




Summary of the Environmental activities of Alfa Laval in each “step” of a simplified value chain.

Value Chain “Link”	A. Context Notes	B. Significant Opportunities	C. Significant Risks	D. Significant impacts	E. Boundary conditions for our environment improvement activities.	F. Projects and processes used to manage risks and impacts.	G. Key Performance (KPIs) Indicators and current targets:
 <p>1. Customer needs</p>	<p><i>“The World is seeking a number of ways to reduce emissions, produce fresh, clean water and use less energy. Over the past 125 years, Alfa Laval has offered its customers solutions that help them to generate, reuse and protect natural resources – such as energy and water –in industrial processes”</i> Lars Renström, CEO Alfa Laval – Annual report 2007.</p>	<p>More demand for new “clean tech” products due to climate change and increased focus on sustainability is a significant driver for many of Alfa Laval’s products and technologies.</p>	<p>Alfa Laval products are used in many industries to optimise the process efficiency when extracting energy or food (etc) from natural resources. If these customer industries have negative ecological or environmental impact then Alfa Laval could be “blamed” for having been complicit in this issue.</p>	<p>Alfa Laval has a global supply chain strategy which can have a significant environmental impact. (see logistics column).</p>	<p>At group level we have decided that different boundary conditions exist for our environmental work in each stage of the value chain.</p>	<p>Many projects relating to new applications of our products in respond to our customers’ need to save energy or reduce other environmental impacts. See Customer Magazine Here for examples.</p>	<p>Main target is reduction of CO₂ emissions in all Group internal processes adjusted for volume.¹</p> <p>Target is to reduce group level emissions from our own processes by 15% during the period 2007-2011 with base year 2006 adjusted for production volume. (See value chain descriptions for more details).</p> <p>¹ Excludes direct and indirect emissions from small office locations where measurement is impractical and impact is proportionally small.</p>
 <p>2. Design and Development</p>	<p>Many products are used in environmental protection applications. Please see our Customer Magazine Here for case studies.</p>	<p>Many new product developments are focussed on improved efficiency and applications that save customers natural resources and energy.</p> <p>Several developments provide solutions to negative environmental impacts of customers’ industrial processes.</p> <p>New products can have lower life cycle environmental impact than the ones they replace. (excluding customer impacts).</p>	<p>Inclusion of hazardous materials and chemicals in the product itself or in the production processes needed to produce the product.</p>	<p>No significant impacts for the R&D function itself. See Use value chain step for product information.</p>	<p>Design and Development Activities in the major product development departments.</p>	<p>Environmental Life Cycle Assessments are conducted in most Major Product Design Departments.</p>	<p>% of new products that have lower life time impact ² when compared with product being made obsolete or competing technologies. .</p> <p>² Use life phase excluded. Because, if included, so many products would show a net positive impact this value would not then help to drive improvements in the other stages of the life cycle.</p>
 <p>3. Suppliers</p>	<p>Alfa Laval’s supply strategy is to retain the production of components or products that contain our unique technological competence (either product, materials or production process) and outsource non key components.</p> <p>Alfa Laval has a global supply chain for raw materials and components.</p>	<p>We can influence and educate suppliers to have Environment Management systems to reduce their own negative environmental impacts including Greenhouse Gas (GHG) emissions.</p>	<p>Movement of supply chain to Asia drives scope 1 and 2 emissions in the production phase of the value chain because (compared to Scandinavia) more energy is produced from coal fired power stations.</p>	<p>The majority of material purchased by weight is metal – mainly stainless steel, carbon steel, plus titanium. Mining of ores and processing have significant environmental impacts..</p>	<p>Suppliers who, combined, represent 80% purchased value of Alfa Laval products.</p>	<p>New Supplier environmental survey initiated in 2009.</p>	<p>% of suppliers with an environmental management system (EMS). % suppliers with GHG reduction targets. .</p>

