™ tramways including the CITADIS Dualis™ Tram-Train as well as the METROPOLIS™ metros;

<sup>&</sup>lt;sup>4</sup> MINUETTO is a trademark of the company Trenitalia SpA



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<sup>&</sup>lt;sup>3</sup>TGV is a trademark of the company Société Nationale de Chemins de fer Français

 Locomotives based in Belfort, France : in charge of all locomotives, including the new generation of PRIMA™.

Manufacturing centres of excellence are present across all continents.

### Railway infrastructure (track & electrification)

Alstom addresses both urban and main line rail transport infrastructure segments. This encompasses:

- the design and construction of new railway lines;
- the design and construction of extensions to existing lines;
- the modernisation of existing railway lines.

Alstom brings expertise and project management to these segments in:

- track work, with design and installation on concrete or ballast beds;
- line electrification and power supply, including sub-stations and specific power supply feeding system for tramways to suppress catenaries;
- station utilities including electrical and mechanical equipment;
- maintenance of all these items of railway infrastructure.

## Rail control systems (railway signalling and information solutions)

Alstom provides information solutions to rail transport operators and infrastructure managers, supplying equipment that allows them to operate efficiently and safely.

In the main line railway segment, the Group offers customers a complete range of products. It is organised around the following engineering centres:

- train control, monitoring systems and electronic modules in Villeurbanne (France);
- trackside products and interlocking systems in Bologna (Italy);
- integrated control, security centres and urban transit solutions in Saint-Ouen (France);
- railway main line solutions in Charleroi (Belgium);
- freight optimised solutions in São Paulo (Brazil).

Alstom markets these products either as single products or as integrated system solutions that meet either European (with the ATLAS™ solution) or American standards.



In the urban segment, the offering ranges from basic operations control to driverless systems. These systems take advantage of telecommunication-centred architectures such as the mass transit train control systems (URBALIS™) implementing a CBTC (Communication Based Train Control) technology.

Signalling systems are complemented by other related information-based systems and services, such as:

- passenger information systems (AGATE™ Media), on board trains and on platforms;
- security systems (closed circuit TV, emergency telephony...);
- integrated control centres.

The offering also covers maintenance services ranging from simple spare parts supply and repairs to availability-based maintenance contracts.

## Lifetime service support for trains & rail infrastructure

For trains, railways and rail control systems, Alstom supports its customers with:

- advanced logistic services for the supply of the parts they need;
- comprehensive maintenance programmes;
- modernisation services:
- technical support and assistance with documentation management.

The trend of railway market liberalisation around the world, combined with the underlying dynamic of increased private financing in railway ventures, is triggering long term growth rates in rail transport markets. Alstom continues to lead the industry by supporting operators in boosting their performance through faster supply chains, modernised rolling stock and optimised fleet availability.

# Full-integrated system solutions

The Systems Business offers complete turnkey solutions. Alstom addresses these DBOM (Design Build Operate Maintain) or PPP (Public Private Partnership) opportunities as either a consortium leader or as a consortium partner in turnkey project management. The Sector addresses urban transit (tramway or metro) as well as main line railways (including very high speed rail projects). The management of such projects includes design, building, commissioning, maintenance programmes and coordination of financial, administrative and technical project domains. The



Group's core competency consists of the development and supply of an optimised and integrated rail transport system, comprising rolling stock, information solutions, infrastructure and lifetime maintenance.



# **Industry characteristics**

#### MARKET EVOLUTION

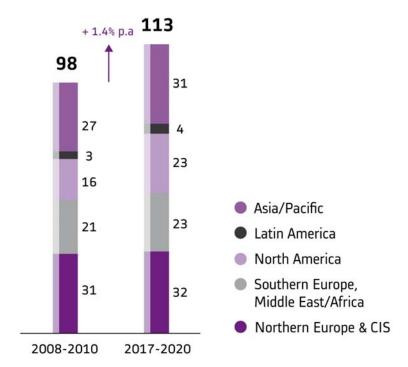
The rail market has benefited from strong growth over the past few years, driven by economic growth, demographics, ever-increasing urbanisation and a rising concern for the environment. Moreover, existing transport infrastructures are increasingly saturated, causing modal shift from air and road to rail, as well as generating investment in additional rail infrastructure. The combination of all these factors has driven market growth, which is expected to continue in the long run.

In the short term, the current crisis is expected to have a mixed effect on Transport's market. Passenger traffic is holding up well, with a limited global decrease, and is even growing in certain sub-segments. At the same time, the industry is benefiting from economic stimulus packages in a significant number of markets, such as Europe, the USA and China. These plans favour investments in infrastructure as well as in "cleaner" means of transportation. Their full impact is not yet visible, as the process from financing to bidding may take time. Consequently, the passenger segment of the market is proving resilient. By contrast, freight traffic has been heavily impacted by the economic downturn, with a very substantial decrease, pushing operators to drastically reduce the level of their investment. Although traffic levels have already started to recover, freight operators forecast that pre-crisis levels will not be reached before the next calendar year. Alstom Transport Sector has a limited overall exposure to this freight market.

