

In the four years since its formation ABB has become a world leader in power generation, transmission, and distribution as well as in the industrial process, environmental control, and rail transportation fields. The Group's focus on local customer needs combined with the global scale of its technical, production, and financial resources make it uniquely able to serve its markets. During 1991 ABB successfully adjusted its operations to changing economic conditions while continuing to invest in new markets and growth opportunities.



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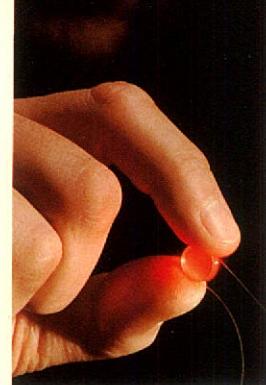


The Asea Brown Boveri Group is a global, \$ 29 billion company serving electric power generation, transmission, and distribution customers as well as industrial, environmental control, and rail transportation markets. More than half of ABB's sales are in Europe, about one-fifth in North America, and the remainder in Asia, Australia, and developing countries.



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(Cover)
ABB is studying fiber optic sensor systems to better measure electrical current and voltage levels in high-voltage equipment. This technology, like many others being investigated in ABB research programs, has possibilities for worldwide application.

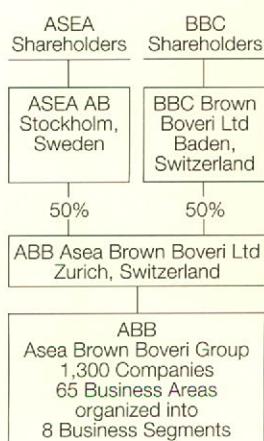
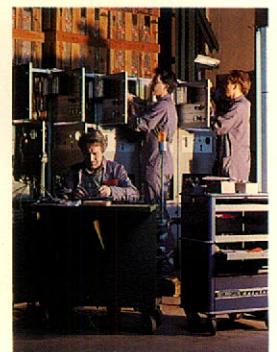
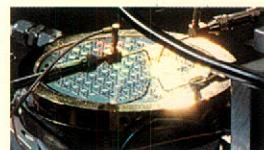


ABB Asea Brown Boveri Ltd is owned in equal parts by ASEA AB, Stockholm (Sweden), and BBC Brown Boveri Ltd, Baden (Switzerland). ABB Asea Brown Boveri Ltd, Zurich (Switzerland), is the holding company of the ABB Asea Brown Boveri Group with approximately 1,300 companies around the world. While the shares of ABB are not publicly traded, the shares of the two parent companies are listed on various stock exchanges in Europe and the United States. This annual report accounts for the consolidated

operations of the ABB Asea Brown Boveri Group in 1991. It conforms to OECD guidelines and recommendations concerning the publication of information. The ABB Group's annual report is published in English, German, and Swedish. The English-language version is binding. All figures shown are in U.S. dollars. In accordance with Swiss law, the holding company ABB Asea Brown Boveri Ltd, Zurich, publishes its own annual report. It is available on request together with a list of major Group

companies. In addition, separate annual reports are published by some ABB national and business entities.

Earnings after financial items were comparable to last year. In view of the recession in many of ABB's major markets this was a favorable development. Order intake was about equal to 1990.

The Power Plants, Power Transmission, and Industry segments showed earnings improvements. ABB acted quickly and decisively to adapt capacity, cost, and personnel levels to match reduced demand. This limited the negative impact on results in recession markets. Consolidation and restructuring efforts will continue in 1992/93 to meet a more unified European market with increased cross-border competition.

R&D expenditures increased by about 20 percent, reflecting both intensified product development and higher investments in core technologies.

In North America, integration and extensive restructuring programs resulted in a substantial improvement in earnings despite market conditions, which remained difficult and below expectations.

Investments are continuing in Asia to strengthen and expand local manufacturing and engineering capabilities there.

ABB continued its policy of investing in the new German federal states where at the end of the year the Group had more than 6,000 employees. Joint ventures or cooperative agreements were concluded with existing enterprises in Czechoslovakia and Poland. At the end of 1991 ABB employed about 10,000 people in Central and Eastern Europe.

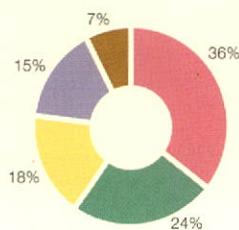
Divestitures exceeding \$ 600 million were undertaken in 1991. Amounts received from divestitures were about equal to funds expended in acquisitions.

Customer Focus programs were begun or expanded in nearly every operation within the Group. These programs are resulting in better quality, shorter development and manufacturing cycle times, lower costs, and a more adaptable, customer-oriented organization.

Key Figures

(US\$ in millions, unless otherwise stated)	1991	1990	1989
Orders received	29,621	29,281	21,640
Revenues	28,883	26,688	20,560
Operating earnings after depreciation	1,908	1,790	1,257
Earnings after financial items	1,153	1,130	922
Net income	609	590	589
Stockholders' equity	4,498	4,247	3,907
Total assets	30,754	30,247	24,156
Capital expenditure for tangible fixed assets	1,035	961	783
Capital expenditure for acquisitions	612	677	3,090
Expenditure for Research and Development	2,342	1,931	1,361
Operating earnings/revenues (%)	6.6	6.7	6.1
Return on capital employed (%)	17.1	19.7	17.0
Return on equity (%)	13.9	14.5	16.8
Number of employees	214,399	215,154	189,493

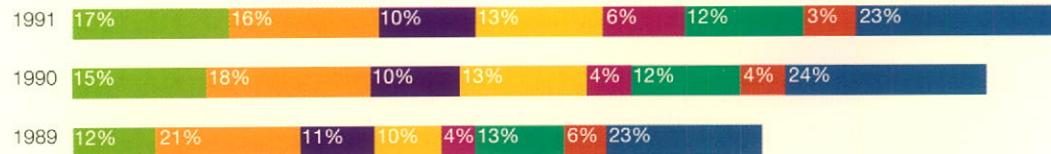
Revenues per Region



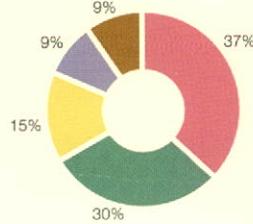
Orders Received*



Revenues*



Employees per Region



Operating Earnings after Depreciation*



*Percentages calculated before eliminations of intra-Group transactions and corporate items.

Since its formation four years ago, ABB has expanded from its European base to become the world's leading producer of electrical engineering products and systems. From its substantial manufacturing base within EC and EFTA countries, the Group during the year positioned itself in Central



Dr. Peter Wallenberg (left)
Dr. Fritz Leutwiler

and Eastern European nations to locally serve these emerging markets. North America now represents about one-fifth of Group business, and manufacturing and joint ventures are being established in several countries in Asia to meet customer needs in that fast-growing region.

In 1991 management attention primarily focused on consolidation. As ABB's businesses began to feel the impact of the recession in North America, Scandinavia, and some European countries, efforts to improve productivity and profitability were intensified. In general, they compensated for the negative

effects of reduced market demand. The benefits from these restructuring efforts will continue to enhance the Group's competitive position and contribute to its flexibility and future growth.

In April 1991 ASEA AB shareholders approved a split of its shares into two separate securities to provide investors with a maximum degree of transparency concerning their investment in ABB. To the same end, BBC Brown Boveri plans to further reduce its already limited non-ABB investment portfolio.

ABB's successes are the result of a motivated and committed workforce. We would like to thank all of our employees for their dedication and hard work.

Two handwritten signatures in blue ink. The signature on the left is Dr. Fritz Leutwiler's, and the signature on the right is Dr. Peter Wallenberg's.

Dr. Fritz Leutwiler
Co-Chairman
ABB
Asea Brown Boveri Ltd
Chairman
BBC Brown Boveri Ltd

Dr. Peter Wallenberg
Co-Chairman
ABB
Asea Brown Boveri Ltd
Chairman
ASEA AB

Following the rapid expansion of 1988-90, ABB entered a period of consolidation and selected growth in 1991. At the same time, the Group encountered a recession affecting about 60 percent of its markets, primarily in North America and other English-speaking countries as well as in Scandinavia and Southern Europe.

ABB has, in general, successfully responded to these challenges. Our decentralized organization has adapted capacity and costs in time to limit the impact of the recession. We continued to gain the benefits from stronger market positions in Europe and North America, while continuing to increase investments in high-growth developing countries, particularly in Asia. We also stepped up R&D expenditures by some 20 percent.

Growth in markets such as newly unified Germany and a number of Asian countries has offset lower order intake in some recession-affected markets. In addition, positive results from internal efficiency programs also worked to counterbalance the recessionary impact. Order intake increased slightly to \$ 29.6 billion and invoicing grew by 8 percent to almost \$ 29 billion.

Operating Earnings grew 7 percent to \$ 1,908 million and Earnings after

Financial Items increased 2 percent to \$ 1,153 million. With net non-recurring items of \$ -105 million and a somewhat lower tax rate, Net Income increased 3 percent from \$ 590 in 1990 to \$ 609 million in 1991.

The reduction of working capital remains a priority. Trade Receivables and Inventories as a percent of invoicing both went down 2 percent-units to 19 and 25 percent, respectively. Net funds from operations were \$ 2 billion. Net debt (interest carrying debt minus cash) was reduced by \$ 1 billion. Multiple ongoing projects to reduce cycle times will further reduce working capital and free up real estate for development or sale. The program to divest non-core businesses continues.

Excluding acquisitions and divestments, employment decreased by about 13,000. Early employment stoppages and voluntary departures kept the number of layoffs at a limited level.

Among the business segments, Industry achieved a turn-around of its U.S. operations and improved Operating Earnings by about \$ 120 million. Power Transmission showed continued strong earnings growth by capitalizing on its economies of scale and its technical leadership in a number of business areas. Power



Percy Barnevick
President
and Chief Executive Officer

Plants improved its earnings in spite of a substantial increase in R&D expenditures. Environmental Control experienced reduced earnings, primarily due to a substantial drop in demand in the Scandinavian countries. Power Distribution was also negatively affected by the recession and the Transportation Segment again showed unsatisfactory profitability because of remaining low margin orders in the backlog.

R&D expenditures increased from about \$ 1.9 to \$ 2.3 billion. Global "Centers of Excellence" simultaneously improve efficiency in R&D work and reduce duplication between countries. We also strive to allocate a bigger share of total funds to major "technology lifting" projects. R&D spending increased particularly in gas turbine development, clean coal technologies, and other areas impacting on the environment. We are convinced that environmental concerns will continue to grow worldwide and that even more stringent regulations will be introduced. In our research and product development programs we are preparing for this by developing new technologies to meet future higher environmental demands.

Regional Strategies

ABB is now well established in most European countries. Recent acquisitions and joint ventures in Germany, Spain, and Portugal are developing well and are gradually being integrated into the ABB global network. Further economic integration in Europe will open new additional opportunities. The "borderless" Common Market 1993, the gradual integration of the EC and EFTA countries, and the opening of Central and Eastern Europe, including the new republics from the former Soviet Union, will lead to major changes in Europe's economic map. Especially in public procurement there will be increased competition across borders. Manufacturing and engineering units will be fewer and more specialized, serving bigger markets. ABB will continue to restructure to fully exploit these new opportunities.

The newly acquired companies in Eastern Germany and Eastern Europe have in general performed well and a massive program for technology and know-how transfer and for employee training continues. Productivity and quality have surprisingly quickly reached ABB's Western standards. For instance, Polish and Hungarian turbine components are now sold by ABB on the world market. A number of

further acquisitions and joint ventures are being investigated or negotiated in Central and Eastern Europe. We believe ABB's investments are well-motivated in a long-term perspective and we are prepared to live through some difficult years.

The short-term economic outlook in these countries is discouraging. There is a high probability for both political and economic turmoil as unemployment rises and disappointment grows. Major Western financial support is required to help move these countries into a positive economic spiral. Of special urgency is the status of nuclear power plants, while some should be closed as soon as possible, the safety and efficiency levels of others should be substantially upgraded. Only limited commitments for financial support have been made in the West and it looks as if the opportunity to support a peaceful and prosperous development in the East might be missed.

North America represents about 30 percent of the world potential for ABB's business areas. The acquisitions of Combustion Engineering and the Westinghouse Transmission and Distribution businesses, together with existing operations there, have created strong market positions in the Power, Industry,

and Environmental Control segments. The restructuring programs which started after the acquisitions achieved the planned turn-around with substantial results improvement in 1991. We can now also exploit new opportunities in the emerging free trade area between the U.S., Canada, and Mexico. ABB is further increasing its R&D investments and will use the Group's global distribution network to increase North American exports. It will be another two to three years until ABB's American operations attain Group average profitability levels.

ABB continues its strategy of expansion in developing countries. We already employ 34,000 people in Asia, Australasia, Africa, and Latin America. Revenues in these regions amount to \$ 6 billion. Project exports from Europe and North America are driven by enormous needs there for infrastructure investments in power, transportation, and in basic industries like steel, cement, petrochemicals, and forestry. ABB can serve these needs with its broad product spectrum, financial support from a number of its Western home countries, and its ability to engineer unconventional financial solutions. Simultaneously, ABB is building up local engineering, manufacturing, and service units in developing countries. Recently a major investment

program was announced in India, manufacturing and service units were opened last year in several countries in Northeast and Southeast Asia, and investments were also made in Turkey and Egypt. In South America, Brazil is emerging as an important export country. These **ABB investments normally also include the transfer of technology and the extensive training of local employees.**

Organization and Customer Focus

ABB's organizational structure is now, after four years, well established. **It is built on the two contradictions: global and national, big and small.** Global business area managements safeguard worldwide coordination and the transfer of technology and know-how across country borders. "Big" means that we can apply both "economy of scale" and "economy of scope". The former means that through global specialization and high volume we gain cost advantages in engineering and production. The latter means that we can offer our customers "one stop" shopping through the breadth of our product line, and also optimize total plant solutions. Within each ABB home country the national companies operate in a highly decentralized manner in order to be close to the customer. We call this being "multidomestic".

Flexibility and entrepreneurship are promoted in our many small profit centers and corporate staffs are kept at minimal levels.

ABB's Customer Focus Program is an effort to permanently change our value system and orient every employee towards the customer. A fundamental goal is to increase operational excellence and to create better values for the customer by reducing cycle times and raising quality and service levels. Hundreds of projects have been executed during the past two years with some stunning results. Transformer operations in Germany and Finland are showing a 70 percent reduction in process times and similar results are being achieved in U.S. plants. Standard products like **motors** and low-voltage apparatus in Sweden are showing reductions in delivery times from 15 to 5 days and 33 to 3 days, respectively. The quotation time for gas-insulated switchgear in Switzerland is down from 30 to 3 days. Delivery times for steam power plants are being reduced by 30 percent and HVDC plants are being offered in two instead of three years. New product generations in switchgear used to take two to three years to develop versus 10 to 14 months today. It is striking to note that during decades of earlier rationalization efforts total cycle times were not attacked more

efficiently. New systematic measurements of quality and of delivery service have also been introduced. Companies which used to operate at a 70-80 percent on-time delivery level are now up to 95-98 percent.

The Customer Focus Program can also lead to increased employee participation in improving and running our companies. Promising results are visible in many countries. In Sweden, training programs encouraging increased employee participation have raised the competence of employees at all levels. These efforts do not represent a one-time project but will push ABB in the direction of becoming a "continuously learning" organization. Skilled and motivated people will give us the only really lasting competitive advantage.

My colleagues on the Executive Committee and I thank the many ABB employees who have dedicated themselves to bringing ABB through difficult times and have worked relentlessly to improve our company.

Outlook for 1992 and Beyond

All the efforts discussed have been laying the foundation for substantial growth in sales and earnings when the economy recovers. We should be well positioned to reach our goals of 10 percent average Operating

Earnings margin and 25 percent Return on Capital Employed by the mid-1990s.

In 1992 we anticipate a somewhat slow recovery in recession-affected markets. Standard products, about 30 percent of total sales, might experience some improved demand towards the end of the year. Investment goods, also about 30 percent, might recover only late in 1993. A further decline in demand and intensified price pressure could hurt both these product categories in 1992. For most of our infrastructure businesses, about 40 percent, the impact of the recession will be smaller and demand in several developing countries is anticipated to remain high.

Based on this economic outlook and continuing positive results from our internal improvement programs, I expect Earnings after Financial Items in 1992 to reach about the level of 1991. We will, as in past years, continue our efforts to balance nonrecurring restructuring costs with gains from the divestment of non-core businesses and freed-up real estate.



Percy Barnevnik
President
and Chief Executive Officer

ABB in Brief

The ABB Group is made up of eight Business Segments which together contain 65 Business Areas, 1,300 companies and 214,000 employees all focused on servicing customer needs.

Business Segments

Power Plants

Clean, efficient power generation systems for utility and industrial use.

Major Business Areas

Gas Turbine, Utility Steam, Industrial Steam, Hydro, and Nuclear Power Plants
Pressurized Fluidized Bed Combustion Systems
Power Plant Control
Fossil Combustion Systems and Services

Power Transmission

Complete range of systems and products for power transmission networks.

Cables and Capacitors
Distribution Transformers
Electric Metering
High-Voltage Switchgear
Network Control
Power Systems
Power Transformers
Relays

Power Distribution

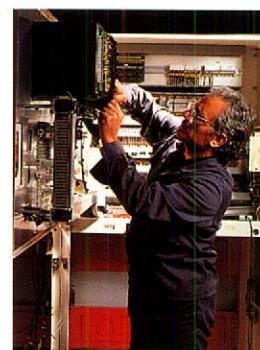
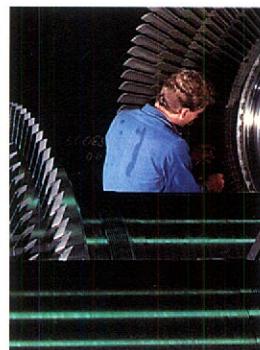
Products and systems for local distribution and control of electrical energy.

Low-Voltage Apparatus
Low-Voltage Systems
Installation
Medium-Voltage Equipment
Distribution Plants

Industry

Products, systems and services for the optimization of industrial processes.

Drives
Process Automation
Marine, Oil and Gas
Process Engineering
Instrumentation
Metallurgy
Semiconductors



Scope of Activity

Turnkey fossil-fueled power plants and components (boilers for all types of fuel, turbines, generators). Gas turbine or combined-cycle power plants for peak or base-load demand. Advanced light-water and high temperature gas-cooled nuclear reactors and fuel. Hydroelectric systems to power entire regions and local communities. Clean coal systems that meet stringent environmental standards and requirements. Control systems, retrofit and maintenance expertise to improve efficiency and life of power systems worldwide.

Low- to high-voltage cables, wires and capacitors. Oil-immersed and dry-type distribution transformers. Electro-mechanical and electronic meters. Circuit breakers and other high-voltage apparatus. Conventional and gas-insulated substations. Energy management and control systems for power networks. High-voltage direct-current transmission and reactive power compensation systems. Power and industrial transformers and components. Protection and substation control products and systems.

Low-voltage apparatus (circuit breakers, switches, contactors, fuses, buttons, programmable controllers) and systems (switchgear, motor control centers, distribution boards, control equipment). Medium-voltage equipment (products and some systems for 1-44kV networks utilizing vacuum and SF6 technologies) and distribution plants. Turnkey delivery of substations and electrification projects. Installation of these products and systems (as well as light-current infrastructures) for all types of applications.

Drives includes AC and DC drives, large motors and drives systems. Process Automation provides automation systems and related engineering services. Marine, Oil and Gas supplies products and systems for off-shore, on-shore and marine applications. Process Engineering produces heat-transfer systems, simulation systems, and provides engineering, procurement, and construction services. Instrumentation supplies indicating, controlling and recording equipment. Metallurgy includes furnaces and presses. Semiconductors provides high-power discrete devices.

For a detailed discussion of 1991 financial results, please refer to Management's Discussion and Analysis, starting on page 34.

Transportation

Complete rail transportation systems.

Main Line Rolling Stock
Mass Transit Vehicles
Fixed Railway Installations
Signalling
Transportation Customer Support



Diesel and electrical multiple units, tilting trains, and very high-speed trains. Diesel-electric and electric locomotives. Light and heavy transport vehicles for mass transit systems. Electrical equipment such as propulsion packages for locomotives, mass transit vehicles and coaches, and air conditioning systems. Communication and control systems. Mechanical equipment including bogies, car and locomotive bodies. Fixed power supply installations and signalling systems. Complete rail systems including civil engineering systems.

