

2015 Sustainability Report



Heating systems
Industrial systems
Refrigeration systems

Contents

This Sustainability Report has been prepared in accordance with the internationally accepted standards of the Global Reporting Initiative (GRI). These ensure that Viessmann communicates its activities with regard to the main areas of sustainability.

It therefore establishes a benchmark for evaluating sustainability measures in the future. The Sustainability Report covers the entire Viessmann Group and primarily contains information on activities in 2013 and 2014.

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As a family business in its third generation and a leading international manufacturer of heating and cooling technology systems, we are committed to the principle of sustainability. It guides our activities and is securely anchored in our company principles:

"We are committed to fulfilling our economical, ecological and social responsibilities. We ensure that all our processes are environmentally compatible and encourage the use of renewable forms of energy. Our aim is to protect the climate and preserve the natural basis for life. We value and involve ourselves in the scientific, artistic and cultural life of our society."

Sustainability will be a crucial success factor for every company in the future. It is essential that we conserve the environment, use resources more efficiently and avoid waste. The growth needed to maintain our current level of prosperity must be generated from intelligent value creation in the future, not from the overexploitation of resources, the environment or the climate.

As the largest consumer of energy in Germany, the heating market offers tremendous potential for saving energy. Energy is still wasted in 80 percent of buildings because they are heated with obsolete technology. In addition, up to 40 percent of final energy consumption could be eliminated in the industrial and manufacturing sectors.

The necessity to protect the climate and save energy has led to a greater use of renewable energy and particularly energy-efficient products, both in the heating technology sector and other industries. In cooling and refrigeration technology, the implementation of economical, environmentally friendly systems can also greatly help to achieve the efficiency objectives defined by policymakers. Integrated solutions, which comprise heating, cooling, and air conditioning systems combined with customized energy management, are becoming increasingly important.

The structural shift towards efficient technologies and renewable energy has given rise to risks and challenges, opening up great opportunities. The environmental and energy sector is on its way to becoming a flagship industry. It has the largest rates of growth in investments and jobs. Climate protection, innovation and economic success go hand-in-hand today. Or, to put it another way: "Sustainability pays off."

However, sustainability must be actively practiced. Therefore, the current Sustainability Report of the Viessmann Group provides information about our strategic approach to sustainability and the individual steps we are taking to implement our concepts.

This report has been drawn up for our most important stakeholders: our customers, our employees, suppliers, policymakers and public administrations, the media, organizations and associations, as well as the general public. Together with these partners, we want to make sure that sustainability continues to be a guiding principle for our business activities in the future. Therefore, we are looking forward to constructive discussions and a cooperative dialog with all groups in society.

Prof. Dr. Martin Viessmann

Balancing ecology, economy and social responsibility

Climate change and the scarcity of natural resources are the major challenges of our times. Sustainable development is becoming increasingly important in all areas of life.



Preserving the Earth was called for as early as in the Bible. But the concept of sustainability as we know it today was not established until the 18th century. At that time, Europe was on the edge of a resource collapse: The main resource of that era, wood, was becoming scarce. Trees were cut down to build homes and ships or they were burned for heating. It was not until the very existence of large parts of the population was threatened by these practices that people began to consider how they could use the forest without ruining it.

This question embodies the essence of sustainability as defined 200 years later by the Brundtland Commission: how to meet the needs of the present without compromising the ability of future generations to meet their own needs. In this sense, sustainability is an intergenerational contract about economic, ecological and social fairness. These three dimensions of sustainability do not stand alone: They make up the three sides of a triangle, the geometric archetype that symbolizes sustainability, and are contingent on one another.

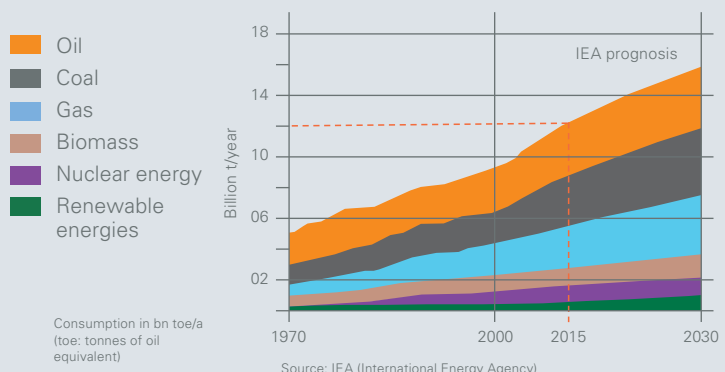
Greatest challenge for mankind

Today, we are living in a time when natural resources are becoming increasingly scarce. This is most apparent in the dwindling reserves of fossil fuels, the consumption of which has doubled since 1970. It will in fact triple by 2030 and, due to the resulting emissions, have a serious impact on the climate. Establishing an environmentally compatible and resource efficient as well as commercially viable energy supply for the future is more important than ever before.

However, the often-cited transition to a sustainable energy era based on 100 percent renewable energy is not done easily. In Germany, fossil fuel sources account for nearly 90 percent of the energy supply. In the long run, the theoretical potential of renewable energy will not be enough to meet the current level of energy demand.

A well-balanced mix of all available resources is required to cover the remaining demand. This ranges from the efficient use of fossil fuels, solar energy, wind, geothermal energy through to producing energy with biomass. The very basis of life for future generations is at stake here.

Worldwide energy consumption according to fuel type



UN climate conferences largely unsuccessful so far

Policy at the global level has not yet adequately dealt with the challenges of climate protection and a sustainable energy supply. Twenty years after the first United Nations Conference on Sustainable Development, the international community has committed itself to establishing a green economy, but no concrete targets have been agreed upon, even at the "Rio 20+" follow-up conference.

The same holds true for the Kyoto Protocol. Although policymakers are expected to decide on a follow-up regulation at the World Climate Conference at the end of 2015 in Paris, the UN does not anticipate a binding agreement to take effect before 2020.

Sustainable energy era – A challenge and an opportunity

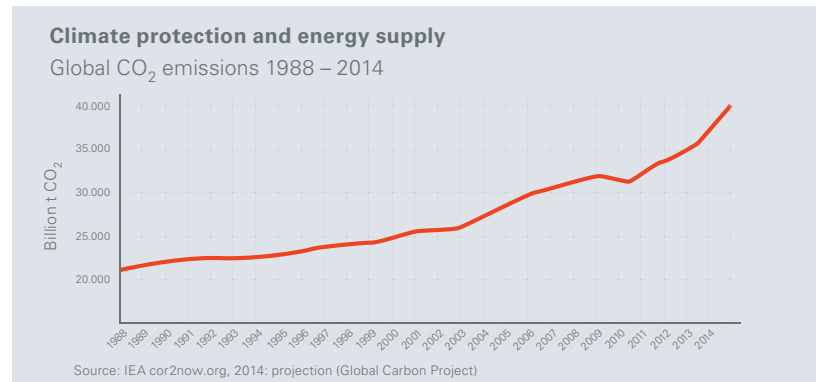
The EU member states, however, have set for themselves concrete and ambitious goals. Until 2020, energy consumption is to be reduced by 27 percent, the share of renewable energies is to be increased to 27 percent and CO₂ emissions are to be decreased by 40 percent.

Achieving these objectives will require huge efforts from some countries. So far, only Italy, Malta, Sweden, and Cyprus have fulfilled their obligations to report to the EU Commission on how they plan to meet their energy-efficiency targets on time.

Germany has now developed specific measures for this purpose – albeit with some delay – which include improvements of the political framework: the National Plan of Action for Energy Efficiency (NAPE) and the Climate Protection Action Program. The NAPE encompasses the most important measures for the heating market:

- tax deduction of energy-saving modernization
- additional financial support from the German development bank (KfW) program and the market incentive program (MAP)
- efficiency-labeling of existing systems

The Climate Protection Action Program addresses to reduce CO₂ emissions, in



particular those generated by the energy economy, as well as by industry, households, and transport.

In order to achieve the two-degree goal, CO₂ emissions must be reduced as soon as possible.

Energy consumption must decrease by 40 percent

Ultimately, the sustainable energy era will only be possible if we succeed in quickly and effectively reducing how much energy we waste. Nearly 40 percent of current energy consumption could be eliminated by improving efficiency. In this sense, efficiency is our most important resource.

The heating sector offers favorable conditions for the consistent translation of the political twin strategy. In Germany, approximately 75 percent of all houses were built before the first Heat Insulation Ordinance of 1977 and have hardly been insulated since. At least 75 percent of the 20 million heating systems in Germany need to be modernized. Heating systems are only replaced after 25 years on average. According to calculations by experts, at least 30 percent more energy is used than necessary. The current rate of modernization has to increase more than fourfold to bring energy systems in existing buildings completely up-to-date by 2020.

More than 30 percent of fossil fuels could be conserved in the heating sector if all the energy systems of existing buildings were modernized. This figure corresponds to twelve percent of total energy consumption and is significantly higher than the share of nuclear power in the energy mix (7.6 percent).

Supervisory Board of the Viessmann Group



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Refrigeration Systems
division

Joachim Janssen
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Prof. Dr. Martin Viessmann
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Viessmann – climate of innovation

The Viessmann Group is one of the leading international manufacturers of intelligent, comfortable, and efficient systems for heating, air conditioning/ventilation, cooling, and decentralized power supply. It provides individual solutions with efficient systems for all applications and fuel sources.

Prof. Dr. Martin Viessmann is the third generation to head the family company founded in 1917. As CEO, he chairs the Supervisory Board, which consists of six members altogether. The Viessmann Group is divided into the Heating Systems division, Industrial Systems division, and the Refrigeration Systems division. It generated EUR 2.2 billion turnover with 11,500 employees in 2014.

With 22 production companies in 11 countries, with 44 sales subsidiaries in 32 countries and sales activities in 74 countries as well as 120 sales offices worldwide, Viessmann is distinctively international. 56 percent of total turnover is derived from international sales.

Comprehensive product range for all fuel types and areas of application

Whether for single- or two-family homes, large residential buildings, commercial and industrial buildings or for local heating networks, Viessmann has the right system solution for every application: heat generators for all fuel types and outputs ranging from 1 kW to 120 MW.

Viessmann offers a comprehensive product portfolio including wall-mounted condensing boilers from 1.9 to 150 kW and floor-standing condensing boilers from 3.8 to 6,000 kW, micro CHP units powered by Stirling engines and PEM fuel cells, and combined heat and power generation units (CHP) from 1.0 to 530 kW_{el} and from 3.6 to 660 kW_{th}. The CHP units can run on natural or bio-natural gas.

Also part of this portfolio are renewable energy systems including solar thermal systems with flat-plate and vacuum tube collectors for domestic hot water generation, auxiliary heating and building cooling, special boilers and combustion units from 2.4 to 13,000 kW for wood logs, chips and pellets, heat pumps from 1.7 to 2,000 kW for use with geothermal heat, groundwater or ambient air and photovoltaic systems.

Additionally, Viessmann offers a complete range of products and services related to biogas technology, from project development and engineering to raw materials management and operational oversight. The portfolio also features control engineering and data communication equipment as well as the entire system periphery, from fuel storage to radiators and underfloor heating.

Viessmann K hlssysteme GmbH, an important manufacturer of cold rooms, and the Finnish Norpe Group, the leading Scandinavian manufacturer

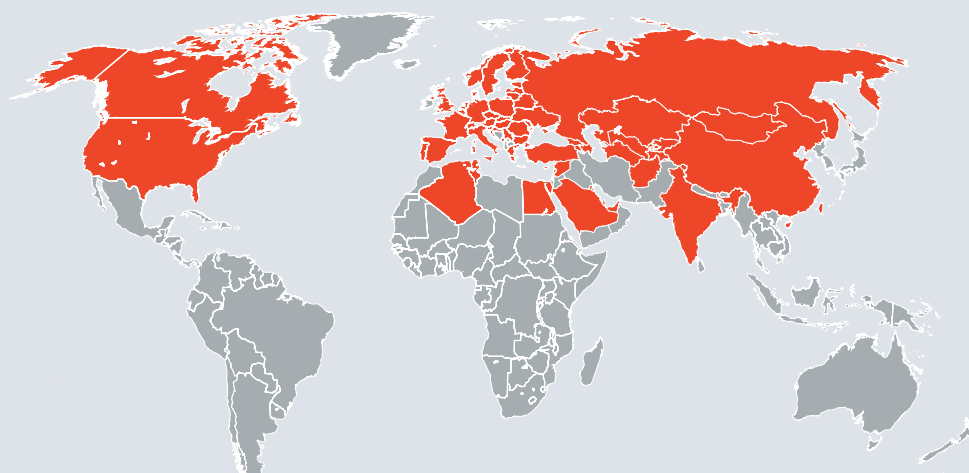
of innovative commercial refrigeration systems, refrigeration cabinets, lamellas, and power packs for the food retail industry, are both part of the Viessmann Group.

Comprehensive range of services

Viessmann offers its market partners a comprehensive range of services which considerably simplify their daily work. These include assistance from the Technical Service department (TD), demand-driven software for instance for planning heating systems, support in the form of advertising and sales promotions and a user-friendly information and ordering system available online around the clock. For commercial and industrial customers, Viessmann provides a broad range of consulting services in energy efficiency and energy management.

