



# Austria\*

\*Strong Location for Environmental  
Technologies and Renewable Energies

# All of Europe by Air in 3 Hours



Austria's central geographical location in Europe makes the country the East-West business interface.

# Dynamic Business Location

The Austrian business location stands out in international comparison. Companies profit from a good business environment, qualified employees and a modern infrastructure.

Austria ranks among the most prosperous and innovative countries in the European Union, and has more effectively coped with the economically turbulent period prevailing since 2008 than most other European nations. The business location scores points thanks to its modern infrastructure, top-notch technologies, well-educated and highly-motivated employees, and also offers a high reliability of energy supplies in addition to political, social and economic stability. Moreover, Austria is the ideal base for ensuring market access to the dynamic markets of South East and Eastern Europe.

The development of eco-innovations in Austria is being promoted at many levels. From an international perspective, the share of renewable energy sources as a percentage of total energy consumption is among the highest in the world. Austria's innovative strength in the rapidly growing energy and environmental industries is supported by targeted funding programs and numerous competence centers. Austrian know-how in the field in energy and environmental technologies is in demand worldwide. Despite this good positioning, we are continually working on creating an even more favorable business environment for companies.

In this spirit we would like to welcome you to Austria.

## **Reinhold Mitterlehner**

Federal Minister of Economy,  
Family and Youth



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**EVN**

“By 2020 the members of Oesterreichs Energie want to strongly invest in renewable energies, energy supply reliability and energy efficiency. In this way we will make an important contribution towards achieving Austria's climate and energy objectives. However, the most important power plant is saving energy i.e. the efficient use of energy.”

**Peter Layr, President of Oesterreichs Energie and Spokesman of the Executive Board of EVN**

# Good Reasons for Research Location Austria



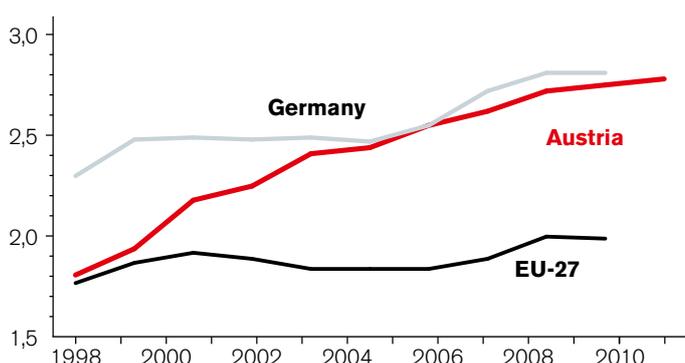
“The future is green” is the motto of environmental technology companies. They benefit from attractive advantages offered by the Austrian business location.

**Innovative diversity.** Austria has emerged as a highly sought-after location for state-of-the-art environmental technologies far beyond Europe’s borders. The dynamic research landscape has played an important role in this process. A broad range of universities, universities of applied sciences and non-university research facilities closely cooperate with specialized SMEs, industry clusters, energy suppliers and the subsidiaries of foreign companies.

**All advantages at a glance.** Outstanding achievements are only possible under favorable conditions which scientists, engineers and entrepreneurs find throughout Austria:

- Customized funding, incentives and financing of application-oriented and basic research
- Ten percent research premium and attractive tax advantages
- A dense network linking the scientific and business communities in the form of competence centers and industry clusters
- Qualified specialized employees and talented scientists in the future-oriented environment and energy sectors
- The geographical proximity to Eastern and South East Europe
- Outstanding living and working conditions

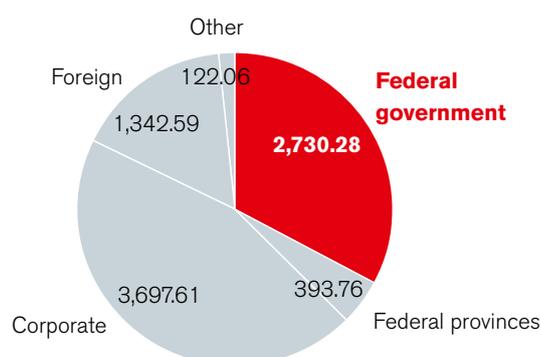
**Development of R&D expenditures in Austria, Germany and the EU-27**  
As a percentage of GDP



Source: ABA-Broschüre 2010 / Eurostat

**R&D investments in Austria**

In EUR million, estimates for 2011  
Total R&D expenditures: EUR 8,286.30



Quelle: Statistik Austria, 2011



## The Red-White-Red Environmental Nation

Austria stands out thanks to its longstanding know-how in the development of environmentally-friendly technologies.

Austria, the land of mountains and lakes, is famous around the world due to its diverse range of landscapes and natural environment. The country has demonstrated its responsibility and commitment to protecting the environment. According to the Environmental Performance Index (EPI) compiled by Yale University in Connecticut (USA), an international ranking evaluating various indicators relating to climate and environmental protection, the Alpine Republic is rated seventh in the world in the year 2012 among 132 nations. It is not without good reason that the entire eco-industry with annual revenues of EUR 10 billion has become an important economic factor which offers 87,000 people future-oriented jobs.

**Strong location for green energies.** Long before the shortage of fossil fuels arose and climate change was embedded in the minds of the general public, numerous companies which consistently work on developing environmentally compatible technologies were established. Thus they serve as the basis for Austria's technological leadership in the field of environmental technology. Renewable energy sources account for 68 percent of electricity production, making the Alpine Republic the leader in Europe. Accordingly, there are interesting market opportunities and growth potential in the fields of hydropower and wind power as well as solar energy and biomass.