Environmental Control

Systems and products for the management of clean and safe environments.

Air Pollution Control, Paint Finishing, Industrial Drying, Resource Recovery, Indoor Climate, Service, Components, Cooling, Industrial Environmental Service



Outdoor Environment – air pollution control, resource recovery, industrial water treatment and environmental services. **Indoor Climate** – systems and products for industrial, commercial and public buildings, homes, ships, and offshore facilities. **Industrial Plants and Products** – paint finishing, pulp and paper process equipment, products for air and energy transfer, air pre-heaters, fans, heat exchangers, control valves and refrigeration for food.

Financial Services

Financial Services for ABB and external clients.

Treasury Centers
Leasing & Financing
Insurance
Project & Trade Finance
Stockbrokerage & Investment Management



Various Activities

Diverse activities, primarily electrical engineering-related.

Power Lines, General Contracting, Installation Material, Service, Motors, Robotics, Superchargers, Communication and Information Systems, District Heating, Telecommunications, Others



Treasury Centers manage Group liquid assets, foreign exchange transactions, and borrowings. Leasing & Financing provide asset-based financing, large financial packages and financing for investments. Insurance includes reinsurance and insurance brokerage. Project & Trade Finance covers project and export finance advisory services, and counter-trade. Stockbrokerage & Investment Management covers portfolio management, equity, option and bond trading, investment research, corporate finance and venture capital investments.

Various Activities include: turnkey projects in high-voltage transmission lines; engineering and contracting in infrastructure projects; electrical installation equipment for buildings, lighting and safety products; service shops and centers for ABB and customer equipment; industrial AC motors; industrial robots and automation systems; diesel engine superchargers; broadcasting equipment and antennas; central heating systems for towns and cities; satellite communications, radio links and military systems.

The rising world population as well as continued economic development are placing enormous demands on mankind's ability to produce, distribute, and efficiently use electrical energy in an environmentally responsible way. In developing nations, where nearly all of the two billion increase in population will be added during the next 20 years, it is expected that about \$ 1 trillion needs to be spent on electrical power equipment in the 1990s. Even in the developed world, where energy conservation is more widely practiced, economic growth still requires greater expenditures of energy. Simultaneous to this rising demand for energy, citizens everywhere are objecting to current levels of environmental pollution.

ABB has the technologies and organization to help solve these problems. The Group's core businesses hold leading positions in the clean and efficient production and distribution of energy, the more efficient utilization of supplied energy in industry and transportation, as well as the improvement or cleaning of outdoor and indoor environments. The Company is committed to the concept of "sustainable" development and being at the forefront in establishing sound environmental business policies.

The creation at the end of 1992 of a

single market of 380 million consumers within the combined EC and EFTA countries as well as the recent opening of the former communist bloc economies together represent a change in European market conditions of unprecedented proportions. At the same time, the economies of the Asia/Pacific region



are experiencing growth rates far exceeding those in Europe or North America. To take advantage of these as well as opportunities in other parts of the globe, businesses must have world-class technical capabilities and know their customers in every market.

ABB was created four years ago to better anticipate and capitalize on new and changing opportunities in its core businesses in this demanding international business

ABB's technological leadership as well as its multidomestic presence and customer-oriented focus make it better able to capitalize on emerging business opportunities around the globe.

climate. The Company's strategy is to take full advantage of its economies of scale in technological, financial, production, and distribution resources as a global group – while at the same time being represented by national companies in many home markets where thousands of flexible local

global environment of borderless competition.

The following business sections of this report profile ABB's global strengths in relation to its markets and why these strengths, in helping serve customers better, assure a strong future for the Group.

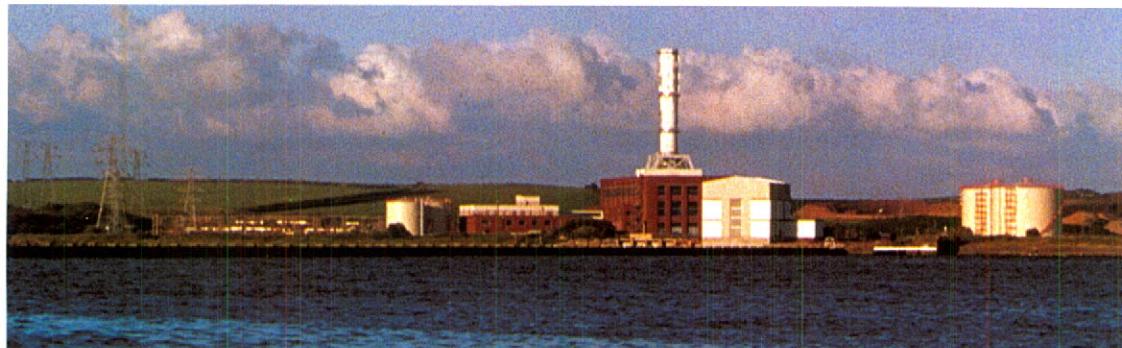


entrepreneurial profit centers are attentive to local customer needs. No other company in ABB's markets can match these resources. The Group's multidomestic presence in more than 140 countries also allows employees to identify and react to business trends quickly. ABB's unique structure, its commitment to develop and produce the most technologically advanced products, and its action-oriented philosophy, position the company to succeed in the tough

The power generation, transmission, and distribution markets, driven by population growth and rising per capita energy consumption, are expected to experience an above average rate of growth during the next decade. ABB is well positioned to capitalize on these opportunities. The Company has in place a full range of power generation systems for its worldwide customer base. This equipment includes complete steam, gas turbine, combined-cycle, nuclear, and hydroelectric power

operation today. These plants burn fuel more efficiently, are highly reliable, can be built quickly, and have very low emission levels.

Despite the recent demand for combined-cycle facilities, utilities and other power generators continue to maintain a balance of fuels and generating capacity to avoid a dependence on any single technology or fuel source. With coal reserves in excess of 200 years, and much higher plant



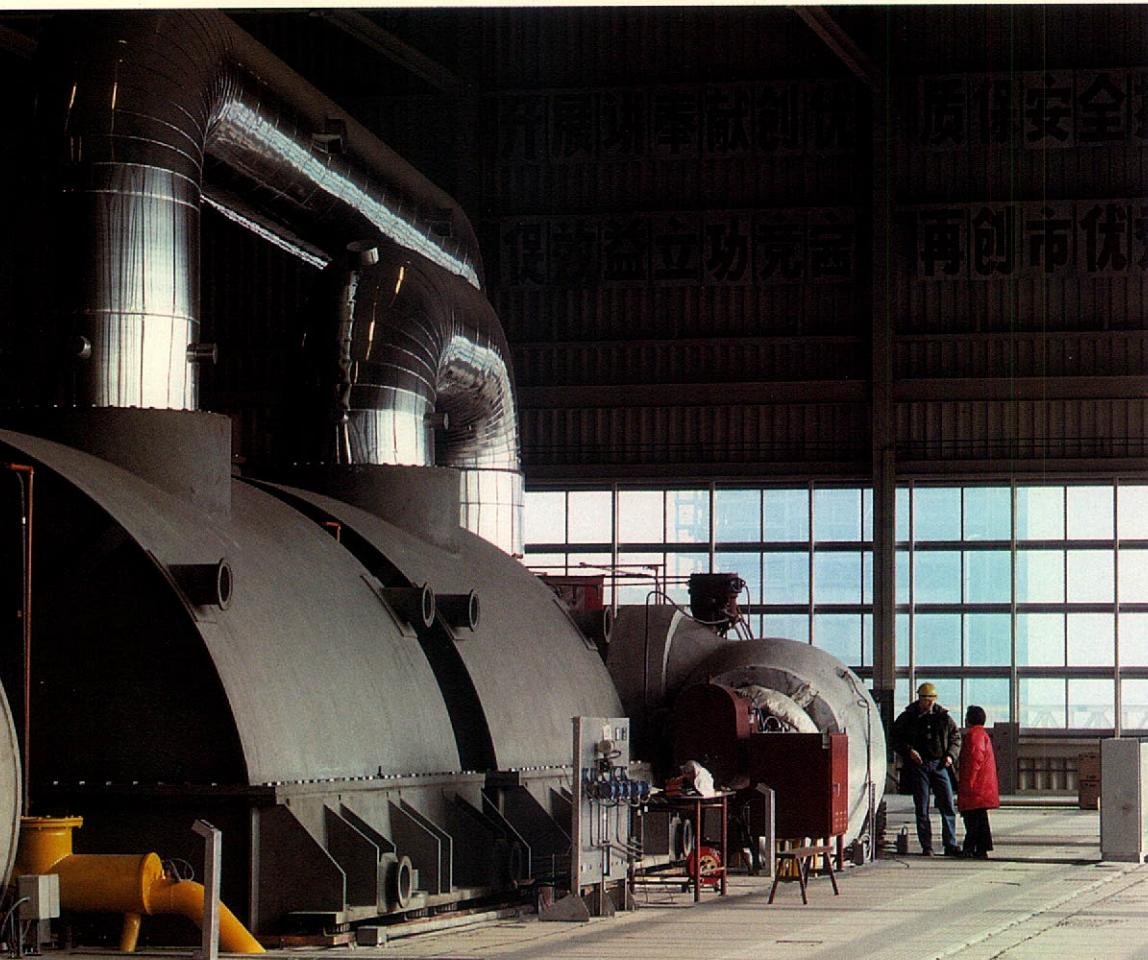
The Roosecote Power Plant, the most modern in the UK, uses ABB gas-fired combined cycle power generation technology to ensure high-efficiency with low environmental impact. Operated by ABB, it is the first privately owned power station in the UK producing electricity for public use.

stations, as well as the control and environmental systems to support them.

ABB has been in the forefront of power plant engineering for more than a century and continues to invest heavily in research and development to refine and improve existing technologies and develop the next generation of equipment for its customers. It is a leading supplier of gas-fired combined-cycle (CC) power plants, having built more than a third of all CC plants in

efficiencies with lower levels of emissions possible with the latest technology, clean coal has once again become a very attractive fuel choice. ABB is a pioneer in clean coal technology, with the first three pressurized fluidized bed combustion (PFBC) plants in the world either commissioned (Sweden) or in the approval stage (Spain and the United States). ABB is also working on Japan's first PFBC plant, due for completion in 1993. Eastern Europe has become a region of special

Electric energy is a driver of economic progress. The demand for electric power continues to grow in less developed as well as industrialized nations to fuel growth and meet social needs.



Two ABB 600 megawatt turbine generators at the coal-fired Shidongkou power plant on the Yangzte River in China represent an important step in improving power technology in that nation, where demand for power is increasing.

focus for ABB, with a total of five factories in three nations producing power generation equipment there. The partnership with ABB Zamech in Poland has helped that company build a strong and profitable local market position, supplying domestic combined heat and power generation systems.

ABB is responding to the opening of these new markets by focusing on programs to become the low cost producer and increasing research and development with special focus

on gas turbines and combined-cycle clean technologies.

Environmental concerns about CO₂ emissions continue to also favor the use of hydro-generation as well as nuclear power. ABB is well-established in both technologies and has substantially increased its R&D budget in the nuclear field. ABB's more than 30 years of experience in nuclear power generation is being utilized to develop new ultra-safe reactors as well as upgrade and

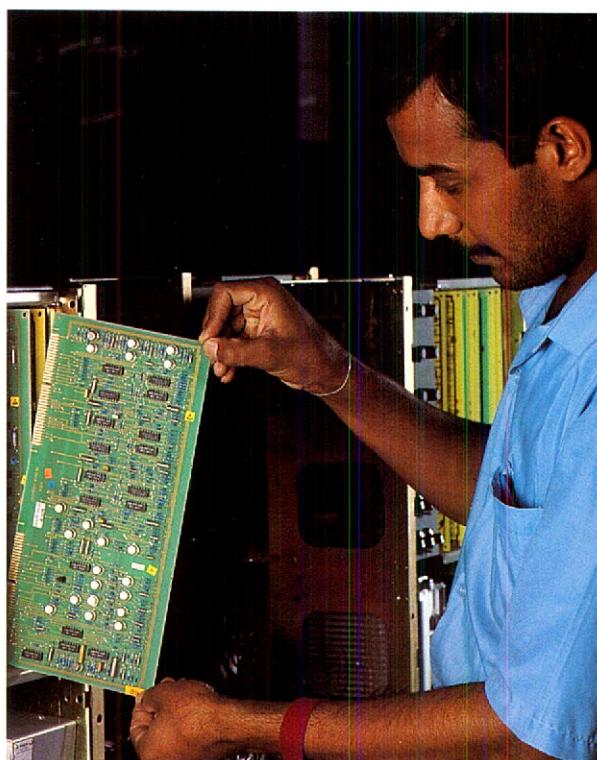


This outdoor thyristor switching device, the first of its kind in the world, is part of a new technology which allows a higher level of power to be maintained on existing lines. The equipment is located at an Appalachian Power Company switching station near Charleston, West Virginia, USA.

ABB's transmission equipment manufacturing facility outside Bangalore, India, supplies the Indian and export markets with micro-processor-based protection relays of the latest design.

supply the more than 400 existing nuclear power plants worldwide.

The 1990s will see both the expansion and upgrading of power transmission and distribution systems. Especially in less-developed countries, large generation facilities will be built at sources of fossil fuel or hydro power, as well as equivalent transmission equipment needed to carry this power to consumption centers. ABB is a major supplier of composite plants for these markets and can provide complete system solutions, including AC or DC substations as well as transmission lines or cables. In industrialized nations and regions where complex



transmission grids already exist, the need will be to increase capacity on existing lines, improve efficiency and stability, and expand network control capabilities. Power electronics will play an important role in the upgrading of existing transmission systems as well as in medium- and low-voltage applications by providing both improved efficiency and flexibility. Through the increased efficiency offered by such equipment, the environmental impact of electrical systems can be reduced by retiring older, less-efficient systems or delaying the need for additional facilities.

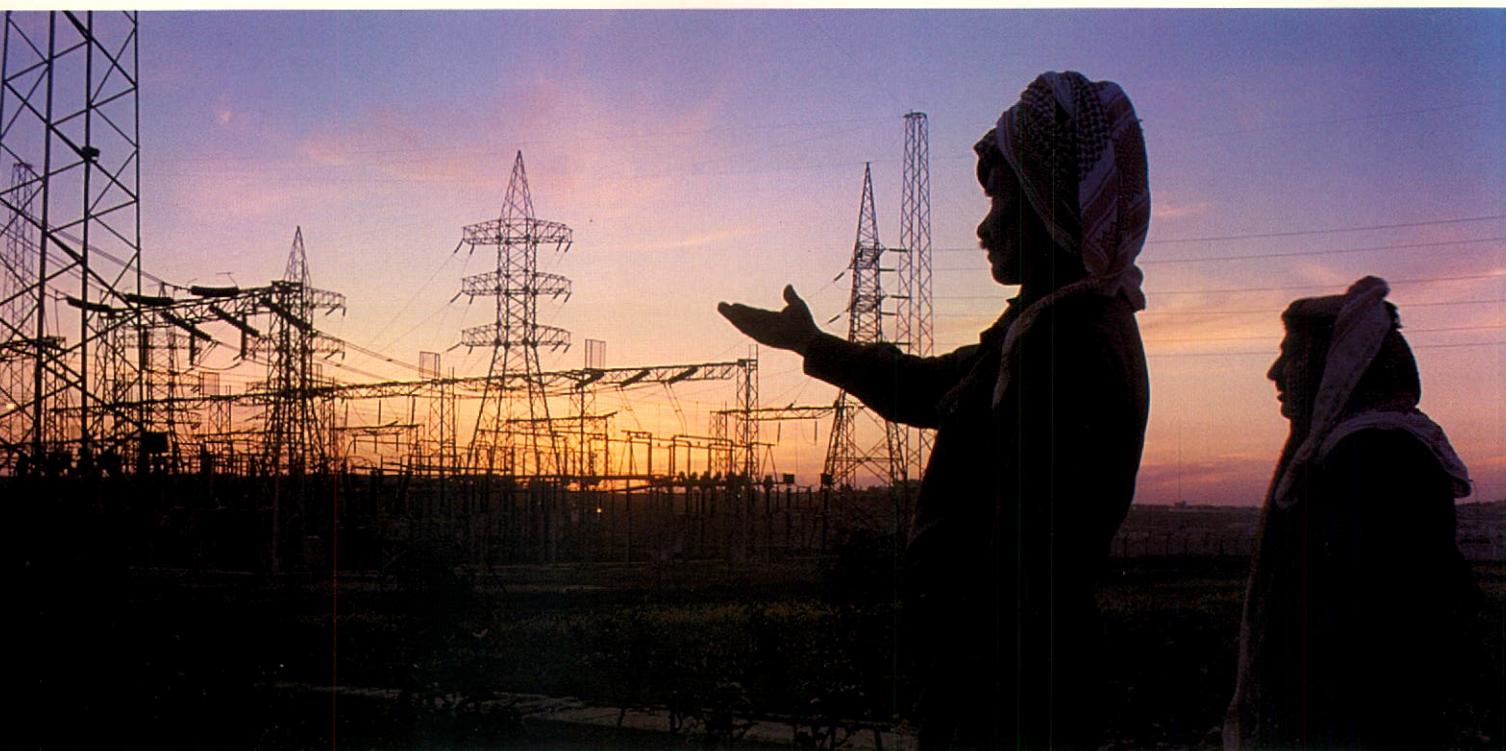
The growing consumption of elec-

city for industrial, commercial, and residential applications will require major investments for the safe and reliable distribution of electric power to these end consumers. ABB offers a complete range of products and systems for power distribution and control in industrial as well as developing nations through a growing network of local production, engineering, and installation facilities.

New methods of using electronic data interchange with customers are dramatically shortening product development cycle times, streamlining manufacturing, and lowering overall costs of production.

Among the new or substantially

ABB supplies power transmission equipment and systems to nearly every country in the Middle East.





improved products introduced during 1991 are the *Pexlim* surge arrestor and the *Prolim* current limiter. For the first time on a large-production scale, *Pexlim* incorporates the use of a new polymeric insulation material to replace traditional heavy and brittle porcelain insulation. The *Prolim* current

(Upper left)
The GOSI Hospital in Riyadh, Saudi Arabia, relied on ABB to supply the facility's electrical distribution system including medium and low voltage switchgear as well as operating theater electrical equipment.

This ABB power distribution switchgear, shown at a utility station outside Zürich, Switzerland, uses gas-insulated switching components for greater safety and efficiency.

limiter incorporates breakthrough technologies in semiconducting plastics and short circuit protection. The device works 200 times faster than traditional protective equipment and will initially be used in low-voltage distribution systems.

The major part of R&D funds is spent in an evolutionary process in which the performance, reliability, and – increasingly – the environmental compatibility of presently available equipment and systems are improved. During the last decade, for example, computerized data processing systems have gradually replaced conventional electromagnetic equipment and hard-wired

electronics for practically all supervision, control, and protection functions. Utilizing this common technology, such systems can now be better integrated and in the future be expanded into complete "utility management information and control systems". The *Pyramid* and *Spider* systems, designed for protection, substation control, and energy management, are important steps in the direction of such completely integrated systems. In power distribution, ABB has developed the INScontrol system, which monitors all levels – medium- and low-voltage as well as building automation functions – of electrical distribution in commercial applications. Sustained technical proficiency in the transmission and distribution field is based on such focused development programs as well as a growing number of more speculative, long-range R&D projects.

ABB is adapting to the changing structure of the market by starting local production of power transmission and distribution products in fast-growing markets such as Indonesia, Malaysia, Thailand, China, and Taiwan and increasing its presence in Eastern Germany as well as Central and Eastern Europe. The company's proven ability to transfer technology and manufacturing know-how to developing countries will provide an important compet-

itive edge. ABB is well positioned in key technologies and offers competitive products designed to meet each customer's needs. An efficient manufacturing structure, increased R&D spending, and Customer Focus programs will further enhance ABB's strong position in power transmission and distribution markets around the world.

The automated titanium rolling mill owned by Teledyne Corporation in Richburg, South Carolina, required an electrical and control system that would optimize the process and reduce waste. ABB provided a fully integrated system for the plant, including process control and drives systems, the proprietary Rolling Mill Control application software, motors, and power distribution equipment.