Viessmann Group

Sales subsidiaries or partners



1917 Foundation
11500 Employees
EUR 2,2 Billion turnover
22 Companies for production in 11 countries

44 Sales subsidiaries in 32 countries and sales activities in 74 countries
120 Sales offices worldwide
56 percent of turnover derived from international sales activities

Company principles

As early as 1966, we distilled our values into company principles which, following minor adjustments, continue to provide guidance for our self-concept today and serve as a kind of constitution for our company.

These principles describe the spirit, atmosphere and interactions that characterize our culture as well as the specific obligations that arise from them.



Innovation

We are the driving force and pioneer for our sector. We have continually developed exceptional products and solutions, which have become milestones of heating technology. And we will continue to exert a decisive influence on technological progress in the future.



Efficiency

We work with lean structures and processes and strive for the highest possible material, labor and energy efficiency. This not only ensures the efficiency of our processes, it also conserves the limited supply of natural resources.



Top quality

We offer top quality and strive for perfection in all areas of our business. Our actions are guided by the motto: "Nothing is so good that it cannot be improved." Our products are easy to operate, have a long service life and are sustainable.



Comprehensive range

We offer individual system solutions for all fuel types and every application involving heating and/or cooling technology, in accordance with the specific requirements of the international markets, as well as an extensive range of services. Our products conserve energy and protect the environment.



Sustainability

We are committed to fulfilling our economical, ecological, and social responsibilities. We ensure all our processes are environmentally compatible and encourage the use of renewable forms of energy. Our aim is to protect the climate and preserve the natural basis for life. We value and involve ourselves in the scientific, artistic and cultural life of our society.



Reliability

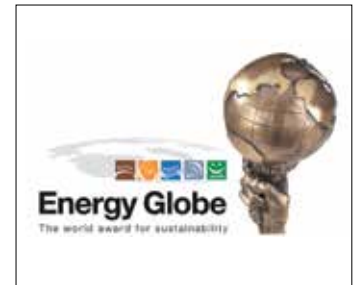
We are an independent family business and a reliable business partner. We work in partnership with our customers and suppliers and pursue the goal of mutual success. We know the value of people in our company, and our communications are open and trusting. Capable employees with a will to achieve are offered real opportunities for professional development.

Milestones in sustainability at the Viessmann Group

Viessmann has set the pace in the heating sector for decades now, with energy-saving technologies, efficient heating systems, certifications, prizes and awards for its innovations.



1970	Started using electrically powered fork-lift trucks to improve air quality	1995	The Viessmann Werke Allendorf was the first company in the heating sector and the second company in Germany to be certified in accordance with the EMAS Eco Audit.
1972	Installed a wastewater treatment system	1996	"Alliance for Jobs": The workforce and management agreed on unpaid overtime in exchange for the wall-mounted gas-fired boiler production facility being built in Allendorf (Eder).
1975	Switched from tin plating to powder coating	1997	EMAS and ISO 14001 awarded to the Viessmann Werke Berlin
1985	Appointed first environmental protection officer	1998	WESO-Aurorahütte was the first foundry in Hesse to be certified according to ISO 14001
1988	Founded environmental protection department	1998	Received the ASU "Environmentally responsible company management" Award (1992, 1995, 1996/97, 1998/99)
1990	Eliminated CFCs from thermal insulation foams for DHW cylinders	1999	The waste management concept and performance at the plants in Allendorf (Eder) and Battenberg were recognized as part of the EMAS Eco Audit.
1991	Introduced reusable transport packaging	1999	EMAS Mittenwalde
1991–1993	Viessmann apprentices won the "TeamMachWerke" climate protection competition	2000	EMAS WESO
1992	Eliminated solvent-based coatings by introducing powder coating for boiler bodies	2000	Founding member of the Hesse Environmental Alliance
1992	Viessmann was the first company in the heating sector to announce company principles concerning environmentally responsible manufacturing, processing and disposal, and it committed itself to the ongoing development of environmentally friendly heating technology.	2001	Environmental Prize awarded by the state of Saxony for Vitosol 300
1992	Started constructing completely recyclable products	2001	Started using condensing technology in the Vitoplus 300 oil-fired wall-mounted condensing boiler
1992	Received an award for the recycling-compliant construction of the Dekamatik boiler control unit	2003	Public contract with the District Governor of Kassel to reduce emissions in the heating center at the Allendorf plant
1994	European Business Award for the Environment for the MatriX radiant burner	2004	Awarded the accolade "Beacon of the Environmental Alliance, Hesse" by Hesse's Minister for the Environment, Dietzel
1994	Viessmann apprentices won the new environmental protection competition sponsored by the metal and electrical industry of the state of Hesse		



2004	The Vitoplus 300 floor-standing oil condensing boiler rated "Very good" by the German consumer association "Stiftung Warentest"	2010	Acquisition of Schmack Biogas, producer of biogas systems, and Carbotech, the biogas processing expert
2005	Total energy study for the Allendorf (Eder) site	2011	Energy management at the Allendorf site certified according to DIN EN 16001
2006	"The national German energy summit" of the German federal government	2011	Work and health management system certified according to OHSAS 18001
2006	Strategic sustainability project: New layout for manufacturing and supply structures and new construction of the energy center and the Academy at the Allendorf (Eder) site	2011	Received the German Sustainability Award in the category "Germany's most sustainable brand"
2006	Acquisition of the wood combustion expert Mawera	2011	Renovated and extended the energy center to increase the share of renewable fuel sources
2007	Acquisition of the biogas supplier BIOFerm and the wood combustion expert KÖb	2012	Received the "ENERGY GLOBE World Award"
2007	Planted 170 ha energy plants (poplars and willows) on short-rotation plantations	2012	Acquisition of Viessmann Kältetechnik AG in Hof, the fuel cell expert Hexis, isocal (producer of ice storage systems), the French producer of medium-sized and large industrial boilers Sodiet, Stein Energie, and the electronics specialist msr Solutions.
2007	Signed a cooperation agreement with the German Association for Nature Conservation (Naturschutzbund Deutschland)	2013	Collaboration with Panasonic to develop a PEM-based fuel cell heating system, acquisition of the Finnish Norpe Group, one of the leading European producers of commercial refrigeration systems
2008	Acquisition of two companies: KWT (supplier of industrial heat pumps) and ESS (combined heat and power generation)	2013	Received the German Sustainability Award in the category "Resource Efficiency"
2009	Received the German Sustainability Award in the category "Germany's most sustainable production"	2014	EMAS and DIN ISO 14001 awarded to Viessmann KÜHLSYSTEME GmbH, Hof
2010	Started operating the first biogas plant at the Allendorf site		
2010	Received the "Energy Efficiency Award" for the heat recovery system at the Allendorf site		

Viessmann's strategy for sustainability is shaped by four fields of action

Continuously increasing efficiency along the entire process chain is a firm component of our company principles and organization.

The sustainability strategy describes the processes and structures used to continuously improve the sustainability of the Viessmann Group. This includes:

- the strategic and operational corporate goals
- the sustainability measures carried out to date
- the social and political framework and developments
- the expectations of the relevant stakeholders
- internationally recognized sustainability standards (e.g. GRI)
- inclusion of the entire Viessmann Group

The topical focus is on processes directly related to product life cycles. But ecological aspects are also taken into account, including energy and material efficiency, pollution emissions and biodiversity, in addition to social issues such as personnel structure, occupational health and safety, workforce training and employee satisfaction.

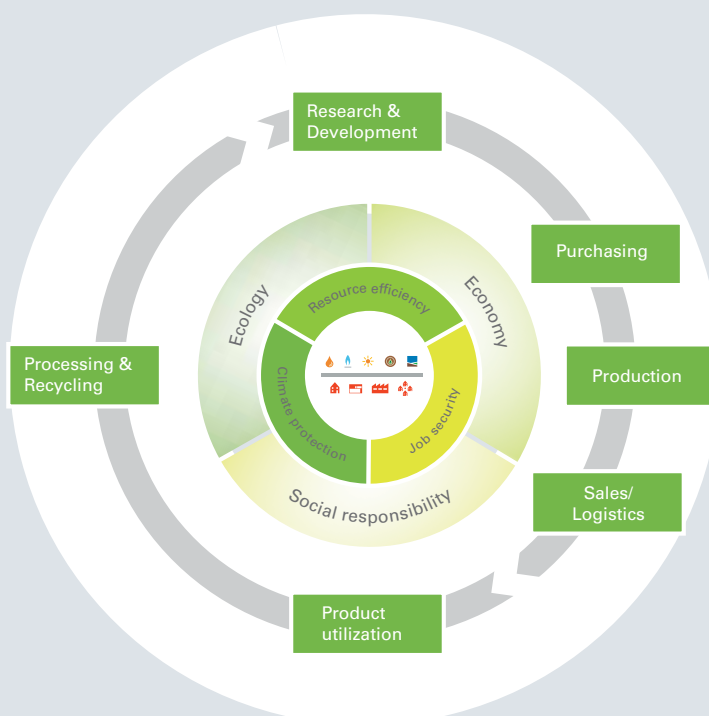
Fields of activity

The sustainability strategy comprises the following areas:

- Guiding Principles & Commitment
- Products & Processes
- Resources & Infrastructure
- Employees & Working Environment

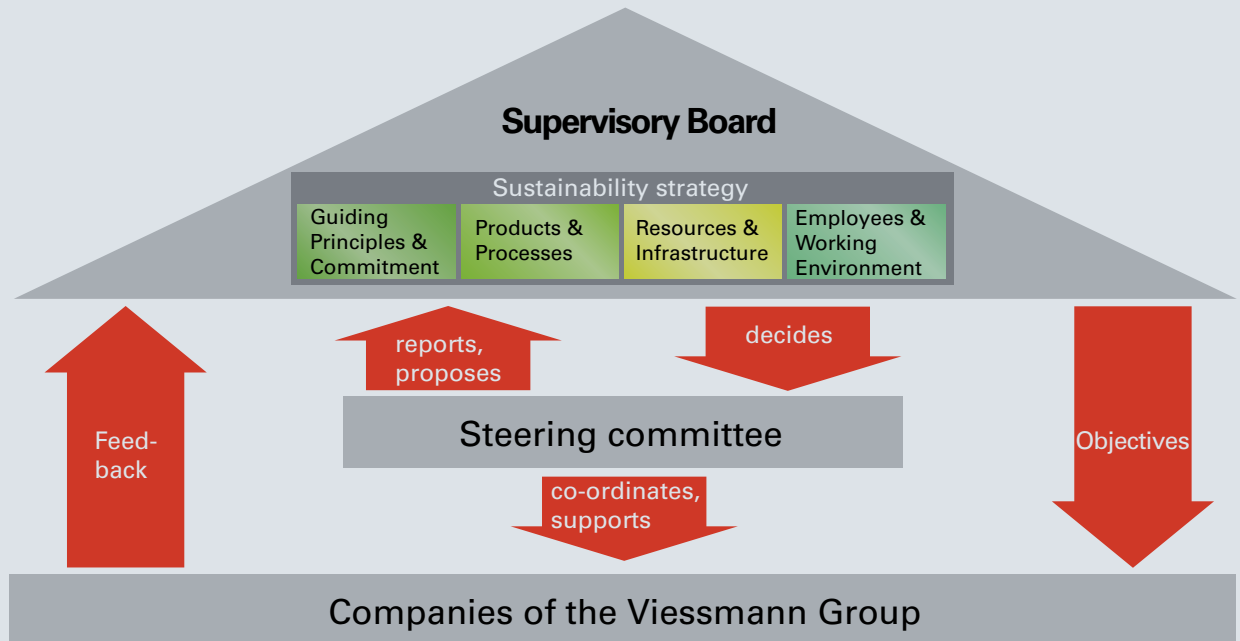
The activities are coordinated by a steering committee, which delegates tasks to the four working groups and consolidates their findings.

The Viessmann value-added chain



Viessmann's sustainability strategy comprises the entire value-added chain.

Implementation of sustainability strategy



Status analysis

All key aspects of sustainability in the company are examined and assessed according to their relevance.

Internal input:

- Corporate business principles/brand values, leadership principles
- Corporate goals and top strategies
- Guidelines, instructions, publications

External input:

- Global Reporting Initiative (GRI)
- Political sustainability strategies
- Exchange of experience with other companies
- Benchmarks

Based on a PDCA-cycle (Plan-Do-Check-Act), key indicators are regularly reviewed and reassessed.

This has resulted in a closed loop which ensures a continuous improvement of the sustainability performance.

Viessmann heating technology: Efficient and environmentally friendly

Leading-edge technology that saves valuable resources and thus contributes to preserving the environment for ourselves and for future generations.



Vitodens 300-W



Vitoladens 300-C

Viessmann offers a comprehensive program of innovative heating, cooling, and ventilation systems which sets benchmarks in terms of efficiency.

The heating market holds the key to the success of the sustainable energy era. To achieve this goal, policymakers are calling for essentially all buildings to be CO₂- and energy-neutral in the future. With its comprehensive program, Viessmann supplies the necessary technology to achieve this, including the right system solution for every demand – wall-mounted or floor-standing, modular, sustainable, and cost-effective. Areas of application include single-family and two-family homes, large residential buildings, commerce/industry and local heating networks.

It does not matter whether the system is installed in a new construction or in the course of modernization. Viessmann develops and produces innovative heating systems that stand for top quality, energy efficiency and durability.