**Tops in hydropower.** Austria's most important energy source is hydropower. At current more than 670 run-of-river power plants and some 1,800 small-scale hydropower stations are in operation, which generate approx. 60 percent of Austria's electricity needs. Austria is number one in Europe when it comes to utilizing hydropower, and offers innovative companies bundled know-how and a dynamic business environment.

**Booming biomass.** The importance of bioenergy is continually growing. According to the Austrian Biomass Association, about 60 percent of Austria's gross domestic consumption of renewable energy was derived from biomass, of which four-fifths is used for generating heat. A further 12.4 percent of biomass serves to produce biofuels and 8.6 percent for electricity.

**Strong upwind.** Global wind power capacity is expected to double in the upcoming years according to a prediction made by the Global Wind Energy Council. In Austria wind power already accounts for the biggest share of subsidized green electricity. At the beginning of 2012 a total of 656 wind power plants with an output of 1,084 MW were in operation in Austria.

**Dynamic solar industry.** Austria is also increasingly relying on the power of the sun. Within a period of only eight years, from 2002 to 2010, the annual production of solar collectors in Austria increased almost four times over. At the end of 2012 4.5 million square meters of solar collectors already generated a thermal output of close to 3,200 MW from clean solar energy.



**High rate of funding.** The new Green Electricity Act 2012 increases the funding volume to about EUR 50 million, thus serving as a further incentive to further expand the number of facilities producing green electricity. This offensive is designed to boost the share of electricity consumption generated by renewable energy sources to 85 percent by the year 2020, a top performance in global comparison. Moreover, some 3,300 experts in Austria are focusing on smart grids i.e. the intelligent network management on the basis of modern information and communication technologies. The objective is to equip 80 percent of Austrian households with intelligent meters, also known as smart meters, in the years ahead.

**Ongoing development of environmental technologies.** The environmental industry in Austria is broadly diversified. Innovations made in Austria are internationally sought after, whether they involve state-of-the-art solutions offered by the recycling industry, revolutionary processes to soften drinking water, ultra lightweight vehicle concepts featuring extremely low CO<sub>2</sub> emissions or new materials for the construction industry.

**High research ratio.** Companies in the environmental technology sector have long recognized R&D to be a door opener in order to enter new markets from Austria. On balance, Austria's research ratio of 2.79 percent in 2011 surpassed the comparable figure for the EU-27, the OECD member countries and the USA. The groundwork has also been laid for the future. Plans call for the research ratio to be increased further to 3.76 percent by 2020, significantly above the R&D investment volume comprising three percent of GDP defined by the EU in Europe 2020, the document laying out its growth strategy.

**Renewable Energy**

Share of renewable energy in total energy requirements, in percent

<b>Iceland</b>	1	82.88
<b>Norway</b>	2	45.30
<b>Brazil</b>	3	44.47
<b>Austria</b>	10	27.10
<b>Switzerland</b>	14	20.56
<b>Germany</b>	28	8.85
<b>Italy</b>	30	8.15
<b>France</b>	32	7.56
<b>Poland</b>	34	6.30
<b>Hungary</b>	35	6.27
<b>Czech Rep.</b>	39	5.37
<b>USA</b>	40	5.36
<b>Japan</b>	47	3.44
<b>UK</b>	50	2.76

**Ranking according to relevant climate- and environmental protection indicators**

Maximum = 100

<b>Switzerland</b>	1	76.7
<b>Latvia</b>	2	70.4
<b>Norway</b>	3	69.9
<b>France</b>	6	69
<b>Austria</b>	7	68.9
<b>Italy</b>	8	68.9
<b>Great Britain</b>	9	68.8
<b>Germany</b>	11	66.9
<b>Japan</b>	23	63.4
<b>Brazil</b>	30	60.9
<b>USA</b>	49	56.6
<b>China</b>	116	42.2
<b>India</b>	125	36.2

Source: World Competitiveness Yearbook 2012

Source: Environmental Performance Index 2012



Erich Fercher,  
CEO of Bioenergy 2020+

## Well Networked in a Green Future

Competence centers, environmental clusters and advocacy groups form a dense innovative network in Austria.

**Competence centers stand for bundled know-how.** One of the most successful Austrian funding initiatives is COMET (Competence Centers for Excellent Technologies). The underlying aim is to promote the cooperation between science and industry and generate attractive competitive advantages via competence centers. During the entire duration of the COMET funding initiative (2006-2019), a total of EUR 1.5 billion will be invested in industry-related research, also in the environmental sector.

### **Bioenergy 2020+**

For example, one chapter in the success story is the COMET competence center Bioenergy 2020+, which has been promoting innovations for the environmentally compatible generation of energy from biomass since the year 2008. The competence center has positioned itself as a network of specialists featuring several research locations in Austria. Cooperation partners include internationally renowned research institutions such as the Vienna University of Technology, Graz University of Technology, the University of Natural Resources and Life Sciences, Vienna and JOANNEUM RESEARCH, along with domestic flagship companies such as KWB, Repotec Umwelttechnik and the Güssing Biomass Power Plant as well as international companies such as OMV and Magna.

**Partnerships ensure success.** Erich Fercher, CEO of Bioenergy 2020+, talks about the advantages of professional networking and profitable partnerships.