Total worldwide production in major industrial sector businesses which ABB serves will grow only modestly during the next several years. Fortunately, in addition to expanding capacity, much of ABB's business with these customers is driven by the need to upgrade plants to raise productivity, improve quality, and conserve raw materials and energy. ABB is among the world leaders in supplying such integrated solutions for entire industrial processes.

Growing environmental concerns and the need to become more efficient are giving industrial customers greater incentives to save electricity.

ABB integrated its Master distributed control system with its AccuRay gauging and drives systems to increase efficiency at the Ortviken Company's new paper mill in Sundsvall, Sweden.

ABB is the world's largest supplier of flatness control systems for steel and aluminium mills. Sensors embedded in cylinders on mill lines allow continuous process measurement and control. Customers from Japan, South Korea and Taiwan placed the year's most significant orders for ABB Stressometer systems.

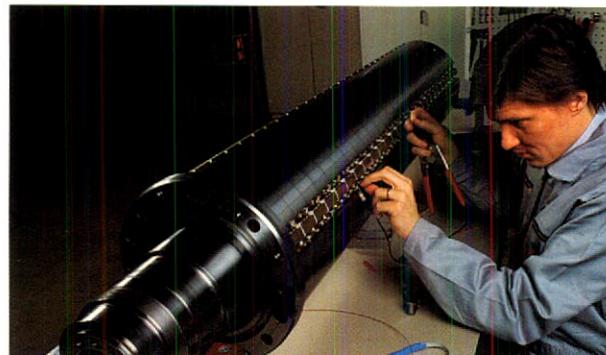
One important way customers can improve energy efficiency is to replace existing single speed motors with highly precise variable speed drives and motors.

Based on the latest power semiconductor technology, these new products from ABB dramatically



reduce the use of electricity while simultaneously increasing the flexibility and capability of these motors and drives.

ABB is helping its customers, particularly in petrochemical businesses, to continually improve the work environment. ABB's dynamic simulation systems for the hydrocarbon processing industry, for example, allow operators to be continuously trained to avoid hazardous situations. The importance of process operator training has been recognized in Japan, where approximately 20 process simulators have been ordered over the past several years for hydrocarbon processes.



The company's distributed control systems (DCS) allow operators to monitor every phase of complex production processes to efficiently isolate problems and address them quickly.

While overall demand for our customers' products is increasing only

Trends in global and regional markets will drive customer programs to upgrade and modernize their industrial operations.



moderately, the level of competition faced by these companies is growing substantially.

In order to remain competitive, our customers must not only become more efficient, they must also make their production processes more flexible to be able to adjust to changing demand quickly. This has to be done in an environment in which internal engineering capabilities are reduced to save costs. ABB is responding to these needs by offering completely integrated process solutions. For instance, by combining capabilities in instrumentation, gas chromatography, process automation, simulation, process design, and engineering services, ABB is helping builders of MTBE plants (a gasoline additive which adds octane and allows for cleaner burning) to start up these facilities faster and more inexpensively. With more than 30 MTBE awards received during 1991, ABB has been able to capture the largest share in one of the fastest growing markets in the hydrocarbon processing industry. All systems being currently supplied or under development at ABB are geared to helping customers reduce emission levels and produce more products with a smaller amount of raw materials or energy through improved process automation or optimization.

During the remainder of the 1990s the majority of greenfield projects initiated by ABB's industrial customers will be constructed in Asia. For example, almost all of the world's new steel capacity and 80 percent of new cement capacity will be added there. In order to capitalize on these opportunities, ABB is rapidly increasing its local engineering, training, and service capabilities in this region. Existing regional centers in Asia are being expanded to improve local capabilities in sales, applications engineering, staging, commissioning, and after sales support. Where appropriate, local partnerships are established to accelerate market penetration by utilizing partner experience, resources, and contacts. Since many of ABB's industrial businesses are increasingly focused on applications, service, and support, establishing a local presence is a prerequisite for success.

The potential in Central and Eastern Europe for industrial process optimization systems is enormous. During the remainder of the decade, considerable market growth is expected in Hungary, Czechoslovakia, and Poland, as the steel, pulp and paper and other processing industries begin to modernize older and inefficient facilities. As is occurring already in Western Europe, increas-

ing concerns for the past and projected environmental impact of such industrial operations will be a major driver behind modernization projects. Central and Eastern European nationals are being hired and trained to apply ABB technologies and project management techniques to local customer and export needs. Partnership agreements are being pursued and financing options are being offered to potential customers. ABB's project finance and countertrade organizations are helping to provide customers with "packages" which include ABB products and services and attractive financing options. Such ABB cross-segment teams can take advantage of the Group's truly unique synergies.

Effective Rail Transportation

The rebirth of railways is underway not only in Europe but around the world. Environmental concerns and overloaded roads and airways are driving this renaissance.

Billions of dollars will be invested in rail transportation systems in the 1990s and into the next century. With the most technologically advanced transport systems for freight, long distance passenger service, and urban public transportation, ABB is favorably positioned to meet expected growth in all sectors of

Australia.

There is an escalating need to transfer the shipment of heavy goods from road to rail. For distances up to 500–600 kilometers, rail is also a very competitive alternative to air transport. In Europe, where distances between major cities are short, high-speed rail is also



this industry.

ABB's strategy is to provide complete transportation systems to satisfy all the local requirements of railway operators, national railway boards, and public transport authorities. ABB offers a combination of advanced technology in the fields of rail vehicle design, electric drive systems, and a competence to engineer and deliver complete turnkey rail projects. ABB now has production facilities in Europe, the United States, and

emerging as an effective alternative to air travel for intercity destinations. Trains are far more energy efficient and less polluting than trucks and cars, and a new railway line takes up two-thirds less land than a road. Urban planners on every continent are rapidly recognizing that if growth in major population and industrial centers is to continue, some form of rail system is a must. These demands are being met by rail systems that are competitive with air and road transport in terms

A consortium of which ABB is a major partner supplies the high-speed intercity train (ICE) being used on the German Federal Railway system. A ceremony in November, 1991, recognized the production of ABB HENSCHEL AG's 33,000th locomotive and its history of technological leadership extending back to 1848.



The first "Brenner" locomotives for the Austrian Federal Railways were delivered during the year. These locomotives are designed to operate using both AC (Austria) and DC (Italy) power and will help reduce congestion and pollution on roads across the Alps by hauling more freight by rail between the two countries. A "Brenner" locomotive is shown here flanked by Swiss mass transit and freight locomotives under assembly at ABB's plant in Oerlikon, Switzerland.

of efficiency, dependability, and comfort. In Europe, EC initiatives and plans will gradually diminish technical barriers and result in a pan-European rail network offering uninterrupted cross-continent travel. ABB has developed many of the products to implement such a system – products already being used within individual countries. For instance, ABB has designed an automatic train control signalling system which has been introduced into different national systems and will allow traffic across borders. A new ABB standard locomotive can be adapted to all voltage supply systems on the European Continent. These are examples of cost effective

solutions to technical problems which only a few years ago were considered to be insurmountable.

In terms of passenger comfort, the Danish IC /3 intercity train, developed by ABB, is an example of how trains can offer or surpass the passenger amenities – including telephone and telefax services – offered by airlines. The train was also ordered for use in 1991 in Sweden by a local transit authority. ABB's X2000 tilting train, already in service between Stockholm and Gothenburg, Sweden, represents the latest in fast-train technology. This design permits trains to increase and maintain higher speeds even

through curves, which conventional high-speed trains cannot do. Higher average speeds are possible on existing railway lines, reducing the need for specially dedicated and constructed track. In July of 1991 the German Railway Authority made extensive and satisfactory runs with the X2000, and the technology will be tested in 1992 on Amtrak's Northeast Corridor in the United States.

ABB is also a major supplier of systems and components to municipal authorities around the world, having supplied complete systems, trains, or components to over 100 urban transit systems.

A Spanish consortium including ABB produced 40 train-sets used by the Valencia, Spain, Railway Administration for its mass transit system.

In freight transportation, ABB developed and delivered for testing in 1991 the first dual-system "Brenner" locomotives and is producing freight cars designed for combi, container, or road-on-rails operation, with bogies that will increase freight speeds up to 160 kilometers per hour.

ABB's extensive experience in supplying all types of rail transit systems is supported by a commit-

ment to research and development and to the application of the latest technologies to meet the needs of rail customers. ABB is well-prepared to supply this renewed industry through the 1990s and into a new century of growth.





An ABB flue-gas cleaning system is currently being installed at a utility power generating plant outside Louisville, Kentucky, USA. ABB is the world's leading supplier of such environmental systems.

ABB is a world leader in responding to environmental protection needs. Its research efforts focus on developing products that can contribute to the solution of problems such as global warming, acid rain, ozone depletion as well as water pollution and hazardous waste prevention and treatment. ABB is among those industrial companies guiding global environmental policy. The Company is a signatory to the Charter for Sustainable Development of the International Chamber of Commerce and is a major participant in the preparations for the United Nations Conference on Environment and Development to be held in Rio de Janeiro in June, 1992.

The outdoor environment operations (air pollution control, resource recovery, and industrial environment service) often cooperate with ABB power generation to structure and deliver the best possible air pollution systems for their customers. Significant volume increases are expected as utilities order equipment to meet standards established by the 1990 U.S. Clean Air Act and as the need to curtail air pollution in Central and Eastern Europe as well as in the Far East is addressed. The demand for waste incineration plants is increasing and the market for soil remediation, the cleaning of waste

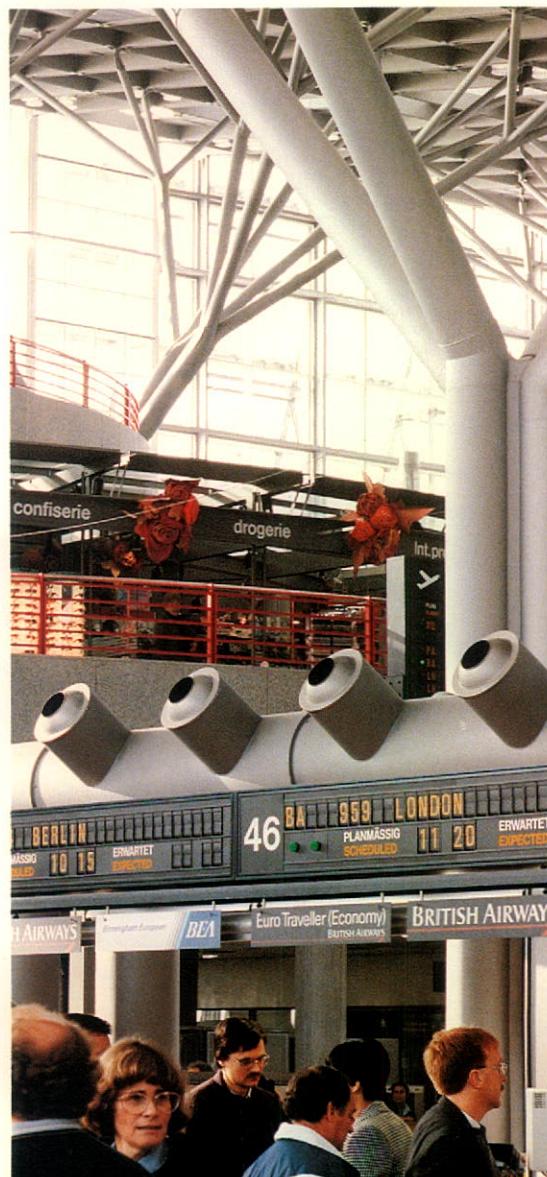
Environmental issues continue to grow in importance. As a "clean technology" company, ABB is well positioned to provide the technical solutions and systems necessary for sustainable development.

water, and environmental audits is showing strong growth. The industrial processes businesses (industrial drying, paint finishing, and cooling systems and components) provide equipment and services to the forestry, metallurgy, automotive, and food industries. These operations follow the business cycles of their respective customers. New products and technologies under development include heat pumps operating with environmentally acceptable refrigerants.

Indoor environment operations serve the commercial building as well as the private and public housing markets. These markets, particularly in the Nordic countries, have been severely impacted by the recession. However, overall growth for the Environmental Control business is expected to remain strong as worldwide demand for pollution control and abatement systems continues to grow.



ABB entered the Japanese automotive paint finishing market in 1991 by acquiring a Tokyo-based company which supplies such equipment to Japanese automobile makers. ABB is already a leading supplier of automobile paint finishing systems in Europe and North America.



The Stuttgart International Airport utilizes an ABB system to monitor and control the indoor climate of its terminal buildings.

Privatization, deregulation, budget deficits, political instability, military conflict, and the recession have greatly increased the level of uncertainty in international financial markets. The funding of construction in Eastern Germany and the move toward market economies in states of the former Soviet Union as well as in Central and Eastern Europe, are placing enormous demands on capital markets. In addition, the new capital needs of Latin America, East Asia, and China will also steadily increase. At the same time, the Middle East, which has been a key capital source for developing nation projects, is now a borrower of funds due to post-war construction needs, while Japan, another traditional source of capital, is funding its own costly infrastructure program.

These trends have created a need and an opportunity for private sector financial engineering and risk assumption to play a larger role in the planning and building of public-purpose infrastructure facilities. It is clearly no longer enough to have the technology and engineering resources to undertake these large scale, extended time-frame, projects.

An often crucial part of large-scale project sales is the financial package offered to assist in project funding. ABB's production base, located in

many countries, provides unique opportunities to utilize favorable export credits. ABB also has good access to capital markets. ABB Treasury Centers have the dedicated function to raise debt on behalf of the ABB Group in international capital and money markets and to assure the long-term availability of funds. ABB's strong credit rating and reputation in capital markets made it possible to issue medium term debt instruments with attractive financial conditions, which totalled \$ 900 million in 1991. ABB Treasury Centers are located in countries where ABB has major operations. Today there are 12 Treasury Centers in 11 countries.

Solutions offered by ABB Financial Services to find, assist in, and protect project funding include leasing and countertrade arrangements,



It is now critically important to find innovative ways to finance major infrastructure projects needed in both industrialized and developing nations.

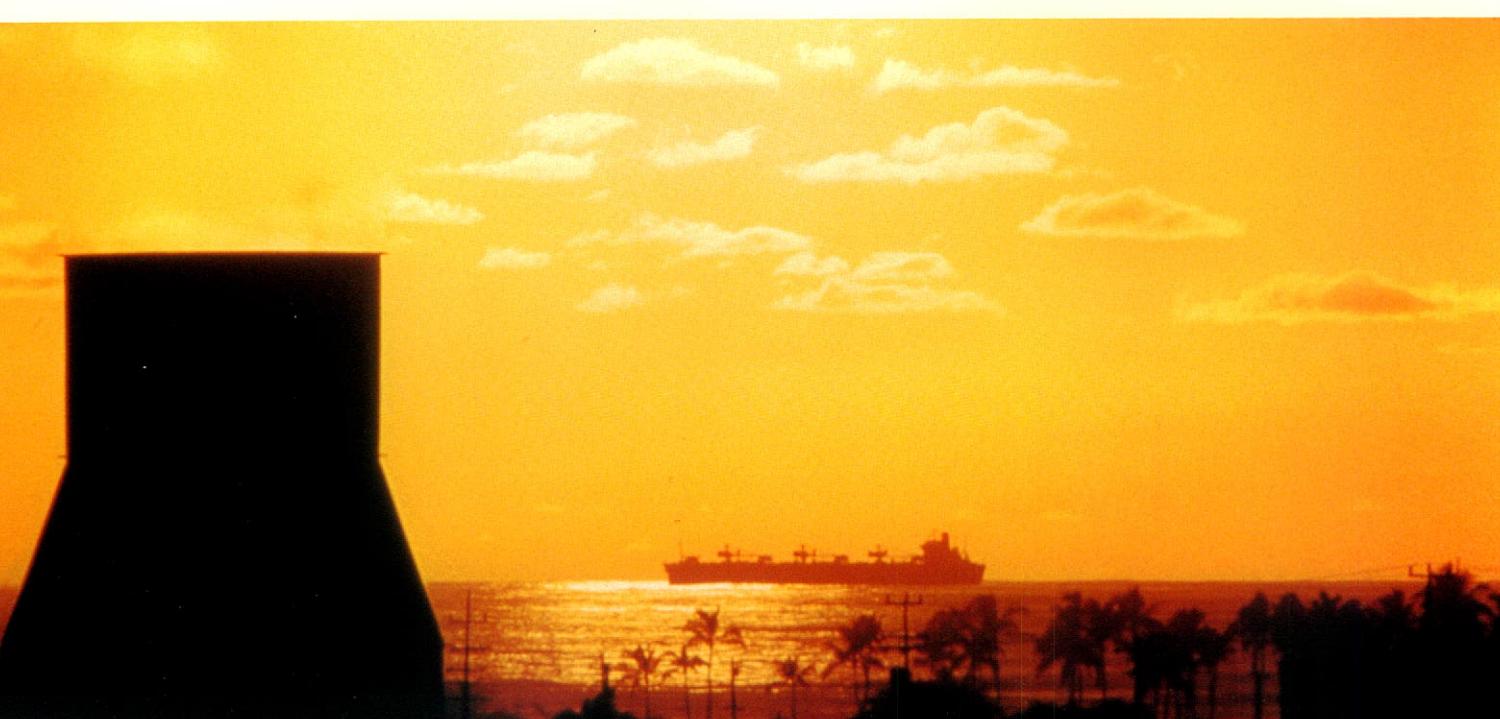
credit insurance, political risk coverage, and currency hedging. Projects assisted include power plants and long-distance electrical power transmission networks, urban transit systems, petrochemical processes, as well as industrial expansions for such facilities as pulp and paper mills. Risk exposure is kept within pre-defined limits and credit risks are maintained under tight control.

Financial Services has grown substantially since it was established and today has operations in all major countries in which ABB does business. Assets have grown to \$ 13 billion and the number of employees is now more than 700. ABB Financial Services looks forward to continued geographic and financial expansion and is committed to providing ABB customers as well as external institutional and industrial clients with

high-quality, tailor-made financial services anywhere in the world.

ABB's treasury and cash management professionals secure funding, exchange foreign currencies, and invest surplus capital for ABB companies.

The Kalaeloa power plant on Oahu, Hawaii, is an example of financial services maximizing synergies within ABB. The facility is being operated and maintained by a partnership led by ABB Energy Ventures and utilizes a clean-burning combined-cycle power generation system designed by ABB. ABB Credit is leasing equipment to the management partnership as part of a total financing package in excess of \$ 200 million.



The *Power Lines and General Contracting* business manufactures and constructs power transmission lines and provides engineering and construction support for ABB's power business in developing countries as well as for industrial and infrastructure projects. Mechanical construction and infrastructure work serving industries including steel, petrochemical, mining, and materials handling, is expanding in countries such as Australia and the USA.

The new IRB 1500 robot, introduced early in 1992 for applications including welding and materials handling, uses 60 percent fewer components than its predecessor. The user-friendly robot incorporates ABB knowledge gained from installing more than 28,000 robots worldwide.



Installation Material supplies products for the safe and efficient application of electrical power in commercial, industrial, and

residential buildings. This business is a market leader in Europe and enjoys a strong position in expanding markets in Southeast Asia. Demand for improved safety and additional features is leading ABB to develop electronics-based "intelligent" control systems which connect electrical functions within a building, such as the lighting, indoor climate, and safety systems.

The increased use of subcontracted services by companies for planned and preventive maintenance is continuing to improve the market for *ABB Service*. This operation has a network of 80 service centers in 45 countries to maintain the level of availability, efficiency, and safety of its customers' production equipment. New monitoring systems for tracing and repairing industrial equipment problems are being developed to further reduce downtime at customer locations.