Figures from the European Railway Industries Union (UNIFE) in 2008 have been updated to reflect the crisis impact. The accessible market, re-evaluated accordingly, shows a forecasted total of €98 billion p.a. on average in 2008-2010. This market is expected to grow at around 1.5% p.a., reaching an average of €113 billion p.a. in 2017-2020. Whilst Europe will continue to represent the bulk of the market with approximately half of the world market, North America and Latin America are expected to grow significantly faster. Asia/Pacific should show a limited growth rate due to the already high level for 2008-2010 linked to the stimulus plan launched in China. At the same time, signalling and services segments are also expected to grow, at around 1% and 2.5% p.a. respectively. It should be noted that the Sector has access to roughly half this market given its current commercial, product and service footprints.

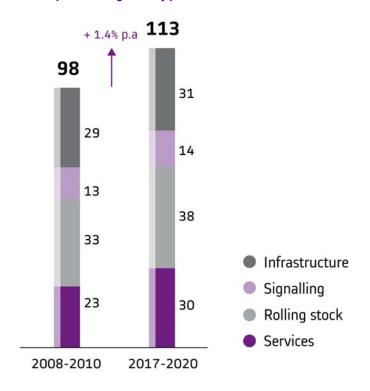


#### Rail transport market growth by region in billion euros



Source: UNIFE-Alstom.

#### Rail transport market growth by product line in billion euros



Source: UNIFE-Alstom.



#### MARKET DRIVERS

### **Environmental concerns and energy management**

Public opinion is becoming increasingly conscious of environmental risks and climate change. The growing need for global mobility is causing significant disturbances: congestion in cities, noise and greenhouse gas emissions. Rail transportation allows to address these concerns.

The development of cleaner and more energy efficient trains is another response to these issues. The Sector is committed to contributing to the environmental performance of rail systems, focusing on lower energy consumption (motor efficiency, weight reduction, new materials or recovery of braking energy), reduced internal and external noise and limited global impact throughout its product life. For instance, the Sector already offers the option to send a significant amount of electricity back to the grid during the braking phase and has launched a trial of supercapacitors installed on a tramway in commercial service, in order to recover the braking energy and to run without catenaries between two stops.

Transport's industrial organisation also addresses this environmental concern through a management system assessing continuous improvement. As part of this effort, an "Eco-design" Centre was created in 2007.

## **Urban Integration**

Cars are becoming increasingly unwelcome in cities around the world, whereas the need for mobility is constantly growing. Consequently, alternative solutions must be offered to bring full satisfaction to city planners and inhabitants. Both expect minimum disturbance from the rail system, which should be the least intrusive possible. City planners also want to offer efficient interchange between transport modes.

A direct consequence of this evolution is the development by Alstom of innovative technologies. An example of such technology is a catenary-less tram solution, called APS, which was designed several years ago and brought into service in 2003. To this day, Alstom remains the only supplier to offer a service and safety-proven solution that allows catenary-less electrical power supply and this solution has been sold several times since, most recently in Dubai (United Arab Emirates). The Sector also offers a battery-based solution, already in service in Nice, France, and is testing super capacitor-based technology.



Beyond this extensive tramway offering, the Sector also provides other solutions to address the needs of rail transport in urban areas through its metro and tram-train ranges. These various solutions can be developed into an integrated transport network including intermodal nodes. In addition, the Sector provides a unique way to customise the design of its product to best match the "spirit" of each city: Alstom is equipped with an integrated Design & Styling studio.

#### Infrastructure saturation

Airport and road infrastructures are increasingly saturated in urbanised areas. Consequently, authorities are seeking to develop rail infrastructures, especially in emerging countries such as China or India, for both urban or intercity transportation, where the focus is placed upon expanding the network so that passengers and goods can travel more efficiently.

In developed economies, rail infrastructures are generally mature, with the exception of the very high speed network which continues to show growth in track kilometres. Alstom offers a complete portfolio of solutions that helps maximise throughput on both new and existing networks. This includes high-performance signalling systems, high capacity and very high speed rolling stock, as well as track and electrification installation to provide efficient service and an effective supply chain for parts. This also encompasses:

- European standard ERTMS (mainline) or CBTC (urban) to allow for reduced headways and interoperability;
- increased speed (AGV<sup>™</sup>, freight locomotives) as well as double-decker rolling stock (very high speed, regional or suburban) in order to offer additional throughput; and
- Alstom's unique TRAINTRACER™ maintenance system which maximises availability of rolling stock by minimising the turn-around time in case a repair is needed.

