

THE ENERGY TO LEAD SUSTAINABLY



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Foreword



Dear Readers,

The energy transition is a big challenge for us all. RWE is playing a role in structuring the future of energy supply. And that did not begin only a year ago. Our company has already been doing a great deal of work on this issue for some years now. We have been reducing CO₂ emissions from our power plants, expanding renewables and enhancing energy efficiency. Less CO₂, secure supply and affordable prices – these are our objectives. In Germany and in Europe.

We have a great deal of work before us if we are to achieve these goals. We will continue to expand renewable energies over the coming years. Step by step. Our installation ships for constructing off-shore wind farms are almost ready to start working. We will use them to set up wind turbines off the German and Welsh coasts. The new wood-pellet factory in Georgia (USA) is already producing biomass for our power plants. And the Andersol thermal power plant in Spain, in which we have a stake, will soon come on stream and start commercial operations. At the same time, we are modernising our conventional power stations with the aim of supplying energy more flexibly and efficiently to the grid. They will remain an important foundation for the energy system – particularly in view of the accelerated exit from nuclear energy in Germany.

We are modernising the electricity grids at the same time so that the switch in the electricity supply operates smoothly over the long term. The grid will get smarter as a result of our efforts. The grids of the future will no longer simply be transmission routes, they will also form the neural networks of our energy systems. We will use them to control the supply and demand of electricity. This is a function that is becoming increasingly complex as a result of a large number of local plants and the impact of the weather on renewable energies. Model projects like Smart Country in the region of the Eifel hills or E-Dema in Mülheim/Ruhr are test beds where we have joined forces with partners from business and the local authorities to put them through their paces.


The third important mainstay is efficient use of energy by consumers. We are also offering solutions at this point. For example Smart Meters and Smart Homes are products that give your household network connectivity – products that take the energy revolution into the homes of our customers.

One thing is certain. This radical change will only be successful if everyone works together – people in the community, politicians and companies. Individual companies cannot afford to simply deliver fair prices, a secure supply and climate protection. They also need to engage with traditional environmental protection, innovations, compliance with sustainability criteria in the supply chain, a high level of occupational health and safety for our employees and suppliers, a visionary approach to the demographic change, and social engagement in the regions.

We have bundled these challenges in ten areas for action. Quantifiable indicators mean they can be measured and coordinated. And we have defined concrete targets that we intend to achieve in these fields. These targets are supported by international standards and principles, such as the UN Global Compact.

Are our objectives the right ones? And are they ambitious enough to make the radical change sustainable over the long term? We want to engage in a dialogue about these issues with the community and with individuals like you. Send us your thoughts and ideas to responsibility@rwe.com.

Essen, 28 March 2012



Peter Terium
Deputy Chairman

Group Portrait

RWE is one of Europe's five biggest electricity and gas utilities. The business activities comprise the generation, trading, transmission, distribution and supply of electricity and gas, the cultivation and processing of biomass, lignite mining, and oil and gas production. A workforce of some 72,000 employees supplies around 16.6 million customers with electricity and nearly 7.8 million customers with gas. In fiscal 2011, we generated revenue amounting to around €51.7 billion.

Our goal is to supply our customers with reliable, affordable, efficient and consumer-friendly electricity and gas that also has minimal environmental impact. Our broadly based generation portfolio forms an important platform for our activities – ranging from lignite-fired power stations to offshore wind farms. At the end of fiscal 2011, the RWE Group had total power plant capacity amounting to 49,238 MW. Coal accounts for the lion's share of total output amounting to nearly 50%, followed by gas (24.1%), nuclear power (7.9%) and renewables (7.6%). In 2011, we invested around €3.5 billion in making our generation portfolio more climate friendly and more efficient. New gas and coal-fired power stations with a combined capacity of 12,400 MW are scheduled to come on stream by mid-2014. We also intend to have group-wide capacity based on renewables either under construction or in operation by the same date.

We are continuing to restructure our generation portfolio. Our goal is to have more than 20% of our generating capacity based on renewable energy by 2020. The biggest proportion of electricity will be generated from gas at around 40%, followed by coal at about 35%. The proportion of nuclear energy will fall to some 5%.

We believe that investment in grids and storage capacity for transmission, distribution and storage of electricity and gas is equally as important as modernisation of electricity generating capacities. We invested around €1.7 billion here in 2011. Having sold the majority shareholding in our transmission grid operator Amprion in Germany in 2011, we will be concentrating on distribution, storage and sale of electrical energy in our power business.

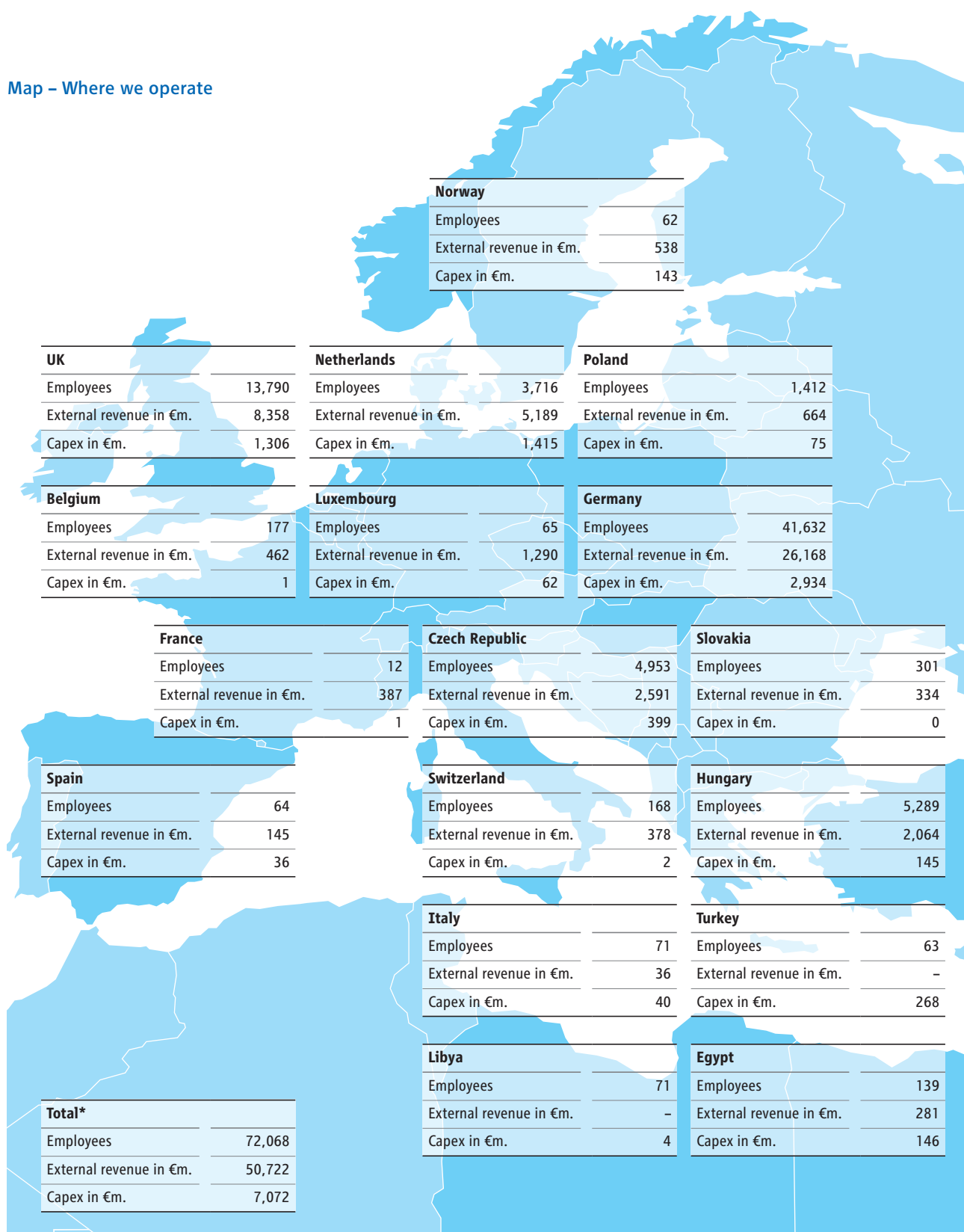
Our business model is based on long-term planning. When we invest in power stations, renewables, grids, and gas and oil production facilities, we have to plan over a period of decades rather than years. The success of these projects depends on our ability to gain acceptance for our actions in the community at large. This is the aim of our corporate responsibility strategy (CR) where we address the challenges presented by our core business. Our approach is always to take account of the specific regional requirements of our customers alongside the general conditions and regulatory framework in each of the countries where we are operating.

Our regions

RWE is an international Group operating in more than 20 different countries. Germany is our biggest single market. We generate 53.2% of our revenue and employ 50.5% of our workforce there. Other important markets are the UK where we generate 17.0% of our revenue, the Netherlands which accounts for 10.6% and Poland, the Czech Republic and Hungary with a combined share of 10.8%. We expect stronger growth in markets located in South-east Europe. Turkey is a principal growth driver where we are currently constructing a gas-fired power station. We also have renewables-based generating capacities in France, Italy, Portugal, Switzerland and Spain.

Our growth is primarily focused on Europe where 99% of our workforce is based. We are also engaged in oil and gas production outside Europe. A long track record of commitment in Egypt has focused on the exploration and production of oil and gas since 1974. We are expanding our exploration activities to other countries in North Africa and we have also been operating in Central Asia since 2010. Offices were opened in Azerbaijan and Turkmenistan and RWE Dea started exploration work at a field in Trinidad and Tobago in 2011.

Map – Where we operate



* Therof USA: 83 employees, 51 €m. external revenues, 45 €m. capex
 Revenues not including gas tax/electricity tax. Capital expenditure (capex) on financial assets and on property, plant and equipment

Value Chain



CHALLENGES

Factoring in of social responsibility (resettlement), sustainable reclamation and environmental protection; social standards to be upheld in oil- and gas-producing countries

STAGE OF VALUE CHAIN

Production (9,300 FTE¹)

Mining of lignite in our own opencast mines, purchase of hard coal, gas, nuclear fuels and biomass, oil and gas exploration and drilling

KEY FACTS

Production 2011

- 5 lignite opencast mines (10,848 hectares)
- 103.8 million metric tons of lignite
- 391 terawatt-hours (TWh) primary energy consumption²
- 2,664 million m³ production of natural gas
- 2.48 million m³ production of oil



CHALLENGES

Promotion of more liquidity and transparency on energy wholesale markets; respect for human rights and the environment all along the value chain

STAGE OF VALUE CHAIN

Supply and trading (1,600 FTE¹)

The supply and trading of electricity, gas, coal, oil, CO₂ certificates and biomass-based renewables in physical and derivative forms; economic optimization of facilities, long-term contracts and gas supply contracts

KEY FACTS

Trading volumes 2011

- 1,435 TWh electricity
- 753 billion m³ gas
- 618 million barrels of oil
- 644 million CO₂ certificates



CHALLENGES

Swift and sustainable reductions in our CO₂ emissions; more efficient electricity generation; a more flexible generation portfolio

STAGE OF VALUE CHAIN

Power and heat generation (14,700 FTE¹)

Operation of power stations based on lignite, coal, gas, nuclear power, renewable energies and to a lesser extent on waste and oil; use of pumped-storage and run-of-river power plants

KEY FACTS

Electricity generation (2011: 205.7 TWh³)

- 74.1 TWh lignite
- 47.8 TWh hard coal
- 34.3 TWh nuclear power
- 38.5 TWh gas
- 8.8 TWh renewables
- 2.2 TWh other⁴



CHALLENGES
 Reliable grid operations without disruptions; grid expansion for the integration of renewables; non-discriminatory access for all users; residents' interests to be factored in when enlarging the grid

STAGE OF VALUE CHAIN
Transmission⁵
(800 FTE¹)

Operation and maintenance of a 2,460 km gas transmission grid (8–100 bar)



CHALLENGES
 Uninterrupted supply of electricity and gas; development of a smart grid to integrate renewable energies; protection of birdlife and nature conservation; residents' interests to be factored in when enlarging the grid

STAGE OF VALUE CHAIN
Distribution
(9,400 FTE¹)

Operation and maintenance of a 404,200 km electricity distribution grid (0.4–110 kV) and an 91,500 km gas distribution grid (0.02–70 bar); operation of 14 gas storage tanks with a working volume of 5.9 billion standard cubic metres of gas



CHALLENGES
 Affordable, flexible and needs-based products; development of electro-mobility infrastructure; greater range of products and services to promote energy efficiency

STAGE OF VALUE CHAIN
Sales and use
(29,600 FTE¹)

Supply of electricity to 16.4 million residential and commercial customers and gas to 7.8 million residential and commercial customers; supply of 113 TWh electricity and 129 TWh gas to industrial customers, as well as consultancy services

KEY FACTS
Electricity and gas supplies
16.4 million residential and commercial customers electricity
7.8 million residential and commercial customers gas
113.1 TWh electricity to industrial customers
129.2 TWh gas to industrial customers

¹) FTE = full-time equivalents; other employees: 6,700 FTE

²) Fossil fuels used

³) Including electricity procured from power stations not owned by RWE that we can deploy at our discretion on the basis of long-term agreements. In fiscal 2011 this

amounted to 22.9 billion kWh, of which 20.8 billion kWh were from hard coal.

⁴) Pumped-storage and oil-fired power stations and waste incineration plants

⁵) Gas transmission system operator NET4GAS (Czech Republic) is an independent company

Corporate Responsibility Strategy



Our Corporate Responsibility Strategy (CR) ensures sustainable corporate governance at RWE. This strategy is based on ten areas for action that we manage using concrete targets and quantifiable indicators.

More sustainable, more robust, more international. These are the cornerstones of the RWE strategy. We are committed to making sustainable corporate governance a fixed element in the operating management of the company by 2020. Our roadmap 'Sustainable Corporate Governance' will help us to achieve this. The roadmap presents our development since 1998 and reflects our objective for the coming years until 2020. We are making sustainable development quantifiable and controllable by focusing on ten areas for action and introducing an indicator system.

Corporate Responsibility Roadmap					
	Launch (1998–2000)	Structuring (2001–2005)	Implementation (2006–2010)	Role of CR driver (2011–2015)	Best in class (2016–2020)
Strategy	Group Directive environmental management	Group CR guidelines CR strategy	Review of CR areas for action Embedding of CR in all business areas	Continuous updating of the CR areas for action	CR an integral part of Group strategy
Coordination and management	Permanent staff of environmental officers Introduction of Environmental Reporting and Information System	Introduction of occupational safety management system Introduction of Group-wide Code of Conduct	Key performance indicators concept for CR Group-wide CR implementation	CR as integral part of agreement on targets Regular reporting on KPIs	CR an integral part of operations management
Reporting and dialogue	1 st systematic environmental report Inclusion in Dow Jones Sustainability Index	Convention on the future of sustainable development 1 st CR report	Institutionalised stakeholder dialogue Corporate volunteering	Industry leader in transparency	High level of acceptance in society

We are consistently pursuing this route of making corporate governance quantifiable and controllable. We have therefore linked part of the performance-based remuneration for the Executive Board to achieving the CR targets. The evaluation is carried out by the Supervisory Board of RWE AG. CR aspects are also channelled into the balanced scorecards of the operating companies. So far we have always achieved our targets and we have a track record of continuous developments. We will channel all our energies into making Corporate Responsibility a constituent element of the operational company management by 2020.

Openness, dialogue and stakeholding are the essential aspirations of the community for large companies. We want to live up to this aspiration. Large sections of society continue to be very critical of our position on a number of issues. This is why we want to expand dialogue and achieve a high level of acceptance for our actions in the community by 2020.

Issues and Challenges

Key issues and challenges have been bundled into ten areas for action. We have been tracking and controlling our ten areas for action since 2007. We already took account of the aspirations of our stakeholders and the key challenges from the perspective of our company when we developed the areas for action. We have organised a number of multistakeholder forums and engaged in a large number of discussions with the aim of gaining a better understanding of the interests of our stakeholders.

The targets are regularly analysed and developed. At the beginning of 2012, we amended our climate protection strategy. This was due to the new political and economic framework conditions which resulted from the ambitious objective of exiting from nuclear energy and the change in energy policy in Germany. We also report on this in the area for action Climate Protection. ([> area for action Climate Protection](#))



The objectives of the other areas for action have essentially remained unchanged. We will report on implementation in our CR Programme. ([> CR Programme](#)) The areas for action sometimes have overlaps. We look at the links between the different areas for action at the relevant places in our report.



Our ten areas for action define the CR Strategy for the entire RWE Group. Some areas for action or parts of them are intensively focused on Germany. But we will also integrate our international companies over the coming years.

Materiality analysis 2011

The materiality analysis enables us to track the relevance of the individual areas for action to our stakeholders and for RWE. We evaluate any changes and take action by adopting appropriate measures where this is necessary.

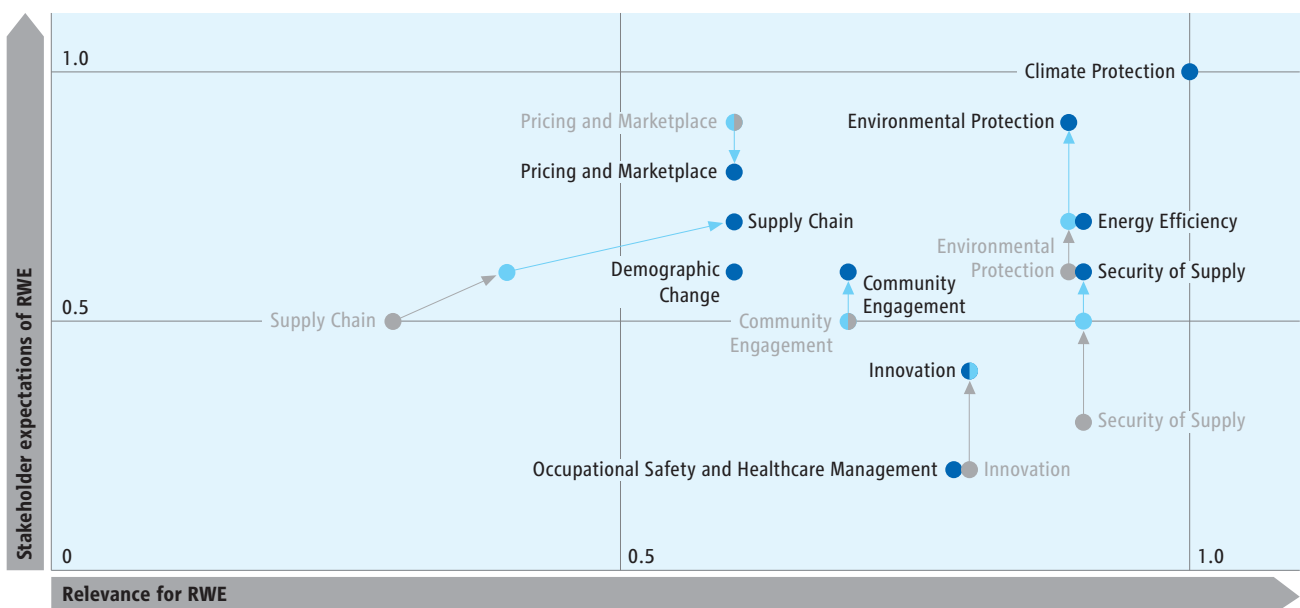
The issues of climate protection, energy efficiency and security of supply have continued to attract attention in the public domain as a result of the energy revolution within Germany. However, this debate in Germany is also impacting on our European neighbours and the political landscape of the European Union.

We are also observing a significant increase in the scrutiny of our stakeholders when it comes to the issue of the supply chain, particularly with reference to the purchase of hard coal and use of biomass. RWE has therefore defined principles for the procurement of biomass and taken measures to improve transparency in the sourcing of hard coal.

The discussion of our pricing policy calmed down in 2011. When it comes to the construction and operation of all types of plant, our stakeholders have continued to demand greater safeguards for the protection of people and the environment. We are attempting to ensure acceptance for the construction and operation of our plants by taking future-proof action and engaging in dialogue with our stakeholders.

The measures we adopt in the area for action of Social Responsibility also contribute towards acceptance of our actions. Our stakeholders and European politicians have been paying increasing attention to the issue of social engagement. This has motivated RWE to continue to maintain this engagement at a constantly high level. The same principle also applies to the other areas for action where we have observed no substantial change in relevance during the year under review.

Material issues 2011 in comparison with the previous years



Our CR management

Deputy Chief Executive Officer Peter Terium is the CR Coordinator for Corporate Responsibility in the RWE Group. He is directly responsible for the Corporate Responsibility/Environmental Protection Department which bears responsibility for all specialist issues in this field. The department is responsible for identifying all key developments relating to the issue of sustainability at an early stage and evaluating their relevance to the RWE Group. The stakeholder dialogue pursued by the department mainly at national and international level is also directed towards this objective.

The Corporate Responsibility/Environmental Protection Department also takes up new issues and develops appropriate solutions together with the specialist sections of the company. Examples of such issues include the biomass principles or the ongoing evaluations of biodiversity.

The Corporate Responsibility/Environmental Protection Department also supports other organisational units in dealing with aspects relevant to CR within their areas of activity. One example relates to early acknowledgment of stakeholder interests even before final investment decisions are made. Another focus of our CR management is analysing developments in the ten areas for action. We have developed appropriate indicators for this purpose. A top priority is ensuring that the same principles of quality are applied to recording these principles as the other indicators used to manage the company. This is achieved by developing binding definitions and process descriptions.

The Corporate Responsibility/Environmental Protection Department coordinates cooperation between the companies and specialist departments. Meetings with the CR Officers of the companies within the RWE Group are held at least twice a year. These meetings are used to reach agreement on key CR aspects and serve as forums for exchange of ideas and experiences.

Other management systems

The ten areas for action show that Corporate Responsibility is very broadly based in the RWE Group. The specialist departments have developed dedicated, tailor-made management systems to cover the associated functions in their areas of responsibility.