Top marks from consumer organization "Stiftung Warentest"

These characteristics have also been verified in comparison tests conducted by the German consumer organization Stiftung Warentest, in which Viessmann products outperform the competition and finish in first place on a regular basis. For its special "Saving energy" issue published in 2012, Stiftung Warentest took into consideration the further development that has taken place at all manufacturers since the previous round of tests. The results of these comparisons impressively confirmed Viessmann heating systems as winners.

Test winner in the category "Gas Condensing Boilers"

In the test of gas condensing boilers for example, Viessmann's Vitodens 300-W came in first place with an overall rating of "Good" (1.7). The current Vitodens 300-W features a number of improvements compared to its predecessor that underwent testing in 2010. An extended modulation range and automatic flow balancing have increased efficiency. Operation is even more convenient thanks to new radio remote controls and mobile remote control via iPhone, iPad or iPod Touch.



Vitosol 200-F, Vitocell 340-M

One of the best oil boilers in the test

As "one of the best oil boilers in the test", the Viessmann Vitoladens 300-C was given an overall score of "Good" (1.6) in Stiftung Waren-test's current ranking. It therefore occupies a top spot among the ten oil condensing boilers ranked by the test. Like all Viessmann boilers, the Vitoladens 300-C now comes with new Vitotronic control including a large lighted graphics-capable display to make it even easier to operate.

Overall score of "Good" for solar power system

In the current test, the Viessmann solar power system for combined auxiliary heating and DHW generation was awarded one of the top spots with an overall score of "Good" (1.8). Comprising six Vitosol 200-F flat-plate collectors, a multi-mode Vitocell 340-M combination cylinder, and a Vitosolic 200 solar control unit, the solar power system was even rated "Very good" in the individual assessment of energy efficiency and DHW heating convenience.

Product innovations: Research and development for sustainable products

Research and development at Viessmann focuses on energy-efficient heating systems for all fuel types and areas of application.

The focus of our research and development activities during the reporting period was:

- Development of hybrid-system device groups for combining different fuel sources
- Preparation of the product program for the introduction of the new Ecodesign Directive
- Completion of the gas condensing boiler program for export countries
- Further development of gas-adsorption heating units
- Market launch of fuel-cell-based micro CHP systems
- Implementation of system intelligence in heat storage systems
- Modernization of the solid fuel boiler program
- Further development of the micro CHP system powered by a Stirling engine
- Extension of the Implementation of sustainability strategy technology product family
- Market launch of new battery technologies
- Relaunch of Smart Home systems

The best of several technologies: Hybrid systems

Condensing technology continues to play a dominant role on the German and many other European heating technology markets. The essential benefits of condensing boilers are that they are compact, reliable and low-maintenance units, which are characterized by economical fuel consumption, clean combustion and a quiet operating mode. The Vitocaldens 222-F gas hybrid compact unit intelligently combines the advantages of condensing technology with the strengths of a heat pump module.

Vitocaldens 222-F consists of a time-tested gas-condensing module with a stainless steel radial heat exchanger and modulating MatriX cylinder burner, a heat pump module with an intelligent hydraulic connection to integrate a modulating external unit and a DHW cylinder with a capacity of 130 liters. In the past, gas condensing boilers and heat pumps could only be installed separately. Combining them into a single unit reduces the installation outlay and saves space.

In the summer period, the unit typically operates using the heat pump module with low flow temperatures. The integrated condensing boiler is only used in the case of peak loads, for example for heating up water quickly.

High temperatures are necessary in the heating system during the colder seasons. This is when the condensing boiler demonstrates its benefits. It ensures the reliable heating of rooms and DHW generation. The result is that both of the systems operate under ideal conditions. This saves energy and reduces the impact on the environment.



The intelligent energy manager decides which system needs to run and when. It optimally uses the strengths of the two technologies, combining maximum convenience with best-possible efficiency.

The compact design and simple hydraulic connection make Vitocaldens 222-F suitable for both new construction and for modernizing old buildings. It is therefore possible to modernize heating systems with a reasonable financial outlay and limited construction measures, implementing a system that combines fossil energies and renewable energy.

Vitocaldens 222-F gas hybrid compact unit, consisting of an internal unit with a heat pump module and a gas condensing boiler as well as separate external unit.

Fuel cells as innovative CHP solution

To be suitable for single-family homes with relatively low heat demands, CHP technology needs to achieve as high an electrical efficiency as possible and thus produce a smaller amount of heat when generating power. Fuel-cell-based CHP systems are a suitable complement.

Viessmann has developed the Vitocalor 300-P fuel cell heating unit for implementation in newly built single- and two-family homes, redeveloped old buildings with low heat demands and in passive houses. It was launched on the market in April 2014.

The unit has been jointly developed with the Panasonic Corporation. Fired by natural gas, the PEM (polymer electrolyte membrane) fuel cell has already been installed in over 50,000 locations in Japan, where it has proven to be a great success.



Fuel cell unit
Vitocalor 300-P

Focusing on using less power from the grid

Using self-generated electricity in your own home reduces the need to acquire expensive electricity from the public network. By reducing dependency on power supply companies, operators will not be hit as hard by the rise in electricity prices expected in the future.

Fuel cell units serve as decentralized power generators, operating in smart grids to reduce demand on the electricity grids. Last but not least, the environment also benefits from this technology: Up to 36 percent of primary energy is saved when heat and power are generated simultaneously in a fuel cell compared to conventionally generated electricity from a power plant.

High-temperature fuel cell (SOFC)

In addition to the low-temperature fuel cell Vitocalor 300-P, Viessmann is also jointly developing a high-temperature fuel cell (solid oxide fuel cell, SOFC) with its Swiss partner, Hexis AG, to complete the product program of micro CHP solutions in the future.

Micro CHP system based on a Stirling engine

The Vitotwin 300-W micro CHP system was launched in autumn 2011 and has been continuously refined ever since. It combines a free-piston Stirling engine with a highly efficient gas condensing boiler. The free-piston Stirling engine operates without a crankshaft in a hermetically sealed, maintenance-free system with helium as the working fluid. The movement of the piston is transformed into electricity, while the waste heat of the engine is used to heat living space and generate domestic hot water. The overall efficiency is 97 percent (H_g).



Micro CHP units Vitotwin 300-W and Vitotwin 350-F

With a base thermal output of 5.3 kW, this unit is perfectly matched to the heat demand of single- and two-family homes and is especially well suited for modernization. The Stirling engine covers the base heat load, ensuring long runtimes and excellent economy. The integrated gas condensing boiler with an output of up to 20 kW is only additionally activated when the heat demand is higher, for instance on cold winter days. Long runtimes ensure high power yield. The electrical output of the micro CHP is between 0,6 and 1 kW. Hence, the unit covers the electrical baseload of a house; surplus electricity is fed into the electricity grid.

Whether consumed on site or fed into the grid, in Germany, the electricity thus generated is generously subsidized by the federal government's Combined Heat and Power Generation Act. Moreover, the Vitotwin 300-W has an integrated electricity meter and a built-in gas flow meter. In case of higher power demand, for instance when a washing machine runs, the Stirling engine can be turned on via time switch or wireless remote. The heat generated in parallel is stored in a buffer cylinder for later use. The range of products is rounded off by the compact micro CHP unit Vitotwin 350-F, which has an integrated heating water buffer cylinder with a capacity of 175 liters.



Stirling engine for the micro CHP system

Gas adsorption heating unit

The gas adsorption heating unit Vitosorp 200-F consists of a zeolite heat pump module and a gas heating unit. The heat pump module provides the baseload of building heating with ambient heat from the ground. The integrated gas heating unit powers the heat pump process and covers demand peaks on particularly cold days. It also fulfills the function of a booster, providing rapid and convenient DHW generation.

Vitosorp 200-F consumes up to 40 percent less energy than traditional gas heating units. As a pure gas unit, the heat pump module is not powered by electricity, but by natural gas or liquid gas.

Vitosorp 200-F has been designed to meet the heat demand of single-family homes. It operates highly efficiently in new buildings, in particular. Its use of environmental energy makes it a particularly sustainable solution. Indeed, it meets the stricter requirements for new builds set out in the 2016 German Energy Saving Ordinance (EnEV). Vitosorp 200-F is also an efficient solution for modernization projects, as flow temperatures of up to 75 °C are possible (recommended < 55 °C).

It is easy to transport and install, saving time and expense. Thanks to its compact size and width of only 600 millimeters, the gas adsorption heat pump easily fits into a standard kitchen grid (minimum room height of 2.20 meters). As it generates low operating noise and is powered by harmless operating materials – zeolite and water – it can be installed close to living areas.



Vitosorp 200-F, gas adsorption heating unit, with DHW cylinder
Vitocell



Heating with ice – the ice storage system Vitofriocal provides the necessary energy

The ice storage system – an alternative to geothermal probes and collectors

The usual heat sources available for heat pumps are ambient air, the ground, or groundwater. The Viessmann ice storage system Vitofriocal, on the other hand, uses a heat source that has not been used for brine/water heat pumps to date.

One or several 10-cubic-meter concrete cylinders filled with water are buried in the ground. They are each equipped with a withdrawal and regenerative heat exchanger. Using a brine/water heat pump, the energy released by the water as it is transformed into ice is used in the ice storage system. The additional energy yield generated in an ice storage system with a capacity of some 10 m³ during this transformation phase is the equivalent of approx. 100 liters of fuel oil.

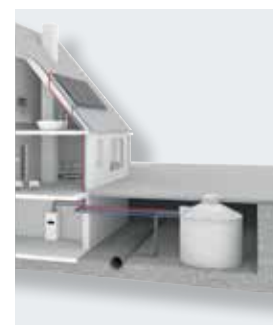
Special solar air absorbers on the roof collect heat from the ambient air and solar radiation and feed it into the cylinder, while additional heat is directly absorbed by the ice storage system from the surrounding earth. Even when the cylinder is freezing, heat still flows from the ground.

The ice storage system therefore serves as a full heat source for brine/water heat pumps when combined with the solar air absorber. This solution is particularly suitable in areas where drilling for geothermal probes is not authorized for environmental reasons or is considered to be too expensive.

Cooling with the Vitofriocal ice storage system

In summer, the ice storage system can be used to naturally cool rooms. For this purpose, it is completely frozen at the end of the heating season by interrupting the regeneration of the cylinder using the heat source management system. The ice formed in this process is therefore available as a natural source of cold.

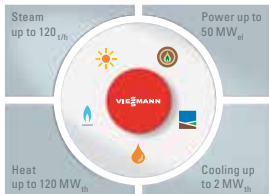
Heat is withdrawn from the heating system using the withdrawal heat exchanger and fed into the ice storage system. This causes the ice to melt and heat up the water. The heat created during passive cooling is stored in the ice storage system and is available as energy both for DHW generation and for heating purposes at the beginning of the heating season. Ice storage systems can be implemented with all of the Vitocal brine/water heat pumps.



Innovative heat source for brine/water heat pumps: The Vitofriocal ice storage system can be used with all of the Vitocal brine/water heat pumps.

Innovative services and consulting

Efficient energy systems for municipalities, trade and industry are crucial for a sustainable supply of heat and electricity in the future.



Comprehensive product range with efficient solutions for the generation of heat, steam, power and cold

As a strong partner for municipalities, trade and industry, Viessmann not only supplies the technology needed to achieve this, Viessmann also offers innovative services and consulting.

Viessmann's comprehensive product range stands for innovative, efficient technology with superb quality. As part of its comprehensive range of services, Viessmann develops custom solutions for efficient systems for municipalities, trade and industry. These solutions are characterized by operational reliability, efficiency and durability.

Expert project partner from the initial idea to the project execution

An integrated approach is taken to designing systems. Viessmann provides technology- and fuel-neutral consulting with the objective of finding the best possible solution – ecologically and economically – for each specific application. This incorporates information about the national and international laws, regulations and available subsidies for each particular case.

As an experienced general contractor, the company has the expertise to properly coordinate projects, build systems and smoothly integrate them into the larger system. The comprehensive range of Viessmann products features all the necessary components. As a result, system users can rely on a single contact for technology, maintenance and service.

Bioenergy villages – sustainable energy in rural areas

Bioenergy villages will play a key role in the success of the sustainable energy era. Households in these villages are provided with heat by a local heating network, which is fed by an energy center. Resources such as biogas produced locally from agricultural waste or wood from sustainable forestry are used. In this sense, every bioenergy village is a strategic sustainability project.

Viessmann realized its first bioenergy village in Oberrosphe, in the German state of Hesse, in 2007. At the end of 2014, the first bioenergy village supplied 100 percent with renewable energy was founded in Wettessingen near Kassel, Germany. In both cases, Viessmann not only supplied the system technology. The company also provided assistance with the project from the initial idea to actual implementation.



Viessmann is a competent partner for the development and the construction of bioenergy villages.



Multivalent energy center with a biomass boiler, CHP unit and hot water boilers (left to right)

Etanomics – integrated energy concepts for industry and the manufacturing sector

Due to long-term rises in energy prices, companies are increasingly focusing on the highest possible energy efficiency and the best possible cost structure.

Annual energy consumption is approximately 2,500 TWh in Germany. The manufacturing sector and industry account for about one-third of this consumption. The Federal Ministry of the Environment has calculated that 40 percent of this could be eliminated by the year 2020 by modernizing energy systems. This is the equivalent of EUR 19 billion.