## Freight development

Although freight volume has dropped significantly as a result of the current economic slowdown, the trend for long-term growth remains positive, driven by economic activity and trade. In addition, infrastructure is improving, bottlenecks are being alleviated and international corridors are being established (e.g. EU's Trans-European-Network-Transport programme in Europe or Europe-to-Asia route). These evolutions favour a move from road to rail.



The Sector is addressing the specific needs of the growing population of private operators and leasers by reducing the time-to-market to meet their need to swiftly adjust their capacity in order to fulfil new transportation contracts. Alstom also offers locomotives which freight operators can use along the full length of international corridors in Europe, as they are equipped to run under various signalling systems: interoperability is the key word. Operators no longer have to change locomotives at borders.

#### **Global comfort**

Passenger operators and city governments seek to build their competitive advantage, either to position themselves versus existing competition or to capitalise upon the spirit of the community. In addition, the regionalisation of the investment decision process in Europe results in increasing attention being paid to customers' expectations, be it is for more safety, more comfort or onboard connectivity for instance. Such services are also a means for operators to generate more revenues and profitability.

The Sector is developing a number of R&D programmes to deliver innovative solutions towards overall comfort. It offers comfortable interiors thanks to its unique in-house "Design & Styling" studio, Internet connectivity to remain in touch, on-board entertainment systems for leisure and passenger information systems in both trains and stations to allow operators to keep their passengers informed at all times.

# **Competitive position**

The Transport Sector has successfully established its global presence through a strategy of organic growth in existing and new markets, complemented by targeted acquisitions and alliances.

Alstom is a world market leader in rail transportation equipment and services, its main competitors in the field of global rail transportation being Bombardier and Siemens. Chinese competitors (notably CNR and CSR) are benefiting from the very large number of projects for metros and mainlines in China.

Alstom is the world leader in very high speed trains and holds the number 2 position in tramways. Alstom is among the leaders for suburban commuter, regional trains and locomotives (source Alstom). One of the Sector's key competitive strengths is its product and service offering, the broadest in the industry. This allows Alstom to offer optimal solutions for its customers' specific needs. Furthermore, this provides a significant competitive edge to optimise the integration of the various parts, whether products or services, in turnkey projects.



This competitive strength in products and services is best demonstrated by Alstom's technological leadership in products such as AGV<sup>™</sup>, PENDOLINO<sup>™</sup> tilting trains, ERTMS signalling system, URBALIS<sup>™</sup>, APS catenary-less tramway, and services such as TRAINTRACER<sup>™</sup>. This strength is also visible through the customer-centric, service-and-assistance-focused organisation supported by a strong global network of engineering, manufacturing and service locations.

As a result, customer benefits range from full life cycle cost competitiveness, overall system performance including product availability and reliability, to passenger comfort or product styling.

# **Research & development**

In 2009/10, the Transport Sector further strengthened its product portfolio thanks to the following R&D key achievements:

- PRIMA™ II: the new generation of electric locomotives, designed to be operated for freight and/or passenger, completed tests in Wildenrath (Germany) in June-July 2009. The next target will be the presentation of the full disks brake version at the Innotrans exhibition in September 2010.
- Harmonics & Energy Saving Optimiser: HESOP is an inverter substation able to re-inject the braking generative power of the trains into the power grid while the line is not receiving a current. HESOP for 750V direct current power supply is already being tested on an RATP tramway line.
- Pack hybrid shunting for locomotives: a battery pack Nickel Cadium (NiCd) for a diesel powered shunting locomotive that allows a smaller diesel engine to be used and reduces diesel fuel consumption by as much as 40%. A demonstrator unit in a BR 203 shunting unit is already built and tests were validated in October 2009.
- AGV™: the tests of the new generation for very high speed trains were successfully carried out in October 2009. A series of tests is currently on-going in Italy with the client, NTV.
- TRAINTRACER™: the web-based technology solution improves train fleet availability and decreases maintenance costs. This innovative solution is already in service on several technologies: West Coast Mainline (WCML) in the UK, Lyon CITADIS™ in France, Morocco PRIMA™ II locomotives and the new generation of tram-train. In addition, new functionalities were developed.



# Strategy

Alstom's strategy remains unchanged in Europe, which continues to be the main market in rail transport. The Sector aims at promoting "platform" products to optimise quality, cost and delivery performance, whilst strengthening its offering in terms of technology. Additionally, further focus is being put on developing signalling, services and infrastructure activities, as the corresponding markets provide room for profitable growth.

In the United States of America, thanks to its expertise in mass transit (New York and Washington metros) and its existing engineering and manufacturing presence, Transport aims to grasp the new opportunities that could arise in high speed and very high speed lines.