Environmental protection

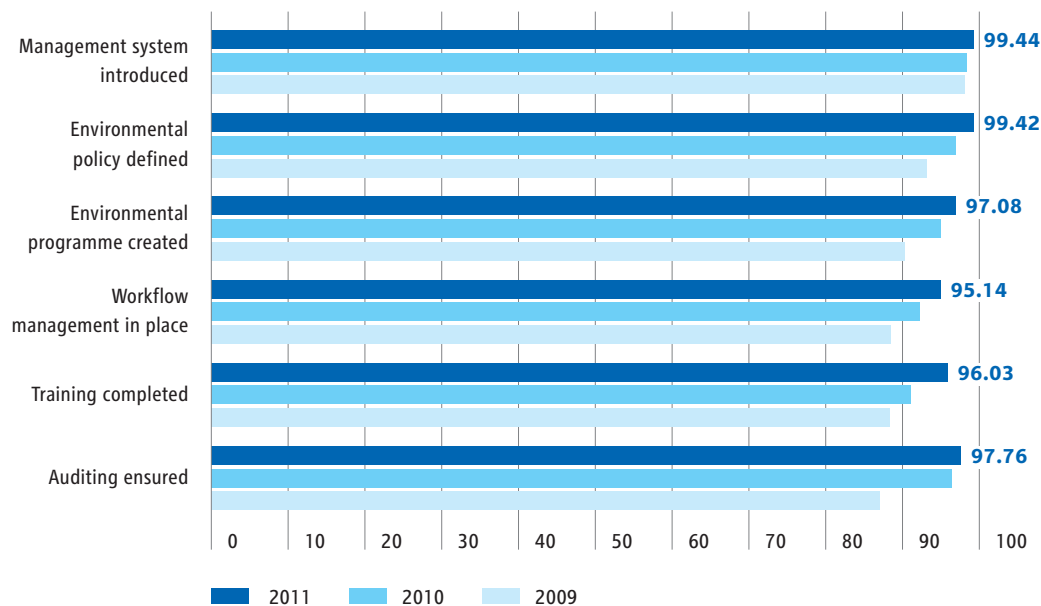
Environmental protection at the RWE Group is organised at a local level. Our companies are legally independent entities and they are responsible for environmental protection in accordance with their activities and the valid statutory requirements. Since 1998 all the companies in the RWE Group have been committed to setting up an environmental management system which is appropriate for their activities and challenges. Our environmental management system is based on the requirements of the international standard ISO 14001.

The environmental management system in the RWE has a proven track record and achieved a coverage of 99.4% in 2011. The Corporate Responsibility/Environmental Protection Department carries out an annual audit of the management companies in the RWE Group to assess the extent to which they meet the requirements of the Group guideline on environmental management. A review is also carried out to establish whether the companies meet their obligation to carry out inspections of the subsidiary companies. This ensures that environmental management systems are established and monitored in all the companies of the RWE Group. The companies in the RWE Group are also free to choose whether to have their environmental management system certified entirely or in parts in conformity with ISO 14001 (see table). Our companies have also had their quality management systems certified in conformity with ISO 9001 where we believe that this is necessary.

Environmental management implementation in the RWE Group

Audit results 2009–2011

Workforce coverage in percent



External certification in the RWE Group				
	Full-time equivalents	Environmental management (ISO 14001 bzw. EMAS)	Quality management (ISO 9001)	Occupational health and safety management (OHSAS and others)
		in %	in %	in %
RWE Power	15,371	37.2	12.0	91.7
RWE Technology	138	100.0	100.0	0.0
RWE Germany AG	20,397	24.9	8.8	26.2
RWE East	11,328	47.5	48.0	48.0
RWE Netherlands, Belgium	3,794	15.8	0.0	0.0
RWE npower	12,053	100.0	0.0	0.0
RWE DEA	1,362	75.4	75.4	75.4
RWE Supply&Trading	1,562	0.0	0.0	0.0
RWE Innogy	1,493	0.0	0.0	27.5
RWE IT, Service, Consulting	4,067	0.0	0.0	0.0
RWE AG	496	0.0	0.0	0.0
RWE Group	72,068	41.6	14.2	36.5

Occupational health and safety

Group-wide coordination of occupational health and safety is handled by the Occupational Safety and Occupational Medicine/Healthcare Management competence centres set up in 2009. They report directly to the HR Director of RWE AG. The strategy and measures taken to improve occupational safety are agreed in an international occupational safety forum. Important sections of the RWE Group have had their occupational safety management inspected and certified in conformity with OHSAS 18001 or comparable standards by independent third parties. Only the German companies are involved in the coordination of occupational healthcare management at present. The extension to the entire Group is planned for 2012.

Compliance

RWE does not tolerate any corruption or other breaches of compliance. Corruption has the potential to cause the company substantial material damage as well as entailing associated serious reputational risks. RWE has therefore been building up a group-wide system of Compliance Management since 2009. The main focus is on raising the level of awareness and prevention. The aim is to prevent corrupt behaviour by employees or executive officers of the company right from the start.

The principles for compliant behaviour and practices are described in the Code of Conduct. This was introduced by RWE in 2005 and has been distributed to all members of the workforce. Guidelines on preventing corruption also apply throughout the Group. The guidelines take account of our key business activities and include regulations relating to dealings with holders of public office and business partners, expenditure on donations and sponsorship measures and handling contracts with consultants.

Compliance management throughout the Group is handled by a dedicated Compliance Department set up specifically for this purpose in 2009 and headed by a Chief Compliance Officer. He reports directly to the Chief Executive Officer of RWE AG. A Compliance Officer has been appointed in all the operating companies throughout the Group. If members of the workforce identify possible cases of non-compliance with the Code of Conduct and they do not wish to address these breaches with their supervisor or Compliance Officer they can contact an independent external ombudsman. Any inquiries will be treated in strict confidence and will be handled anonymously if requested by the employee. Since 1 April 2011 there has been a new, group-wide uniform external ombudsman. Since the beginning of 2012, this external contact has been available to employees of the RWE Group as well as accepting inquiries from external operatives, for example suppliers and other business partners.

It is important for all members of staff to develop an awareness for the critical parameters in their working environment. This is why we communicate all important information about compliance, such as reference standards or contact data for the Compliance Officers of our companies and the external ombudsman. Regular newsletters, articles in our staff newspaper and information events provide conduits for informing our employees and raising their level of awareness. Our workforce also receives training through an intranet-based training programme and at presentation events. Participation is obligatory and calibrated according to the risk of corruption associated with the relevant activity. In 2011, we continued to implement a process of ongoing training on corruption prevention.

We set up a group-wide database in 2010 to deliver comprehensive documentation of all compliance-sensitive procedures. This stores all information and documents relating to expenditure on donations and sponsorship, compliance-relevant contracts with consultants, and promotional gifts to holders of public office from a specified amount. This database safeguards the maximum possible transparency within the company for all transactions relevant to compliance. It also offers our employees comprehensive advice and support in processing the defined transactions through help options and links to the relevant Group guidelines. The obligation to use the Compliance IT Tool ensures that statutory regulations and internal guidelines within the Group are complied with. It also provides employees with greater protection against any infringements of the law

The Group Audit Department carries out regular preventive Compliance Audits to review the effectiveness of our Compliance Management. The Group Audit Department also consistently follows up any information on potential breaches of compliance. If necessary, the compliance officers then initiate measures to remedy the situation. If personal misconduct is involved, the entire spectrum of measures under employment law may be involved, up to termination of the employment relationship. Notifications of compliance breaches were dealt with by the Compliance Department of RWE AG and various measures were taken to remedy the infringements.



[> RWE Code of Conduct](#)

Innovation management

The projects being carried out at the RWE Group in Research and Development are determined by the current and future requirements arising from our core business. We assess the benefits of all measures on the basis of uniform criteria. Improvements in the conservation of resources, environmental protection, security of supply – and not least – retention of our competitiveness are the top priorities. They are coordinated by the central Group Research and Development Department which reports to the Board Member responsible for commercial controlling. The department also coordinates the large number of joint ventures we have with universities and the endowed professorships.

Crisis management

More than 99.7% of our workforce is employed in Europe and the USA. This means that they are based in countries with a very high level of political and social stability. RWE Dea also employs people outside Europe in North Africa and Central Asia. We continually analyse the security situation in these regions using security analyses drawn up by the Foreign Office and information that we source directly on the ground. We have developed appropriate crisis and emergency plans for potentially unstable countries and these plans will enable us to provide a rapid response if a crisis erupts. These plans also enabled us to respond so quickly to the political developments in Egypt and Libya in 2011 and safeguard security for our employees there. After the political situation deteriorated, we were able to evacuate 97 employees and their families from Egypt and 40 employees from Libya. Our employees and their families were already able to return to Egypt in the spring of 2011. Members of staff from Libya were unable to return there in 2011 on account of the difficult security situation.

Stakeholder dialogue

Our stakeholder dialogue essentially takes place on two levels. Our key contacts are national and international academics, union representatives, journalists, politicians, lawmakers, analysts and investors as well as non-governmental organisations (NGOs). Our regional stakeholders include local communities, residents around our sites, customers and members of our workforce. We want to identify issues relevant to corporate responsibility at an early stage through intensive communication with all our stakeholders and take appropriate action. We incorporate all the stakeholders affected by our projects at regional level so that their interests and concerns can be taken into account right from the outset. We are also in regular dialogue with universities and other research institutes, with the aim of tracking all new cutting-edge developments and trends impacting on sustainable corporate governance. The ultimate aim is to play a leading role in structuring these trends.

Germany

The energy transition in 2011 brought about a fundamental change in the framework conditions for our business activities in Germany. RWE is playing a proactive role in structuring this radical change in direction for energy. This involves us in an intensive and ongoing dialogue with our stakeholders. Infrastructure projects necessary to progress the expansion of renewable energy demand early integration of the residents and local communities affected. This is the only way of creating the acceptance essential for the necessary infrastructure and implementation of the key measures. Over the long term, we also want to enhance confidence and trust in our company.

RWE Power therefore set up a 'Nachbarschaftsforum' (Neighbourhood Forum) in Niederaußem near Cologne where neighbours can discuss all aspects relating to the planned new construction of the 'Optimised Unit Plus' (BoAplus). We have a 50% holding in utility company Schluchseewerke which is planning to build a pumped-storage plant in Atdorf/Black Forest. We set up a 'Runder Tisch' (discussion forum) to ensure that local residents and public representatives could be integrated at an early stage. The discussion is moderated by an external moderator.



- > [Nachbarschaftsforum Niederaußem \(Neighbourhood Forum Niederaußen\).](#)
- > [Runder Tisch \(Discussion Forum\) Atdorf.](#)

United Kingdom

Our British subsidiary RWE npower maintains and expands relations with many different stakeholders who are crucial for electricity generation and distribution. These include the British government, the regulatory authorities, customers, employees and members of the public.

An independent external perspective on the CR issues and dealing with them is therefore a key element for controlling in Corporate Responsibility and at RWE npower. This is why an independent, external chairman heads the CR Committee. The Executive Board and the management of RWE npower are represented on the committee.

In 2010, RWE npower established a 'Customer Stakeholder Council'. Members of the Executive Board of RWE npower discuss the products and service provided by RWE npower with leading representatives of consumer organisations on this stakeholder council. The council provides ideas on how offers and services, as well as the relationship with stakeholders can be improved. Other areas involve RWE npower in working with pivotal external stakeholders. Our aim in adopting this approach is to take account of different perspectives on key issues for our company and be in a position to deal with these issues more successfully. For example, we work together with National Energy Action to enable us to reach vulnerable customers more effectively.



[> More on National Energy Action](#)

RWE npower is proud to have received the prestigious award CommunityMark from Business in the Community for another three years. This national standard salutes companies which have made a positive impact on society through their long-term commitment.

When we are planning and constructing new power stations, our subsidiary RWE npower cooperates closely with local authorities and stakeholders in the area. We want to ensure that their viewpoints are included in the mix. We organise citizens' meetings with representatives from the various interested local groups. Projects are discussed at the meetings and information is provided on their progress. We also organised residents' meetings like this while the Combined-Cycle Gas Turbine (CCGT) power stations are being constructed at Staythorpe and Pembroke. We also discuss the use of biomass at our converted Tilbury power plant with non-government organisations.

Netherlands

The origin of coal for power stations is a matter of wide concern in the Netherlands, with non-governmental organisations, in politics, the media and initiatives from industry relating to a sustainable economy. In 2010, traders, power-plant operators, non-governmental organisations and representatives from the Dutch government came together with the involvement of Essent to engage in a 'Coal Dialogue'. The central issue related to the way in which the global coal market operated and the special features in the procurement process. A second phase was initiated in the summer of 2011 in order to continue this constructive dialogue. The primary focus was on how transparency can be created for the procurement of hard coal. The dialogue was continuing when this report went to press.

The political system in the Netherlands is an important stakeholder on the path to sustainable corporate governance. Essent therefore takes part in the Green Deals launched by the Dutch government. The government supports selected projects with particular emphasis on reducing regulations and bureaucratic obstacles. The selected projects must contribute to energy efficiency, renewables, green traffic concepts and sustainable production and consumption. Essent has concluded two Green Deals with the Dutch government. One project involves Essent in cooperating with a dairy business and a trading company for green gas. The aim of the project is to test the generation and supply of biogas. The biogas is generated from the cattle dung. Another project plans to reactivate the Cuijk biomass

plant and operate it with home-grown, sustainable biomass. Two universities and a certification office were recruited as partners. The objective of both projects was to investigate the extent to which this form of sustainable gas and electricity generation has potential for the future.

Essent set up a Corporate Responsibility Council with five external and independent experts drawn from academia, business, politics and consultancy companies with the aim of gaining a better understanding for the aspirations of external stakeholders. The CR Council discusses all the projects and ideas with the Chief Executive Officer as well as debating the conflicting aims of the company. The council met with the CEO three times in 2011.

Central and Eastern Europe

The interest of stakeholders in Poland is primarily focused on the services provided by the energy utility companies. In 2011, RWE Polska published the RWE Energy Market Barometer. This barometer is used to analyse the extent to which the energy markets in Central and Eastern Europe are focused on customer orientation. The results are presented officially in the public domain and discussed with opinion leaders.

RWE Polska was itself the first Polish company to receive the 'Dobra Umowa' (Good Contracts) award. This accolade is granted to companies who have particularly customer-friendly contractual conditions.

Our national company in the Czech Republic has particularly been engaged in the discussion with politicians about the national energy concept in 2011. At the request of the government, RWE contributed its expertise to the debate and recommended increasing the proportion of natural gas in the energy mix for the Czech Republic. In our view, this is the most cost-effective and environmentally friendly solution.

RWE has been operating in Turkey since 2009. Since then we have been systematically expanding relationships with our stakeholders here. We invited the local press to the construction site of our new Denizli power plant and provided them with information about the construction of the power station and about our company as a whole. We are keeping the local press and the local administrative authorities regularly informed about the progress of construction work at the power station with the aim of engaging in an ongoing dialogue. We are also engaging in intensive dialogue with the local people. We are building up our social engagement with this aim in mind. ([-> Community Engagement](#))



[Community Engagement](#)

Dialogue with customers and investors

Customers and investors are important stakeholders. They exert a very direct influence on our business success – through their selection of tariffs marketed by RWE or by their investment decisions. We are also engaged in intensive communication with them: The Customer Council of RWE Vertrieb AG and the RWE npower Customer Stakeholder Council are two examples of this interaction. Direct communication with stakeholders enables us to improve relations with our customers and review measures for enhancing customer satisfaction. The members of our Customer Council also provide us with valuable ideas on new products and services. ([-> Pricing and Marketplace](#)).



Rating agencies and analysts specialised in sustainable investments are an important link to potential investors. We publish the data and information they need not only once a year in our annual CR Report but also, for example, by completing their very detailed questionnaires throughout the year. Direct dialogue is backed up with company presentation and one-on-one talks with analysts and investors focused on sustainability. RWE has been listed in the Dow Jones Sustainability Index since its inception in 1999. We are also diligent in completing the annual questionnaires of the Carbon Disclosure Project (CDP) on both CO₂ emissions and water consumption. The Carbon Disclosure Project is supported by more than 650 influential banks and investment companies on the global stage.

Dialogue with policymakers

Political decision-making is formed by the dialogue between policymakers and various lobby groups. We believe that industry should be represented in this dialogue to the same extent as all other social groupings. We believe it is important that all aspects of this dialogue are transparent. In 2010, we had ourselves added to the voluntary register of lobbyists maintained by the European Commission. This involves us in disclosing the sums we spend on lobbying and the positions we hold in political discourse, and placing this information in the public domain. We maintain liaison officers to support dialogue with policymakers in Brussels, Berlin and London.

Energy issues are meanwhile discussed on a broadly based social and political level. In Germany, these also include representatives of the Church alongside other important players.

RWE has expanded international cooperation with political organisations like the United Nations and the World Bank. While RWE held the Chair of the Global Sustainable Electricity Partnership (formerly known as the e8 Initiative for Sustainable Energy Supply), the issue of 'Public Private Partnership' was the focus of attention for sustainable electricity supply, especially in developing countries.



[> EU Transparency Register](#)

German Sustainability Index

The Council for Sustainable Development set up by the German Federal Government intends to use the Sustainability Code to create more transparency for the sustainability services specifically provided by companies. It adopted the German Sustainability Code (GSC) in the autumn of 2011. RWE supports the code and also played a role in its development.



[> RWE Statement on the Sustainability Code](#)

Our memberships

Another aspect of our stakeholder dialogue is our proactive membership of national organisations such as econsense – the Forum for Sustainable Development of German Business, Business in the Community in the United Kingdom and MVO Nederland in the Netherlands.

International standards

We are committed to the principles of the UN Global Compact and RWE AG has joined the German Global Compact Network on behalf of the Group as a whole. Our subsidiaries in the Netherlands and Poland have also joined their national networks and are contributing to progress in implementing the principles of the UN Global Compact in those countries. We have agreed a 'Sozialcharta' (Social Charter) with the European Works Council for the RWE Group. We make a commitment in this charter to comply with the principles of the International Labour Organization (ILO).

When we invest abroad we comply with the principles of the OECD Guideline for international companies. Our subsidiary companies RWE Dea and RWE Technology, which both also operate outside Europe, have stated that they comply with the guidelines of the International Finance Corporation (IFC) when they construct new power stations. These guidelines include requirements for complying with environmental and social standards in the realisation of projects.

CR Programme

Climate protection					
We are committed	KPI	Target	Due	Action	Status 31. Dec. 2011
... to significantly reducing the CO ₂ intensity of our generation portfolio.	- CO ₂ emissions in metric tons per megawatt hour of electricity generated (mt CO ₂ /MWh)	- 0,62 mt CO ₂ /MWh	2020	- New building of 7,219 MW gas-fired, 2,100 MW lignite-fired and 3,088 MW hard coal power stations plus an additional 4,500 MW from renewables either under construction or in operation until 2014	- 3,160 MW gas-fired power stations, 2,100 MW highly efficient lignite-fired power stations put into operation or in commissioning; all other newbuilds in progress. 95 MW renewables in operation; CO ₂ Intensity 0.787 mt/MWh
Energy efficiency					
We are committed	KPI	Target	Due	Action	Status 31. Dec. 2011
... to increasing both our own energy efficiency and that of our customers.	- Increase in energy efficiency in %	- RWE power plants: average energy utilisation ratio 42% by 2014 - RWE fleet of vehicles: 20% by 2012 - RWE real estate: 5% by 2012 - RWE customer projects: 8% by 2012	2012/ 2014	- Power station modernizing programme - Implementation of 'Green Car policy' - Energy-conserving modernisation of buildings - Customer advice, smart meters/Smart Home, - Contracting models for municipal utilities and industry	- average energy utilisation ratio 41.3% - 18.1% reduction in specific fleet consumption of cars since 2009 - 19% energy savings from modernising buildings - 9.4% energy savings in households through the 'Cleverer Kiez' project
Innovation					
We are committed	KPI	Target	Due	Action	Status 31. Dec. 2011
... to ensuring the availability of the best solutions for our purposes in our core processes through innovations.	- Degree of coverage and communication of strategically relevant questions in %	- at least 95%	2011/ 2014	- Sample projects: carbon capture, CO ₂ usage, improvements in power station efficiency, Off-shore wind power, solar thermal power, compressed air energy storage, smart grids, smart meters, SmartHome	- centralised coordination of R&D issues as well as coverage of the strategically relevant questions ensured; R&D management covers 97.4%
Security of supply					
We are committed	KPI	Target	Due	Action	Status 31. Dec. 2011
... to supplying our customers with the energy they need at all times.	- System Availability Interruption Duration Indicator (SAIDI) in minutes per year and customer	- SAIDI < 30 mins from 2013 (Germany only)	from 2013	- Approx. €25 billion group-wide for grid renewal, expansion and operation in the period 2009 to 2019	- SAIDI (2010): 21.9 mins per customer per year (Germany only)

Supply chain					
We are committed	KPI	Target	Due	Action	Status 31. Dec. 2011
... to avoiding reputational risks by making compliance with internationally recognised social and environmental standards an integral part of our supply contracts.	- Supplier management coverage in all procurement areas in %	- at least 95% of annual purchase volume	2013	- Adding CR criteria in the general terms and conditions - Extend dialogue with our stakeholders regarding the purchase of coal and biomass (Bettercoal, Dutch Coal Dialog) - Development of CR principles for procurement of goods	- Supplier management coverage 92.8% - Founding of the sector initiative 'Bettercoal' - Principles for the procurement of biomass implemented
Pricing and marketplace					
We are committed	KPI	Target	Due	Action	Status 31. Dec. 2011
... to having satisfied and hence loyal customers.	Customer Loyalty Index	Customer Loyalty Index of min. 73	2013	- Regular surveys	- Customer Loyalty Index of 73
Demographic change					
We are committed	KPI	Target	Due	Action	Status 31. Dec. 2011
... to ensuring the long-term availability of sufficient numbers of suitably qualified personnel.	Demography Index	Demography Index of min. 84	2011/ 2014	- Continue recruitment of young people as needed - continue human resources policy geared to different life phases	- Demography Index of 84.2
Occupational health and safety					
We are committed	KPI	Target	Due	Action	Status 31. Dec. 2011
... to ensuring that all our own and our subcontractors' employees return home just as healthy at the end of the day as they were when they arrived for work. ... to maintaining our employees' productivity.	- Number of accidents leading to the loss of at least one person day per million working hours (LTI _F = X/1.000.000 h) - Introduction of the Work Ability Index (WAI) in %	- LTI _F of max. 2.7 by 2013 - Most employees of companies based in Germany have access to some means of measuring their personal WAI	2014	- Ongoing implementation of 'Sicher vorWEg' (the Energy to Lead Safely), safety pass introduced for all construction sites, inclusion of contractors' employees in accident statistics, further development of occupational health contractor management - WAI to be introduced across Germany and the results evaluated	- LTI _F (own staff): 2.8; contractors included in accident statistics, LTI _F (contractors): 4.1 - around 70% of the German staff have access to the WAI

Environmental protection					
We are committed	KPI	Target	Due	Action	Status 31. Dec. 2011
<p>... to operating our plant safely and in compliance with licensing regulations at all times.</p> <p>... to 100% implementation of our environmental management system to ensure that our plants and grids are operated in compliance with legal requirements at all times.</p>	<ul style="list-style-type: none"> - Compliance with licensing requirements in % - Group-wide environmental management coverage in % 	<ul style="list-style-type: none"> - 100% compliance - 100% coverage 	2011/ 2014	<ul style="list-style-type: none"> - Monitoring and optimising plant management - Installation of an environmental management system in all new companies, regular internal audits 	<ul style="list-style-type: none"> - No significant deviations from environmental protection laws and licensing regulations - Environmental management covers 99.4%
Community engagement					
We are committed	KPI	Target	Due	Action	Status 31. Dec. 2011
<p>... to strengthening our regional reputation by making efficient use of resources.</p>	<ul style="list-style-type: none"> - Reputation Index 	<ul style="list-style-type: none"> - Best reputation in our peer group 	2011/ 2014	<ul style="list-style-type: none"> - Systematic development of regional level community engagement - extension of Corporate Volunteering - focussing of activities of foundation 	<ul style="list-style-type: none"> - Best reputation in our peer group

Climate Protection

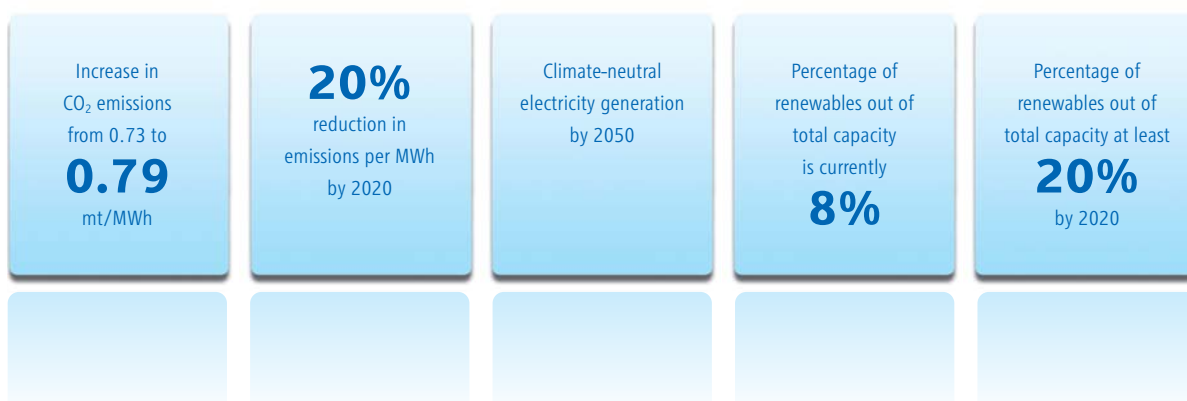


Our long-term goal of achieving a climate-neutral power supply by 2050 poses enormous challenges. We need to restructure our portfolio of power plants over the long term and at the same time safeguard reliable and affordable generation of electricity.

