First choice for advanced applications



Sustainability Report 2013/14



Statement by the CEO

Dear reader,

A global enterprise like AT&S must be able to see the big picture if it is to overcome the challenges presented by the market, and the social and physical environment in which it operates. Sustainability has always been one of our guiding principles, and it is integral to our culture at all of our sites. To us, sustainability is less about following trends than setting them. Our outstanding environmental performance has made us a benchmark in China, and our entire industry regards AT&S as a trailblazer. We believe that "people, planet and profit" can be reconciled with one another.

Making sustainability central to our vision and mission

Our new vision and mission are testimony to the seriousness of our commitment to sustainability. It is our mission to take a responsible approach to the demands of our stakeholders, the environment and financial success. Good stewardship of resources, efficient processes, and highly motivated and skilled employees are key success factors for our business. We see our company as a champion of sustainability. Our brand stands for active change leadership – always aimed at making things better. Our people are all part of our mission, and this means that they are also ambassadors for our company.

In 2013 we went still further by making sustainability a goal of our corporate strategy. This small amendment had a big impact in the real world: in organisational terms, it brought clear responsibilities, with the establishment of a new CSR function reporting directly to the CEO.

We stand for active change leadership – always with ambitious targets, such as:

- Carbon footprint: 5% annual reduction
- Freshwater use: 3% annual reduction

Innovative concepts, best practice sharing between plants, and global projects are helping us to home in on individual processes and forms of resource use, and continuously improve them. We are also focusing strongly on making AT&S a "learning organisation" by providing our people with appropriate training and development opportunities. As befits an international company, AT&S offers attractive jobs with forward looking specifications. Because of our global structure, with plants in Asia and Europe, we also attach great importance to adherence to common ethical principles. During the coming financial year we will go a step further in this direction by adopting the EICC Code of Conduct across all our operations.

Investing in our future

This first sustainability report outlines how our company is making a living reality of sustainable practices, what action has been taken in the past, and how we plan to achieve sustainable business success in future. It shows why we are convinced that sustainability is a good investment.

I hope you will find that it takes you on an interesting tour of our company.

Andreas Gerstenmayer CEO

« We all profit from sustainability »

The sustainable future of our company is predicated on a healthy, long-term and responsible financial approach. This will engender trust in the Group and put future investments on a stable footing. Customers, shareholders, investors and employees all profit in the same way.

(Karl Asamer, CFO)

« A sustainable business never loses sight of the bigger picture »

If we want to build a sustainable operation, we all need to bear in mind that every action has an impact. We must take off our blinkers, think about the effects of our actions and take responsibility for everything we do.

(Heinz Moitzi, COO)

Karl Asamer, CFO

Andreas Gerstenmayer, CEO

Heinz Moitzi, COO

Our vision and mission

Vision

First choice for advanced applications

Mission

- We set the highest quality standards in our industry
- We industralize leading edge technology
- We care about people
- We reduce our ecological footprint
- We create value

Our vision is to be the supplier of preference of high-technology interconnection solutions. It takes more than a mere ability to produce printed circuit boards to be the world's first choice. AT&S offers a vast range of printed circuit boards tailored to its customers' technical and cost specifications: double-sided plated-through; multi-layer; high density interconnection (HDI) laser-drilled; insulated metallic substrate (IMS); flexible; rigid-flex; and semi-flexible. Thanks to our global footprint, we are players in the mobile devices, automotive and aviation, industrial, medical and health care, and advanced packaging segments of the printed circuit board market. In 2013 AT&S took the next logical step towards implementing its high-tech strategy by entering the IC substrate business, through a joint venture with a leading global semiconductor manufacturer.





Our vision to be first choice calls for more than simply focusing on our core business: printed circuit board production. Our top priority is meeting customer requirements, whilst paying special attention to the health and safety, environment and quality (HSEQ) aspects of our operations. Innovation and production scale-up are crucial to our processes, and as key success drivers they also form part of our mission.

*) as of 31.03.2014

CHAMPIONING SUSTAINABILITY

We believe that every one of us can make a difference, both in small ways and in large. As an international company, we aim to fulfil our social obligations by acting as a responsible corporate citizen wherever we are. We strive for change – always aimed at making things better. All our people have a role to play in our mission, and are active ambassadors of our company. Sustainability plays a vital role in our company's commercial success. Our decision to make it a part of our corporate vision embodies a strong commitment to our stakeholders.

Our people are links between our production plants, society and the environment – and this implies a responsibility. We create value by collaborating closely with an international network of suppliers, research institutions and customers to drive the latest technological developments.

STAKEHOLDER ANALYSIS

As part of the sustainable AT&S project workshops, attended by senior executives from a wide range of departments across the organisation as well as outside consultants, were held to identify our stakeholders with regard to sustainability. The questionnaires, interviews and external research that formed the first step of the analysis pinpointed the following stakeholder groups:



EMPLOYEES

Employees have a right to an entirely safe working environment. At the same time AT&S wants its people to be ambassadors of its values, and to play an active part in fulfilling its mission.

CUSTOMERS & SUPPLIERS

We would like our customers and suppliers to help us manage our supply chain so as to minimise the burden on the environment and our immediate surroundings. This applies to the procurement and use of chemicals and other materials, and to sustainable production methods and transportation.

Our customers' and suppliers' needs and concerns are regularly raised through requests for feedback, and business review meetings and audits. This enables us to work with them to solve any problems.

INVESTORS

In our communications with investors, we set out to present sustainability as a key success factor. By reducing our consumption of energy, water and other resources, and keeping the social impact of our operations in mind, we minimise our production costs.

Sustainable business practices are also crucial to obtaining licences to operate for our production sites. And continuing to improve our sustainability performance ensures that we retain the permits that are awarded to us.

MATERIALITY ANALYSIS

With the assistance of employees from many different departments, and from all our sites, towards the end of 2011 a wide-ranging materiality analysis was performed to determine the aspects of sustainability that are central from our company's perspective. By consulting and involving Human Resources, Investor Relations, Sales, Environment, Health and Safety, Production and other departments, we obtained a comprehensive picture of the varying stakeholder aspirations concerned and other factors with a significant impact on our company's operations.



Consideration was only given to the metrics and contributions that we can really influence to leverage changes. To ensure that our sustainability management activities concentrate on issues that can directly or indirectly contribute to our business success, we narrowed the focus down to five material topics:



These are the fundamentals of our current sustainability mission. The limits to what can be achieved differ according to the issues involved. The main focus of the exercise as a whole is on the areas of operations that are within the Company's direct control. However in the interests of a holistic approach to sustainability the boundaries are extended to the supply chain where questions such as business ethics or human rights are concerned.

« Learn from the past and look to the future »

AT&S has raised awareness of the threats to our supplies of natural resources, with the aim of leaving a world fit for future generations to live in.

(Willibald Dörflinger, Deputy Chairman of the Supervisory Board)



Review

Innovation, trendsetting and continuous improvement are crucial to business success. To be ready for the future, companies need to take a self-critical look at the past – because it can yield insights that will hold the key to new policies. Although we launched the sustainable AT&S project only two years ago, we were already conscious of our responsibilities to society and the environment long before. By the mid-1990s AT&S was addressing environmental protection, and health and safety in parallel to quality. As time went by, we came to see the importance of joining up these areas of activities. Today we see HSEQ as a whole, and a single, integrated management system pulls together our responses to these issues. Independent certification bodies regularly monitor our adherence to standards, and again attested to our compliance during the 2013/14 financial year (FY).

Our good compliance track record is reflected in a long list of accolades. These include the Styrian TRIGOS award, which we received in 2011 for a project carried out in conjunction with the Laura Bassi Centre in Graz, aimed at developing bioresorbable materials for medical applications.

Our commitment to the notion of environmental management systems goes back more than 20 years.

COMMON SENSE ON SUSTAINABILITY

Over 15 years ago we laid the groundwork for an HSEO system extending along our supply chain when began requiring our suppliers to conform to our own minimum plant specifications. The way that environmentally benign manufacturing methods and building standards interact with each other shows how sustainability needs to be rooted in every aspect of operations. A company's factory premises influence the design of its production processes, and consequently their efficiency and environmental friendliness. Because of this, sustainable construction methods are a top priority when building and expanding our plants. Wherever possible, we commission local businesses to carry out the work, using locally sourced building materials.

This straightforward interpretation of the often cited "think global, act local" principle boosts regional economies and avoids unnecessary transportation. A good example was the construction of the second plant in Leoben, when glued laminated beams with very wide spans were manufactured and assembled by local firms. Such spans were still unusual at the time, and by adopting this advanced technology we were deliberately driving progress in the direction of sustainability. The insulation used at all of our production facilities is well in excess of the statutory minimum standards. For instance, when building our Shanghai factory we thought ahead and installed double-glazed windows imported from Europe. At that time double glazing was still far from being standard practice in China, and was not a legal requirement.

Such measures cost more, but in the long run they benefit us doubly, by permitting major energy savings when the production lines are operating, due to the fact that less energy is needed to heat up or cool down various components. These savings not only relieve environmental burdens, they also mean that the high initial investment pays back in the medium term.

Sustainability involves a commitment to longterm planning and proactive thinking – and a willingness to give equal weight to environmental and social, and commercial considerations. These self-imposed standards also apply to our sites in countries where the statutory requirements are less strict.

LEARNING FROM THE PAST AND LOOKING TO THE FUTURE

A strong focus on sustainability is nothing new for AT&S. We have already achieved a great deal, but there is still plenty to be done. That is what the sustainable AT&S project, completed last year, was all about. The goal was to bring our sustainability activities into unison, and develop a long-term strategy to guide them. The distribution of the first internal sustainability report to the entire AT&S workforce, across all the plants, in March 2013, marked an important milestone and a fitting conclusion to this project. The report was designed to raise employees' HSEQ awareness and engage with them on these issues so as to prepare the ground for new initiatives.

Hitting our HSEO targets depends on making them definable, measurable and revisable.

This sustainability report is intended to raise awareness by staking out definable, measurable and revisable targets, or in other words, by outlining the current situation, communicating achievements and looking ahead.



« It's all about common sense »

In the past we called it common sense, now we often call it sustainability. We all need to take responsibility, and treat natural resources and our society with care and respect if we want to secure a liveable future. We all shape the future. It's down to us to make a difference here and now.

(Tina Sumann, Group Manager Sustainability / CSR)



Sustainability: the whys and wherefores

Sustainable development, corporate social responsibility: common enough terms, but what do they actually mean, and what is their significance for a global company like AT&S? Why do we put so much emphasis on topics such as recycling, preventing climate change, and minimising our carbon footprint?

WHY SUSTAINABILITY?

Sustainability is about safeguarding everyone's future – including that of generations to come. The concept of sustainability pops up in various contexts. Although it was almost exclusively seen as a scientific matter until the mid-1990s, calls for sustainable, forward-looking behaviour are now increasingly coming from politicians, businesspeople and society at large. In 1713 in his book Sylvicultura oeconomica, Hans Carl von Carlowitz, who oversaw mining at the court of Kursachsen in Freiberg (Sachsen), proposed that only as much timber should be felled as could be replaced by planned reforestation by means of seeding and planting. In other words, Carlowitz addressed certain aspects of sustainability some three centuries ago.

THE JOURNEY IS ITS OWN REWARD

To ensure that we actually meet the objectives outlined here, we have developed a series of measures in the course of numerous internal workshops, and in consultation with representatives from across the Group. We set a major milestone in this respect in March 2013 when we published the first ever internal AT&S sustainability report. Using the dialogue initiated by that process as their starting point, a series of workshops held at each of the Group's locations in the autumn of 2013 helped to define expectations and further measures with the support of representatives from the various departments and sites. The process gathered momentum which culminated in plotting the path ahead in a roadmap taking the Group through to 2019. This first publicly available sustainability report is intended as the first step towards drawing up a set of guidelines for sustainable operations and documenting the Group's progress to date.

It also sheds light on our attitude towards sustainability and the steps we are taking to turn this buzzword into a set of values that have tangible effects on our day-to-day operations.



GETTING TO THE TRIPLE BOTTOM LINE

How far have we come over the past 300 years? Today, the most commonly used model of sustainability is the three-pillar or triple bottom line approach which combines the social, environmental and economic aspects of sustainability: people, planet and profit.