ABB Motors supplies a range of industrial motors, primarily in Europe, which power ventilation equipment, pumps and machine tools for industries including pulp and paper and textile manufacturing. A major focus during the year was adjusting capacity to demand levels. Business development is focusing on improved productivity through further development of common

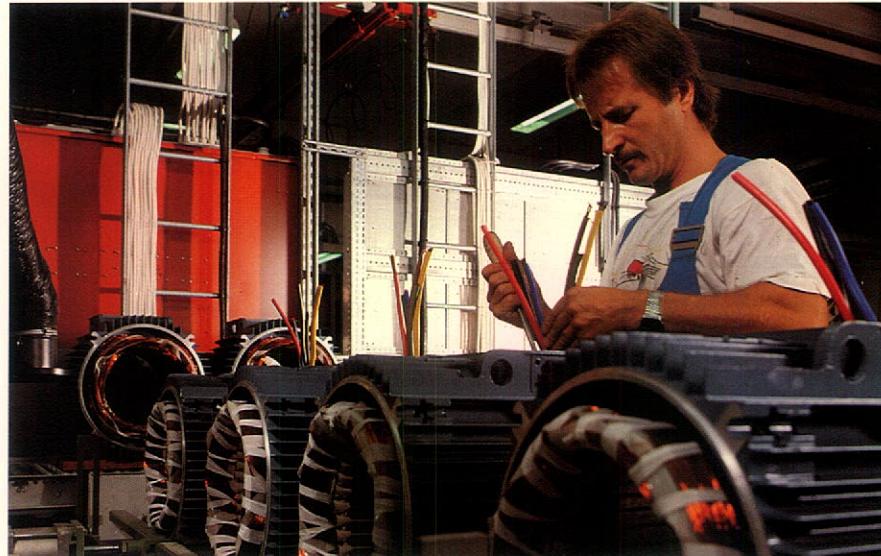
A number of ABB's separate businesses not included in previous sections of this Report are important in their particular markets and contribute substantially to Group growth and earnings. The larger operations are described below.

designs for motors, and cycle time reduction as well as customer service programs.

Efficiency and quality improvement programs as well as acquisitions in key markets are reinforcing the position of *ABB Robotics* as a leader in providing total automation solutions to meet industrial customer needs. For instance, ABB can now supply the global automobile assembly market with systems for component and powertrain assembly as well as paint finishing. New product introductions are further improving ABB Robotics' market position.

ABB Superchargers is the world's largest supplier of turbochargers for medium and large diesel engines. This business continued to grow as demand for supercharged engines increased in the shipping industry as well as for industrial, stationary diesel engines. Efficiency and quality improvement projects as well as programs to enter new markets in Central and Eastern Europe were instituted during the year.

The *Communications and Information Systems* business is a major manufacturer of high-power broadcasting transmitters, antenna systems, and associated high-power electron tubes.



The *ABB District Heating* business is the foremost supplier in Europe of complete preinsulated pipe systems for district heating and cooling of houses, offices, and factories.

ABB Asea Skandia, the largest electrical wholesaler in the Nordic countries, also supplies white goods and provides fire alarm installation, access control, and cable TV system services to customers in that region.

The time needed for production and delivery of a motor has been reduced from eight weeks to two at this Motors plant in Västerås, Sweden.

Assembly can be carried out by any member of a team, which is also involved in the design of new motor models. Other ABB companies are adopting this effective production system.

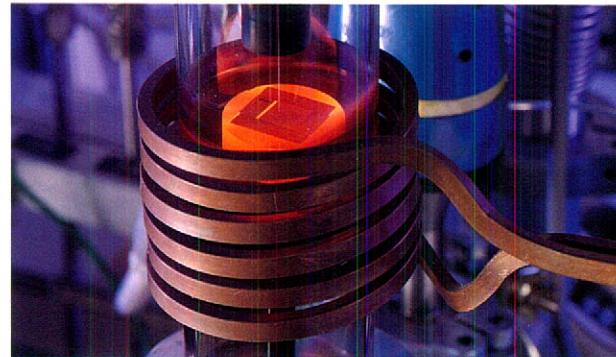
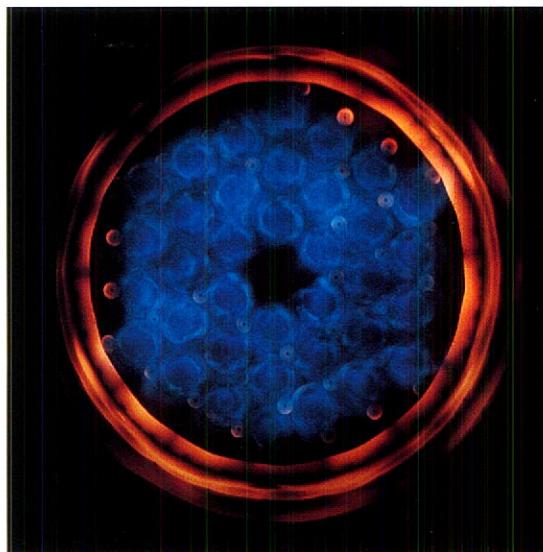
Global R&D Coordination

Technological competence determines the quality, cost, and competitiveness of ABB's products.

ABB is pursuing research in the application of new high-temperature superconducting materials which offer promise for dramatic advances in power efficiency.

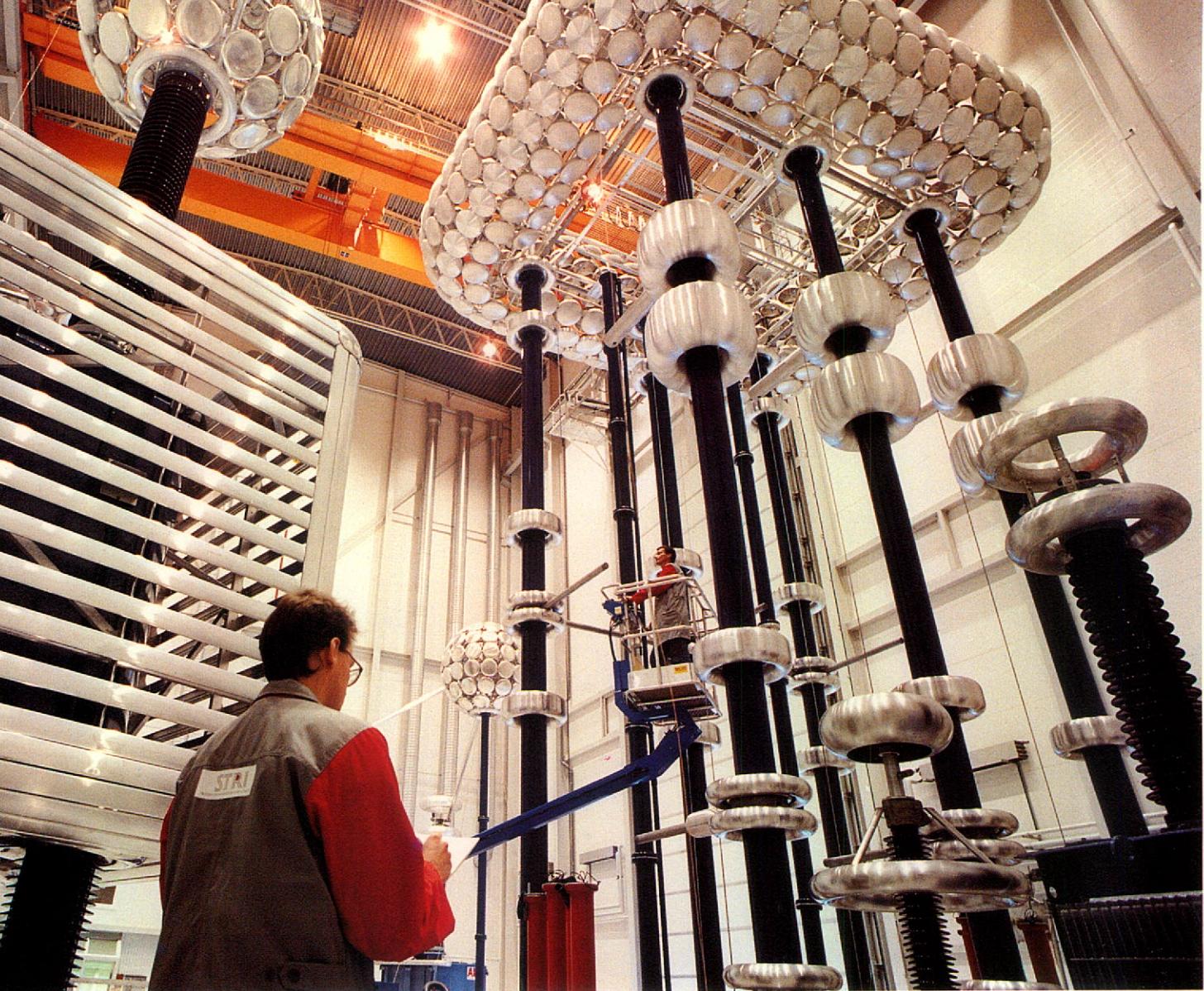
ABB is a technology-based company. In nearly all of its businesses, product leadership requires technological leadership. The principal responsibility for achieving and maintaining technological leadership resides in each operating segment, where 90 percent of Group R&D funds are spent. Total R&D spending in 1991 amounted to \$ 2.3 billion, or 8 percent of Group revenues. While it is vital that R&D activities be decentralized and located close to the operations, it is also important to take advantage of ABB's size and exploit the potential for synergies between businesses. The Corporate R&D organization conducts research in areas of generic interest to many businesses and also provides resources for more focused R&D contracted by business units. The following are examples of such joint R&D efforts:

ABB R&D activities resulted in a low NO_x gas turbine burner designed to help reduce combustion emissions. Combustion research is an area of concentration for ABB as utilities seek cleaner burning systems which utilize fuel more efficiently.



Electric insulation is of strategic importance in many of ABB's power equipment businesses. In a joint research program, ABB Corporate Research and the Swedish Transmission Research Institute (STRI) have investigated the flashover mechanisms on outdoor insulator surfaces and developed models for optimization of various types of insulators. This research has also resulted in new methods for measuring electric fields on high potential as well as guidelines for design and maintenance of insulators susceptible to deterioration through atmospheric conditions and pollution.

Variable speed motors offer substantial energy savings in industries where the use of existing single-speed motors is a major production expense. Through the application of basic research on magnetic circuits, induction motors suitable for very high speeds on variable frequency supply have been developed by ABB. These motors



feature low losses even at high frequencies. Gearless drives for compressors operating at 6,000 rpm are an initial application of this research.

To reduce emissions from paint shops in the automobile industry, ABB, in cooperation with leading manufacturers, is installing and continues to develop new systems for solvent concentration, particle control, and energy recovery.

The low NO_x burner (see photo opposite page) is an example of a successful application of basic research by a corporate laboratory in non-linear acoustics which

became the core technology of ABB's new line of advanced combustion turbines. Continuing R&D is producing ever lower emission values and is being geared to adapt this type of burner to a variety of fuels.

The creative synergies represented by this small sample of R&D programs are an expression of ABB's commitment to providing the best technologies to meet present and future customer needs as well as world energy and environmental requirements.

The Swedish Transmission Research Institute (STRI), located in Ludvika, Sweden, is an example of ABB working with major customers to jointly develop solutions for future power systems. The institute is owned by the Swedish State Power Board and ABB.

Management's Discussion – Analysis of the Group

Key Figures (US\$ in millions, unless otherwise stated)

Year ended December 31	Total Group		Industrial Operations		Financial Services	
	1991	1990	1991	1990	1991	1990
Orders received	29,621	29,281	28,753	28,189	868	1,092
Revenues	28,883	26,688	28,015	25,596	868	1,092
Operating earnings after depreciation	1,908	1,790	1,763	1,601	148	175
Earnings after financial items	1,153	1,130	1,010	938	146	178
Net income	609	590	525	455	86	126
Stockholders' equity	4,498	4,247	3,523	3,348	981	899
Total assets	30,754	30,247	30,946	29,148	13,000	11,210
Capital expenditure for tangible fixed assets	1,035	961	1,008	935	27	26
Capital expenditure for acquisitions of shares and participations	612	677	606	676	6	1
Operating earnings/revenues (%)	6.6	6.7	6.3	6.2	-	-
Return on equity (%)	13.9	14.5	15.3	13.7	9.1	16.7
Return on capital employed (%)	17.1	19.7	14.9	16.6	-	-
Return on total assets (%)	-	-	-	-	11.1	14.3
Interest coverage ratio	2.1	1.9	2.1	2.0	-	-
Debt/equity ratio	1.3	1.5	2.3	2.1	-	-
Net debt/equity ratio	0.20	0.45	0.48	0.63	-	-
Capital turnover rate	0.95	0.98	0.93	0.99	-	-
Number of employees	214,399	215,154	213,674	214,439	725	715

Revenues* (US\$ in millions) and Employees

Western Europe	Revenues		Employees		North America	Revenues		Employees	
	1991	1990	1991	1990		1991	1990	1991	1990
Austria	384	311	2,109	2,343	USA	4,293	4,409	27,486	29,256
Belgium	269	258	1,691	1,630	Canada	972	1,074	3,481	4,339
Denmark	587	622	4,831	4,740	Total	5,265	5,483	30,967	33,595
Federal Republic of Germany	4,158	3,196	42,128	34,045	Asia and Australasia				
Finland	949	1,150	9,270	10,210	West and South Asia	797	999	8,256	8,782
France	645	602	3,282	3,543	Southeast Asia	668	403	3,115	2,298
Great Britain	1,732	1,060	5,938	6,189	Northeast Asia	777	689	729	662
Ireland	103	88	660	563	Japan	700	677	1,445	1,279
Italy	1,471	1,425	10,845	10,851	Arabian Peninsula	573	395	766	968
Netherlands	405	375	2,279	2,140	Australasia	835	821	5,498	6,190
Norway	1,203	1,194	9,117	9,860	Total	4,350	3,984	19,809	20,179
Portugal	94	82	681	618	L. America, Africa and E. Europe				
Spain	768	567	6,328	6,593	Latin America	952	994	10,237	11,425
Sweden	3,677	3,152	30,092	32,310	Africa	655	692	4,090	3,878
Switzerland	801	1,073	14,612	14,977	Eastern Europe	321	304	5,208	5,186
Others	94	76	225	279	Total	1,928	1,990	19,535	20,489
Total	17,340	15,231	144,088	140,891	Group Total	28,883	26,688	214,399	215,154

* Total revenues for all ABB companies from third party customers in each region.

Management's Discussion – Analysis of the Group

Market Conditions and Sales

The economic slowdown experienced in some parts of the world in 1990 developed into a recession for most markets during 1991. Among ABB's important markets, Sweden and Finland fell into a deep recession. North America, Great Britain, and Australasia registered negative growth rates and have not shown any consistent signs of recovery. Germany still enjoyed continued growth in the first half of 1991, but a slowdown began in the second half of the year. Many of its neighboring countries in continental Europe showed a similar pattern. Growth rates in southern European countries also declined. The adjustment to democratic, market-oriented economies in Central and Eastern Europe has temporarily lowered industrial production. The Asian markets had continued good growth far above the levels of most OECD countries. The Gulf war in early 1991 curbed investments in the Middle East and subsequent infrastructure investments did not reach the levels initially expected. The African market is growing at a modest rate and there are clear signs of recovery in many Latin American countries.

Overall demand for power infrastructure investments continued to grow. The postponement of large orders in the United States and some European countries can be attributed to slower economic growth. In Asia demand was strong for all types of infrastructure projects. **Good growth was generally experienced for environmental infrastructure projects, spurred by the Clean Air Act in the United States.** Some important customer industries for industrial automation such as pulp & paper and steel reduced investments, whereas the oil and gas industry maintained its high level of capital spending. In most industrialized countries demand was lower for industrial standard products, and for electrical products for the construction industry.

Orders received for the ABB Group amounted to \$ 29,621 million, an increase of one percent compared to \$ 29,281 million for 1990. Increases were shown by the Transportation, Power Plants, and Power Distribution business segments and decreases by the Industry and Financial Services segments. Large orders received during the year included combined-cycle power plants from Indonesia and Great Britain, nuclear power plants from Korea, train orders from several European countries, flue-gas desulfurization systems from the United States, and an HVDC link between Norway and Denmark.

Revenues rose by 8 percent to \$ 28,883 million (1990: \$ 26,688 million). The order backlog at the end of 1991 totaled \$ 27.3 billion, compared to \$ 25.7 billion at the end of 1990. Currency translation effects had a minor impact on the figures reported for 1991.

Personnel and Organization

The restrictive hiring policy initiated in 1990 to adjust capacity to reduced market demand continued in 1991, and layoffs became necessary in several companies. Excluding acquisitions and divestitures, the number of employees was reduced by 13,000, or about 6 percent. These moves were necessary to maintain and improve productivity in times of stagnating or moderately growing volumes. However, because of acquisitions, mainly in the new German states, the net decrease in employment in 1991 was only 1,000. At the end of 1991 the ABB Group employed approximately 214,000 people.

Personnel reductions are likely to continue in 1992. Weak demand will persist in several countries and further streamlining is necessary to maintain a lean staff structure.

Another series of international management training seminars was held during the year, bringing the total number of managers who have participated in such programs since late 1989 to above 1,000. These seminars, in which Group Executive Management is actively involved, play an important role in communicating ABB policies and creating a common set of management values.

The Customer Focus Program, now implemented throughout the ABB Group, is starting to show encouraging results: quality is improving further, throughput and delivery times are shrinking, and productivity is increasing. The entire effort focuses on providing additional customer value for ABB's products and services. The Customer Focus Program will also strongly affect new processes, increase decentralization, and enhance competence development for all employees. One good example of a country-wide Customer Focus Program aiming at such changes is the "T50" program in Sweden, involving some 30,000 employees. The name "T50" sums up the objectives: to reduce throughput times by 50 percent in all Group operations, whether they are in the workshop, in engineering, or in administration.

Investments and Divestitures

Acquisitions were made for a total of \$ 612 million. The largest transaction was undertaken in Norway, with the \$ 235 million buyout of minority shareholders in Elektrisk Bureau. This company is now wholly owned by ABB. Other acquisitions included the assumption of full ownership of the U.S.-based Vetco Gray, one of the world's largest manufacturers of exploration and production equipment for the oil and gas industry. ABB also acquired three companies in the United States and Japan, which specialize in robot-based paint finishing systems.

ABB continued its expansion into Central and Eastern Europe. In the new German states, where ABB now employs more than 6,000 people, the Group acquired ABB Automatisierungsanlagen in Cottbus, ABB Bergmann-Borsig in Berlin, ABB Energiebau in Dresden, and a transformer servicing company.

ABB Zamech and ABB Dolmel, ABB's early investments in Poland, have made excellent progress and are already exporting products to ABB customers in several countries. Two additional joint ventures were signed with the Polish State Railways for railway control and safety systems. Of the 10,000 people working for companies with ABB participation in Central and Eastern Europe, some 8,000 are in Poland. ABB has entered into approximately 30 joint ventures in Central and Eastern Europe, most of them majority-owned, and is negotiating several more. The consolidated accounts for 1991 also include the turbine manufacturers ABB Lang in Hungary and ABB Power Plants in Croatia.

Divestitures amounted to \$ 607 million. The major transactions were a net cash payment in January 1991 for ABB as a result of the renegotiation of some Italian joint ventures, and the sale of the remaining part of the U.S.-based Georgia Kaolin. Further divestitures of non-core businesses are planned for 1992.

During 1991 real estate divestments continued at a more modest pace, reflecting the general downturn in the real estate market. This was complemented by reduced and more selective real estate investments in 1991. In all major countries ABB has real estate programs to bring about significant space and occupancy cost reductions and to free up additional assets for sale.

Capital Expenditure, Working Capital, Restructuring

Capital expenditure for tangible fixed assets for the ABB Group in 1991 was \$ 1,035 million, an 8 percent increase compared to the previous year (1990: \$ 961 million); \$ 175 million (1990: \$ 195 million) was in land and buildings, and \$ 860 million (1990: \$ 776 million) in machinery and equipment.

Action programs continued to focus on reducing capital employed, with the result that net working capital decreased substantially in 1991. Inventories as a percent of revenues decreased from last year's 27 percent to 25 percent. Trade receivables also showed a relative improvement, falling by two percentage points to 19 percent. Reducing working capital is also an integral part of the worldwide Customer Focus Program.

Expenditures for research and development, affecting operating earnings after depreciation, rose by 21 percent to \$ 2,342 million, about 8 percent of revenues. R&D spending grew significantly in the Power segments and Environmental Control.

In order to safeguard long-term competitiveness, restructuring programs will continue. In Europe, the single market will gradually allow the free flow of goods and services across borders in all sectors, including public procurement. Demand can then be satisfied from fewer and more dedicated plants. As the new ABB facilities in Central and Eastern Europe are brought up to ABB quality levels and integrated into the Group's global logistics system, additional improvements in productivity will be achieved. These developments will allow ABB to respond to the price pressure generated through intensified competition. All these efforts will further reduce working capital for any given production volume and free up real estate and other fixed assets. Most business segments will be affected, but changes are primarily foreseen in the Power Plants, Power Transmission, and Transportation segments, as a significant part of their sales go to the public sector.