Generating electricity with declining emissions of CO₂ is a key element of our Group strategy 'More sustainable, more international, more robust'. By 2020, we want to increase the proportion of renewables in our generating capacity to at least 20%. Relatively low-carbon generation of electricity from gas will then be the greatest share of generation projected at around 40%. By 2014, our power-station renewal programme for conventional power stations is projected to have been completed. We will then have brought on stream new, advanced gas and coal-fired power stations with a total capacity amounting to some 12,400 megawatts (MW). We are also investing in the expansion of renewable energy. In the period from 2012 to 2014, we also want to invest some €4 billion in renewables.

Our goal: By 2020 we want to reduce the CO₂ emissions from our power station portfolio by more than 20% per megawatt hour (MWh) of electricity. In the reference year 2005 when European emissions trading started, we emitted 0.79 metric tons per MWh. Our target is 0.62 metric t/MWh. Originally, we wanted to bring down the emission factor to 0.45 metric tons per MWh by 2020. However, the accelerated exit from nuclear energy in Germany necessitated an adjustment to our objective.

OVERVIEW OF THE MOST IMPORTANT FACTS:



Last year we had to decommission 2.4 GW capacity of carbon-free electricity generation with the Biblis A and B units. At the end of 2017, another 1.3 GW will leave the grid with Gundremmingen B. At the same time, we have increased the deployment of our coal-fired power stations, and our CO₂ emissions rose accordingly: in 2011 our power stations emitted 0.79 metric tons of CO₂ per MWh compared with 0.73 metric t/MWh in 2010. The shutdown of the nuclear power stations means that we will also lose revenues which were earmarked in part for expansion of renewable energy. Nevertheless, we are continuing with the expansion of our generating portfolio at the level of previous years.

Technical platform

The expansion of renewable energy and the modernisation of the fossil-fired power station portfolio are the most important prerequisites for achieving our targets for climate protection. At the same time, the fossil-fired power stations have to become more flexible in order to be able to respond to the fluctuating feed-in from renewable energy and to guarantee the priority feed-in of renewables to the grid. This includes being able to operate power stations with reduced output when electricity generated by wind power is available, or taking them entirely out of the grid at short notice. At the same time, we also need to have adequate substitution and balancing capacities if insufficient electricity is being generated from wind farms or solar energy due to the prevailing weather conditions



(> [area for action Security of Supply](#)).

Any such change in generating structure is not without significant impacts on the operation of the grid. Power stations used to be constructed close to area's of consumption. Today, the amount of wind and sun affects the choice of location for plants generating electricity for renewable energy. Wind farms are therefore mainly constructed on the coast or in the sea where wind is more regular on average and wind speeds are higher. If a large amount of wind power is available, this electricity needs to be transmitted to the main centres of consumption. This transmission is therefore generally from the coastal regions to inland areas. Meanwhile, an increasing number of consumers are themselves turning into electricity producers. People installing photovoltaic systems start generating electricity and this means that a large number of small, distributed plants have to be connected up and integrated in the grid. Our distribution grids have to be modified to match this new form of generating electricity. New storage capacities are also necessary. RWE believes that the quality of the electricity supply is therefore primarily determined by the factor security of supply (> [area for action Security of Supply](#)).



(> [area for action Security of Supply](#)).



Innovative technologies for storing electricity and modified smart grids present a challenge for research and development (> [area for action Innovation](#)).

Expectations of stakeholders

A large number of stakeholders believe that protecting the climate is the most important area for RWE to shoulder responsibility. They are expecting a significant reduction in the CO₂ emissions generated by our power stations. Our stakeholders have well-defined preferences on how this should happen: primarily by expanding renewables. There is also a broad consensus in favour of combined-cycle gas turbine power stations (CCGT), because they allow flexible power-plant capacities to be created. However, there is no clear consensus in public opinion when it comes to building new coal-fired power stations. Some politicians and unions are in favour of building new more flexible coal-fired power stations. Other stakeholders, especially environmental associations, are strongly critical of any investments in new coal-fired power stations. The development and construction of coal-fired power stations incorporating carbon capture and storage (CCS) is promoted or advocated by some stakeholders – whereas these power stations are rejected by the vast majority of environmental associations and by some sections of the general public and some political groupings. This is despite the fact that these power stations could make a contribution to bringing down the CO₂ emissions produced during the generation of electricity.

Political and commercial framework conditions

The upgrading of energy infrastructure in the direction of sustainable supply is a European project rather than a national one. The national electricity markets are increasingly converging. The price for a CO₂ certificate is already uniform across Europe within the framework of the European emissions trading system EU ETS. However, strong increase in the amount of electricity supplied from renewables also reduces the demand for CO₂ certificates in the EU ETS for electricity from fossil-fired power stations. This will therefore trigger a reduction in price for the certificates. In our view, this is an indication that the market is working and exercising a controlling effect.

The differing subsidy conditions of individual countries and the local meteorological conditions are the key factor in reaching a decision on a site for expanding renewable energy. We decide to build wind farms where average wind speeds are high. A commercially viable source of fuel that is environmentally compatible primarily guides our decision regarding biomass. There is not enough cultivation area in Europe to provide large power plants with appropriate quantities of biomass. We are therefore looking for suitable areas across the world where it is possible to cultivate biomass profitably and sustainably.

International climate protection projects (CDM/JI) are a key building block in the drive to reduce global CO₂ emissions. Following agreement by the EU, the use of certificates to reduce greenhouse gases within the Kyoto mechanisms will remain a feasible possibility. It remains to be seen whether the amount that can be used in European plants is increased.

Target Attainment

Last year, we made progress in the renewal programme for our portfolio of power plants which projects a total of 12,400 MW new generating capacities. At the end of 2011, plants with a capacity of 2,600 MW had already been connected to the grid. A further 6,800 MW are due to come on stream this year. However, we have also lost 2,400 MW of carbon-neutral generating capacity through the shutdown of the two nuclear power units Biblis A and B. Expansion of renewables is ongoing. In 2011, capacity amounting to 95 MW came on stream. A further 1,200 MW are currently under construction. The proportion of renewables out of in-house generating capacity was around 8% at the end of 2011. However, it only contributed 4.3% to electricity generation (2010: 4.0%). Our specific emission factor was 0.79 metric t CO₂/MWh during the year under review, following 0.73 in the previous year.

Objectives in the area for action Climate Protection

We are committed	KPI	Target
... to significantly reducing the CO ₂ intensity of our generation portfolio.	CO ₂ emissions in metric tons per megawatt hour of electricity generated (metric t CO ₂ /MWh)	0.62 metric t CO ₂ /MWh

Modernising our power plant portfolio

Modernisation of our fossil-fired power plant portfolio is currently the most effective and most efficient option for RWE to reduce its own CO₂ emissions. Our objective is to achieve higher levels of efficiency and this will enable the amount of fuel used to generate each megawatt hour of electricity and hence the CO₂ emissions to be reduced. We are investing in new lignite-fired (2,100 MW), coal-fired (3,100 MW) and CCGT power stations (7,219 MW) to achieve this objective. They all have the maximum level of efficiency that can be achieved today in their category. We launched the process of modernising our power station portfolio with construction of the lignite-fired power plant with optimised plant technology 'Optimised Unit' (BoA1) in 1998. The construction of 'Optimised Units' (BoA 2&3) followed in 2005 and a start was made on building the new hard-coal units in Hamm and Eemshaven in 2007. We are investing a total of around €12 billion in new power plants in the period from 2006 to 2014. The new power plants are also significantly more flexible than older power stations. A CCGT power plant can be fired up to 100% output when it is hot within the space of a few minutes. Our modern hard-coal power stations, for example the plant in Hamm, Westphalia, or the new lignite-fired power stations in the Rhineland industrial area, are also significantly more flexible than the old plants. Their output can be increased or reduced at a speed of around 30 MW/min, almost as quickly as an advanced CCGT power plant. This means that our modernised and new power plants support the continued expansion of renewables and will make a contribution to the secure supply of electricity (> [More on flexible electricity generation in the area for action Security of Supply](#)).



Lignite

In 2011, we completed our lignite-fired dual-block power station with 'Optimised Units' (BoA 2&3) at our Neurath site near Cologne in Germany. When this report went to press at the end of February 2012, the power plant had already come on stream. The dual-block is the world's most modern power plant of its kind. The 'Optimised Units' (BoA 2&3) have a combined capacity of 2,100 MW with an efficiency of more than 43%. Conversely, a total of twelve 150 MW units will be shut down at the Frimmersdorf, Weisweiler and Niederaußem sites during the course of the year. By December 2012, all 16 of the 150 MW units located in the Rhineland lignite-mining region will then have been shut down. Some of these units were built in the 1960s and have correspondingly low efficiencies of just over 30%. The average efficiency of our lignite-fired power stations will rise from 33% today to around 36% in 2013 once optimised units BoA 2&3 come on stream. This means we will emit up to 6 million metric tons less CO₂ each year with comparable methods of electricity generation.

We are reviewing the opportunities for implementing a further increase in the efficiency of our portfolio of lignite-fired power stations by constructing a new 'Optimised Unit Plus' (BoAplus) at our Niederaußem site. This is intended to have an installed output of 1,100 MW and an efficiency of more than 45%. This is ensured by the first-time, commercial use of the procedure using fluidised-bed drying technology with integrated waste-heat utilisation. This procedure dries lignite particularly efficiently. Apart from purely lignite-fired combustion, up to 10% biomass can be used as a fuel. The project includes final shutdown of four older 300 MW units with a total output of 1,200 MW at our Niederaußem site which is more than the equivalent capacity. This will result in the CO₂ emissions

falling by 30% with the same electricity production compared with the units to be shut down. Construction of the 'Optimised Unit Plus' (BoAplus) would reduce our CO₂ emissions by a further 3 million metric tons each year. We are currently reviewing the commercial viability of the project and we are working on the license planning. We will take the final capex decision when the license has been received with full legal approval.



[> More on BoAplus](#)

Hard coal

Some of our hard-coal power stations have been in operation since the end of the 1960s or the beginning of the 1970s. We are therefore building new plants with higher efficiencies that will burn less fuel to produce the same amount of electricity. This cuts down CO₂ emissions because we are removing old power plants from the grid at the same time. RWE is currently building new hard-coal power stations in Eemshaven (Netherlands) and in Hamm, Westphalia. 20% less fuel is required with an efficiency of 46% and generation of the same amount of electricity than in older power plants. In 2011, we decommissioned two older power station units in Hamm with a total capacity of around 300 MW. The two new units in Hamm with a combined capacity of 1,528 MW are scheduled to come on stream in 2013 and the 1,560 MW hard-coal power station being built in Eemshaven is due to start operating in 2014.

Combined-cycle gas turbine power stations

Modern combined-cycle gas turbine (CCGT) power stations emit the least CO₂ per kWh of electricity generated compared with all conventional plants generating electricity. This is why our capex programme is focusing on this method of power generation. In 2010, we already brought power plants on stream at our power stations at Lingen (Germany) and at Staythorpe (United Kingdom) which have a capacity totalling around 2,600 MW. At the beginning of 2012, a further 1,730 MW of capacities were added at the Claus C (1,304 MW) and Moerdijk 2 (426 MW) CCGT plants in the Netherlands. Capacity is currently nearly 7,000 MW.

Two other plants are still under construction: The Pembroke power station in the United Kingdom with a capacity of 2,188 MW is to start operating in 2012. The startup of the 775 MW CCGT plant at Denizli in Turkey is planned at the end of 2012. It is intended to serve the growing demand for electricity in Turkey with low-carbon generating technology. All new CCGT power plants have an efficiency of more than 55%.

Renewables





We will be making investments of around €4 billion in renewables-based generation in the period from 2012 to 2014. The group-wide generating capacities based on renewables rose from some 2,500 MW at the end of 2009 to 3,744 MW at the close of 2011. 2,430 MW are located at our subsidiary company for renewable energy, RWE Innogy. In 2014, our aim is to achieve renewables-based generating capacity of 4,500 MW under construction or in operation at RWE Innogy in 2014. Capex cannot yet be financed from the renewables business itself and we therefore continue to be dependent on profits derived from conventional electricity generation. Although our income stream is lower due to the shutdown of nuclear power stations in Germany, we are continuing to maintain our targets for expansion. In 2020, the proportion of renewable energy in our generating capacity is projected at more than 20%.

Expansion of renewable energy is grouped at our subsidiary company RWE Innogy and electricity power plants generating a total of 4,500 MW are planned for construction or operation by the end of 2014. RWE Innogy is currently developing renewables projects with a total output of 13,900 MW. Plants with a combined capacity of 1,200 MW are currently under construction. We anticipate that these plants will be operating continuously starting from 2012.

Focus of expansion strategy

Our expansion of renewables is focused on mature technologies that are ready for market such as wind energy. Onshore wind farms at 44% currently make up the biggest proportion of our generating capacity from renewable energy. Offshore plants will be the dominant force for further expansion. Conversion of fossil-fired power plants to co-combustion of biomass forms another focus of expansion, through the conversion of fossil-fired power plants to co-combustion of biomass. Hydropower plants currently have a significant share of our generating capacities at 21%, although the potential for expansion in Europe has largely been exhausted. We are therefore pursuing a policy of constructing or purchasing capacities selectively. Although the proportion of solar energy in our portfolio currently remains very low, we perceive significant potential for expansion at locations in the Mediterranean region with plenty of sunshine.

Status of the biggest Renewable Energy projects

		Installed capacity in MW	Total capex in €billion	RWE share in %	To come on stream	2008	2009	2010	2011	2012	2013	2014
	Gwynt y Môr	576	2.4	60	2014							
	Greater Gabbard	504	1.9	50	2012							
	Markinch	45/88 ¹	0.3	100	2013							
	Nordsee Ost	295	0.9	100	2013							

¹ 45 MW_{el}/88 MW_{th}

Wind power

RWE has installed power output totalling around 1,650 MW of onshore wind energy in Germany (490 MW), the United Kingdom (335 MW), the Netherlands (201 MW), Spain (447 MW), Eastern Europe (108 MW) and Italy (67 MW). However Germany and the Netherlands have a particular shortage of suitable sites for significant expansion of this portfolio, although we continue to perceive potential for additional expansion at some sites such as in the Rhineland industrial region. In December 2011, we started construction work for a 20.5 MW wind farm at the Titz site. In Jüchen, a wind farm with 14 MW capacity is scheduled to follow in 2012. Spain is another growth region where we took a majority stake in wind-farm operator Explotaciones Eólicas de Aldehuelas in December 2011. We are also building onshore wind farms in Poland. We want to increase installed capacities here to 300 MW by 2015.

We believe that offshore wind energy holds the greatest potential for making our electricity generation more climate friendly over the next few years. We currently have capacity amounting to 150 MW in operation. Over the coming years, a further 892 MW will follow alone with the projects Gwynt y Môr, Greater Gabbard and North Sea East. There are two reasons for focusing on the field of offshore technology. Firstly, wind farms can be erected at sea with a higher capacity than on land where space and height restrictions impose limits. Secondly, the prevailing winds are on average stronger and more consistent at sea. Offshore wind farms are therefore able to achieve a higher electricity yield and generate electricity for more hours operating at peak output.

Erecting offshore wind farms is a pioneering endeavour – particularly when sites are located out at sea. We therefore started to address the technical equipment and the necessary infrastructure at an early stage. Our two specially equipped installation vessels named ‘Friedrich Ernestine’ and ‘Victoria Mathias’ were completed in 2011. These ships will give us our own capability in future to erect wind farms and we are less dependent on third parties. We have also joined forces with E.ON and WindMV to establish a base on Helgoland. In future, the wind turbines will be serviced and maintained from there. The island also serves as the central base for technicians when installing and maintaining the wind turbines.

Projects under construction

The developer and operator of offshore wind farms C-Power NV is currently implementing the Thornton Bank project. RWE is the biggest shareholder in the Belgian company with a stake of 27%. This means that the first offshore wind farm in the country is being constructed off the Belgian coast. It has already been fully licensed and access to the grid has been secured. The wind farm will have an installed output of up to 300 MW and is therefore likely to generate 1,000 GW a year. This amount of electricity is enough to cover the consumption of some 600,000 people.

The Greater Gabbard wind farm is currently being built some 25 km off the Suffolk coast in England. The wind farm has an installed capacity of 504 MW and is currently one of the biggest offshore construction projects in the United Kingdom. The first turbines were installed in May 2010 and the wind farm will come on stream in 2012. RWE Innogy has a 50% stake in the project.

The Gwynt y Môr wind farm has an even greater capacity with installed output of 576 MW. RWE has a 60% stake in this project. At the end of 2011, RWE started to lay the foundations for a total of 160 wind turbines. Completion is forecast for 2014, when the wind farm is projected to generate around 1,950 GWh of electricity each year and supply 400,000 British households. We are also building the 'Nordsee Ost (NSO)' wind farm about 30 km to the north-east of the island of Helgoland in the German area of the North Sea. After it has been completed in 2013, it will have a total output of some 295 MW. However, delays in the grid connection that has to be undertaken by the grid operator could mean that the plant comes on stream late.

Projects being planned

RWE Innogy is currently developing the Innogy Nordsee 1 offshore wind farm. It will be the biggest planned offshore wind farm off the German coast with capacity of some 996 MW. Statistical analysis of the site indicates that this wind farm will have the capability to supply up to one million homes with electricity and reduce CO₂ emissions by around 1.6 million metric tons each year, based on the average emission factor in Germany. The current plans project that the first turbines will start operating as early as 2015. Completion of the entire wind farm is planned for 2017.

Other projects being developed are the two offshore wind farms Atlantic Array and Dogger Bank off the English coast on the North Sea. Generating capacity up to 1,500 MW is planned for the Atlantic Array and this project is being developed solely by RWE. By contrast, we are developing Dogger Bank as part of the Forewind consortium and RWE Innogy has a 25% stake in this venture. Wind turbines with a total capacity of 9,000 MW are to be built in this area.

Biomass

RWE currently has group-wide capacity of more than 1,100 MW. RWE is increasingly committed to the conversion of existing power plants and to co-combustion of solid biomass in fossil-fired power stations where coal would otherwise be used exclusively as a fuel. In the United Kingdom, RWE npower converted the Tilbury power plant to run entirely on biomass at the end of 2011. Tilbury is now one of the world's biggest biomass plants with a capacity of 742 MW. Wood from sustainable production is used exclusively in this power plant and it is purchased in accordance with our principles for sourcing biomass. (> [More on procurement of sustainably sourced biomass see area for action Supply Chain](#)). The lion's share of the wood pellets comes from our factory in Georgia (USA). The Tilbury power plant can supply 1.5 million households with electricity. Through RWE Innogy, we will construct other plants in the United Kingdom. The biomass power plants Stallingborough Alpha (65 MW) and Markinch (50 MW) are scheduled to come on stream in 2012.



We are also promoting the use of biomass as a fuel for generating electricity in the Netherlands. Essent has a capacity of some 320 MW and produces 10% of the electricity generated from biomass – a large proportion of the electricity is generated by co-firing at the Amer hard-coal power station. The new Eemshaven hard-coal power station is designed to permit co-firing of up to 10% biomass. This would then entail additional capacity generated from renewables amounting to 150 MW.

In Hungary, we have a stake of more than 50% in a lignite-fired plant with a capacity of 763 MW where biomass can be used as a fuel in the co-combustion process. This enables us to generate 543 GWh of green electricity in 2011. The biomass is primarily comprised of residual material from agriculture. We intend to increase this proportion from the current level of 10% to 20% in 2020.

In Germany, we only operate small-scale combined heat and power plants (up to 20 MW) which supply local consumers with heat as well as generating electricity. The reason for this approach is the statutory framework, which makes the operation of very large plants unprofitable at the moment. Contrary to the position in other countries, the combined combustion of biomass in big power stations is not subsidised in Germany. Our strategy is therefore focused on expanding the biomass upstream combination of co-combustion and upgrading referred to above.