The Sector will also pursue its geographical expansion in countries with high potential growth. In Latin America, Alstom will consolidate its positioning in mass transit in Brazil while trying to penetrate the main line market. In Russia and the CIS, the Sector will deploy its strategic partnership with Transmashholding, Russia's largest railway equipment manufacturer. As part of this partnership, a joint venture has been set up and will create Russian centres of excellence for designing and manufacturing railway system equipment and key components. This partnership will allow Alstom to develop its commercial activities and to benefit from opportunities in the largest rail market in Europe. Transport is contemplating establishing a base in India for a long term and profitable presence, through partnerships or fully owned entities, to serve both the urban and mainline markets. In China, the objective is to consolidate and leverage the Sector's positioning through its existing joint ventures.

Lastly, the Sector must remain competitive in segments where low price competition is most aggressive, most notably in rolling stock. To this extent, Transport is adjusting its sourcing and industrial footprints over time, and adapting its product offering to better address the needs of a wider spectrum of customers.



# **Key financial data**

The following table presents key performance indicators for Transport.

Transport			% Var	iation
Actual figures	Year ended	Year ended	March 10	/ March 09
(in € million)	31 March 2010	31 March 2009	Actual	Organic
Order backlog	19,243	19,506	(1%)	(4%)
Orders received	5,484	8,114	(32%)	(31%)
Sales	5,749	5,685	1%	1%
Income from operations	414	408	1%	2%
Operating margin	7.2%	7.2%		
EBIT	368	389	(5%)	
Capital Employed	(78)	(331)	(76%)	

# Comments on activity during fiscal year

#### Orders received

The rail transport market continued to be driven by positive global trends such as urban integration, infrastructure saturation and environmental concerns. Stimulus packages targeted to rail transportation have accelerated some specific projects, notably in Europe and the United States of America but have not yet delivered their full effects. Markets for very-high speed and mass transit showed continuous growth while freight activities slowed down.

Orders received by Transport during 2009/10 reached €5,484 million, 32% lower than last year which stood at a very high level with major orders received for the supply of PENDOLINO™ trains with a 10-year maintenance contract in the United Kingdom and the supply of new generation AGV™ trains in Italy including a 25-year maintenance contract.

Alstom achieved significant successes in the different geographical areas.

With €4,083 million of order intake, Europe remained the most important region in terms of orders, representing 75% of the Sector's orders. Commercial successes were recorded for suburban and regional trains in France (RER A in Paris, CORADIA™ Polyvalents), regional trains in Germany (CORADIA™ Lint, Continental, Nordic) and Spain, for CITADIS™ in France with four cities won (Rouen, Brest, Dijon, Montpellier), metro cars in the Netherlands and signalling with ERTMS solutions in Austria, Spain and France.

Orders received in North America reached €284 million versus €746 million last year, including a contract to supply a train control system in Canada. Last year included the award of metros for New York City (United States of America) and electromechanical equipment for a line of metro in Mexico City. North America accounted for 5% of the Sector's orders.



Orders received in South and Central America reached €508 million versus €324 million last year, showing a 57% increase. In Brazil, orders were booked for metros and associated signalling systems as well as light rail vehicles for Brasilia and scope extension on the supply of the automated system for three lines of the Sao Paulo metro. South and Central America accounted for 9% of the Sector's orders.

In Asia/Pacific, Transport booked orders amounting to €384 million (7% of the total), compared to the €446 million received last year. In China and India, Transport achieved significant successes in signalling with URBALIS™ products.

In Middle East/Africa, €225 million orders (4% of the total) were booked compared to €776 million last year, including a turnkey tramway for Casablanca city in Morocco and infrastructure and signalling contracts for the Cairo metro system in Egypt. Main orders received last year included a turnkey tramway system for Dubai (United Arab Emirates), Oran and Constantine (Algeria) along with tramways for Rabat (Morocco).

The Transport Sector received the following major orders during 2009/10:

Country	Description
Austria	ERTMS-based train control solution ATLAS for 449 cars for OBB
Brazil	Supply of CITADIS™ tramways for Brasília
Brazil	Supply of 48 metro cars and of a signalling system for Brasilia
Brazil	Sao Paulo L3 trainsets renovation
China	Advanced train control systems for Guangzhou, Shenzhen and Hong-
	Kong metro lines
France	142 single-deck Regional "CORADIA™ Polyvalents" trains to SNCF
France	60 double-decker trainsets to the RATP for Paris' RER Line A
France	Reims tramway maintenance
France	CITADIS™ for Rouen, Brest and Dijon and Montpellier
France	ERTMS level 1 solution for French sections of two major transnational
	freight routes (C and D freight corridors)
Germany	Supply of 83 regional trains to the transport network of Stuttgart
Germany	CORADIA™ LINT regional trains
India	Train control and signalling system for the new Bangalore metro network
Morocco	Supply of 74 CITADIS™ tramways for Casablanca
Netherlands	23 metros for Amsterdam municipality
Spain	Regional trains for Catalonia region

#### Sales

In 2009/10, Transport sales reached €5,749 million, a 1% increase both on an actual and organic basis.