The European Commission defines CSR as "the responsibility of enterprises for their impacts on society. To fully meet their corporate social responsibility obligations, enterprises should have in place a process to integrate social, environmental, ethical, human rights and consumer concerns into their business operations and core strategy in close collaboration with their stakeholders."

AT&S follows this definition of CSR.

WHAT IS CORPORATE SOCIAL RESPONSIBILITY?

Corporate social responsibility, or CSR, involves extending a company's definition of responsible behaviour beyond business-related factors by also including social and environmental considerations. These factors, taken together with the third pillar of economic aspects, are the cornerstone of an effective sustainability strategy.

Put simply, regardless of whether we call it sustainability, corporate social responsibility or corporate citizenship, and irrespective of function or region, the idea is always the same: taking responsibility.

Our goals

Corporate social responsibility is a broad concept that can cover a host of different topics, especially in a global organisation like ours. In an effort to make the extent of this idea more tangible, understandable and measureable-both inside and outside the Group – we have used materiality analysis to specify five areas of activity which we intend to focus on. These five areas are vital to our core business, and we measure our progress in each by defining targets. This not only helps us to achieve our goals; it also enables us to constantly improve the processes that lead to those objectives – and to develop as a company.



ENERGY AND CARBON FOOTPRINT

Emissions of CO_2 and other pollutants are a key issue for all manufacturing businesses.

AT&S aims to minimise its environmental footprint by reducing the CO_2 emissions per m² printed circuit board attributable to production processes by five percent a year.

Achieving and adhering to this goal helps to significantly cut energy use and, as a result, delivers cost savings – making it an important step both from an environmental and economic point of view. It also motivates us to respond to find solutions to the challenges in our industry. We are making a conscious effort to highlight our commitment to sustainability – and encouraging others to do the same.

WATER

Water is a vital and valuable resource. AT&S requires specially treated water for its production processes, so taking steps to minimise water consumption at our production facilities as far as possible is a leading priority. Because wastewater treatment is such an energy-intensive process, the best savings can be made simply by cutting consumption at source.

Our aim is to reduce the Group's annual fresh water consumption per m² printed circuit board by three percent – another easy-to-measure target.

We also strive to promote sustainability in relation to production processes, and to encourage all of our employees to champion sustainability through their actions.







RESOURCES

As a manufacturer of high-tech interconnection solutions, AT&S uses a variety of raw materials, many of which are extremely valuable. Making efficiency gains and improving the way we use resources are not only important in operational terms, but also significantly reduce the burden on the environment. Innovative concepts, best practice sharing between plants, and global projects are helping us to home in on individual processes and forms of resource use, and continuously optimise them. It is essential that we not only focus on the individual processes in isolation, but take the stages that come into play before and after into account, as part of a holistic approach.

AT&S – A LEARNING ORGANISATION

Manufacturing technologically advanced products requires targeted investments in employee training and development. This report outlines the steps we are taking to create a learning organisation at the Group and offer long-term development opportunities for our staff. Internal training schemes are used to ensure our highly specialised staff are always one step ahead. Senior management believes strongly in cultivating a strong learning environment at the group to overcome technical and social barriers.

THINKING AHEAD, SHAPING THE FUTURE

Entrepreneurial thinking is important to us. AT&S is fortunate to have employees who bring such a high level of enthusiasm to their work. As an international company we offer an attractive working environment. To acquire and retain highly qualified staff, employers must offer an appealing place to work that values the individual, and offer something to people in the long term that goes beyond purely financial considerations. Our role in the supply chain for leading electronic products brings certain responsibilities with it. We are fully aware that our obligations towards the environment and society must also dovetail with our business and operational responsibilities. In both cases forward planning is the decisive factor. Forward planning is the key to identifying and managing overlapping interests, and creating sustainable solutions that benefit individual employees, society, the environment and the Group as a whole.

« Every little helps »

Everyone can play their part in shaping the future by managing resources effectively.

(Christian Fleck, COO - Business Unit Industrial & Automotive Solutions)





Energy and carbon footprint

The message of the 5th Intergovernmental Panel on Climate Change (IPCC) assessment report is unequivocal: "The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased." The report warns that, "Since the 1950s, many of the observed changes are unprecedented over decades to millennia." It predicts that, "Further warming and related changes in the climate system will continue if emissions of greenhouse gases continue."

« If no action is taken, it says, by 2100 global average temperatures will rise by between 3.7 and 4.8 $^{\circ}C$ – with dramatic consequences. »





CHANGING LANDSCAPES

Some landscapes are threatened with massive changes. Mountain glaciers and the Arctic sea ice will probably shrink rapidly, according to the IPCC. As the earth warms, large amounts of greenhouse gas may escape from the permafrost and swamps. There is a risk of tree death, which would be greatly exacerbated by deforestation. However this trend does not yet seem to have set in, and satellite observations show that since 1982 vegetation cover in the warmer climate zones has grown.

WATER SHORTAGES AND HARVEST LOSSES

Due to climate change, increasing numbers of people are at risk from water shortages. In particular, the inhabitants of the subtropics will have adjusted to shortages, the IPCC's models indicate. However the IPCC says that at higher latitudes, including parts of Central Europe, drinking water resources are likely to grow.

Harvest losses are more likely than gains. In the absence of efforts to adapt, many regions will face declines in yields of wheat, rice, soya and maize of up to one-fifth in the course of this century, the Panel predicts. New farming methods can make good most of these losses, but the effectiveness of adaptation is "highly variable".



OCEAN ACIDIFCATION AND RISING SEA LEVELS

Ocean acidification is a worldwide phenomenon. The reason is the greenhouse gas carbon dioxide (CO_2) . The oceans absorb some 20 million tonnes of CO_2 per day. When it dissolves in the water the gas turns into acid. Some marine organisms, such as corals and oysters, have trouble constructing their shells in acidic water, and die out as a result. The indirect effects on the oceans' function as habitats may be very serious, as microorganisms' calcareous skeletons are one of the bases of the food chain. Their disappearance would remove the food source of many larger sea dwellers.

Steadily swelling oceans would increasingly lead to flooding and erode coastlines. Building sea defences could cost some low-lying developing countries and small island states "several percentage points of GDP", the IPCC believes.

HEALTH PROBLEMS

Health problems are one of the main ways in which climate change may make itself felt up to 2050. Heat waves, fires, undernutrition and water shortages may cause increases in ill-health. At the same time fewer extremes of cold would make illnesses associated with cold spells rarer.

The IPCC report suggests that heat stress and intense rainfall will be growing problems in big cities. It says that building stock adaptation will be needed to protect the populations of some regions from expected high temperatures and periodic flash floods. If the Panel's forecasts are borne out, more energy will be required to run air-conditioning systems, but less to operate heating systems.

As a responsibly run company, we base our day-to-day business decisions on facts and figures, and physical principles. Our products are the "beating heart" of a plethora of devices used in everyday life – but important as they are, we are also capable of seeing the bigger picture.

We are therefore pressing ahead fast with development projects designed to help keep our ecological footprint as small as possible. We aim to set a good example by changing our technologies for the better. We have a long track record of working to minimise the environmental impact of our operations. We have lately implemented a raft of environmental measures, and many of our business decisions are taken with sustainability in mind.

source: www.ipcc.ch



built to last

measures

free cooling

for process water

heat recovery

from steam drainage process and waste water reduction

BUILT TO LAST

Our focus on low energy construction has already shown its worth. For example, our new Chongqing plant has been given heat insulation, which is now available in China, to cut heating and air-conditioning needs. It has an overall heat transfer coefficient of 0.58 W/m²K – almost twice as good as the official standard for new buildings (1 W/m²K), and on a par with our second factory in Leoben. Such investments in building methods that are more costly, but are also more sustainable are enabling us to steadily reduce our environmental footprint.

GETTING BETTER ALL THE TIME

While low energy buildings are a big step towards sustainability, it is also vital for manufacturing processes to use energy as efficiently as possible. Compressed air, which is needed to make printed circuit boards and is therefore essential for our company, is very expensive. Only about five percent of the power used goes to make compressed air, and the rest produces waste heat. We use this for heating purposes. Our plants employ screw compressors to generate compressed air. The heart of a compressor like this is the rotor. The air enters the rotor chamber via an inlet. It is compressed by the spinning rotors, before being injected into the compressed air network via an outlet. Use of heat recovery systems is standard practice at all of our plants. In Leoben our sustainability performance has been enhanced by installing decentralised compressed air supplies for the weekends. On weekends when production is idled there are still some critical processes under way that require uninterrupted compressed air supplies. These operations are now served during shutdowns despite the fact that the central compressed air system - which is too large for efficient weekend use - stays off. The central distribution system is automatically shut down, and the decentralised equipment switched on by the building management system. Only the amount of compressed air that is actually needed is produced, and the large piping networks that extend over the entire site do not have to kick in.

Another focus of the sustainability effort is optimisation of the airconditioning systems used to maintain specified room temperatures. Projects have been undertaken to increase the efficiency of the air conditioning systems at all our factories. For instance, the air-conditioning systems at the Shanghai plant have been adapted to modifications made to the production shops and processes. Run times, temperatures and air humidity are now adjustable, resulting in a reduction of 1.4% in overall energy consumption at the site.

getting better

all the time

Our Indian plant also took a close look at its energy use during the past financial year. Energy savings were made in Nanjangud by improving the air conditioning. Besides making adjustments to the cooling tower gearboxes, the cooling water piping circuits throughout the factory were given thermal insulation cladding. In addition, the air conditioning and indoor lighting settings were changed to conform to the specifications more exactly. Previously the air conditioning had been turned up higher and the lighting had been on longer than necessary. Also, some light bulbs were replaced by LED models. Energy saving projects implemented during the past financial year reduced energy consumption by approx. seven kilowatt hours (kWh) per square metre of printed circuit board.

Lamps have been exchanged at other sites, including Fehring. The installation of about 90 new LED tubes in Fehring is bringing annual power savings of 3,000 kWh and CO_2 emission reductions of 643 kilograms (kg). The lighting replacement programmes benefit staff comfort as well as our environmental performance. Employees find the light brighter and more pleasant.

An issue that often arises in connection with open plan offices is heavy electricity use due to lighting outside office hours. Over 12 hours' energy use per working day, and frequent lighting of unused premises on weekends add up to significant wastage. The AT&S plant in Shanghai has a control system based on time switching. This prevents unneeded light sources or air-conditioning systems from using energy outside working times. This comparatively simple step has cut power consumption at the site by about 650,000 kWh/year.



FREE COOLING

The use of "free cooling" in the cooling towers to chill process water is not always sufficiently effective. Because of this, AT&S Shanghai employs cold water from the refrigeration units to back up the supply from the cooling towers. This extends the usability of the free cooling system from about 15 to some 120 days per year, resulting in annual power savings of 1.6 million kWh.

WASTEWATER REDUCTION AND HEAT RECOVERY FROM WASTE STEAM

Savings can also be made by recovering heat from the steam drainage process, and by reducing drinking water consumption during the wastewater cooling process. Heat exchangers transfer energy from the superheated wasterwater to the steam drainage system where it is condensed into water. This allows the wastewater cooling process to do without drinking water, and saves 500,000 kW/year of energy.

Efficient technology has also brought energy savings at the Fehring location. For example, the ventilation systems employ numerous side channel blowers, and these produce a great deal of waste heat which is now being efficiently used. The warm air from each side channel blower is extracted and passed to a large collection duct, from which it is directly blown into one of the factory buildings, saving a large amount of natural gas. The system cuts energy consumption at the Fehring plant by some 79,000 kWh and CO_a emissions by 16,000 kg per year.

NEW BUILDING MANAGEMENT SYSTEMS

Building automation depends on building management systems. These operate at field, automation and management level. They serve to visualise the technical processes in a building, enabling measurement data from electronic controllers or measurement points to be processed into a form that users can understand. This has big implications for production, safety and security, and efficiency. A 12-month project completed





during the 2012/13 financial year gave the Leoben site a stateof-the-art building management system. The new centralised timing system saves energy by automatically turning off building utilities when production is halted. About 190 switches are thrown at the start of downtimes such as weekends, reducing energy consumption to one-tenth of its normal level.

NEW ENERGY MANAGEMENT SYSTEM

Thanks to the installation of electricity and water meters, the control room provides operators with clear displays of energy consumption and material flows. In 2013 this made it possible to pinpoint faults responsible for excessive process water consumption and energy guzzling utilities. Process optimisation measures and retrofitting of improved motor speed regulation systems cut power use.