In Germany, we have a total combined capacity of 79 MW electrical output. In 2011, we constructed the Kehl II combined heat and power plant at Kehl on the Upper Rhine. This power station is operated with waste wood, natural biomass fuel sources and forestry biomass. The plant has an electrical output of 2.9 MW and a thermal output of 20 MW. It primarily supplies a local paper producer with process heat. The potential savings on CO₂ emissions are 25,000 metric tons each year compared with a conventional facility of comparable size.

Hydroelectric generation

Run-of-river hydroelectric power stations in Germany, the UK, France and the Iberian Peninsula produced some 21% of the renewables-based electricity we generated in 2011. This enables us to supply up to 500,000 households with carbon-free electricity. The power stations in Germany on the River Moselle and River Saar, on the River Lech and in the mountainous Erzgebirge region have been operating for a very long time indeed. There is only limited scope for expanding our hydroelectric capacity in Western and Central Europe and this is mainly through modernisation of existing plants and improving their level of efficiency. We only commissioned one new plant in 2011 – the Ruivares plant in Portugal with a capacity of 3.6 MW. In Hungary, we operate two small hydroelectric power stations. One of them was recently upgraded. The electricity generated at the plant forms the basis of the green electricity to meet the demand from our Hungarian sales companies ELMÜ/EMASZ. There are no other plants currently under construction.

Potential for expansion in the Mediterranean and North Africa

We believe that solar power stations located at sites in Southern Europe and North Africa with extensive sunshine have a great deal of potential. RWE has a 12.8% stake in the Andasol 3 solar thermal power station in Southern Spain. This facility will come on stream in 2012. The combination with thermal storage means that this power station can also generate electricity during the night ([> area for action Innovation](#)). We want to gather experience in operating with this new technology. It will feed into potential future projects in North Africa. DII GmbH is working in this area with the aim of making the DESERTEC vision a reality.



DII was established in 2009. 20 companies including RWE are currently involved in this industrial initiative and 35 other partners from a total of 14 countries are participating. We are also investigating the extent to which photovoltaics can be integrated in the DII concept. Significant cost reductions have been achieved in photovoltaics during recent years so that this technology has the potential to make a significant contribution to energy supply in the future, particularly in southern countries.

Wind energy also has a significant potential in North Africa.



[> More on Andasol 3](#)

[> More on DII](#)

Other projects and joint ventures

We are also committed to cooperation with other companies when restructuring the energy supply towards renewable energy and low-carbon energy supply. This commitment resulted in the establishment of Green Gecco GmbH together with 26 municipal utilities in 2010. Green Gecco is an acronym for **G**reen **E**nergy **C**lever **CO₂** **O**ptimization. The company is aiming to optimise CO₂ by investing in wind farms, biogas plants, biomass heating stations, development of new technologies, geothermal energy and hydroelectric power stations. Three additional partners have now joined Green Gecco. The two initial projects involving two wind farms with a combined output of 29 MW have already been implemented. By the year 2020, Green GECCO is planning to invest €1 billion in generating electricity and heat from renewables.



[> More on Green Gecco](#)

RWE is cooperating with 'RAG Montan Immobilien' on using mining dumps in Germany's Ruhr region for carbon-free energy supply. A wind farm in combination with a pump-storage power station is planned for erection at former mining dump using wind and pumped-storage energy. The project partners are working together to carry out a feasibility study in order to establish whether this will be possible and how it could be achieved. The basic idea is as follows: If more wind energy is available than the grid requires, water is pumped up to a reservoir located at the top of the mining dump and the reservoir is then drained when power is needed. The Sundern mining dump is planned as a pilot plant. Construction involves a wind farm combined with a pump-storage power station with capacity up to 15 MW. This could supply up to 8,000 households with carbon-free energy for six hours a day.

CDM/JI

Investments in international climate protection projects make a contribution to global reduction of greenhouse gases and bring rewards for the project countries and for RWE. The marginal costs for CO₂ reductions are significantly higher in Germany and Europe than in many emerging economies and developing countries due to the high levels of efficiency and environmental standards already being achieved. This means that the same expenditure often generates much higher reductions in CO₂ and other greenhouse gases than here in Europe. RWE therefore uses the Kyoto mechanisms Clean Development Mechanism (CDM) and Joint Implementation (JI). The EU Emissions Trading System allows us to offset a total of 100 million metric tons of our CO₂ emissions up to 2020 by submitting certificates from CDM and JI projects. The countries where the projects are located benefit from the technology transfer. This often also contributes to improving the standard of living for the people living there.

At the close of 2011, we were carrying out 129 projects and we had secured certificates for 74.5 million metric tons of CO₂ equivalents in countries including projects in Egypt, China, India, South Korea, Thailand and Vietnam. We anticipate emission rights for 43.7 million metric tons after project risks have been taken into account. We have already received certificates for 25.5 million tons and certificates for the equivalent of 16.4 million metric tons have already been used.



[> Overview CDM/JI projects](#)

Adapting to climate change

As far as RWE is concerned, adapting to climate change is primarily about security of supply. Climate change is expected to lead to a higher incidence of extreme weather events. Research into the consequences of climate change assumes that there will be more extreme weather conditions in the future. Violent storms, flooding and long periods of drought could all pose a risk to the security of supply. RWE is therefore proactively involved in projects and initiatives to investigate the potential impacts of climate change and modifications to local microclimates. We are looking into how the climatic changes will impact on the operation of our power plants and transmission grids. Research is also being carried out into protection against flooding and the availability of cooling water for operating power stations.



Extended periods of drought could cause rivers to have low water levels more frequently in the future. However, we are not expecting any major impact on the supply of cooling water for our power stations (see [‘Water management’ > area for action Environmental Protection](#)). The effects of low water on logistics are also manageable. All hard-coal power plants have their own railway link so that supplies of fuel can still be delivered even during extended periods of very low water levels, although higher transport costs for fuel deliveries are likely to ensue.

Our current perspective provides no indication that we need to upgrade our power plants and our distribution grids above the existing level of security to take particular account of the potential consequences of climate change. The latest information and evidence-based findings from science and technology will always be taken into account when planning new power stations and grids. As a large emitter of CO₂, part of our responsibility additionally relates to cooperating on finding solutions for necessary adaptations to climate change. RWE Innogy is participating in the project ‘Anpassungsstrategien in der Klimapolitik’ (Adaptation Strategies in Climate Policy) at the German National Academy of Science and Engineering (acatech). A representative of the Max-Planck-Gesellschaft and the Senckenberg Gesellschaft are also members of this project group. In the summer of 2012, the project group is planning to submit a detailed report with concrete recommendations for the government.

Energy Efficiency



The efficient use of energy plays a key role in reducing consumption of resources and cutting emissions of greenhouse gases. Modernising our portfolio of power plants makes the biggest contribution to reductions. However, we also reduce energy consumption due to our further business activities and support our customers in the smart use of energy.

Our footprint for greenhouse gas emissions within the RWE Group is dominated by fossil-fired power stations – these contribute some 99% of RWE's total direct CO₂ emissions amounting to 163.8 million metric tons of CO₂. These therefore represent the biggest lever for reducing emissions. When modernising our power stations, we replace old power stations with new ones generating electricity at much higher levels of efficiency. These stations use significantly less fuel to generate the same amount of electricity. For example, increasing the efficiency of our coal-fired power stations by one percentage point reduces CO₂ by around 3.4 million metric tons each year based on our current portfolio of power stations and the amount of electricity generated in 2011.

OVERVIEW OF THE MOST IMPORTANT FACTS:

Rise in degree
of energy use to
42%
by 2014

50%
of the car fleet
replaced by
vehicles with lower
consumption

Model project
Smart Country
for
intelligent grids

1,500
charging points
installed
for e-mobility

100,000
Smart Meters
installed by the
end of 2012

Challenges

Other opportunities for reducing the energy consumption and hence the CO₂ emissions are available within the RWE Group through IT, facility management, the vehicle fleet and business travel. These savings amount to some 170,000 million metric tons of CO₂, they are around 0.1% of total emissions and are significantly lower than the potential savings from fossil-fired power stations. Nevertheless, there are very good reasons for pursuing this route. Firstly, the savings in some areas are linked with considerable cost savings, particularly when it comes to management of our buildings. Secondly, they also encourage our staff to take responsibility for climate protection themselves.

At the same time, the energy business is also changing as consumers increasingly expect us to provide them with advice on energy efficiency and offer them energy services to complement the sale of gas and electricity. Energy efficiency needs to give consumers a tangible benefit. This may be through cost savings or more convenience – otherwise our packages will not be taken up. Acceptance by consumers will be a key factor in deciding whether the national targets for climate protection can be achieved. Advice on energy efficiency tends to be a piecemeal business, particularly in the area of residential and commercial customers. If we want to be successful in this market, we also need to develop our structures along an appropriate trajectory.

Target Attainment

Several new power stations have been commissioned since 2010. We expect these to achieve an average degree of energy use of around 42% for our fossil-fired power stations by 2014. Since 2009, we have replaced approximately 50% of the company cars in our fleet by more efficient models. This had already achieved an 18.1% reduction in the specific fuel consumption by 2011. During the course of 2011, we also tracked the efficiency enhancements in specific real estate and customer projects. Enhanced efficiency amounted to 19% for the real estate sector in Germany and 9.4% for the tracked customer projects.

Objectives in the area for action Energy Efficiency		
We are committed	KPI	Target
... to increasing both our own energy efficiency and that of our customers.	Increase of energy efficiency	- RWE power stations: 42% average degree of energy use to 2014 - RWE vehicle fleet: 20% to 2012 - RWE real estate: 5% to 2014 - RWE customer projects: 8% to 2012

Efficient power plants

Increasing the efficiency of our fossil-fired power stations leads to using less fuel to generate each unit of electricity. This reduces the specific CO₂ emissions from 1.32 metric t/MWh, which is typical for an old lignite-fired power plant with 30% efficiency, to the level of 0.92 metric t/MWh with an advanced lignite-fired power station with 43% efficiency. Parallel to starting up commercial operation of the two new lignite-fired units with optimized plant technology 'Optimised Units' (BoA 2&3) with combined capacity of around 2,100 MW, we will have decommissioned a total of 16 lignite-fired units each with an output of approximately 150 MW by the close of 2012. These are our oldest lignite-fired power stations in the Rhineland mining district. Four of these 150 MW units had already been shut down by 31 December 2011 ([> area for action Climate Protection](#)).



The two hard-coal power stations currently being constructed at Hamm and Eemshaven have an efficiency of 46% which is the highest currently attainable with hard coal. Commissioning of these power stations is scheduled for 2013 and 2014 respectively ([> area for action Climate Protection](#)). After completion of our latest power plant renewal programme, compared with 2010 we are anticipating as from 2013 an overall increase in the mean efficiency of approximately 3 percentage points for our coal-fired power stations.



Development of the next generation of power plants

We are expecting an efficiency of more than 45% for the next generation of lignite-fired power plants. This means we will get very close to the same efficiency as the latest, most efficient hard-coal power plants in the world. We plan to achieve this further increase in efficiency of 2 percentage points using the system of 'fluidised bed drying with internal waste-heat utilisation' developed by RWE. This system has been proved in the fluidised-bed pilot plant located in Niederaußem since 2009 ([> area for action Innovation](#)).



The trial operation of the fluidised-bed prototype plant was successful and we now want to combine the next generation of lignite-fired power stations with the fluidised-bed system. We are currently reviewing the feasibility of the construction of the 1,100 MW lignite-fired power station designated BoAplus ('Optimised Unit Plus') with two boilers producing electrical output of 550 MW each. The power station would be built at the Bergheim-Niederaußem site. ([> area for action Climate Protection](#)). The installation of two smaller boilers rather than one large boiler will make the power station much more flexible and therefore help to give priority to feeding electricity from renewable energies into the grid.



We intend to increase steam temperatures to 700°C in order to increase the efficiency of hard-coal and lignite-fired power plants by a further 2 percentage points from 45% to 47%. We are working on the development of power-plant components that are resistant to such high temperatures ([> area for action Innovation](#)).



Our own energy consumption

We are concentrating on building-service engineering, heating, cooling and ventilation with the aim of reducing energy consumption in our property portfolio. At the end of 2011, we switched heating and cooling at the Head Office of RWE Power in Cologne, where around 1,000 employees work, from electricity to district heating supplied from our Goldenbergwerk power station. The 'Forum terra nova' was erected on the edge of the Hambach opencast mine and the recultivation research centre is moving there in spring. This facility and the water-management pumping station in Elsdorf will be heated by resource-saving geothermal heat drawn from the groundwater removed to keep the opencast mine dry.

RWE's Office and Building Services (OBS) has set the target of permanently saving almost one third of the energy consumed at the 'Huysenallee/Kruppstraße' site in Essen where more than 2,300 members of staff work. New cooling technology alone will reduce the primary energy consumption by up to 8% each year. Savings of a further 6% are to be achieved by pre-heating the air supplied to the underground car park to only six degrees instead of 15° as has been the case in the past. Over the coming months, OBS will carry out an analysis of the potential savings for other RWE properties. Comparable measures are also implemented at other German and international sites. Facility managers exchange their experiences on a regular basis.

We depend on changing staff behaviour at sites where we only leased the buildings. We will provide the same advice on energy savings that we offer our customers in the information portal 'energiwelt.de'.

RWE would like to become the leading 'green' energy supplier in Hungary. This also encompasses the reduction of our in-house energy consumption. We intend to improve the insulation of our office buildings and install advanced heating and climate equipment. We are currently preparing comprehensive energy audits which will provide us with the data and information required for the next steps.

Business travel

At the end of 2010, RWE joined forces with non-profit organisation atmosfair in order to launch a project for analysing greenhouse gas emissions associated with our business travel. A database starting with RWE sites in Germany was initially established for the four types of travel: car hire, vehicle fleet, flight and rail.

In 2011, travel on business emitted a total of around 50,000 metric tons of CO₂ emissions. More than 30% of these emissions are caused by our vehicle fleet. A significant proportion of the emissions is caused by journeys for the maintenance and repair of our distribution grid, which has a total length of 347,000 km in Germany, and on sales activities. The purchase of new energy-saving vehicles has enabled us to reduce specific fuel consumption by 18.1% in the fleet since 2009. Our target is to achieve a reduction of 20% by 2012 – compared with 2009. Air travel accounts for a significant proportion of travel emissions of around 60%. The contribution by hire cars and rail travel is negligible.

Comprehensive data on business travel was available for the first time at the end of 2011. We will be carrying out detailed analysis of these data in 2012 and we will develop measures to reduce emissions, with specific focus on air travel and on further optimisation of our vehicle fleet.

Smart grids

The electricity generated from renewables and fed into the grid from a large number of distributed sources undergoes significant fluctuation according to the weather conditions. We therefore need new, smart grid concepts in order to be able to flexibly combine electricity generation and electricity consumption. Consumers will be able to control the electricity they purchase according to the time of day and the current market prices. This enables them to save energy and cut costs. The new functions must be primarily taken over by the distribution grid. In future, this grid will control supply to consumers, as well as the storage of electricity and its feed back into the grid. The energy grids and data networks will need to be more closely integrated to achieve this.



In 2011, we set up the Smart Country Project to trial the interaction between different components such as renewable and conventional generation of electricity, energy storage and grid operation in a smart grid. We selected the district of Bitburg-Prüm located in the Eifel hills as our model region ([-> area for action Innovation](#)). Originally a region where electricity was only consumed, the district has changed to a region with surplus electricity in certain periods as a result of a large number of renewable energy facilities being constructed. The medium-voltage grid now needs to uptake and distribute double the amount of electricity compared with the situation in the past.

Three components are tested in the course of the model project: newly developed voltage regulators for protecting against voltage fluctuations, recording and communicating real-time production and consumption data, and using a biogas storage to compensate for peaks in supply and demand. The project is being funded by the German Ministry of Economics with support amounting to €3.5 million under the initiative 'Grids for the Power Supply of the Future'. The project results form a data platform for planning future local and regional grids and will also be made available to other companies in the sector.

Electromobility

We believe that nationwide introduction of electromobility presents a fantastic opportunity. Given the use of electricity from renewable energies, electromobility will help to achieve a particularly significant reduction in local emissions of CO₂, pollutants and noise. This technology opens up new lines of business for RWE. The additional sale of electricity is not the primary focus of our engagement.

Electromobility has the capability to make an important contribution to intelligent and flexible control of distribution grids. For example, electric vehicles can be integrated within smart grids as local energy storage facilities and they are able level out electricity peaks generated by photovoltaic plants and from wind energy. We are developing the appropriate control systems and tariffs to make this system work.

Provision of the necessary charging infrastructure forms a key requirement for nationwide introduction of electromobility. The establishment and maintenance of public and private electricity charging stations is one of our core competences. While the charging infrastructure is being established, we are initially concentrating on urban areas like the Rhine-Ruhr region, Berlin or Amsterdam. The behaviour of users here and the range of electric vehicles make an ideal fit. The 'E-Mobilität im Pendlerverkehr' (E-mobility in Commuter Traffic) project has been financed by the German government and we have set up more than 300 charging points in the Rhine-Ruhr area. RWE has installed more than 1,500 charging points in 16 countries since 2009 with more than 1,000 of these points in Germany. In autumn 2011, we started to link up urban areas in Germany and make electromobility suitable for covering long distances. As part of the E-mobility in Commuter Traffic project, we also installed a total of eight fast charging stations on the motorway link between Cologne and Hamburg. This route is now equipped for continuous use by electric vehicles.

The promotion of electromobility is not restricted to Germany alone. In the Netherlands, Essent offers employees the opportunity to use electric vehicles for the daily commute to work and for their private use. This is intended to promote traffic with low CO₂ emissions and provides a means of gathering practical experience. At the end of 2011, Essent had 45 electric cars in operation. We also installed the first charging points in Hungary during 2010 and 2011. Our group company ELMÜ operates the biggest fleet of electric vehicles in Hungary. Moreover, ELMÜ has also established a fast-growing network of companies with the objective of joining forces and expanding electromobility in Hungary.



[> RWE eMOBILITY](#)

Dedicated to our customers

Our aim is to assist our residential and commercial customers by helping them to use energy efficiently with a comprehensive package of consultancy and service packages. We are particularly focused on intelligent deployment of energy and this involves more efficient use combined with enhanced convenience. This approach means we are pursuing the expectations of customers, national governments and our stakeholders. Another objective is to enhance customer loyalty through these packages.

Our national and regional sales companies are responsible for generating the appropriate packages. Our German sales companies have pooled technologies, packages and services within the marketing and brand campaign 'voRWEg gehen mit intelligenter Energie' (RWE - Advancing Intelligent Energy). We generally contact our customers over the internet. We offer an 'Energieverbrauchscheck' (Energy Consumption Check) for the customer's own household as one of the features provided on the internet pages of our sales companies. Customers are also given tips on how consumption of heat and electricity can be reduced by using new equipment or installing insulation. Our sales companies have also put together an information portfolio providing details of government subsidies and lists of contacts for local installers.

RWE SmartHome devices also empower our customers to control their home automation. A secure wireless network allows electrical devices to be turned on and off easily, as well as facilitating regulation of the heating system even when you are on the road. A study commissioned by RWE Effizienz from the Fraunhofer Institute for Building Physics indicates that Smart Home technology can achieve energy savings of between 17 and 40%.

Our subsidiary company Essent is aiming to become the leading company for Smart Energy in the Netherlands. Under the name Mijn-E, Essent is developing products which are intended to help customers to save energy in their household. The E-thermostat is one of the first products. Customers can use their smartphone or computer to control their heating remotely from anywhere in the world. A consumption manager App is another product Essent has developed. This gives customers an instant overview of their energy consumption and costs. Up to now, more than 50,000 customers have downloaded this App. The 'SavingCoach' information platform includes hints on how customers can save energy in their homes and indicates the associated cost savings. Our subsidiary company Essent also supports homeowners when they are insulating their houses. The advisers from Essent provide technical advice and draw up estimates of the costs and energy savings. We have opened an information centre for our customers in Budapest with an exhibition on energy efficiency. Customers can obtain individual advice here on how they can save energy. The ongoing positive response has encouraged us to open another information centre at the head office of our subsidiary company EMASZ in Miskolc (Hungary).



[> More on 'Energy Consumption Check'](#)

[> More on SmartHome](#)

Smart Meter

Smart meters provide customers with real-time information on their power consumption. Customers receive a monthly overview of the electricity they have consumed when a smart meter is installed, with an option for feedback down to the second. This gives customers an accurate picture of the electricity being consumed by their appliances and provides an indication of their level of efficiency.

A pilot project is being carried out in the German city of Mülheim an der Ruhr to test this new generation of meters. More than 100,000 households in this area will have had their old meters being replaced by smart meters free of charge between July 2008 and the end of 2012.

Installation of smart meters is planned in the United Kingdom from the middle of 2014. The installation of an estimated 53 million smart meters in around 30 million households and businesses is planned for completion by 2019 and is one of the biggest infrastructure projects ever undertaken in the United Kingdom. RWE npower will have to install about 5.5 million smart meters. In order to guarantee the transfer to Smart Energy, RWE npower will have to build up the necessary capacities for installation of the smart meters and the associated IT network as well as harmonising the relevant software systems and business processes.

The objective in Hungary is to carry out a joint trial with smart meters for supply of electricity, gas and water. We have joined forces with local gas and water utilities in Budapest to launch a pilot project. We want to use this project to trial the use of smart meters before we embark on preparing a project to introduce smart grids. The aim is to connect up to 80% of electricity customers and 90% of gas customers to smart grids in Hungary by 2020.

In the Netherlands, we launched new energy-efficiency packages under the product name Mijn-E in November 2011. We want to give our customers an improved overview of their energy consumption as well as more control. Our aim is also to help them by saving energy at the same time. The first product we are launching is remotely controllable thermostats that can be controlled from a mobile phone – anytime, anywhere.

The next stage will see electricity customers becoming active market players. Customers and the electricity providers will be linked up through information and communication systems. All the information will come together on a virtual marketplace. Variable load-based tariffs are intended to motivate customers to operate their devices and appliances at times when low rates for electricity are offered, e.g. when large amounts of electricity are available for supply. This reduces electricity costs for customers. At the same time, electricity consumption is aligned more directly with the generation of electricity. We have been running a field trial in Mülheim an der Ruhr since the beginning of 2012. This is the biggest field trial ever on smart electricity consumption in Germany with a total of 700 participants.



[> More on 'Mülheim zählt' \(Mülheim counts\)](#)

Distributed energy supply

Our subsidiary company Essent has implemented an innovative and sustainable concept for energy supply to around 1,000 houses in the town of Zeewolde. A small cogeneration power plant supplies green electricity and district heating to heat living space. Biogas is the only fuel used and this is generated at a neighbouring cattle farm. Around 7.5 million kWh of green electricity is generated every year and this saves approximately 800,000 m³ of natural gas. This was the first Dutch project to receive an award from the International District Energy Association (IDEA).

