

## Powering Sustainability

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The use of energy is growing rapidly and the resources of our planet are already under great pressure. We need to change the way we produce our energy. We need to produce more renewable energy, and the most promising source of energy is the power of wind.

At Vestas, we believe energy to be an important catalyst for founding a better quality of life. A stable energy supply is an essential part of the infrastructure for a developed society. Energy is central to nearly every major challenge and opportunity the world faces today. Be it jobs, security, climate change or food production - access to sustainable energy is essential for strengthening economies, protecting ecosystems, reducing poverty and achieving equity.

Read a [statement](#) from our President and CEO.

The predicted effects of climate change could be both devastating and irreversible. According to the Intergovernmental Panel on Climate Change (IPCC), the effects of climate change will be broad-ranging, affecting water supplies, ecosystems, food availability, health and the economy and devastating coastal regions. Vestas considers it to be crucial that greenhouse gas emissions are limited, and that low carbon energy generation technologies take over. This echoes with one of the core messages from the International Energy Agency's World Energy Outlook 2011:

"Delaying action to reduce emissions is a 'false economy' - for every \$1 of investment avoided in the power sector before 2020 an additional \$4.3 would need to be spent after 2020 to compensate for the increased emissions."

A single Vestas wind turbine will generate more than 25 times the energy to society than it uses in its entire lifecycle. And, a single Vestas wind turbine only emits one percent of carbon dioxide when compared to a coal power plant. However, it's important that we acknowledge that when producing solutions to harness wind energy a small negative impact on the environment is made. Vestas is committed to reducing this impact to the extent possible together with our suppliers and customers.

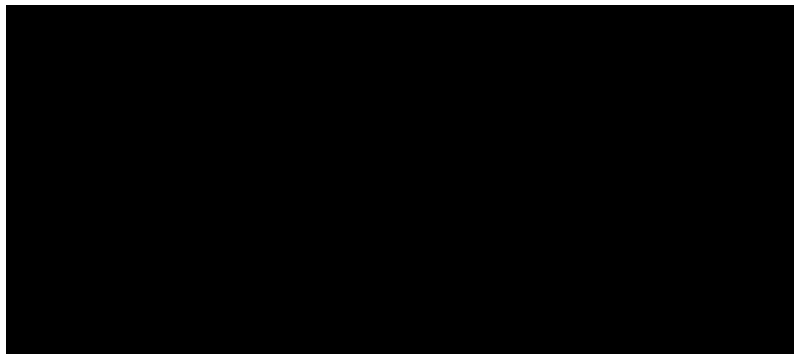
Take a deeper look at how we make Vestas a [safe place to work](#), our [environmental views](#), how we develop [sustainable products](#) and approach [business ethics](#).

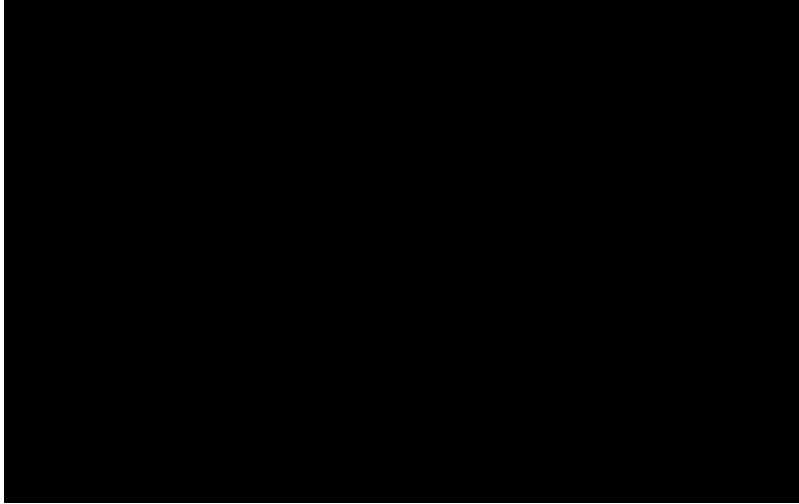
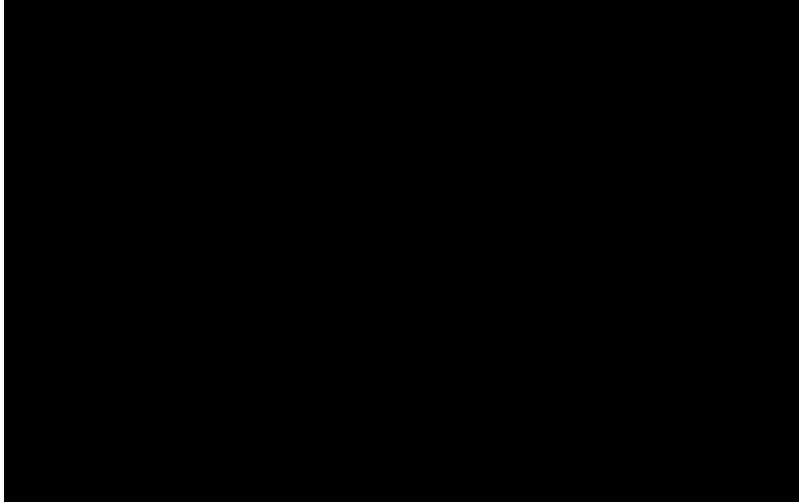
Also, learn more about Vestas and our Sustainability engagement in the Vestas [World of Wind](#).

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## A sustainable culture

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To encourage a company-wide sustainability culture, Vestas invests in nurturing and developing knowledge and skills of our employees, so everyone is empowered to work towards a shared vision of sustainability. At every level of the organisation awareness is raised to minimize sustainability risks. Decisions should always take into consideration the financial, but also the ecological and social consequences.

### Our targets

| Safety                                     | Target 2011 | Year end 2011 | Target 2015 |
|--------------------------------------------|-------------|---------------|-------------|
| Incidence of industrial injuries (1)       | 5.0         | 3.2           | 0.5         |
| Environment and Product Stewardship        |             |               |             |
| Carbon footprint (2), grams of CO2 per kWh |             | 7             | 6           |
| Recyclability (2), %                       |             | 80            | 85          |
| Renewable energy, %                        | 40          | 38            | 55          |
| Renewable electricity, %                   | 95          | 68            | 100 (3)     |

1. Per one million working hours
2. Baseline is the Life Cycle Assessment performed on the V112-3.0MW (Class IECII, 33 wind turbines, 8 m/sec wind speed)
3. Target is for 2012

Vestas is committed to delivering value to its customers. In the power generation industry, reliability is key. Securing outstanding performance levels for all wind turbines through Six Sigma philosophy is a major objective for Vestas. Since 2007, the company has been steadily improving its performance. It raised the bar to Four Sigma by 2008 and Five Sigma by 2010. Vestas will continue its journey towards Six Sigma because achieving parity with oil, gas and coal requires this level of quality.

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## Organising Sustainability

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Responsibility for Sustainability performance lies in the line organisation. To support the line organisation a sustainability organization is established.

A corporate Sustainability department is responsible for the overall area, including global policies, KPI's and requirements, and is developing and driving the implementation of global standards and training programmes. All business units have their own Sustainability function that deploys the initiatives from the corporate department as well as day-to-day tasks related to the specific regions.

To support knowledge sharing and cross-functional cooperation a Sustainability Forum is formed.

Sustainability leads in all units are expected to participate on a monthly basis.

#### Board Committees

Vestas [Board committees](#) are overseeing Vestas' focus on sustainability. Two out of four discuss sustainability issues at their meetings.

The board committees that touch upon Sustainability issues are named Audit and Manufacturing & Excellence.

#### Audit Committee

The Audit Committee assists the Board in assessments and controls relating to auditing, accounting policies, systems of internal controls, financial reporting, and procedures for handling complaints regarding accounting and auditing and the need for an internal audit function. The cases filed in Vestas whistle blower system, [Vestas Ethics Line](#), are reported here.

In 2011 it was decided that business ethics and anticorruption is also a task for the Audit Committee to discuss. The Audit Committee monitors the development and implementation of Vestas' ethics and anti-corruption program pursuant to Vestas' Code of Conduct and the World Economic Forum Partnering Against Corruption Initiative (PACI).

The purpose is also to evaluate the adequacy and effectiveness of Vestas' ethics and anti-corruption programme and to demonstrate visible and active commitment to the implementation.

In 2011, the committee held 4 meetings.

#### Manufacturing & Excellence Committee

The Manufacturing & Excellence Committee supports the Board in the evaluation of technical matters concerning the Supply Chain. The committee also supports the Board in matters concerning production.

In spring 2011, Sustainability was added to the charter as a new section and the committee received a general introduction to Sustainability at Vestas. In

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2012 the focus will be narrowed down to specific areas within Sustainability.

In 2011, the committee held 6 meetings.

## Key impacts, risks and opportunities

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In Vestas we believe that energy is the foundation for a better quality of life. A stable energy supply is an essential part of the infrastructure for a developed society.

Energy is central to nearly every major challenge and opportunity the world faces today. Be it jobs, security, climate change or food production - access to sustainable energy is essential for strengthening economies, protecting ecosystems, reducing poverty and achieving equity.

According to the United Nations (2011) more than 1.4 billion people worldwide have no access to electricity, and 1 billion more only have intermittent access. Some 2.5 billion people – or 35 per cent of humanity – rely on traditional biomass for cooking and heating.

These numbers show us that there is still much work to be done to ensure a sustainable energy supply. Vestas is pleased to learn that the United Nations is supporting this objective by making sustainable energy one of five priorities for the next five years. The United Nations also designated 2012 as the International Year of [Sustainable Energy for All](#). The targets are ambitious; achieving universal access to modern energy services by 2030; improving energy efficiency by 40% by 2030; and doubling the share of energy generated from renewable sources by 2030.

Vestas has been invited to contribute to task forces for the International Year of Sustainable Energy for All. Vestas co-leads one of the task forces, the Clean Energy Revolution, in order to provide advice and drive the initiative. Vestas is honoured by the invitation, and has gladly accepted as it is fully aligned with our purpose – helping customers deliver renewable energy to people, with very low impact on the environment.

### Climate change

Climate change poses one of the most serious challenges for mankind. The predicted effects could be both devastating and irreversible. According to the Intergovernmental Panel on Climate Change (IPCC), the effects of climate change will be broad-ranging, affecting water supplies, ecosystems, food availability, health and the economy and devastating coastal regions.

It is crucial that greenhouse gas emissions are limited, and that low carbon energy generation technologies take over. One of the core messages from IEA's 2011 World Energy Outlook 2011 is; "Delaying action to reduce emissions is a 'false economy' - for every \$1 of investment avoided in the power sector before 2020 an additional \$4.3 would need to be spent after 2020 to compensate for the increased [emissions](#)."

Even though wind energy's lifecycle carbon footprint is extremely low when compared to other sources such as oil and gas, we continuously work to reduce the carbon footprint of wind energy. Our goal is to make our turbines at least 15 per cent more carbon efficient emitting only 6 grams of CO<sub>2</sub> per kWh during their [lifetimes](#).

Fossil fuel based power generation causes poor air quality, contributes to global climate change and consumes significant amounts of water. As water becomes scarcer in many regions (a tendency to be amplified by climate change), existing water supplies will not be sufficient in many countries to support the

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installation of new [water-intensive](#) power plants – putting economic growth at risk.

To mitigate climate change, power generation must globally become low carbon, and wherever water locally is or is expected to become scarce, power generation must become low water. During operation, wind power plants do not consume water nor do they emit climate changing greenhouse gases. Wind power is among the solutions to the challenges our world is facing today.

## Stakeholder engagement

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As a global company Vestas has many stakeholders who are interested in our sustainability performance.

We understand that our sustainability performance is an important determinant of our relationship with stakeholders. We proactively engage with stakeholders to understand their needs and concerns, and in return ensure we address these in our decision making process.

Transparency is a fundamental concept in our engagement strategy and this underpins our different engagement efforts. We publicly disclose key sustainability information in our annual report and on Vestas.com whilst also entering into more detailed dialogues with key stakeholders. Besides being best practice, this is an integral part of a strategic approach to stakeholder engagement as outlined in the [UN Global Compact LEAD blue print](#).

We actively collaborate with stakeholders to positively influence not only our own sustainability performance but also that of the wider communities we operate in. For example Vestas is taking a leading role in the Global Wind Organisation, developing a standard for Basic Safety Training within the framework of the organisation. We also co-founded [WindMade](#), an initiative leading to the first global consumer label identifying products and companies made with wind energy. This was done together with other global players like [WWF](#) and [Bloomberg](#).