### **To what extent do companies benefit from competence centers?**

*"Bioenergy 2020+ and other competence centers offer a neutral platform for all partners. On this basis companies which are normally competitors cooperate with each other and work together with the scientific community on key issues they all face. This enables profitable technology and knowledge transfer and easier access to funding, and the joint R&D work costs less."*

### **What do these networks do for Austria as a research location?**

*"In any case an intensive stimulus. The dynamic nature of competence centers increases the competitiveness of the country in the environmental technology industry, and drive innovation forward. Naturally we also enormously strengthen Research Location Austria."*





# Clusters create synergies

Regional networks promote the cooperation within the business community and with a wide range of research institutions.

**ECO WORLD STYRIA.** 200 specialty companies and R&D organizations linked within the Styrian industry cluster work on developing new solutions designed to ensure a clean environment. In 2010 they generated revenues of EUR 6.9 billion, a rise of over 13 percent from the previous year. Today the region is known as Green Tech Valley in the heart of Europe. Here you will find more globally leading green tech companies within one hour's drive than anywhere else in the world. In 2010 ECO WORLD STYRIA was ranked as the world's number one energy and environmental engineering cluster by the American Cleantech Group.

**Environmental Technology Cluster.** Upper Austria is also considered to be a strong business location. There some 130 environmental technology companies which bundle their know-how in the fields of wastewater treatment, waste management, resource and energy efficiency, soil, air and noise. This is for the benefit of innovative Austrian-based SMEs whose international competitiveness is enhanced by the cluster.

**Environmental Cluster Vienna.** Some 400 firms dedicated to the environment and energy growth sector along with 14 institutions in the field of research, technology and innovation comprise a dense network in the Austrian capital city. Moreover, Vienna stands out due to its role as a large university location with renowned R&D facilities, for example in the environmental technology sector, and thus offers an attractive environment conducive to developing green innovations.

→ [www.bioenergy2020.eu](http://www.bioenergy2020.eu)

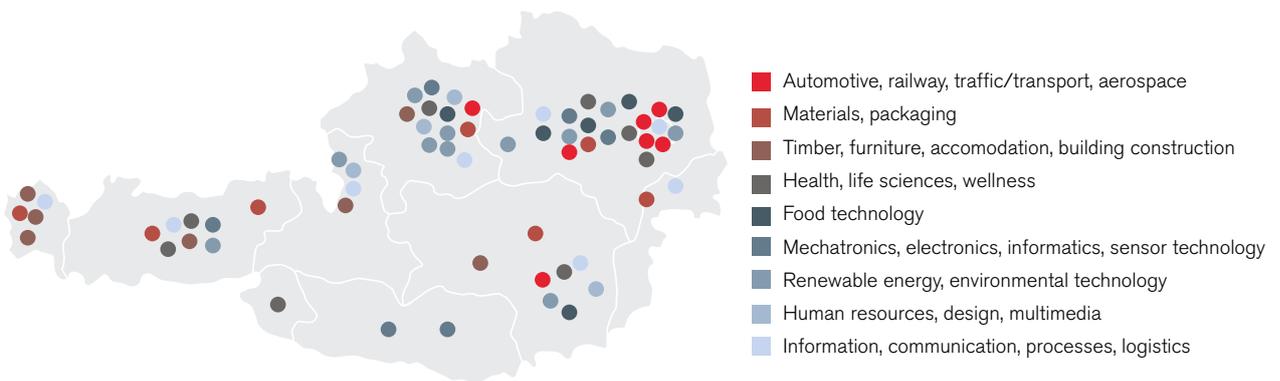
→ [www.eco.at](http://www.eco.at)

→ [www.umwelttechnik-cluster.at](http://www.umwelttechnik-cluster.at)

→ [www.clusterwien.at](http://www.clusterwien.at)

## Clusters and networks

in the Austrian provinces and supraregional initiatives



Source: Clusterplattform

# Well-advised by advocacy groups

The entrepreneurial spirit and good ideas thrive as a result. Numerous interest groups strongly champion the commercial use of environmental technologies and renewable energies.



## **Umbrella Organization Energy-Climate Protection**

This working group within the Austrian Federal Economic Chamber serves as a platform for associations belonging to the sectors Commerce, Crafts & Services and Industry within the Austrian Federal Economic Chamber as well as other associations. The umbrella organization is dedicated to the business-oriented implementation of climate protection measures and considers itself to be a contact partner for the business community.

## **Austrian Energy Agency**

The Austrian Energy Agency is a nationwide research institution serving as a platform for the federal government and the provincial administrations along with some 50 important institutions in the energy industry and society to cooperate. The organization advises and supports decision makers in politics, the business and scientific communities. The focus is on energy efficiency and renewable energy sources in the field of tension between economic competitiveness, climate and environmental protection and a reliable energy supply.

## **Austrian Biomass Association**

The association represents the entire sector dedicated to the use of biomass for energy purposes. The vision is to achieve a complete conversion to an efficient, renewable energy system based on the best possible contribution made by sustainably produced energy from biomass.

→ [www.energieklima.at](http://www.energieklima.at)

→ [www.energyagency.at](http://www.energyagency.at)

→ [www.biomasseverband.at](http://www.biomasseverband.at)



## Environmental Research in Austria

Excellent research institutions are a strong partner for the eco-industry.

The “cooperative sector” i.e. non-university research is the fastest growing field in Austria’s research landscape, with R&D expenditures quadrupling over the last ten years. More than 5,000 people are employed at over 50 non-university research facilities, including specialists in the fields of renewable energies and environmental technologies. The entire industry benefits from this know-how.