In November 2011, RWE Deutschland launched a new product for consumers with the micro-cogeneration power plant. These micro-power plants are fired by natural gas and they generate electricity and heat for supply to heating systems and hot water. The system can also buffer generation peaks from renewable energies in the grid and store the energy in the form of heat. The micro-cogeneration plants are regarded as highly efficient and they allow the primary energy consumption of a house to be reduced by one third and the CO₂ emissions by as much as 50%. RWE is cooperating on this approach with heating manufacturer Vaillant and provides the control unit required for smart energy management.



[> More about the micro-cogeneration power plant](#)

Municipal efficiency projects

Lots of local authorities are faced with the challenge of making public buildings more energy efficient. This refurbishment reduces operating costs and also cuts down CO₂ emissions. RWE offers its municipal customers comprehensive advice on energy efficiency. Under the terms of a concession contract concluded with a local authority, RWE offers a 'Kommunales Energiekonzept' (KEK, Municipal Energy Concept) from a single source with advice, encouragement and partnership models for measures to promote energy efficiency and climate protection. We respond to the requests of local authorities ranging from wood-chip plants to photovoltaic systems and solar thermal installations. During the course of 2011, we implemented more than 100 projects with a total of around 85 local authorities located primarily in Germany.

Alongside facility management, street lighting is another significant cost factor for local authorities. RWE also has a broadly based platform of know-how on all issues, such as the deployment of advanced and economical illuminants, the design of lamps, and concepts for street lighting. These services can be provided within the scope of the Municipal Energy Concept. In 2011, RWE implemented 30 measures in Germany to improve street lighting. The annual energy saving amounts to approximately 650,000 kWh.

We are implementing a comparable programme in Hungary. We have replaced some areas of street lighting with LED lamps. This allows for up to 35% energy savings. A further 10 to 15% savings are possible if the street lighting is fitted with remote control which allows the lighting to be switched on only when illumination is needed.



[> More on the 'Kommunales Energiekonzept' \(KEK, Municipal Energy Concept\)](#)

Industry and business

RWE Energiedienstleistungen GmbH – a subsidiary of RWE Vertrieb AG – offers energy services in industry, trade and other business sectors. Energy advice and controlling allow us to provide our customers with detailed information on the amount of energy used in their company and where it is consumed. Our analyses reveal potential savings of up to 30% depending on individual circumstances. If investments are required to achieve these savings, RWE offers planning and operation of the systems as well as contracting models. More than 3,000 customers have already concluded contracting agreements with RWE.

RWE Energiedienstleistungen GmbH also operates 60 district heating plants in eleven federal states and these facilities supply heat to around 80,000 customers. In the course of a comprehensive programme of modernisation measures, existing district heating plants are gradually being switched to combined heating and power plants operated using biogas.

We also continue to offer services relating to electricity generation and consumption. The 'Virtual Power Plant' package allows customers who themselves generate electricity on a distributed level to pool the marketing of their electricity. We share the revenues with plant operators who temporarily cease to draw electricity and lower the cost of load balancing.

Since 2010, we have also been providing advice on saving energy to commercial customers in the Netherlands. An adviser analyses the company and provides individual advice. The savings can amount to as much as between €1,500 and €2,000 each year.

Innovation



Climate-friendly, efficient and intelligent – these are the criteria our energy supply of the future should fulfil. This is the goal we are pursuing within the framework of some 200 projects covering the entire value chain from the production of raw materials to power generation, distribution and use.

Our advanced society needs secure, dependable and affordable energy supplies. Energy is the platform for our prosperity. Our mission is to safeguard this energy requirement over the long term while at the same time making electricity supply carbon neutral by 2050 if we are to achieve our objective. We need to optimise existing technologies in all areas of energy supply and develop new ones if we are to achieve this target. This ranges from extracting raw materials to generating electricity, from energy transport to consumption. We are well aware that the development and use of innovative technologies and procedures are key factors in the future success of our company.

OVERVIEW OF THE MOST IMPORTANT FACTS:



Stakeholders expectation and framework conditions

Innovations in the area of energy supply are made difficult as a result of unclear statutory framework conditions. Furthermore, some key stakeholders reject new technologies. One example of this is carbon capture and storage of CO₂. Although an EU Directive from 2009 commits all EU member states to draw up national legislation for carbon capture and storage, the rejection by the Upper House (Bundesrat) of the CCS Act submitted by the Lower House (Bundestag) in September 2011 led to a lack of legal clarity. Furthermore, many residents living near sites of potential pilot projects often have a critical mindset.

So far, Germany has only licensed the CO₂ test storage repository at Ketzin in Brandenburg under mining law. We believe that carbon capture and storage continue to be necessary and appropriate for meeting the European climate targets. In our view, other innovatory projects for renewable energy, energy stores and grids are finding more support in the public domain.

Target Attainment

We have set up a group-wide innovation management system to coordinate all our research and development (R&D) activities. All relevant RWE companies engaged in research and development are now covered by standardised processes such as R&D planning and reporting.

We were awarded the title ‘Innovation Leader of the European Energy Utilities’ for our innovation management from the European School of Management and Technology (ESMT) for the first time at the beginning of 2012. We are ranked in first place in the ESMT Innovation Index 2010. The ESMT investigated and assessed the innovative capability of the 15 biggest European energy utilities over the period 2007 to 2010. The award ‘Innovation Leader of the European Energy Utilities’ was granted primarily on the basis of our broadly based research approach. We cover 14 out of 15 research areas that ESMT defined as a benchmark – this was significantly more than the competition. The comparatively high number of our inventions and our systematic approach to registering patents was praised.

Objectives in the area for action Innovation		
We are committed	KPI	Target
... to ensuring the availability of the best solutions in our core processes through innovations.	Extent of coverage and communication of strategically relevant R&D issues in %	At least 95%

Clean coal

Fossil fuels will continue to remain important in generating electricity for many years to come. Coal-fired electricity generation is a core component for many countries including Germany, Poland and growth markets such as India and China. We want to safeguard the acceptance of coal-fired electricity generation in society and make it future-proof and we therefore have to find reliable ways of minimising the CO₂ emissions produced when electricity is generated.

One way of achieving this goal is to increase the efficiency of new lignite-fired and hard-coal power stations. We also need to find ways of capturing the CO₂ liberated by coal-fired generation of electricity and storing it safely or making use of it.

Increasing efficiency

Increasing levels of efficiency are a key platform for using coal to generate electricity in the future. We intend to reduce the CO₂ emissions from coal-fired power plants in future. We have developed a procedure known as 'fluidised bed drying with internal waste-heat utilisation'. This process will achieve an increase of up to 4 percentage points in the efficiency of future lignite-fired power stations by drying moist lignite at a low temperature level. The water content of lignite is reduced from more than 55% to 12%. RWE carried out research into fluidised bed drying with integrated waste-heat utilisation during the 1990s. The technology is now mature and ready for use on an industrial scale. The first prototype plant has been built on an industrial scale at the Niederaußem site and supplies the 1,000 MW power station unit with 110 metric tons of dry lignite per hour. This covers around 30% of the furnace thermal rating. The plant commenced trial operation in 2009 and provided verification for the commercial viability of fluidised bed drying technology for integration within new-build power station units. The 'Optimised Unit Plus' (BoAplus) power station that we are planning at the Niederaußem site is to be equipped with fluidised bed drying with integrated waste-heat utilisation using the so-called integrated combustion concept. This procedure combines the advantages of burning raw lignite and dry lignite together and yields an efficiency of more than 45%



(> [areas for action Climate protection and Energy Efficiency](#)).

Efficiency increases can also be achieved by raising the steam parameters to 700°C – a route that is not just open to lignite power plants but can also be exploited by hard-coal power plants. RWE Power is therefore participating in projects to develop materials for the components exposed to steam that are robust enough to cope with these conditions. Apart from achieving higher efficiencies, RWE Power is focusing on the increase in load cycle capacity of fossil-fired power stations that can be achieved by deploying these new materials being developed in new and existing plants. The increase in the flexibility of use enables the power stations to operate even better as partners for renewable-based energy who can only feed electricity into the grid with major fluctuations. RWE Power is participating

in the 'COMTES+' project launched this year at power stations in Mannheim and Fusina (Italy). This is a project being sponsored nationally and on a European level where tests on components made of nickel-based alloys are being carried out and technologies for applying repair procedures to these materials are being developed.

> [More on the fluidised-bed plant](#)



> [More on the 'Optimised Unit Plus' \(BoAplus\)](#)

> [More on increasing the steam parameters – 700°C power plant](#)

Carbon capture

CO₂ scrubbing is currently the only realistic upgrade option for carbon capture at existing power plants. CO₂ scrubbing involves a chemical solvent being used to bind and hence to remove any CO₂ present in the flue gas. We have been cooperating with BASF and Linde since 2009 to carry out large-scale tests on this procedure in our pilot plant located at the site of the 1,000 MW lignite-fired 'Optimised Unit' (BoA1) in Niederaußem. The pilot plant now achieves a carbon capture rate of around 90%. Using new solvents would enable us to reduce the energy required by 20% by comparison with the standard processes usual today. Up to 300 kg of CO₂ per hour is being captured at our pilot plant today depending on the test parameters that have been set. We also reduced the size of the absorber in 2011, in order to reduce the capex requirement for subsequent plants. We want to optimise the technology by the end of 2013 and continue testing it in the long-term trial. Our goal is to have CO₂ scrubbing ready for commercial use by 2020 so that we can then upgrade existing plants. RWE will have invested a total of around €15 million in the pilot project by 2013. The Federal Ministry of Economics and Technology is supporting the research work being carried out by the three partners BASF, Linde and RWE with funding totalling €8.4 million. In addition, we are also testing the use of alternative scrubbing agents at our Aberthaw plant in the United Kingdom.



> [More on CO₂ scrubbing](#)

We are working with partners to test carbon capture, transport and storage in various projects. RWE has participated in the world's first demonstration plant at the US Mountaineer power station operated by American Electric Power (AEP). The operation of the carbon capture process deployed and the storage of CO₂ in underground saline formations are tested and verified here. The project used a scrubbing procedure developed by Alstom and was concluded in 2011 after 51,000 metric tons of CO₂ had been captured and 37,000 metric tons were stored.

We are currently involved in the 'CO2MAN' joint project which is funded by the Federal Ministry for Education and Research and is taking place at Ketzin in Brandenburg. This project involves us carrying out research into how CO₂ can be injected safely and on a large scale into deep geological formations. 'CO2MAN' is the follow-up project for the joint European 'CO2SINK' project completed in 2010.



> [More on CO₂ storage](#)

Use of carbon dioxide

We are looking into the possibilities of using CO₂ as a source of carbon as an alternative to petroleum-based products for energy conversion and for chemical intermediates. RWE Power is cooperating with industrial partners and research institutes to further develop various avenues of carbon capture and usage (CCU) with subsequent development wherever possible. Our 'DREAM Production' project is a joint venture with Bayer and RWTH Aachen University looking into the possibility of using CO₂ in plastics production. We were granted a special award for our pioneering work: The Foundation of the German Sustainability Prize selected 'Dream Production' from the top 3 in the category 'Germany's Most Sustainable Initiative'.

'CO2RRECT' (CO₂ Reaction using Regenerative Energies and Catalytic Technologies) is another joint-venture project with Bayer, Siemens and various universities. This project is exploring the material use of CO₂ for chemical intermediate products. The aim is primarily to use renewable energy for the conversion processes. In 2010, we joined forces with biotechnology company BRAIN to analyse the options for using microorganisms to bind the CO₂ extracted from flue gas directly into new biomaterials, bioplastics or chemical intermediates. These will be used for the production of fine and specialty chemicals.



> [More on CO₂ use in our Coal Innovation Centre](#)

Renewable electricity generation

Renewable energy is supposed to make up at least 20% of our electricity generating capacity by 2020. While renewables-based energy primarily sourced from hydropower and onshore wind power already provides a substantial part of energy supply, additional innovations in wind energy, marine power and solar thermal energy are needed in order to create sufficient technological options to meet the ambitious targets for expansion of renewables.

Wind energy

Today, the majority of European wind energy is sourced from wind farms which are erected on land (onshore plants). Offshore wind farms coming on stream in the future will exceed the power output installed in a large coal-fired or nuclear power station. Offshore plants offer the advantage that they generally enjoy a broader level of acceptance among the general public by comparison with onshore plants. They also achieve greater wind yield because the winds are stronger and more uniform on the open sea. However, the construction of offshore wind farms places high demands on technology and materials. The plants are erected in water up to 40 metres deep and the material is subject to an extreme loading. Some of the electricity is generated up to 100 kilometres from the coast and it has to be transmitted to consumers via a grid connection to the electricity grid. Service and maintenance also presents significant challenges.

We are currently carrying out most offshore projects in the United Kingdom and we have consequently been involved in the initiative 'Offshore Wind Accelerator' of the Carbon Trust since 2008. Eight companies developing offshore wind farms have joined forces in this initiative. Our common goal is to bring about a 10% reduction in the costs for electricity generated by offshore wind farms through innovations. The initiative is for example carrying out research into improved procedures for erecting turbines in deep waters and for reducing transmission losses in undersea electricity cables.



[> More on Carbon Trust – and the initiative Offshore Wind Accelerator](#)

Marine power

We believe that using marine power to generate electricity is a long-term, exciting component for electricity supply with renewable energy. RWE is collaborating with marine power specialist Voith Hydro to facilitate the efficient and large-scale application of marine power. We currently have a joint venture for installing a 1 MW marine tidal current turbine in the waters of the Orkney Islands (Scotland). We have already anchored the foundations for the turbine in the seabed. The plant is scheduled to start a test phase lasting two years from 2012. However, contrary to the position with offshore wind farms, exploitation of this technology on an industrial scale will only take place at some considerable time in the future. The present focus is on testing various technological pathways.



[> More on Marine Turbines](#)

Solar thermal power

At the end of September 2011, the Andasol 3 solar thermal power station in Spain was officially launched. RWE has a 12.8% stake in this project. More than 205,000 parabolic mirrors have been installed on an area of land measuring two square kilometres to capture the solar energy. The amount of electrical energy generated by this power plant will be sufficient to supply some 40,000 households. While solar thermal power stations have been operated for a number of years with parabolic mirrors, Andasol 3 is one of the first plants with an innovative method of storing heat. This thermal storage system also supplies electricity when the weather conditions are unfavourable and during the night. Saline solution acts as a storage medium and this thermal storage balances out fluctuations in production and permits electricity to be supplied after the sun has set. This means that Andasol 3 can also be operated at full capacity for seven hours without any sunshine. If this technology proves to be successful over the long term, it will create the platform for erecting solar thermal power stations on an industrial scale of the kind that might also be deployed around the Mediterranean in the context of the Desertec Initiative ([> area for action Climate Protection](#)).



[> More on Andasol 3](#)

Desertec Initiative

'Desertec' represents the vision to generate electricity from renewable sources in desert regions. The intensity of the solar radiation is greatest in the deserts and can be used effectively for solar-powered generation of electricity. RWE and its partners founded Dii GmbH in 2009. The technical, legal and statutory framework conditions present major challenges. These have to be overcome during the coming years and Dii is working on these issues. The aim is for the generating countries in the desert regions and the European countries to benefit equally from the project ([> area for action Climate Protection](#)).



[> More on Desertec](#)

Geothermal power

The Office of Technology Assessment of the German Bundestag (Lower House) assesses the overall technical potential for generating electricity from geothermal resources in Germany alone to be 1,200 exajoules. This is 100 times the annual European electricity requirement. However, apart from the technical feasibility the profitability also needs to be guaranteed. RWE Power, RWE Dea and EnBW have carried out a feasibility study for the Upper Rhine Valley on this basis. However, the initial results indicate that adequate volume flows of hot deep water cannot be achieved to permit commercial exploitation in a geothermal power station. Further research therefore needs to be carried out to assess the extent to which artificial stimulation measures and the use of existing fault-lines and cleft systems can improve the commercial benefit.



[> More on Geothermal power](#)

Grid infrastructure and storage technologies



Electricity grids must be structured so that electricity can be supplied from regenerative sources as it is needed even though the electricity supplied to the grid is increasingly dependent on weather conditions. Indeed, major demands are being placed on distribution grids particularly in rural areas because although only a few consumers live here, a large number of photovoltaic plants and wind farms are being built in rural districts. At times more electricity is being produced here than is actually consumed ([> area for action Security of Supply](#)).



New technologies need to create 'smart' balancing mechanisms to maintain the right balance within the grid. One example is the use of transformers that can set the right voltage automatically to match the current status of the grid. Flexible storage options are also being tested. They can be used to assist, for example, in using biogas to produce electricity, in situations when the sun is not shining. This fuel can be deployed to produce electricity as it is needed – for example when the sun is not shining. As consortium leader, RWE Deutschland AG started the operation of one of the first smart electricity grids in Germany in June 2011 ([> area for action Energy Efficiency](#)) with the aim of testing technologies like this in practical application and developing them further. RWE and our partners ABB, Consentec and TU Dortmund will collect information on operating a smart grid in a model region located in the district of Bitburg-Prüm for a period of three years.

[> More on intelligent grid](#)

New energy storage



The storage of electricity is becoming increasingly important as a result of the expansion of energy generation from renewables. The sun and wind are not available day and night. These irregularities in turn exert an impact on grid operation. If only a small amount of wind energy is fed into the grid, conventional power plants have to supply additional electricity. By the same token, they have to reduce their output or even shut down power generation altogether when strong winds start to generate a lot of electricity. Another factor is that the current capacity available on transmission grids in some regions today is reaching its limits when the wind turbines are operating at full power. Many experts regard expanding the capacities of electricity storage systems as absolutely essential in order to counteract the problems. The technology for pumped-storage power plants ([> area for action Security of Supply](#)) has been established for many years. However, there is limited potential for expansion particularly in Germany. We are therefore developing alternative energy storage systems ([> area for action Security of Supply](#)).



Compressed Air Energy Storage (CAES) offers one possibility of storing excess energy for use at a later point. However, this technology only has efficiencies of less than 55%. The remaining energy is lost during the process of conversion. The adiabatic CAES system is an advanced development with a great deal of promise for the future. The aim of this system is to retrieve the heat generated when air is compressed and use it to generate electricity. A higher level of efficiency of up to 70% is the objective. However, the adiabatic CAES system for electricity supply ('Adele') places high demands on individual system components. RWE has joined forces with General Electric and Züblin to investigate the construction of the first Adele demonstration plant in Staßfurt (Saxony-Anhalt) with a storage capacity of 360 MWh.

[> More on energy storage](#)

Venture capital issues

Innogy Venture Capital GmbH is therefore investing in innovative companies on behalf of RWE Innogy GmbH and supports them with venture capital. Apart from financial support, Innogy Venture Capital GmbH also plays an advisory role to the company in management.

The portfolio of Innogy Venture Capital includes European companies from the areas of hydropower, wind, solar energy, biomass, energy storage and supporting technologies. We generally invest amounts in the single-digit millions as minority holdings during the start-up and growth phase.

In November 2011, RWE Innogy and Hamburg equity investment company Conetwork Erneuerbare Energien (CEE) – part of Bankhaus Lampe – signed a long-term venture-capital co-operation deal. CEE is investing €25 million in the Innogy Renewables Technology Fund I (IRTF I) and will therefore hold some 22% of the shares. RWE Innogy will be increasing its investment by the same amount. The fund volume will therefore grow to more than €115 million. The target is to increase the fund's portfolio from the nine technology companies today to up to 14 technology companies. The volume of the fund is now closed and its term remains unchanged at the end of June 2018. As well as financing the fund, CEE will also take a 25.1% stake in Innogy Venture Capital GmbH and it will have a seat on the Investment Committee.



> [More on Innogy Venture](#)

> [More on Conetwork Renewable Energy \(CEE\)](#)

Security of Supply



We want to provide our customers with a reliable and affordable supply of electricity and gas at all times. Our programme of continuous investment in expanding and developing our distribution grids is directed towards this objective. Our generation mix of renewable-based and fossil-fired power stations helps us to minimise procurement risks. We diversify the procurement of our fuels as far as possible.

The reliable supply of electricity and gas to our customers depends firstly on generation and provision of electricity and gas, and secondly on transmission and distribution. The big challenges currently confronting the electricity industry are in the area of grids for transmission and distribution. We operate electricity distribution grids in Germany, Poland and Hungary with a total length of 404,200 km, and a network of 342,300 km makes us the biggest operator of distribution grids in Germany. We therefore play a major role in providing a secure supply of electricity. We also operate 37,650 km of gas distribution grids in Germany and 53,500 km in the Czech Republic.

OVERVIEW OF THE MOST IMPORTANT FACTS:



We withdrew from the operation of transmission grids for electricity and gas in Germany during the course of 2011. The majority shareholding in the electricity transmission grid operator Amprion was sold to a consortium led by Commerz Real, a subsidiary company of Commerzbank. RWE currently still holds a shareholding of 25.1% in Amprion. Meanwhile, we have withdrawn completely from Thyssengas – operator of gas transmission grids. However in the Czech Republic, NET4GAS – our independent operator of gas grids – manages a gas transmission grid amounting to 2,460 km.

Challenge of stable electricity supply

An equilibrium needs to be maintained between electricity supply and demand at all times. Otherwise the stability of the electricity supply is put at risk. The strong expansion of renewable energy is a particularly significant factor in presenting RWE in Germany with some major challenges: Supply of electricity generated from renewables into the electricity grid has priority over other forms of energy generation. However, the electricity available for supply from renewable energy undergoes significant fluctuation due to weather conditions. Generation is largely independent of demand. Furthermore electricity from renewables is generated partly decentrally as well as sometimes being produced a long way from centres of consumption.

This results in a significant burden for our distribution grid that is outside the design scope of the original concept. Particularly in rural areas, large generating capacities for renewables are being constructed. This additional electricity transmission also has to be handled by the transmission and distribution grid. In 2011 we withdrew from the electricity transmission grid apart from a minority stake of 25.1% so that from 2011 on we only report on the challenges confronting the distribution grid.

Our power plants need the output to adjust very quickly in order to be in a position to respond to fluctuations in renewable energy. Older coal-fired power stations were not originally intended and designed for flexible electricity generation.

Ultimately, we need to take measures to cover the eventuality that there are widespread outages in the power supply despite all the efforts. Power plants must first themselves be supplied with energy before they can be restarted. Normally, they are supplied with energy to start up through the network grid connected to other power plants. If the network grid with other power stations is no longer available, power plants have to be used which have their own supply source for energy – these are known as power plants with ‘cold start-up’ capability.