However, the long-term rise in energy prices is not the only cost factor for the manufacturing sector and industry. In addition, according to the German Renewable Energies Act (EEG), only companies that have a certified energy and environmental management system can benefit from tax breaks. For this reason, it is essential that companies strive to maximize energy efficiency and optimize their cost structure.



Wood can be used to generate power as well as heat. Shown here is a high-performance wood chip boiler combined with an ORC module.

Viessmann is pleased to share the expertise in energy efficiency and management obtained in its strategic sustainability project with other industrial companies and SMEs. For this purpose, Viessmann founded Etanomics Service GmbH. Etanomics develops and implements integrated energy concepts for the industry and the manufacturing sector as well as for services such as the hotel and catering industry.

Etanomics offers consulting services on energy efficiency and energy management in order to better tap the efficiency potential in companies. In concrete terms, this involves:

- Increasing energy efficiency and energy controlling
- Improving efficiency, lowering costs and reducing climate-damaging emissions
- Reducing consumption by at least ten percent
- Achieving planning certainty by fulfilling legal regulations
- Securing competitiveness in the long term
- Carrying out process management from planning to implementation
- Many years of experience, including with large properties

Viessmann Vitomax 200-LW with downstream Economiser for efficient heating and process heat generation



A full-service provider of refrigeration system technology

Viessmann adds efficient refrigeration systems for food retailers to its product portfolio.



Viessmann Khlsysteme GmbH, important manufacturer of cold rooms for trade and industry, has been part of the Viessmann Group since 2012. Viessmann acquired the company in order to exploit the trend towards merging heating and cooling technologies and to leverage energy-efficiency potential. Moreover, it opens up additional market potential in countries where local climate conditions mean that a heating system is of low importance.

The acquisition of the Finnish Norpe Group, market leader for refrigeration units for the food retail industry in Scandinavia, is another important step on the way to becoming a full-service provider for refrigeration system technology, too. In refrigeration, just as with heating technology, Viessmann is continually seeking to improve energy efficiency and therefore reduce operating costs.



Innovative refrigeration solutions for the food retail industry

Commercial refrigeration systems

Norpe is among the leading European manufacturers of commercial refrigeration systems.

The company was founded in Porvoo in 1953 and in the last 60 years has played a leading part in shaping refrigeration technology in the Scandinavian food retail industry. In 2012, the company achieved a turnover of more than EUR 130 million, 80 percent of which came from abroad. The company employs a staff of 450 in Finland, Sweden, Norway, Germany, Poland, and Estonia as well as at sales locations in Latvia and Russia.

Pooling competence

Norpe's efficient and innovative products and know-how combined with the large international sales network of the Viessmann Group open up new perspectives for exploiting potential on the promising future market for refrigeration technology.

The customers will be the main beneficiaries when know-how from both companies is pooled. In future, a single source will provide heating, refrigeration and air-conditioning systems with individually adapted energy management services.

New wall-mounted gas boiler production in Turkey

With an investment volume of several tens of millions, Viessmann constructed a new plant in Manisa (Turkey) for the production of wall-mounted gas boilers.

Viessmann has been doing business in Turkey for more than 20 years. A Turkish Viessmann sales subsidiary was founded as early as 1994, and has been very successful on the market ever since. The company now has ten sales offices throughout the country. The positive development of the company in Turkey and the steady growth of the sales organization there were the main reasons for investing in the construction of the new plant. This makes Viessmann a local producer.

Sustainable building concept

The Manisa plant meets the latest standards of sustainable construction. Ambitious targets were set as early as in the planning phase. On the basis of these targets, available technologies were used to produce a building that fulfills the highest efficiency standards.

CO₂-neutral provision of heating, cooling, and power

Only environmentally friendly, minimal-emission, and recyclable building materials were used for the construction. All working areas, including the production area, have natural light. The large glass surfaces offer a high level of transparency. A photovoltaic system provides 60 percent of the required power.

Five Viessmann air/water heat pumps are used to heat and cool the building, and the factory uses no fossil fuels – such as gas, hard coal, or oil – at all. The walls and windows are thermally insulated; cold generated by the heat pumps reduces the temperature within the whole building by up to 10 degrees Celsius compared to the outside temperature in summer.



With an investment volume of several tens of millions, Viessmann constructed a new plant in Manisa for the production of wall-mounted gas boilers.



The manufacturing process is designed according to the most recent lean production standards and the Viessmann VITOTOP production system principles.

VITOTOP: Continuous improvement process in all areas

The VITOTOP concept is based on the principle of continuous improvement. It increases productivity in the company from the supplier to the end consumer.

The aim of VITOTOP is to increase productivity along the entire process chain. By cutting out activities that do not add value, efficiency is increased in production areas, administrative departments, sales and all the way through to the suppliers. Activities that do not create value include unnecessary transportation, production errors and the extra work associated with them, overproduction or excess stock.

99.99 percent error-free

Quality is both method and target. Continuous improvement is a permanent element of Viessmann's company culture and is expressed in the motto: "Nothing is so good that it cannot be improved." This sets high standards – products and processes have to be 99.99 percent error-free.

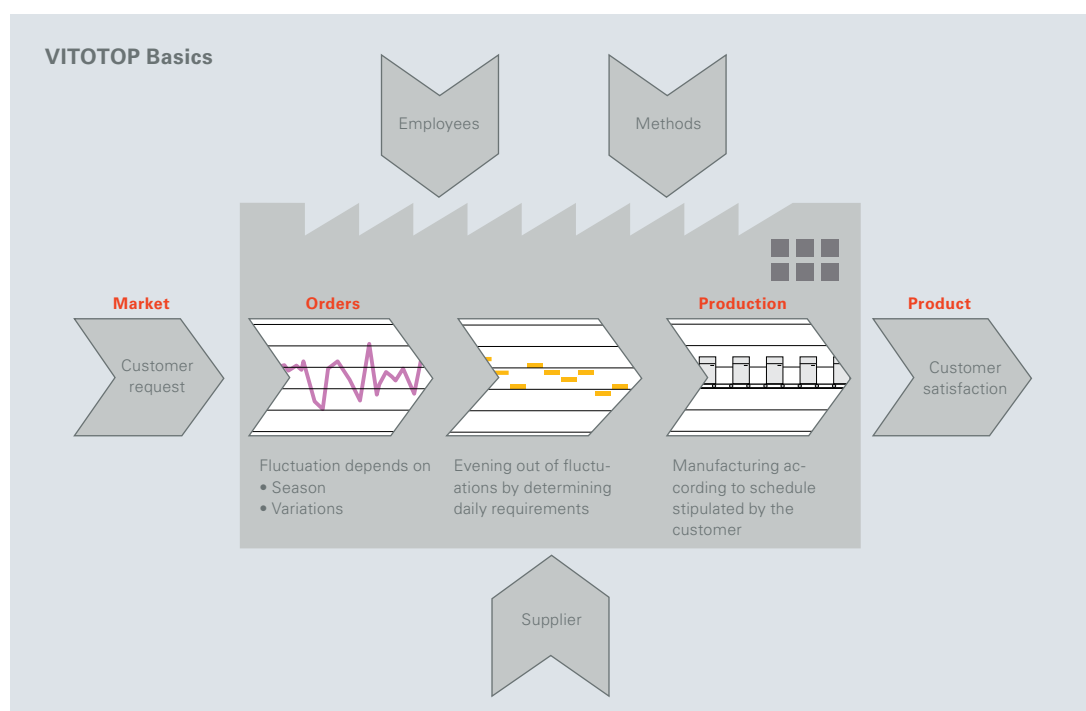
Initial stage of change management

VITOTOP forms the initial stage of change management, which steers the optimization processes of the entire group. Change management is very important in Viessmann's environmentally oriented, sustainable approach.

Change management incorporates all tasks, measures and activities intended to achieve extensive change in the company. For example, it includes the implementation of new strategies, structures, systems, processes and actions.

The objective of VITOTOP is to concentrate on value creation in every manufacturing process and to eliminate wastefulness.

It is also meant to increase customer satisfaction by quickly fulfilling customer orders and requests. The ideal case would be synchronous production where all parts were ready at the same time.



Viessmann production system – set of rules for continuous improvement in manufacturing

A high level of employee training is essential for implementing the principles of lean production.



Employees' ideas contribute to the continuous improvement process.

The Viessmann manufacturing system is a mandatory set of rules for all associated companies and describes how processes for the manufacture of products are to be designed, applied, monitored and continuously improved.

It includes relevant targets, principles, methods and tools for organizing production, based on the fundamental ideas of continuous improvement and synchronous processes.

■ Principles of production

To ensure process stability, processes are carried out in a specified manner. To achieve this, production processes are designed in such a way that deviations can be recognized immediately. Muda (the Japanese word for wastefulness) should be avoided and added value should be increased.

■ Employees

A high level of employee training is essential for implementing production principles in the first place. Moreover, ongoing training increases employee satisfaction. The Viessmann Academy offers an interesting range of training programs.

■ Synchronous processes

Viessmann produces exactly what the customer requires. This applies not only to customer orders, it also applies to the internal processes as a kind of customer-supplier relationship.

■ Efficient production facilities

In order to manufacture products at prices in line with the market, the production facilities must be operated at maximum efficiency and unplanned downtimes must be avoided.

■ Error-free products and processes

"Spotlight on quality" is the ambition of all employees. The objective is to make zero errors with regard to products and processes. This is essential for Viessmann to provide top-quality products to its customers.

■ Shop floor management

Ensures that measures are taken at the location of the value creation so that the process of change is maintained by qualified employees. This process is supported by kaizen, the Japanese philosophy of continuous improvement.

Sustainable purchasing ensures supplier quality and reliability

Viessmann works together with suppliers who are committed to high standards of quality and environmental and social responsibility.

Viessmann does not evaluate suppliers according to quality and price alone. In accordance with our company principles, Viessmann has developed sustainable, international purchasing processes and methods for all its main suppliers that include social, ecological and ethical standards.

Due to the high share of material costs, it is essential to consistently work in close cooperation with all key suppliers worldwide to ensure product quality, competitiveness and supply reliability. Quality, costs and logistics are considerably optimized thanks to this close interaction. The Viessmann Group's principal supplier strategy is analyzed regularly and standardized by the Procurement Department together with all principal suppliers in meetings and workshops. The purpose of the meetings is also to identify joint improvement potential, set targets and define execution. The primary goals are:

- Improving quality
- Enhancing supply performance
- Boosting efficiency in all key purchasing processes
- Increasing flexibility
- Raising reliability of supply
- Integrated supplier development, especially in terms of compliance with environmental and ethical standards

To ensure efficient procurement processing and guarantee that targets are consistently met worldwide, it is necessary to standardize and systematically apply the processes, guidelines and content of the commodity strategy with all suppliers. This necessitates a close, ongoing, open relationship of cooperation between the supplier, the purchasing departments and related business units.

Regular audits

Viessmann conducts supplier audits on a regular basis to ensure that quality capacities and awareness remain at a high level. In a standardized procedure, all suppliers are subject to the same criteria and can be objectively compared with one another.

Precisely described processes are adhered to for this supplier management system, ensuring cost-effectiveness, excluding possible sources of error and guaranteeing lean production. Supplier evaluations are based on an assessment scheme that gives insight into the quality and competitiveness of suppliers.

A comprehensive environmental management scheme plays an important role for our business relationship with suppliers. Certification according to EMAS II or ISO 14001 is ideal to be able to work with Viessmann. Viessmann itself has been following the specifications of these recognized and proven environmental standards for many years.



Defining shared standards of quality is part of Viessmann's supplier management.

Ideas management: Capturing potential for efficiency, enhancing competitiveness

For more than 50 years now, company employees have been encouraged to make suggestions to improve day-to-day work and to optimize processes.

No one is more familiar with how to avoid waste and optimize day-to-day work processes than employees. Viessmann ideas management helps identify and capture potential for efficiency.

Tradition since 1960

The continuous improvement process is a long-standing tradition at Viessmann. Employees have submitted some 600,000 ideas since ideas management was introduced in 1960, leading to savings of EUR 43 million in total, the equivalent of EUR 70 per idea on average. A total of EUR 4.5 million has been paid out in bonuses to recognize these outstanding achievements.

In 1990, Viessmann ideas management was introduced outside of the Allendorf (Eder) site. At the Faulquemont plant, the first plant to implement the system, almost 43,000 ideas have been submitted in recent years, leading to savings of EUR 2.9 million. Viessmann Khlsysteme GmbH is the most recent Group member to implement Viessmann ideas management, starting in 2014. Its workforce has now reached the impressive level of 5.3 ideas per employee per year on average.

Awards from the German Institute for Business Management (dib)

In 2014, Viessmann received eight German Idea Awards from the German Institute for Business Management (dib) for its exemplary ideas management. Viessmann Werke Allendorf GmbH achieved first place in the size category up to 5,000 employees in the "Metal- and aluminum-processing industry" sector. The Viessmann Berlin plant won the top slot in the class for up to 1,000 employees while third place went to Viessmann Wrmepumpen GmbH.

Viessmann IT Service GmbH won an additional industry award in the sector "Miscellaneous (IT and telecommunications)" and WESO-Aurorahtte, another member of the Viessmann Group, received an accolade in the sector "Iron- and metal-working industry".