NEGATIVE IMPACTS OF CO₂?

Carbon dioxide – a chemical compound of carbon and oxygen – is a natural component of the atmosphere, and one of the main greenhouse gases. If the concentration of carbon dioxide in the atmosphere climbs too sharply, this raises the latter's density, in turn causing the phenomenon known as global warming.

WHEN NUMBERS SPEAK VOLUMES

The chart compares total energy use at our factories, expressed in terms of consumption per square metre of printed circuit board (pcb) produced (including the inner layers).

TOTAL ENERGY CONSUMPTION (ELECTRICITY AND HEAT)



The marked differences between the plants are explained by the varying production technologies and product mixes, as well as climatic conditions and normal swings in capacity utilisation. For example, double-sided printed circuit boards like those made in Fehring take much less energy to produce than the high density and multilayer boards manufactured in Shanghai and Leoben. And production at the Korean plant is highly energy intensive because of the particularly complex processes involved in making flexible printed circuit boards. However, rising capacity utilisation, and a number of upgrading and optimisation projects at this site have resulted in significant improvements, as standby times have come down, and higher printed circuit board output can be achieved with identical or reduced inputs of energy.

As the title of this chapter suggests, we are concerned not just with cutting costs by boosting energy efficiency but also with minimising the environmental impact of our usage of energy. The key metric here is CO_2 emissions. The negative environmental impacts of uncontrolled CO_2 emissions on the environment are common knowledge.

COUNTRY COMPARISON

The chart gives a striking illustration of per capita CO_2 emissions by countries, over time. Apart from obvious parameters like size, other factors such as the level of technological development and the strictness of local regulation also affect relative performance.

For a company like ours, which operates at locations with widely differing environmental regulations, committing to sustainability must mean aiming not just for legal compliance but also for an acceptable long-term environmental performance, within the bounds of economic viability, in countries with lower standards.



source:

http://edgar.jrc.ec.europa.eu/overview.php?v=CO2ts_pc1990-2011&sort=asc1



USING OUR CARBON FOOTPRINT AS AN INDICATOR

To provide clear proof that we are meeting our self-imposed commitment to overfulfil emission standards, we introduced carbon dioxide emissions as an environmental performance indicator some time ago. We monitor our emissions closely, so as to chart the long-term effectiveness of the steps taken to reduce them and our energy consumption. We are continuing to take a variety of approaches to efforts to reduce carbon dioxide emissions at our sites.

For instance, a gas generator was installed at the AT&S site in Shanghai in the 2011/12 financial year – an investment that enables the plant to generate part of its electricity internally, while the resultant waste heat is also used. This form of gas-fired combined heat and power generation has reduced CO_2 emissions by about 1,400 tonnes per year. In April 2011 the generator won us the local Cogeneration Model Project award.

MEASURING OUR FOOTPRINT

Our carbon footprint is made up of two elements – production and transportation. The production component includes all the CO_2 emissions indirectly caused by electricity use as well as those directly resulting from gas combustion to generate heat. The transportation component comprises all the CO_2 emissions that arise from shipping our printed circuit boards to customers.



CO₂ EMISSIONS



The chart shows how many kilograms of carbon dioxide are emitted per square metre of finished printed circuit board.

The differences between our plants' emissions reflect both the country conversion factors for emissions related to power generation and the variations in energy use (to generate both power and heat). The plants in Shanghai, India and Korea have the highest emissions because of the generation technologies used and the heavy cooling loads due to the climate. The Austrian plants are by far the best performers because of the large share of renewable energy in the power mix. The calculations used to arrive at our production footprint are based on standards established by the Electronic Industry Citizenship Coalition (EICC). The EICC has developed country CO_2 emission conversion factors for electricity generation.

CONVERSION FACTORS ENERGY TO CO₂



Due to the fact that the power mix varies widely from country to country there are big differences in the conversion factors. About 38% of the Austrian plants' electricity comes from hydro power. The proportion of electricity generated from fossil fuels is twice as high in India. This means that the factors applied to converting kilowatt hours of electricity consumed by our operations in the two countries into kilograms of CO_2 emissions are far apart.

Our CO_2 emission indicator helps us keep a close watch on our emissions, so as to assess the long-term effectiveness of the measures taken to reduce them. We are targeting a 5% reduction in our carbon footprint every year. Our emission reduction roadmap focuses on improving our energy efficiency.

AT&S GROUP CO₂ TARGETS



BEST FOOT FORWARD

The roadmap concentrates on energy use, and on increasing efficiency in our production, incoming supply and waste disposal operations. We plan to develop indicators for processes that are heavy energy consumers, and use them to gain end-to-end visibility in these areas. We intend to watch the energy consumption of existing plant and machinery still more closely. The road map commits us to giving still higher priority to energy efficiency when procuring new production plant and equipment, and we will be expecting the same of our suppliers.

A major advance during the coming financial year will be a pilot project that will introduce an ISO50001 certified energy management system at one of our sites. The systematic approach that this approach will bring should make it easier to identify potential energy savings.

CHAMPIONS OF SUSTAINABILITY

Improving our environmental footprint is not just a matter of corporate strategy, it calls for a commitment from all the people who go to make up the business – the entire workforce. All of us can contribute to sustainability by paring back our energy consumption. There is no need for growth and efficiency to conflict with the green agenda.

To measure up to tomorrow's challenges business policies will need to focus on sustainability as well as technological progress. We will need to see our people as ambassadors of sustainability, and champion it in our dealings with the outside world. This will mean making eco-aware behaviour integral to our working and private lives. In fact, it is amazingly easy to save energy at work.

WHAT WE CAN DO:

- Repair defective insulating material on pipework to prevent heat or cooling losses
- Run plant and equipment, from car engines to production plant, household appliances and electronic devices, only when needed
- Use public transport wherever possible, or cut CO₂ emissions by forming a car pool
- Turn off unneeded air-conditioning systems, and make sure all windows are shut when using air-conditioning
- Make maximum use of daylight and only use artificial lightning when it is really necessary
- Turn off the lights and unplug all electronic and electrical devices such as laptops and chargers when leaving rooms and after ending work for the day – they still consume a large amount of power even in standby mode
- Watch out for other potential energy savings!

« Every drop counts »

Water is one of the most important resources for life and for our production processes, so everybody should aim to conserve water both at home and at work. Saving fresh water is one thing, but we are also focusing on the effective treatment of wastewater in order to minimise our environmental impact.

(Judy Liu, Manager EHS & Security Shanghai)



Water

Water is the most abundant resource on our planet. Around seventy percent of the Earth's surface is covered in water. But is it enough to satisfy our needs for the rest of time? Unfortunately it's not quite as simple as that: of all the planet's water deposits, around 97.47% is salt water. As a result only around 2.5% of the Earth's abundant water resources is accounted for by freshwater deposits, the elixir of life for humans and animals. But scarcity is a very real prospect, since significant quantities of the world's freshwater deposits are inaccessible to humans - locked inside glaciers and the polar ice caps. And it is not just far beyond the reach of people living in regions hit by drought; any attempt to tap into these resources would have a disastrous effect on the delicate balance of the planet's ecosystems - as witnessed in the temperature variations triggered by climate change. As all of the elements that make up the ecosystems coexist in harmony, dramatic changes like this would have a catastrophic impact on countless parts of the globe, with poorer regions particularly hard hit.

POLLUTED STOCKS

In many of the regions where water is in particularly short supply, stocks are polluted, leaving insufficient fresh drinking water for humans and livestock. The combined effects of agriculture and aggressive industrial expansion in many developing countries and emerging economies pose a very real threat to rivers, lakes and reservoirs, and groundwater supplies. In agriculture, excessive use of fertilisers is a major problem, as is the widespread adoption of large-scale irrigation systems. Coastal regions are confronted with the danger of sea water infiltrating groundwater supplies, while spiralling population growth, particularly in emerging economies, places an additional burden on natural resources.

IRREGULAR DISTRIBUTION

The fundamental issue is that while there is lots of water on Earth, only a fraction of it can be used by humans without prior treatment. And the precious reserves that are available are subject to chronic overexploitation in many areas. The effects of this approach are far reaching. The figure outlines a number of these problems, giving an overview of some of the issues facing us today and in the future.

BLEAK OUTLOOK

Drinking water is an extremely precious resource and vital for the continued survival of human and animal populations on this planet. Freshwater supplies are under the greatest threat in developing and emerging countries. Water tables and river levels are sinking all over the world, and water quality is deteriorating. In countless regions the ground is losing its natural water content and drying out as a result. Around 55% of the world's population lives in regions where freshwater is either in short supply (areas where annual water supply drops below 1,700 cubic metres per capita are defined as experiencing water stress) or extremely scarce (below 1,000 cubic metres). According to the latest estimates released by the Food and Agriculture Organization of the United Nations, around 65% of the world's population will be living in regions suffering from water scarcity by 2025. Around 1.9 billion people will be living in regions with absolute water scarcity.

WHAT IS WATER SCARCITY?

What is it like living in a region where water is scarce? 1,700 cubic meters per capita each year might seem sufficient. But once you start looking at personal requirements such as showering and cooking, and add in the amount of water contained in everyday items (known as virtual water), the picture quickly starts to change for the worse.

WHAT IS VIRTUAL WATER?

The term "virtual water" is used to indicate the total amount of water that is required to produce any given product. After all, water is used to make the products that we need in our daily lives. Numerous examples of water-intensive products can be found in the food industry. While around 13 litres of water are required to produce a single tomato, the virtual water content of a single kilogramme of beef is around 15,000 litres.

POLLUTION AND SOIL SALINITY

In developing countries and emerging economies, wastewater is posing an increasing threat to the quality of freshwater in rivers, lakes and groundwater supplies. Intensive farming is also responsible for contamination through excessive use of fertilisers. In coastal regions overreliance on groundwater supplies causes salt water to permeate underground aquifers.

CLIMATE CHANGE

As glaciers continue to melt, the volume of water flowing out of mountain regions will increase. India and Pakistan will be particularly affected. Temperature increases will change precipitation patterns and result in additional evaporation in some areas.

Degree of water stress by freshwatrer ecoregion



Map from The Atlas of Global Conservation (University Press 2010). For more information, please go to: The Nature Conservation, www.nature.org/atlas.

POPULATION GROWTH, INDUSTRIAL AGRICULTURE AND INDUSTRIALISATION

Population growth places increased demands on existing water supplies. And changing diets are having an even greater impact on resources. In particular, large volumes of water are required to keep pace with increased consumption of meat worldwide.

reference: Hoekstra JM, Molnar JL, Jennings M, Revenga C, Spalding MD, Boucher TM, Robertson JC, Heibel TJ, Ellison K (2010) The Atlas of Global Conservation: Changes, Challenges, and Opportunities to Make a Difference (ed. Molnar JL). Berkeley: University of California Press



It is our responsibility to make sure that we use the resources available to us as sparingly as possible, while continuing to focus on wastewater recovery. In recent years we have initiated a raft of precautions and implemented numerous measures aimed at reducing consumption and improving the efficacy of purification systems. The introduction of cascade rinsers and the installation of state-ofthe-art water recovery systems has reduced water consumption by two thirds.

CASCADES SAVE WATER

There is a simple principle behind the significant water savings delivered by AT&S's cascade rinsing technology. A cascade rinser comprises a row of free-standing rinsers. These rinsers are fed with freshwater which flows in the opposite direction to the materials. To begin with the water is fed into the last (i.e. the cleanest) tank. From here, the nearly clean water flows into the next, and after that, the final tank. The more heavily contaminated water then flows into the first rinsing tank where it drains into the wastewater treatment system via the overflow outlet. While it sounds complicated to begin with, the simple fact is that these rinsing systems are characterised by low consumption and superior rinsing performance.


cascades save water

SYSTEMATIC RECOVERY

Another water-saving technology that the AT&S Group has been using for a long time is known as the recovery cascade. This type of water recovery system also operates according to a simple, yet highly-effective, principle. Water recovered during the printed circuit board manufacturing process is reused in a range of industrial applications at the plant with lower water quality requirements. Concentrate from the reverse osmosis plant recovered by the wastewater recovery system at the Shanghai facility is used to top up water levels in the cooling towers. It is also used to humidify exhaust air before it passes into the organic exhaust air treatment system. In Shanghai treated industrial water is also used to mix the chemicals employed in wastewater treatment.