Vestas, at the Group level, has both categorised and prioritised stakeholders in an effort to rationalise and focus engagement efforts. Initially stakeholders are categorised based on their relationship with Vestas, for example, customers, NGOs and policy makers. Subsequently each stakeholder is considered in the context of a number of criteria to determine how relevant Vestas' sustainability performance is to them and conversely how important they are to Vestas' sustainability performance. Engagement can range from forming active partnerships to address common sustainability issues to a more passive engagement through, for example, the publication of the annual report. The priority given to a stakeholder is used to determine the most appropriate approach to engagement.

Our ambition to build closer partnerships and support our stakeholders has prompted Vestas to initiate a [materiality analysis](#).

Our main stakeholder groups

At Vestas' we have many different stakeholder groups with whom we interact. They include customers, shareholders, employees, politicians, suppliers and sub-suppliers, non-governmental organisations and the media.

### 1. Customers

We prioritise customers as our number one stakeholder group, and to ensure an open and honest dialogue we have implemented a [Customer Loyalty survey](#). All sales business units have a Sustainability department that are working directly with customers on an on-going basis to address sustainability issues. Vestas also responds to the Carbon-Disclosure Project (CDP) [Supplier Survey](#) based on a customer request.

### 2. Shareholders

Transparency is at the heart of our outreach to the investment community. Those efforts were noticed in 2011, where Vestas was placed first on the [Dow](#)



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[Jones 2011 Sustainability index](#). The stock market experts look at both Social, Economic, Environmental and Health & Safety initiatives to score listed industrial companies, and especially on the Environmental and Economic parameters Vestas scores high.

### 3. Employees

Employees are Vestas' most important asset and we have a range of offerings aimed at them to ensure continuous learning and development as well as [competitive benefits](#).

We reach out to employees through different channels to ensure that they are engaged and committed to Sustainability issues. One channel is Vestas' Safety Walks. A Safety Walk is an opportunity for managers in production, service or administration to discuss safe behavior and ways of improving safety with employees in their actual job function. We also use our Employee Survey to measure the employees' perception of their working environment. The survey is followed up by the drafting of action plans in all departments in order to act on the feedback we receive.

To ensure that employees can report malpractice or ask questions they may need an answer to if faced with ethical dilemmas at work; a Whistle-blower system, named EthicsLine is available. Employees can file a report here in confidentiality. EthicsLine was in 2011 made available to external business partners, like customers and suppliers.

### 4. Politicians

At Vestas, we work closely with political stakeholders to [drive the market](#) for clean, renewable wind energy.

We hold regular discussions with political leaders, public servants, interest groups and non-governmental organizations all over the world. We offer advice and information to the public about the potential of wind power, both in individual markets and worldwide. During 2011 Vestas engaged with policy makers in the USA, Canada, Australia, China, Japan, Spain, the UK, India, South Africa, Kenya and numerous other countries, advocating reforms and providing best practice experience.

## Material issues

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This year we have moved to formalise our materiality analysis at Vestas. Doing so helps us to demonstrate that our stakeholders' sustainability concerns are incorporated into our thinking, focus our sustainability efforts and communication in a transparent way and ensure that we follow best practice.

A materiality analysis is mapping topics and indicators that reflect the organization's significant economic, environmental, and social impacts. Also topics or indicators that can substantively influence the assessments and decisions of stakeholders are mapped.

Completing this analysis required us to identify the relevance of issues to both Vestas and stakeholders. To establish the relevance of issues to Vestas a consultation across many parts of the organization took place. External stakeholders were not directly consulted in this version of the materiality analysis. Instead we used internal knowledge of stakeholder expectations, Vestas surveys, external stakeholder sustainability reports, consultant input and global sustainability studies to establish the relevance of issues to them.

We collaborated with [BSR](#) to ensure that this work follows best practice. Whilst we recognize that the next important step is to consult stakeholders directly on this matter, it is a natural first step to complete early materiality analysis without direct input from stakeholders to allow the organisation to become familiar with the process.

The Vestas materiality analysis has identified a range of sustainability issues that are both relevant to Vestas and our stakeholders. Amongst these Climate Change and Product Environmental Performance are understood to be some of the most important sustainability issues.

This work is part of our sustainability stakeholder engagement [framework](#).

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## Management Systems

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At Vestas, all employees must work according to Management Standards for the Environment and Occupational Health and Safety.

To support this strive, Environmental Management is certified in accordance with the requirements of ISO 14001, Health & Safety Management in according to OHSAS 18001, and the Quality Management System in line with ISO 9001.

The Sustainability Management System, covering Health, Safety, Environment, Security and CSR, serves to put all external and internal Vestas Sustainability requirements systematically, efficient and effectively into practice. It is Vestas' intent to make Sustainability an integral component of all business processes that create the products and services of the organization.

In order to ensure continual improvements for Sustainability performance in each area, our daily working practices are governed processes and supported by various tools – including databases, IT systems and catalogues of ideas.

To give an example, in order to enhance communication we insist on regular internal reporting on all significant Sustainability incidents through various channels. This helps us identify and investigate the most relevant issues to be addressed. The solutions implemented to these issues help improve the overall Vestas Sustainability performance throughout the organisation continuously.

Vestas is currently in the process of updating and aligning our Sustainability Management System to ensure that all processes are unified throughout the organisation.

As part of Vestas' strive for continual improvements, its process of assessing risks and opportunities is being enhanced to accommodate a growing demand for alignment across areas of Sustainability. The updated process will ensure that all sustainability related risks and opportunities are systematically and effectively identified, quantified, mitigated and monitored in an aligned way throughout the organization. The scope of the process is to include the identification and assessment of significant Environmental Aspects, Health and safety Hazards and Corporate Social Responsibility Impacts and Security Threats.

#### Certificates in 2011

The target for 2011 was that all Vestas-employees should be in a facility that was certified according to the ISO 14001, ISO 9001 and OHSAS 18001 standards. At the end of 2011 96 per cent of the employees of the Vestas Group worked in a facility that was certified according to the ISO 14001 standard. 94 per cent of all employees worked in a facility that was certified according to the ISO 9001 and 97 to the OHSAS 18001 standard.



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## Suppliers

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Vestas' business partners play an important role for Vestas in order for us to meet our goals – with regard to both sustainability as well as fulfilling the aspiration for wind energy to be beneficial for society as a whole.

In order to improve the sustainability of the products, Vestas has to work closely with sub-suppliers of components and raw materials, which today account for more than 80 per cent of the energy consumed in the product manufacturing process.

In order to ensure the health and safety of all persons involved, for example when a turbine is erected, customers and sub-suppliers must be both aware of – and follow – the Vestas safety rules and procedures.

In addition to this area of Vestas' work with sustainability and business partners, Vestas has prepared a [Code of Conduct](#) in accordance with the [UN Global Compact](#), the International Bill of Human Rights and the International Labour Organization conventions. Vestas works actively to ensure that partners also respect the Code of Conduct, and, to the greatest extent possible, will prioritise working with business partners who are dedicated to and support Vestas' view on sustainability, with particular emphasis on the following:

- ❑ ensuring that work is carried out safely – the first priority in any situation
- ❑ respecting the freedom of association and the right to collective bargaining with respect to legislation in the country the business partner operates in
- ❑ eliminating all forms of forced labour
- ❑ eliminating all forms of corruption
- ❑ eliminating child labour
- ❑ eliminating all forms of work-related discrimination
- ❑ protecting the environment

A wind turbine consists of several thousand components each with its own sub-suppliers. Thus, Vestas' supply chain is complex. Vestas Business Units have their own procurement functions, which are responsible for handling their respective business partners. In total, there are several thousand partners worldwide.

### Responsible Supplier Management

Vestas is devoted to the principle of Responsible Supplier Management.

All purchase agreements presented to our suppliers today therefore include our policies regarding human rights and environment, as well as a commitment to work with our suppliers on initiatives relating to sustainability going forward. Making Vestas' commitment to sustainability visible to our suppliers, also in the contracts we enter into with them, is driven by a number of stakeholders across

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Vestas. These stakeholders are the corporate Sustainability department defining the policies, the Legal departments drafting specific wording, Category Management/Procurement teams agreeing on these with suppliers as well as Supplier Quality and Development Teams monitoring progress.

With 95 per cent of our signed purchase agreements based on Vestas templates, and with all of these including either directly or by reference the above principles, we believe we are well on the way.

Vestas also takes action to ensure that suppliers comply with our policies. That's done through our production business units, who are using the responsible supplier management system. They screen significant suppliers also on sustainability issues, including human rights and labour standards.

When so-called red flags are identified – that is when suppliers are not living up to the Vestas standards - the suppliers are requested to take corrective action.

As part of this system the production business units use the responsible supplier management assessment tool. In 2011, 140 suppliers were assessed in 26 countries and 90 were approved.

In Vestas 14 employees received training in using the assessment tool in 2011. In total, 95 employees have received training.

## Commitments and policies

### Managing sustainability

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Vestas is committed to an array of global initiatives, such as the United Nations Global Compact LEAD and World Economic forums Partnering Against Corruption Initiative. These commitments support our intent to power Sustainability, both within the organization and beyond.

We support our global operations and employees through an expanding set of sustainability policies. Recently, policies on human rights and freedom of association have been embedded to enforce human rights practices and ethical behaviour in the business, especially when entering emerging markets.

Learn more about how Vestas work with other areas such as [safety performance](#) and [environmental performance](#) and read more about Vestas and our efforts within:

- UN Global Compact LEAD
- Partnering against corruption initiative
- Sustainable Energy for ALL
- Political Affairs

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## Code of Conduct and EthicsLine

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As a global company with more than 90 different nationalities employed, a wide range of cultures, religious beliefs and political views are present. This calls for commonly agreed ethical practices and standards.

The Vestas Code of Conduct is the guiding ethical document outlining Vestas global commitment and expectations to people, environment, sustainable goals and our business partners. In this respect it sets out clearly what is expected and what is acceptable behaviour from employees and people acting on behalf of Vestas.

Vestas aims to ensure a high degree of business integrity and compliance with the code already from the first day on the job. All new employees are being introduced to the Vestas Code of Conduct as part of their induction. They also take part in compulsory e-learning, some of which is tailored to their particular job role.

To anchor the values and principles in the organisation, commitment from top management is mandatory. Certification to Vestas Code of Conduct was carried out for the first time in 2011 for top management (Vice President level and above). The certification is an annual activity where employees confirm that they have read and understood Vestas Code of Conduct and that they are not aware of any unaddressed violations of Vestas Code of Conduct. Certification is expected as part of our commitment to UN Global Compact and the commitment to the World Economic Forum's Partnering Against Corruption Initiative.

In addition, all employees are being informed of Vestas' EthicsLine which can be used for reporting violation of company policies and for seeking guidance when faced with an ethical dilemma.

#### [Vestas Code of Conduct](#)

#### EthicsLine

Vestas' whistle-blower system EthicsLine was introduced in 2007. Vestas is committed to securing an ethical environment in our company, and Vestas EthicsLine has been established to ensure that inappropriate behavior or incidents are brought forward and handled.

The purpose of the EthicsLine is first to ensure that Vestas employees, business partners or anyone associated with Vestas have a place to report any inappropriate behavior or practices which may be experienced within the Vestas workplace. Secondly, the EthicsLine provides guidance when in doubt about ethical issues.

Vestas EthicsLine can be used to:

- ❑ report malpractice that has been observed or is suspected;
- ❑ ask questions about Vestas policies, or difficult issues of behaviour or ethics, when the answers cannot be found elsewhere

Vestas EthicsLine is operated by an independent company. Anyone using it may remain anonymous. Subject to applicable laws, all matters reported through Vestas EthicsLine will be investigated. Everyone involved will be treated fairly. Vestas will not tolerate retaliation against anyone who files a report in good



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faith, regardless of whether or not the claim can be substantiated.  
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## United Nations Global Compact

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At Vestas, we committed ourselves to the United Nations Global Compact in 2009. We identify business ethics as vital for both our sustainability focus and ultimate business success as it aids to build competitive advantage by being a preferred partner for ethically-conscious customers.

The United Nations Global Compact is a strategic policy initiative for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labor, environment and anti-corruption.

With the participation in United Nations Global Compact Vestas commits to report and publish its progress on implementing these principles in the organisation on an annual basis. The implementation of these requirements in the organisation is an integral part of the [Vestas Sustainability Management System](#).

[United Nations Global Compact LEAD >>](#)

In January 2011, Vestas joined a group of 56 companies in the LEAD Initiative, a new platform within the United Nations Global Compact launched to gather companies willing to take sustainability to the next level.