Viessmann Elektronik GmbH was awarded 2nd place in the "Electrical industry" sector; Viessmann Logistik International GmbH was ranked 3rd in the "Logistics, transport, aviation, aerospace" sector. Employees at Viessmann Shared Service GmbH were able to congratulate themselves on achieving third place in the "Services" sector.



The Viessmann Group was delighted to receive eight awards at the German Institute for Business Management (dib) ceremony. The photograph features (from left to right): Roberto Pohl (Cost-Center Manager at the Berlin plant), Thorsten Grob (Manager Change Management WESO-Aurorahtte), Peter Becker (Manager Viessmann Ideas Management Team), Josef Sticker (Line manager Viessmann Wrmepumpen GmbH), Bernd Freitag (Manager Accounts Payable Viessmann Shared Service GmbH) and Udo Ungemach (Manager Change Management Viessmann Werke Allendorf GmbH).

108375 suggestions for improvements in 2014

Employees			Suggestions for improvements
Viessmann Werke GmbH & Co. KG	743		2670
Viessmann Shared Service GmbH	54		163
Viessmann Werke Allendorf GmbH	1420		46570
Viessmann Logistik International GmbH	201		1848
Viessmann Deutschland GmbH	1024		1423
Viessmann IT Service GmbH	145		1305
Viessmann Elektronik GmbH	416		5795
Viessmann Wärmepumpen GmbH	228		3575
Berlin plant	346		9325
Faulquemont plant	523		6911
Legnica plant	467		7924
Mittenwalde plant	349		5129
WESO	411		4803
Viessmann Holzheiztechnik GmbH	147		51
Viessmann Kraft-Wärme-Kopplung GmbH	126		463
Dombovar plant	261		4057
Schmack Biogas Komponenten GmbH	20		390
KWT	82		13
Viessmann Photovoltaik GmbH	34		17
Viessmann Deutschland Industrie GmbH	24		16
Schmack Biogas Service GmbH	79		122
Dachang plant	156		1375
Research & Development Center Wrocław	33		290
Viessmann Heizsysteme GmbH	133		41
Manisa plant	123		1595
Viessmann Kühleysteme GmbH	475		2504
Total	8020		108375

New participation record in 2014

More than 108,000 ideas were submitted, an increase of 9 percent compared to the year before. More than EUR 2.5 million were saved by implementing the ideas. The employees were paid out EUR 292,000 in bonuses.

Viessmann Werke Allendorf (Eder) build on their leading position.

With an average of 32,8 ideas per employee, Viessmann Werke Allendorf (Eder) has further consolidated their number one position compared to 2013. It is clearly ahead of the Berlin plant (27 ideas) and Schmack Biogas Komponenten GmbH (19.5 ideas).

From environmental pioneer to sustainable company with certified management systems

Process- and product-integrated environmental protection has absolute priority over remediating damage that has already occurred.



EMAS and ISO 14001 certificates attest to the high standard of environmental protection maintained by Viessmann.

For decades now, Viessmann has implemented a concept of integrated environmental protection throughout its manufacturing, logistics, administration, research and development.

Viessmann Group environmental management system

Viessmann has already been implementing an environmental protection concept, which is integrated into all of the relevant processes, for decades. From product development to purchasing, production, distribution, and product use – the company's guiding principle of sustainability is applied to all processes. In addition, Viessmann has set up a voluntary return system for used equipment to close the material cycles at the end of a product's life and, in turn, boost resource efficiency within the sustainable heat supply.

Processes impacting the environment are subject to a uniform standard throughout the company. Twenty-one member companies of the Viessmann Group are therefore already certified according to the international DIN ISO 14001 environmental management standard. In addition, the sites in Allendorf, Berlin, Mittenwalde, Gladenbach, and Hof are all certified according to the EU Eco Management and Audit Scheme (EMAS), one

of the world's strictest environmental protection regulations. The scheme mandates that measurable environmental targets be defined which go beyond current environmental legislation.

The EMAS regulation went into effect on April 10, 1995. Just a few months later, the production sites in Allendorf (Eder) were validated according to the regulation, making Viessmann the first German heating technology company to be entered in the European location register. Certification followed for Viessmann's plants for medium and industrial boilers in Berlin (1997) and Mittenwalde (1999) as well as the WESO-Aurorahütte foundry in Gladenbach (2000). Today, Viessmann's entry is the oldest in the European location register.

Energy management according to DIN ISO 50001

The aim of energy management is to systematically record and analyze energy consumption and derive suitable measures to increase efficiency from the results. This approach is used to define measures to achieve the long-range goal of a sustainable, CO₂-neutral heat supply at the Allendorf (Eder) site.

In March 2011, the energy management system in Allendorf (Eder) was certified according to DIN EN 16001. This European standard, which was replaced by the internationally valid DIN EN ISO 50001 in December 2011, serves as a guideline for a standardized system for continuously improving energy performance. The company's headquarters in Allendorf (Eder) have been certified according to ISO 50001 since May 2012 following the annual control audit.

Fossil fuel consumption decreased by 70 percent, CO₂ emissions by 80 percent

Viessmann's sustainability project for resource efficiency, climate protection, and job security.

As part of Viessmann's sustainability strategy, the sustainability project for improved efficiency is based on an integral concept for resource efficiency, climate protection, and job security. The project serves as an example of best practice and is designed to motivate other companies as well as political and administrative decision-makers to advocate or implement similar measures to improve energy, work and material efficiency.

The main purpose of improving the efficiency of work processes was to increase the competitiveness of jobs and, in doing so, to contribute to securing the Allendorf (Eder) site. Manufacturing structures and processes were redesigned according to efficiency criteria when lean production was introduced, resulting in a complete reorganization of the production concept. As a result, productivity was increased by up to 20 percent, while space efficiency was improved by about 30 percent.

The other factor of material efficiency involves the economic use of raw materials in the production process. In concrete terms, steel and water consumption has been reduced by half and the recycling rate has now reached 99 percent.

Innovative energy concept

The energy concept for the Allendorf site pursues a dual energy strategy that combines improving efficiency and replacing fossil fuels with renewable energies. This encompasses the new construction of an energy center and measures to decrease the energy used by the manufacturing process. These include:

- New high-efficiency machines and systems
- Needs-oriented management of pumps, engines, and lighting
- Improvement of system hydraulics
- Heat recovery center to exploit the waste heat generated by the industrial processes
- Insulation of the building envelope



The energy center of the future

The energy center operates on both fossil fuels and renewable energy, including oil, gas, biomass, solar energy as well as ambient and geothermal heat. Innovations such as condensing technology and CHP solutions ensure that the fuels are used efficiently.

When it comes to renewable energy, Viessmann is committed in particular to biomass obtained locally from the company's own short-rotation plantations. Over an area of 170 hectares, poplars and willows have been planted, which are harvested every three years and used as an energy source in the form of woodchips. A dry fermentation biogas plant delivers an additional 2.7 MWh of heat and power annually.

Accolades for strategic sustainability project

Viessmann's sustainability project was recognized with the 2009 German Sustainability Award in the category "Germany's most sustainable production", the 2010 Energy Efficiency Award from the German Energy Agency (dena), and the internationally acclaimed ENERGY GLOBE World Award. In 2011, the company also received the German Sustainability Award in the category "Germany's Most Sustainable Brand" and in 2013 in the category "Exemplary Resource Efficiency".

Viessmann grows poplars and willows to produce biomass on an own short-rotation plantation.

Increased efficiency, greater share of biomass and green electricity reduce CO₂ emissions even further

In order to tap further potential for increasing efficiency and protecting the climate, Viessmann's strategic sustainability project is being developed on an ongoing basis.

The retrofitting of the energy center completed in 2012 has increased the share of biomass in the heat supply from 50 to 80 percent. The long-term goal is to supply all energy using this climate-friendly fuel source. This is governed by the principle of sustainability, in other words only using as much biomass as can be regrown in the same period of time.

Furthermore, in 2014, an ice storage system was installed as energy source for a brine/water heat pump with a heat output of 27 kW. The heat pump's output is 21 kW when performing cooling operations. The next step is to reduce energy consumption even more. Additional efficiency measures are planned for manufacturing, for example optimizing the sheet metal powder coating process.

CO₂ emissions reduced by 80 percent

In order to further reduce CO₂ emissions, exclusively environmentally friendly hydroelectric power generated in Germany has been used at the Allendorf (Eder) site since January 1, 2012. CO₂ emissions have decreased by 80 percent compared to 2005 as a result.

Second biogas plant in operation

Moreover, a second biogas plant in Allendorf (Eder) is in operation. It is a wet fermentation plant from Viessmann's subsidiary Schmack Biogas GmbH, which produces 1.6 million cubic meters of biogas from 15,000 tonnes of substrate annually. In concrete terms, using this biogas can provide 1,650 households with electricity and 370 households with heat.

Using a technology developed by Viessmann Group member Carbotech GmbH, the biogas is upgraded to natural gas quality and fed into the public gas network. This means the gas can be used to produce electricity and heat anywhere there is a gas connection, regardless of where it was generated in the first place. Furthermore, the gas network can be used for storage purposes, making the generation and use of gas independent of one another over time. Like the first biogas plant, the new system will be supplied with substrate from local farmers and the Maschinenring Waldeck-Frankenberg.

The second biogas system in Allendorf (Eder) will likewise not only be used for energy generation and demonstration purposes but will also serve as a research and development plant. In order to test a new microbiological technology for producing synthetic methane from renewable energies, the system will be extended to include a hydrolyzer in 2015. The technology developed by Viessmann's subsidiary MicrobEnergy opens up entirely new perspectives for power-to-gas energy storage using the current natural gas infrastructure.



Energy center at the Viessmann headquarters in Allendorf (Eder)

At the Allendorf (Eder) site, the second biogas plant works according to the wet fermentation principle. The biogas is upgraded to natural gas and fed into the public grid.



CO₂-neutral sales offices

Innovative concept for sustainable buildings drawing on technologies available on the market.

Viessmann has developed an innovative concept for an energy-saving, environmentally friendly supply of heat and electricity at its sales offices, as part of which sustainability goals are defined early in the planning phase. By implementing technology already available on the market today, these cutting-edge buildings have been constructed according to the gold standard of the German Sustainable Building Council (DGNB) and meet the requirements of the Energy Performance of Buildings Directive (EPBD) for the year 2020.

Complete supply from renewable energy sources

This concept provides a complete supply with electricity and heat from renewable energy sources. High-efficiency heat pumps are used

for heating and cooling the rooms in the summer months. Solar energy is also used; vacuum tube collectors mounted on the facade supply the buildings with domestic hot water. Photovoltaic panels installed on the roof generate electricity, which is fed into the grid.

In addition to the modern industrial solutions, the buildings are constructed with triple-glazed windows and an insulated building envelope. In this way, the generated heat is used as efficiently as possible. The energy concept also incorporates environmentally friendly electricity from renewable sources such as biomass, water and wind power. This means that the overall heat and power supply of the buildings is CO₂-neutral.

Viessmann sales office in Herford



Challenges of demographic shift

Economic success at our company is linked to welfare of society as a whole and the preservation of an intact environment for generations to come.

This attitude is reflected in the loyalty and dedication of our employees who often stay with the company for decades.

It is becoming increasingly difficult to find well-qualified new employees in Germany. According to a survey conducted by the German Federal Statistics Office (Statistisches Bundesamt), the number of people in employment will drop by 11.6 percent by 2030. At the same time, the share of over-50-year-olds in the workforce will increase to 33 percent.

Competition for talented workers is already fierce today. More than 33,500 apprenticeship positions could not be filled in 2013 alone. One out of two companies perceive problems in meeting its needs for qualified employees. There will be a shortage of roughly 6.5 million skilled workers in Germany by the year 2025.

Maintaining and improving business competitiveness

Targeted measures are necessary to counteract this development and to maintain and improve the company's competitiveness regardless of these demographic shifts and their consequences. These include:

- Flexible working time models and phased retirement
- Continuous improvement of further education
- Targeted personnel development and advancement

The way to successfully achieve these measures is to cultivate a culture of togetherness, as described for decades now in the company principle of "Reliability": "We know the value of people in our company, and our communications are open and trusting. Capable employees with a will to achieve are offered real opportunities for professional development."

New working time model improves work-life balance

Viessmann has introduced a new working time model at its Allendorf (Eder) site based on a uniform 37.5-hour working week with full wage adjustment. Members of staff who have reached the age of 60 work 35 hours per week.

Since January 1, 2014, employees have working time credit accounts, an additional option for flexibly organizing their working lives. Furthermore, they can work either more or less hours than the standard working week. The goal of these models is to facilitate the adaptation of individual working time models to the employees' personal circumstances.



Company management informs employees of new working time models during a employees meeting.

Education and studies at Viessmann

Viessmann offers a broad range of apprenticeships and dual courses of study in manufacturing, design, logistics, IT and administration.

The strong relationship to actual work practice, systematic promotional measures and instruction and supervision by experienced trainers help get apprenticeships off to a good start.

More than 3,000 young people have started their careers with an apprenticeship at Viessmann in the past decades. Currently, approximately 500 apprentices are being trained in 16 different vocations, and another 90 bachelor students in eight combined work-and-study courses are employed by the company. Furthermore, the company provides 11 places every year for trainees in the EQ scheme (entry qualification).