SAVINGS AT SOURCE

A different sustainable water management strategy is in place at the production facility in Leoben, Austria. Here we draw the water used in our industrial processes via the bank filtration plant on the neighbouring river. This water has an average temperature of 10°C, making it ideal for use in cooling systems. Our production plants generate waste heat which is removed using cooling water. This warms the water, which can then be redirected into the wastewater recovery system for use in other processes without further preheating. The water is fed back into the production cycle either as softened or ultra-pure water. Cooling water that is not used in this way is discharged into receiving water under controlled conditions. This method not only saves considerable volumes of water – it also delivers significant energy savings. Since the water sourced from the well has already been preheated during the cooling process, no additional energy is required to bring it up to the specified temperature for production.

PREPARED FOR WATER SCARCITY

The focus on water conservation is not just important from a resource preservation or environmental point of view: it is also a question of security of supply and in the long term, our ability to continue our production activities. In India we source the water used in our manufacturing processes directly from a neighbouring river. The area around the city of Nanjangud is very dry, meaning that water consumption is strictly regulated by the local authorities. To ensure that we are able to continue producing printed circuit boards during the dry season, we have constructed a water recycling plant on site.



This innovative facility now makes it possible to recover the major part of all of the process water at the Indian plant. This recycling rate keeps the freshwater requirements for our production lines to an absolute minimum.

A number of exceptionally effective measures aimed at reducing process water are also in place in Shanghai, such as the installation of water meters for all wet chemical processes. This has made it possible to identify heavy users. Monthly reporting, monitoring and measures to include the individual production lines and managers in the wider process has led to a 17% reduction in the amount of process water used. All of the freshwater infeed points for production lines, as well as the main water meter in Fehring have been fitted with electronic flow measurement equipment. These measurements are linked to an alarm system, meaning that leaks and major variances against projected flow rates can be identified and rectified immediately.

STRICT CONTROLS EMBEDDED INTO PROCESSES

The Group believes in leveraging the full potential of new technologies as we seek to identify cost savings, and optimise and expand processes. We also look closely at established internal processes with a view to identifying potential improvements.

A series of water audits conducted at the Nanjangud plant were one such measure. These audits looked at nominal and actual values in an analysis of water consumption patterns throughout the facility. The data were used to reduce the level of resources required for the various production stages. Specific outcomes included readjusting existing equipment to reflect the actual amount of water needed in each process. For an audit to succeed, each and every employee is required to take a critical look at water consumption patterns for their particular stage of the manufacturing chain, and continuously monitor processes. This is vital as any wastewater generated during production must be treated properly and disposed of or fed back into the system in accordance with the statutory requirements and internal regulations.

REVIEW AND OUTLOOK

As a global company that fully appreciates its responsibilities as a corporate citizen, there are two vital aspects of water management. The first is our commitment to keeping our environmental footprint to an absolute minimum. And secondly, as a commercial enterprise we are committed to ensuring that our production activities meet

WASTEWATER VOLUME

without consideration of cooling water



the statutory requirements set by the authorities and other regulatory bodies. In light of these factors, protecting the environment will continue to play a central role in our activities. We have set ourselves a measurable and clearly understandable target which all of our activities and measures will be geared towards:

We aim to reduce the amount of freshwater per m² pcb we use by three percent each year.



FRESHWATER CONSUMPTION

*) the freshwater consumption on our manufacturing site in Leoben also contains the cooling water for production equipment cooling, taken from bank filtration.

THE WATER ROADMAP

Our activities so far have delivered significant water savings for the Group. This is why we are listening to project proposals and ideas from employees throughout the Group with a view to implementing them in future. The next step will be to adapt these suggestions to reflect local conditions, regulations and requirements before initiating specific projects with clearly defined objectives.

The first steps towards implementing the roadmap will sharpen the focus on Production and Process Utilities, which place the greatest demands on water supplies at the Group. Water consumption patterns at these two parts of the Group must be evaluated in detail and analysed with a view to identifying possible savings. This process could take the form of value stream analysis, a method applied to monitor and enhance energy efficiency and minimise the use of resources at the Leoben plant.

Whichever path is chosen, learning from the successes achieved at other plants and leveraging best practice will be essential if the Group is to optimise consumption and cut waste. In all likelihood, optimising water quality and consumption will play a major part – an approach that has already proved its worth at the Nanjangud plant.

Suppliers to the individual production plants at every stage of the value chain must also be closely involved in projects to ensure that resources are used as efficiently as possible when it comes to new asset purchases or reconstruction work. However, the most important aspect will be to ensure that people use water sparingly in their day-to-day lives and at work.



CHANGE BEGINS WITH INDIVIDUALS

Encouraging every single employee to play their part is essential for us to achieve our water conservation targets. Water is not only used in production, it is a precious commodity that shapes every part of our lives. For any water-saving drive to succeed over the long term, you have to start with simple everyday details. After all, it is hard to put a price on the true value of water – one of the most important resources of our time.

HOW EVERY SINGLE EMPLOYEE CAN HELP TO SAVE WATER:

- Keep an eye on how much water you are using and look for ways to cut consumption
- Production facilities are fitted with flow meter. A comparison between actual and projected volumes and correct calibration of the plants can have a major impact on consumption, as well as helping to reduce the amount of wastewater treatment required.
- Have any leaks in pipes or equipment repaired immediately – a dripping tap can waste up to 17 litres of drinking water a day!
- Use household chemicals (cleaning products and detergents) as sparingly as possible – this will protect the environment by cutting the amount of water needed in wastewater treatment and purification systems
- Water-saving nozzles which produce a finer spray also help to cut wastage.

« Recycling – benefits across the board »

Combining resource conservation with the recycling of materials used during the production process creates a win-win situation: It cuts our costs as a company, takes the pressure off the environment and preserves vital resources for generations to come.

(Wolfgang Promberger, Business Process Excellence)



Resources

Long-term global supplies of raw materials are anything but secure. For one, increased industrialisation in developing countries will be reflected in a sharp spike in demand worldwide. On top of this, as global shortages take hold the risk of restrictions to free trade also intensifies, as countries with access to the various precious raw materials might limit exports in order to cover their own demand. As a region with only limited access to the raw materials needed to manufacture printed circuit boards, this development would leave Europe particularly exposed by dependency on export markets and the consequent increase in commodity prices.

While new mines will improve the overall supply situation, dwindling deposits of these non-renewable raw materials will be under pressure to keep pace with spiralling demand. As a result, strategic management of resources and raw materials will have to focus on efficient use, combined with worldwide expansion of recycling activities.

The chart shows how little time we have before these resources start to run out, if we continue to consume them as we have so far. These calculations are based on known, economically viable deposits. The lower end of each forecast reflects increased consumption and mining activity, while the later forecasts use calculations based on current rates of consumption and extraction. These predictions do not take into account advances in technology that will open up access to currently inaccessible resources, or price increases which will make extraction of lower concentrations economically viable.

COPPER (Cu) 2035 - 2044

The Fraunhofer Institute estimates that without recycling the world's copper reserves will be used up by 2030. Availability will be extended depending on the volume of secondary copper that can be recovered.

Deposits: primarily Chile

GOLD (Au) 2024 - 2045

Various authorities, including the Wuppertal Institute for Climate, Environment and Energy, are predicting a relatively early end for gold supplies. The US Geological Survey puts globally accessible gold reserves at around 51,000 tons. If production continues at the current rate of 2,500 tons per year, global deposits will be fully depleted by 2031.

Deposits: primarily South Africa

SILVER (Ag) 2020 - 2041

Most studies indicate that silver deposits will be exhausted by the early 2030s at the very latest. According to one joint study published by RWI Essen (Rheinisch-Westfälisches Institut für Wirtschaftsforschung), the Fraunhofer Institute for Systems and Innovation Research (ISI) and the German Federal Institute for Geosciences and Natural Resources, the world's silver deposits will only last for another 29 years.

Deposits: mainly China, Mexico and Australia

PLATINUM (Pt) & PALLADIUM (Pd) 2058-some hundred years

Experts appear to agree that supplies of platinum and other platinoids such as palladium will be sufficient for many years to come. However, their predictions vary enormously. Although the Club of Rome is pointing towards 2058 as the point where supplies of platinum-group metals will run out, other studies indicate that deposits will last for several hundred years.

Deposits: South A frica, Russia and Canada



LEAD (Pb) 2024 - 2030

The vast majority of predictions indicate that known, economically viable deposits will only last until 2030 at the very latest. Only a handful of studies expect supplies to last significantly beyond this point. However, the importance of this particular metal for the printed circuit board industry will decline as European Union legislation severely restricts the use of lead in electronic devices.

Deposits: USA, Australia and Russia

GALLIUM (Ga) 2143 - 2200

Gallium arsenide is used to transform electronic signals into optical ones. The market is occasionally beset by supply bottlenecks. Gallium is only found in other metal ores such as zinc, bauxite and germanium. From today's perspective, supplies of this compound are sufficient.

Deposits: mainly China

ANTIMONY (Sb) 2020 - 2024

A weak electrical conductor, this brittle heavy metal is one of the key components of lead-free solder. It substitutes lead, which is increasingly banned from electronic devices. Studies appear to agree that supplies of this metal will soon start to dry up.

Deposits: South Africa and China and China

TIN (Sn) 2026 - 2028

Most outlooks agree that supplies of this malleable silver metal will not be sufficient to keep pace with demand for much longer. Only very few studies add 10-30 years to the consensus timeline.

Deposits: various incl. Australia and Malaysia.

PEAK OIL 2006 - 2030

Epoxy resins, phenolic resins and polyimides are the basic building blocks of a printed circuit board. They are all derived from crude oil. Peak oil is the term used to describe the point at which half of all the planet's known, economically recoverable oil deposits have been depleted. Depending on the study, this point was either passed a number of years ago or will be reached at some stage between now and 2030. Only a small number of studies – such as those published by OPEC indicate that peak oil will be reached after that point. It is safe to assume that unrelentingly rising demand coupled with supply shortages will set the scene for disproportionate price increases and price volatility.



COPPER: A RECYCLING CASE STUDY

Copper is one of the most commonly used materials in printed circuit boards. Copper foil is at the heart of the printed circuit board. This special metal foil is produced using 100% recycled copper. Copper chloride, used as an etchant, is disposed via an external supplier at the end of its useful life. The external recycler recovers the copper from the solution so that it can be reused for other purposes.

Small traces of copper also find their way into wastewater. Our wastewater treatment systems recover the copper, filtering it out using a number of different technologies. The electroplating sludge containing the copper residue is then passed on to an external recycling specialist for further processing. All of the solid waste containing copper from the production process – such as copper trimmings and milling waste – is collected separately before being forwarded on for recycling.

These processes give an indication of the various ways that a single metal is recycled at our production facilities. Careful use of resources and thoughtful consideration of recycling opportunities brings benefits for AT&S from more than one perspective, allowing the Group to help conserve raw materials while gaining financially. This is an excellent example of an approach that brings together all three aspects of sustainability – economy, environment and society.

GREATER EFFICIENCY, FEWER INPUT MATERIALS

When it comes to optimising resources that are in short supply, increasing efficiency is paramount. Efficiency starts with only procuring the volumes of materials needed and taking into account additional factors such as packaging materials and supply routes. Internally, it ends with disposal of any waste generated at the production facility, and from a wider perspective with the disposal of the product at the end of its life cycle. In respect of the end of the product life cycle, we have only a certain amount of influence on how our printed circuit boards are disposed of. Our influence is indirect and limited to the materials used, since metals such as copper and gold can be recycled and reintroduced to the production cycle.

The summary below shows the volumes of materials purchased by the Group that are key inputs for the manufacture of our printed circuit boards. Growing complexity and the different products made at each plant results in variations in consumption of materials over the year. However, it is clear that in general, thanks to the numerous projects described in this chapter, production efficiency has increased in comparison with previous years.

Purchase of significant materials

		Fi	Financial year			
		2011/12	2012/13	2013/14		
Gold	kg	645	585	484		
Copper*	t	2,001	2,014	3,144		
Laminate	million sqm	10.8	11.2	12.5		
Chemicals	t	83.3	86.1	87.2		

*Starting with financial year 2013/14 copper foils were included.