The emerging North American free trade area will also lead to market realignment. In Asia, ABB is continuing its substantial investment program to increase local presence and create engineering and manufacturing capacity. During the past year, new manufacturing and service

units were opened in such countries as China, Indonesia, Korea, the Philippines, and Thailand.

Financial Review

The net debt position for the Group improved by about \$ 1 billion as a result of the capital rationalization program mentioned earlier, and also as a result of proceeds from divestitures balancing payments for acquisitions. Liquid assets for the ABB Group totaled \$ 5,211 million at the end of 1991 compared to \$ 4,975 million a year earlier.

ABB continued its strategy of securing ready access to funds and extending loan maturities. During 1991, the Group issued medium- and long-term debt instruments exceeding \$ 900 million in the form of private placements or public issues. The public issues were rated AA2 by Moody's and AA by Standard & Poor's. ABB has the major portion of its funding with floating interest rates. Loans taken up by the industrial companies are generally held in their local currencies.

Foreign Exchange Effects

Compared to all major currencies, the U.S. dollar was stronger at the end of 1991 than a year earlier. This had a somewhat shrinking effect on ABB's balance sheet because assets and liabilities are translated into dollars at year-end exchange rates. The average exchange rates used to translate income statements in local currencies into U.S. dollars had a very small negative effect on total revenues and earnings for 1991 compared to 1990.

The foreign exchange effects on ABB earnings come mainly from translating earnings in local currencies into U.S. dollars at the average exchange rate for the period. A particular feature of ABB's multidomestic strategy is that in all major markets where ABB has revenues it also has substantial costs. This limits earnings fluctuations in local currencies as well as sudden changes in long-term competitiveness. However, as ABB has a major part of its value added and profits in Europe, a falling U.S. dollar has a positive effect on ABB's consolidated earnings expressed in U.S. dollars, and vice versa. This effect will lessen as North American profits improve further, and as growing Asian markets are increasingly served from local ABB operations.

Earnings

The ABB Group's operating earnings after depreciation increased by 7 percent to \$ 1,908 million (1990: \$ 1,790 million). The Industry business segment reported the highest increase, almost double the 1990 figure. This is primarily attributable to the rapid integration and restructuring of the activities within the former Combustion Engineering operations. The Power Transmission business segment increased from an already good level and the Power Plants business segment reported higher profits in spite of higher R&D spending. Due to the recession, operating earnings decreased for the Power Distribution, Environmental Control, and Various Activities business segments. Financial Services had another good year but reported lower earnings due to a real estate gain included in the 1990 result. Earnings remained at a low level for the Transportation business segment. In the Various Activities business segment, the largest contributions to operating earnings came from the Installation Material and the Power Lines and General Contracting business areas. Both showed good improvement. The District Heating, Robotics, and Superchargers business areas also reported strong performances, while the business area Other Activities Sweden showed substantially reduced results.

On a regional basis, the main contributions to operating earnings after depreciation came from Germany, Sweden, Switzerland, the United States, Italy, Finland, and Latin America. Good increases were reported from the United States, Germany, Canada, Spain, Great Britain, and Southeast Asia. Decreases in operating earnings were reported from Sweden, Norway, and Finland.

Earnings after financial items totaled \$ 1,153 million in 1991, an increase of 2 percent (1990: \$ 1,130 million). Earnings from associated and divested companies amounted to \$ 19 million. The British-based railway manufacturer BREL had no effect on Group income because losses incurred during 1991 relating to contracts taken up before ABB acquired a minority holding in 1989 were directly booked to equity as prior year adjustments.

Nonrecurring costs amounted to \$ 250 million, mainly as a result of restructuring programs and discontinued operations (1990: \$ 193 million). Nonrecurring income, mostly capital gains, totaled \$ 145 million (1990: \$ 168 million).

leading to a net charge of -\$ 105 million (1990: -\$ 25 million).

Total taxes for the ABB Group in 1991 amounted to \$ 415 million (1990: \$ 477 million), which corresponds to an overall tax rate of just under 40 percent (1990: 43 percent). This lower tax rate is a result of tax reforms in some countries, earnings improvements in countries with tax losses, and further progress in implementing the ABB country holding concept. Current taxes increased whereas deferred taxes decreased, mainly because of the above-mentioned tax reforms. Both trends are expected to reverse in 1992, and the overall tax rate should remain at around 40 percent.

Net income for 1991 was \$ 609 million, up 3 percent from the \$ 590 million in 1990. Return on capital employed was 17.1 percent (1990: 19.7 percent) and return on equity 13.9 percent (1990: 14.5 percent).

The outlook for 1992 is addressed in the President's Comments.

Management's Discussion – Analysis of the Business Segments

Data per Business Segment (US\$ in millions)

	Orders Received		Order Backlog		Revenues	
	1991	1990	1991	1990	1991	1990
Power Plants	6,378	5,999	9,720	8,994	5,700	4,653
Power Transmission	5,428	5,397	4,479	4,390	5,436	5,287
Power Distribution	3,267	3,104	1,655	1,571	3,186	3,073
Industry	4,077	4,208	2,825	2,808	4,182	4,022
Transportation	2,059	1,798	4,257	3,572	1,903	1,309
Environmental Control	4,164	4,067	3,410	3,055	3,949	3,684
Financial Services	868	1,092	-	-	868	1,092
Various Activities	7,379	7,290	2,819	2,960	7,455	7,126
Total	33,620	32,955	29,165	27,350	32,679	30,246
Intra-Group transactions	-3,999	-3,674	-1,872	-1,690	-3,796	-3,558
Net Total	29,621	29,281	27,293	25,660	28,883	26,688

Data per Business Segment (US\$ in millions)

	Operating Earnings after Depreciation		Capital Expenditure		Number of Employees	
	1991	1990	1991	1990	1991	1990
Power Plants	319	242	142	123	31,753	29,205
Power Transmission	512	421	210	157	31,880	34,099
Power Distribution	174	199	91	68	24,404	25,429
Industry	242	123	121	106	27,026	27,973
Transportation	16	22	74	36	12,075	9,107
Environmental Control	117	168	71	93	21,164	21,666
Financial Services	148	175	30	26	725	715
Various Activities	454	514	347	365	65,372	66,960
Total	1,982	1,864	1,086	974	214,399	215,154
Intra-Group transactions	*-74	*-74	-51	-13	-	-
Net Total	1,908	1,790	1,035	961	214,399	215,154

* Includes corporate items

Power Plants

Orders Received
(US\$ in millions)

91	6,378
90	5,999
89	3,046
88	2,187

Revenues
(US\$ in millions)

91	5,700
90	4,653
89	2,733
88	2,502

Operating Earnings
(US\$ in millions)

91	319
90	242
89	219
88	231

Number of Employees

91	31,753
90	29,205
89	16,230
88	16,081

The worldwide market for power generation products continued to develop as expected, with orders received somewhat above the 1990 level. Many markets showed a stable demand for power plants and good growth was experienced in several Asian markets. Smaller orders came from Central and Eastern Europe. Postponements of both capacity upgrades and additions in the United States reflect the recessionary impact and pending clarification of the Clean Air Act. In the United States, a new joint venture was formed to supply replacement steam generators to U.S. nuclear plants. A stronger local presence is being established in Asia, where several large orders were received, for example from Indonesia and Korea. Orders received increased by 6 percent to \$ 6,378 million.

Revenues amounted to \$ 5,700, up 22 percent from 1990. The first PFBC plants in the United States, Spain, and Sweden contributed revenues in excess of \$ 500 million.

Operating earnings rose by 32 percent to \$ 319 million. This significant increase reflects the effect of earlier restructuring, cost cutting measures, and improved results in the Combustion Systems and Service and PFBC business areas. Higher operating earnings were achieved despite a substantial increase in R&D spending, primarily in the areas of clean coal technologies and gas turbines. The Segment's operations in Poland and Hungary remained profitable throughout 1991.

Factories in Central and Eastern Europe have instituted programs for productivity improvements, capacity reductions, divestments of surplus and obsolete equipment, as well as for investments in new technologies. Capacity adjustments, factory specializations, and divestments of non-core businesses were made in ABB's boiler operations. Cycle time reductions from customer order to shipment have been achieved in the large factories in Germany, Sweden, Switzerland, and the United States. For example, implementation of a flexible manufacturing system for blade manufacturing has resulted in a 50 percent improvement in cycle time and significant inventory reduction.

ABB expects the worldwide demand for power generation capacity to remain robust over the next few years. A resurgence of demand in the United States for power generation capacity is expected, with particular focus on simple cycle gas turbines and combined-cycle plants. Markets

in Asia and developing countries have the greatest growth potential. Demand for retrofit equipment in Central and Eastern Europe should expand because of the need to improve efficiencies and to reduce pollution emissions. The demand for capacity additions should continue in the new German states. ABB is well positioned to serve these markets through its important production units in Berlin, Croatia, Hungary, and Poland.

For 1992, the Segment expects a positive development of both volumes and earnings.

Business Areas in the Power Plants Segment (US\$ in millions)

Orders Received	1991	1990
Gas Turbine Power Plants	2,053	2,027
Utility Steam Power Plants	799	889
Industrial Steam Power Plants	395	400
Hydro Power Plants	525	524
PFBC	46	10
Fossil Combustion Systems	688	476
Fossil Combustion Service	595	518
Nuclear Power Plants	859	768
Power Plant Control	418	387
Total	6,378	5,999

Significant Orders for the Power Plants Segment in 1991 (US\$ in millions)

Combined-cycle power plant, Indonesia	350
Engineering and project management for two nuclear reactors, Korea	exceeding 200
Combined-cycle power plant, North Wales 500 MW	not disclosed
Combined-cycle retrofit, Saudi Arabia	120
Steam turbosets, Germany	110
Combined cycle power plant, Greece	105

Power Transmission

Europe and North America presently account for more than 70 percent of the world market for Power Transmission products. In most of these countries, 1991 was a year of recession or stagnation. For certain products these business conditions resulted in reduced order intake and fierce price competition. So far, the effects have been felt mainly in distribution transformers, electricity meters, and standard cables, i.e. products directly related to construction activities. In the Middle East, the Gulf War froze an important part of the market for composite plants. Market growth continued strong in most of the Far East. Against this background, orders received for the Segment increased slightly to \$ 5,428 million. Power Systems received an order for another HVDC link between Norway and Denmark, and HV Switchgear a major order for an HVAC substation in Great Britain, each amounting to approximately \$ 85 million. Major power and distribution transformer orders were received from Hong Kong.

Revenues amounted to \$ 5,436 million, an increase of 3 percent. The Cables and Capacitors business area completed two submarine HVDC cable projects during the year, one in Cook Strait, New Zealand, and one for Konti-Skan, between Sweden and Denmark.

Operating earnings for the Segment rose by 22 percent to \$ 512 million. Most business areas showed satisfactory development. Cables improved in their major regions, i.e. in Germany, Norway, and Sweden. HV Switchgear made progress in its restructured operations in Switzerland and Germany. Power Transformers, having successfully reorganized its operations in the United States and Italy, and with such efforts

well under way in Canada, showed a substantial profit improvement. Relays performed well again in most entities and Power Systems once more benefited from efficient execution of ongoing projects. The results in Network Control also improved. Due to lower revenues in Distribution Transformers and Electric Metering the results did not reach the previous year's level in those areas.

Technology achievements and continued focus on quality provide the basis for enhanced customer value and sustained profitability. Consequently, spendings for research and development increased by 10 percent to \$ 330 million.

Product exchanges and capacity adjustments continued during the year. This process will ultimately result in a certain downsizing of operations in the Western Hemisphere and a substantially increased presence in emerging markets such as the Asia-Pacific area.

The recessionary environment will probably continue to influence the Segment's businesses throughout 1992 and possibly even into 1993. However, cycle time projects and other activities geared to increase productivity and improve the skill and motivation of our employees are expected to compensate for the negative external environment and keep earnings in 1992 at approximately the same level as in 1991.

Orders Received
(US\$ in millions)

91	5,428
90	5,397
89	4,828
88	3,376

Revenues
(US\$ in millions)

91	5,436
90	5,287
89	4,775
88	3,619

Operating Earnings
(US\$ in millions)

91	512
90	421
89	288
88	128

Number of Employees

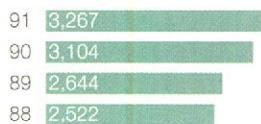
91	31,880
90	34,099
89	34,978
88	23,569

Business Areas in the Power Transmission Segment (US\$ in millions)

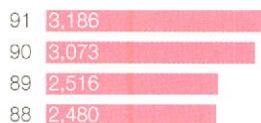
Orders Received	1991	1990
Cables and Capacitors	1,211	1,203
Distribution Transformers	708	815
High-Voltage Switchgear	1,322	1,296
Electric Metering	110	131
Network Control	235	193
Power Systems	265	262
Power Transformers	1,229	1,172
Relays	348	325
Total	5,428	5,397

Power Distribution

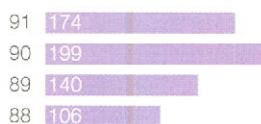
Orders Received
(US\$ in millions)



Revenues
(US\$ in millions)



Operating Earnings
(US\$ in millions)



Number of Employees



Market demand weakened in most industrialized countries in 1991. The order intake for electrical installations decreased sharply in Sweden, Finland, and Australia due to a major decline in the construction business. It was partly compensated by a better demand in Central Europe, particularly from the German construction sector. Product and system sales were also affected by lower demand from the manufacturing industries in Europe. Utilities kept up their investment levels, which resulted in a stable order intake for MV equipment and a good increase for distribution plants.

The strong market growth in many countries in Asia also contributed to the increase in orders received to \$ 3,267 million, up 5 percent from 1990.

ABB Power Distribution is building up its market presence in Eastern Europe as well as in Asia by means of local engineering and production capacity. The investments in Asia contributed to both volume and earnings in 1991. An Egyptian company, ARAB Contractors for Electrical Industries S.A. was acquired in late 1991 and will add revenues of some \$ 30 million in 1992.

A turnkey substation project (order value \$ 43 million) from Zimbabwe was the Segment's largest order. A number of important orders for complete electrical installations for office buildings and hospitals were received from Germany.

Revenues in 1991 amounted to \$ 3,186 million, an increase of 4 percent.

Operating earnings amounted to \$ 174 million, a decrease of 13 percent. The reduction in result margin was caused by severe price competition in the market place and also substantial costs for adapting production capacity to lower demand. In the countries hit by the recession, the number of employees was reduced by an average of 10 percent during 1991. At the same time, however, capacity has been built up in growing markets. Productivity has improved as a result of restructuring and rationalization activities. Business development is now focusing on improving customer service, higher overall quality, and prompt deliveries.

The demand from several of the European markets is expected to remain weak during 1992, the main exception being Germany, where strong construction markets are likely to prevail.

Further market penetration, especially in the Far East, will compensate for the expected low growth in Europe. Through the cost-cutting measures implemented in 1991, and with further productivity gains, earnings for 1992 should reach the 1991 level.

Business Areas in the Power Distribution Segment (US\$ in millions)

Orders Received	1991	1990
Low-Voltage Apparatus	537	507
Low-Voltage Systems	357	299
Installation	1,299	1,363
Medium-Voltage Equipment	724	736
Distribution Plant	350	199
Total	3,267	3,104

The recessionary environment in North America and Europe resulted in many of the world's industrial sectors cutting back on their capital expenditure. Consequently, worldwide orders were \$ 4,077 million, 3 percent lower than in 1990. There were pockets of strength, however. Drives, Process Automation, and Metallurgy roughly maintained their 1990 order levels despite substantially lower levels of investment in the pulp and paper and in the steel industries. The Instrumentation and Marine, Oil and Gas businesses showed good growth. Process Engineering order intake was below the 1990 level, as several large projects were postponed to 1992.

Total revenues for the Industry segment increased by 4 percent during 1991 to \$ 4,182 million, with most business areas contributing to this improvement.

Operating earnings totaled \$ 242 million, almost doubling the 1990 figure. Much of this improvement was driven by integration and restructuring of former Combustion Engineering units. The Process Automation business area, in which profits increased dramatically during the year, was a major contributor to the improvement as the elimination of overlaps in product development, manufacturing, sales, and administration – combined with substantially enhanced operational control – led to a rapid turnaround. The Process Engineering business area, primarily comprising Lummus Crest (a former Combustion Engineering unit) experienced a similarly remarkable profit improvement following efforts to improve project selection and overall operational management. Profit increases in the Instrumentation business

area – also substantial – were achieved by the rationalization of overlapping product lines, general streamlining, and improved manufacturing performance. All of these integration and restructuring activities had the greatest impact on the U.S. activities, but profits also improved in other key countries such as Finland, the UK, and Switzerland.

Restructuring activities in all business areas contributed to major productivity improvements and to reductions in working capital. On a comparable basis, the total Segment workforce was reduced by 7 percent during the year. The Segment's ongoing capital reduction programs started to produce results, which contributed to a strong cash flow.

The medium- to long-term future looks promising, as concerns in the areas of environment control, plant safety, energy efficiency, and overall process productivity will continue to drive plant revamp and modernization activities in the Segment's target markets. In Asia, where an increasing proportion of new industrial plants are being built, the Segment's local engineering, training, and service capabilities are being increased. Although no dramatic improvements in overall market demand are forecast for 1992, the Segment's momentum will continue through the next several years, as operational improvements and customer focus initiatives further enhance market share and profitability.

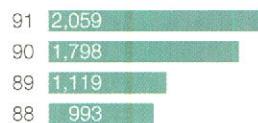


Business Areas in the Industry Segment (US\$ in millions)

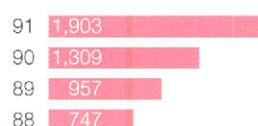
Orders Received	1991	1990
Drives	1,276	1,299
Instrumentation	551	521
Marine, Oil and Gas	538	467
Metallurgy	169	179
Process Automation	1,007	1,005
Process Engineering	505	694
Semiconductors	31	43
Total	4,077	4,208

Transportation

Orders Received
(US\$ in millions)



Revenues
(US\$ in millions)



Operating Earnings
(US\$ in millions)



Number of Employees



There is good growth in all categories of railway operators such as national railway boards and local public transport authorities. Orders received for the Segment increased by 15 percent to \$ 2,059 million. The Main Line Rolling Stock business area had a good year with large orders received from Germany, Spain, and Switzerland.

Revenues were up 45 percent to \$ 1,903 million. In 1991, 40 ICE trainsets were delivered to the German Federal Railways by the German consortium in which ABB Henschel participated with about 30 percent. The ABB Henschel joint venture with Thyssen (50/50) increased revenues by close to \$ 400 million.

Operating earnings decreased by 27 percent to \$ 16 million compared to 1990. In Australia good earnings were recorded and the Fixed Installation business area improved its profits. However, the Segment's results were unsatisfactory, partly because a few projects in the United States were delayed and had cost overruns.

Market trends project a bright outlook for this Segment. ABB has a very strong position thanks to its advanced technologies and the competence to deliver complete projects together with financing packages. In addition, ABB's multidomestic concept enhances the market position with local employment, an important factor for customer decisions. The opening up of the railway market within the EC will start in 1993, bringing efficient competition across borders. Even though the market is growing at a good rate, Europe is characterized by a substantial overcapacity in manufacturing, especially for the mechanical parts of locomotives and trains. Thus the restructuring efforts within the European train industry will continue. ABB started the process in 1988, with subsequent acquisitions in Sweden, Denmark, Great Britain, Germany, Portugal, and Spain. ABB is now in the middle of its restructuring program aimed at producing very competitive transportation systems on a European scale. Considerable efforts are being devoted to restructuring production facilities such as ABB Henschel in Germany, the U.S. factory in Elmira, and factories in Sweden. Segment operations are reducing working capital and decreasing product through-put times. Some progress was made in 1991 towards these objectives. The restructuring in Australia following the Comeng acquisition in 1990 has been successfully completed.

The British based manufacturer BREL, in which ABB has a 40 percent minority holding, is not consolidated into ABB. In 1991 BREL had technical problems with a large order. Comprehensive changes have taken place in manufacturing and organization including reductions in the number of employees.

Volumes are expected to increase in 1992. Earnings should improve somewhat from a low level, but will again be held back by some old low-margin contracts.