Viessmann offers the part-time bachelor courses of study in cooperation with the University of Applied Sciences of Central Hesse and the Baden-Württemberg Cooperative State University in the following fields:

- Accounting & controlling
- Business administration, specialization in logistics management
- Business administration, specialization in SME management
- Business administration, specialization in information systems
- Engineering, specialization in electrical engineering
- Engineering, specialization in cooling and air-conditioning technology

Viessmann apprentice achieves the highest mark in the finals: Hans Heinrich Driftmann, president of the German Chamber of Industry and Commerce, hands Christopher Wrede his certificate and congratulates him for having achieved the best results of all mechatronic technicians for cooling technology in Germany.



- Engineering, specialization in mechanical engineering
 - Industrial engineering
- Students can continue in two part-time master courses of study in process management and systems engineering.

Integrating theory and practice

Viessmann supports the part-time bachelor program at the University of Applied Sciences Central Hesse (THM) as a member of the "Competence Center Duale Hochschulen e. V.", a combined work-and-study program. The combination of a university program with work placements in the company guarantee close links between theory and practice. And, as a result, the program not only produces highly qualified, practice-oriented technical and managerial personnel, it also fosters a direct transfer of knowledge between universities and businesses.

The "Apprenticeship Plus" project is another initiative designed to combat the general shortage of highly qualified technicians. This innovative training concept is designed to help school leavers with average attainment to qualify for university study. In parallel to a three-year apprenticeship, participants qualify themselves to attend a university of applied sciences. It is thus possible to complete not only an apprenticeship within just six years of leaving secondary school, it is also possible to complete university studies.



Viessmann offers a broad range of training and education courses for all employees.

Close links between theory and practice: the Viessmann apprenticeship workshop



Human resources development and internal training secure continuous improvement

Long-range competitiveness in international markets and job security necessitate the systematic promotion and development of the workforce.

These overarching objectives can only be reached when they are broken down into smaller goals to be achieved by the individual employees.

For this reason, participating in task-specific training is compulsory for all Viessmann employees. Depending on functions and responsibilities in manufacturing or administration, training may include:

- Management qualifications
- Method-related qualifications
- Social qualifications
- Specialist qualifications for sales
- Other qualifications

HR development system and management tools

The system of human resources development is based on the company's brand values and management principles and supports their execution. It consists of the following elements:

- Tools for goal orientation
- Feedback and evaluation systems
- Tools for personnel development

Supervisors and staff use the tools together.

Tools for goal orientation

The key component of goal orientation is the Management by Objectives (MbO). At the beginning of the year, each employee agrees with his/her supervisor on specific goals and objectives. In May and September, they review together to what extent those goals have been attained. In between status reviews, employees can count on supervisors for assistance and request a coaching meeting at any time.

Feedback and evaluation systems

The feedback and evaluation systems consist of regular performance assessments and development meetings. To determine an employee's potential for development, management compares the achievements of the employee with clearly defined job descriptions with the help of a qualification matrix. This ensures a standardized procedure.



Competition for talented workers is already fierce today. Viessmann counters this process with a targeted human resources development strategy.



Respectful interaction for mutual success

Safety and health – our most important assets

Sustainable business means accepting responsibility – for the environment, for all stakeholders and therefore for all employees.

To permanently ensure employees' safety, health and performance, extensive measures for occupational safety have been integrated into all essential company processes. They range from preventive measures such as assessing workplaces and training managers and staff, to investigating accidents.

By obtaining certification in accordance with OHSAS 18001 (Occupational Health And Safety Assessment Series), Viessmann reinforces its leading position in the industry. The initial inspection in 2011 was followed by the first recertification in September 2014.

Reportable accidents well below industry average

The number of reportable accidents at work per million working hours ("quota per million working hours") at the Allendorf Werke has remained below the average of the employers' liability insurance associations in Germany for many years.

Whereas the average number of accidents reported by the employers' liability insurance associations was approximately 14.9¹⁾ per million hours in 2014, the same figure at Viessmann Deutschland GmbH was 6.2 and at Viessmann Logistik GmbH 3.3. Six member companies at the Allendorf site have a quota per million hours of zero, including the production companies Viessmann Wärmepumpen GmbH and Viessmann Elektronik GmbH. The accident quota per million hours at the entire Allendorf (Eder) site is 5.0.

Apprentices more than 1,800 days without accident

Viessmann has a number of preventive measures in place to continuously reduce its accident rates. This especially applies to the area of technical apprenticeships.

No apprentice in Allendorf (Eder) has had a reportable accident for over five years – an outstanding achievement considering that young people between the ages of 18 and 25 are statistically at highest risk. As a result, Viessmann trainers were honored by the wood and metal employers' liability insurance association for operating 1,000 days without an accident in 2012.

Avoiding accidents also a topic in ideas management

Avoiding accidents also plays an important role in Viessmann's ideas management system. Since 2012, safety-related suggestions for improvement, for example after "near accidents", can be submitted as "quick ideas". Already in the first year, more than 1,900 suggestions regarding prevention were submitted and implemented with this new system at the Allendorf (Eder) plant alone. In 2014, more than 2,300 "quick ideas" were submitted.



Viessmann regularly takes part in preventive campaigns.

A health promotion day is held annually at the Viessmann Werke Allendorf.



Viessmann trainers were honored by the Wood- and Metal-working Professional Association for operating 1,000 days without an accident. In the meantime, the Allendorf-based apprentices have even worked for more than 1,800 days without a reportable accident.

¹⁾ Extrapolation

Getting involved is worthwhile: Viessmann Award open to all employees

At Viessmann, top performance and the continuous pursuit of improvement have always been encouraged and rewarded.

More than 50 years ago, Viessmann introduced a system for submitting suggestions, which led the way to today's ideas management. The annual sales competition held since 1980 provides strong incentives for increasing sales and turnover.

In 2014, an innovation award was sponsored for the fifth time to recognize projects with strong innovative potential. This team competition is designed to identify and capture innovation potential within the Viessmann Group and promote cooperation between employees, departments and member companies.

These three pillars – ideas management, the sales competition and the innovation award – make up the Viessmann Award. It is not limited to specific business areas, such as

manufacturing or sales, or to specific locations or Group members; all employees are entitled to take part, as their daily work is essential to the company's success.

Category "Continuous Improvement Process"

Good ideas are an investment in the future. They help refine products and services, strengthen the company's competitiveness and secure jobs. Viessmann employees have a wealth of experience and knowledge and are a source of powerful ideas.

Independently of the bonuses or "idea points" awarded by the ideas management system, there are two ways of taking part in the "Continuous Improvement Process" category – either on the basis of the number of improvement suggestions submitted or on the basis of the total savings potential.

The winners in the respective categories are honored with the Viessmann Award.



The project team that had developed an "Innovative heat exchanger concept for wall-mounted gas boilers over 100 kW" received the Viessmann Award in 2013.

Alongside the innovation award and the continuous improvement process, the third pillar of the Viessmann Award is the sales competition.





Every employee can take part in the Viessmann Award. The photo features the participants of the 2014 winners' trip with the supervisory board at the Vasa Museum in Stockholm.

Sales competition

The aim of the sales competition is to generate customer enthusiasm for Viessmann, promote sales and increase turnover. Points are awarded for every heat source sold; sales revenues and reaching targets are the criteria for winning the award.

The sales competition addresses the German and international sales organizations as well as the sales teams at Viessmann K hlsysteme GmbH.

Innovation

Every employee can take part in this team competition, with ideas that have been successfully transformed into new products, processes or services. The emphasis is not only on technical projects, it also lies on innovations in the areas of further education, administration and environmental protection.

With 15 projects submitted from the areas of manufacturing, sales and administration, the Innovation Award met with tremendous response in 2014. The suggestions ranged from process optimizations in manufacturing and logistics to new business models through to product innovations.

Relationship of trust with politicians and associations

Viessmann works closely with policymakers and associations in a spirit of trust. This work focuses on commitment to climate protection and the provision of a sustainable energy supply in the future.



Viessmann is one of currently 29 members of the German climate protection industry group. The German Federal Environment Ministry, the Federal Ministry of Economics and the German Federation of Chambers of Commerce (DIHK) launched the partnership in 2009 together with Viessmann and three other founding companies.

"Companies for Climate Protection" – coalition with ambitious goals

Member companies must fulfill strict criteria. For example, climate protection and energy efficiency must be an explicit element of company policy and activities in this area must be regularly publicized. Furthermore, consumption data and greenhouse gas emissions must be systematically logged and documented, and the issues of climate protection and energy efficiency must be anchored in the company's training and professional development programs.

The purpose of the partnership for climate protection, energy efficiency and innovation is to develop the existing potential for climate protection and energy efficiency in the companies. Additional aims are to drive forward the use of innovative technologies to tap this potential in business practice and to create a framework to achieve ambitious climate-protection and energy-efficiency goals in an affordable manner.

BDI initiative "Energy Efficiency in Buildings"

The BDI Federation of German Industries has started an interdisciplinary initiative for energy efficient buildings. In addition to Viessmann, 19 associations and companies from the building sector belong to the group. The joint goal is to capture the enormous, largely untapped potential for energy efficiency in buildings. Increasing efficiency in buildings is critical to the current debate on the future structure of the energy supply system in Germany.



Dr. Martin Wansleben (left), Chief Executive of the German Chamber of Industry and Commerce, and Berthold Goeke (right) from the German Ministry for the Environment present the membership certificate for the climate protection group of the Germany economy to Manfred Greis, Chief Representative of the Viessmann Group.

The aim of the initiative is to actively shape the political framework for climate protection and growth as well as to increase awareness of the potential for improvement and its economic repercussions. Innovative technologies and system solutions are also presented and the expertise of the German industry at finding solutions is conveyed.

DIHK energy and environment committee

The German Chambers of Commerce and Industry have recognized the challenges associated with a sustainable raw material supply in the future. Under the 2012 motto, "Energy and raw materials for tomorrow", the Chamber of Industry and Commerce organization makes companies more aware of the risks to the supply of raw materials and informs them about ways of using energy and resources more efficiently and of substituting certain raw materials. At the level of the German Chambers, this topic has been assigned to the energy and environment committee, of which Viessmann is an active participant.



Viessmann has established a close, trusting working relationship with politicians and associations – for example with the German Energy Agency (dena).

Alliance for building energy efficiency (geea)

The German Alliance for Energy Efficiency of Buildings (geea) is a cross-sector coalition of leading representatives of industry, research, the trades, planning, retail, energy supply and financing. The aim of geea is to improve energy efficiency in buildings in Germany by making recommendations to policymakers and proposing concrete measures to industry.

Viessmann takes part in this group founded by the German Energy Agency (dena) in 2011 as one of 30 partners. In 2014, the geea jointly launched the "Hauswende" sustainable housing energy campaign with the German Federal Ministry for Economic Affairs and Energy and the Federal Ministry for the Environment. It aims to reduce the modernization backlog in existing buildings and to motivate house owners to invest in energy-efficient technology.



Partners of the "Hauswende" (from l. to r.): Andreas Lücke (Managing Director of the German Industrial Association for Building Services, Energy, and Environmental Engineering, BDH), Manfred Greis (President of the BDH), Dr. Barbara Hendricks (Federal Minister for the Environment, Nature Conservation, Building, and Nuclear Safety), Stephan Kohler (Spokesman for the German Alliance for Energy Efficiency of Buildings [geea] and Chairman of the Management of the German Energy Agency), Marianne Tritz (Managing Director of the General Association for the Insulating Materials Industry, GDI), Ulrich Tschorn (Managing Director of the Window and Facade Association, VFF).
(Photo: dena/P. Becerra)

Sustainable energy era – a mission for society as a whole

In Hesse, the goal by 2050 is to cover all electricity and heating needs with renewable energy. The state administration aims to be CO₂-neutral as early as in 2030.

Just a few days after the nuclear catastrophe in Fukushima (Japan) on March 11, 2011, Hessian Minister President Volker Bouffier called for a Hessian Energy Summit to be established. Four working groups met with representatives of all organizations relevant to energy issues – the parliamentary groups in the state of Hesse, representatives from municipalities, trade and environmental associations, unions and industry – to discuss several key topics:

- The development of a viable energy mix of renewable energy and fossil fuels
- The identification of potential for energy efficiency and savings
- Requirements for a reliable energy infrastructure and secure energy supply
- Society's acceptance of changes to energy policy

Viessmann actively contributed its expertise to the working groups on "Establishing a Viable Future Energy Mix of Renewable and Fossil Fuels in Hesse" and "Energy Efficiency". The results of the four working groups were summarized in a final report that describes the strategic basis of future energy policy in the state, with the following main objectives:

- To meet almost 100 percent of the final energy consumption in the state of Hesse (heat and electricity) with renewable energies by the year 2050
- To increase energy efficiency and achieving considerable energy savings
- To expand the energy infrastructure to ensure availability at all times – "as decentralized as possible, as central as necessary"
- To foster society's acceptance of the necessary changes to energy policy in the future

The work of the energy summit will go on, and Viessmann will continue to be involved in the working groups.



Taking forward the energy change in Hesse together:

Prof. Dr. Martin Viessmann (center) received the Hessian Minister for Economic Affairs, Energy, Transport, and Regional Development, Tarek Al-Wazir (2nd from right), and the Green Member of the Regional Parliament, Jürgen Frömmrich (right). Left in photo, Manfred Greis, Head of Company Communication, next to him on right, supervisory board member Klaus Ganter.