ALL ROADS LEAD TO ROME

There are many different ways to optimise processes and to make sure that resources are used as sustainably as possible. One example is ensuring that work formats are optimally laid out, so that as little material as possible is wasted. Another is internal recovery of waste occurring in the production process, for reuse. In 2011 we worked with an external supplier in Fehring to introduce a recycling system for used tin and lead-free solder. The innovation enabled us to reintroduce 22 tonnes of tin into the process at that particular production facility. Fehring also witnessed the launch of another project, with tin dross now being collected at the plant.

This material, which is a waste product generated during the manufacturing process, is washed out of the fluxing material residue before being melted down into bars. These bars are refined externally by a supplier before they are reintroduced into the production cycle at the plant – a procedure which has cut tin consumption by an additional 700 kilograms a year.

Yet another example of sustainable use of resources is silver recovery, for instance at our facility in Leoben. The exposure process requires photographic film, made using a silver halide. A laser plotter is used to create an image on the photosensitive silver film according to a template. The film is then developed in chemical baths. Previously, the fixing bath was rinsed out and the wastewater channelled into the plant's wastewater treatment system. This meant that any silver left in the fixing bath went into the waste sludge and could not be recovered. AT6-S introduced a drum electrolysis system at the beginning of the 2013/14 financial year, which allows the silver deposited in the fixing bath to be recovered and recycled. Around 60 kilograms of pure silver can be recovered and returned to the materials cycle each year thanks to the system.



A tin bar ready to leave AT&S for further processing



Processed tin as delivered

waste reduction Measures sustainable supply

NANJANGUD: A CASE STUDY

AT&S's Nanjangud site was able to significantly increase recycling rates in the 2013/14 financial year. Raising recycling output in this way has a direct impact on consumption of raw materials, chemicals and other operating supplies. The Nanjangud plant is located about 165 kilometres outside the city of Bangalore in India. Most of the raw materials, chemicals, operating supplies and parts required by the facility are delivered by truck from within the wider Bangalore area. This has a direct influence on procurement, resulting in lower consumption of fuel for delivery of materials.

AT8

AT&S

"best practice sharing"

The progress made at each of our locations in the areas of waste reduction, recovery and recycling speaks for itself - but in the case of a globally networked company like AT&S, it should be understood in the context of the whole organisation. We believe that successes achieved at individual sites must be implemented throughout the Group. Reducing the amount of sodium hydroxide used in production at the Leoben site has been a central focus in recent years. By reusing precleaned alkaline wastewater for water treatment, the plant was able to cut the amount of the chemical required by about 20,000 litres per month. The concept was then piloted in Shanghai as part of a best practice sharing initiative. The addition of special filters to the production facility's DES lines resulted in reductions to sodium hydroxide and hydrochloric acid consumption of some 30 percent. This reduction in requirements for chemicals that are essential for printed circuit board production not only helps to protect the environment simply by optimising their use, but also shields the company from exposure to increased material costs and supply bottlenecks.

EXTERNAL RECYCLING

Our efforts to help conserve natural resources are centred on reducing consumption and increasing the amount of raw materials we are able to recover, as well as boosting the efficiency of internal processes and production cycles that are under our direct control. We also want to raise awareness among consumers that the raw materials contained in the devices they use have not lost any of their value. The IT department in Austria set up a new initiative under which obsolete smartphones and mobile telephones are collected and forwarded on to a non-profit organisation. The organisation uses proceeds to support charities including St. Anna Children's Cancer Research, the Kinderfreunde, DEBRA and Roten Nasen children's charities, the Caritas Integrationshaus and the Tierschutzverein animal protection society.

Another focus of the Group's sustainability drive is to find ways of giving obsolete hardware a second lease of life. Laptops and PCs that reach the end of the hardware lifecycle at AT&S are either sold on to our employees at a discount (with proceeds going to the Kinderkrebshilfe children's cancer charity) or donated to schools. Thanks to the scheme, a laptop class at a school in Leoben was supplied with laptops including docking stations. For around two years this initiative has been giving a second life to devices that would otherwise have been taken out of commission.

LOOKING AHEAD

Our aim is to further reduce the amounts of materials that we use at all of our production facilities. To this end, a Group-wide internal benchmark for each of the main types of waste was recently introduced. This has helped to enhance the efficiency of waste disposal and recycling throughout the Group, by applying best practice examples while allowing for the various statutory requirements that apply to individual plants.

The Golddigger project was also kicked off in the last financial year. The aim was to develop a comprehensive approach for the use of gold in production. It was initiated globally, involving all of the Group's sites that use gold for the surface of printed circuit boards. Process engineering, laboratory analysis, and internal waste treatment and recycling processes, as well as workflows with external recycling organisations, have all been looked at in their entirety and in detail. Process managers were able to meet each other and exchange insights in a project workshop. As a result, the gold process has been adapted to be markedly more efficient at all production facilities. A newly introduced reporting tool enables the improvements to be monitored on a monthly basis. In future the Group plans to expand this concept for comprehensive analysis of processes, including upstream and downstream processes, to other resources.

METRICS FOR SUCCESS

So that we can evaluate our efforts objectively, we plan to develop metrics to continually monitor the progress of improvements. Our goal is first to minimise the amount of resources we consume, and then to reuse materials as effectively as possible or to feed them back into the material cycle via external recycling. One thing is clear: in light of the projections for commodities markets and the unrelenting demands for greater materials efficiency, it will be necessary to step up the pace of developments in this area. At present the various grades of waste have to be separated in line with the local regulatory framework. It is clear that manufacturing technologies, capacity utilisation and the amount of waste generated are all closely linked.

NON-HAZARDOUS WASTE*





HAZARDOUS WASTE*



*according local legal definitions





REDUCE, REUSE, RECYCLE

Each and every one of us can play their part when it comes to recycling, and ensure that we get as much as possible from the resources available to us. The following list clearly shows how easy it is to avoid waste and recycle responsibly in our everyday lives:

- Adopt a quality mentality: good quality is indicative of greater efficiency; own error rework times and rejection rates will also fall
- Donate used mobile phones to the collection programme in Austria; this ensures that defunct handsets are properly recycled while the service is also for a good cause.
- Separate waste so that materials can be disposed of and recovered more cheaply and efficiently
- Check that containers are completely empty before they are disposed of – besides ensuring that residual traces do not go

to waste, this also means that less water is required to wash them out afterwards

- Remember that food is also a resource – only buy as much food as you need, to avoid food waste
- Take into account the use of resources at the planning stage and when purchasing – this can help reduce waste from the getgo, in accordance with the basic principle of reduce, reuse, recycle

« Knowledge is one of the key success factors in a sustainable organization »

Our aim is to equip every employee with the right skills and know-how through our advanced training and development system. Well-trained employees who are able to employ their skills effectively are motivated by their accomplishments. When these highly skilled employees move on within the organisation, they will be instrumental in ensuring that AT&S turns its vision into reality.

(Chen Jiang Phua, CFO - Business Unit Mobile Devices)



AT&S –

a learning organisation

Our mission is always to be a step ahead. We challenge existing assumptions all the time, in order to make our processes more efficient and improve our results. We are not afraid to strike out in new directions if our previous path was not bringing us closer to our goals, or if a better, more sustainable approach emerges.

This is what makes us pioneering and innovative. We believe that there is no progress without learning, which is why we are always trying to improve and develop. In our business, we simply cannot afford to stand still, which is why we want to expose our employees to new challenges and opportunities for further development.

WHAT ARE THE KEY ELEMENTS OF LEARNING AT AT&S?

We see ourselves as a learning organisation. But what does this actually mean? It certainly means more than just offering a wide range of training courses. Learning goes on all the time, at the workplace, in contacts with customers, in everybody's heads. This on-the-job learning can be enormously encouraged by the managers of an organisation. If they actively take care of their people, then employees will have the confidence to overcome technical and social difficulties at work, the confidence to offer the customers exceptional solutions, and the confidence in personal development to take advantage of new career opportunities in our rapidly growing organisation.

In the light of these requirements, AT&S managers need a culture that includes dialogue with each individual employee. This dialogue leads to a greater understanding of our people's hidden potential and of what employees have observed and what innovative ideas they have. And it also uncovers the areas in which they are developing, and where they are challenged and where they want help. Discussions of this kind bring a deeper knowledge of learning abilities, which in the final analysis are how people achieve their personal goals in their working lives. The annual employee feedback meetings are a core element of AT&S's integrated personnel management and important milestones in the professional development of dedicated AT&S staff. It is useful to embed individual learning objectives in the organisational framework of job specifications, required competences, corporate goals and business strategy.

A WIN-WIN SITUATION

A learning organisation identifies the skills and new areas of knowledge that employees will need in future, and uses up-to-date training methods to develop and pass on the interests on which it focuses. Our reputation as a learning organisation also helps us to attract highly qualified expert staff and retain their long-term loyalty, so as to be able to provide our customers with the high quality services they require at all times. The resulting ability to react quickly to changes in markets, technologies and society increases the Group's productivity and business performance. A learning organisation allows its employees to realise their potential more effectively by making an individual's skills and abilities more valuable and allowing them to be used more flexibly. Every investment in organisational learning processes benefits not only the individual but also the employer, the customers and society as a whole.

To provide the foundations for this culture of leadership, dialogue, innovation and process optimisation, over the years a number of important initiatives have been established to encourage the learning process in specific groups of staff.

Employees having a frequent performance review (white collars)



basic training program

measures

learning initiatives for experienced employees

learning initiatives for **beginners**

To support this culture of leadership, dialogue, innovation and process improvement, a number of important initiatives have been established over the years to promote learning processes of specific target groups.

RAPID AND INTENSIVE INTRODUCTION FOR NEW STAFF

The comprehensive AT&S basic training programme is a good example of how we encourage new entrants from the moment they join us.

New employees receive an extensive introduction to local and groupwide processes, organisational structures, safety at work, security, quality, the environment, and management systems, as well as to technical and production processes. This general employee qualifying process is complemented by individual qualification requirements, which form the basis of a comprehensive training programme. Each individual employee has his or her personal training plan, and – in addition to the line manager – the system includes a buddy or mentor to help new employees find their feet and become integrated as quickly as possible.

LEARNING INITIATIVES FOR BEGINNERS

Young trainees are introduced to working life at AT&S with training programmes and by practical learning on the job. Both aspects, combined with courses at specially selected schools and universities, provide the necessary professional work experience in technical and commercial activities. To provide for the education of the next generation of printed circuit board experts, there are also extensive training programmes for graduates. Attractive entry-level positions are filled with carefully selected individuals who are seeking an international career is this innovative branch of the electronics industry.

LEARNING INITIATIVES FOR HIGH POTENTIALS

For many years AT&S has provided management development programmes at its main locations to promote the systematic development of AT&S management potential and meet the management requirements as the Group continues to grow. New programmes, such as the International Talent Program or the Senior Talent Pool of the Business Process Excellence Initiative, are intended to sharpen the global focus of key managers, so as to ensure excellent standards for the entire value chain throughout the Group.

learning initiatives for

"high potentials"

LEARNING INITIATIVES FOR EXPERIENCED EMPLOYEES

Lifelong learning for all our staff is supported by extensive professional experience and training programmes at many different levels. This also bolsters the productivity, flexibility and reliability of our production lines.

All supervisors and shift managers, for example, have the opportunity to take a course in team leadership, communication, conflict management and other important management skills, so as to optimise the performance of the whole team.

« The world is changing - we think ahead »

奥特斯科技(重庆)有限公 AT&S(Chongqing)CoLtd.

AT&S

Our corporate culture allows us to develop far-sighted responses to the challenges of tomorrow.

(Edward Lau, Operation Director Chongqing; Heinz Moitzi, COO ; Peter Griehsnig COO - Business Unit Mobile Devices)



Thinking ahead shaping the future

Innovation is at the core of our business, as our printed circuit boards show. We make products for a wide range of applications, and in the process we do much more. We are experts in creating connections, both technical and personal ones. Without our efforts, many of the most modern communications systems and technologies that provide the day-to-day links between organisations and between people simply would not work. We create networks, and as we pursue innovation, we help to give form to the future.