Business Areas in the Transportation Segment
(US\$ in millions)

Orders Received	1991	1990
Main Line Rolling Stock	1,342	1,144
Mass Transit Vehicles	258	190
Fixed Installations	153	191
Railway Maintenance	90	83
Signalling	216	190
Total	2,059	1798

Significant Orders for the Transportation Segment in 1991 (US\$ in millions)

Suburban trains, Switzerland	133
Suburban trains, Spain	90
High-speed trains, Germany	83
Electronic interlocking signalling system, Finland	37
Intercity trains, Australia	34
Low floor trams, France	23

Environmental Control

Strong demand for air pollution control equipment resulted in an increase in orders received for the Industrial Processes business area. The Clean Air Act of 1990 influenced demand in North American markets positively. Several large orders for air pollution control systems were received from the United States, where ABB booked orders for around \$ 500 million. In Europe, large orders were received in Italy, but the Scandinavian market declined noticeably compared with the previous year. The recession has hit the pulp and paper industry all over the world, severely affecting orders received for industrial drying systems both in the Nordic countries and in North America. Reduced investment spending in the automotive industry resulted in lower orders received both in Europe and in North America. Two acquisitions in the paint finishing business were made during the year, broadening the program and establishing a significant base in the important Japanese market.

The economic slowdown also severely affected the construction industry especially in Great Britain, Sweden, Norway, and Finland. However, continental European markets still had a fairly high level of activity. Overall, there was a decline in orders received for Indoor Climate, and Service. Steps have been taken to expand the Indoor Climate business area in the Far East. Orders received increased for the Gadelius business area in Japan, but trading activities in the Nordic countries were very unsatisfactory and substantial restructuring has been undertaken. Resource recovery increased order intake in the United States and several other markets.

Orders received for the Segment increased by 2 percent to \$ 4,164 million.

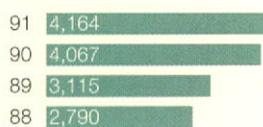
Revenues (\$ 3,949 million) increased by 7 percent compared with the previous year.

Operating earnings decreased from \$ 168 million in 1990 to \$ 117 million. Lower earnings were mainly reported by business areas where the recession had a particularly severe impact, i.e. Indoor Climate, Cooling, and Components. Corrective measures were initiated early in 1991 and will continue into 1992. Improved project management led to a good earnings increase for Industrial Processes.

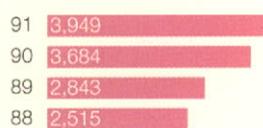
The Segment was more closely integrated into ABB during the second half of the year. The former Flakt Group is now working within regionally responsible ABB holding companies. This will increase market penetration and reduce overhead costs.

The economic climate is not expected to improve before the end of 1992 for the automotive and pulp and paper industries, and even later for the construction industry in Northern Europe. This means that improvements in results must come from continued internal cost cutting and restructuring measures, which should produce an improvement in earnings during 1992.

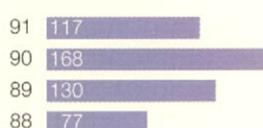
Orders Received
(US\$ in millions)



Revenues
(US\$ in millions)



Operating Earnings
(US\$ in millions)



Number of Employees

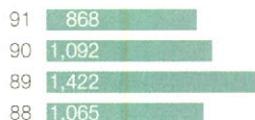


Business Areas in the Environmental Control Segment (US\$ in millions)

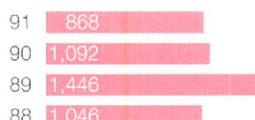
Orders Received	1991	1990
Industrial Processes	1,398	1,294
Indoor Climate	1,093	1,245
Gadelius	646	605
Service	232	258
Components	253	280
Cooling	222	230
Resource Recovery	347	274
Environmental Services	98	-
Eliminations	-125	-119
Total	4,164	4,067

Financial Services

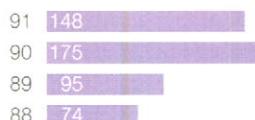
Orders Received
(US\$ in millions)



Revenues
(US\$ in millions)



Operating Earnings
(US\$ in millions)



Number of Employees

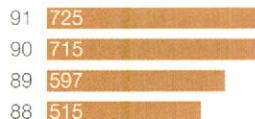


ABB Financial Services had another successful year in 1991 in spite of a very difficult environment with continued turmoil in the financial markets. The very strong focus on stringent risk control and on internal control functions has been instrumental in achieving good results. ABB Financial Services incurred no major credit losses in 1991.

Operating earnings after depreciation were \$ 148 million, a decrease of 15 percent from 1990. However, if the gains from sales of real estate in 1990 are excluded, the earnings actually increased by 11 percent. The Treasury Centers business area had a very good year and improved its earnings. The volatile interest rate markets created good risk trading opportunities, which were successfully exploited. The major portion of the profit was generated in Treasury Center Sweden and in the World Treasury Center based in Zurich, Switzerland. The Leasing & Financing business area reported stable earnings and an unchanged leasing portfolio. The Insurance business area showed deteriorating earnings compared to 1990, when some gains from divestment of real estate were included. The insurance result was very weak, but in line with industry averages. The investment income improved and the return exceeded market benchmarks. The direct insurance operations in Sirius Industry & Marine were divested during 1991. The Stockbrokerage & Investment Management business area showed slightly deteriorating earnings. At year-end, the investment management companies were managing \$ 1.75 billion in funds, both ABB and external, and outperformed relevant market averages by two percentage points. ABB Aros Securities was affected by the lower activity in the equity market but managed to increase its market share on the Stockholm Stock Exchange to seven percent. The restructuring program of the trading and trade finance business was completed in 1991. The trading operations were closed down and the remaining countertrade activities integrated into the Project & Trade Finance business area.

During 1991 the Financial Services segment continued to achieve synergies with the industrial operations of ABB. Sales support was provided by Leasing & Financing and by Project & Trade Finance, which arranged financing for ABB projects worth \$ 2.0 billion. Lending by Treasury Centers to ABB companies reached \$ 8.0 billion and the cash management services

continued to generate good savings for ABB companies.

The consolidated Financial Services balance sheet amounted to \$ 13 billion. The assets are primarily lending to ABB companies, investment in leases, and investments by the insurance operations. At the end of 1991, financial assets and liabilities between Financial Services and ABB's industrial operations exceeded \$ 13 billion.

Earnings are expected to remain at about the same level in 1992.

Business Areas in the Financial Services Segment
(US\$ in millions)

Operating Earnings after Depreciation	1991	1990
Treasury Centers	91	75
Leasing & Financing	12	13
Insurance	34	76
Project & Trade Finance	8	1
Stockbrokerage & Investment Management	3	10
Total	148	175

Various Activities

The *Power Lines and General Contracting* business area's operations focus on the manufacture and construction of power transmission lines, engineering and construction support for ABB's power business in the developing world, and engineering and construction work for industrial and infrastructure development. Important markets like Australia, Brazil, and India weakened while activity revived on the Arabian Peninsula. ABB Energiebau Dresden in Germany contributed to the good development in that country. Orders received were lower, despite several large contracts such as an \$ 85 million power line order from Indonesia. Operating earnings showed a strong increase as a result of better execution and control of projects. The strategic focus on synergies with other ABB core businesses in Power Plants, Power Transmission, and Transportation is producing positive results.

Demand in the *Installation Material* business area was strong in Southeast Asia, the Netherlands, Austria, and Germany, where increasing business in the new states allowed considerable growth. In most other European countries demand was down. Productivity increases led to significant growth in earnings. Several task forces have been established to spur product innovation and to secure expansion into new large markets such as China, India, and the Middle East.

Further growth in volume and earnings is expected for 1992.

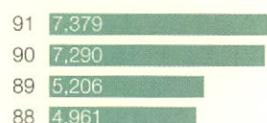
The *Service* business area showed a good increase in orders received, even though the impact of the recession was felt in some places, for example in the Nordic countries. The worldwide business trend for this Business Area is very good because of a growing demand for subcontracting of planned and preventive maintenance. Operating earnings decreased somewhat in 1991. The capacity adjustments undertaken in 1991 should lead to improved earnings in 1992, despite a continued sluggish economic environment.

The *Motors* business area maintained its market position in Europe, where it sells 90 percent of its products. These markets have experienced recessionary conditions, particularly in Sweden and Finland. Manufacturers of pulp and paper, textile machinery, and fans have cut expenditure. Overall, there has been pressure on prices, even though there are now fewer low-price exports from Eastern Europe. Earnings were lower in 1991 compared to the previous year. The number of employees was cut by 12 percent and further reductions will be undertaken in certain countries in 1992. Profits are expected to recover somewhat in 1992 after the extensive cost cutting measures introduced in 1991.

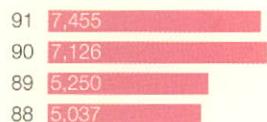
Major Business Areas in the Various Activities Segment (US\$ in millions)

Orders Received	1991	1990
Power Lines and General Contracting	1,418	1,518
Installation Material	1,170	1,018
Service	700	650
Motors	331	371
Robotics	326	336
Superchargers	262	259
Telecommunications	245	135
District Heating	197	170
Communication and Information Systems	170	172
Integrated Circuits	43	50
Other Activities Sweden	916	1,052
Other Activities Germany	171	174
Other Activities Switzerland	161	133
Miscellaneous	1,269	1,252
Total	7,379	7,290

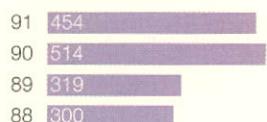
Orders Received (US\$ in millions)



Revenues (US\$ in millions)



Operating Earnings (US\$ in millions)



Number of Employees



The market for industrial robots was flat in Europe and declined somewhat in North America, reflecting delayed investment decisions, whereas Asian markets remained strong. ABB *Robotics* kept total volumes unchanged. Falling prices have been met by continued cost reductions, for instance by halving the assembly times for new or redesigned robot types, while new product launches have improved ABB's market position. GRACO Robotics Inc. was acquired, a leading supplier of robot-based paint finishing systems in North America and Asia. ABB Robotics increased its market share considerably in the United States. Very satisfactory earnings were achieved for the fourth consecutive year. ABB Robotics continues to play a leading role in the growing market of industrial robots.

The *Superchargers* business area maintained its leading position as a supplier of turbochargers for medium and large diesel engines. The lower end of the product line has been extended with the release of a new turbocharger. The growth in demand for shipping and for stationary diesel

engines remained high. Orders received reached last year's figure. Efficiency improvements, a strong service network, and favorable market conditions led to another year of satisfactory earnings.

Deregulation of the European telecommunication monopolies is creating new opportunities within the transmission and satellite equipment markets. During 1991, the *Telecommunications* business area strengthened its position as the world leader of marine telecommunications based on satellite communication products. Two large orders for radio link systems were received from Botswana and Iran. Operating earnings were maintained.

The *District Heating* business area is a world leader in the supply of complete preinsulated pipes systems for district heating, and for cooling of houses, offices, and factories. Demand in some European markets such as Sweden has been weak, but in Central and Eastern Europe, where district heating is widely used and in need of enhancements, a large market opened up in 1991. Both orders and earnings developed favourably.

The *Communication and Information Systems* business area is a leading manufacturer of high-power broadcasting transmitters, antenna systems, and associated high-power electron tubes. ABB's interests in computer and medical businesses were divested. There was strong growth in the demand for fiber-optic systems for power system communications.

The *Integrated Circuits* business area consists of ABB Hafo, the Swedish-based leading supplier of custom-made circuits. A new silicon wafer facility for integrated circuits was inaugurated outside Stockholm, and several design centers were opened in major European countries. Orders received and earnings were negatively affected by the recession.

The main activity within the *Other Activities Sweden* business area is ABB Asea Skandia, the largest electrical wholesaler in the Nordic region. Other businesses include a manufacturer of advanced materials and electrical insulation, and a development company with advanced powder metallurgy technologies. The recession in Sweden and neighboring countries has significantly affected results. There are no signs of an upturn in market conditions in 1992. Productivity improvements should allow for some earnings recovery.

The *Other Activities Germany* business area consists of several service units and the ABB Hochenergiebatterie company, which develops and produces high energy batteries. The first commercial orders for high energy batteries for installation in buses are expected in 1992. New legislation stipulating zero-emission levels for new car registration in California is creating a new market there. ABB has a leading position in this technology with future implications for several ABB businesses.

The *Other Activities Switzerland* business area is made up of several companies selling services to other ABB companies as well as third parties, such as electronic data processing, logistics support, and production consulting businesses.

The *Miscellaneous* business area consists of businesses predominantly in real estate administration, computer and other business support, consulting, and other local activities. This Business Area also includes the world's leading manufacturer of exploration and production equipment for the oil and gas industry, Vetco Gray, in which ABB took full ownership in 1991. Vetco Gray's orders received in 1991 exceeded \$ 300 million and earnings developed well.

Consolidated and Split Income Statements

Year ended December 31 (US\$ in millions)		Total Group		Industrial Operations*		Financial Services*	
	Notes	1991	1990	1991	1990	1991	1990
Revenues	1	28,883	26,688	28,015	25,596	868	1,092
Material expenses		-11,764	-10,851	-11,546	-10,348	-218	-503
Personnel expenses		-9,482	-8,821	-9,409	-8,756	-73	-65
Other expenses	2	-4,911	-4,613	-4,498	-4,287	-410	-340
Changes in work in progress and finished goods		1	137	1	137	-	-
Depreciation of fixed assets	3	-819	-750	-800	-741	-19	-9
Operating Earnings after Depreciation		1,908	1,790	1,763	1,601	148	175
Earnings from associated/divested companies		19	47	19	47	-	-
Dividend income		13	11	13	11	-	-
Interest income		798	1,006	707	700	1,192	1,283
Interest on advances		-440	-351	-440	-351	-	-
Interest expense	4	-1,158	-1,375	-1,064	-1,071	-1,195	-1,281
Exchange differences		13	2	12	1	1	1
Earnings after Financial Items		1,153	1,130	1,010	938	146	178
Nonrecurring items	5	-105	-25	-90	-26	-15	1
Income before Taxes		1,048	1,105	920	912	131	179
Taxes	6	-415	-477	-371	-420	-45	-52
Net Income before Minority Interest		633	628	549	492	86	127
Minority interest		-24	-38	-24	-37	-	-1
Net Income		609	590	525	455	86	126

* Note 19

Consolidated and Split Balance Sheets

December 31 (US\$ in millions)		Total Group		Industrial Operations*		Financial Services*	
	Notes	1991	1990	1991	1990	1991	1990
Assets							
Current Assets							
Cash and marketable securities	7	5,211	4,975	6,696	5,448	3,579	2,989
Trade receivables		5,449	5,528	5,428	5,418	49	130
Other current receivables	8	2,584	2,181	2,183	1,858	6,762	6,129
Inventories	9	7,353	7,277	7,326	7,233	27	44
Total Current Assets		20,597	19,961	21,633	19,957	10,417	9,292
Fixed Assets							
Financing receivables	10	1,701	2,173	1,001	1,215	2,439	1,781
Shares and participations	11	556	864	508	815	48	49
Intangible assets		2,268	2,000	2,234	1,964	34	36
Construction in progress		243	188	243	188	-	-
Machinery and equipment	12	2,638	2,472	2,588	2,423	50	49
Land and buildings	12	2,751	2,589	2,739	2,586	12	3
Total Fixed Assets		10,157	10,286	9,313	9,191	2,583	1,918
Total Assets		30,754	30,247	30,946	29,148	13,000	11,210
Liabilities and Equity							
Current Liabilities							
Trade payables		3,269	3,030	3,242	2,992	49	57
Provisions		3,986	4,059	3,495	3,670	491	389
Other current liabilities	13	4,474	3,979	4,231	3,875	633	478
Short-term loans		3,665	4,373	5,401	6,002	8,371	6,697
Total Current Liabilities		15,394	15,441	16,369	16,539	9,544	7,621
Advances from Customers							
Medium- and Long-term Loans	14	2,496	2,712	3,072	1,785	2,075	2,303
Employee Share Ownership Debentures	15	360	399	360	399	-	-
Pension Liabilities		1,740	1,547	1,733	1,539	7	8
Deferred Taxes		447	496	159	235	291	261
Minority Interest		301	468	201	352	100	116
Stockholders' Equity							
Share capital		1,750	1,750				
Restricted reserves		1,171	938	**2,998	**2,893	**895	**773
Retained earnings		968	969				
Net income		609	590	525	455	86	126
Total Stockholders' Equity		4,498	4,247	3,523	3,348	981	899
Total Liabilities and Equity		30,754	30,247	30,946	29,148	13,000	11,210
Contingent Liabilities	17	1,057	917				

* Note 19

** Total of share capital, restricted reserves, and retained earnings

Consolidated and Split Statement of Changes in Financial Position

Year ended December 31 (US\$ in millions)	Total Group		Industrial Operations*		Financial Services*	
	1991	1990	1991	1990	1991	1990
Financing from Operating Activities						
Revenues	28,883	26,688	28,015	25,596	868	1,092
Material expenses	-11,764	-10,851	-11,546	-10,348	-218	-503
Personnel expenses	-9,482	-8,821	-9,409	-8,756	-73	-65
Other expenses	-4,911	-4,613	-4,498	-4,287	-410	-340
Changes in work in progress and finished goods	1	137	1	137	-	-
Financial items	-755	-660	-753	-663	-2	3
	1,972	1,880	1,810	1,679	165	187
Change in current receivables	-324	-1,602	-335	-1,926	-552	-1,118
Change in short-term loans; Financial Services	-	-	-	-	1,674	1,179
Change in current noninterest-bearing liabilities	661	2,205	431	2,445	249	-621
Change in inventories	-76	-1,503	-93	-1,533	17	30
Change in advances from customers	581	1,558	578	1,572	-	2
Net current assets from purchased and sold companies	-118	-1,024	-118	-1,024	-	-
	724	-366	463	-466	1,388	-528
Nonrecurring items after adding back capital gains	-250	-193	-235	-193	-15	-
Current taxes	-414	-388	-406	-404	-8	16
Minority interest	-24	-38	-24	-37	-	-1
	-688	-619	-665	-634	-23	15
Net Financing from Operating Activities	2,008	895	1,608	579	1,530	-326
Investments						
Change in financing receivables	472	-1,097	214	-702	-658	-767
Capital expenditure for:						
Acquisitions of shares and participations	-612	-677	-606	-676	-6	-1
Tangible fixed assets	-1,035	-961	-1,008	-935	-27	-26
Sales of shares and tangible fixed assets	886	1,562	875	1,532	11	30
Net Investments	-289	-1,173	-525	-781	-680	-764
External Financing						
New issue paid up	-	200	-	200	-	-
Change in short-term loans; Group and Industrial Operations	-708	27	-601	1,203	-	-
Change in medium- and long-term loans	-216	966	1,287	658	-228	1,014
Employee Share Ownership Debentures	-39	399	-39	399	-	-
Change in pension liabilities	193	312	194	311	-1	1
Change in minority interest	-167	-	-151	-9	-16	9
Net external financing from purchased and sold companies, net of cash acquired	-	-1,252	-	-1,252	-	-
Dividends	-213	-234	-213	-234	-	-
Transfer of funds	-	-	31	-119	-31	119
Translation differences and other	-333	503	-343	425	16	78
Net External Financing	-1,483	921	165	1,582	-260	1,221
Change in Cash and Marketable Securities	236	643	1,248	1,380	590	131

* Note 19

Principles for Consolidated Financial Statements

1 General

The Group's accounting principles comply in all material respects with International Accounting Standards.

2 Principles of Consolidation

The consolidated financial statements include ABB Asea Brown Boveri Ltd and substantially all companies in which the parent company, directly or indirectly, has more than 50% of the voting rights or over which it exerts decisive influence. Companies are included in the consolidation as from the date of acquisition. Earnings in divested companies, up to the date of sale, are included in "Earnings from associated/divested companies".

The consolidated financial statements have been prepared in accordance with the purchase method. Substantial goodwill acquisitions are capitalized and amortized over periods not exceeding 40 years. Smaller amounts are charged directly to stockholders' equity.

The equity method is used for accounting for material investments in companies where the parent company directly or indirectly, has not less than 20% and not more than 50% of the voting rights ("associated companies").

Assets, liabilities and equity as well as income and expenses of consolidated companies are reflected in their entirety in the consolidated financial statements. The shares in net income and equity attributable to minority shareholders are stated separately in the consolidated income statement and balance sheet.