LEAD sets an ambitious goal for its participants, which include industry leaders from all over the world. They are expected to be role models in setting a higher standard for corporate sustainability, through an enhanced commitment to advance their social, environmental and governance performance.

LEAD companies are expected to share their experience and knowledge across the United Nations Global Compact networks around the world and commit to advanced reporting of their activities and performance, in order to achieve impactful results on today's and tomorrow's sustainability challenges. This is achieved through a new model developed by the United Nations Global Compact, the Blueprint for Corporate Sustainability Leadership, which spells out in detail the steps and actions requested to fulfill this objective.

#### [Engaging with UN Global Compact > »](#)

We are proud to participate in a broad variety of sustainability initiatives to improve our own performance and also, hopefully, inspire others to take an active part in a sustainable development.

#### [Mentorship > »](#)

Vestas is keen on leading the way for a sustainable development, and has therefore taken a mentor role as part of our commitment to the United Nations Global Compact LEAD. The aim with the mentorships are to share knowledge within the area of Corporate Social Responsibility and to coach others, often smaller and less experienced companies, to implement the United Nations Global Compact ten principles.

In 2011 Vestas was mentoring Develco, a Danish engineering company. Dorthe Gårdbo-Pedersen, Marketing manager, Develco, states:

“Develco has been given the privilege to have Vestas as mentor in the United Nations Global Compact mentoring arrangement. Develco benefits from Vestas' comprehensive CSR experience and activities and we are very inspired by having Vestas as our mentor.”

#### [Caring For Climate > »](#)

Vestas is participating in the Caring for Climate initiative under the United Nations Global Compact. Caring for Climate is aimed at advancing the role of business in addressing climate change. It's done through a commitment by businesses who pledge to take action and a call to governments, incorporating transparency on their environmental strategies.

#### [Local Network India > »](#)

At Vestas we have made an effort to demonstrate our sustainability leadership locally by joining the United Nations Global Compact Local Network in India. Vestas considers this as an opportunity to promote stronger sustainability efforts for businesses in their local context. The local network was founded in 2003 in New Delhi, and is one of the largest in the world, focusing on promoting awareness, supporting social and rural development and engaging in research and events.

Vestas India enrolled as a member of Global Compact Network in India in 2011, and has taken a leadership initiative in collaborating with United Nations Global Compact to roll out a seminar. The topic was 'Transparency in Ethical Business for Profitability.'

Mr. N. Vittal, former Chief Vigilance Commissioner of India, delivered the key note address of the seminar. Representatives from the corporate and public sector and people from civil society participated as well. Senior Vice President of the global Sustainability department at Vestas, Jakob Larsen, explained the role of Vestas as a Lead member of United Nations Global Compact. He also described the steps being taken by Vestas to be a role model in the area of global business sustainability.

#### [Sustainable Energy for All > »](#)

In 2011 the UN Secretary General set out his Vision for Sustainable Energy for All. The vision is based on three goals to be achieved by 2030, these are:

- ❑ Ensuring universal access to modern energy services
- ❑ Doubling the rate of improvement in energy efficiency

- ▣ Doubling the share of renewable energy in the global energy mix

The vision was endorsed by the UN General Assembly and as a result 2012 will be the year of sustainable energy for all.

To support this effort the secretary general has convened a high level working group comprised of policy makers, businesses, NGOs and research bodies.

Vestas, represented by CEO Ditlev Engel, was invited to this group.

The output from the high level working group will be characterized by action, both in the short term and over the coming years to 2030 to ensure that the vision becomes reality. You can follow the progress of the initiative on [www.sustainableenergyforall.org](http://www.sustainableenergyforall.org)

## Partnership Against Corruption Initiative

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Since 2010, Vestas has been a signatory to the Partnering Against Corruption Initiative (PACI). PACI is a business driven global anti-corruption initiative within the World Economic Forum. The signatories to PACI firmly believe that corruption cannot be countered without leadership and commitment from the top management.

While the United Nations Global Compact offers a principles-based approach to fighting corruption, based on its 10th principle, PACI offers an implementation framework, developed by companies for companies - the UN Global Compact recognizes PACI as a means of implementing its 10th principle.

In addition to providing a framework for the design and implement of effective policies and systems to prevent, detect and address corruption, PACI also offers a platform to help companies benchmark internal practices against global best practice through peer exchange and learning and level the playing field through collective action with other companies, governments and civil society. Vestas Code of Conduct set forth a zero tolerance policy towards any form of bribery which is required under the PACI principles.

Since becoming a signatory to PACI, Vestas has developed further supporting guidelines and procedures to implement the PACI principles and will continue these efforts during the coming years.

In particular, Vestas has recently developed an anti-corruption due diligence program for its business partners which will be implemented throughout Vestas during the coming years.

As part of Vestas' anti-corruption initiatives and as part of the Code of Conduct, Vestas has established a process for registering gifts, entertainment and hospitality. All Vestas employees are obliged to report when certain criteria are met.

Approval from a manager or executive is needed when the value of the received gift, entertainment or hospitality reaches a certain level. In addition, Vestas has introduced a more stringent procedure for gifts, entertainment and hospitality of government officials as these activities often create concerns due to very strict limitations in some countries and gifts, hospitality and entertainment that might be considered acceptable between two private businesses may be viewed as unacceptable between a business and a government official.

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## Sustainability policies

### Managing sustainability

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At Vestas, we work to promote policies and principles that express the company and senior management's intention and direction on how to [manage](#) and regulate our main sustainability areas. Our sustainability policies guide our business decisions and processes to achieve our vision. The policies and principles are of global applicability throughout the organisation.

The [Health & Safety and Environmental policy](#) outlines Vestas' approach to achieve the objectives and targets in relation to our mantra; [Safety First](#) as well as the environmental impact of Vestas' activities.

Vestas has developed policies summarising the approach to human rights and labour. The policies are the main instrument for Vestas to implement our commitments to respect [human rights](#) and [labour](#) standards, according to our support to the [UN Global Compact](#).

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Vestas has joined a number of sustainability groups to create a global network and increase stakeholder awareness of the company's commitment to sustainability.

- WindMade, founding partner
- Global Wind Energy Council (GWEC)
- World Economic Forum
- American Wind Wildlife Institute, founding member (AWWI)
- Global Green Growth Forum (3GF)
- Member of more than 25 national wind associations around the world

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## Sustainable products

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Vestas is committed to reducing our impact on the environment by cutting the emissions of greenhouse gasses. As a company, we aim to decrease the overall use of energy, increase our use of renewable energy and use less carbon intensive energy forms.

#### Carbon footprint

By 2015, Vestas' aim is that turbines will be at least 15 per cent more efficient, emitting only 6 grams of CO<sub>2</sub> per kWh during their lifetimes. Today, Vestas contributes approximately 7 per cent of the total CO<sub>2</sub> emission for the V112-3.0 MW turbine. Of the remaining amount, approximately 85-90 per cent is contributed by material and component suppliers, and 4-10 per cent is for transport of materials and components for construction, decommissioning and recycling.

One of the main components in reducing the carbon footprint of the turbine is to reduce the impact of SF<sub>6</sub>. SF<sub>6</sub> is a potent greenhouse gas used to rapidly quench electric discharges in the switchgear and thereby preventing fires and electrical hazards.

Vestas uses SF<sub>6</sub> as this property makes it possible to significantly reduce the size of the switchgear, at high voltage solutions - something that other alternatives as air or dry nitrogen cannot do.

The downside of using SF<sub>6</sub> is that SF<sub>6</sub> is a significant greenhouse gas. 1 kilo of SF<sub>6</sub> has the same global warming effect as 22.800 kilo of CO<sub>2</sub>. On average, there is 7 kg SF<sub>6</sub> in the switchgear of a turbine. If emitted to the atmosphere, it equals 10 per cent of the CO<sub>2</sub>-eq emitted during the entire life cycle of the turbine, from mining, through production, operation and decommissioning of the entire wind power plant. 10 per cent roughly compares to the entire transport carried out in the life cycle of a wind power plant.

Vestas will take actions to control the emission of SF<sub>6</sub> and look at future opportunities to phase out SF<sub>6</sub>, in order to minimize the effect on climate change. A take back scheme for switchgears containing SF<sub>6</sub> is in place to return and recycle the SF<sub>6</sub> from worn-out switch gears, in the best possible way and to reduce any emission during operation and when the turbine reaches end of life. Besides the take back scheme, Vestas needs to make significant energy reductions in production development, in our factories and within the supply chain to reach the target of only 6 grams of CO<sub>2</sub> per kWh delivered to the grid.

#### Recyclability

Vestas abides by a strict definition of recyclability. When recycled, both the value and the essential properties of the materials must be preserved. By this definition, 80 per cent of Vestas V112.3.0 MW can be usefully recycled at the end of its lifetime. Because Vestas believes that a sustainable product should leave the smallest possible environmental footprint when decommissioned, it



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aims to increase the recyclability of its turbines from 80 to 85 per cent by 2015.

Vestas is working proactively on initiatives to improve the recyclability of its turbines. These range from recycling research, for instance research on how to recycle glass and carbon fibres, to the full recycling of test nacelles.

## Product responsibility

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Vestas' wind turbines, options and service offerings are the result of not only a thorough development process but also comprehensive analysis of market forecasts. The top-level Vestas process which allows us to fulfill our customer requests is known as the Vestas product market strategy. The product market strategy is the result of a complex series of analyses including market forecasts, customer trends, competition, technical predictions and grid requirements. Macro-economic factors such as national government targets for renewable energy are also studied. Based on this input, a series of strategic decisions are made regarding which products, technologies, configurations and service offerings to make available in which markets and when. By involving relevant stakeholders in the development process, requirements can be built into the design of the products at an early stage.

When designing our products, requirements in regards to Sustainability are taken into consideration. That's ensured through Vestas development process, the Vestas Way to Market.

### Vestas Way to Market

To ensure a true integrated development process across the Vestas organisation enabling us to reach our overall business targets, a first version of Vestas Way to Market was launched in 2008. The process was refined and updated in 2011.

Vestas Way to Market is Vestas' global framework for planning, managing and executing technology and product development projects and actively involving the whole value chain in our company. As such, we strive to ensure that these projects start and end with customer requirements in focus.

The core of Vestas Way to Market is the stage-gate process consisting of seven stages and seven gates with a group of gatekeepers at each stage. The gatekeepers decide whether to let the project move on to next stage, whether to rethink some aspects or stop the project. This process ensures, amongst other things, that the specification requirements are met. The specifications are based on internal Vestas commitments such as Vestas' chemical black list, international legislation such as the European directives, and international recognised codes and standards such as the ASMA, ISO and IEC.

In order to ensure regulatory compliance, it's our ambition to share knowledge of how regulatory requirements, incl. transportation and HSE requirements and grid codes requirements as well as standards and certification should be complied with in the respective departments in Vestas. The purpose is to strengthen Vestas' product regulatory compliance to ensure market access.

It is vital to identify business risks early in the development process in order to ensure that the project will not have a negative impact on Vestas' business and strategy, reputation etc. as well on our customers' business. Risk management is a continuous process throughout the entire project, and a business risk overview is presented and reviewed at each gate meeting. It is the project manager's responsibility to identify and assess key risks and present mitigation actions. The risk analysis must include input regarding health and safety aspects, product and commercial issues, process risk analyses as well as an investigation into the IPR issues.

Continuous Improvement

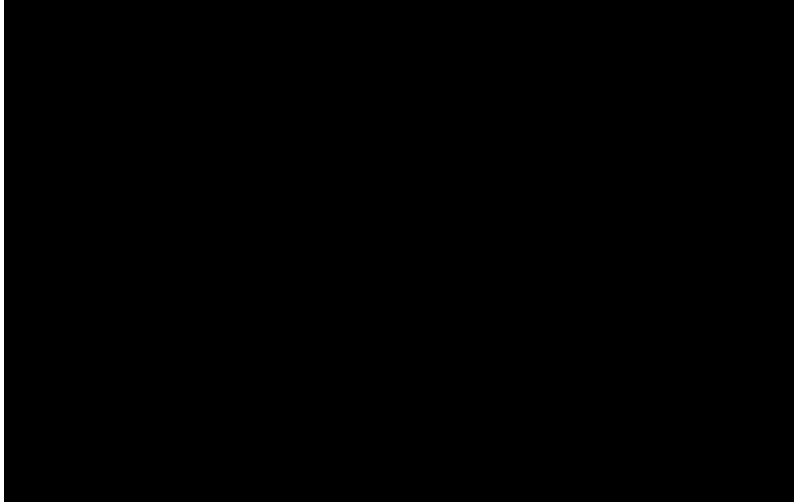
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Part of Vestas' business approach is to constantly develop new and better technical solutions that can improve the performance of our current operating fleet or the safety connected to operating the products.