KEEPING STAKEHOLDER INTERESTS AND A SUSTAINABLE FUTURE IN BALANCE

We are an international Group with operations around the world, and our processes are governed by many different regulatory systems. Globalisation, demographic change, new technologies, and changing social and personal values – all these impact our business processes and our strategic focus. To make the most of these opportunities and put them to effective use, we direct all our efforts to aligning our strategies, structures, processes and skills so as to strike a sensible balance between the needs and interests of our customers and markets, the interests and private lives of our staff, and the requirements of legislators and public institutions.

AN ATTRACTIVE, FORWARD-LOOKING EMPLOYER

As an international Group, AT&S provides attractive job opportunities in a variety of markets. With differing cultures and different target groups, customised human resources marketing and effective employee selection are essential for an enterprise to attract the talents required for innovative growth.

In order to hire highly qualified staff, employers' offers must be attractive and show consideration for individuals' interests. In exchange for the abilities and experience that the employee brings to the Group, what AT&S offers must go beyond mere financial rewards. This is the only way to get the best talents on board, and the only way to ensure that they are retained – longterm. In the highly competitive market for specialist skills it can no longer be taken for granted that employees will be loyal and committed to the organisation, that they will develop their talents with the ultimate aim of adding more value for the customers. The battle for talent in our industry is especially fierce in certain regions. This means that organisations must not only market themselves creatively, but must also offer potential employees real and enduring value.

Salaries, management culture, infrastructure and opportunities for personal development are among the factors that may be decisive in determining whether a potential employer merits serious consideration. We are fully aware of these individual and personal needs, and are committed to providing the services that existing and future employees require.

In addition to providing services, AT&S collects data from surveys and market studies to identify ways of enhancing and effectively communicating what makes it a good employer. Typical examples are the introduction of free transport to the site at Nanjangud, or the introduction of flexible working schemes in Leoben and Fehring. Other such measures are planned, often in reaction to the pressures that arise from changing demographic conditions in the job markets from which AT&S draws its staff.

BUSINESS ETHICS

Our production facilities are located in different parts of the world, so that inside the Group there are differing views and standards of business ethics. The way we treat our employees is based on the same principles wherever AT&S operates. Local legislation provides the basic framework, in addition to which our own ethical principles commit us to applying the same standards at all our locations. During the coming financial year we will adopt the EICC Code of Conduct across all our operations. In order to have uniform standards around the world, all our production facilities - in Austria, India, China and South Korea - will in future be guided by the EICC Code of Conduct. This will not only guarantee that we comply with the statutory provisions in the various different countries, but will also ensure that we meet our customers' requirements for uniform standards of business ethics, anti-corruption policies, etc., providing a firm basis for corporate success in terms of social acceptability.



This will not only apply internally, with respect to our employees, but will also affect our suppliers, and will include the whole value chain. We see it as our responsibility to monitor the environmental, economic and social aspects of the raw materials, chemicals and other substances we use in our production. These considerations will be taken into account in the initial stages of searching for new suppliers. The first step will be to review our suppliers - either on the basis of their own internal self-assessments or by using trained AT&S auditors for on-site audits - to see whether they meet our standards. As part of ongoing operations, suppliers will be regularly evaluated for compliance with strict environmental, work safety and social criteria. If suppliers prove unsatisfactory in certain respects, AT&S will work with them in supplier development programmes. In the worst case, if suppliers fail to improve, they will be removed from our supply chain.

SUSTAINABLE USE OF SUBSTANCES

We also attach great importance to close collaboration with our suppliers in relation to the manufacture of our products. The choice of materials is determined not only by technical production parameters such as functionality but also in the light of environmental considerations. All raw materials, chemicals and production supplies are tested before ordering by our environmental and work safety specialists in our various production locations to ensure that they meet our standards. The contents are rigorously tested to our specifications, and compared with our lists of prohibited and declarable substances. This ensures that the presence of such substances in our raw materials is kept to a minimum, and that statutory and customer requirements are complied with.

As part of this initiative, the Shanghai facility has implemented the QC080000:2005 Certification Program for managing hazardous substances. The specifications in the Standard are used to verify whether raw materials and chemicals comply with statutory and customer requirements.

HEALTH AND SAFETY

Occupational health and safety have for many years been key components of our corporate philosophy. AT&S is conscious of its responsibilities and sees it as part of its mission to introduce the high standards, skills and expertise we apply in work safety and social responsibility in our facilities in the West in our plants all around the world. We cannot afford – and above all we do not want – to lower our safety standards for plant and equipment or personal safety equipment at the expense of our employees on the basis of geography. For many years we have implemented the Safety Management System, OHSAS18001 at all our sites worldwide, and been certified by independent certifying organisations. The OHSAS Standard, together with the environmental management system and the quality system, is part of the integrated management system.

Since the safety management system was introduced, the number of accidents has been significantly reduced. The long-term goal was to reduce the number of accidents at work by 7% per year, and this was in fact achieved. The success of the programmes and activities that have been under way since the 2004/05 financial year are reflected in the numbers.



AMOUNT OF ACCIDENTS WITH LOST WORKING DAYS > 1 DAY PER 1.000.000 WORKING HOURS



In the period from 2004/05 to 2013/14 the accident rate per million working hours has reduced by 57%. While the most recent financial year ended with a slight increase, the overall goal was nonetheless achieved. All preventive and corrective measures are systematically pursued in order to ensure that the continuous improvement required by the plan becomes reality.

Yearly programmes and targets, regular team meetings, the opportunities for staff to use the employee suggestion system to recommend work safety improvements, ongoing monitoring of the statistics, and a web platform (EHS case report) for recording accidents, incidents and near misses, and where corrective actions are documented and shared as best practice with other areas and facilities – these all contribute to continuous improvement.

As a measure of its achievements in this area: AT&S China was one of five companies (out of a total of around 1,000) to receive the Xinzhuang Industry Park's Superb Enterprise on Production Safety award.

In addition, the Shanghai Municipal Health Promotion Committee has conferred the coveted title of Advanced Health Unit on AT&S China.

REGIONAL RESPONSIBILITY – THINK GLOBAL, ACT LOCAL

Thinking globally and acting locally is a principle we apply in this area too. AT&S is aware of its responsibilities, both to the environment and to society. Corporate social responsibility consists of an organisation's social obligations – to its employees and their families, to the local community, to society, and to society's contribution to sustainable economic development. The goal is a better life, which in turn benefits the economy and its development.

Employees at AT&S's Asian sites receive a wide range of fringe benefits, including shuttle buses, staff rooms, internet access and on-site medical check-ups. The benefits vary from site to site, reflecting the different needs and cultures. In Europe, the Group's sponsorship activities focus on education, social projects and sports. It supports a range of activities at Vienna University of Technology, Campus 02 in Graz, Graz University of Technology and the University of Leoben. As an example, AT&S's Leoben plant provided the TU Graz e-Power Racing Team with printed circuit boards specially designed for its MaxWheel 2011 vehicle.

AT&S has supported numerous groups of people and organisations in social projects sponsored by Caritas, the Kinder-Krebs-Hilfe child cancer charity, and an organisation that supports children with disabilities. Sport also plays a significant part in our CSR activities: AT&S provides financial backing for LE-Laufevent, an annual running event held in Leoben. Our employees supplement the Group's corporate initiatives, demonstrating their social commitment by providing voluntary support for a number of good causes and organising various aid programmes. At the Leoben facility's Christmas party, the takings from the sale of tombola tickets were doubled by a contribution from the Management Board and donated to UNICEF in aid of the victims of the flood disaster in the Philippines.

DOING OUR BIT FOR YOUNG AND OLD

During Expo 2010 in Shanghai, AT&S and Chinese football star Sun Xiang – an ambassador for the Austrian pavilion – organised a special surprise for ten ethnic-minority children from Ninglang, a remote mountainous region in Yunnan province. The opportunity to visit the exhibition was a dream come true. AT&S China also published a set of educational DVDs, entitled "Low Carbon & Green Journey", to mark the 2010 World Environment Day.

To celebrate the groundbreaking ceremony for the new Chongqing facility, the Group sponsored RMB 1 million as the education fund to the local Technic School, and donated IT equipment for remote primary schools, and supplied nutritious breakfasts to boarders at a remote primary school for an entire semester. In Shanghai, thanks to our support, residents in a new retirement home now have access to computers and a library.

Such projects in the past few years have included building a health clinic where villagers living close to the Nanjangud facility in India receive free medical care. The clinic provides check-ups and medical services for some 30,000 people in seven villages. The inhabitants receive free medical treatment and medicines that they would not otherwise be able to afford. The clinic treats around 240 patients a month – men, women and children.

In addition AT&S supports local projects – such as the construction of a health care center, vocational training programmes for young people and tailoring courses for homemakers – with the aim of creating a sustainable community infrastructure. Our assistance also takes the form of donations, ranging from school uniforms and equipment for computer rooms to sewing machines for the tailoring courses.

AT&S India has also launched initiatives for the construction of major institutions such as a health centre in Korehundi village and a computer faculty in Chamalapura Hundi high school. It has sponsored free self defence courses for women. Children from socially disadvantaged families at school in Katwadipura were also supported: during the science exhibitions, AT&S staff arranged for the provision of fresh fruit and meals.

« Our actions today affect tomorrow! Let's take responsibility! »

It's up to each of us, to bring ideas with all our strength, small or big steps to turn the vision of a "sustainable AT&S" into reality.

(Simon Sebanz, Director Quality, EHS)



Prospects and expectations

There is much disagreement as to where humanity is heading. For many people, the future of civilisation is bleak: dwindling water and energy resources are already a reality. Many people are pressing for a return to the social values of the "good old days"; firms are under fire from all sides for their perceived greed; managers and politicians are accused of lack of backbone. Although many of the horror scenarios are blown up beyond reason, the underlying problems and challenges are indisputable.

They are plain for all to see, and – at least in casual discussions – people know what they think and are quick to find fault with others. But are we also willing to take a long, hard look at our own behaviour and think about our personal shortcomings? If the answer is yes, we also need to take a critical look at our motives. Is it really a question of conserving water and energy? Or are we actually more concerned about higher energy bills and rising petrol prices? Are we ready to do everything it takes to live more sustainable lives? Or does our commitment falter when we are faced with the decision about whether to pay more for ecofriendly goods?

PERSONAL EXPECTATIONS

So where do we stand on these issues? Are we just going with the flow, or are we prepared to put our money where our mouth is and set new standards? The answer is clear: Our commitment at AT&S to making a decisive contribution to sustainability in our industry is as strong as ever. Over the past few years we have implemented numerous initiatives aimed at achieving these targets. We have come a long way, the road ahead is well marked, and our goal is to stick to it.

Enterprises like ours, with highly complex products and processes, are constantly faced with extraordinary challenges – solving complicated technological and environmental problems is part and parcel of our day-to-day operations. Our processes and plans need to take into account the demands of the marketplace, social trends, economic developments and ever more stringent environmental legislation. But the need to take so many factors into account creates new opportunities to escape from the maze of conflicting demands. What is important is to adopt a solutions-driven approach and concentrate on striking the right balance. This report has shown that everything we do has an impact on the bigger picture.

So it is essential that we pay attention to any indirect effects that our decisions may have on other activities or processes. We have three core expectations of everyone in our Group:

1. EVERYBODY PLAYS A PART IN CREATING A SUSTAINABLE AT&S

Achieving this goal means replacing a culture of complaints and negativism with open-mindedness and a search for creative solutions. Communications and information are the key factors here. Sustainability must not be seen as a discrete issue, but as an all-encompassing feature of our corporate culture.

Each and every employee must recognise his or her responsibility - at every stage in the value chain from manufacturing through to management. Clinging to an established process for the process's sake is not an option. "We've always done it like this" is an argument that cuts no ice in an age of rampant technological progress. Instead, the focus must be on reviewing processes critically and improving them, gathering new ideas, and welcoming innovations with open arms. We believe that building on past experience is the most effective way to create a sustainable AT&S. We intend to use specialist committees and forums to focus on aligning programmes and objectives, identifying potential improvements and discussing new ideas, so as to establish the new benchmarks that will make our projects and initiatives more measurable. Which will in turn facilitate control and management. Minimum standards and groupwide guidelines must also be put into place. At the same time, we need to provide enough freedom for development in order to meet local and individual requirements as effectively as possible.