Dedication to promoting business in Northern Hesse

Companies in the northern part of Hesse have extensive expertise in energy efficiency and decentralized energy technologies.

In addition to numerous companies, many of which are world market leaders in their respective areas, the University of Kassel and other research and scientific institutes focus on decentralized energy technologies, environmentally friendly construction, high-efficiency energy usage and climate-friendly manufacturing.

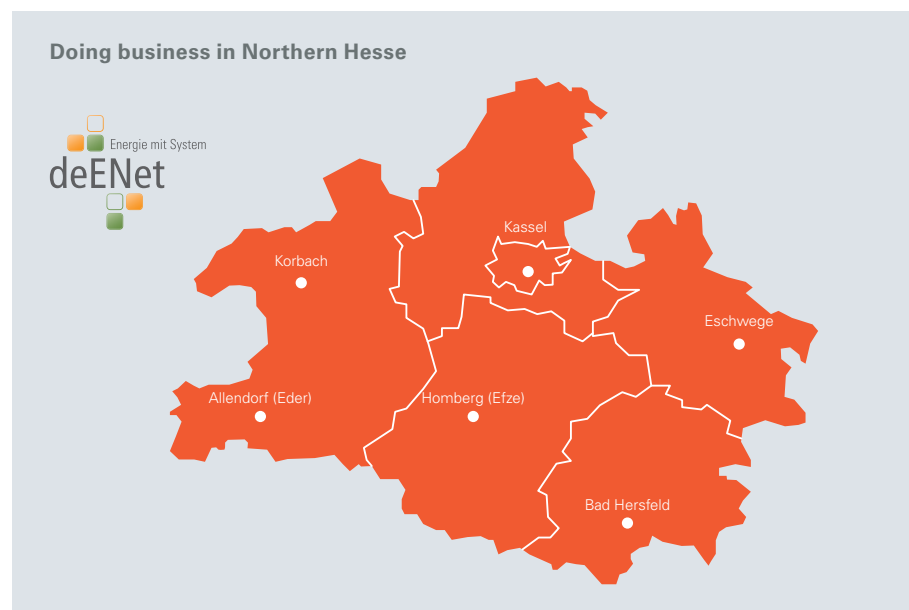
deENet network of expertise

The Decentralized Energy Technologies network of expertise (deENet) was founded in 2003 at the initiative of industry, economic associations and researchers. Today it comprises more than 120 companies (including Viessmann as a founding member), research institutes and service providers. deENet has succeeded in acquiring application-oriented research projects in partnership with research institutions from the network and with manufacturing companies in the region, increasing the network's profile in Germany and throughout the world.

The network was a member of the "Competence Networks in Germany" Excellence Cluster Initiative from 2009 to 2012 and was awarded the title "Competence Network of the Year" by the German Ministry of Economics and Technology (BMWi) in 2010. The network received the bronze label certificate from the European Cluster Excellence Initiative in October 2011. deENet has been a member of the BMWi's "go-cluster: Exzellent vernetzt!" since 2012.

Developing integrated system solutions

deENet focuses on jointly developing integrated system solutions for the energy supply. This increasingly involves implementing decentralized structures close to the consumer using renewable energies as much as possible and introducing energy-efficiency measures. The working areas for deENet are therefore decentralized supply equipment, energy-optimized planning and building, energy-efficient industrial processes and sustainable supply concepts. The expertise and established cooperation structures lead to integrated supply solutions that range from individual buildings and housing estates to entire regions.



Northern Hesse – the location for an innovative energy supply

Alliance for Sustainability

In cooperation with partners from industry and science, Viessmann supports the information platform dedicated to sustainable building, modernization, and living.



Scarce resources and global climate change pose tremendous challenges for the world. Sustainable behavior in all areas of life is the only way to master these challenges. Living sustainably means ensuring that current needs are satisfied without limiting the basis for life for the generations to come. Each individual can do his or her part by conserving natural resources as much as possible, by implementing measures to increase energy efficiency and by accepting responsibility for the environment.

To achieve this objective, it is essential to broadly and comprehensively inform the general public. For this purpose, Viessmann is a founding member and committed partner of the Alliance for Sustainability. As well as leading manufacturers of sustainable products from the building services and construction materials sector, the Alliance also includes partners from research and science. The website www.allianz-pro-nachhaltigkeit.de is the central information platform.

Reliable perspectives for a sustainable energy supply in buildings

The online platform collects and consolidates information related to sustainable building, housing and modernization – information that was incomplete or too complex in the past. It outlines reliable options for sustainable building engineering with renewable energy and energy-efficient systems already available on the market. Concrete examples of successful usage provide ideas and motivation for eliminating the modernization backlog. In addition, there is a lively exchange of information and scientific articles in the social media.

Embedding sustainability into everyday life

The long-term aim of the "Alliance for Sustainability" is to achieve the sustainable use of natural resources and a CO₂-neutral building supply. It is intended to take the issue of sustainability into the everyday life of the community and embed it there.



The "Alliance for Sustainability" is an integrated information and communications platform dedicated to all aspects of sustainable building.



Viessmann Allendorf Foundation: Emphasis on social responsibility

Viessmann supports educational and youth projects, medical facilities, culture and science via a foundation established especially for this purpose.

In accordance with the principle of corporate social responsibility, the company supports the sciences, arts, culture, and society. Six-figure donations are made every year to subsidize projects in Germany and at the international level.

Promoting science

In the scientific arena, Viessmann sponsors projects at various institutions and universities. Furthermore, many students are given the opportunity to take part in internships at the company or write their bachelor's theses.

Broad social spectrum

Viessmann has long been a patron of visual and performing arts. The cultural commitment includes helping to fund the modernization and preservation of historical buildings and cultural landmarks. Viessmann places particular value on offering a broad range of educational options and meaningful recreational opportunities to children and young people from rural areas and regions with weak infrastructure near the company headquarters.

Furthermore, it is particularly important to the company that the local population receives the best possible medical care and that persons with disabilities are fully integrated into society. Supporting local associations and charitable initiatives that have such goals is therefore an integral part of Viessmann's social commitment.

Diverse involvement, uniform basis

The Viessmann Allendorf Foundation was established in 2010 to provide a uniform basis for this diverse involvement and ensure continuity in the future. In accordance with its charter, the foundation pursues charitable and non-profit purposes including:



The Viessmann Allendorf Stiftung supports charitable and non-profit purposes. Annette Viessmann is a member of the board.



Acknowledging its social responsibility, Viessmann is committed to supporting science, the arts, culture and social affairs.

- Promoting science and research
- Promoting public health care, especially for those with illness, mental or physical handicaps and persons facing economic hardship, primarily children and youths
- Promoting youth sports, the education of young people and vocational training including student support
- Promoting nature conservation, including animal welfare, rural conservation and environmental protection
- Promoting the arts, the preservation and maintenance of cultural values and monuments
- Promoting regional values and heritage
- Religious purposes

Cooperation with universities, schools and preschools

Making the most of training and professional development: It is becoming increasingly difficult to find well-qualified new employees in Germany.

Viessmann supports projects to counteract the lack of skilled workers and cooperates closely with schools and universities.

Cooperation with universities

Viessmann works in close collaboration with the Marburg Philipps University and the Wilfrid Laurier University in Waterloo, Canada. The Viessmann European Research Center was founded there in 2001.

Moreover, the company also cooperates with the University of Wisconsin in Oshkosh. In 2012, an exchange program was set up for students of the combined work-and-study program at the University of Applied Sciences Central Hesse (THM). In addition, Viessmann offers annual internships and a block seminar on sustainability for students from Oshkosh and a management development program for Viessmann executives in Oshkosh. The company also supports research and instruction in the areas of environmental sciences, sustainability, renewable energy, business administration, and general management.

Seminars on the topic of sustainability are regularly offered to students from the University of Oshkosh/Wisconsin.



Young Engineer Academy

In conjunction with the University of Applied Sciences of Central Hesse and the Edertal secondary school in Frankenberg, Viessmann founded the Young Engineer Academy (YEA) in 2012. The purpose of this model project is to effectively counteract the lack of skilled workers. Over the course of two years, participants attend an extracurricular program of about 140 hours. The project serves as a model undertaking and was honored with the Hessian Demographics Award shortly after its start.

Career Day

The annual Career Day held at Viessmann provides information about vocational opportunities and dual courses of study. The 11th event in 2014 once again turned out to be a magnet for visitors, attracting 450 attendees, including pupils, parents, and teachers.

"MINT for Minis"

MINT is an invented word and stands for mathematics, IT, natural sciences and technology. Viessmann cooperates with four preschools in the region to cultivate children's interest in these complex fields at a very early age.

More than 450 visitors attend the Career Day every year.



Comprehensive information and training for market partners

In order to meet the growing demands of professional trade partners, designers, engineers and architects, a comprehensive education and training system is required.

Viessmann's partnership with its customers is designed to enable direct cooperation with heating contractors and is therefore structured as a two-pronged sales channel. Other direct market partners include designers, architects, and engineers who are regularly provided with extensive information about technology, energy efficiency, and subsidy options to keep them abreast of the latest developments. Private homeowners can also take advantage of Viessmann's comprehensive range of information when making their investment decisions.

The Viessmann Service Initiative

The new Viessmann Service Initiative was started in 2014 in order to make every partner aware of what support is available in day-to-day practice. Divided into the seven service fields

- sales support,
 - logistics,
 - maintenance and service,
 - software and Internet service,
 - seminars,
 - marketing support and consultancy,
- all the company's services are summarized – clear, complete, and needs-oriented.

TÜV-certified building Energy Savings Check

Regardless whether condensing boiler, heat pump, pellet boiler or micro combined heat and power system – Viessmann's Energy Savings Check calculates potential savings for modernizing with these heat generators by making only a few entries. It is therefore the ideal tool for trade professionals to advise their customers. The free-of-charge consulting program has now been extended to become the Building Energy Savings Check. Thanks to the objective results it delivers, it has been the only program of its type to be certified by TÜV (German technical supervisory association) Rheinland.

Seal of approval for the Technical Service department.

Viessmann is the first company in the industry to have the competence of their service employees tested by an independent agency and has also been certified by the TÜV Rheinland in this area. More than 280 employees of the Technical Service department have verified their qualification in a written test and may now call themselves "Service technicians with a qualification approved by TÜV Rheinland".

Market partner portal: Service round the clock

Viessmann's market partner portal offers contractors numerous functions and is available 24/7. Many heating contractors, design engineers and architects use the portal as an electronic reference work for their daily activities. It also offers the option of ordering complete heating systems and spare parts online, plus an online advertising service for individually designing mail campaigns or invitations to in-house trade fairs. Operating instructions, maintenance documents, and many other documents are also available for download free of charge in the online database.

Internet with information customized for the target group

Viessmann goes to great lengths to make sure its Internet presence (www.viessmann.de) is constantly up-to-date. Both system users and contractors have access to information specific to their target group.

Keeping on top of things with "aktuell"

Viessmann's magazine for heating technology "aktuell" keeps trade partners up-to-date with news from the sector and our company. With a print run of 85,000, the publication showcases Viessmann's new technologies, custom services and ambitious sustainability projects in the company.



The company's "aktuell" magazine for heating technology provides information on company and sector topics on a regular basis.



Online ordering systems facilitate contact between trade partners and manufacturers

Viessmann Academy – partner for continuing education

Growing demands on contracting partners, designers, engineers and architects make a comprehensive training and professional development program necessary.



Practical and theoretical training at the Viessmann Academy

Viessmann not only supports its market partners with a comprehensive range of heating systems for all fuel types and areas of application, the company also serves as their experienced partner for professional training in all technological and company-related areas in the form of the Viessmann Academy. A partner with experience: Already in the early 1960s, the Viessmann Academy started to provide training to the company's partners to help them meet the future challenges of the industry.

Broad array of courses

The Viessmann Academy provides training to market partners for all phases of corporate development and helps them to use their knowledge to generate growth and commercial success. Not only with the current products and systems, but more specifically with new topics and product areas.

Viessmann brings its customers up to speed with new technology, helps them showcase their expertise through certification and increases their knowledge of political and legal frameworks. Parallel to this,

they receive extensive information and training concerning the options of financial support for energy-optimized construction and modernization.

State-of-the-art facilities

The Academy building offers room for diverse training and professional development courses in a space of 6,000 square meters. The complete range of Viessmann products has been installed in the classrooms for practical training purposes.

The integrated concept of the Viessmann Academy includes information centers with guest houses at the company headquarters in Allendorf (Eder) and at the Berlin site as well as service centers with state-of-the-art rooms for theoretical and practical training in 120 sales offices worldwide. The Viessmann Academy is the first academy in the industry to be certified according to DIN ISO 29990 – the quality standard for training providers – and exclusively deploys TÜV-certified specialized and master trainers to ensure that the level of training remains consistently high.

Each year, more than 90,000 people take part in the programs: heating system installers, designers, architects, energy consultants, chimney sweeps, representatives from housing associations, building authorities and educational institutions. And of course Viessmann employees.

Custom-tailored formats for imparting knowledge

In addition to traditional face-to-face training sessions, the Viessmann Academy extends its electronic training program on an ongoing basis. A diversified training package of e-learning solutions, web seminars, videos, and the Academy app makes it possible for market partners to create their own needs-based learning programs, which can be accessed at any time and in any place.

E-learning modules permit market partners to acquire a fundamental knowledge of products and technology.