### **AIT Austrian Institute of Technology**

The Austrian Institute of Technology (AIT) is Austria’s largest non-university research institution. With its five departments, it comprises a highly specialized research and development partner for industry focusing on crucial infrastructure issues of the future: Energy, Mobility, Health & Environment, Safety & Security as well as Foresight & Policy Development. Some 1,100 employees conduct research throughout Austria, particularly at its main facilities TechGate Vienna, Vienna TECHbase, Seibersdorf, Tulln, Wiener Neustadt, Ranshofen and Leoben. They focus on the development of tools, technologies and solutions which will make the Austrian economy fit for the future in line with the motto “Tomorrow Today”.

### **JOANNEUM RESEARCH**

For more than 30 years JOANNEUM RESEARCH has been carrying out leading-edge research of international caliber and is one of the largest non-university research institutions in Austria. About 85 scientists at the Institute for Water, Energy and Sustainability alone carry out research on socially acceptable as well as economically feasible and environmentally compatible solutions. JOANNEUM

RESEARCH ranks internationally as one of the most highly recognized scientific institutions in the world focusing on sustainable resource use thanks to its bundled know-how in research and development and competence building oriented to dealing with new challenges.

#### **AEE - Institute for Sustainable Technologies (AEE INTEC)**

This non-university research association is one of the leading institutes today for applied research in the future-oriented fields of solar thermal energy, low-energy and zero energy buildings as well as energy efficiency in industry and sustainable water management. AEE INTEC is active in a national and international cooperation network, and also a member of the European Renewable Energy Research Centers Agency (EUREC).

#### **Austrian Society for Environment and Technology (ÖGUT)**

In cooperation with its members, this non-profit organization has been initiating and promoting sustainable solutions on behalf of the environment and the economy over the last 27 years, carrying out research projects and preparing the information required for decision making in favor of sustainable environmental policies. Its 80 members include federal ministries as well as the most important Austrian environmental organizations, banks and companies.

#### **Austrian Institute of Ecology**

Since 1985 this established independent research and consulting institute has been successfully working on a broad spectrum of issues pertaining to sustainable development. Projects are implemented throughout Austria and on an international level on behalf of the political sector, public administration and business as well as interest groups on topics ranging from waste management, energy efficiency, climate protection and nuclear risks to tourism and sustainable construction.

#### **University of Natural Resources and Life Sciences, Vienna (BOKU)**

The University of Natural Resources and Life Sciences is considered to be one of the world's most renowned academic, educational and research institutions in the environmental sector. The university offers R&D in the areas of following areas of competence: land use and land eco-systems, water-atmosphere-environment, food-nutrition-health, biotechnology and nanosciences as well as living space and agriculture, sustainable raw materials and resource-oriented technologies.



- [www.ait.ac.at](http://www.ait.ac.at)
- [www.joanneum.at](http://www.joanneum.at)
- [www.aee-intec.at](http://www.aee-intec.at)
- [www.oegut.at](http://www.oegut.at)
- [www.ecology.at](http://www.ecology.at)
- [www.boku.ac.at](http://www.boku.ac.at)



## Attractive Funding and Tax Advantages

Whoever carries out research pays lower taxes – and profits from the ten percent research premium and numerous funding programs.

**Research and even more research.** Conducting world-class R&D poses major financial challenges to companies and research facilities, also in the environmental sector. For this reason, Austria reduced the investment risk. Starting at the beginning of 2011 the research premium on expenditures for a company's own R&D as well as contract research was raised from eight to ten percent, thus further improving the overall framework for corporate innovation. Companies are legally entitled to this premium, which is paid out in cash.

**Tax advantages.** Moreover, the Austrian tax system is extremely attractive for companies, featuring the tax-exempt educational allowance, the apprenticeship allowance, tax loss carryforwards and the possibility to transfer hidden reserves. The corporate income tax rate is 25 percent, net worth tax and trade tax are not levied in Austria.

**Export promotion.** Austria's export promotion system also benefits environmental technology companies. Österreichische Kontrollbank Aktiengesellschaft (OeKB) and the Austrian Export Fund create favorable financing opportunities.

**Broad-based research funding.** Customized R&D research programs from the Austrian Research Promotion Agency (FFG), Austria Wirtschaftsservice (aws) or the Austrian Science Fund (FWF) are available to companies conducting research.

Funding:

- [www.ffg.at](http://www.ffg.at)
- [www.awsg.at](http://www.awsg.at)
- [www.fwf.ac.at](http://www.fwf.ac.at)
- [www.klimaaktiv.at](http://www.klimaaktiv.at)
- [www.nachhaltigwirtschaften.at](http://www.nachhaltigwirtschaften.at)
- [www.klimafonds.gv.at](http://www.klimafonds.gv.at)
- [www.public-consulting.at](http://www.public-consulting.at)
- [www.foerderkompass.at](http://www.foerderkompass.at)

**Special funding programs for the environmental sector.** The Federal Ministry of Agriculture, Forestry, Environment and Water Management also makes funding available to companies and research institutions in the field of environment and energy, for example its program klima:aktiv. The Sustainable Management stimulus program initiated by the Federal Ministry of Transport, Innovation and Technology offers attractive incentives. The focus of the funding pool created by the Climate and Energy Fund is to enhance energy efficiency. Moreover, Kommunalkredit Public Consulting (KPC) manages funding, energy and climate protection programs and offers consulting on international projects.

# Raise the Curtain: Global Market Leader!

Innovations made in Austria are now sought after around the world.