How can we do this in practice? The answer is the systematic use of sustainability circles, which bring together the relevant managers from different parts of the Group. They will act as ambassadors for the programme in the various business units and plants, helping to implement the requirements at each location by encouraging the development of special initiatives



and local objectives. But introducing targets, programmes and other measures is not the primary function of the sustainability circles. They should rather play an integrating role as regularly reviewed performance benchmarks for the operational units' corporate responsibility. Take the carbon footprint: this metric has already been successfully introduced at all of our facilities. A major feature of the sustainability roadmap will be improvement projects designed to make our use of energy more efficient. Increasing the number of meaningful benchmarks makes processes transparent, which provides a basis for new ideas and creative approaches.

2. THE THINGS WE ENJOY DOING ARE THE THINGS WE DO WELL

The second expectation relates to the contentment of our staff and their enthusiasm for what AT&S does – each of us should be proud to be working here. For this to be true, we must treat our people as precious resources and give them the support and encouragement they require.

We must all play a part in creating a learning environment in which every AT&S employee is valued as an individual and given every help to develop.

3. YOU CAN'T MANAGE WHAT YOU CAN'T MEASURE

Our third expectation is that the progress we make should be measurable, manageable and objectively verifiable, so that everyone can see where we are going. Most of our employees

are familiar with the figures for weekly yields, on-time delivery rates and other important indicators. But how many people can tell you how much power or water their department consumes? This knowledge is crucial when it comes to embedding sustainability in our company. Monitoring indicators like these needs to become second nature if the major strategic sustainability initiatives are to gain the whole-hearted support of us all. To achieve this goal, all projects that have an impact on our indicators, processes and procedures will be included in a sustainability roadmap and will be subject to regular management reviews. Besides improving clarity, this will also result in more transparent communication policies. A series of workshops with the various process managers produced a host of ideas which were then discussed in depth. Our aim is to roll out the roadmap in all of our plants. But the focus is not only on generating new ideas. More importantly, and far more simply, it is a question of sharing effective systems with other plants.

Spreading best practice allows successful ideas to be passed on and implemented at other sites. And this benefits not only AT&S, but also allows closer and continually evolving cooperation with suppliers, so that customers benefit from the momentum of the most advanced technical development.

TOMORROW IS ALREADY HERE

We have high and clear expectations of ourselves. So what about the future? Without a doubt, the shifting values in our society, rapid changes in our operating environment, and a host of internal and external demands mean that it is time to roll up our sleeves and act now on tomorrow's key issues. Top-down implementation is not the way to go about creating a sustainable organisation, nor should the task be left to just a few dedicated individuals. We all need to play our part because sustainability is everyone's concern. Our world is home to billions of people and countless different lifestyles and cultures. But there is only one planet Earth. We all breathe the same air and are dependent on the same precious supplies of water.

This report is the first step towards outlining in detail the significance of sustainability for our company and drawing up a roadmap for a sustainable future. And by reading through this report, you have taken a step in the direction that we too are looking to move in. But we should all bear in mind:

the journey is its own reward.

« Sustainability is measurable »

Indicators designed to measure sustainability can boost both transparency and awareness. This is essential for setting specific targets and assessing the effectiveness of initiatives aimed at achieving them. After all, "you can't manage what you can't measure".

(Karim Beglari, Group Manager Controlling)





Key figures, glossary & GRI content index

ENERGY, CARBON FOOTPRINT

		Financial year			
	2010/11	2011/12	2012/13	2013/14	
Total carbon footprint	kg CO ₂ per n	n² printed	circuit bo	ard]	
Target					
AT&S Group	60.0	57.0	54.0	51.3	
Actual					
AT&S Group	53.0	47.4	51.0	50.7	
Leoben	18.8	24.0	23.6	25.4	
Fehring	17.7	18.2	19.2	18.3	
Nanjangud	67.9	49.6	64.2	58.3	
Shanghai	62.3	54.3	55.9	54.3	
Ansan	80.6	112.4	86.3	73.6	
	Financial year				
	2010/11	2011/12	2012/13	2013/14	
Carbon Footprint from [kg CO ₂ per m ² printed of	production circuit board	1]			

AT&S Group	50.2	44.9	48.8	48.7
Leoben	18.6	23.8	23.3	25.0
Fehring	17.4	17.9	18.9	17.9
Nanjangud	60.6	42.5	57.4	51.8
Shanghai	59.4	52.2	54.2	53.0
Ansan	80.6	112.4	86.3	73.6

		Financial year			
	2010/11	2011/12	2012/13	2013/14	
Carbon Footprint fro [kg CO ₂ per m ² printe	om transporta ed circuit boar	tion of prin d]	nted circuit	boards	
AT&S Group	2.8	2.4	2.2	2.0	
Leoben	0.3	0.3	0.3	0.4	
Fehring	0.3	0.3	0.3	0.4	
Nanjangud	7.4	7.1	6.8	6.5	
Shanghai	2.8	2.1	1.7	1.3	
Ansan	-	-	-	-	

	Financial year				
-	2010/11	2011/12	2012/13	2013/14	
Total energy consumpt [kWh per m² printed cin	ion (electric rcuit board]	city and hea	at)		
AT&S Group	76	81	83	81	
Leoben	104	121	109	118	
Fehring	79	85	90	84	
Nanjangud	81	65	63	56	
Shanghai	75	82	85	81	
Ansan	156	250	197	160	
	Financial year				
	2010/11	2011/12	2012/13	2013/14	
Compressed air consun	nption [nm³	per m² pri	nted circui	it board]	
AT&S Group	42	56	60	62	
Leoben	84	94	86	96	
Fehring	37	40	62	60	
Nanjangud	-	83	82	69	
Shanghai	45	48	53	56	
Ansan	77	167	147	121	

WATER, WASTE WATER

		Financia	al year		
	2010/11	2011/12	2012/13	2013/14	
Total freshwater cor	nsumption [litre]	per m² pri	nted circu	it board]	
Target					
AT&S Group	_	-	_	810	
Actual					
AT&S Group	755	765	835	784	
Leoben	1894	1983	2181	2495	
Fehring	432	441	476	466	
Nanjangud	529	441	255	221	
Shanghai	664	715	812	730	
Ansan	3278	3605	3226	3089	
		Financial year			
	2010/11	2011/12	2012/13	2013/14	
Soft water consump	tion [litre per m ²	printed c	ircuit boai	rdl	

Soft water consumption [litre per m² printed circuit board]					
AT&S Group	269	242	262	241	
Leoben	261	329	333	351	
Fehring	210	203	205	213	
Nanjangud	200	215	129	141	
Shanghai	279	230	270	232	
Ansan	1783	2395	2098	1990	

	Financial year			
	2010/11	2011/12	2012/13	2013/14
Deionized water consumpt	Deionized water consumption [litre per m² printed circuit board]			
AT&S Group	183	202	228	199
Leoben	253	260	251	296
Fehring	126	132	150	143
Nanjangud	190	210	165	128
Shanghai	190	211	256	213
Ansan	-	-	-	-

	Financial year			
	2010/11	2011/12	2012/13	2013/14
Waste water*				
AT&S Group	476	521	550	492
Leoben	586	640	682	694
Fehring	378	423	474	472
Nanjangud	354	185	90	59
Shanghai	488	583	628	546
Ansan	3164	3968	3280	2885

*) without cooling water

	Financial year			
	2010/11	2011/12	2012/13	2013/14
Copper content in was	te water [m	g Cu per lit	re waste w	vater]
AT&S Group	0.54	0.45	0.34	0.30
Leoben	0.18	0.15	0.14	0.14
Fehring	0.04	0.05	0.06	0.06
Nanjangud	2.20	1.34	0.91	0.81
Shanghai	0.25	0.26	0.20	0.24
Ansan	0.50	0.90	0.71	0.54
		Financia	l year	
	2010/11	2011/12	2012/13	2013/14
Nickel content in wast	e water [mg	Ni per litr	e waste wa	ter]
AT&S Group	0.08	0.10	0.09	0.06

AT&S Group	0.08	0.10	0.09	0.06
Leoben	0.05	0.03	0.04	0.03
Fehring	-	-	_	-
Nanjangud	-	-	-	-
Shanghai	0.20	0.24	0.17	0.12
Ansan	-	-	0.08	0.03

Financial year			
2010/11	2011/12	2012/13	2013/14
g COD per lit	tre waste v	water]	
129	115	112	93
281	290	248	218
124	131	105	102
-	52	98	21
76	65	77	90
35	36	30	34
	2010/11 2000 per lit 129 281 124 - 76 35	2010/11 2011/12 200 per litre waste value 129 115 281 290 124 131 - 52 76 65 35 36 36	2010/11 2011/12 2012/13 2 COD per litre waste water] 112 129 115 112 281 290 248 124 131 105 - 52 98 76 65 77 35 36 30

WASTE

	Financial year			
	2010/11	2011/12	2012/13	2013/14
Total waste [kg pe	r m² printed	circuit boaı	rd]	
AT&S Group	7.79	7.21	7.84	7.90
Leoben	8.59	9.67	9.34	9.86
Fehring	7.15	6.54	6.62	7.09
Nanjangud	8.36	7.68	6.96	7.13
Shanghai	7.99	7.83	8.18	8.04
Ansan	1.85	2.52	2.65	2.68

	Financial year							
	2010/11	2011/12	2012/13	2013/14				
Non-hazardous w	Non-hazardous waste*) [kg per m² printed circuit board]							
AT&S Group	2.85	2.42	2.88	2.95				
Leoben	4.51	4.92	4.78	5.15				
Fehring	3.75	3.70	4.06	4.19				
Nanjangud	3.29	2.03	1.70	1.75				
Shanghai	2.59	2.88	2.89	2.92				
Ansan	1.55	2.04	2.03	1.95				

	Financial year				
	2010/11	2011/12	2012/13	2013/14	
Hazardous waste*) [kg per m² printed circuit board]					
AT&S Group	4.94	4.79	4.96	4.96	
Leoben	4.08	4.75	4.56	4.70	
Fehring	3.41	2.83	2.56	2.90	
Nanjangud	5.07	5.65	5.26	5.38	
Shanghai	5.40	4.96	5.29	5.12	
Ansan	0.29	0.48	0.61	0.72	

		Financial year					
	2010/11	2011/12	2012/13	2013/14			
Plastic packaging waste [kg per m² printed circuit board]							
AT&S Group	0.08	0.08	0.07	0.09			
Leoben	0.23	0.19	0.11	0.12			
Fehring	0.04	0.03	0.05	0.14			
Nanjangud	0.15	0.15	0.08	0.05			
Shanghai	0.06	0.06	0.07	0.09			
Ansan	0.00	0.00	0.02	0.02			

*) according to local legal definitions

OCCUPATIONAL HEALTH AND SAFETY

	Financial year			
	2010/11	2011/12	2012/13	2013/14
Lost working days per 10	00 employe	ees [days]		
Target				
AT&S Group	23.4	21.7	20.2	18.8
Actual				
AT&S Group	14.9	15.8	10.2	17.3
Leoben	14.3	19.6	8.6	8.7
Fehring	6.3	7.3	15.2	6.8
Nanjangud	2.3	9.4	2.0	0.8
Shanghai	17.5	18.7	12.3	25.1
Ansan	-	-	5.4	1.7
		Financia	l year	
-	2010/11	2011/12	2012/13	2013/14
Amount of accidents with 1.000.000 working hours	h lost work	xing days >	· 1 day oer	
Target				
AT&S Group	8.4	7.8	7.2	6.7
Actual				
AT&S Group	5.3	7.0	5.5	6.5
Leoben	8.8	22.5	8.4	5.7
Fehring	3.4	12.1	11.1	8.4
Nanjangud	0.9	1.7	1.9	0.5
Shanghai	5.7	5.9	5.3	4.2
Ansan	-	4.7	12.8	4.0

EMPLOYEES

		Financial year				
	2010/11	2011/12	2012/13	2013/14		
Headcount (full-tim	e equivalent, du	ıe date 31.	03.)			
AT&S Group	7486	7478	7011	7129		
Leoben	775	753	759	801		
Fehring	438	379	337	362		
Nanjangud	1278	1035	1043	1076		
Shanghai	4571	4851	4412	4258		
Chongqing	-	59	53	318		
Ansan	213	233	240	251		
Others*)	211	168	167	63		

*) employees from sales and other offices

	Financial year			
_	2010/11	2011/12	2012/13	2013/14
Average attrition rate [%]				
AT&S Group	3.4	3.8	3.4	3.3
Leoben	1.2	1.6	1.3	1.4
Fehring	0.5	1.9	1.2	0.5
Nanjangud	3.8	6.1	4.6	4.3
Shanghai	3.8	3.8	3.7	3.5
Chongqing	-	-	1.9	1.3
Ansan	4.4	3.2	3.6	4.2

	Financial year			
	2010/11	2011/12	2012/13	2013/14
Regular performance rev	views (whit	e collar w	orkers) [%]	
AT&S Group	87	96	95	97
Leoben	75	98	97	100
Fehring	91	98	100	98
Nanjangud	96	97	94	98
Shanghai	99	97	93	100
Chongqing	-	43	100	100
Ansan	100	100	100	98

Total amount of newly hired employees in fiscal year 2013/14*)

per age groups	16-30 years	31-45 years	46-65 years
AT&S Group	3118	344	22
Leoben	248	46	10
Fehring	88	16	6
Nanjangud	636	16	0
Shanghai	1919	212	3
Chongqing	227	54	3
per gender	male	female	
AT&S Group	2222	1262	
Leoben	125	179	
Fehring	59	51	
Nanjangud	594	58	
Shanghai	1227	907	
Chongqing	217	67	
type of employment contract	white collar workers	blue collar workers	
AT&S Group	277	3207	
Leoben	60	244	
Fehring	1	109	
Nanjangud	56	596	
Shanghai	75	2059	
Chongqing	85	199	

*) This figure also includes short time contractors and internships.