Apart from non-interrupted generation and distribution of electricity and heat, secure availability of the fuels required for this are another focus for Security of Supply. However, the pressure to act in this area is significantly lower. Firstly, we have confidence in the liquidity of the raw materials markets and we are attempting to provide additional regional differentiation for the procurement of natural gas. This enables us to reduce our financial risk by making arrangements for supply contracts covering staggered periods. Secondly, lignite provides us with a very competitively priced source of energy in Germany and Hungary and this makes our supply of fuels independent of developments on the international markets. In future, we expect to be even more independent of these international developments through the expansion of renewable energy.

Target Attainment

In 2010, we were able to continue our record of previous years and provide our customers with a largely uninterrupted supply of gas and electricity; data for 2011 were not available at the time when this report went to press. A majority stake in the electricity transmission grid was sold in September 2011 and there were no outages. Non-availability for the distribution grid amounted to an average of 21.9 minutes per customer in Germany. The average non-availability for the gas supply resulting from faults in Germany was less than one minute per customer and year in 2010.

Objectives in the area for action Security of Supply

We are committed	KPI	Target
... to supplying our customers with the energy they need at all times.	System Availability Interruption Duration Indicator (SAIDI) in minutes per year and customer	SAIDI < 30 minutes (Germany only)

Reliable grid operation

The distribution grid in Germany has for many years achieved the leading place in the European ranking for availability of electric power. We have played a significant role in this success as Germany's biggest distribution grid operator. This is the result of continuous maintenance and repair, alongside expansion of our grids.

We are increasingly laying underground cables where power lines pass through areas of forest in order to make the grid less susceptible to adverse conditions. Although these cables are more expensive than conventional cables, they are not affected by storm damage. Furthermore, underground cables do not detract from the beauty of the landscape, and they are not a hazard for large birds. The losses from the grid at the distribution level are different due to the infrastructure present in the individual grid regions. The aggregated values (high, medium and low voltage) for our grids in Germany are between 5.5% and 7.5%.

Our biggest grid investment in Poland was the construction of the 'Stadium' transformer station. The station will supply electricity to the national football stadium where the games in the European Football Championship will be played in 2012 and to approximately 50,000 households to the east of Warsaw.

We are committed to strategic innovations to make our distribution grid future-proof and to make an important contribution to the integration of renewables. The 'Smart Country' project is being used to test how renewables, energy storage and grid operation interact in the district of Bitburg-Prüm in the Rhineland Palatinate, which has been selected as our model region. The expansion of electromobility also provides the option of exerting more control over the consumption of electricity and gearing it more strongly to generating electricity from renewables (> [area for action Energy Efficiency](#)). In 2013, the 'AmpaCity' project will lay the world's longest high-temperature underground superconducting cable in Essen. Superconductors are regarded as the pioneering solution for space-saving transmission of electricity in cities and this system is particularly energy efficient.



Flexible electricity generation

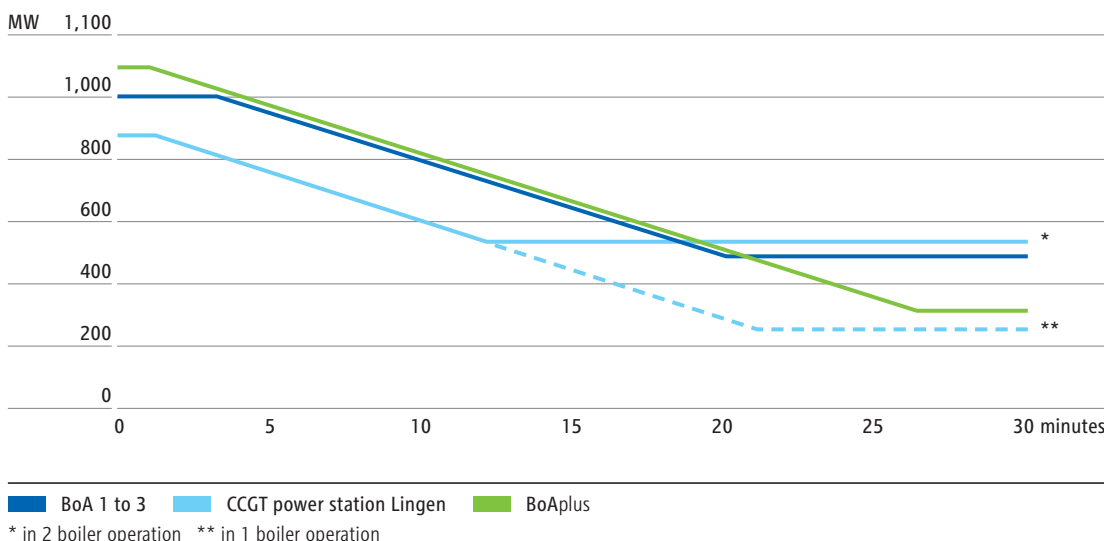
Gas-fired and coal-fired power stations that can be deployed flexibly and the provision of adequate energy storage capacities are prerequisites for RWE being in a position to guarantee electricity supply that is continuously secure and dependable despite fluctuating feed-in of electricity from renewables.

Modern gas-fired and coal-fired power stations

We intend to structure electricity generation more flexibly. This requires our power stations to be in a position to respond more quickly to the fluctuating feed-in of electricity generated by renewables. When the electricity fed into the grid system from renewable sources decreases, these power plants need to be able to increase their output quickly. They also need to be able to reduce their output sufficiently fast when electricity produced from regenerative sources increases in order to ensure that priority is given to renewables.

Advanced combined-cycle gas turbine (CCGT) power stations can be deployed particularly flexibly. At the Lingen site (Germany), we therefore not only commissioned a CCGT power station with 876 MW generating capacity but also overhaul of the existing gas-fired power station (units B and C) and installation of four new gas turbines. This increases its output to 950 MW and raises the efficiency

Flexibility of advanced CCGT and lignite-fired power stations



from 41% to 46%. The two units can be ramped up to 100% output within the space of a few minutes. They are therefore an ideal complement to feeding in electricity from renewable sources. The Lingen power plant can also be started from cold. If there is a large-scale shutdown of electricity generation, units B and C can be restarted without the need for external electricity. This in turn allows other power stations to be restarted.

We have also consistently upgraded our coal-fired power stations to make them more flexible. We have been implementing a rolling programme of fitting our 600 MW lignite-fired power stations with the latest control technology. This has provided more flexibility for adjusting the output of our power stations to meet the needs of a fluctuating demand. Right from the start, we designed our modern coal-fired power stations like the plant in Hamm (Germany) or our optimised lignite-fired power stations in Niederaußem and Neurath so that their output can be reduced at a speed of 30 MW/min. The output can even be reduced to 50%, and in the case of the planned 'Optimised Unit Plus' power plant (BoAplus) to 16%. This makes advanced coal-fired power stations virtually as flexible as CCGT power stations and this capability enables them to make an important contribution towards grid stability and integration of renewables.

Storage plants

The expansion of renewables leads to an increasing requirement for energy storage solutions. Pumped-storage power plants are a proven technology for storing electricity which uses surplus energy to pump water up to a high-level reservoir. Whenever demand for electricity is high, the water is channelled over turbines and converted back to electrical energy. Work is progressing on expansion of the pumped-storage plant located at Vianden (Luxembourg) with 200 MW to almost 1,300 MW. The new pump turbine is due to start operating in 2013. RWE also holds a 50% stake in Schluchseewerk AG which is planning a 1,400 MW pumped-storage plant in the southern part of Germany's Black Forest. Although the construction of pumped-storage power plants is absolutely essential for integration of renewable energy, projects like this frequently encounter strong local opposition. The construction of pumped-storage power plants is frequently associated with significant impacts on the local landscape. We pursue a robust policy of engaging in dialogue with local residents to gain acceptance of construction projects (> [Stakeholder dialogue](#)). We are also developing alternative storage concepts so that we are in a position to take advantage of any option for storing energy that has commercial potential (> [area for action Security of Supply](#)).



Fuel availability

RWE is committed to using a broadly based mix of fuels – lignite and hard coal, natural gas, nuclear fuel and biomass. It is also committed to procurement of fuels being diversified by region and over time. Our assessment is that the supply of fuels over the short and medium term is associated with a comparatively low level of risk. We believe that one of our key functions is to ensure long-term security for the procurement of fuels.

Gas supply

Gas is the most important source of energy for supplying the heating market. Around 80% of our demand for gas is used to supply domestic households and industry with heat. We use the remaining 20% to generate electricity. Fuel costs are the crucial factor for generating electricity from natural gas in gas-fired power stations. In 2011, gas-fired power stations were primarily deployed in Germany and the United Kingdom to cover peak loads and to compensate for fluctuating feed-in from renewable-based generation. In the Netherlands, large gas-fired cogeneration plants are used to generate base load electricity. CCGT power plants are used to cover peak loads and during the summer when gas prices are low to cover base load as well.

RWE used to conclude long-term supply contracts. The aim was to secure the supply of natural gas. These contracts are linked to prices of crude oil. However, the price of natural gas freely negotiated on the energy trading exchanges has been uncoupled from crude oil prices in recent years. The fact that we were unable to pass our higher procurement prices on to customers exerted a major negative impact on our net income for 2011. We therefore embarked on a process of contract renegotiations in 2011. The result of these negotiations was not known when this report went to press ([> area for action Pricing and Marketplace](#)).



We are also pursuing a policy of expanding extraction and transport of gas. In 2011, our subsidiary company RWE Dea drove forward development of the Breagh and Clipper South gas fields in the southern sector of the North Sea belonging to the United Kingdom. Production of natural gas is scheduled to start up there in 2012. Exploitation of these gas fields makes a substantial contribution to securing the supply of natural gas to the United Kingdom. RWE Dea has also expanded its activities in the North Sea and in the North Atlantic off the Norwegian coast. RWE Dea continues to be actively involved in projects for the exploration and production of natural gas and oil in North Africa and the Caribbean.

Alongside production, transmission also plays an important role in securing the supply of natural gas. NET4GAS is our independent Czech gas grid operator and the company started work on the 169 km GAZELLE pipeline in 2010. The construction work is scheduled for completion at the end of 2012. This pipeline will carry gas across the Czech Republic. It will connect the OPAL pipeline to the Nord Stream pipeline in the Baltic Sea, which started operating at the end of 2011, and the MEGAL



pipeline grid. This will supply Southern Germany and Western Europe with natural gas. The pipeline will also supply the Czech Republic and Slovakia with natural gas. Security of supply in large parts of Europe will be increased as a result. Liquidity in the markets will be improved at the same time.

[> More on the GAZELLE pipeline](#)



The supply of natural gas from Central Asia continues to be extremely important to us. In 2011, the Nabucco Consortium where we have a 16.7% stake intensified negotiations on supply contracts with a number of countries in the region. The decision to invest in building the pipeline is based on feeding-in sufficient gas to the pipeline.

[> More on Nabucco](#)

Coal

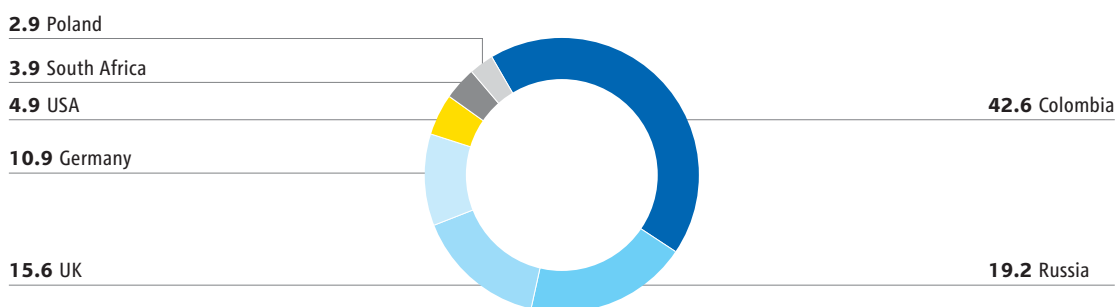
We only supply our lignite-fired power stations from our own opencast mines in Germany and Hungary. Depending on the amount of lignite extracted each year, the mining quantities currently approved will last for another 30 to 40 years in Germany and for up to 50 years in Hungary. At the same time, the extraction costs can be predicted with relative certainty because they are not dependent on developments in the raw materials markets. This means that lignite represents our most secure fuel source and makes a significant contribution to an affordable energy supply.



Hard coal is increasingly sourced on the global market because the extraction of hard coal is declining in Germany. We have access to a range of supplier countries. Individual shares in total supply fluctuate from year to year and this indicates that we are dealing with a liquid market. We do not therefore anticipate that supplies will be compromised over the long term. ([> area for action Supply Chain](#)).

Hard coal by country of origin*

in %



* Data of RWE npower refer to purchase of hard coal, the rest refer to hard coal usage.

Uranium

The accelerated exit from the use of nuclear energy in Germany and the associated shutdown of our Biblis power station means that the contribution of nuclear energy to our electricity generating capacity will decrease significantly. The importance of uranium for generating electricity will fall and it will no longer play a major role in assessing security of supply at RWE.

The exit from nuclear energy has resulted in increased exchange of electricity over national borders, particularly between Germany, France and the Czech Republic. Moreover, the operators of the transmission grids in Germany have concluded contracts for provision of reserve capacities with energy utilities from Germany and Austria on the advice of the Federal Network Agency.

Biomass

Generation of electricity from biomass is on the increase. In 2014, we are planning a total capacity of roughly 1,500 MW. However, the supply of biomass produced under sustainable conditions is not unlimited and the market can only be expanded to a certain extent. In 2011, RWE Innogy brought a wood pellet plant on stream in Georgia (USA) which is able to supply up to 750,000 metric tons of wood pellets produced sustainably every year ([> area for action Supply Chain](#)). This enables power plants to be operated with an output of more than 1,400 GWh of low-carbon electricity – depending on the level of efficiency.



Supply Chain



Our stakeholders are increasingly asking where RWE sources its fuels, goods and services. They expect us to only purchase these products and services from providers who respect human rights, provide appropriate working conditions and guarantee effective environmental protection.

A secure and affordable supply of fuels forms the foundation for the success of our business. In 2011, lignite-fired production made up 36% of our electricity generation. We have our own deposits and bear responsibility for extraction. Supplies of hard coal, natural gas and nuclear fuels are mainly or wholly sourced from outside suppliers. We therefore have no direct influence on the conditions under which these fuels are extracted. We source some of our biomass fuel from third-party suppliers but we are also building up in-house capacities with the objective of securing sustainable supply.

A global economy involves individual production operations being carried out in different countries. This means it is more difficult to assess compliance with working conditions, human rights and environmental protection at every stage of the value chain. Nevertheless, environmental organisations, unions and human-rights organisations demand transparency in the supply chain and make companies responsible for ensuring appropriate conditions. This is a particularly important factor for RWE in the procurement of fuels. Furthermore, these challenges are also evident when purchasing components for power stations and standard products.

OVERVIEW OF THE MOST IMPORTANT FACTS:



Expectations of stakeholders

Our stakeholders believe that price and quality should not be the only criteria governing a procurement decision. Alongside transparency they also demand that our suppliers comply with environmental standards, labour standards and human rights worldwide. The production of fossil fuels and the sourcing of biomass must not result in negative consequences for local food production and supplies of fresh water. The living space of indigenous populations, the natural environment and cultural assets must not be exposed to the threat of negative impacts. Our stakeholders also expect us to take a responsible approach to the supply chain for all other products that we purchase, for example components for power stations and standard products.

Fuel supply chain as a challenge

Setting up a sustainable supply chain is made more difficult by complex trading and supply relationships. This is also made increasingly difficult for the procurement of hard coal. In many cases, there are no longer any direct supply relationships with producers. This makes traceability and opportunities to leverage conditions more difficult. When it comes to natural gas, our market shares are lower and our capacity to exert an influence on the local circumstances of extraction is therefore also very restricted.

In our core regions within Europe, we are fortunate in having a properly functioning legal system and robust enforcement. The challenges are greater in other regions because environmental standards, social principles, and human rights are complied with in the individual countries or enshrined in legislation to differing degrees. The OECD Guidelines for Multinational Enterprises, the ten principles of the Global Compact of the United Nations and the Labour Standards of the International Labour Organisation (ILO) therefore provide a platform for sustainable supply conditions. The importance of the OECD Guidelines increased when they were revised in 2011.

Target Attainment

We have introduced processes for assessing our counterparties when procuring fuels. They provide us with relevant data that enable us to assess the scope of compliance by our business partners with the principles of the UN Global Compact. We have introduced group-wide principles for the procurement and the use of biomass. All suppliers of standard products, services and power-plant components are required to comply with RWE standards for both occupational health and safety, and environmental protection. We have continued to expand our procedures for the purchase of standard products and catalogue goods.

Objectives in the area for action Supply Chain

We are committed	KPI	Target
... to avoiding reputational risks by making compliance with internationally recognised social and environmental standards an integral part of our supply contracts.	Supplier management coverage in all procurement areas in %	95% of the purchasing volume

Hard coal

Recent years have seen hard coal transformed from a fuel used on a regional basis to a globally traded commodity. On the one hand, the market has become more liquid as a result of this development. This has generated significant economic benefits for us because we are able to take a very flexible approach to procuring imported coal and purchase this fuel at competitive prices through our subsidiary company RWE Supply & Trading. On the other hand, new challenges arise when it comes to compliance with sustainability standards. This is because we no longer have an absolutely transparent overview of the actual mine from which the individual coal deliveries supplied to our power plants in Europe were originally extracted – particularly since hard coal frequently changes commercial ownership on the trading markets before we become the physical owners by taking delivery. A Counterparty Risk Assessment is therefore carried out with all current and future business partners of RWE Supply & Trading. The contractual partners are screened for a number of issues including any suspicion of money laundering, financial crime, terrorist activities and providing finance for similar activities, corruption and breaches of ethical standards and human rights. RWE only engages in business relations if the Risk Assessment yields no information that would preclude doing business. The assessments are repeated at least every twelve months. An assessment is repeated every three to twelve months for contractual partners where potential risks have been identified.

At the beginning of 2012, we joined forces with other major European hard-coal electricity generators to establish the Bettercoal initiative in order to meet the increasingly stringent requirements specified by our stakeholders. The objective is to advance the continuous improvement of Corporate Responsibility in the supply chain for hard coal with the focus on coal mining. Over the coming years, Bettercoal will be developing processes that will enable coal mines throughout the world to be evaluated against environmental and social standards. In the Netherlands, RWE is involved in the Dutch Coal Dialogue. This initiative provides a forum for energy suppliers and companies from the raw materials sector alongside various stakeholder groups. It facilitates opportunities to make the coal supply chain more transparent in the Netherlands.

Biomass

We want to use biomass grown sustainably exclusively to fuel our power plants. This will enable us to gain broad public support for such an approach to generating electricity. The use of timber and other biogenic materials is broadly accepted as a method of electricity generation that is virtually carbon neutral. The challenges are at the upstream stages of the value chain with cultivation of fuel crops and transport. These processes have to be carried out under conditions that are compliant with accepted ecological and social standards. When fuel crops are grown we must ensure that the soil quality is maintained. Furthermore, valuable landscapes with high biodiversity must not be replaced by plantations for growing biomass crops. And the availability of food must not be restricted by this type of cultivation.

RWE adopted binding principles for the deployment of biomass in 2011 to establish a uniform approach to this issue throughout the Group. They define the framework for a sustainable approach to biomass at all stages of the value chain. The individual RWE companies are also encouraged to establish more extensive regulations extending beyond the scope of this. Before Essent was taken over by RWE, the company started working together with Skall International (today Control Union Certifications) in 2002 to draw up and introduce the Green Gold Label. This label provides verifiable certification for sustainable procurement of biomass. Essent set a target to have 90% of its biomass in conformity with the Green Gold Label or comparable standards by 2012 and to achieve this standard for 100% of its biomass by 2015. RWE Supply & Trading procures a significant share of the biomass used by Essent and RWE npower but also supplies other companies. In 2011, RWE Supply & Trading procured a total of 1.2 million metric tons of biomass. 99% of this biomass was certified in conformity with the Green Gold Label or comparable standards.

RWE npower converted the Tilbury power plant to complete combustion of biomass and the plant is only supplied with sustainably certified biomass. The Amer power plant operated by Essent has a similarly high ratio: 96% of the 627,000 metric tons of the wood pellets sourced by the power plant in 2011 were certified in conformity with the Green Gold Label or comparable standards.

In 2011, RWE Innogy produced 393,000 metric tons of biomass for its own consumption and for use by third parties. It is important that growing crops and cultivation of biomass is not carried out at the expense of existing stores of CO₂ – for example moorland environments. Production is carried out in accordance with accepted standards, primarily in compliance with the requirements of the Green Gold Label.

In 2011, we used 347,000 metric tons of biomass for co-firing at the Mátra lignite-fired power station in Hungary. The application of biomass is governed by statutory regulations in Hungary. Most of the biomass is produced in Hungary and primarily originates from organic production residues. Compliance with our principles for the use of biomass is also ensured here.

Biomass from own production

We are also taking steps to ensure an adequate supply of fuel that will enable us to increase our electricity generation from biomass. Since March 2011, we have been operating a new wood-pellet plant in the state of Georgia in the US. In future, this plant has the capacity to produce up to 750,000 metric tons of wood pellets each year and we supply these pellets to our power plants in Europe. The direct link with local timber suppliers means that we are able to ensure sustainable production. Georgia has large plantations where timber is harvested from fast-growing trees. These plantations were used by the paper industry in the past but due to falling demand in this sector RWE is now able to use these capacities as a fuel source. The Georgia Forestry Commission monitors production to ensure that timber is grown in the forests under environmentally compatible conditions. The pellets are transported to Europe by sea.

Harmonisation of existing standards

Our aim is to make a contribution to harmonising the different international standards and regulations relating to biomass. RWE is addressing this issue by engaging in a dialogue with other companies, and with academics and standard setters, for example through the 'Essent/RWE International Conference on Biomass' which Essent organised in November 2011. Another example is the Initiative of Wood Pellet Buyers (IWPB) which is a discussion forum where major European energy traders discuss how the liquidity and availability of biomass can be ensured on the commodity market – in the same way as hard coal. The initiative has developed standard solutions for contracts, technical specifications and sustainability criteria for biomass. The objective is for them to become de facto standards for the industry.

Nuclear fuels and uranium

Natural uranium is the basic material used to produce fuel elements for nuclear power stations in a multistage process. International mining and technology companies are operating at all stages of the value chain. They generally have comprehensive procedures for sustainability management.

All procurement contracts are also signed by the European Atomic Energy Community (EURATOM) because legal ownership of all nuclear fuels is transferred to EURATOM under statutory regulations. As an operator of nuclear power stations, RWE only holds the rights for commercial usage and consumption. This also ensures that nuclear fuels are acquired under strictly controlled conditions that are accepted by the governments of European countries.