Europe represented 66% of Transport sales, at €3,778 million, 5% below last year as some tramway projects were nearing completion and others were completed in Spain and in the



Netherlands. Main contracts traded during the year included the delivery of High Speed and Very High Speed Trains (TGV) in France and in Spain, metros in Turkey, France and Spain, regional trains in France and Germany and signalling contracts in Italy.

In North America, sales increased by 5% at €793 million, driven by the completion of the large New York City metro contract and the progress in the execution of a contract for the supply of a metro system for Mexico City.

Sales in South and Central America decreased by 2% at €282 million compared to €289 million last year. Progress was achieved on the delivery of metros and signalling for the Sao Paulo network and contracts were nearing completion in Chile. South and Central America accounted for 5% of the Sector's sales.

In Asia/Pacific, sales amounted to €525 million (9% of the total sales), a 26% increase compared to last year, as contracts for the supply of X'TRAPOLIS™ units for Melbourne in Australia were ramping up, turnkey automated metro in Singapore, locomotives and high speed trains in China were nearing completion.

Finally, sales in Middle East/Africa reached €371 million, a 41% increase compared to last year which is mostly accounted for by the progressive delivery of tramways in Algeria and locomotives for Morocco. Middle East/Africa accounted for 6% of the Sector's sales.

Transport					% Variation	Mar 10/09
Actual figures, in € million	Year ended 31 Mar. 10	% of contrib	Year ended 31 Mar. 09	% of contrib	Actual	Org.
Europe	3,778	66%	3,961	70%	(5%)	(4%)
North America	793	14%	755	13%	5%	<i>5</i> %
South and Central America	282	5%	289	5%	(2%)	(4%)
Asia/Pacific	525	9%	416	7%	26%	25%
Middle East/Africa	371	6%	264	5%	41%	42%
Sales by destination	5,749	100%	5,685	100%	1%	1%

#### Income from operations and operating margin

The Sector posted an income from operations at €414 million, versus €408 millions, an increase of 1% over last year. The operating margin remained stable at 7.2% as Transport stayed focused on sound project execution, through proper project management and tight cost monitoring.



# **Corporate and Others**

Corporate & Others comprise all units accounting for corporate costs, as well as the International Network.

The following table sets out some key financial data for Corporate & Others:

Corporate & Others		
	Year ended	Year ended
(in € million)	31 March 2010	31 March 2009
Income from operations	(103)	(120)
EBIT	(116)	(118)
Capital Employed	(182)	(281)

Income from operations in 2009/10 was  $\in$  (103) million compared to  $\in$  (120) million last year, which included the cost of an employee share purchase scheme.



# Operating and financial review

#### **INCOME STATEMENT**

Total Group			% Vai	riation
	Year ended	Year ended	March 10	/ March 09
(in € million)	31 March 2010	31 March 2009	Actual	Organio
Sales	19,650	18,739	5%	5%
Cost of sales	(15,982)	(15,225)	5%	5%
R&D expenditure	(558)	(586)	(5%)	(5%)
Selling expenses	(669)	(666)	0%	0%
Administrative expenses	(662)	(726)	(9%)	(9%)
Income from operations	1,779	1,536	16%	15%
Operating margin	9.1%	8.2%		

### **Sales**

In fiscal year 2009/10, sales reached a record level of €19.7 billion, compared to €18.7 billion for the previous year, representing an increase of 5% on an actual and organic basis.

Both Sectors contributed to this performance with Power recording sales of €13.9 billion (up 6% compared to previous year) and Transport posting sales of €5.7 billion (up by 1% compared to previous year).

### Research and development expenditures

Alstom maintained a high level of Research and Development expenditures (gross costs) at €614 million in 2009/10. Including the impact of capitalisation and amortisation of development costs, R&D expenditures amounted to €558 million compared to €586 million last year. The amount of capitalization of development costs increased from €172 million last year to €209 million, due to the greater maturity of the projects. Main R&D programmes included, for Power, the development of advanced CCS technologies and the upgrade of steam and gas turbine technologies, and, for Transport, the improvement of technologies across its product lines with a focus upon very high speed trains (AGV™).

## Selling and administrative expenses

Thanks to the Group's strict control of costs, selling and administrative expenses amounted to €1,331 million for fiscal year 2009/10, compared to €1,392 million for the previous year, representing a decrease in percentage of sales, from 7.4% to 6.8%. Despite an active tendering activity, selling expenses remained stable at €669 million. Administrative expenses decreased from €726 million last year to €662 million.



### **Income from operations**

Reflecting the Group's backlog quality and its focus on efficient project execution, income from operations reached a record level at €1,779 million for fiscal year 2009/10, up by 16% compared to last year and the operating margin rose from 8.2% to 9.1%.