## **Binder+Co**

The green tech company is considered around the world to be a synonym for resource-saving technologies designed to treat and recycle valuable primary and secondary raw materials. The latest innovation of the Styrian SME which ranks among the world market leaders is the so-called BUBLON plant for the production of "perlite popcorn", developed in cooperation with the Chinese partner Chi-Che Euro-Technic, Montan University of Leoben and the university of applied sciences FH JOANNEUM. This new material is used in the construction industry thanks to its outstanding insulation properties. In 2011, Binder+Co was given the Best Open Innovator Award granted by Zeppelin University in Friedrichshafen for being the best SME in the DACH region of Europe. The company invests about EUR 2 million in research and hopes to increase revenues by 25 percent from the current level of EUR 81.7 million.

## **VA TECH WABAG**

VA TECH WABAG is an internationally operating company in the fields of drinking water and wastewater treatment, seawater and brackish water desalination as well as innovative systems for water recycling and sludge treatment for municipalities and industry. The global player is active in numerous key markets. At present VA TECH WABAG is constructing large wastewater purification plants, for example in Turkey and the Middle East. Wastewater can be treated in an environmentally compatible and energy-saving manner thanks to state-of-the-art technologies. As a result, the scarce natural water resources in these regions can be protected.

## **LEITWIND**

The Italian-Austrian specialist and leading manufacturer of gearless wind turbines gets the most out of wind power thanks to its patented direct drive systems featuring a permanent magnet-based synchronous generator. The profits underline the effectiveness of the company's approach. LEITWIND once again posted a record year in 2011. With about 799 employees at the three sites in Italy, Austria and India, the company achieved revenues of EUR 163 million. 100 newly installed wind turbine generators contributed to increasing revenues by 19 percent from the prior-year level. In addition, LEITWIND invests heavily in its research and development sites in Sterzing and Vienna, with EUR 5.8 million committed to innovations and new products in 2012. In the meantime, LEITWIND has already installed 200 wind turbines on three continents.

→ [www.binder-co.at](http://www.binder-co.at)

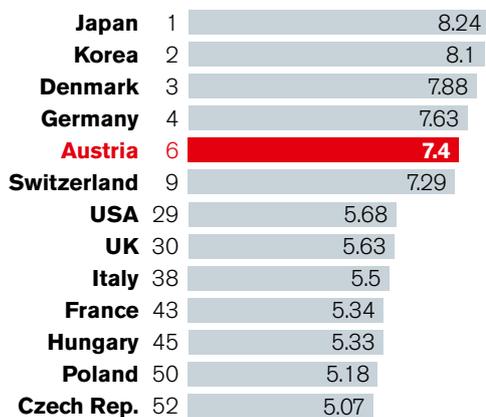
→ [www.wabag.com](http://www.wabag.com)

→ [www.leitwind.com](http://www.leitwind.com)



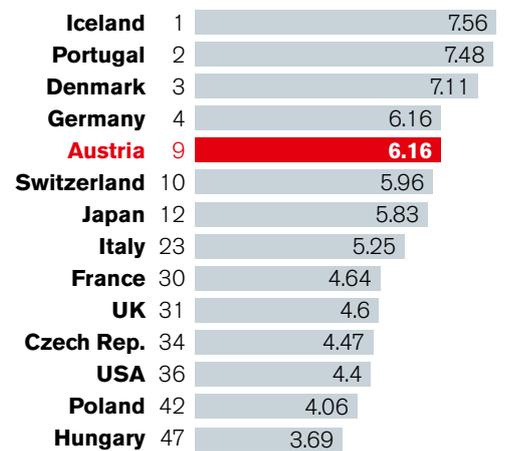
**Sustainable development**

10= is a priority in companies



**Green Technologies**

10 = Represent a competitive advantage



Source: World Competitiveness Yearbook 2012

Source: World Competitiveness Yearbook 2012

# East-West Business Interface



The environmental industry is entering future-oriented markets in Central and Eastern Europe.

## **Siemens AG Austria**

Siemens is one of the world's largest suppliers of environmentally-friendly technologies. The environmental portfolio encompasses the enhanced efficiency of conventional power plants, the expanded use of renewable energies and the development of energy-saving and profitable solutions for building, lighting, traffic and industry. The capabilities of Siemens Austria primarily focus on tramways, underground railway systems and passenger carriages, undercarriages, smart grids, toll systems, small-scale hydropower plants as well as gas and steam turbine plants. The leading technology company coordinates business operations from its Austrian base in the Siemens cluster "Central Eastern Europe" encompassing 19 countries, including Central, South East and Eastern Europe as well as Israel and Turkey. This economic region with an area of about 2.5 million square kilometers and a population of more than 230 million inhabitants generated revenues of EUR 8.7 billion for Siemens in the 2010/11 fiscal year.

## **Enercon GmbH**

The German company is one of the global leaders in the production of wind power plants. In Zurndorf in Burgenland the market leader is building a new factory for concrete towers to produce tower components for 200 turbines annually. The new plant is expected to come on stream at the end of 2012, and supply not only the Austrian market but also customers in Hungary, Romania, Croatia, Poland and Southern Germany.

## **Kärcher**

This globally leading company is well known for the development, production and marketing of cleaning systems. Kärcher attaches great importance to researching and developing feasible and environmentally-compatible processes and products, for example its "eco!efficiency" product line which saves energy, cleaning agents and time. Kärcher Austria has been serving as the company's headquarters for Central and Eastern Europe since 1993, coordinating, managing and implementing business activities in thirteen markets. Kärcher is continuing to expand its Austrian operations, most recently investing more than EUR 1 million in a new CEE central warehouse in 2009.