In 2011, we were using a total of 77 metric tons nuclear fuel in our three power plants compared with 109.1 metric tons in the previous year. The importance of uranium as a fuel source has declined as a result of the policy of withdrawing from nuclear energy adopted by the German government. We will be procuring much less uranium than has previously been the case.

Natural gas

Around 80% of the quantities of natural gas purchased by RWE go straight to consumers for heating. The other 20% are used for generating electricity. We purchase most of our natural gas from the Netherlands, the United Kingdom, Norway and Russia. No significant debate about compliance with social and environmental standards has been associated with the purchase of these supplies by contrast with the situation relating to hard coal.

Naturally, we take responsibility wherever we extract and transport natural gas ourselves or are integrated within consortia. Stringent environmental criteria are applied where we carry out exploration and extraction activities in the North Sea and in the North Atlantic and we are subject to extensive supervision by the authorities of the neighbouring countries. No significant environmental damage has been caused in the past.

Outside Europe, we are currently extracting natural gas in Egypt where we hold a 50% stake in the SUCO extraction company. SUCO has an environmental management system based on the international ISO 14001 standard and is also certified for quality and occupational safety management in conformity with the ISO 9001 and OHSAS 18001 standards. No significant environmental damage has been caused in Egypt to date, too.

Goods and services

In 2011, the purchase volume of the RWE Group for standard products, services and power-plant components was around €9.4 billion. At RWE 40% of procurement is handled centrally through the Group Purchasing Department at RWE Service GmbH and 60% is dealt with decentrally through our operating purchase organisations or through RWE Technology in the case of new-build power plants. Our assessment is that the risk of breaching environmental and social standards in the area of standard products, services and power-plant components is low. We procure virtually all our standard products and services from Europe.

Our CR strategy enables us to pursue the goal of procuring our goods and services while ensuring that there is no exposure to reputational risks for the company. Our Guidelines on Group Procurement and our General Terms and Conditions of Business are a key element in providing this security. A binding guideline across the Group requires support for the compliance rules and principles of RWE, the RWE Code of Conduct, and the requirements of the Global Compact of the United Nations.

RWE Service GmbH is responsible for €3.6 billion of our procurement volume and has adopted the principles of the Group Directive in its Procurement Manual. This specifies the detailed standards for occupational safety and environmental protection that suppliers have to comply with and underlines the importance of the UN Global Compact. The conditions for our suppliers are enshrined in the General Terms and Conditions of Purchase and Payment.

In 2011, we also embarked on a process of enhancing harmonisation of the appropriate guidelines for decentral procurement of operating units across the Group. The 'Procurement Connect' platform launched in April 2011 defines our uniform standards and framework conditions for the procurement strategies of the local operating procurement organisations, as well as also establishing uniform group-wide sustainability criteria. Sustainable procurement was also integrated in the group-wide controlling elements. The target parameter 'reputation-secured procurement' has been derived from the CR Index and included in the Balanced Score Card of RWE Deutschland AG and other Group companies. The Balanced Score Card serves as a management instrument for aligning the company on strategic targets.

RWE Technology is working closely together with its suppliers in the area of new-build power plants. This enables us to ensure compliance with the necessary standards on environmental protection and health and safety. This cooperation is supported by effective selection procedures for suppliers and auditing programmes.

Pricing and Marketplace



RWE sells electricity and gas in several European countries. Each of these countries has its own market conditions. Our challenge is to offer our customers the products they want at affordable prices.

We supply 16.4 million private households and small commercial enterprises in Europe with electricity and nearly 7.8 million with gas. However, the energy markets continue to be a varied mix. Deregulation has been completed in Western Europe. Competition operates here at the production and sales level. At the same time, we can observe a growing trend to intervene in markets. Diverse national schemes for promoting renewable energies have been set up with the aim of making the generation of electricity more climate friendly. The market for industrial customers in Central and Eastern Europe is defined by free competition, while markets for residential and commercial customers still remain partly regulated.

OVERVIEW OF THE MOST IMPORTANT FACTS:



Challenges in the marketplaces

In all markets, energy prices are rising for our customers over the medium term. Average wholesale prices in 2011 were up to 10% higher than in the previous year. The prices for forward contracts which provide an indicator of price development were also higher for 2012 than they were in the previous year. A key percentage of the prices which consumers have to pay also includes the costs for transmission and distribution and the statutory and regulatory requirements. These vary according to individual countries. In Germany, the costs for production of renewable energy are primarily transferred to retail customers. The expansion of the transmission and distribution grids also leads to higher transmission charges. In the United Kingdom, costs for social commitments, such as combating fuel poverty, have to be absorbed by the energy supplier.

The competitive relationships of the relevant countries are also partly reflected in the switching rates of our customers. While these rates in the United Kingdom can be as much as 20%, we tend to see rates in the region of single-digit percentages in the Central and Eastern European markets.

Target Attainment

Our target is that our customers remain loyal over the long term. The loyalty of our customers is the benchmark of our area for action 'Pricing and Marketplace'. We measure success by their willingness to remain customers of RWE over the long term, their interest in additional products and services and their readiness to recommend RWE to other people. We have been producing the Customer Loyalty Index uniformly for all sales companies in Germany since 2009. We currently have a value of 73 with our electricity customers in Germany in 2011 (2010: 71) with a gradual upward trend in the upper field of our comparable competitors. We also carry out similar customer and loyalty satisfaction surveys outside Germany. We therefore want to roll out a uniform Customer Loyalty Index across the Group in 2012.

Objectives in the area for action Pricing and Marketplace		
We are committed	KPI	Target
... to having satisfied and hence loyal customers.	Customer Loyalty Index*	Customer Loyalty Index of at least 73 by 2013

* The Customer Loyalty Index is based on surveys conducted among residential and commercial customers. They are asked to score RWE on a scale of 0 to 100 points. Satisfaction is rated low for scores of 70 or less, moderate for scores of 70 to 79, and high for scores of 80 and over.

Electricity prices and tariffs

Up to now, our products and prices have been the primary platform for competition in our West European markets. Residential customers in particular scrutinise the price of electricity particularly carefully when they are choosing an energy provider. This is why we gave our residential and commercial customers in Germany the promise 'The Price Stays' until mid-2012. In the United Kingdom, we agreed not to increase our electricity prices in the winter of 2011/2012 and even reduced gas prices in January 2012. We want to enhance customer loyalty to our company while at the same time contribute to calming the public debate about the development of energy prices.

In 2011, more than 1 million customers in Germany, the United Kingdom and the Netherlands opted for a fixed-price package. Analysis of the change in tariff shows us that customers want to hedge their bets with fixed-price packages if they are expecting energy prices to rise.

We introduced the SmartLine electricity tariff with our campaign 'voRWEg gehen mit intelligenter Energie' (Advancing Intelligent Energy). There is no basic charge and billing depends solely on consumption with a uniform price for every kilowatt hour consumed. The rate is one element in the packages provided under our SmartHome offers, which give customers additional services relating to energy efficiency ([> area for action Energy Efficiency](#)).



Prices for residential customers in Poland are set by the government regulator so that as yet there is no price competition there. Although gas and electricity markets in Hungary have been completely deregulated since 2007 and 2009 respectively, customers are free to decide for themselves whether they want to continue to stay in the regulated market.

'Green electricity tariffs'

Following the Fukushima reactor catastrophe in March 2011, the interest of consumers in green electricity products has increased significantly. Since then, the number of contracts concluded for green electricity with our subsidiary company eprimo has virtually doubled. We also offer the 'RWE Pro Klima Strom Regenerativ' (RWE Pro Climate Regenerative Electricity). The electricity from this package is generated using renewable energies. All of the electricity in this package is produced from hydroelectric power and is generated locally in RWE's power stations. The origin of the ProKlima Strom electricity has been audited and tested by the German Technical Inspectorate TÜV Süd. We also offer our automotive electricity customers electricity which has been generated entirely from renewable energy, through the 'RWE Power basic' (RWE Auto Electricity Natural) tariff.

In the Netherlands, around half of our customers purchase electricity from renewable energy sources which is primarily produced by Essent itself. Commercial and residential customers do not incur additional costs for purchasing green electricity. Essent also offers a green gas tariff with 'Groen voor Gas'. The gas which Essent supplies to its customers under this tariff is standard natural gas. However, the use is climate neutral. The CO₂ liberated by combustion of the gas is offset indirectly by voluntary emission certificates. Only certificates conforming to the Gold Standard are used. Essent continues to supply 'Groen Gas' (Green Gas). This gas is produced by fermentation of organic materials and replaces conventional natural gas.

In the United Kingdom, we also offer the tariffs 'npower Juice' and 'National Trust Green Energy' which have been accredited by the Green Energy Supply Certification Scheme.

In Poland, RWE Polska has been offering the green electricity tariff 'Wind Power Energy' (Energia z Wiatraków) since 2011. Customers decide for themselves on the proportion of electricity from renewable sources that forms part of their overall consumption. The green electricity comes from wind farms operated by RWE Innogy. The origin is certified by the German Technical Inspectorate (TÜV).

ELMÜ, a sales company of RWE Hungaria, has been offering its residential and business customers two green electricity tariffs for several years. The electricity is derived entirely from renewables. ELMÜ is also promoting the installation and use of heat pumps with a special tariff.

Gas market

The framework conditions have also changed in the gas market. The majority of European gas imports were previously based on long-term contracts which were in turn geared to the price of oil. Over recent years, the availability of gas traded freely in Europe has undergone a sharp increase, particularly due to the increased extraction of shale gas in the USA. As a result of this, gas prices in the key European trading exchanges fell below the price level of oil-indexed sales contracts with major gas producers. This led to competition becoming more intense. Energy utilities with no long-term gas purchase contracts are now able to procure gas on the spot market and sell this at more favourable prices than utilities with oil-indexed delivery contracts.

As a result of this development, we have observed a significant decline in our market share on the Czech market from 72% in 2008 to 49% in 2011. We have been in the process of renegotiating our procurement prices since 2009 with the aim of counteracting the negative effects on our profits. In 2011, we succeeded in transferring the first contracts either to indexation against gas wholesale prices or terminating them prematurely mutual agreement.

Credibility and customer satisfaction

Our public reputation has been adversely affected in Germany due to our role as an operator of nuclear power stations. While nuclear energy tends to have a positive profile in other European countries such as the United Kingdom, many people in Germany reject the notion of generating electricity from nuclear power. This also exerts an effect on our customer relations.

After the Fukushima nuclear accident in March 2011, our reputation in Germany temporarily came under a lot of pressure. The readiness of customers to change supplier increased by around 50% for a limited period of two months compared to the long-term average. At the same time, however, the insolvency of a major electricity trader persuaded a large number of residential and commercial customers to switch to RWE. The events in Fukushima had no impact on the behaviour of our customers in Central and Eastern Europe, or in the United Kingdom.

Transparency

As a major energy utility, we are committed to safeguarding fair conduct in the marketplace. This applies to our approach to the German Federal Cartel Office and other authorities, and to our dealings with members of the community in the public domain. This was the motivating force for launching our transparency offensive as early as 2008. All data on electricity generation relevant to the market and data on the availability of our power stations are published promptly. This action ensures that all the players in the market can have access to the same reliable information. Investigations by the anti-trust authorities found no evidence of manipulation in the market by RWE.



[> More on RWE transparency offensive](#)

Our aim is to extend competition for customers beyond the issue of price. We also want to enhance the loyalty of customers to RWE through our service offering. This objective encouraged us to launch an internal benchmarking process which compared our sales, grid and service companies. This process also involves exchange of information about 'best practices' in customer service. Our international companies have also been taking part in this benchmarking exercise since 2011. For example, we cut waiting times by more than half at our call centres in Germany to comply with the enhanced aspirations of our customers. Waiting times are now less than 100 seconds.

Market situation in the United Kingdom

In 2011, a number of energy companies including RWE npower were fined for not properly handling customer complaints in certain instances. The British regulatory authority for electricity and gas (Ofgem) imposed a fine of £2 million (€1.7 million) on RWE npower. RWE npower carried out an internal investigation of the accusations.

Ofgem's investigation found in some instances that procedures were not as efficient as they should have been. In some cases, responses to customers' complaints did not have all the details about the Ombudsman's Services. RWE npower responded immediately to the changes by rectifying the errors highlighted and this action was recognised by Ofgem.

RWE npower continues to see an improvement in our customer service performance. In 2011, RWE npower's position in customer satisfaction league tables improved compared to other companies and we saw a reduction in complaint levels across our customer base.

RWE npower set up a Customer Stakeholder Council in 2010 with representatives from a wide range of consumer protection organisations. The aim of the Stakeholder Council is to provide external input to improve customer satisfaction and reputation and to develop stronger relationships with key stakeholders. RWE npower is represented on the council by the Chief Executive Officer and the Chief Commercial Officer. The stakeholder council meets twice a year.

Market situation in the Netherlands

Competition in the Netherlands and in Belgium continued to increase in 2011, particularly with residential and business customers, and mid-sized industrial companies. Our Dutch subsidiary company Essent repositioned its brand and is making significant efforts to increase the number of customers. Campaigns and products promoting energy efficiency and Smart Energy play a key role ([> area for action Energy Efficiency](#)). Essent wants to become the leading company for Smart Energy in the Netherlands. The activities are already yielding some success. In 2011, Essent succeeded in expanding the number of residential and commercial customers.



Market situation in Central and Eastern Europe

The reputation of RWE is significantly more positive in the markets of Central and Eastern Europe where we are associated with security of supply and efficiency as a major private company. Since energy prices are set by national regulators, competition is confined to service packages. This situation makes the status of customer satisfaction all the more critical for the success of our business.

RWE is the only major utility not publicly owned in Poland and it is perceived to have a much higher level of customer orientation and to be more efficient than its competitors. Compared with state energy utilities, we therefore believe that our company has a clear competitive advantage on service. In 2011, the satisfaction of our customers was confirmed by the award of the 'Customer Friendly Company Certificate', the 'Silver Consumer Laurel for Residential and Commercial Customers', and the 'Golden Consumer Laurel for Business Customers'. RWE Polska was the first company to receive the certificate 'Good Compliance' from the Polish Consumer Association. This confirmed that the service provided by RWE Polska fully complies with the rights of consumers and meets customers' aspirations. Our Czech company RWE Transgas is also perceived as a dependable partner in the Czech Republic. Despite the gas crisis in the winter of 2009, RWE Transgas delivered reliable supplies of gas to its customers.

In Hungary, using customer service to create a unique profile is more challenging because the energy authority monitors service quality very carefully and defines a list of service guarantees that all energy utilities have to comply with. In 2010, the ELMÜ/EMASZ Group provided very good customer services and received an award for this. In 2011, it was the first company in Hungary to introduce a new accounting system which complied with the European requirements for unbundling and the government requirements. There were some difficulties during the introductory phase so that not all the requirements could be immediately fulfilled. However, the group made major efforts to overcome these difficulties and help customers with any problems they had. Our customers also acknowledged these efforts.

Fuel poverty

Fuel poverty is defined as households having to spend more than 10% of their total income on energy needs. Key contributory factors are low income, increasing energy prices, as well as poorly insulated and inefficiently heated homes. There are differences in the approach taken to address fuel poverty in the United Kingdom compared to Continental Europe.

United Kingdom

The issue of fuel poverty has been the cause of public concern for many years in the United Kingdom. The first programmes to combat fuel poverty were already being set up in the 1990s. In April 2011, the Government launched a 'Warm House Discount Scheme', a new programme to combat fuel poverty. The energy utilities were put under an obligation to grant the most vulnerable customers a discount on their energy costs. The annual amount is to increase from £30 million (€26.1 million) in 2012 to a projected £45 million (€39.1 million) in 2015.

In 2011, RWE npower invested more than £28 million (€24.4 million) to support vulnerable customers through a variety of programmes. Our 'Health Through Warmth Scheme' is targeted at people living in cold and damp homes. RWE npower provides support for these people by modernising the heating and insulation of their home. Any vulnerable people do not need to be npower customers to access help.



> [More on Warm House Discount scheme](#)

> [RWE npower](#)

Continental Europe

In Continental Europe, basic supply of energy to vulnerable households is primarily carried out as the function of the state social services. The issue of energy poverty therefore has a lower profile in the public domain there, although it is becoming an increasing matter of concern as a result of rising energy prices.

In Berlin, RWE launched a pilot project in 2010 that was directed towards households which have an income at their disposal which is only just above the level of social welfare recipients. RWE established the 'Verein Cleverer Kiez e.V' or Smart Neighbourhood project at the beginning of 2010. This project trains people who are long-term unemployed as energy saving consultants. They operate in teams of two and advise tenants of Berlin housing associations on how they can save electricity, water and heat. This helps tenants to cut down the amount of money they spend on energy. Since the project got underway, this advice has helped to generate savings of more than 100,000 kWh of electricity, nearly 4,000 m³ of water and more than 68,000 kg of CO₂. This is equivalent to a total amount of more than €40,000.



> [More on the Verein Cleverer Kiez e.V.](#)

In the Netherlands, Essent provides easier payment conditions for customers who are struggling with their bills. Another special feature of the Dutch market is that the statutory regulations preclude the energy supply from being cut off to customers who are in arrears with payments during the winter months.

Programmes have also been launched to address fuel poverty through our companies in Central and Eastern Europe over recent years. RWE Polska offers vulnerable customers extended payment terms, a waiver for reconnection charges, postponement of disconnection from the electricity supply before public holidays and weekends, recommencement of electricity supplies without customers having to pay off all their payment arrears and instalment payments. Our Hungarian subsidiary ELMŰ/EMASZ assists families affected by energy poverty in the region. Almost 2,400 mt of lignite was provided at half price to local government agencies for distribution to vulnerable families.

Demographic Change



Our business success depends on our company being able to draw on a sufficiently large pool of capable and adequately qualified employees both now and in the future. Our long-term human resources policy therefore addresses the effects of demographic change and takes account of aspirational changes in the workforce and society at large.

Our human resources policy is confronted with two demographic challenges. One of these challenges is the declining population in Germany, as well as in Poland, Hungary and the Czech Republic. Over the long term this will lead to a shortage of junior employees and trainees, skilled workers and managers. The average age of people living in European countries will also continue to increase over the coming decades. This development will be particularly marked in Germany and the countries of Central and Eastern Europe. The future will therefore witness more members of the workforce leaving the company as they enter retirement.

OVERVIEW OF THE MOST IMPORTANT FACTS:



We are observing a parallel development where the aspirations for attractive employers are increasing. Reputation and corporate culture are defining the appeal of an employer in addition to salary structures and social benefits. Giving women and their male counterparts the same opportunities for development is now standard policy alongside promoting the conditions to get the work-life balance right between career and family.

The demographic change is being accompanied by a trend towards everyone having to work for longer in many European countries. Maintaining the employability of the workforce is therefore another focus of our human resources policy. At the same time, older employees present different challenges for their employers. A research study financed by RWE demonstrated that employees with a longer track record of experience value a relationship of trust with their supervisors more than their younger colleagues do. We take these differences into account through a human resources policy geared to different life phases.

Target Attainment

We have developed the Demography Index (DEX) to enable us to apply uniform benchmarks in assessing the age distribution of our workforce. The index uses five aspects to assess age distribution: the percentage of employees below the age of 30, the percentage of employees over 55, the age coefficient (ratio of employees aged between 30 and 55 to the group of employees over the age of 55), average age, and variation in age structure. The age distribution improves as the DEX value approaches 100. In 2011, we achieved a value of 84.2. This is equivalent to an increase of 0.4 points compared with 2010 and is within our target for 2011. The value is therefore within the range of other major German companies.

Objectives in the area for action Demographic Change		
We are committed	KPI	Target
... to ensuring the long-term availability of sufficient numbers of suitably qualified personnel.	Demography Index	Demography Index of at least 84

Long-term human resources planning

The effects of demographic development on our workforce have been systematically analysed at RWE since 2005. RWE Power is our biggest subsidiary company with approximately 13,500 employees. The proportion of the workforce in this company with an age between 45 and 55 years is disproportionately large. As a consequence, around half of the members of staff working at the company today will leave it to go into retirement in the period between 2015 and the following ten years. When they leave, we will lose a great deal of know-how.

However, this initial analysis was not detailed enough to derive effective measures for long-term optimisation of our labour pool. We developed the strategic analysis and planning tool 'Long-term Workforce Structure' in 2007 with the aim of ensuring that we always have an adequate number of suitably qualified employees at the right place in the future. The tool covers the following subject areas:

Development of the workforce

The Long-term Workforce Structure tool (LWS) empowers us to gain a nuanced picture of development within the workforce and analyse employees' fields of activity on the basis of qualitative criteria. We have divided our workforce into so-called job functions with the aim of facilitating this process. Fields of activity with identical qualification requirements are bundled in these functions. The LWS provides a detailed overview of how many employees in the individual job families and departments will be leaving the company. This analysis has revealed major differences in age distribution for the individual job families.

Development of the employee requirement

Robust forecasts about the development of our employee requirements are essential if we are to have the capability to assess the opportunities and risks arising from the development of the workforce. When drawing up these forecasts, the relevant operating departments work closely together with corporate development, and finance and personnel controlling. The basis for the forecasts is the future development of the company and the individual divisions. Innovations and changes in technologies and processes are also added into the mix.

Deviation analysis

The comparison of workforce development with the forecast of the employee requirement clearly revealed that surpluses and shortfalls in our workforce are distributed very non-uniformly over the years, the divisions and the job families. They have also varied significantly in individual years. We are implementing a bundle of measures in order to continuously adjust these requirements to the demand:

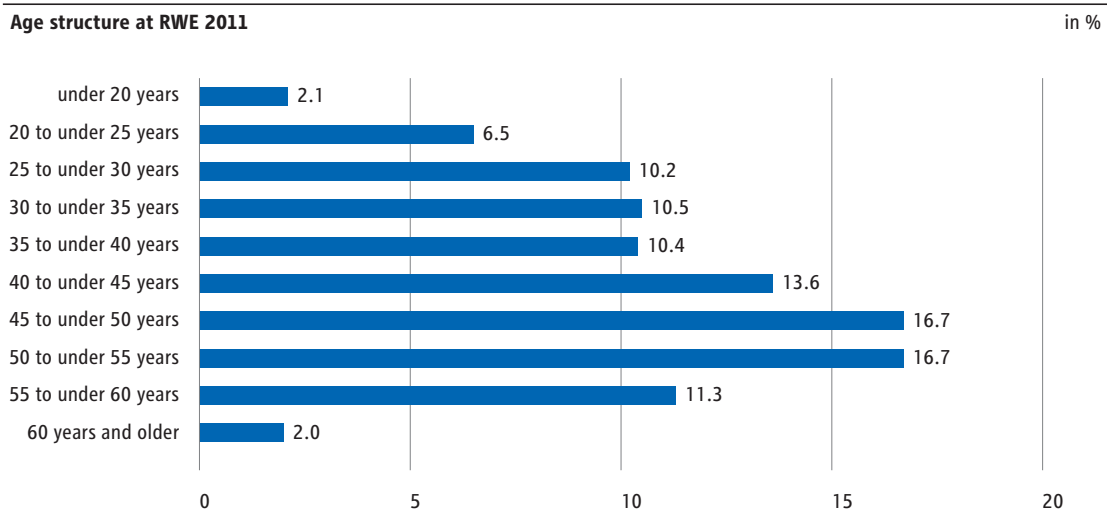
- Transfer of employees within and between the different companies
- Advanced training and qualification for new activities
- Personnel marketing and targeted new appointments
- Insourcing and outsourcing
- Controlled personnel reduction through retirement and measures within the framework of a social compensation scheme such as phased-in retirement

This planning tool will enable us to respond appropriately to long-term developments such as demographic changes and to unexpected events such as the exit from nuclear energy, without divides appearing in our personnel structure. We will also be able to assess the divisions where a specific risk is emerging for continuation of our business operations as a going concern. For example, the results of the analysis at RWE Power enabled us to selectively take on more young specialist employees after they finished their training.