Intercompany balances and transactions, including intercompany profits, are eliminated.

3 Revenues

Revenues include sales, other operating income and interest on advances. The Group has substantial advances from customers. Customer advances lead to lower gross margins than for orders without advance payments, i.e. operating earnings can be said to contain a hidden interest cost. In order to reflect this, interest is calculated on advances from customers and is included in both revenues (and also operating earnings) and interest on advances captions.

4 Revenue Recognition

Sales of products and services are recognized on the date of delivery. The sales amount is net of sales or value added taxes, returned goods and trade discounts. Income from long-term contracts is generally recognized only after profits have been realized. This is either at the end of the contract or on completion of clearly identifiable portions thereof. For Group companies in those countries where it is mandatory to use the percentage-of-completion method, this method has been applied both in the individual company and in the Group.

Provisions are made to cover all anticipated losses on loss-making contracts.

5 Foreign Currency Translation

Translation of financial statements
Financial statements of Group companies expressed in currencies other than US dollars are translated at year-end rates of exchange with respect to the balance sheet, and average rates of exchange for the year with respect to the income statement. Translation adjustments are included in stockholders' equity and have no effect on net income.

Financial statements of subsidiaries in high-inflation countries are converted into US dollars in conformity with International Accounting Standards.

Foreign currency transactions
Foreign currency receivables and payables covered by forward contracts are stated at contracted future rates. Other receivables and payables in foreign currencies are translated at year-end market rates. Advances from customers are shown at rates in force at the dates when such advances were received, since repayment is not anticipated.

6 Tangible Fixed Assets

Tangible fixed assets are stated at cost, less accumulated depreciation using the straight-line method.

The depreciation periods are:
- production tools (other than wear and tear tools which are expensed)
3 years
- machinery and equipment 5–15 years
- buildings 15–50 years

7 Research and Development

Research, development and design costs are expensed as incurred, except to the extent directly related to contracts.

8 Trading Activities in Marketable Securities by Treasury Centers

Marketable securities and other financial instruments traded on a professional basis are stated at market value, after consideration of the related financing costs.

9 Inventories

Purchased goods are stated at the lower of cost – determined on the basis of weighted average prices or by the "first-in, first-out" method – or replacement value, while manufactured goods are valued at the lower of manufacturing cost or net realizable value. Appropriate provisions are made for obsolescence.

10 Accounting for Pensions

Various arrangements for pensions and termination indemnities exist within the Group. All commitments not funded with external parties are actuarially computed and accrued in the balance sheet. Pending contributions/fundings to outside entities are recorded up to the full commitment.

11 Provisions

Provisions provide cover for identifiable warranties, penalties, loss orders, committed costs for delivered plant orders and rationalization measures, currency and country risks.

12 Taxation

All taxes estimated to be ultimately payable on reported income, capital and property are provided for. These taxes are calculated in accordance with the regulations in force in each country. Irrecoverable withholding taxes paid on dividends received are included in the tax charge for the year.

In addition, deferred taxes on income are provided for those items of income and expense which affect both the financial statements and the income tax assessment, but in different periods (timing differences). The timing differences relate mainly to accelerated depreciation on tangible fixed assets, reserves for future investments and inventory reserves as permitted by the tax laws in certain countries. In determining the tax rate, the liability method is used for short-term timing differences (normally those expected to reverse within a three-year period). For those timing differences that are expected to reverse in more than three years, a tax rate of 30 % has been used. No deferred taxes are provided for differences not expected to reverse.

The tax benefits of loss carry-forwards are recognized if the likelihood of realizing those benefits is virtually assured.

13 Orders Received and Order Backlog

Amounts stated for orders received and order backlog are expressed at the price level estimated for the date of delivery of each order.

14 Split of ABB's Financial Statements into Industrial Operations and Financial Services

The financial statements of the group are basically presented on a consolidated basis for all companies. However, Financial Services form an important part of the activities of the group. From a balance sheet point of view, this part is distinctly different from the rest of the group, the Industrial Operations. A complementary split of the financial statements with accompanying notes and ratios between the two parts will give stockholders and others substantially more information.

15 Definition of Key Ratios

a) Return on equity

Return on equity is calculated as net income as a percentage of average stockholders' equity.

b) Return on capital employed (Group and Industrial Operations)

Return on capital employed is calculated as earnings after financial items plus interest expense and exchange differences as a percentage of average capital employed. Capital employed consists of stockholders' equity, minority interest, pension liabilities, short-, medium- and long-term loans, and employee share ownership debentures.

c) Return on total assets (Financial Services only)

Return on total assets is calculated as earnings after financial items plus interest expense and exchange differences as a percentage of average total assets.

d) Debt/equity ratio (Group and Industrial Operations)

Debt/equity ratio is calculated as interest-bearing

current, medium- and long-term liabilities excluding pension liabilities and employee share ownership debentures divided by stockholders' equity plus minority interest.

e) Net debt/equity ratio (Group and Industrial Operations)

Net debt/equity ratio is calculated as interest-bearing current, medium- and long-term liabilities excluding pension liabilities and employee share ownership debentures minus cash and marketable securities divided by stockholders' equity plus minority interest.

f) Interest coverage ratio (Group and Industrial Operations)

Interest coverage ratio is calculated as earnings after financial items plus interest expense on financial liabilities divided by interest expense on financial liabilities.

16 Exchange Rates

	ISO Codes	Average 1991/US\$	Year-end 1991/US\$	Average 1990/US\$	Year-end 1990/US\$
Australian Dollar	AUD	1.28	1.32	1.28	1.29
Austrian Schilling	ATS	11.55	10.68	11.36	10.52
Canadian Dollar	CAD	1.15	1.16	1.17	1.16
Danish Krone	DKK	6.34	5.90	6.20	5.78
Deutsche Mark	DEM	1.64	1.51	1.62	1.49
Finnish Markka	FIM	4.02	4.13	3.82	3.63
French Franc	FRF	5.58	5.18	5.44	5.09
Italian Lira	ITL	1,228.50	1,146.79	1,199.05	1,127.40
Netherlands Guilder	NLG	1.85	1.71	1.82	1.69
Norwegian Krone	NOK	6.43	5.97	6.26	5.88
Pound Sterling	GBP	0.56	0.53	0.56	0.52
Swedish Kronor	SEK	6.01	5.53	5.92	5.63
Swiss Franc	CHF	1.42	1.36	1.39	1.27

Notes to the Consolidated Financial Statements (US\$ in millions)

Note 1, Revenues

Revenues include the following items

	1991	1990		1991	1990
Sales	27,338	25,469	Current taxes, income	-363	-335
Other operating income	1,105	868	Current taxes, other	-51	-53
Interest on advances	440	351	Deferred taxes	2	-76
Total	28,883	26,688	Taxes, associated companies	-3	-13

The licence income amounts to \$ 40 million (\$ 37 million)

Note 2, Other expenses

Expenses for:

	1991	1990		1991	1990
Licence fees, rents, leasing and external consultants	2,087	1,907	Cash and bank	2,173	2,145
Packing, freight, sales commission and other delivery expenses	1,029	884	Marketable securities	3,038	2,830
PTT, advertising, travel and entertainment	1,132	885	Total	5,211	4,975
Insurance premiums, repair and maintenance and other expenses	663	937	Placements totalling \$ 273 million (\$ 664 million) relating to the interest arbitrage transactions have been netted. Additionally, securities sold before year-end and subject to repurchase agreements to be executed in 1992 amount to \$ 1,753 million (\$ 353 million) and are not included above.		
Total	4,911	4,613			

Note 3, Depreciation of fixed assets

	1991	1990		1991	1990
Machinery and equipment	659	595	Non-trade receivables	1,285	1,276
Land and buildings	91	91	Prepaid expenses/accrued income	864	583
Goodwill	69	64	Advances to suppliers	404	292
Total	819	750	Advances to contractors	31	30
			Total	2,584	2,181

Note 4, Interest expense

Interest expense is made up of the following items:

	1991	1990		1991	1990
Interest on pension liabilities	133	121	Materials	1,384	1,345
Interest on financial liabilities	1,025	1,254	Work in progress	5,276	5,108
Total	1,158	1,375	Finished goods	693	824
			Total	7,353	7,277

Note 5, Nonrecurring items

	1991	1990		1991	1990
Capital gain/loss on sales of participations, land and buildings	145	168	Loans granted	1,061	1,134
Discontinued operations/restructuring expenses	-227	-181	Receivables, finance lease	640	1,039
Other nonrecurring items	-23	-12	Total	1,701	2,173
Total	-105	-25			

Financing receivables comprise loans mainly to companies in which ABB has shares and participations as well as receivables arising out of leasing activities.

Note 11, Shares and participations

Holdings in equity accounted companies (more than 20% and less than 50%)				
Company name	Book value			
Senete SA, Lisboa	50	Taxes due	1991	1990
Maritime Group AS, Kristiansand	21	Non-trade payables	534	441
ARAB Contractors for Electrical Industries SA, Cairo	19	Accrued expenses/deferred income	1,652	1,460
Taylor Instrument Company (India) Ltd, Haryana	2		2,288	2,078
Allen Bradley/Strömberg Inc., Milwaukee	2			
Others (including BREL Group Ltd, Derby)	4			
Total	98	Total	4,474	3,979

Holdings in other companies (less than 50%)

Company name	Book value
Fastighets AB Skulderbladet, Västerås	144
BBC Brown Boveri Ltd, Baden (held in trust)	74
ACE Ltd, Hamilton	30
IXYS Corporation, San José	18
Advent Futures Partnership, Delaware	10
Svenska Charterintressenter KB, Malmö	7
ASEA AB, Stockholm (held in trust)	7
Swedish Aircraft One KB, Linköping	6
Scholes Group Plc, Wilmslow	6
Norden Pac International AB, Kalmar	6
ABB ZWUS Signal Ltd, Katowice	6
Svenska Elgrossist AB SELGA, Stockholm	5
Edelson Technology Partners II, Saddle Brook	5
Vimar Srl, Marostica	4
CODA Ltd, Hamilton	4
Gatex GmbH & Co KG, Wackersdorf	4
Industrial Ceramics Inc., Derry	4
ABB Current Oy, Helsinki	4
Grundfos-Gadelius Pumps K.K., Kobe	4
Others	110
Total	458

Note 13, Other current liabilities

		1991	1990
Taxes due		534	441
Non-trade payables		1,652	1,460
Accrued expenses/deferred income		2,288	2,078
Total	4,474	3,979	

Note 12, Tangible fixed assets

	Machinery and equipment		Land and buildings		Total	
	1991	1990	1991	1990	1991	1990
Acquisition value	6,264	5,712	3,648	3,397	9,912	9,109
Accumulated financial depreciation	-3,626	-3,240	-897	-808	-4,523	-4,048
Net book value of fixed assets	2,638	2,472	2,751	2,589	5,389	5,061

Note 14, Medium- and long-term loans (in million US\$ equivalents)

Maturity	USD	CHF	SEK	DEM	ITL	FIM	Others	Total
1992	377	30	13	10	10	10	65	515
1993	303	442	7	8	22	38	71	891
1994	164	166	4	74	3	1	151	563
1995	12	74	3	2	118	0	16	225
1996	7	74	174	0	12	75	47	389
1997	3	0	1	12	1	1	13	31
1998	9	0	0	66	1	0	1	77
1999	0	107	0	0	2	3	19	131
Later	150	0	1	0	0	0	38	189
Total	1,025	893	203	172	169	128	421	3,011
Less the short-term portion								515
Medium- and long-term loans								2,496

Note 15, Employee Share Ownership Debentures

The Group's Employee Share Ownership Program, consisting of warrants and debenture loans, was launched in 1990. Under the terms of that Program, the ABB Group has received US\$ 360 million as follows:

	Original currency amount in millions	US\$
Swiss Franc	484	357
Finnish Markka	12	3
Total		360

The employees participating in the Program are entitled to acquire shares in ASEA AB and participation certificates in BBC Brown Boveri Ltd during the period from December 12, 1992 to December 11, 1995 at a price equivalent to the loan due to them. At the end of that time, those two companies will be obliged

to pay in all amounts received by them as a result of the exercise of warrants to ABB Asea Brown Boveri Ltd, plus an equalizing amount to ensure that the ownership of the parents remain on a 50-50 basis. ABB Asea Brown Boveri Ltd will increase its share capital accordingly.

Note 16, Stockholders' equity

Group	Share capital	Restricted reserves	Retained earnings	Net income	Total
Opening balance sheet	1,750	938	969	590	4,247
Transfers between reserves		366	224	-590	
Proceeds from BBC warrants and convertibles			40		40
Dividend			-213		-213
Goodwill write-off		-86			-86
Swiss tax accrual alignment			-33		-33
Translation differences, and other		-47	-19		-66
Net income 1991				609	609
Closing balance sheet	1,750	1,171	968	609	4,498

Note 17, Contingent liabilities

	1991	1990
Discounted bills of exchange	130	171
Guarantees related to financial contracts	560	201
Guarantees related to financial liabilities	146	233
Other contingent liabilities	221	312
Total	1,057	917

As part of the Group's business operations, there are in addition to the contingent liabilities listed above guarantees for the completion of various contractual undertakings. Some of these are of an on-demand nature. There is no indication that such guarantees existing at year-end for deliveries etc. will result in any payment.

Note 18, Generally Accepted Accounting Principles in the United States (US GAAP)

The most significant differences between ABB and US accounting practices are described in the following paragraphs:

Deferred taxation

ABB provides 30 percent on timing differences which are expected to reverse after more than three years. US GAAP require that the local statutory tax rate be used for deferred tax calculation.

The decrease in local tax rates in the Nordic countries increased the net income and stockholders' equity under US GAAP in 1991.

Goodwill

Substantial goodwill acquisitions are capitalized and amortized over periods not exceeding 40 years. Smaller amounts are charged directly to shareholders' equity. US GAAP does not allow charging the goodwill directly to stockholders' equity. Instead, all goodwill is capitalized and amortized over a maximum of 40 years.

Revenue recognition for long-term contracts

In most countries, revenues from long-term contracts are recognized at the completion of the contract or defined phases thereof. Under US GAAP, revenue recognition normally takes place on a percentage-of-completion basis.

Sale and lease-back (finance lease)

Under US GAAP the profit arising from a sale and lease-back transaction (finance lease) is deferred and amortized to income over the leasing period or the period of depreciation of the asset.

If US GAAP were applied, this would have the following estimated effects on net income and stockholders' equity:

US\$ in millions	1991	1990
ABB Group Income Statement Adjustment to US GAAP		
Net income as reported	609	590
Increase/decrease for:		
Deferred taxes	225	-21
Goodwill	-30	-19
Revenue recognition	-32	81
Sale and lease-back	-24	-115
Restructuring expenses	-127	-133
Other	-34	-103
Approximate net income, US GAAP	587	280

US\$ in millions	1991	1990
ABB Group Stockholders' Equity Adjustment to US GAAP		
Stockholders' equity as reported	4,498	4,247
Increase/decrease for:		
Deferred taxes	-283	-826
Goodwill	524	493
Revenue recognition	258	301
Sale and lease-back	-572	-536
Restructuring expenses, not yet incurred	368	495
Minority interest in adjustments	-16	5
Other	-24	-54
Approximate stockholders' equity, US GAAP	4,753	4,125

The following table shows a summary of the consolidated balance sheet according to ABB accounting principles and US GAAP:

	Balance sheet as reported according to ABB accounting principles		Estimated numbers according to US GAAP	
	1991	1990	1991	*1990
Current assets	20,597	19,961	19,470	18,596
Tangible fixed assets	5,389	5,061	5,634	5,480
Shares and participations	556	864	556	864
Other assets	4,212	4,361	4,736	4,666
Total	30,754	30,247	30,396	29,606
Current liabilities	15,394	15,441	17,077	16,017
Advances from customers	5,518	4,937	2,005	2,152
Medium- and long-term liabilities	4,596	4,658	5,514	5,527
Deferred taxes	447	496	730	1,322
Minority interest	301	468	317	463
Stockholders' equity	4,498	4,247	4,753	4,125
Total	30,754	30,247	30,396	29,606

* Certain amounts in the 1990 balance sheet have been reclassified to conform with the 1991 presentation.

Transactions between the two parts have been eliminated only in the consolidated financial statements as follows:

Note 19, Split of ABB Financial Statements in Industrial Operations and Financial Services

Income statement	1991	1990
Other expenses	-3	14
Interest income	-1,101	-977
Interest expense	1,101	977
Deferred taxes	1	-5
Net income	-2	9

Balance sheet	1991	1990	Auditors' Report
Cash and marketable securities	5,064	3,462	We have audited the consolidated financial statements of ABB Asea Brown Boveri Ltd and subsidiaries as of and for the year ended December 31, 1991 set out on pages 49 to 58 in accordance with International Accounting Standards as explained and interpreted in the Principles for Consolidated Financial Statements included in this report.
Trade receivables	28	20	
Other current receivables	6,361	5,806	
Financing receivables	1,739	823	
Total assets	13,192	10,111	
Trade payables	22	19	
Other current liabilities	390	374	
Short-term loans	10,107	8,326	
Advances from customers	13	16	In our opinion, the consolidated financial statements set out on pages 49 to 58 present fairly the consolidated financial position of ABB Asea Brown Boveri Ltd and subsidiaries as of
Medium- and long-term loans	2,651	1,376	
Deferred taxes	3	-	
Stockholders' equity	6	-	
Total liabilities	13,192	10,111	

December 31, 1991 and the results of their operations and the changes in their financial position for the year then ended in accordance with International Accounting Standards as explained and interpreted in the Principles for Consolidated Financial Statements included in this report.