Total Group			% Variation
	Year ended	Year ended	Mar 10/
(in € million)	31 March 2010	31 March 2009	Mar 09
Income from operations	1,779	1,536	16%
Restructuring costs	(96)	(46)	109%
Other income (expense)	(54)	(47)	15%
Earnings Before Interest and Taxes	1,629	1,443	13%
Financial income (expense)	(42)	21	(300%)
Income tax charge	(385)	(373)	3%
Share in net income of equity investments	3	27	N/A
Minority interests	12	(9)	N/A
Net income - Group share	1,217	1,109	10%

### **Earnings before interest and taxes (EBIT)**

EBIT amounted to €1,629 million for fiscal year 2009/10, up by 13% from the previous year, despite higher restructuring costs related to the optimisation of the Group's industrial base.

#### Net financial income

Net financial income was negative at €(42) million at the end of March 2010 compared to €21 million at the end of March 2009, as a result of the expense recorded on employee defined benefit plan, for €(24) million (vs an income of €5 million last year), and of the impact of the decrease of interest rates on cash remuneration.

## Income tax charge

The income tax charge amounted to €385 million for fiscal year 2009/10 and was composed of a €199 million current income tax charge (vs. €173 million last year) and of a €186 million deferred income tax charge (vs. €200 million in 2008/09).

The effective tax rate was at 24% for the year (compared to 25% last year).

## Net income - Group share

Net income (Group share) amounted to €1,217 million, a 10% increase compared to last year.



#### **BALANCE SHEET**

Total Group			Variation
Actual figures			Mar 2010
(in € million)	At 31 March 2010	At 31 March 2009	Mar 2009
Goodwill	3,904	3,886	18
Intangible assets	1,453	1,397	56
Property, plant and equipment	1,958	1,735	223
Associates and available-for-sale financial assets	66	66	0
Other non-current assets	535	529	6
Deferred taxes	982	1,012	(30)
Non-current assets	8,898	8,625	273
Working capital assets	12,694	12,661	33
Marketable securities and other current financial assets	35	15	20
Cash and cash equivalents	4,351	2,943	1,408
Current assets	17,080	15,619	1,461
Assets	25,978	24,244	1,734

Total Group			Variation	
Actual figures			Mar 2010/	
(in € million)	At 31 March 2010	At 31 March 2009	Mar 2009	
Equity (Group share and minorities)	4,101	2,884	1,217	
Provisions (non-current and current)	1,641	1,670	(29)	
Accrued pension and other employee benefits	943	970	(27)	
Financial debt (current and non-current)	2,614	1,356	1,258	
Deferred taxes	113	70	43	
Working capital liabilities (excl. provisions)	16,566	17,294	(728)	
Liabilities	25,978	24,244	1,734	

## Goodwill and intangible assets

Goodwill was quasi stable at €3,904 million at the end of March 2010.

Intangible assets include acquired intangible assets and capitalised development costs. They amounted to €1,453 million on 31 March 2010 (€1,397 million on 31 March 2009).

## **Tangible assets**

Tangible assets amounted to €1,958 million on 31 March 2010, compared to €1,735 million on 31 March 2009.

Aiming at strengthening the Group's industrial presence in fast growing markets and improving production capacity, capital expenditures (excluding capitalised development expenses) were maintained at a high level at €470 million. These investments were focused, for Power, in Asia (boiler manufacturing facility in Wuhan, construction of a new site and capacity expansion of the hydro turbine facility in Tianjin, China), the United States of America (steam turbine facility in Chattanooga) and Eastern Europe (foundry in Elblag, Poland). For Transport, they were dedicated to the upgrade and the extension of the current manufacturing base and took place notably in France, Poland, Belgium and Germany.



#### Other non current assets

Other non current assets amounted to €535 million at the end of March 2010, compared to €529 million at the end of March 2009. Financial non-current assets directly associated to a long-term lease of trains and associated equipment for a London Underground Operator in the United Kingdom remained stable at €450 million at the end of March 2010.

### **Working capital**

Working capital (defined as current assets excluding cash and cash equivalents, as well as marketable securities, less current liabilities excluding current financial liabilities and including non current provisions) on 31 March 2010 was €(5,513) million compared to €(6,303) million on 31 March 2009. This degradation results from the lower level of order intake.

#### Deferred tax

Net deferred tax assets decreased to €869 million at the end of March 2010, from €942 million a year before, mainly due to the consumption of deferred tax assets in France, the Netherlands and the United Kingdom.

### **Current and non-current provisions**

The current and non-current provisions were €1,641 million on 31 March 2010, compared to €1,670 million on 31 March 2009.

# Equity attributable to the equity holders of the parent and minority interests

Equity on 31 March 2010 reached €4,101 million (including minority interests) compared to €2,884 million on 31 March 2009. This increase is mostly due to:

- net income from the fiscal year 2009/10 of €1,217 million (Group share) :
- capital increases of €204 million, notably for the payment in shares of the 50% stake in Alstom Hydro's activity held by Bouygues;
- distribution of dividends (€323 million in 2009/10)

#### Financial debt

The gross financial debt increased by €1,258 million from €1,356 million at the end of March 2009 to €2,614 million at the end of March 2010. This movement is due to the combined effect of the reimbursement of €275 million of bonds and of the issue of three bonds totalling €1,750 million during the year.