Awareness and orientation: Viessmann forums

If the German federal government's energy and climate policy targets are to be met, the backlog of modernization in existing buildings urgently needs to be eliminated.

However, uncertainty continues to dominate the market, on how to reach the German government's energy and climate policy targets can be reached. Information and persuasive argumentation are more important than ever in the dialog with investors and system users.

Home and apartment owners are aware that investing in the energy efficiency of their buildings not only helps protect the climate and promotes a sustainable energy supply for the future, but it also helps in particular to save heating costs and to increase the value of their real estate. However, most of them have decided to "wait and see," primarily due to the unreliability of government subsidy programs as well as incorrect and at times contradictory information about the future viability of the various energy sources.

Increasing awareness, giving orientation

Viessmann hopes to increase awareness and provide its market partners with persuasive arguments to give their customers orientation and empower them to make the right decisions.

The Viessmann technical and energy forums offer plenty of opportunity for discussion and sharing experiences. Since their inception in 2008, roughly 3,200 market partners – including heating contractors, designers, architects, and engineers – have taken part in the forum events held at the Viessmann Academy. This shows that there is a great need for factual information and clarification of political and technological issues.

Renowned experts from research and politics

At these events, renowned experts from politics, research and the heating technology industry present their views, elaborate on solution approaches and take part in Q&A sessions. Regularly featured speakers at the Energy Forum include Prof. Dr. Hans Joachim Schellnhuber, Director of the Potsdam



The Viessmann energy and technical forums increase awareness and provide orientation.

Institute for Climate Impact Research, and Franzjosef Schafhausen, Director of the "Climate Protection Policy, European and International Affairs" Department in the German Federal Ministry for the Environment, and Thomas Herdan, Director of the Energy Policy Department in the German Federal Ministry for Economic Affairs and Energy.

In the technical forums, the participants discuss the current regulations and energy policy, putting forward in-depth solutions for specific technical issues and application areas. Viessmann regularly organizes technical forums on topics such as heat pumps, CHP, photovoltaics, and industrial systems/ multi-mode systems; the program is modified and extended on an ongoing basis.



Prof. Dr. Hans Joachim Schellnhuber



Franzjosef Schafhausen



Thorsten Herdan

Environmental indicators of the Viessmann Group

Environmental indicators based on Viessmann Group turnover

Indicator*	Unit	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Electricity consumption	GWh/billion €	62,5	56,5	48,4	49,6	49,5	47,6	45,9	44,8	41,6	38,3
Consumption of energy to supply heat	GWh/billion €	115,3	97,5	74,0	72,2	78,5	75,6	63,8	65,6	61,6	50,8
Total energy consumption	GWh/billion €	207,3	180,5	144,3	145,4	146,3	142,9	129,5	128,0	119,6	103,4
Water consumption	1,000 m³/billion €	143,9	121,4	100,0	100,7	123,8	106,0	94,5	88,0	79,5	82,1
Steel consumption	kt/billion €	57,5	54,0	43,1	46,7	42,3	38,1	35,7	37,3	36,1	31,2
CO ₂ emissions	kt/billion €	79,7	70,5	57,7	58,0	56,0	51,6	47,4	46,0	38,6	34,0
Total waste	kt/billion €	25,0	25,7	23,5	23,3	20,4	20,9	20,8	19,5	18,9	16,9

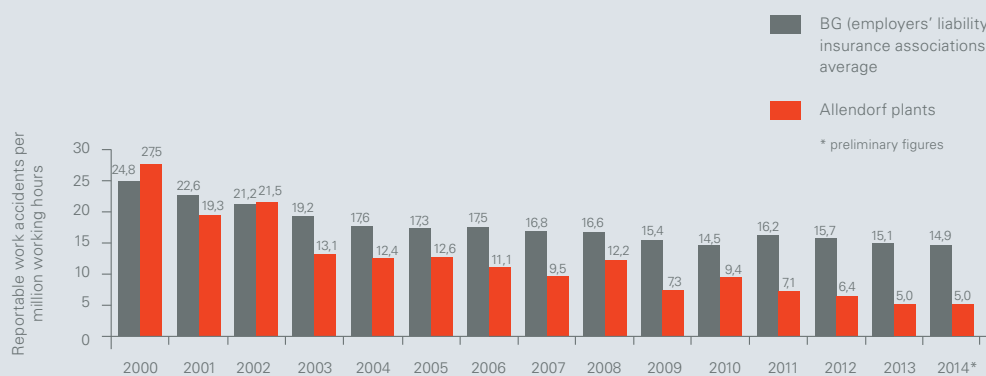
* Sum total includes plants in Allendorf, Berlin, Mittenwalde, Faulquemont, Gladenbach, Legnica, Wolfurt, Worb, Landsberg, Dombóvár, Hof, Porvoo

Employees

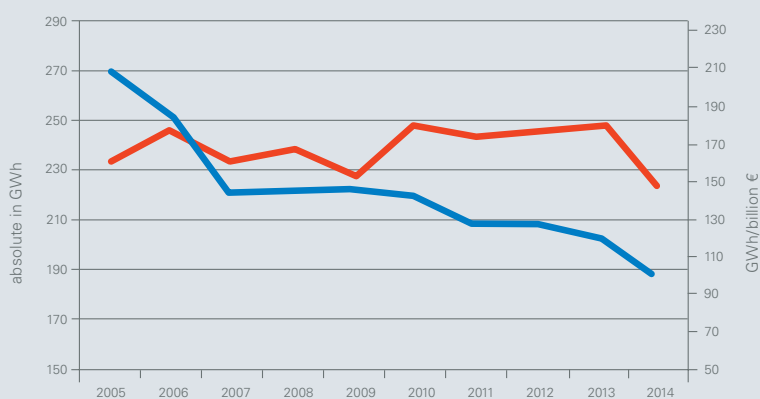
Viessmann – total number of employees	11500
Allendorf site	4300
Additional production sites, Germany	2300
Production sites, outside Germany	2600
International sales	2300

Accident statistics at the Allendorf plant

Quota per million hours



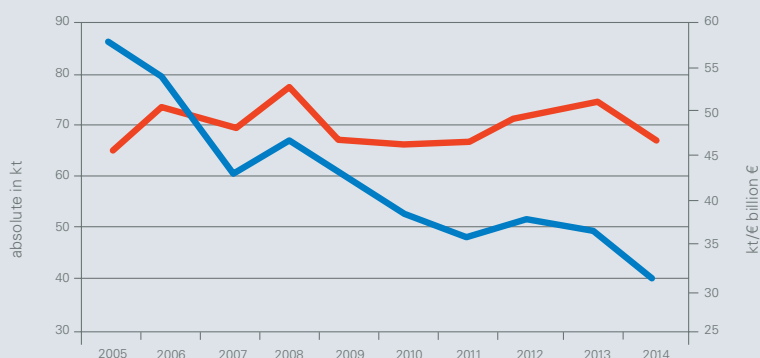
Energy consumption/Viessmann Group turnover



As in most manufacturing companies, energy consumption is an aspect with considerable impact on the environment and a considerable cost factor in the Viessmann Group. Accordingly, extensive measures have already been implemented to cut energy consumption. Examples of this are provided in the „Resources“ and „Infrastructure“ sections.

Viessmann has been able to lower the turnover-related total energy consumption by more than 50 percent since 2005.

Steel consumption/Viessmann Group turnover

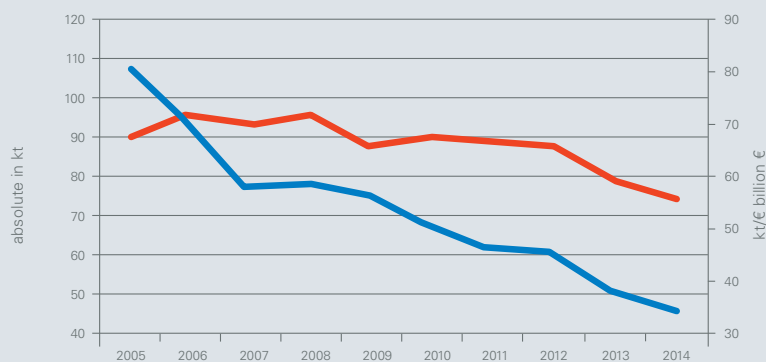


Viessmann processes and machines predominantly metallic materials, particularly sheet steel, steel tubing, cast iron and non-ferrous metals. The production logistics personnel place orders for production materials with suppliers as and when needed. The quantities in stock and delivery batches are reduced to the minimum required to keep the manufacturing process running. This ensures that such problems as unnecessary stock and residual batches, which may require disposal, do not occur.

On the whole, steel consumption related to turnover has been reduced by more than 40 percent.

■ absolute
■ related to turnover

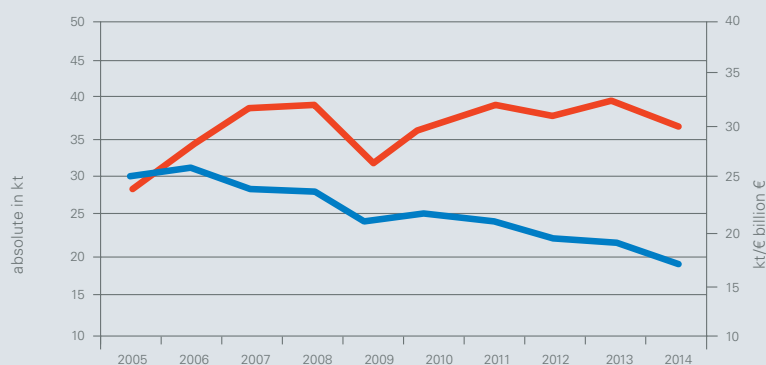
CO₂ emissions/Viessmann Group turnover



The systems and facilities that are relevant in terms of emission within the Viessmann Group (heating and energy centers, smelting furnaces, testing equipment for heating products, welding and soldering equipment etc.) are in accordance with the current state of the art.

Turnover-related CO₂ emissions have been reduced by more than 50 percent thanks to efficiency measures and the substitution of fossil fuels with renewable energy sources since 2005.

Waste/Viessmann Group turnover



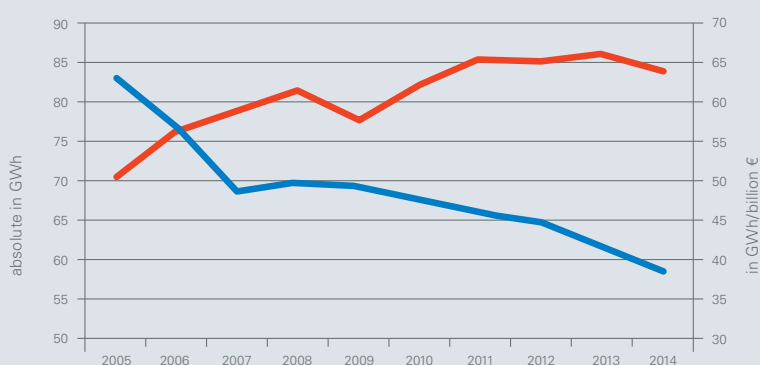
All of the raw materials used are incorporated into the products to the greatest extent possible, if for no other reason than economic efficiency. Wherever it is possible and economically justifiable, the basic principle „prevent rather than reduce; reduce rather than recycle; recycle rather than throw away“ is applied.

Measures such as avoidance or substitution of production processes which create a lot of waste, mono-fraction collection of material for recycling and the usage of returnables and refill systems have been part of day-to-day routines of the Viessmann employees for a long time.

The turnover-related volume of waste has been reduced by more than a third since 2005.

absolute
related to turnover

Power consumption/Viessmann Group turnover

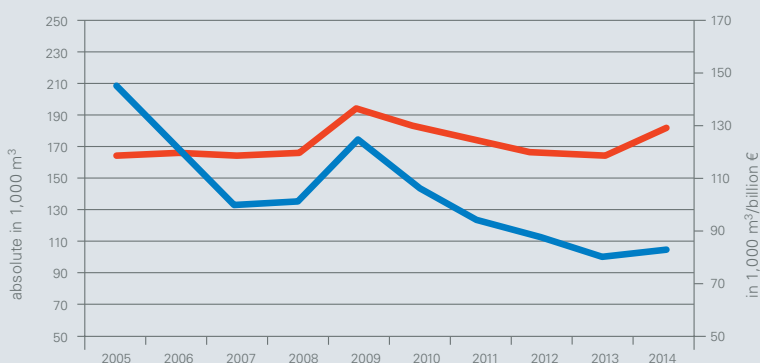


The main consumer of electricity is the production department, which is the reason why most optimization measures are focused on the manufacturing process. Many measures that aim to reduce power consumption have been implemented in recent years, including the following examples:

- Optimization of the utilization of production capacities
- Use of energy-efficient engines
- Installation of day light controllers with shutdown during breaks

Turnover-related power consumption has been reduced by more than a third.

Wasserverbrauch/Umsatz



Water is particularly used for cooling purposes and cleaning parts, as a test medium and in sanitary installations. Cooling water accounts for the largest amount; it circulates in closed-circuit systems and is used several times. Water-saving measures, such as closed-circuit concepts for cooling and washing water, extending the useful lives of process baths etc., have been implemented according to the latest state of the art to a great extent.

Since 2005, turnover-related water consumption in the Viessmann Group has been reduced by more than 40 percent.

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climate of innovation

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