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<p>4.</p> <p>Manufacture.</p>	<p>The manufacturing processes are mainly metal pressing, forming cutting, turning and milling which are not energy, water or chemical intensive.</p>	<p>Reduction of energy consumption and use of restricted and prohibited chemicals.</p>	<p>Use of restricted and prohibited chemicals with resultant health and safe disposal issues.</p> <p>Some of sites may have been manufacturing sites for several decades. Gradual soil contamination from small spills of oils and other chemicals over many years or from preceding processes.</p>	<p>Main impact is GHG emissions from consumption of electricity. Production processes are not energy or water intensive. No other obvious significant impacts.</p>	<p>All production sites.</p>	<p>Alfa Laval production sites representing over 95% (as at end 2009) of production volume are certified according to ISO14001.</p> <p>Many projects to reduce energy consumption and use of hazardous chemicals.</p>	<p>Tonnes CO2 per million direct labour hours. -Reduction 3% per year on average 2007-2011 base year 2006. ³</p> <p>Tonnes CO2 per tonne shipped goods. - Reduction 3% per year on average 2007-2011 base year 2006. ³</p> <p>Volume of black & grey chemicals. Eliminate use of prohibited chemicals within 3 years of its identification.</p> <p>³ Excludes acquisitions until they are incorporated in the reporting tool – max 3 years after acquisition.</p>
<p>5.</p> <p>Logistics and Distribution.</p>	<p>Alfa Laval distributes products worldwide. It has centralised warehousing in a few key locations.</p> <p>All transportation (trucks etc) are subcontracted.</p>	<p>Reduction of GHG emissions by reducing amount of air freight.</p>	<p>Alfa Laval freight volume is not a significant proportion of the volume carried by the freight carriers.</p> <p>The goods are predominantly made of steel and so do not represent a significant environmental hazard if involved in an accident during shipping.</p>	<p>GHG emissions, Air pollution due to emissions from combustion of oil based fuel particularly in air freight</p>	<p>All goods transportation purchased directly by Alfa Laval.</p> <p>Normally, this is transportation between different Alfa Laval plants during manufacture and assembly, to distribution centres and to end customers.</p>	<p>Continuous analysis of all significant transportation transactions to reduce use of airfreight.</p>	<p>Average tonnes CO2-e per tonkm of shipped goods. ⁴ Reduction 3% per year on average 2007- 2011 base year 2006.</p> <p>⁴ The measurements includes transports purchased via Alfa Laval but excludes the local /local transports due to low impact and they are for the time being impossible to follow up</p>
<p>6.</p> <p>Sales and Marketing</p>	<p>Alfa Laval's products are sold in over 100 countries using multiple sales channels. These include own sales and service engineers, distributors, agents and engineering contractors.</p>	<p>Increase the use of environmental facts in sales discussions to better show the advantages of Alfa Laval products versus competitors in environmental “pay-back” terms as well as financial and other process advantages.</p>	<p>Products could be used by customers who act negligently in relation to the environment.</p>	<p>GreenHouse Gas (GHG) emissions from sales employee's transportation and offices.</p>	<p>Own employed sales and support organisation. Other sales channels such as distributors, agents etc. are omitted.</p>	<p>Reduction of GHG impacts by changing company leased cars to more fuel efficient models.</p> <p>Encourage telephone conferencing and netmeetings instead of physical meetings. Encourage rail transportation instead of air transport for internal business trips.</p>	<p>CO₂-e g/km of company car fleet.</p> <p>Reduction by minimum 3% per year.</p>