Use of new technical solutions will very often have a positive influence on the Lost Production Factor (LPF) for a given wind farm. The LPF is the share of the potential energy from the wind not harvested by the turbines. The LPF has been substantially reduced in recent years. Measured over the past 12 months, the average LPF has dropped from 2.6 percent in 2010 to 2 percent in 2011.



## Life Cycle Assessment

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Did you know that a single Vestas wind turbine can generate more than 25 times the energy to society than it uses in its entire lifecycle? And that a single Vestas wind turbine only emits 1 percent of CO2 when compared to a coal power plant in its lifecycle?

Equipped with extensive facts on its wind turbines environmental performance Vestas will carry on bringing forward the facts of wind, to enable [businesses](#) and [consumers](#) to make an informed choice.

Vestas strives to continually improve people's lives through having a responsible interaction with the environment, respect for society and a productive economy. To make that goal a reality Vestas works with Life Cycle Assessments to develop increasingly energy-efficient products and production whilst ensuring to mitigate the environmental impacts.

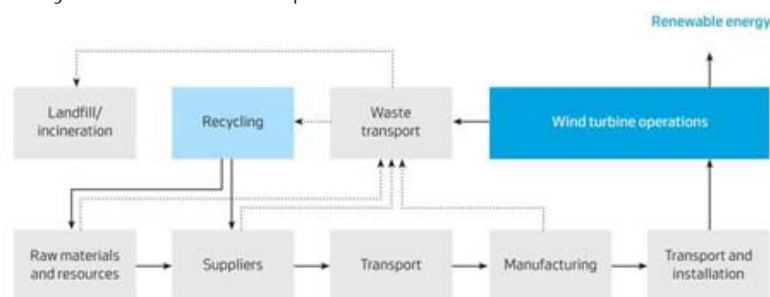
Transparency, in all instances, and especially in regards to the environmental impacts and benefits are vital to affirm Vestas' products as financially competitive and when stating the Cost of Energy.

Already in 1999 Vestas began developing Life Cycle Assessments to give a 'cradle to grave' evaluation of the environmental impact of Vestas' products and activities. These concentrate on two key factors:

- Document the environmental performance of Vestas wind turbines
- Analyse the results to improve or develop wind turbines with less environmental impact

The studies assess a wind turbine's entire bill-of-materials accounting for around 25,000 parts that make up a wind turbine. In a Life Cycle Assessment a complete wind power plant is assessed up to the point of the electricity grid, including the wind turbine itself, foundation, site cabling that connects the wind turbines together and other site parts such as the transformer station.

Life Cycle Assessment scope



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## Assessments stages

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### Assessments stages

All environmentally relevant flows of energy and materials are accounted for in a Life Cycle Assessment (e.g. electricity, fuels, material resources, wastes and emissions to air, water and land). These flows are assessed for in all the components and processes in the wind turbine's life cycle and summarised across the entire wind power plant.

The life cycle of the wind power plant is modelled in the Life Cycle Assessment using a modular approach corresponding to the life cycle stages shown in the figure below. This allows the various life cycle stages of the wind power plant to be analysed individually.

### Benchmark performance

Vestas' wind turbines are designed to meet different functional requirements for both onshore and offshore environments, as well as the wind class for which they are designed to operate. The wind class determines which turbine is suitable for a particular site, and effects the total electricity output of the wind power plant.

When benchmarking an array of wind turbine's performance it is important that it's done on an equivalent functional basis, so they can be compared within similar wind classes. There are three wind classes for wind turbines which are defined by an International Electrotechnical Commission standard (IEC), corresponding to high, medium and low wind.

The various Vestas wind turbines have been designed to operate under high, medium or low wind conditions. For each study the specific wind conditions have been selected to evaluate the turbines environmental performance.

In order to assure the rigour of Vestas Life Cycle Assessments and the robustness of the results, all Life Cycle Assessments are conducted in accordance with the ISO standards (ISO 14040/44) for Life Cycle Assessment. Each study has undergone an independent critical review by an expert in the field.

### Life Cycle Assessment stages



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## Comparing energy payback

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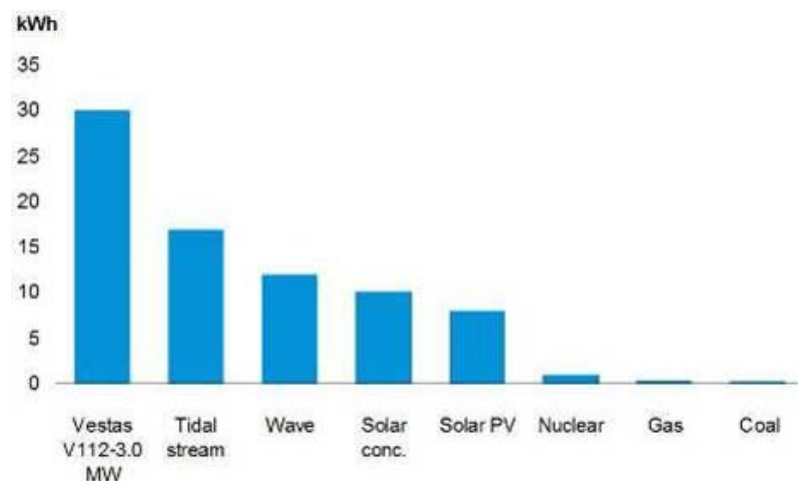
### Comparing energy payback

The long term impact on the environment for a wind turbine's life cycle of 20 years is minimal when compared to that from average European electricity production by other means.

The energy balance of a wind power plant will show the relationship between the energy requirement over the whole life cycle of the power plant (i.e. to manufacture, operate, service and dispose) versus the energy generated by the wind power plant. This energy payback period is measured in months, where the energy requirement for the life cycle of the power plant equals the energy it has produced.

For wind turbines the breakeven time of for instance a V80-2.0MW wind power plant is 8.6 months for low wind conditions. Over the life cycle of a V80-2.0MW wind power plant it will return 28 times more energy back to society than it consumed over its life cycle. So when 1 kWh is invested in a wind energy solution you get 28 kWh in return. Whereas if you invest 1kWh in coal you get 0.42 kWh in return.

### Comparing energy payback by sources



The Offshore Valuation: A valuation of the UK's offshore renewable energy resource. Published in the United Kingdom 2010 by the Public Interest Research Centre. ISBN 978-0-9503648-8-9 www.offshorevaluation.org PE (2006). PE International - GaBi 4 dataset documentation for the software-system and databases, LBP, University of Stuttgart and PE INTERNATIONAL GmbH

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### Value chain integration

Our work with Life Cycle Assessments plays a vital role in our ability to map, track and design solutions that will support realisation of Vestas [Sustainability Objectives 2015](#). A part of the effort includes transferring the knowledge obtained through the Life Cycle Assessments into Vestas' value chain and through to our business partners. This is done in order to identify the best available technology for designing, decommissioning and recycling turbines.

### Product design

By knowing how Vestas' products and materials contribute to the environmental performance it is possible to conduct fact-based and informed decisions at an early stage in the product design and development phases. Life Cycle Assessments are used to provide knowledge regarding where the environmental 'hot spots' are in the life cycle i.e. from raw material production, through to manufacturing, operation, servicing and plant decommissioning. Vestas is working towards integrating environmental requirements into the design process, through our internal systems, procedures and tools.

### End-of-life solutions

Constantly lowering the Cost of Energy for wind and simultaneously the environmental impact of wind power is the focus of end-of-life solutions. Through research and application on how best to recover and recycle the various components and materials in a wind turbine after its power production cease, the end-of-life phase add to the overall environmental performance seen from a lifecycle perspective.

The studies also supplements knowledge on how best to design the next generation of wind turbines from an environmental perspective as well as how to gain the most value at end-of-life, from the existing turbines as well as from the turbines being developed.

In 2011, Vestas carried out a complete dismantling of a wind turbine nacelle to trace additional possibilities for increasing the recyclability rate of Vestas' wind turbines and work actively to achieve its objective of 85 percent recyclability of a wind turbine in 2015, see Vestas [Sustainability Objectives 2015](#).



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### Customer business case

Vestas offers customers the opportunity to acquire customised Life Cycle Assessment reports for their own wind power plant. Being equipped with fact-based knowledge, customers can make a solid business case and governments can devise detailed energy strategies.

The reports are scalable and are developed by Vestas' own experts and externally critically reviewed by an independent expert. This provides customers the opportunity to understand the environmental performance of their specific wind power plant, already in the project phase. The report takes into consideration the wind turbine type, the specific site conditions and the Vestas supply chain.

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Rare Earth Elements from a Life Cycle Assessments perspective

Rare earths elements are naturally-occurring elements that, once mined and processed, can be used in a variety of industrial applications: permanent magnets used in wind turbines, hybrid car motors, components for military hardware and other high-tech applications.

In Vestas the rare earth elements are used in the magnets found in the tower and in the permanent-magnet generators in some of the newer models – the V112-3.0 MW and 2.0 MW GridStreamer™ platform. The rare earths elements are used to improve the performance of turbines by making the generators more efficient and more grid-compatible. This allows Vestas to reduce the size of the generator and therefore use fewer other resources (steel, composite structural materials, etc.) and create a smaller carbon footprint.

Vestas use approximately 70kg of neodymium in the permanent-magnet generator for a V112- 3.0 MW wind turbine. In addition an amount of 35kg of neodymium is used in the tower magnet, bringing it to a total of 105kg neodymium used for one V112- 3.0 MW as well as 7kg dysprosium.

The use of 35 kg rare earths elements in the V112-3.0 MW tower magnets (of 84m height) results in a saving of around 10 tonnes steel in the tower per wind turbine. This equates to a saving of around 5.0 tonnes of CO2 equivalents over the entire life cycle - i.e. accounting for the potential environmental impacts of the magnets and steel production, use and end-of-life recycling and disposal.

It is important to understand the difference between different types of turbine designs and how each design uses rare earths elements. There are two types of turbine drive train concepts using rare earth elements: conventional geared drive train and direct-drive (without a gearbox). The amount of rare earths elements used in direct-drive turbines is substantially higher – up to 10 times as much as a generator in a conventional drive train. Today, all Vestas turbines are based on conventional drive trains.

The contribution of rare earth elements (such as neodymium and dysprosium) used in the turbine generator magnets, and also in the magnets used in the tower, make a negligible contribution to total resource depletion, contributing below 0.1% of total life cycle impacts.

### Work with supply chain

Vestas acknowledges the environmental impact of the rare earth mining and processing, and strive to minimise the impact as much as possible. All types of mining and processing operations have environmental impacts, but it is up to industry players such as Vestas and our business partners to ensure these are minimised and managed.

Vestas purchase its permanent magnets from reputable worldwide companies who source most of their rare earth elements from China. Currently, China provides approximately most of the world's rare earth elements supply. Vestas'



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suppliers confirm that their raw materials are sourced only from mines which manufacture according to Chinese laws.

Vestas is pursuing alternative rare earth elements supplies from other countries, including new rare earth mines already underway in such places as India, Canada, Australia and the USA. We do this in cooperation with our rare earth elements magnet supplier partners. A greater diversity of rare earth elements suppliers will lead to more possibilities when choosing supplier, lower prices and a greater emphasis on sustainability throughout the value chain.