See Note 25 to the consolidated financial statements for further details regarding the financial debt.

### **LIQUIDITY AND CAPITAL RESOURCES**

The following table sets out selected figures concerning the consolidated statement of cash flows:

Total Group		
	Year ended	Year ended
(in € million)	31 March 2010	31 March 2009
Net cash provided by operating activities - before changes in net working capital	1,766	1,581
Changes in net working capital resulting from operating activities	(960)	555
Net cash provided by operating activities	806	2,136
Net cash used in or provided by investing activities	(636)	(657)
Net cash used in financing activities	1,114	(617)
Net (decrease)/increase in cash and cash equivalents	1,284	862
Cash and cash equivalents at the beginning of the period	2,943	2,115
Net effect of exchange rate variations	135	(27)
Other changes	(11)	(7)
Cash and cash equivalents at the end of the period	4,351	2,943

### Net cash provided by operating activities

Net cash provided by operating activities reached €806 million for fiscal year 2009/10, compared to €2,136 million for the year before.

Net cash provided by operating activities before changes in net working capital was €1,766 million in 2009/10. It represents the cash generated by the Group's net income after elimination of non-cash items (given that provisions are included in the definition of the working capital, provisions are not part of the elimination of non-cash items) and before working capital movements.

The Group's net working capital resulting from operating activities was negative at €(960) millions.

## Net cash used in investing activities

Net cash used in investing activities was €636 million for fiscal year 2009/10, versus €657 million for the previous year, due mainly to capital expenditures (excluding capitalised development expenses) of €470 million and capitalised research and development costs of €209 million.



## Net cash used in financing activities

Change in net cash used in financing activities was €1,114 million for fiscal year 2009/10, compared to €(617) million the previous year, mainly due to the issue of three bonds totalling €1,750 million during the period. This also includes the payment of dividends for €323 million and the repayment of a bond maturing in March 2010 for an amount of €275 million.

### **Net cash position**

On 31 March 2010, the Group achieved a record net cash level of €2,222 million, an increase of €171 million over the year.

Total Group					
(in € million)	Year ended 31 March 2010	Year ended 31 March 2009 904			
Net cash at the beginning of the period	2,051				
Change in cash and cash equivalents	1,284	862			
Change in marketable securities and other current financial assets	14	(162)			
Change in bonds and notes	(1,475)	559			
Change in current and non current borrowings	12	(11)			
Change in obligations under finance leases Net debt of acquired entities at acquisition date Net effect of exchange rate and other	33 - 303	27 (12) (116)			
Net cash at the end of the period	2,222	2,051			

Notes 24, 25, 26, 29 and 30 to the consolidated financial statements provide further details, respectively on:

- the analysis of pensions and other employee benefits;
- the nature and the maturity of the financial debt;
- the Group's policy regarding financial risk management, including currency, interest, credit and liquidity risks;
- off-balance sheet commitments and lease obligations.

#### **USE OF NON-GAAP FINANCIAL INDICATORS**

This section presents financial indicators used by the Group that are not defined by accounting standard setters.

#### Free cash flow

Free cash flow is defined as net cash provided by operating activities less capital expenditures including capitalized development costs, net of proceeds from disposals of tangible and intangible assets. In particular, free cash flow does not include the proceeds from disposals of activity.



The most directly comparable financial measure to free cash flow calculated and presented in accordance with IFRS is net cash provided by operating activities and a reconciliation of free cash flow and net cash provided by operating activities is presented below:

Total Group			
	Year ended	Year ended	
(in € million)	31 March 2010	31 March 2009	
Net cash provided by operating activities	806	2,136	
Capital expenditure (including capitalized development costs)	(679)	(671)	
Proceeds from disposals of tangible and intangible assets	58	14	
Free Cash Flow	185	1,479	

Alstom uses the free cash flow measure both for internal analysis purposes as well as for external communication as the Group believes it provides accurate insight into the actual amount of cash generated or used by operations.

### Capital employed

Capital employed is defined as the closing position of goodwill, intangible assets, property, plant and equipment, other non current assets (excluding prepaid pension benefits and financial non-current assets directly associated to financial debt) and current assets (excluding marketable securities and other current financial assets, and cash and cash equivalents) minus current and non-current provisions and current liabilities (excluding current provisions and current financial debt).

Capital employed by Sectors and for the Group as a whole is also presented in Note 5 to the Consolidated Financial Statements.

Capital employed is used both for internal analysis purposes as well as for external communication, as it provides insight into the amount of financial resources employed by a Sector or the Group as a whole, and the profitability of a Sector or the Group as a whole in regard to resources employed.

In 2009/10, capital employed reached €1,944 million, compared to €857 at the end of March 2009, mainly due to the variation of working capital and to capital expenditures.