NOTES

The manufacturing site Chongqing is currently to be constructed, so data will not be reported for the time being.

The manufacturing site Klagenfurt has been closed in the course of last fiscal year. The performance indicators will not be displayed for this reason. There are no significant differences in the group performance due to the size of the plant.

The reporting period covers fiscal year. (starting with 1st of April, ending with 31st of March each year)

Glossary

BENCHMARK

comparison / analysis of processes

BEST PRACTICE SHARING

method or technique that has consistently shown results superior to those achieved with other means, and that is used as a benchmark

CARBON FOOTPRINT

emission of carbon dioxide per m² printed circuit board by production and transport of finished goods to customers (see chapter 4)

CLUB OF ROME

global think tank that deals with a variety of international political issues

COOLING LOAD

inner load of heyat that is necessary to dissipate to maintain a specific aircondition

CORPORATE CITIZENSHIP

term used to describe a company's role in, or responsibilities towards society

CORPORATE SOCIAL RESPONSIBILITY

extending a company's definition of responsible behaviour beyond business-related factors by also including social and environmental considerations

EICC

coalition of the world's leading electronics companies working together to improve efficiency and social, ethical, and environmental responsibility in the global supply chain.

EMISSIONS

issuance of disruptive factors into the environment

ENERGY EFFICIENCY

goal of efforts to reduce the amount of energy required to provide products and services

ENVIRONMENTAL MANAGEMENT SYSTEM

management of an organization's environmental programs in a comprehensive, systematic, planned and documented manner. It includes the organizational structure, planning and resources for developing, implementing and maintaining policy for environmental protection

EXPO

world's fare (exhibition)

FRAUNHOFER INSTITUT

organization for research and development in Europe

HEAT TRANSFER COEFFICIENT

used in calculating the heat transfer between materials. Unit $W/m^2 K$
INFORMER

informationplatform on the screens within AT&S (Screensaver)

ÖKOPROFIT

styrian project for increasing efficiency and ressource optimization

OPEC

international Organization of the Petroleum Exporting Countries, headquarter is located in Vienna

PEAK OIL

point in time when the maximum rate of petroleum extraction is reached, after which the rate of production is expected to enter terminal decline

PRIMARY ENERGY

energy form found in nature that has not been subjected to any conversion or transformation process. It is energy contained in raw fuels, and other forms of energy received as input to a system

RECYCLING

process using materials (waste) into new products to prevent waste of potentially useful materials, reduce the consumption of fresh raw materials

SECONDARY ENERGY

primary energy sources are transformed in energy conversion processes to more convenient forms of energy (that can directly be used by society), such as electrical energy, refined fuels, etc.

SECONDARY RAW MATERIAL

raw materials which are made of treatment, recycling of waste. A secondary raw material can be used as a basic material for new products and thereby differ from primary raw materials

STAKEHOLDER

a person, group, organization, member or system who affects or can be affected by an organization's actions (interested parties)

SUGGESTIONS SCHEME

AT&S internal project for continuous improvement by employees (CIP System)

SUSTAINABILITY

combination of social, ecological and economic aspects

VALUE STREAM MAPPING

technique used to analyze and design the flow of materials and information required to bring a product or service to a consumer

GRI Content Index

This report is in accordance with the standards of the Global Reporting Initiative G4 "core".

GENERAL STANDARD DISCLOSURES

General standard disclosures	Standard dislosure title	Reference to CSR Report and online information
Strategy and analysis		
G4-1	statement from the most senior decision-maker of the organization	by the CEO, page 3
Organizational profile		
G4-3	name of the organization	contact / publication details
G4-4	primary brands, products, and services	chapter1, page 6 ff annual financial report 2013/14, page 10
G4-5	location of the organization's headquarters	chapter 1, page 7
G4-6	countries where the organization operates	chapter 1, page 7 annual financial report 2013/14, page 52
G4-7	nature of ownership and legal form	chapter 1, page 7 annual financial report 2013/14, page 20ff
G4-8	markets served	annual financial report 2013/14, page 6 annual financial report 2013/14, page 42 ff
G4-9	scale of the organization	chapter 1, page 6
G4-10	workforce, total number of employees	chapter 10, page 71
G4-11	percentage of total employees covered by collective bargaining agreements	chapter 10, page 71
G4-12	organization's supply chain	chapter 1, page 6 chapter 6, page 44 chapter 8, page 57 annual financial report 2013/14, page 65
G4-13	significant changes during the reporting period	annual financial report 2013/14, page 11
G4-14	precautionary approach	chapter 1, page 6 ff chapter 5, page 37 chapter 8, page 57
G4-15	externally developed economic, environmental and social charters, principles, or other initiatives to which the or- ganization subscribes	chapter 8, page 59
G4-16	list memberships of associations	chapter 1, page 8
Identified material aspec	cts and boundaries	
G4-17	organization's consolidated financial statements	annual financial report 2013/14, page 71ff
G4-18	report content and the aspect boundaries	chapter 1, page 8 ff chapter 3, page 18, 19
G4-19	material aspects	chapter 1, page 9
G4-20	material aspects boundaries within the organization	chapter 1, page 9
G4-21	material aspects boundaries outside the organization	chapter 1, page 9
G4-22	restatements of information provided in previous reports	first report
G4-23	significant changes from previous reporting periods	no changes as this is the first report

General standard disclosures	Standard dislosure title	Reference to CSR Report and online information
Stakeholder engagement		
G4-24	list of stakeholder groups engaged by the organization	chapter 1, page 8
G4-25	basis for identification and selection of stakeholders	chapter 1, page 8
G4-26	organization's approach to stakeholder engagement	chapter 1, page 8
G4-27	key topics and concerns that have been raised through stakeholder engagement	chapter 1, page 8
Report profile		
G4-28	reporting period	fiscal year 2013-14 (01.04.2013 to 31.03.2014)
G4-29	previous reports	-
G4-30	reporting cycle	yearly
G4-31	contact point	Imprint
G4-32	GRI index	chapter 10, page 74 ff
G4-33	external assurance	no external assurance of this content. The re- port content has been internally.
Governance		
G4-34	governance structure	annual financial report 2013/14, page 26ff
Ethics and integrity		
G4-56	organization's values, principles, standards and norms of behavior	chapter 8, page 56ff

SPECIFIC STANDARD DISCLOSURES

Specific standard disclosures	Specific dislosure title	Reference to CSR Report and online information	Identified Omissions and Explanations
Economics			
Economic performa	nce		
G4-EC1	Direct economic value generated and distributed	annual financial report 2013/14, page 71ff	
Ecology			
Materials			
G4-EN1	Percentage of materials used that are recycled input materials	chapter 6, page 44	This specific standard disclosure includes a quantitative listing of the main production materials over time. A breakdown by renewable and non- renewable materials is currently not possible due to the complexity. Laminates are not disclosed in kg but in m ² as this the main unit which is internally collected. A conversion in kg is not possible because of product differences
Energy			
G4-EN5	Energy intensity	chapter 4, page 27	The indicator is not disclosed in absolute values but in relation to manufactured quantity of PCBs in m².
G4-EN6	Reduction of energy consumption	chapter 4, page 24 ff	
Water			
G4-EN8	Total water withdrawal by source	chapter 5, page 38 chapter 10, page 69	The indicator is not disclosed in absolute values but in relation to manufactured quantity of PCBs in m².
G4-EN10	Percentage and total volume of water recycled and reused	chapter 5, page 36 ff	Water is recycled at the sites through different technologies and systems. The systems are described qualitatively in the chapter .
Emissions			
G4-EN15	Direct greenhouse gas (GHG) emissions (Scope 1)	chapter 4, page 29	The indicator is not disclosed in absolute values but in relation to manufactured quantity of PCBs in m ² .
G4-EN16	Energy indirect greenhouse gas (GHG) emissions (Scope 2)	chapter 4, page 29	The indicator is not disclosed in absolute values but in relation to manufactured quantity of PCBs in m ² .
G4-EN18	Greenhouse gas (GHG) emis- sions intensity	chapter 4, page 30	
G4-EN19	Reduction of greenhouse gas (GHG) emissions	chapter 4, page 24 ff	

Specific dislosure title	Specific dislosure title	Reference to CSR Report and online information	Identified Omissions and Explanations
Ecology			
Waste water and waste			
G4-EN22	Total water discharge by quality and destination	chapter 10, page 69	
G4-EN23	Total weight of waste by type and disposal method	chapter 6, page 48 chapter 10, page 70	All waste will be passed on to certified waste disposal company for external treatment of waste by all AT&S locations. The information about the further treatment and recycling rate of external disposal companies could not be collected for the reporting period.
G4-EN24	Total number and volume of significant spills	-	No significant spills have been observed in the reporting period 2013/14
Supplier environmental assessment			
G4-EN32	Percentage of new suppliers that were screened using environmental criteria	chapter 8, page 57	

SPECIFIC STANDARD DISCLOSURES

Specific standard disclosures	Specific dislosure title	Reference to CSR Report and online information	Identified Omissions and Explanations	
Social				
Employment				
G4-LA1	Total number and rates of new employee hires and employee turnover by age group, gender and region	chapter 10, page 71		
Occupational health a	and safety			
G4-LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender	chapter 8, page 58	The reporting by gender is not possible due to the cur- rent evaluation options. During the reporting period 2013-14 as well as in the years before there were no work-related fatalities.	
Training and educati	on			
G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	chapter 7, page 52 ff	Qualitative description of the indicator can be found directly in the chapter.	
G4-LA11	Percentage of employees re- ceiving regular performance and career development reviews, by gender and by employee category	chapter 7, page 52		
Supplier assessment for labor practices				
G4-LA14	Percentage of new suppliers that were screened using labor practices criteria	chapter 8, page 57	Qualitative description of the indicator can be found directly in the chapter.	
Local communities				
G4-SO2	Operations with signifi- cant actual and potential negative impacts on local communities	chapter 8, page 59		

Every care was made to ensure the correctness of the data used in this report, and its content has been subject to additional checks by the employees responsible for the various content areas.

This sustainability report contains forward-looking statements which were made on the basis of the information available at the time of publication. These can be identified by the use of such expressions as "expects", "plans", "anticipates", "intends", "could", "will", "aim" and "estimation" or other similar words. These statements are based on current expectations and assumptions, and are by their very nature subject to known and unknown risks and uncertainties. These include future market conditions and economic developments, actions by other participants on the market and attainment of synergies, as well as statutory and political decisions. Many risks and uncertainties are beyond AT&S's control and cannot be quantified with any certainty at this point in time. Recipients of this report are expressly cautioned not to place undue reliance on such statements. Neither AT&S nor any other entity accept any responsibility for the correctness and completeness of the forward-looking statements contained in this report. AT&S undertakes no obligation to update or revise any forward-looking statements, whether as a result of changed assumptions or expectations, new information or future events, or otherwise.

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