## Available Life Cycle Assesments

|                                             |                                    |                            |
|---------------------------------------------|------------------------------------|----------------------------|
| Managing sustainability                     | Onshore                            |                            |
| Commitments and policies                    |                                    |                            |
| Sustainable products                        | V52-850 kW                         | No                         |
| Product responsibility                      |                                    |                            |
| Life Cycle Assessment                       | V60-850 kW                         | No                         |
| Assessments stages                          |                                    |                            |
| Comparing energy payback                    | V82-1.65 MW                        | <a href="#">Yes (2006)</a> |
| Value chain integration                     |                                    |                            |
| Customer business case                      | V80-2.0 MW                         | <a href="#">Yes (2004)</a> |
| Rare Earth Elements                         |                                    |                            |
| Available Life Cycle Assesments             | V80-2.0 MW GridStreamer™           | <a href="#">Yes (2011)</a> |
| Environmental and social impact assessments | V90-1.8 MW                         | No                         |
| Product development                         | V90-1.8 MW GridStreamer™           | No                         |
| Safety                                      |                                    |                            |
| Environment                                 | V90-2.0 MW                         | No                         |
| Employees                                   |                                    |                            |
| Reporting                                   | V90-2.0 MW GridStreamer™           | <a href="#">Yes (2011)</a> |
|                                             | V90-2.0 MW GridStreamer™(IEC IA)   | No                         |
|                                             | V100-1.8 MW                        | No                         |
|                                             | V100-1.8 MW GridStreamer™          | <a href="#">Yes (2011)</a> |
|                                             | V100-2.0 MW GridStreamer™(IEC IIA) | No                         |
|                                             | V100-2.6 MW                        | No                         |
|                                             | V90-3.0 MW                         | <a href="#">Yes (2006)</a> |
|                                             | V112-3.0 MW                        | <a href="#">Yes (2011)</a> |
|                                             | Offshore                           |                            |
|                                             | V90-3.0 MW Offshore                | <a href="#">Yes (2006)</a> |

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## Environmental Product Declarations

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[EPD V80-2.0 MW onshore](#)

[EPD V82-1.65 MW](#)

[EPD V90-3.0 MW offshore](#)

[EPD V90 3.0 MW onshore](#)

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When establishing a wind farm, an important part of planning should be an assessment of the proposed location and the surrounding environment. This includes the local communities and how the proposed wind farm could potentially impact the physical and social environment. In many countries, environmental and social impact assessments are required by law, or are part of the sustainability requirements of international financial institutions which support infrastructure projects. In most cases Vestas' main business partner – our customers – have the primary responsibility for undertaking the environmental and social management assessment and for developing the environmental and social management systems for the wind farm. Vestas will work closely together with our customers related to Vestas' contribution to the project.

The environmental aspects of such an environmental and social assessment typically take into account direct and indirect impacts on for instance:

- ▣ Landscape and visual impressions
- ▣ Flora
- ▣ Fauna (e.g. Birds)
- ▣ Noise
- ▣ Shadows

The social aspects typically identify issues such as:

- ▣ Community health and security
- ▣ Land rights
- ▣ Cultural heritage
- ▣ Local employment and livelihoods including job creation

To see publicly available environmental and social impact assessments for wind farm projects, see the European Bank for Reconstruction and Development's database at [Environmental and Social Impact Assessments \[EBRD - Projects\]](#) . An example of an environmental impact assessment of an offshore wind farm – Horns Rev Reef in Denmark – provides interesting reading. This includes studies on the environmental impact the finished project had locally on birds, fish, porpoises, seals and fauna. You can find these at [www.hornsrev.dk](http://www.hornsrev.dk).



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Our knowledge and ability to plan, build, drive and service complete wind power plants for Vestas' customers are increasingly important. They demand individual solutions that provide them with increased business case certainty, reduced cost and maximised revenue.

Vestas is confident that the overall share of wind power in the worldwide energy supply will increase.

Besides continued political support the increase depends on a combination of accurate forecasting of wind power generation, and continuously improved integration with the power system.

To meet those challenges and opportunities, we have broadened our focus to the full range of services that add value though the entire power plant lifecycle. Our most recent offerings are:

- ❑ SiteHunt uses our knowledge of wind and weather conditions around the world to help customers find the best location for a new wind power plant. We get input from 35,000 meteorological stations and a comprehensive wind data library.
- ❑ SiteDesign calculates the optimal layout for turbines to meet the financial goals for the entire life of the project, once a location is chosen.
- ❑ Electrical Pre-Design collects the surest way of building a productive, grid-compliant, and highly profitable plant.
- ❑ Active Output Management is a service package targeted at optimising the operation and profitability of the plant. Vestas offers a wide portfolio of service offerings tailored to customers' needs. From full scope solutions like AOM to operational support.
- ❑ Power Plant Controller is the first product fully dedicated to ensure worldwide grid code compliance and fast real time management of wind power plants.
- ❑ Vestas Performance Manager is a web based product that provides customers with a clear real time view of their plants performance.

### New radar system technology

In October 2011 Vestas acquired the technological assets of Norwegian radar specialist OCAS AS.

This includes a patented system that protects wind power plants from aerial collisions while addressing community concerns about light pollution. The OCAS system uses highly innovative and proprietary radar technology to detect approaching aircraft and activate warning systems. The system immediately turns on the turbine strobe lights as a visual warning and transmits an audio warning to the pilot's VHF radio if the aircraft does not promptly change course.

The solution serves as a smart switch, keeping the lights off when not needed to reduce light pollution and noninterference with bird patterns, while also



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ensuring that the sky is safe to local air traffic by activating the appropriate warnings when necessary to ensure maximum safety.

This new technology opens up new opportunities for customers to put up turbines in areas that earlier were off limits due to air interference.

## Safety First – systematic and local approach

- Managing sustainability
- Commitments and policies
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- Safety**
  - Towards zero injuries
  - Safety awareness
  - Global standards and processes

Vestas' goal is zero injuries. We are of the belief that all injuries can be prevented if every hazard is managed and if the right behavior is in place.

We work closely together with customers to fulfill the demand for the highest level of safety in our operations as this adds certainty for their business case. Also, we actively join hands with partners across the industry to mitigate general risks and improve training.

By putting 'Safety First' we have significantly improved our incident rate\* for now six years in a row.

However, we recognize that working with wind turbines is not hazard free. Heavy components, dizzying heights, unpredictable weather conditions and demanding processes presents a challenging work environment. Safety must be rooted in the business culture and in Vestas this starts at the top. Management is accountable, but all employees shoulder their share of responsibility for their own and their colleague's well-being. With a focus on the individual employee it is enforced that working safely is a condition for employment at Vestas and that we view the employee as the most critical factor in our collective effort to stay safe. Through root cause studies it's become apparent that more than 90 percent of industrial injuries are related to people's behavior. Central to decreasing this trend, is our zero tolerance approach towards actions or decisions that could undermine any aspect of safety, no matter how minor.

At Vestas, we believe that by being aware of safety hazards it is possible to change behaviour and prevent injuries.

Vestas has developed a safety roadmap to methodically approach safety challenges. The initiatives identified are spilt into yearly business plans to ensure that all activities and objectives are rolled out in a coordinated manner across all of Vestas' business units.

\*Incidence of industrial injuries per one million working hours – Lost Time Injury

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## Towards zero injuries

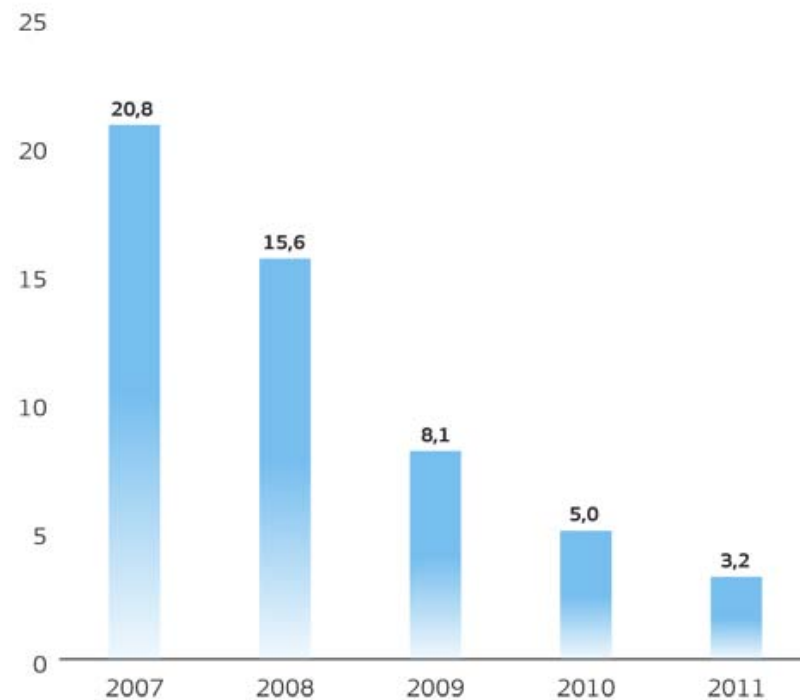
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Vestas is on a cultural journey, moving towards taking a collective responsibility for safety. The incidence of industrial injuries per one million working hours at Vestas has been reduced with 17 percent every year since 2006 where the journey began. It is now at the level of 3.2 per one million working hours.

In 2015 the target is 0.5 – a significant step in the journey towards eliminating industrial injuries entirely. Achieving a 0.5 rate will challenge the company at every level, but we will not rest until our work environment is free of injuries.

It is with great sadness that Vestas 25 January 2011 experienced a fatality at a facility in Tuticorin, India. The fatal injury was caused by an electrical incident where a combination of an error in the installation and a malfunction in the equipment led to the accident. Immediate actions were taken to determine the appropriate preventive and corrective countermeasures.

Incidence of industrial injuries (per one million working hours)



Near miss reporting and hazardous observations

At Vestas we register near misses and hazard observations as well as injuries. This is an important step towards achieving a zero injury culture. The near miss reporting and hazardous observations in 2011 show an increase to a total of 17985 reports filled. The number of near miss and hazardous observations per incident has from 2010 to 2011 risen by 74% to 136, which indicate that more people are anticipating incidents before they occur thereby hindering more incidents.

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## Fostering a safety culture through awareness

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Being aware of the safety hazards are key to managing and preventing them. Since 2007, Vestas has deployed a Safety Awareness Programme for employees and managers to raise the awareness of safety with the ultimate objective of eliminating all industrial injuries. All operational managers and team leaders in factories, service sites and offices attend courses to strengthen the safety culture throughout Vestas and instill safe behavior.

Through safety awareness, recognition programmes and safe behavior programmes Vestas is moving towards establishing a team based responsibility for safety. Top management's commitment to keep all employees safe and emphasize safe behavior is being expressed through their participation in safety awareness programmes and their completion of Safety Walks.

A Safety Walk is an opportunity for managers in production, service or administration to discuss safe behavior and ways of improving safety with employees in their actual job function. The programme has been running since 2007 with consistently more managers participating every year. In 2011, 15146 Safety Walks was conducted whereby the ambition of an average of 12 Safety Walks per manager was reached again.

Building on the manager's training Vestas introduces more in-depth courses on how to become a better safety leader, how to change perceptions about safety, optimising behaviour change during safety walks, managing human behavior and growing the safety culture. Studies indicate that managers and supervisors should be trained together as their alignment and collective buy-in to safety is essential.

Vestas prioritizes the implementation of global Safety Awareness programmes to cover all production and service managers and employees as well as administrative staff. Furthermore, it is observed that when adapting the programme to local production facilities or site this will have an impact on the injury statistics.

Maturing our safety culture through Behavior Based Safety programmes is a new initiative which will be piloted in production and service early 2012. These initiatives will be run on a site level to ensure maximum results and safe behavior improvements.

At Vestas we continue to recognize and reward great safety behavior with our Safety Ranger and the Safety Medal programmes. In 2011, Vestas introduced the global Safety Ambassador Award for a company elected employee who promotes safety. In 2011, Jason Matthews, service technician from Vestas Americas won the award as he persistently works to ensure not only his own personal safety at work and at home, but also the safety of his peers.

## Global standards and processes

### Managing sustainability

### Commitments and policies

### Sustainable products

### Safety

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### Reporting

Customers and employees expect a unified approach to safety regardless of region or country. Vestas agrees. That's why we in 2011 developed a wide variety of new global processes, such as:

#### Incident management

A sustained effort to increase the flow of knowledge in regards to corrective and preventive actions against safety is made. On a monthly basis global knowledge sharing across business units enable proactive learning to establish best practices for increasing the quality of reporting.

#### Contractor safety

At Vestas we have extended our scope of responsibility to include contractors, as taking a Safety First standpoint naturally includes the people working side by side with Vestas employees.

Vestas expects zero injuries among contractors, as well as employees. A new contractor management standard has been developed in order to set clear expectations for HSE performance for the contractors that work for Vestas. The implementation of the standard will be initiated in 2012.

#### Safety Induction programmes

A new safety induction programme for managers and employees has been developed and will be part of the new induction programme from 2012. We do this as we put safety first in Vestas, which also means that employees must know what to expect - and what is expected of them - as soon as they arrive.

#### Electrical Safety

Global standards on "Electrical Safety" and "Control of Hazardous Energy" have been developed in order to eradicate electrical injuries. The global implementation in 2012 will be initiated by pilot projects, followed by a range of Master Instructors who will cascade their knowledge into the business. They will use training materials which include e-learning, video modules and local training sessions.

#### Risk and Opportunities

As part of Vestas' strive for continuous improvements, its process of assessing risks and opportunities is being enhanced to accommodate a growing demand for alignment across areas of Sustainability. The updated process will ensure that all sustainability related risks and opportunities are systematically and effectively identified, quantified, mitigated and monitored in an aligned way throughout the organisation. The scope of the process is to include the identification and assessment of significant Environmental Aspects, Health and safety Hazards and Corporate Social Responsibility Impacts and Security Threats.