→ [www.siemens.com](http://www.siemens.com)

→ [www.enercon.de](http://www.enercon.de)

→ [www.kaercher.at](http://www.kaercher.at)



# Hydropower – The Number One Energy Source

Innovative companies in the hydropower sector benefit from a dynamic environment in the Austrian business location.

Austria is considered to be Europe's water reservoir. The annual water supply amounts to 84 billion cubic meters. Austria only requires three percent of this volume, or 2.6 billion cubic meters, to fulfill its own water needs.

**Hydropower as an eco-opportunity.** At present more than 670 run-of-river hydropower plants and some 1,800 small-scale hydroelectric power stations are in operation. At the same time, Austria boasts impressive potential for expanding the use of this precious natural resource. According to a study carried out by the advocacy group Oesterreichs Energie, the Federal Ministry of Economic Affairs, E-Control and various interest groups in the energy sector, the total technical and economic potential of hydropower in Austria is estimated at 56 TWh (terawatt hours). Deducting electricity production from power plants currently in operation and taking account of protected areas such as national parks or World Heritage Sites, there is still 13 TWh of electricity which could be generated from hydropower as an energy source.

**Patents – the keys to success.** The hydropower industry in the Alpine Republic is characterized by numerous research partnerships and technological innovations which pay off. For example, the eco-industry in Austria features more patent applications in the field of drinking water and wastewater technologies than Germany or the entire EU. Austrian companies whose core business is water management post revenues of about EUR 303 million each year. The wastewater treatment segment even generates annual revenues of EUR 2.85 billion, and ranks among the most important business sectors in the environmental technology industry. The focus is on exports, due to the fact that Austrian know-how is highly sought after, especially in South East and Eastern European target markets such as Hungary, Czech Republic, Slovakia and Slovenia.

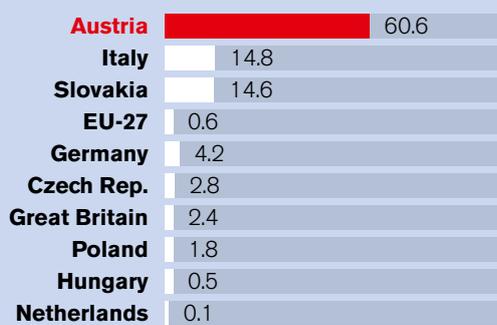
## **ANDRITZ HYDRO**

The world's leading provider of electromechanical equipment for hydropower plants, especially turbines and generators, is currently expanding its plant in Weiz in the federal province of Styria. A global competence center for air-cooled turbogenerators used in gas-fired and steam power plants is being constructed at a cost of EUR 5 million, including EUR 1.9 million in grants. The focal point is on solutions for clean power plants i.e. ecologically optimized thermal power plants and back-up power plants to compensate for energy fluctuations arising from renewable energy sources such as wind and solar power.



### Leading in hydropower

Share of hydropower in total electricity production, in percent





## Booming Biomass

Considerable importance is attached in Austria to new technologies enabling the use of biomass.

Biomass is the second most important renewable energy source in Austria. One of the reasons is that Austria's forests comprise 46 percent of the total land area, making it the third most densely wooded country in Europe behind Finland and Sweden. Numerous specialty companies specifically focus on the development of new technologies to produce electricity, heat and fuel from solid, liquid and gaseous biomass. And this has been a success. The use of solid biomass generates revenues of EUR 2.2 billion, EUR 144 million is derived from biofuels and EUR 50 million from biogas. Austria is also the third largest pellet producer in Europe, surpassed only by Germany and Sweden.

**From biomass heating to biofuels.** A large number of environmental technology companies operating in Austria develop high-tech energy solutions for the global market. Thus two-thirds of the biomass furnaces installed in Germany already come from Austrian manufacturers. The R&D on biomass boilers focuses on the reduction of waste gas emissions, system optimization and the development of marketable small combined heat and power systems. Numerous innovation drivers in the industry are located in Styria, such as BDI-BioEnergie International AG, the leading specialist for the production of biodiesel and biomass, and the firm KWB Biomasseheizungen GmbH.



"KWB has defined the target of launching one innovation on the marketplace each year. In order to ensure that this happens, we operate the largest research and development center for biomass in Europe today. In addition, we are also intensively pressing ahead with our efforts to enhance the comfort and environmental performance of our products on the basis of research projects. In this regard we work with Austrian research centers such as Bioenergy 2020+ as well as with international institutions such as the Fraunhofer Institute and the German Aerospace Center."

**Erwin Stubenschrott, CEO KWB Biomass Heating Systems**

### BDI-BioEnergy International AG

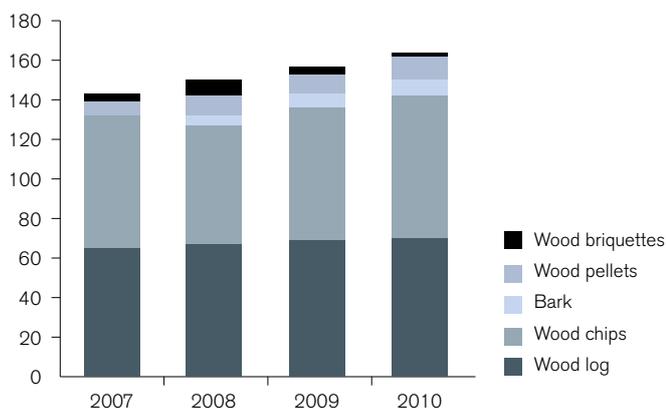
The R&D site of the Graz-based company BDI-BioEnergy International AG develops leading edge technologies to generate biofuels from waste products and biomass according to the principle "from waste to energy". For several years the innovation leader has been carrying out intensive research on the use of microalgae as a renewable energy source for producing biodiesel and biogas. At present BDI is participating in the EU project ALLGas, aiming to achieve the industrial scale production of biofuels from microalgae. In 2010 BDI invested about EUR 4 million in R&D, and boasts an extensive patent portfolio.