#### **Total Group**

(in € million)	At 31 March 2010	At 31 March 2009	
Non current assets	8,898	8,625	
less deferred tax assets	(982)	(1,012)	
less non-current assets directly associated to financial debt	(450)	(449)	
less prepaid pension benefits	(9)	(4)	
Capital employed - non current assets (A)	7,457	7,160	
Current assets	17,080	15,619	
less cash & cash equivalents	(4,351)	(2,943)	
less marketable securities and other current financial assets	(35)	(15)	
Capital employed - current assets <b>(B)</b>	12,694	12,661	
Current liabilities	17,989	19,268	
less current financial debt	(242)	(748)	
plus non current provisions	460	444	
Capital employed - liabilities <b>(C)</b>	18,207	18,964	
Capital employed (A)+(B)-(C)	1,944	857	

### **Net cash**

Net cash is defined as cash and cash equivalents, marketable securities and other current financial assets and financial non-current assets directly associated to financial debt, less current and non-current financial debt.

Total Group			
(in € million)	Year ended 31 March 2010	Year ended 31 March 2009	
Cash and cash equivalents	4,351	2,943	
Marketable securities and other current financial assets	35	15 449	
Financial non-current assets directly associated to financial debt	450		
less:			
Current financial debt	242	748	
Non current financial debt	2,372	608	
Net cash	2,222	2,051	

## **Organic basis**

Figures presented in this section include performance indicators presented on an actual basis and on an organic basis. Figures have been given on an organic basis in order to eliminate the impact of changes in business composition and of variation of exchange rates between the Euro and the foreign currencies. The Group uses figures prepared on an organic basis both for internal analysis and for external communication, as it believes they provide means by which to analyse and



explain variations from one period to another. However these figures, provided on an organic basis, are not measurements of performance under IFRS.

To prepare figures on an organic basis, the figures presented on an actual basis are adjusted as follows:

- the actual figures for 2008/09 (order backlog, orders received, sales and income from operations) are restated taking into account the exchange rates used for 2009/10, as used for preparing the Consolidated Financial Statements;
- in order to reflect the same scope of activity, the same indicators are adjusted both for 2008/09 (restatement of disposals) and for 2009/10 (restatement of acquisitions).

Figures on an organic basis are presented in the table shown next page.





### Alstom - ORGANIC FIGURES 2009/10

	Year ended 31 March 2009				Year ended 31 March 2010				
								% Var Act.	% Var Org
			Scope	Comparable		Scope		March 10 /	March 10 /
in € million	Actual figures	Exchange rate	impact	Figures	Actual figures	Impact	Organic figures	March 09	March 09
Power	26,164	1,260	-	27,424	23,318	(16)	23,302	(11%)	(15%)
Transport	19,506	464	-	19,970	19,243	(5)	19,238	(1%)	(4%)
Corporate & Others	-	-	-	-	-	-	-	N/A	N/A
Orders backlog	45,670	1,724		47,394	42,561	(21)	42,540	(7%)	(10%)
Power	16,466	204	-	16,670	9,435	(14)	9,421	(43%)	(43%)
Transport	8,114	(123)	-	7,991	5,484	(8)	5,476	(32%)	(31%)
Corporate & Others	-	-	-	-	-	-	-	N/A	N/A
Orders Received	24,580	81		24,661	14,919	(22)	14,897	(39%)	(40%)
Power	13,054	(5)	(18)	13,031	13,901	(25)	13,876	6%	6%
Transport	5,685	(18)	-	5,667	5,749	(10)	5,739	1%	1%
Corporate & Others	-	-	-	-	-	-	-	N/A	N/A
Sales	18,739	(23)	(18)	18,698	19,650	(35)	19,615	5%	5%
Power	1,248	4	1	1,253	1,468	(12)	1,456	18%	16%
Transport	408	(3)	-	405	414	(1)	413	1%	2%
Corporate & Others	(120)	1	-	(119)	(103)	-	(103)	N/A	N/A
Income from Operations	1,536	2	1	1,539	1,779	(13)	1,766	16%	15%
Power	9.6%			9.6%	10.6%		10.5%		
Transport	7.2%			7.1%	7.2%		7.2%		
Corporate & Others	N/A			N/A	N/A		N/A		
Operating margin	8.2%			8.2%	9.1%		9.0%		
Sales	18,739	(23)	(18)	18,698	19,650	(35)	19,615	5%	5%
Cost of sales	(15,225)	21	18	(15,186)	(15,982)	20	(15,962)	5%	5%
R&D expenses	(586)	1	-	(585)	(558)	-	(558)	(5%)	(5%)
Selling expenses	(666)	1	-	(665)	(669)	1	(668)	0%	0%
Administrative expenses	(726)	2	1	(723)	(662)	1	(661)	(9%)	(9%)
Income from Operations	1,536	2		1,539	1,779	(13)	1,766	16%	15%