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## Environment

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Vestas strives to make wind turbine development, production, service and disposal as green as possible - partly to maintain the industry's most sustainable production in the long term, partly in order to reduce cost – and all of it to strengthen its competitiveness.

Wind power plants have a low carbon footprint, and generate power without emitting CO<sub>2</sub>, NO<sub>x</sub> and SO<sub>x</sub>. They don't consume water during their lifetime of energy production.

Detailed disclosure on not only the corporate environmental performance and initiatives, but also down to the sales unit and factory performance, including trends over the past years, is available [online](#). Furthermore, selected environmental [data](#) is available.

At Vestas we are committed to reducing our impact on the environment by reducing emission of significant greenhouse gasses. Vestas uses [Life Cycle Assessments](#) to develop increasingly resource-efficient products and a production, measured by the carbon footprint as well as other environmental indicators. Our environmental key performance indicators are the carbon footprint and the recyclability of the turbines.

As a company, we aim to decrease our overall use of energy, increase our use of renewable energy, and use less carbon-intensive energy forms.

Vestas aims to lead by example, showing other corporations how businesses can reduce their impact on the environment and spearhead the drive for a low carbon society. By 2015 the [target](#) is for 55 percent of the total energy consumption to come from renewable sources. For the electricity portion of the total energy consumption, the target is for 100 percent to be renewable electricity by 2012.

At Vestas, all employees contribute to a continual improvement of Vestas' environmental performance through our Sustainability Management System. To support this strive, Environmental Management is globally [certified](#) in accordance with the requirements of ISO 14001.



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## Chemical management

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Being in control of the chemicals we use in Vestas is part of our management system and essential for a sustainable company.

Only when we are in control of the kind of chemicals we use, are we able to ensure a healthy workplace for our employees and minimum impact to the environment.

Vestas is, in cooperation with a global provider of chemical, regulatory and compliance information services, implementing a global chemical management system. This includes an online system that all employees can enter. Here they get essential information about the chemicals used in Vestas.

A global chemical database, as well as a chemical approval process, is part of that system. The global approval process is made to ensure that chemicals are assessed similarly and that they are okay to use from an HSE perspective. Also, that minimum standards based on best practice, are adhered to.

Vestas also has a [Material and Chemical Blacklist](#) which identify substances that are banned or restricted with the aim of phasing out their use in our product or production. The ban or restriction is based on legal requirements or decided by Vestas Management.

It is expected that our suppliers fulfil the requirements on the blacklist. Vestas cannot work with suppliers using substances that are prohibited. If the suppliers use chemicals or materials restricted on the blacklist an action plan for phasing out the substance is expected.



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## Employees Management Approach

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Employees are crucial to staying competitive and providing customers with the best service. The company's People Pipeline – employee lifecycle – ensures that the right people are in the right functions throughout the organisation. It enables Vestas to attract, employ, reward, develop and retain the best. The different elements of the pipeline are continuously being refined to ensure that Vestas stays competitive.

At Vestas we know the importance of understanding the culture and background of our customers in order to offer them the best service possible. Therefore, Vestas attempts to foster an inclusive and diverse environment to attract employees of different nationalities, while remaining true to core company values such as Safety First, Quality and the Vestas Code of Conduct. We are also dedicated to continuous improvement of competences. We do that through a variety of [internal learning](#) possibilities as well as [career development](#). Vestas has among other things developed three [leadership tracks](#) and [attractive benefits](#).

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## Facts & Figures

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Being a global business entails [employing people](#) of different nationalities and cultures. The business must be 'in the region, for the region.



### Recruiting

Vestas is active in more than 60 countries and is constantly seeking opportunities to expand into new markets. We always seek to hire the best suited candidates for vacant positions, based on background and merit. We do thorough assessments of both external and internal candidates, and value opportunities to promote qualified internal talents.

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### Training

In 2011, 1226 courses were offered and 613,781 hours of training completed. 61 percent of the training hours were spent in classrooms, 36 percent in online, self-paced training and 3 percent in virtual classrooms. On average each employee received 27 hours of training in 2011 with a span from management levels receiving 23 hours of training to other employees receiving 28 hours of training.

### Development

The Performance and Development Dialogue (PDD) and People Review are two of our key tools within the area of employee development.

The People Review aims to create insight into the performance and potential of our employees, and to have a structured and proactive approach to performance, action planning, and succession planning. All employees at Manager level (IPE 54+) or above are mandatory to review, but many business units choose to review all employees.

The People Review creates the foundation for the PDD's, which take place after the People Review. The PDD's are discussions between managers and their staff. They ensure that all employees receive feedback on their performance and behaviour for the year and set goals for the coming 12 months – including competence development, such as training. The aim is for all Vestas' employees to have a yearly PDD that is followed up mid-year.

94 percent of Vestas' employees responded to the Employee Survey in 2011 and 85 percent of them confirmed, that they conducted a Performance and Development Dialogue with their manager. Furthermore, the results show an increase in the level of Satisfaction & Motivation by one index point compared to 2010.

### Compensation & Reward

Vestas is a global company; inevitably, this means local pay practices and differing market rates. However, the company aims to approach each location in the same manner and with the same guidelines. Thus Vestas seeks to ensure that compensation and reward levels remain fair when comparing, for instance, locations and gender, and remain competitive when comparing to industry standards.

### Exit

All employees leaving Vestas, regardless of the reason for their departure, are offered an interview as part of the exit process. This way, the company learns more about why the employee has chosen to leave Vestas, and can devise new methods for making the company more likely to attract and retain talent in the

future.

When having to lay off employees in large numbers, Vestas always ensures negotiations are conducted as quickly as possible and result in decent severance packages for all those affected. Vestas also offers laid-off employees support for further education and outplacements

## Human rights and labour

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In 2011, Vestas developed two global policies concerning [human rights](#) and [freedom of association and collective bargaining](#).

The policies outline our commitments and basic approaches and cover everywhere Vestas has operations. They also clarify Vestas' approach to external business partners.

In Vestas we expect our business partners to respect human rights, and will take measures to promote responsible practices by our business partners. We will identify and consult with stakeholders, whose human rights might be impacted by Vestas operations. We will also engage in dialogue with local communities to identify and address the human rights risks and opportunities of Vestas operations.

The policies will be communicated to relevant stakeholders by providing all employees with access to the policies and related Vestas standards, and by communicating internally and externally on the policies and progress in implementing these commitments. Complaints by employees and business partners about breaches of the policies may be submitted to the [Vestas EthicsLine](#).

In the Human Rights Policy Vestas has committed to engaging in dialogue with local communities to identify the human rights impacts and opportunities of Vestas operations. As part of implementing the human rights policy Vestas will also seek to establish or support grievance mechanisms for affected communities, in accordance with the extent and nature of our engagement. This will be done on a project basis. The responsibility for engaging with communities is anchored locally in the business units.

At this point in time, Vestas has identified stakeholders and subjects that are key priorities. Our approach is to focus on the highest risk countries, and identify the main issues and rights Vestas needs to focus on.

### Internal Training

In 2011 Vestas started holding webinars on human rights and global labour standards for key internal stakeholders. The webinars will continue as a regular method of internal training and will also be followed up by the creation of e-learning modules for relevant functions in 2012.

### Assessments and remediation

During 2011 Vestas executed the Global Labour Standards Self-Assessment Project. This was done as a means of assessing how Vestas supports the global labour standards and to develop a fact-based action plan. This will enable us to develop policies, standards, tools and actions that will lead to further improvements.

The first step of the project was to identify the Vestas markets that are high at risk for freedom of association and collective bargaining, child labour and forced



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and compulsory labour. In total 30 countries were identified as having one or more risks related to the fundamental global labour standards. In regard to freedom of association and collective bargaining 10 markets were identified as high risk and 10 markets were identified as high risk for child labour. 25 markets were identified as high risk for forced and compulsory labour.

All business units with operations or projects in the countries were requested to perform a self-assessment using the UN Global Compact Self-Assessment Tool. 28 self-assessments on global labour standards were performed. The self-assessment indicators tested for the policies, processes and tools Vestas has in place to handle the risk of violations of global labour standards. The assessment showed that Vestas' business units have a strong focus on local legal compliance and have a high level of awareness and control over issues such as child labour, registration of work hours and voluntary labour. However, a few areas were identified as requiring attention. Examples of such areas include an enhanced focus on non-discrimination and anti-harassment, with a particular focus on training managers, and developing a systematic focus on providing access to employment opportunities to the disabled. The assessment also showed the need to enhance the existing supplier management systems to cover all Vestas' business units and types of vendors with a special focus on particular labour standards such as child labour and forced and compulsory labour.

Because many of the areas that are subject to improvement are shared by many of the business units, an action plan has been developed to develop solutions at group level and roll them out across the business units in 2012 and the following years. Developing training material and guidelines will be a focus in 2012.

## Reporting

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At Vestas we believe in being open about the way we operate with regard to the sustainability aspects of our business. To demonstrate this, we report and document the facts using two readily accessible tools:

Our annual report

The annual report describes our overriding objective for our work in the context of sustainability. It also contains statistics on key indicators, as well as expectations for the future.

Statistics on our environmental and health and safety performance

Quarterly reporting gives detailed data on significant environmental and health and safety aspects.



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# Vestas by the numbers

- Energy
- Water
- CO2 emissions
- Waste
- Injuries**

[Vestas by the numbers](#) > [Worldwide](#) > Energy

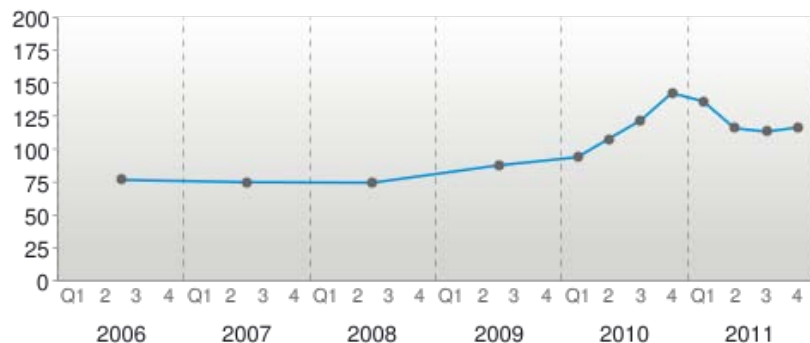
## Better use of energy

Vestas has a policy to purchase renewable electricity where available. By procuring renewable electricity and in collaboration with suppliers and authorities, Vestas seeks to ensure better access to renewable electricity. To meet Vestas' WindMade commitment and renewable energy goals, a wind power plant has been established internally to balance out electricity bought in countries where Vestas is not able to buy renewable electricity.

For 2011, the share of renewable energy was 38 per cent and the share of renewable electricity was 68 per cent. The corresponding figures for the year-earlier period were 42 per cent and 74 per cent. In 2011 Vestas closed down five factories in Denmark and Sweden, all of which had a high share of renewable energy, and at the same time Vestas has increased its capacity in Asia and the USA, where access to renewable energy in certain regions is limited. Vestas will henceforth build turbines for in-house use in order to balance the energy consumption. In some cases, Vestas may also in this connection act as co-investor in customer projects. Vestas is currently involved in a couple of projects under construction in Eastern Europe.

## Energy consumption per megawatt produced and shipped

Vestas Worldwide (MWh/MW produced)

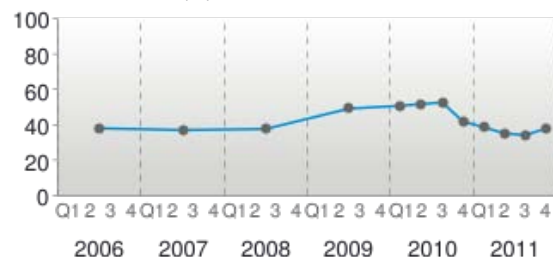


On average over the last four quarters, Vestas facilities worldwide used about the same amount of energy to produce a windturbine as last quarter's average.

The graph shows how much energy, measured in megawatt hours, is needed to produce a windturbine with the capacity to generate 1 megawatt per hour. In 2009, for example, the average was about 88 MWh/MW, meaning the windturbines had to run at full speed for 88 hours to produce enough energy to make up for Vestas' production.