### KWB Biomass Heating

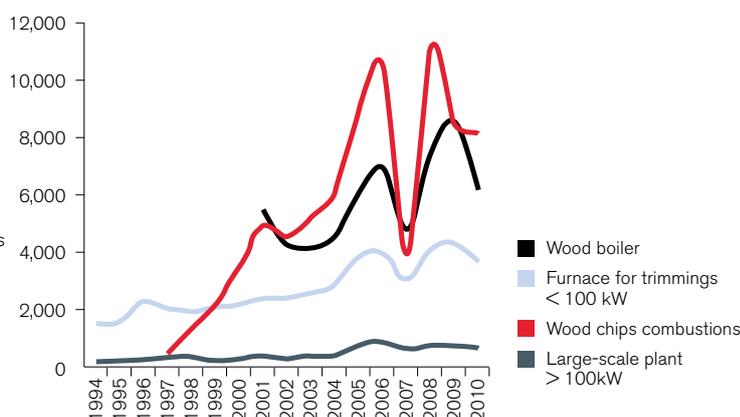
KWB stands for deriving energy and heating from biomass, and is the synonym for innovative biomass heating systems. Since 1994 the Styrian technology leader has manufactured premium heating solutions. The brand name producer KWB has repeatedly confirmed its ongoing further development of heating solutions. This started with the first wood chip heating system featuring a fully automatic heat exchanger cleaning, and also encompasses the development of underfeed combustion for pellet heating and the founding of the first private research and development center for biomass in Europe.

**Use of solid biofuels**  
in Austria 2007 – 2010  
Energy consumption in PJ



Source: BIOENERGY 2020+

**Market development for biomass boilers in Austria**  
Number per year



Source: Landwirtschaftskammer Niederösterreich (2011)



# Wind Power on the Upswing

Wind power is considered a promising and clean future energy source in Austria.

**Wind power as an economic factor.** With respect to green electricity production, wind energy has the highest economic potential for future expansion with the exception of hydropower. The passing of the new Green Electricity Act 2012 already provided considerable impetus to the industry. Approved projects were accelerated and contracts for more than 800 MW were concluded thanks to additional funding to the amount of EUR 80 million. IG Windkraft, the Austrian Wind Energy Association, expects investments of about EUR 620 million.

The construction of wind power facilities by foreign plant manufacturers, mostly from Germany and Denmark, leads to considerable value creation in Austria. This is because Austrian companies serve as highly qualified component or service suppliers and are integrated along the entire value chain of wind power plant producers. In 2009 total revenue exceeded EUR 470 million.

**Leading in many markets.** Austrian expertise is also highly valued outside of the country's borders. More than half of the companies in Austria's wind power industry have export rates of over 90 percent. Domestic suppliers involved in the wind power business mainly focus on providing the global market with control systems, wind turbine blade materials, generators, plant concepts and tubular steel towers – and with great success. Every second new wind turbine installed around the world, for example, features a control system supplied by Bachmann electronic GmbH from Vorarlberg.

**Austrian Wind Power (AWP)** shows how one can effectively generate a large amount of energy from wind power. Austrian Wind Power produces 500 million kW of green electricity every year in ten wind farms boasting 147 wind turbines and an output of 273 MW. The company has a subsidiary in Hungary. At present half of total electricity consumption in Burgenland is already provided by wind power. This comprises a considerable contribution towards achieving the goal of having by renewable energy sources generate 100% of Burgenland's electricity requirements by the year 2013.

# Dynamic Solar Industry

Austrian companies achieve top level performance by exploiting the power of the sun.



**Sustainability based on solar thermal energy.** What began in the 1970s as a movement on the part of people making their own solar collectors on a small scale has become a significant sector of the economy in the meantime. The country on the Danube now ranks as one of the biggest producers of solar collectors in Europe, with revenues of approximately EUR 490 million in 2010 and some 1.3 million square meters of manufactured collector area. Average market growth has been about seven percent over the last ten years.

**Sunny records.** In 2011 the world's largest solar thermal plant was put into operation in Saudi Arabia, featuring a collector area of 36,300 square meters. The technology involved comes from Austria. In the same year the world's largest solar cooling system – also made in Austria - was installed in Singapore for the World College of East Asia. Such international energy projects have been made possible thanks to the qualified expertise and the good reputation of Austria's solar power developers. In order to further consolidate its strong market position, the companies are relying on continuing innovations, the ongoing improvement of product quality, the optimization of production processes and also the reduction of production costs, which is crucially important.

**GREENoneTEC.** The world market leader for thermal solar collectors ranks as one of Austria's flagship companies. From its Carinthian base it cooperates with research institutions such as the Fraunhofer Institute for Solar Energy Systems (Freiburg, Germany), the Institute for Solar Technology (Rapperswil, Switzerland), Arsenal Research in Vienna and the Graz University of Technology. In 2011 the production volume totaled 700,000 m<sup>2</sup> for more than 100 customer-specific versions of solar collectors.