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<p>7.</p> <p>Use Phase</p>	<p>Alfa Laval provides products and services to many different industries. Many uses are to save energy or for environmental protection. See Customer Magazine Here for examples.</p>	<p>Many: For example Alfa Laval , compact heat exchangers are estimated to be saving over 10 million tons CO₂-e compared to the dominant “normal” heat transfer technology in oil refineries. There is a significant opportunity to increase market share in this application at the time that oil refineries upgrade or refit their plants.</p>	<p>Alfa Laval products are used in many industries to optimise the process efficiency when extracting energy or food (etc) from natural resources. If these customer industries have negative ecological or environmental impact then Alfa Laval could be “blamed” for having been complicit in this issue.</p>	<p>For heat exchangers there is no direct impact during use. For other products most impact result from Energy to drive the product as well as cleaning chemicals and water used in cleaning-in-place processes.</p>	<p>All major product families.</p>	<p>See design and development step of the value chain.</p> <p>Encourage good preventative maintenance programmes to maintain efficiency.</p>	<p>See design and development step of the value chain.</p>
<p>8.</p> <p>After Sales, upgrading and service.</p>	<p>Alfa Laval offers service through a global network of service technicians and repair workshops.</p> <p>The installed base of Alfa Laval equipment is constantly growing because the life expectancy of the products is long.</p>	<p>Good after sales support increases the efficiency of customers’ processes thus reducing energy consumption with less waste of process product. This also increases the life time of the product.</p>	<p>Water pollution from uncontrolled disposal of cleaning chemicals and pollutants/metals.</p> <p>Use of prohibited and restricted chemicals in repair workshops.</p>	<p>Water, acid and alkali consumption with consequent impacts in production and disposal.</p>	<p>All service and repair workshops. Employee business travel (of which many are in service functions)</p>	<p>All service workshops to achieve Alfa Laval Bronze level EMS with focus on reduced use of process water, hazardous chemicals and the safe disposal of waste fluids.</p> <p>Reduction of process water through more recycling in larger workshops.</p>	<p>Tonnes CO₂ per million direct labour hours. -Reduction 3% per year on average 2007-2011 base year 2006. ^{8.1}</p> <p>Volume of black & grey chemicals. ^{8.1}</p>
<p>9</p> <p>Scrap and Recycling</p>	<p>A high percentage of products are manufactured from stainless steel and other ferrous materials which are produced from recycled steel (approx 80%).</p>	<p>Alfa Laval products have a long life expectancy normally measured in decades.</p> <p>Improve recycling qualities of packaging material and improve recycling information.</p>	<p>Customers could dispose of products without adequate cleaning resulting in their process material entering the waste stream. We regard this issue as our customer’s responsibility and largely outside our sphere of influence.</p>	<p>Packaging waste from product distribution. At the end of useful life by the products are usually recycled through established scrap metal industry.</p>	<p>Recyclability in LCA (see new product design).</p>	<p>Alfa Laval’s environmental packaging specification was produced in 2007 It is now being implemented with target to cover 80% of purchased volume by 2010.</p>	<p>Increase percentage of scrap from factories that is recycled.</p> <p>Decrease scrap, rework and claims.</p> <p>80% of purchased packaging volume compliant with environment spec. by 2010.</p>

Business Principles Progress Report 2009 – Appendix 1.

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<p>10.</p> <p>Whole Alfa Laval Group.</p>	<p>Alfa Laval’s organisation is characterised by having employees spread over a wide global reach of over 50 countries on all continents. Companies vary in size with 49% companies with less than 50 employees; 70% with less than 100 employees and 90% with less than 300 employees.</p>	<p>Alfa Laval develops and sells products and solutions that contribute to energy, waste and pollution reduction in industrial and municipal processes.</p>	<p>See each “link” in the value chain.</p>	<p>GHG emissions from energy consumption are the largest impact from the internal working of the company including transportation of products.</p>	<p>We tailor the reporting according to the significance of the Alfa Laval entities. Many entities lack critical mass to build detailed competence in environmental reporting – in these we focus on legal compliance.³</p>	<p>Progress on projects can be read in the Alfa Laval Business Principles Progress reports.</p>	<p>We have been implementing a group wide EMS reporting tool for collecting detailed environmental data from all significant sites since 2006 – data can be seen in the GRI Sustainability Report.</p> <p>Companies acquired are excluded from GRI indicators for the first 3 years of ownership during the period when business processes are integrated and reporting methods adopted.</p>