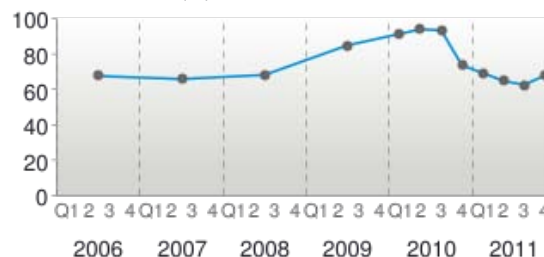
## Renewable energy usage

Vestas Worldwide (%)



## Renewable electricity usage

Vestas Worldwide (%)



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Worldwide data

Data by country

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Data by facility type

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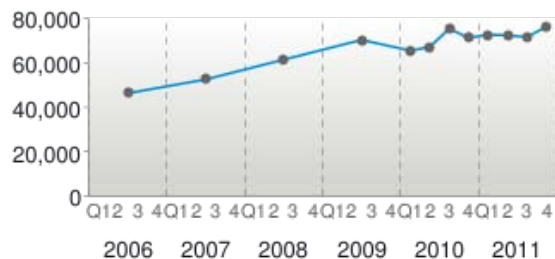
On average over the last four quarters, Vestas facilities worldwide succeeded in drawing more of their energy from renewable sources. The company's renewable energy use worldwide was 37.9 percent, up from last quarter's average of 34.1 percent

Vestas facilities worldwide also succeeded in using more renewable electricity. The company's average renewable electricity use worldwide over the last four quarters was 67.9 percent, up from last quarter's average of 62.4 percent

The graphs show the proportion of energy and electricity that come from renewable sources.

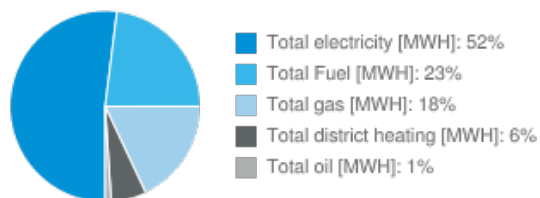
### Electricity consumption

Vestas Worldwide (MWh/quarter)



### Energy consumption by type

Vestas Worldwide



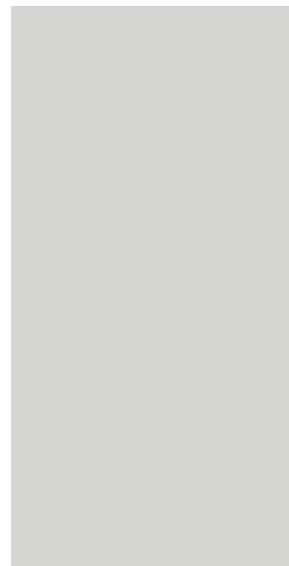
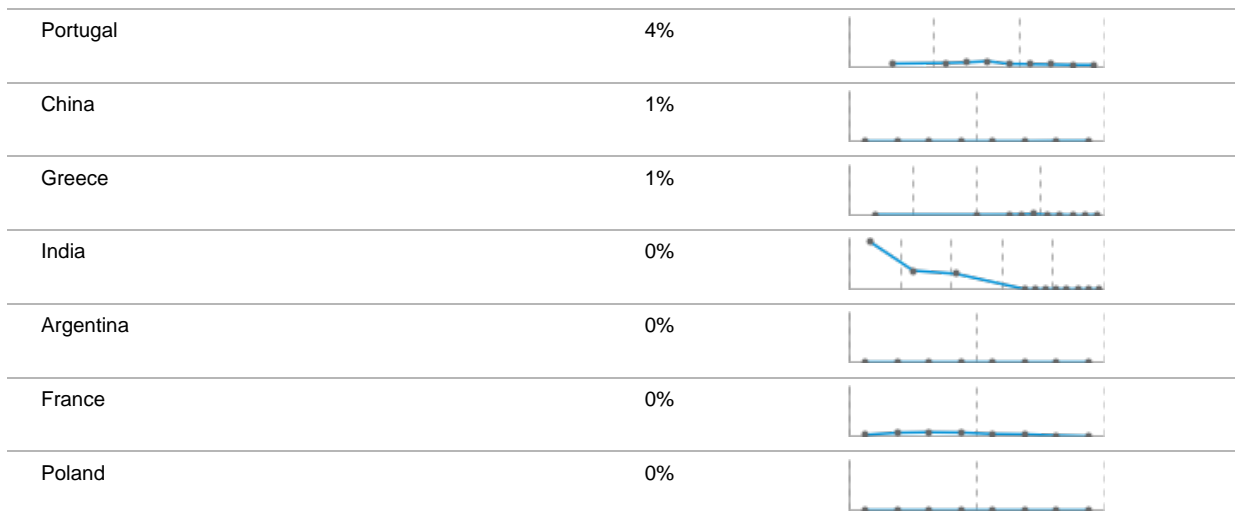
Vestas facilities worldwide increased their total average energy consumption by 6.9 percent over the last four quarters compared to the average from a quarter before.

The chart shows how much of each different type of energy -- electricity, district heating, gas, fuel and oil -- that Vestas factories worldwide used in production last quarter.

A note about the numbers: In most cases, the numbers presented here are based on either annual or four-quarter rolling averages. For example, the total displayed for the second quarter of 2010 actually represents an average of that quarter and the three quarters before it. This is done to smooth out seasonal variations in production and supply, to more accurately show trends in resource use at Vestas. Injuries and employment information are the only aspects not calculated on a rolling basis.

### Renewable energy usage by country

| Country         | Latest data | Rolling Average Chart |
|-----------------|-------------|-----------------------|
| Norway          | 94%         |                       |
| Denmark         | 81%         |                       |
| Sweden          | 65%         |                       |
| Italy           | 57%         |                       |
| Spain           | 53%         |                       |
| Germany         | 48%         |                       |
| United Kingdom  | 32%         |                       |
| USA & Canada    | 20%         |                       |
| Turkey          | 8%          |                       |
| Australia       | 7%          |                       |
| The Netherlands | 7%          |                       |



## Sustainability reports

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When reporting on sustainability Vestas describes the overall objectives for:

- Working with sustainability
- Tracking performance
- Achieving targets
- Setting expectations for the future

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- [Sustainability report 2010](#)
- [Annual Report 2009](#)
- [Annual Report 2008](#)
- [Annual Report 2007](#)
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## Recognitions and awards

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**Recognitions and awards**

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Vestas received a number of recognitions of its ambition of achieving excellence in sustainability.

[Dow Jones Sustainability World index](#), leader in the sector for renewable energy equipment

Member company of the [FTSE4Good Index](#)

[Carbon Disclosure Project](#), third year included in Europe 300 and Nordic 200

[Global 100](#), the most sustainable corporations in the world (31st)

Vestas has won the 2011 title of “Learning Leader” for its free e-learning modules about wind turbines, available via [www.vestaselearning.com/explore/](http://www.vestaselearning.com/explore/)

[Zayed Future Energy Prize](#)

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## GRI and Global Compact Index

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Vestas bases its reporting on the Global Reporting Initiative's Sustainability Reporting Guidelines and has followed the G3 guidelines since 2010. The Guidelines provide a disclosure framework of management approaches and performance against indicators for economic, environmental and social impacts, as well as a company profile.

Based on the GRI guidance and requirements, we are declaring an Application Level of B+ for the combined reporting in the Annual Report and online. The index lists references in the Annual Report as well as online information.

Vestas signed up to the United Nations Global Compact in 2009. We report on our implementation of the ten Global Compact Principles in the areas of human rights, labour, environment and anti-corruption. In addition to the GRI reporting elements, this online index also contains details of topics relevant to the Global Compact Principles. The ten principles have been linked to the GRI indicators.

Vestas is implementing the 'Blueprint for Corporate Sustainability Leadership' as a member of UN Global Compact LEAD. The goal of the Blueprint is to create a higher standard for corporate sustainability performance and disclosure. The Blueprint is divided in three dimensions with some cross-cutting components. The first dimension, the implementation of the Global Compact principles, includes the Global Compact Advanced Programme. The second and third dimensions of the Blueprint cover actions taken in support of broader UN goals and in engaging with the Global Compact.

See Vestas' status on [realizing the Blueprint for Corporate Sustainability Leadership](#).

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## Strategy and profile

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| Indicator                                               | Link                                                                                | Fulfilment & Comment | GC Principles |
|---------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------|---------------|
| <b>1. Strategy and Analysis</b>                         |                                                                                     |                      |               |
| 1.1 Statement from the CEO                              | <a href="#">Sustainability</a>                                                      | Full                 |               |
| 1.2 Key impacts, risks, and opportunities               | <a href="#">Vision Highlights for the Group Key impacts, risks and oppotunities</a> | Full                 |               |
| <b>2. Organizational Profile</b>                        |                                                                                     |                      |               |
| 2.1 Name of the organization                            | <a href="#">Legal entities</a>                                                      | Full                 |               |
| 2.2 Primary brands, products, and/or services           | <a href="#">New products and services Sustainable products</a>                      | Full                 |               |
| 2.3 Operational structure of the organization           | <a href="#">Management structure</a>                                                | Full                 |               |
| 2.4 Location of organization's headquarters.            | <a href="#">Legal entities</a>                                                      | Full                 |               |
| 2.5 Number of countries where the organization operates | <a href="#">Wind. It means the world to us.</a>                                     | Full                 |               |
| 2.6 Nature of ownership and legal form                  | <a href="#">Management structure Consolidated accounts/Legal entities</a>           | Full                 |               |
| 2.7 Markets served                                      | <a href="#">Vestas' financial performance</a>                                       | Full                 |               |
| 2.8 Scale of the reporting organization                 | <a href="#">Highlights for the Group Consolidated accounts</a>                      | Full                 |               |
| 2.9 Significant changes during the reporting period     | <a href="#">Research and development</a>                                            | Full                 |               |
| 2.10 Awards received in the reporting period.           | <a href="#">Awards and prizes</a>                                                   | Full                 |               |
| <b>3. Report Parameters - Report profile</b>            |                                                                                     |                      |               |
| 3.1 Reporting period                                    | <a href="#">Highlights for the Group</a>                                            | Full                 |               |
| 3.2 Date of most recent previous report                 | <a href="#">Highlights for the Group</a>                                            | Full                 |               |
| 3.3 Reporting cycle                                     | <a href="#">Highlights for the Group</a>                                            | Full                 |               |

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|                                                                                                                        |                                                                                                                          |      |      |
|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------|------|
| 3.4 Contact point for questions regarding the report                                                                   | <a href="#">Sustainability</a>                                                                                           | Full |      |
| Report Parameters - report scope and boundary                                                                          |                                                                                                                          |      |      |
| 3.5 Process for defining report content                                                                                | <a href="#">Prologue</a><br><a href="#">Highlights for the Group</a>                                                     | Full |      |
| 3.6 Scope of the report                                                                                                | <a href="#">Accounting policies</a>                                                                                      | Full |      |
| 3.7 Limitations on the scope of the report                                                                             | <a href="#">Accounting policies</a>                                                                                      | Full |      |
| 3.8 Basis for reporting on joint ventures, subsidiaries, leased facilities, outsourced operations etc.                 | <a href="#">Accounting policies</a>                                                                                      | Full |      |
| 3.9 Data measurement techniques and the bases of calculations                                                          | <a href="#">Accounting policies</a>                                                                                      | Full |      |
| 3.10 Re-statements of information provided in earlier reports                                                          | <a href="#">Accounting policies</a>                                                                                      | Full |      |
| 3.11 Significant changes from previous reporting periods in the scope of the report                                    | <a href="#">Accounting policies</a>                                                                                      | Full |      |
| Report Parameters - GRI content index                                                                                  |                                                                                                                          |      |      |
| 3.12 GRI overview                                                                                                      | <a href="#">GRI overview</a>                                                                                             | Full |      |
| Report Parameters - Assurance                                                                                          |                                                                                                                          |      |      |
| 3.13 External assurance for the report                                                                                 | <a href="#">Auditor's statement</a><br><a href="#">Auditor's report</a>                                                  | Full |      |
| 4. Governance, Commitments, and Engagement - Governance                                                                |                                                                                                                          |      |      |
| 4.1 Governance structure of the organization                                                                           | <a href="#">Corporate Governance</a><br><a href="#">Organising sustainability</a><br><a href="#">Facts &amp; figures</a> | Full | 1-10 |
| 4.2 The roles of the chairman of the Board and the CEO                                                                 | <a href="#">Board of Directors</a><br><a href="#">Executive Management</a>                                               | Full |      |
| 4.3 Members of the Board                                                                                               | <a href="#">Board of Directors</a>                                                                                       | Full |      |
| 4.4 Mechanisms for shareholders and employees to provide recommendations to the Board                                  | <a href="#">General meeting</a><br><a href="#">Company announcements</a>                                                 | Full |      |
| 4.5 Linkage between compensation for Board members, senior managers, and executives and the organization's performance | <a href="#">Remuneration</a>                                                                                             | Full |      |
| 4.6 Processes in place for the Board to ensure conflicts of interest are                                               | <a href="#">Board of Directors</a>                                                                                       | Full |      |