## **S.O.L.I.D. Gesellschaft für Solarinstallation und Design GmbH**

The company from Graz has been operating large thermal solar plants since 1992, and thanks to its know-how ranks among the pioneers and internationally leading companies in the solar industry. The Styrian specialist was given international recognition for its achievements when it won the US-Biz Award 2012, considered to be the business Oscar. This prize is granted to Austrian companies which succeed in drawing attention to themselves on the basis of their outstanding performance on the American market S.O.L.I.D. installed the first solar cooling system there in 2007.



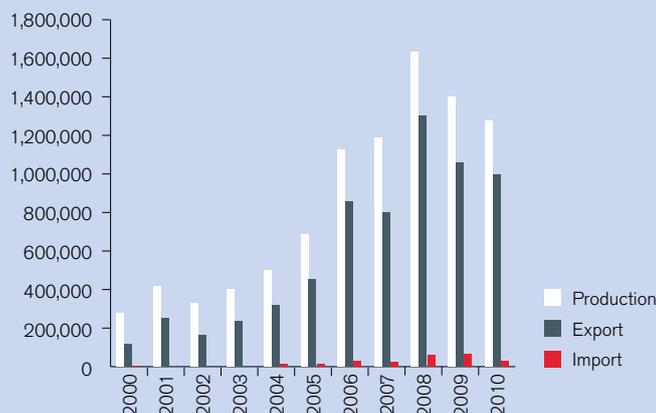
**Photovoltaics – revolutionary developments.** Austrian photovoltaic companies boast a broad-based expertise. Photovoltaics have become an important industry in Austria, from the production of photovoltaic cells, inverters, tracking systems and entire modules to the planning and assembly of the plants. More than 4,450 experts generated revenues of about EUR 800 million in 2010. Every tenth job was in research and development as a means of developing innovations to continue ensuring international competitiveness in the future. In 2010 approximately 77 percent of the manufactured modules were destined for foreign markets. The export rate for tracking systems and photovoltaic inverters even reached a level of 99 percent.

At the beginning of 2012, the development of the world’s lightest solar cells attracted considerable attention. Within the context of a partnership between Johannes Kepler University of Linz and the University of Tokyo, researchers succeeded in producing extremely flexible and highly productive cells. In the future they will be used in the field of robotics or for new applications such as e-textiles or fabrics serving as energy storage devices.

**Smart Cities.** Cities around the world consume 75 percent of the energy and are responsible for 80 percent of CO<sub>2</sub> waste gas emissions. In the future smart cities featuring energy-efficient buildings, e-mobility and environmentally-friendly technologies should help achieve the EU objective of reducing total CO<sub>2</sub> emissions by 20 percent by the year 2020. There are already 60 smart city pilot projects in Europe, of which ten are in Austria. Within the context of the flagship project “Graz City Center” entailing a budget of EUR 25 million, a buoyant force power plant on the basis of volcanic wind is planned in order to convert thermal to electrical energy. New photovoltaic technologies are also playing a role. Accordingly the outer skin of this tower should be furnished with special photovoltaic cells for electricity production, which will enable this part of the city to be provided with alternative energy 24 hours a day.

**Production, export and import of thermal collectors in Austria**

In sq. m



Source: Federal Ministry for Traffic, Innovation and Technology, 2011

# Broad Portfolio of Environmental Technologies

Specialists research and development environmentally compatible solutions for a wide variety of applications.



**EREMA Engineering Recycling Maschinen und Anlagen Ges.m.b.H.** is the global market leader in the development and production of plastic recycling plants and components and is considered to be one of the most innovative companies in the industry. The Group achieved revenues of EUR 127 million with its products in 2011/12.

**BWT – For You and Planet Blue** is the market leader in Europe in all areas of water technology, from household applications to the pharmaceutical and biotech industries. The latest innovation is the patented Mg2+ technology, which revolutionizes the previously known process to soften drinking water. Success speaks for itself. In 2011 the BWT Group succeeded in expanding by 8.9 percent, posting revenues of EUR 478.9 million.

**Komptech** develops solutions and produces machines and systems to treat waste and biomass. The company posted record revenues in 2011 of EUR 111 million, a rise of close to 27 percent from the prior year. In particular, considerable investments in research and development pay off. Komptech boasts a research ratio of about seven percent, double the comparable level of its competitors.

**Magna Steyr** has initiated a vehicle project called CULT (Cars Ultra Light Technologies). The objective is to develop an A segment vehicle featuring half the normal level of CO2 emissions and a maximum weight of 600 kilograms. A cross-company consortium with industrial and scientific partners was established to solve this challenge. The project will continue until 2013, and is being supported by the Austrian Energy and Climate Fund.

**CTP Air Pollution Control** is one of the world market leaders for industrial exhaust air treatment. Partnerships are the recipe for success. Currently CTP is participating in an EU research project with German, Finnish and Swedish R&D partners to test new technologies for the foundry industry in order to minimize odorous and poisonous emissions. In 2010 the publicly listed Japanese company Sintokogio Ltd., a supplier of foundry equipment for industry, acquired a stake in the Graz-based company. On the basis of this strategic partnership CTP and Sinto aim to exploit synergies and expand their position on the Asian-Pacific and American markets.

- [www.erema.at](http://www.erema.at)
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