Zurich, March 18, 1992

KPMG Klynveld Peat Marwick Goerdeler SA

B.A. Mathers
H.N. Matthews

Board of Directors

Fritz Leutwiler (born 1924)	Co-Chairman
will retire on March 18, 1992	
Switzerland	
Curt Nicolin (born 1921)	Co-Chairman
until March 21, 1991	
Sweden	
Peter Wallenberg (born 1926)	Co-Chairman
Co-Chairman since March 21, 1991	
Sweden	
Bernd H. Müller-Berghoff (born 1930)	
Federal Republic of Germany	
Björn Svedberg (born 1937)	
appointed as of March 21, 1991	
Sweden	
Stephan Schmidheiny (born 1947)	
Switzerland	
Donald H. Rumsfeld (born 1932)	
United States of America	
Gaston Thorn (born 1928)	
Luxembourg	
Heinrich Weiss (born 1942)	
Federal Republic of Germany	
The Chief Executive Officer and Deputy Chief Executive Officer of ABB Asea Brown Boveri	
participate in Board meetings, but have no voting rights.	
David de Pury (born 1943)	Co-Chairman
designated as of March 18, 1992	
Switzerland	

Auditors

KPMG Klynveld Peat Marwick Goerdeler SA
Zurich, Switzerland

Group Executive Management (as per April 1, 1992)

Percy Barnevik (born 1941)

President and Chief Executive Officer

Business Segment Financial Services

Thomas Gasser (born 1933)

Deputy Chief Executive Officer

Corporate Staffs Audit, Corporate Control, Corporate
Development, Corporate Finance,
Export Control, Insurance and Risk
Management, Investor Relations,
Legal Affairs, Management
Resources, Real Estate, Taxes and
Customs

Adri Baan (born 1942)

Executive Vice President

Business Segment Transportation

Arne Bennborn (born 1932)

Executive Vice President

Worldwide Responsibility Large Composite Plants
Business Regions Latin America, Arabian Region,
Subsahara Africa, West and
South Asia

Sune Carlsson (born 1941)

Executive Vice President

Business Segment Power Distribution
Specific Business Areas Motors, Oil and Gas, Robotics,
Telecommunication
Business Regions Norway, Great Britain, Ireland,
France, Benelux Countries

Eberhard von Koerber (born 1938)

Executive Vice President

Corporate Staffs Corporate Communications
Specific Business Areas Installation Material, Power Lines,
General Contracting, Other Activities
Germany
Business Regions Germany, Italy, Austria, Hungary,
Poland, Greece, other East
European Countries

Göran Lindahl (born 1945)

Executive Vice President

Business Segment Power Transmission

Specific Business Area Energy Ventures

Business Regions Australia/New Zealand, China/
Hong Kong, Japan, Korea, Taiwan,
Southeast Asia**Craig Tedmon** (born 1939)

Executive Vice President

Corporate Staffs Research and Development,

Technology, Quality Assurance

Specific Business Areas Integrated Circuits, Semiconductors

Göran Lundberg (born 1940)

Executive Vice President

Business Segment Power Plants

Gerhard Schulmeyer (born 1938)

Executive Vice President

Corporate Staff Purchasing

Business Segment Industry

Specific Business Area Other Activities USA

Business Region USA, Canada

Edwin Somm (born 1933)

Executive Vice President

Specific Business Areas Superchargers, Communication
and Information Systems, Other
Activities Switzerland

Business Region Switzerland

Björn Stigson (born 1946)

Executive Vice President

Business Segment Environmental Control

Bert-Olof Svanholm (born 1935)

Executive Vice President

Specific Business Areas District Heating, Service,
Electrical Wholesaling, Other
Activities SwedenBusiness Regions Sweden, Finland, Denmark, Iceland,
Spain, Portugal, Baltic States

Management (as per April 1, 1992)

Corporate Staffs		
Audit	Renato Fassbind	
Corporate Control	Jean-Pierre Dürig	
	Tomas Ericsson	
Corporate Communications	Volker Leichsering	
Corporate Development	Bengt Skantze	
Corporate Finance	Bernard Fried	
Insurance and		
Risk Management	Paul York	
Investor Relations	Jan Hedman	
Legal Affairs	Beat Hess	
Management Resources	Arne Olsson	
Purchasing and		
Export Control	Roland Ancersson	
Quality Assurance	Werner Eisl	
Real Estate	Walter Stücklin	
Research & Development		
– in Finland	Matti Karttunen	
– in Germany	Adolf Josef Schwab	
– in Italy	Anton Kaiser	
– in Norway	Markus Bayegan	
– in Sweden	Jan Martinsson	
– in Switzerland	Maurice Campagna	
Taxes and Customs	Alfred Storck	
Technology	Klaus Ragaller	
Business Area Managers		
Power Plants		
Fossil Combustion		
Systems & Services	Frank Fagan	
Gas Turbine Power Plants	Fritz Gautschi	
Hydro Power Plants	Gorm Gundersen	
Power Generation Industry	Lars Vågman	
Nuclear Power Plants	Lennart Fogelström	
Power Plant Control	Heinrich Zimmermann	
Power Plant Production	Howard Pierce	
Pressurized Fluidized Bed		
Combustion	Hans Malm	
Utility Steam Power Plants	Alfred Hohn	
All Power Plant Business Areas		
– in Germany	Manfred Simon	
– in Sweden	Lennart Fogelström	
– in Switzerland		
– in the U.S.		
Power Transmission		
Cables	Lars Erik Wirsén	
Distribution Transformers	Olaf Mehus	
Electric Metering	Anthony McGrath	
High-Voltage Switchgear	Kurt Håkansson	
Network Control and Protection	Ulf Gundemark	
Power Systems	Anders Narvinger	
Power Transformers	Sune Karlsson	
All Power Transmission Business Areas*		
– in Germany	Sune Karlsson	
– in Sweden	Anders Narvinger	
– in Switzerland	Willy Roos	
– in the U.S.	Joseph Carey	
Power Distribution		
Distribution Plants	Bo Svensson	
Installation	Tom Sjökvist	
Low-Voltage Apparatus	Tom Sjökvist	
Low-Voltage Systems	Tom Sjökvist	
Medium-Voltage Equipment	Rolf Schaumann	
All Power Distribution Business Areas*		
– in Germany	Tom Sjökvist	
– in Switzerland	Nicolaas Hellinga	
Industry		
Drives	Thorolf Damén	
Instrumentation	John Notley	
Metallurgy	Holger Schubert	
Process Automation	Jörgen Centerman	
Process Engineering	Stephen Solomon	
All Industry Business Areas*		
– in Germany	Klaus von Hörde	
– Sweden	Lars-Erik Lindbäck	
– in Switzerland	Alois Sonnenmoser	
– in the U.S.	Jan Lindelöw	
Transportation		
Fixed Railway Installations	Ruben Ornstein	
Main Line Rolling Stock	Anders Larsson	
Mass Transit Vehicles	Peter Albexon	
Signalling	Reidar Kuvaas	
Transportation Customer Support	not named	

* list limited to the four largest countries

Environmental Control		Regional and Country Managers	
Air Pollution Control	Jerry Leitman		
Building Service	Anders Berg		
Cooling	Einar Norelius		
Environmental Components	Bo Malmgren		
Indoor Climate	Hans Johansson		
Industrial Drying	Robert Melville		
Industrial Environmental Services	Jan Stellan Strömbлад		
Paint Finishing Systems	John Camardella		
Resource Recovery	Amedeo Vaccani		
Financial Services			
Segment head	Jan Roxendal		
Insurance	Peggy Bruzelius		
Leasing & Financing	Johan Löwenhielm		
Project & Trade Finance	Gunnar Johannesson		
Stock Brokerage &			
Investment Management	Richard Montgomery		
Treasury Centers			
- in Northern Europe	Peter Carlsson		
- in Western Europe	Peter Warmerdam		
- in North America	Stephan Carlquist		
Various Activities			
Communication and			
Information Systems	Wilhelm Tschol		
District Heating	Søren Vinther		
Electrical Wholesaling	Hans Andersson		
Energy Ventures	Peter Giller		
General Contracting	Luigi Ruggieri		
Integrated Circuits	Christer Ovrén		
Installation Material	Georg Demling		
Motors	Birger Titusson		
Power Lines	Luigi Ruggieri		
Oil and Gas	Kjell Almskog		
Robotics	Stelio Demark		
Semiconductors	Anders Nilarp		
Service	Karl-Erik Ridderstråle		
Superchargers	Heinrich Uehlinger		
Telecommunications	Asbjörn Birkeland		
Europe			
Austria	Klaus Woltron		
Belgium	Hubert van Vreckem		
Denmark	Kaare Vagner		
Finland	Matti Ilmari		
France	Gilles Breguet		
Federal Republic of Germany	Eberhard von Koerber		
Great Britain	Eric Drewery		
Hungary	Lars Fabritius		
Italy	Umberto Di Capua		
Netherlands	Hendrik Kok		
Norway	Kjell Almskog		
Poland	David Hunter		
Portugal	Hans Henning Hjort		
Spain	Xabier de Irala		
Sweden	Bert-Olof Svanholm		
Switzerland	Edwin Somm		
Other East European Countries	Martin Thomann		
North America			
Canada	Peter Janson		
USA	Gerhard Schulmeyer		
Latin America			
Brazil	Bo-Göran Persson		
Mexico	Luiz Bring		
Venezuela	Björn Kollberg		
Arabian Region			
Egypt	Aref Hakki		
Saudi Arabia	Lave Lindberg		
Subsahara Africa			
India	Narsim Shenoy		
Turkey	Anders Ericsson		
Asia Pacific			
Australia/New Zealand	Tommie Bergman		
China/Hong Kong	Henk van der Tak		
Japan	Alexis Fries*		
Korea	Allan Sullivan		
Taiwan	Bengt Andersson		
Southeast Asia	Gösta Björkenstam		

* as per May 1, 1992

ABB Asea Brown Boveri Ltd, Zurich

The following two pages are excerpts from the annual report of ABB Asea Brown Boveri Ltd, the holding company of the ABB Group. Corporate Staff Investor Relations will supply the full report on request.

Balance Sheet (Swiss Francs in thousands)

		1991	1990
Assets			
Current Assets			
Cash and marketable securities			
	11,352	9,247	
Receivables	81,978	352,686	
Total Current Assets	93,330	361,933	
Fixed Assets			
Loans granted	197,870	166,879	
Shares and participations	6,362,858	5,807,267	
Machinery and equipment	16,900	17,400	
Total Fixed Assets	6,577,628	5,991,546	
Total Assets	6,670,958	6,353,479	
Liabilities and Equity			
Liabilities			
Payables and short-term loans	1,162,169	1,253,238	
Provisions	24,636	22,663	
Medium- and long-term loans	830,318	632,312	
Bonds	125,000	125,000	
Total Liabilities	2,142,123	2,033,213	
Stockholders' Equity			
Share capital	2,380,000	2,380,000	
Legal reserve	476,000	476,000	
Other reserves	1,052,235	997,737	
Retained earnings	158,634	96,220	
Net income	461,966	370,309	
Total Stockholders' Equity	4,528,835	4,320,266	
Total Liabilities and Equity	6,670,958	6,353,479	
Contingent Liabilities	2,322,611	2,442,279	

Income Statement (Swiss Francs in thousands)

Year ended December 31	1991	1990
Revenues	20,744	17,139
Operating expenses incl. depreciation	-112,493	- 111,467
Dividend income	677,393	532,460
Interest income	12,830	13,443
Interest expense	-164,933	- 124,741
Net profit from sale of participations	93,641	84,900
Nonrecurring items, taxes	-65,216	- 41,425
Net Income	461,966	370,309

Proposed Appropriations of Profit (Swiss Francs in thousands)

	1991	1990
Net Income for the year	461,966	370,309
Carried forward from previous year	158,634	96,220
	620,600	466,529
Dividend on class A shares in favor of ASEA AB	*- 173,684	**- 157,895
Dividend on class B shares in favor of BBC Brown Boveri Ltd	-165,000	- 150,000
Net Income carried forward to New Account	281,916	158,634

* equals net Swiss Francs 165 million after withholding tax

** equals net Swiss Francs 150 million after withholding tax

Auditors' Report to the Shareholders

As auditors of your company we have examined the financial statements for the year ended December 31, 1991, in accordance with the provisions of Swiss law.

We have come to the conclusion that

- the balance sheet and income statement are in agreement with the books
- the books of account have been properly kept
- the financial position and the results of operations are presented in accordance with the principles of evaluation

prescribed by Swiss law and the requirements of the Company's statutes. Based on the results of our examination we recommend that the financial statements submitted to you be approved.

We further confirm that the proposal of the Board of Directors for the appropriation of the net income is in agreement with Swiss law and the Company's statutes.

Zurich, March 18, 1992

KPMG Klynveld Peat Marwick Goerdeler SA

B.A. Mathers
H.N. Matthews

¹ Based on year-end data. Due to the division of ASEA its 1990 data are not comparable to 1991.

Number of shares fully diluted (1991: 91,165,156) does not include 2,794,625 B unrestricted shares reserved for the ABB Employee Share Ownership Program.

² The Board of Directors will propose to the annual general meeting to amend the articles of association which will result in all ASEA-shares becoming unrestricted.

³ In addition, ASEA B unrestricted shares are traded on the «Freiverkehr» (OTC) in Munich. On the NASDAQ in the U.S. they are traded as level-one sponsored American Depository Receipts (ADR).

Per-share Data (in Swedish Krona, fully diluted) ¹	A restr. Shares ²	A unrestr. Shares	B unrestr. Shares	
	1991	1990	1991	1990
Net income	22.00	30.90	22.00	30.90
Dividend (1991 proposed)	7.00	13.00	7.00	13.00
Equity	136	235	136	235
Stockprice: – High	685	850	680	850
– Low	274	455	270	480
– Year-end	290	485	282	480
Par value	50	50	50	50
Vote per share	1	1	1	1/10
Key ratios ¹				
Return on equity (%)	17.8	14.3	17.8	14.3
Direct yield (%)	2.47	2.68	2.47	2.68
Market-to-book (%)	208	204	208	204
Price/earnings	12.9	16.6	12.9	16.6
Number of shares outstanding ¹	65,684,886	48,979,947	1,134,871	1,134,871
Number of shares fully diluted ¹	65,684,886	48,979,947	1,134,871	1,134,871
% of total capital stock ¹	72.0	71.6	1.3	1.7
% of voting rights ¹	94.9	94.3	1.6	2.2
Stock exchanges listing ³		Stockholm	Stockholm, London	Stockholm, London, Copenhagen, Helsinki, NASDAQ (ADR)

ASEA has no restriction as to share ownership for its unrestricted A and B shares. Restricted A shares may only be owned by Swedish citizens.

The ASEA portion of the ABB Employee Share Ownership Program could result in the conversion of 1,901,106 warrants into 2,794,625 ASEA B unrestricted shares between Dec. 11, 1992 and Dec. 18, 1995. On July 18, 1991 ASEA spun off its industrial operations and share portfolio not representing the ABB stake into a new, publicly listed company called Incentive AB.

At the end of 1990, ASEA's market capitalization, fully diluted, was approximately SKr. 25.8 billion (\$ 4.7 billion), making ASEA the third largest company in Sweden in terms of market capitalization.

Outstanding as of December 31, 1991

Exercise

Type of issue

Equity increase upon exercise

Upon exercise 2,794,625 B unrestr.

Dec. 12, 92 – Dec. 11, 95
SKr. 507.9 per
B unrestricted share

Warrants

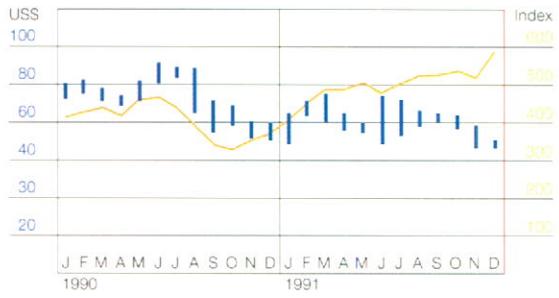
SKr. 1,419 m

Price Trend for ASEA B Unrestricted Shares, Stockholm (adjusted for the split)



Bars indicate highest and lowest prices paid for shares each month (in Swedish Krona). — Swedish General Index

Price Trend for ASEA ADRs in the United States (adjusted for the split)



Bars indicate highest and lowest prices paid for ADRs each month (in U.S. Dollars). — NASDAQ Composite Index

B R O W N B O V E R I

Per-share Data (in Swiss Francs, fully diluted) ¹	Bearer Shares		Registered Shares		Part. Certificates	
	1991	1990	1991	1990	1991	1990
Net income	250.70	238.80	50.14	47.76	50.14	47.76
Dividend (1991 proposed)	86.00	79.10	17.20	15.82	17.20	15.82
Equity	1,855	1,609	371	322	371	322
Stockprice: – High	4,985	6,260	990	1,404	925	1,187
– Low	3,120	3,709	600	742	545	664
– Year-end	3,250	3,837	609	771	582	669
Par value	500	500	100	100	100	100
Vote per share	1	1	1	1	–	–
Key ratios¹						
Return on equity (%)	14.4	14.8	14.4	14.8	14.4	14.8
Direct yield (%)	2.65	2.06	2.82	2.05	2.96	2.37
Market-to-book (%)	175	238	164	240	157	208
Price/earnings	13.0	16.1	12.2	16.1	11.6	14.0
Number of shares outstanding ¹	1,074,150	1,045,694	1,074,150	1,052,778	1,911,204	1,889,858
Number of shares fully diluted ¹	1,094,150	1,094,150	1,094,150	1,094,150	2,091,204	2,069,858
% of total capital stock ¹	63.2	63.3	12.6	12.7	24.2	24.0
% of voting rights ¹	50	50	50	50	–	–
Stock exchanges listing ²	Zurich, Basle, Geneva, Frankfurt, Vienna		Zurich, Basle, Geneva		Zurich, Basle, Geneva, Frankfurt, Vienna	

¹ Based on year-end data. Additionally, 320,020 Participation Certificates are reserved for the ABB Employee Share Ownership Program and 151,349 Participation Certificates for the bonus warrants 1991–92.

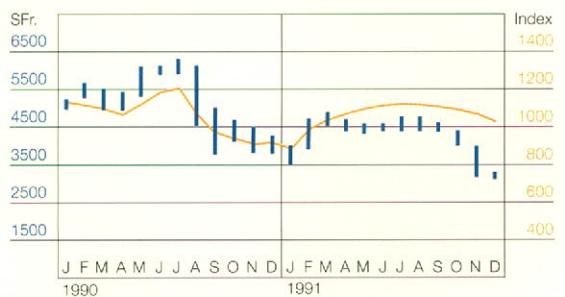
² In addition, Brown Boveri bearer shares are traded as level-one sponsored American Depository Receipts (ADR) in the U.S. and on the «Freiverkehr» (OTC) in Munich.

Brown Boveri has no restriction as to share ownership, with the exception that no single shareholder or group of shareholders can be recorded in the share register with more than 7% of the registered shares issued.

The Brown Boveri portion of the ABB Employee Share Ownership Program could result in the conversion of 316,857 warrants into 320,020 Brown Boveri Participation Certificates between Dec. 11, 1992 and Dec. 18, 1995.

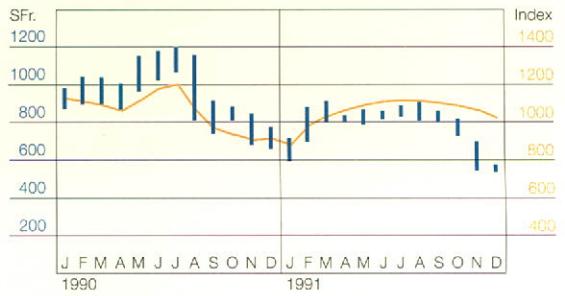
At the end of 1991, Brown Boveri's market capitalization, fully diluted, was approximately SFr. 5.4 billion (\$ 4.0 billion), making Brown Boveri the 11th largest company in Switzerland in terms of market capitalization.

Price Trend for Brown Boveri Bearer Shares, Zurich



Bars indicate highest and lowest prices paid for shares each month (in Swiss Francs).

Price Trend for Brown Boveri Participation Certificates, Zurich



Bars indicate highest and lowest prices paid for participation certificates each month (in Swiss Francs).

Outstanding as of December 31, 1991	Conversion/Exercise	Type of issue	Equity increase upon exercise
Warrants 180,000 PC	March 1, 90 – Nov. 1, 93 SFr. 861 per PC	1989 – 2000 option loan	SFr. 155 m
Convertible bonds 20,000 bearer 20,000 registered	Oct. 1, 90 – July 10, 98 SFr. 7,444 per 1 bearer plus 1 registered share	1990 – 1998 convertible loan, 4%	SFr. 149 m
Warrants 151,349 PC	July 1, 91 – Dec. 1, 92 SFr. 400 per PC	1991 – 1992 bonus warrants	SFr. 60 m

Statistical Data (US\$ in millions)

Income Statement	1991	1990	1989	1988
Revenues	28,883	26,688	20,560	17,832
Depreciation of Fixed Assets	-819	-750	-549	-514
Operating Earnings after Depreciation	1,908	1,790	1,257	854
Earnings after Financial Items	1,153	1,130	922	560
Income before Taxes	1,048	1,105	911	536
Net income before Minority Interest	633	628	628	409
Net Income	609	590	589	386
Balance Sheet				
Cash and Marketable Securities	5,211	4,975	4,332	3,496
Other Current Assets	15,386	14,986	12,081	10,872
Fixed Assets	10,157	10,286	7,743	4,597
Total Assets	30,754	30,247	24,156	18,965
Current Liabilities	15,394	15,441	13,209	9,193
Advances from Customers	5,518	4,937	3,379	3,394
Medium- and Long-Term Loans	2,496	2,712	1,746	1,541
Other Long-Term Liabilities	2,547	2,442	1,447	1,329
Stockholders' Equity inc. Minority Interest	4,799	4,715	4,375	3,508
Changes in Financial Positions				
Net Financing from Operating Activities	2,008	895	1,273	680
Net Investments	-289	-1,173	-3,965	-594
Net External Financing	-1,483	921	3,528	-1,192
Change in Cash and Marketable Securities	236	643	836	-1,106
Other Data				
Orders Received	29,621	29,281	21,640	17,822
Capital Expenditure for Tangible Fixed Assets	1,035	961	783	736
Capital Expenditure for Acquisitions	612	677	3,090	544
Expenditure for Research and Development	2,342	1,931	1,361	1,255
Dividends Declared Pertaining to Fiscal Year (\$Fr. in millions)	339	308	298	205
Number of Employees	214,399	215,154	189,493	169,459
Ratios				
Operating Earnings/Revenues	6.6%	6.7%	6.1%	4.8%
Return on Equity	13.9%	14.5%	16.8%	12.5%
Return on Capital Employed	17.1%	19.7%	17.0%	13.6%



ABB Asea Brown Boveri Ltd Phone + 41-1-317 71 11
Investor Relations Telefax + 41-1-311 98 17
P.O. Box 8131 Telex 823 979
CH-8050 Zurich
Switzerland