|                                                                                                                                                                          |                                                                                                                                                |      |      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------|------|
| avoided                                                                                                                                                                  |                                                                                                                                                |      |      |
| 4.7 Process for determining the qualifications of the Board members                                                                                                      | <a href="#">Board of Directors</a>                                                                                                             | Full |      |
| 4.8 Statements of mission or values, codes of conduct, and principles relevant to economic, environmental, and social performance and the status of their implementation | <a href="#">Business priorities</a><br><a href="#">Commitments and policies</a>                                                                | Full |      |
| 4.9 Procedures for the Board to overseeing the organization's identification and management of economic, environmental, and social performance                           | <a href="#">Board of Directors</a><br><a href="#">Organising sustainability</a>                                                                | Full |      |
| 4.10 Processes for evaluating the Boards own performance, particularly with respect to economic, environmental, and social performance                                   | <a href="#">Board of Directors</a>                                                                                                             | Full |      |
| Governance, Commitments, and Engagement - Commitments to external initiatives                                                                                            |                                                                                                                                                |      |      |
| 4.11 Explanation of whether and how the precautionary approach or principle is addressed by the organization                                                             | <a href="#">Management systems</a><br><a href="#">Chemical management</a>                                                                      | Full | 7    |
| 4.12 Externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or endorses                | <a href="#">Business priorities</a><br><a href="#">Commitments and policies</a>                                                                | Full | 1-10 |
| 4.13 Memberships in associations                                                                                                                                         | <a href="#">Memberships</a>                                                                                                                    | Full | 1-10 |
| Governance, Commitments, and Engagement - Stakeholder Engagement                                                                                                         |                                                                                                                                                |      |      |
| 4.14 List of stakeholder groups engaged by the organization                                                                                                              | <a href="#">Statutory report</a><br><a href="#">Relations with stakeholders</a><br><a href="#">Stakeholder engagement</a>                      | Full |      |
| 4.15 Identification and selection of stakeholders with whom to engage                                                                                                    | <a href="#">Statutory report</a><br><a href="#">Stakeholder engagement</a>                                                                     | Full |      |
| 4.16 Approaches to stakeholder engagement                                                                                                                                | <a href="#">Customers</a><br><a href="#">Satisfaction survey</a><br><a href="#">Statutory report</a><br><a href="#">Stakeholder engagement</a> | Full |      |
| 4.17 Key topics and                                                                                                                                                      | <a href="#">Business priorities</a>                                                                                                            | Full |      |



concerns that have been raised through stakeholder engagement [Highlights for the Group Stakeholder engagement](#)

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## Economic performance indicators

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| Indicator                                                           | Link                                                                                                    | Fulfilment & Comment | GC Principles |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------|---------------|
| Disclosure on Management Approach                                   | <a href="#">Business priorities</a><br><a href="#">Financial risks and internal control environment</a> | Full                 | 1, 4, 6, 7    |
| Aspect: Economic Performance                                        |                                                                                                         |                      |               |
| EC1 Direct economic value generated and distributed                 | <a href="#">Consolidated accounts</a>                                                                   | Full Note*           |               |
| EC3 Coverage of the organization's defined benefit plan obligations | <a href="#">Consolidated accounts, note 24</a>                                                          | Partial              |               |
| EC4 Significant financial assistance received from government       | <a href="#">Consolidated accounts, note 16 and 34</a>                                                   | Full                 |               |

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| Notes                                     | 2011      | 2010       |
|-------------------------------------------|-----------|------------|
| *Economic value generated and distributed |           |            |
| Direct economic value generated           |           |            |
| Revenues 1                                | 5,836     | 6,920      |
| Economic value distributed                |           |            |
| Operating costs 2                         | 4,681     | 5,585      |
| Employee wages and benefits 3             | 1,215     | 1,025      |
| Payments to providers of capital 4        | 60        | 49         |
| Payments to governments 5                 | <u>69</u> | <u>131</u> |
|                                           | 6,025     | 6,790      |
| Economic value retained                   | -189      | 130        |

1. Refer to the Group's consolidated income statement
2. Operating costs - is the sum of costs of sales, research and development costs, distribution expenses and administrative expenses minus employee wages and benefits included in the Group's consolidated income statement
3. Refer to note 6 of the Group's consolidated financial statements

4. Refer to note 10 of the Group's consolidated financial statements
5. Refer to note 21 of the Group's consolidated financial statements



## Environmental performance ind.

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| Indicator                                                                                   | Link                                                                                                                                     | Fulfilment & Comment | GC Principles |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------|
| Disclosure on Management Approach                                                           | <a href="#">Environment</a><br><a href="#">Management systems</a><br><a href="#">Sustainable products</a><br><a href="#">Environment</a> | Full                 | 7, 8, 9       |
| Aspect: Materials                                                                           |                                                                                                                                          |                      |               |
| EN1 Materials used by weight or volume                                                      | <a href="#">Highlights for the Group</a>                                                                                                 | Full                 | 8             |
| Aspect: Energy                                                                              |                                                                                                                                          |                      |               |
| EN3 Direct energy consumption by primary energy source                                      | <a href="#">Environment</a>                                                                                                              | Full                 | 8             |
| EN4 Indirect energy consumption by primary source                                           | <a href="#">Environment</a>                                                                                                              | Full                 | 8             |
| EN6 Initiatives to provide energy-efficient or renewable energy based products and services | <a href="#">Highlights for the Group</a><br><a href="#">Environment/Life cycle assessment</a><br><a href="#">Sustainable products</a>    | Full                 | 8, 9          |
| Aspect: Water                                                                               |                                                                                                                                          |                      |               |
| EN8 Total water withdrawal by source                                                        | <a href="#">Highlights for the Group</a><br><a href="#">Environment</a>                                                                  | Full                 | 8             |
| Aspect: Emissions, Effluents, and Waste                                                     |                                                                                                                                          |                      |               |
| EN16 Total direct and indirect greenhouse gas emissions by weight                           | <a href="#">Environment</a><br><a href="#">Sustainability data</a>                                                                       | Full                 | 8             |
| EN21 Total water discharge by quality and destination                                       | <a href="#">Environment</a>                                                                                                              | Partial              | 8             |
| EN22 Total weight of waste by type and disposal method                                      | <a href="#">Environment</a><br><a href="#">Sustainability data</a>                                                                       | Full                 | 8             |
| EN23 Total number and volume of significant spills                                          | <a href="#">Highlights for the Group</a>                                                                                                 | Full                 | 8             |

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|                                                                             |                                                                                           |      |         |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|------|---------|
| Aspect: Products and services                                               |                                                                                           |      |         |
| EN26 Initiatives to mitigate environmental impacts of products and services | <a href="#">Environment/Life cycle assessment</a><br><a href="#">Sustainable products</a> | Full | 7, 8, 9 |

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|                                                                                                                                       |  |                |   |
|---------------------------------------------------------------------------------------------------------------------------------------|--|----------------|---|
| Aspect: Compliance                                                                                                                    |  |                |   |
| EN28 Value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations |  | Full<br>Note 1 | 8 |

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|                                                                              |  |  |  |
|------------------------------------------------------------------------------|--|--|--|
| Notes                                                                        |  |  |  |
| 1 If there are significant fines they are included in the financial accounts |  |  |  |

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## Social performance indicators

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| Indicator                                                                                                                                    | Link                                                                             | Fulfilment & Comment | GC Principles |
|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------|---------------|
| Labour practices and decent work                                                                                                             |                                                                                  |                      |               |
| Disclosure on management approach                                                                                                            | <a href="#">Employees</a><br><a href="#">Safety</a><br><a href="#">Employees</a> | Full                 | 1, 3, 6       |
| Aspect: Employment                                                                                                                           |                                                                                  |                      |               |
| LA1 Workforce by employment type, employment contract, and region                                                                            | <a href="#">Employees</a>                                                        | Full                 |               |
| LA2 Number and rate of employee turnover by age group, gender, and region                                                                    | <a href="#">Employees</a>                                                        | Full                 | 6             |
| Aspect: Occupational Health and Safety                                                                                                       |                                                                                  |                      |               |
| LA7 Rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities                                | <a href="#">Employees</a><br><a href="#">Safety</a>                              | Partial              | 1             |
| Aspect: Training and education                                                                                                               |                                                                                  |                      |               |
| LA10 Average hours of training per year per employee by employee category                                                                    | <a href="#">Employees</a>                                                        | Partial              |               |
| LA11 Programs for skills management and lifelong learning that support the continued employability of employees                              | <a href="#">Employees</a>                                                        | Partial              |               |
| LA12 Percentage of employees receiving regular performance and career development reviews                                                    | <a href="#">Employees</a>                                                        | Full                 |               |
| Aspect: Diversity and Equal Opportunity                                                                                                      |                                                                                  |                      |               |
| LA13 Composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership etc. | <a href="#">Employees</a><br><a href="#">Employees</a>                           | Full                 | 1, 6          |

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| Human rights                                                                                                                         |                                                                                                                                                                                                   |                |         |
|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|
| Disclosure on management approach                                                                                                    | <a href="#">Employees/Rights Human rights and labour</a>                                                                                                                                          | Full           | 1-6     |
| Aspect: Investment and Procurement Practices                                                                                         |                                                                                                                                                                                                   |                |         |
| HR2 Percentage of significant suppliers, contractors that have undergone screening on human rights                                   | <a href="#">Operational risks/Suppliers Suppliers</a>                                                                                                                                             | Partial        | 1-6     |
| Aspect: Freedom of association and collective bargaining                                                                             |                                                                                                                                                                                                   |                |         |
| HR5 Operations identified in which the right to exercise freedom of association and collective bargaining may be at significant risk | <a href="#">Employees/Rights Human rights and labour</a>                                                                                                                                          | Full           | 1, 2, 3 |
| Aspect: Child labor                                                                                                                  |                                                                                                                                                                                                   |                |         |
| HR6 Operations identified as having significant risk for incidents of child labor                                                    | <a href="#">Employees/Rights Human rights and labour</a>                                                                                                                                          | Full           | 1, 2, 5 |
| Aspect: Forced and compulsory labor                                                                                                  |                                                                                                                                                                                                   |                |         |
| HR7 Operations identified as having significant risk for incidents of forced or compulsory labor                                     | <a href="#">Employees/Rights Human rights and labour</a>                                                                                                                                          | Full           | 1, 2, 4 |
| Society                                                                                                                              |                                                                                                                                                                                                   |                |         |
| Disclosure on management approach                                                                                                    | <a href="#">Employees/Rights Operational risks/Legislation Code of Conduct Commitments and policies Stakeholder engagement Human rights and labour Environmental and social impact assessment</a> | Full           | 10      |
| Aspect: Society                                                                                                                      |                                                                                                                                                                                                   |                |         |
| SO5 Public policy positions and participation in public policy development and lobbying                                              | <a href="#">Operational risks/Legislation Stakeholder engagement Political affairs</a>                                                                                                            | Full           | 7, 8, 9 |
| Aspect: Anti-competitive behavior                                                                                                    |                                                                                                                                                                                                   |                |         |
| SO7 Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices                                  |                                                                                                                                                                                                   | Full<br>Note 1 |         |
| Aspect: Compliance                                                                                                                   |                                                                                                                                                                                                   |                |         |

|                                                                                                                                       |                                                                                           |                |      |
|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------|------|
| SO8 Value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations                |                                                                                           | Full<br>Note 2 |      |
| Product responsibility                                                                                                                |                                                                                           |                |      |
| Disclosure on management approach                                                                                                     | <a href="#">Environment/Life cycle assessment</a><br><a href="#">Sustainable products</a> | Full           | 1, 8 |
| Aspect: Product and Service Labeling                                                                                                  |                                                                                           |                |      |
| PR5 Practices related to customer satisfaction                                                                                        | <a href="#">Customers</a><br><a href="#">Customer loyalty</a>                             | Full           |      |
| PR9 Value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services |                                                                                           | Full<br>Note 2 |      |
| Notes                                                                                                                                 |                                                                                           |                |      |
| 1 If there are legal actions they are included in the Annual Report                                                                   |                                                                                           |                |      |
| 2 If there are significant fines they are included in the financial accounts                                                          |                                                                                           |                |      |