The deviation analysis also highlighted the extent to which a healthy workforce can influence our business activities. This has resulted in the expansion of Occupational Healthcare Management at RWE ([> area for action Occupation Safety and Healthcare Management](#)).

Our workforce will also benefit from the long-term planning, for example through targeted advanced training and the opportunity to gain further qualifications or from the opportunity to change their job within the Group. Today, LWS includes some 65% of our employees in Germany. LMS is gradually being introduced into other national and international Group companies.



Nurturing young talent

Our human resources policy starts at a very early stage. Employees regularly visit schools and colleges in Germany and the United Kingdom where they tell children and teenagers about technical subjects and science-based jobs. They generate interest in issues related to energy and give talks tailored to specific age groups. The 'RWE Schulforum' internet portal provides a knowledge platform for school children and teachers. They are able to call up information, materials for presentations and teaching materials tailored specifically to energy-related issues. More than 100,000 teachers and young people in Germany visit the website every year.

In the United Kingdom RWE npower's 'Climate Cops' programme helps schools across the UK to become greener and more sustainable. Young people are shown how they can take a lead in being greener through climate protection at home and school. Our power station visits and our 'enthuse' programme, also encourage an interest in studying science, technology, engineering and maths. We want to ensure that we have the calibre of engineers and scientists we need in the future. In 2011, 9,000 young people participated in our programmes.

Fewer women than men still opt to follow a technical vocation. That's why we believe it's particularly important to address engage women at an early stage. We have a long track record of participating in initiatives like the nationwide Girls' Day which is specifically designed to attract more girls to industry. Workshops and short internships give them an insight into the career opportunities generally available in technology and IT, and focus on the specific career-path options at RWE. Some 450 schoolgirls alone at RWE Power took this route to find out about training and career opportunities at RWE in 2011.



[> More on RWE Schulforum](#)

Commitment to universities

In view of the shortage of skilled workers projected over the medium term, we want to ensure that the courses provided at universities cover those areas that are particularly important for our business. That's why we take the initiative on our own or join forces with other companies in Germany to sponsor endowed professorships in technical subjects and areas related to the energy industry. RWE is also a regular participant in university career fairs with the aim of providing students and graduates with information on the many different routes for entering the world of work and the career opportunities at RWE.



[> More on the endowed professorship Energy Trading](#)

Internships and final dissertations provide students with their first insights into our company. We set up the 'RWE Next Talents' programme for talented interns. Our aim is to give interns who have successfully completed their internship in the RWE Group lasting at least six weeks with an above-average performance further support as they continue their education and to integrate them within our company at an early stage. For this we stage a variety of events, including training sessions, advanced training seminars, summer schools and workshops. We provided a total of 101 students with grants of €500 euros a month through scholarship programmes like 'RWE Fellows' and 'Power Engineers' in Germany during the course of 2011. Mentors from the RWE operating companies are available to give support as personal contacts to the scholarship students at university and they form a communication bridge with the company. Our upstream subsidiary company RWE Dea has set up a scholarship programme specially tailored for prospective petroleum engineers in Egypt. We support the ELMÜ-EMÁSZ Academy in Hungary. Students can attend lectures on the energy industry at three universities.

We award the 'RWE Zukunftspreis' (RWE Future Award) every two years for outstanding dissertations completed at the end of degrees which address the issue of 'Stimuli for the Energy World of Tomorrow'. The prize money amounts to a total of €35,000.



> [More on RWE student scholarships](#)

Starting on a Career

In the modern world, the fastest route for joining a company is through the internet. That's why most of our Group companies have developed extensive internet pages with information on career opportunities. For example, our career portal in Germany provides interactive, multimedia packages for school children, students, graduates and people with job experience. While school pupils are able to get a comprehensive overview of the vocational training courses available, we offer students, graduates and people with career experience many opportunities to obtain information so that they can familiarise themselves with the extensive range of options for starting a career in the RWE Group. RWE npower, Essent and RWE East and their subsidiaries also have comparable internet portals.

Training at RWE

The classic vocational-training route has traditionally been a high priority at RWE. We take our responsibility to the community seriously and therefore train more people than we actually need for our own requirements. A total of 3,020 young people were trained by RWE at the end of 2011. After they completed their training, we provided jobs for 559 young people during the course of 2011. We are currently able to cover our human resource requirement through selective appointments of our young employees. The percentage of female apprentices amounted to 23%. We are only expecting a gradual increase in the proportion of female apprentices for technical training courses over the next few years.

Programmes for graduates and young professionals

We offer university graduates and young people at the beginning of their working lives a big range of opportunities for entering the world of work and developing their careers. For example, our trainee programmes enable them to gain an insight into different parts of the company. Our International Graduate Programme reflects the increasingly international profile of our company. This programme is specifically directed towards well qualified graduates and is intended to make a contribution to securing our future requirements for young, talented managers. Young high-flyers get to know the Group by taking part in five to six projects in Germany and abroad over a period of 18 months. However, at a very early stage we promote potential managers in many of our Group companies by strategic selection and implementing advanced training.

Our core business of producing electricity demands very specific expertise. We therefore also recruit qualified and talented young trainee managers directly in our management companies through the 'Power Graduate Programme' (RWE Power) and the 'Renewables Graduate Programme' (RWE Innogy). In 2011, we recruited a total of 86 university graduates across the Group.



> [More on RWE trainee programmes](#)

Staff Loyalty

A key objective for RWE is retaining highly qualified experts and managers within the company and maintaining a strong profile as an appealing employer for prospective employees of all age classes into the future. We therefore attempt to offer our workforce optimum working conditions and opportunities for development in the individual phases of their lives. We also offer our employees attractive social benefits. The core social benefit at RWE celebrated its landmark 85th birthday in 2012. As early as January 1927, electrical utility Rheinisch-Westfälisches Elektrizitätswerk introduced pension benefits for office staff and workers and any surviving dependents. Today, nearly 85% of our employees in Germany benefit from a pension plan financed by our company.

The structure of work processes also contributes to enhancing employee loyalty. We have introduced part-time work in many of our operating companies and the opportunity to work from home. We want to give members of our workforce the opportunity to get the work-life balance right by harmonising career and family more effectively.

Overall, the workforce at RWE exhibits a great deal of loyalty to the company. Turnover rates are around 10%. The United Kingdom has a very dynamic employment market and this makes it an exception. This is especially striking at our subsidiary company RWE npower. The turnover rate at more than 26% is significantly higher than in other parts of the company.

Combining career and family

The opportunity of getting the work-life balance right between career and family is a key factor for many employees in their appraisal of whether an employer represents an attractive proposition. We support our employees with flexible working hours and childcare facilities at various day-care nurseries. We are continually expanding these facilities. In 2011, we opened the Lummiland childcare centre very close to our Essen site (Germany) offering a total of 105 nursery places for children aged between four months and six years. 45 of these places are available for children below the age of 3 years. We were particularly keen to open the nursery to children from the surrounding district in Essen. 20% of the places available are available for these children.

We have now been involved in close cooperation with B.u.K. Familienbewusstes Personalmanagement GmbH (a subsidised childcare programme providing support within companies) over a period of many years. We have worked with this organisation to establish a complete service in Germany providing childcare and care for elderly relatives. Employees use B.u.K to find childcare places for their children. This help is available for finding permanent places but B.u.K also assists with childcare packages in difficult situations: during school holidays, when parents are on business trips or during advanced training courses. B.u.K. also offers support when a member of a family is ill. These measures are intended to structure our company more attractively for all our employees.



[> More on RWE diversity management](#)

Cooperation beyond age limits

Older members of our workforce are an important mainstay for our company because of their many years of professional experience. The strength of older employees lies mainly in their know-how based on a long track record of experience and expertise. Younger employees are able to process information faster and draw conclusions more quickly. This means that teams with a mix of younger and older people are often able to achieve significant synergy effects.

We make use of this advantage, for example in our International Graduate Programme. Each young trainee is accompanied by an experienced member of the management team who acts as a mentor and advises them on structuring their programme. The composition of teams and project groups with a mix of ages also forms a specific aspect of our diversity policy.

We have a wide range of tools to meet the modified aspirations that older employees have for the world of work. Work can be structured more flexibly with the home office scheme. All employees are also entitled to work part time, irrespective of their age. Older people in many Group companies have the opportunity to finish their working life early and opt for phased retirement.

Industrial relations

RWE believes that a sustainable human resources policy should encompass a process of open engagement between executive management, workforce and their stakeholder representatives in an atmosphere of trust. The framework of national legislation defines industrial relations between the different interest groups. Equal employee and employer representation on the Supervisory Board of RWE AG – with employees and shareholders each contributing ten representatives – is based on the German statutory regulations for company codetermination.

The employees of the individual Group companies are represented by the local Works Council. A large number of company agreements are concluded between the works councils and the local executive management. They cover a wide spectrum of issues and circumstances – from voluntary social benefits, through dialogue with the management, to arrangements for working hours. This creates robust framework conditions for employees in the RWE Group and promotes cooperation within an atmosphere of trust.

99.6% of our employees work in Europe and they are represented by the European Works Council. This has enabled us to conclude agreements, such as the ‘Agreement on Application of Minimum Standards for Restructuring Operations’ and the ‘Social Charter for the RWE Group’. The Social Charter has eleven articles regulating key aspects of cooperation between the company and employees, including the integration of employee and union representatives within essential changes to corporate structure.

Since the unions are representatives of the workforce, we have kept them informed about planned restructuring measures since the middle of 2011. We have also kept the unions integrated in carrying out these rationalisation measures. The final outcome was not available by the time this report was released.

The RWE Group is committed to the fundamental principles and rights at work defined by the International Labour Organisation (ILO). The ILO core standards are therefore not only defined in the Social Charter but also included in our Code of Conduct.



[> Social Charter](#)

[> Code of Conduct](#)

Diversity management

We regard diversity as an opportunity to recruit the broadest possible range of skills and talents to our company. Signing the 'Charta der Vielfalt' (Charter of Diversity) represents one of the measures taken within the scope of our commitment to promoting diversity under the German government's diversity initiative. Group-wide activities are coordinated by the Diversity Office, which reports directly to the HR Director of RWE AG.

RWE is a group with a large number of subsidiary companies. We want to include all the different cultures and perspectives. We have therefore appointed Diversity Champions in all our companies and they promote implementation of concrete measures to match the activities of their companies and the cultural context of the countries they are operating in. We believe strongly that diversity gives the company valuable stimuli. RWE also has three fundamental focuses for diversity: internationality, gender and age.

Internationality

In our markets the United Kingdom, Germany and the Netherlands, a large proportion of the population has a background in migration. This should also be reflected in the workforce structure of the companies operating in the individual markets. We regard the increasing internationalisation of society as an opportunity to recruit new employees from different cultural backgrounds.

As our business activity becomes more international, the need to understand other cultures becomes increasingly important. In this context, it pays off to have qualified employees available who are familiar with these cultures on account of their origin. We generally make appointments to management positions in our foreign companies with mixed teams, comprising employees from the host countries and from Germany. We also form multinational teams when we are developing projects outside Germany, in order to make sure that the relevant cultural specifics and any resulting requirements can be taken into account. We offer intensive intercultural training to employees who take on an assignment for an extended period of time abroad or who have intensive contact with other countries through their work. This enables us to improve their understanding of cultural peripheral conditions and customs in our host countries – this is an important prerequisite for business success at local level.

Equal opportunities for women

RWE is a technically oriented company. The proportion of women in the workforce here is therefore traditionally lower. We would like to increase the proportion of women in the company. The proportion of women in the workforce in Germany is particularly low. The workforce in some of our German companies is less than 20%, while it amounts to between 30 and 40% in the Netherlands, Central Eastern Europe and the United Kingdom. The low proportion of women is partly due to the orienta-

tion of our engineering activities, in particular lignite extraction, electricity generation and operation of grids. Our objective for the future is to use a wide range of measures to make our company more attractive to women. These include a more proactive profile for RWE as an employer in the public domain, expansion of diversity and promotion of a good work-life balance between career and family.

Although changes in our workforce structure are only happening slowly, the proportion of women in our workforce increased from 25.2% in 2007 to 27.1% in 2011. As in the entire workforce, the proportion of women in management positions is comparatively low. At the end of 2011, 11.3% of the management positions across the Group were occupied by women. Even though this represents a modest increase of 0.5 percentage points by comparison with the previous year, significant efforts continue to be required to improve matters in this area. In October 2011, we made a commitment to the German government to increase the percentage of women in management positions by 2018 and to increase the proportion throughout RWE Group to 22%. This target is not only applicable in Germany but for the entire RWE Group. Our mentor programmes and the 'Senior Women Network' are some of the measures directed towards providing women with strategic support throughout the Group and assisting them in taking on management functions. We are also supporting their personal career development and engaging in an informal exchange of views through this communication channel. We have also introduced programmes specifically designed to promote women within our operating companies. We hope that this initiative will continue to increase the number of women in management positions.

RWE pays women the same salary as men where the positions are equivalent. Salary grades are defined exclusively on the basis of qualification, and gender plays no role. Employee representatives also play a part here in monitoring compliance with the principles of equal opportunities. Around 74% of our employees are paid in accordance with the payscale. Allocation to a payscale or salary group is clearly linked to the job profile and is independent of gender. No surveys are available that include a more differentiated assessment based on data for career development and opportunities for promotion.

Employees with disabilities/Re-integration within the company

Integration of employees with disabilities is a key element of RWE's mission profile. We have reiterated our commitment to this goal through the charter agreed with the European Works Council. RWE companies in Germany have also concluded integration agreements with employee representatives and they promote employment of people with disabilities. The RWE Group – Coordination Office for People with Disabilities was set up in 2004. In Germany, there is a statutory employment quota for people with disabilities of 5%. We have regularly exceeded our quota in since 2008.

Our Company Integration Management (CIM) makes it easier for employees in Germany who have not been able to go to work for an extended period of more than six weeks or who have been off work repeatedly due to illness to get back into the world of work. The company agreement also applies to employees who are no longer able to carry out their established function due to long-term impairment of their health. The CIM Team identifies appropriate jobs for these people which match their current needs and skills profile.

Occupational Safety and Healthcare Management



We want both our own workforce as well as employees of subcontractors to return home just as healthy at the end of the day as they were when they arrived for work. The aim of our Occupational Healthcare Management is to maintain and promote the health and the workability of our workforce.

Our goal is to have zero accidents. Even though this aim is ambitious and is probably unattainable in a company with more than 70,000 employees, we are primarily working on avoiding all serious and fatal accidents, as well as continually reducing the number of accidents that occur. If an industrial accident takes place, we carry out an investigation and analyse the causes, before introducing any necessary measures. We are achieving long-term successes with our programme ‘Sicher vorWEg’ (The Energy to Lead Safely) and using it to pursue a process of continuous development in our occupational safety culture.

Occupational Healthcare Management is directed towards maintaining and promoting the health and the workability of our workforce. The people in our workforce are the most important resource of RWE – healthcare management is therefore a top priority in our company. This is also important in view of the challenge posed by demographic change and the consequent risk of a skills shortage.

OVERVIEW OF THE MOST IMPORTANT FACTS:



Target Attainment

In 2011, the number of industrial accidents leading to at least one lost day of work per million hours worked amounted to 2.8 compared with 3.5 in the previous year. The accident rate therefore declined for the tenth year in succession. By the end of 2011, around 70% of our workforce in Germany had access to the Work Ability Index (WAI). This index has provided us with a record since March 2010 showing the fitness of the members of the workforce to carry out their work today and in the future.

Objectives in the area for action Occupational Safety and Healthcare Management

We are committed	KPI	Target
... to ensuring that all our own and our subcontractors' employees return home just as healthy at the end of the day as they were when they arrived for work.	Number of accidents leading to the loss of at least one person per day per million working hours (LTIF = X/1,000,000 h)	LTIF of max. 2.3* by 2014
... to maintaining our employees' health and workability.	Introduction of the Work Ability Index (WAI) in %	Most employees of companies based in Germany have access to some means of measuring their personal WAI

* including subcontractors

Occupational safety

The accident rate measured in terms of LTIF has been falling steadily over the past ten years (Lost Time Injury Frequency (LTIF) is the number of accidents with at least one lost day of work for every million hours worked). The rate of 2.8 in 2011 compared with a rate of 17.9 in 2003. We were only able to achieve this sustainable development through the consistent implementation of our health and safety programme 'Sicher vorWEg' (The Energy to Lead Safely). We very much regret that one of our own staff members and two employees from partner companies lost their lives in fatal industrial accidents in spite of all the improvements that have already been achieved in safety at work. Two employees were buried – one of the accidents occurred in Hungary and the other accident was in Germany. The third employee was crushed while unloading an isolator in Falkenberg (Germany).

Each accident is one too many. Our key function is to continue improving the occupational safety culture in the future. This is because the level of awareness can only be increased and accidents avoided if colleagues and supervisors act as role models for occupational safety.

Employees from partner companies

Our philosophy states that 'every employee should return home just as healthy at the end of the day as they were when they arrived at work'. Naturally, this also applies to the employees of our partner companies. The safety of external employees, for example those people working on RWE construction sites, in our power stations or on our overhead power lines, is just as important as the safety of our own colleagues. This approach is in conformity with our guiding principle of 'We treat external employees like our own staff!'. We therefore integrated the accident figures for our partner companies into our reporting in 2011. The accident indicator LTIF at 4.1 is significantly above the indicator of 2.8 for our own workforce. This demonstrates that we must intensify our efforts in this area and we need to continue to further improve our partner company management introduced in 2010.

An important tool we use here is to ensure that we provide information to all external employees working on construction sites and at power stations in their own language at electronic terminals. These terminals give information about the principles of occupational health and safety in the RWE Group. A short test checks whether each employee has understood the induction. Since the launch of these measures in 2009, we have inducted nearly 237,000 employees from partner companies. We also train managers from our partner companies in one-day workshops on occupational safety held at RWE. At the same time, we raise the level of awareness of our own managers in workshops and with strategic organisational measures. They are required to ensure when working with partner companies that external employees comply with the rules of occupational safety, for example by proactively talking about safety during our health and safety inspections.



We believe that inclusion of our partner companies in health and safety is a component of our responsibility within the supply chain. ([> area for action Supply Chain](#)).

We have developed a standard instruction sheet describing our occupational safety requirements for our suppliers. A positive occupational safety assessment for our partners is a key requirement for commissioning a service.

RWE Purchasing and the Competence Centre for Occupational Safety joined forces to award the accolade of the 'RWE Occupational Safety Prize 2011' with the aim of establishing the concept of occupational safety in the mindset of our partner companies. Almost 160 partner companies applied for the award. 30 ideas were selected for commendation by an independent jury. The prize was awarded at the Supplier Conference in 2011. The prize is intended to motivate our partners to proactively develop and implement improvements in occupational safety. If partner companies work safely, RWE benefits from the improved quality of the performance.



[> RWE Supply occupational safety requirements](#)

[> RWE Occupational Safety Prize 2011](#)

Accident follow-up

Serious or even fatal industrial and commuting accidents are associated with significant direct and indirect psychological trauma for all the colleagues affected and these effects may be long term (post-traumatic stress). We have introduced processes for accident follow-up which offer the necessary support for our own workforce and for external employees. We deploy a cross-border accident follow-up system to provide support. Our psychology counsellors give initial support for any employees affected immediately after an accident that involves traumatic experiences. RWE is also the first company in the sector to offer professional help from a specialist unit to any internal or external employees and their families throughout Europe who have been affected by the accident. This help is given to our internal workforce and to external employees and is directed towards overcoming any psychological problems that emerge as a result of the accident. Over the past two years, we have established a network of specialists across Europe.

Occupational healthcare management



Occupational Healthcare Management (OHM) means integrating employees' health needs within company processes. This has the effect of making OHM a management function. Against the background of demographic change and the associated decline in the supply of specialist staff and managers, we are dependent on healthy employees and the workforce performing to a high level ([> area for action Demographic Change](#)).

We introduced the Work Ability Index (WAI) so that our employees are in a better position to assess the extent of their ability to cope with the workload assigned to them. Since March 2010, around 70% of our employees in Germany have been given the opportunity to complete the WAI questionnaire in consultation with the company medical officer. This is approximately 40% of the Group workforce. Participation is voluntary and employees and their data are protected by medical confidentiality. By February 2012, around 9,000 employees had taken up this offer. We want to use these results, the results of the employee survey and the absence analyses to derive measures to ensure that members of the workforce have the ability to cope with their workload.

In November, RWE was awarded the German Company Healthcare Prize by the Federal Association of Health Insurance Funds in the category Energy and Water Utilities. This prize saluted the company's exemplary healthcare management. The award confirms to us that RWE is on the right track with the structure and content of its OHM. However, we also know where there is potential for improvement. This is why we would like to put the OHM on a firmer footing in our businesses and optimise and expand the existing structures and packages to meet specific needs.



Our subsidiary company RWE Hungaria also introduced a system of occupational safety and healthcare management. An initial stage involved 70% of our employees taking part in preventive healthcare examinations. A comprehensive plan for improving the health of the employees at RWE Hungaria is being developed on the basis of the results of these examinations.

[> See also RWE Personnel Report 2011](#)

Stress management and supporting employees

RWE is committed to helping employees manage work-related stress. Our Occupational Healthcare Management programme entitled 'Gelassen voRWEg gehen' (The Energy to Lead Stress-free) was launched throughout Germany in September 2010. This programme offers a wide range of measures for employees and managers including training sessions in effective stress management. The programme was successfully transferred to ordinary operations during the course of 2011. RWE also launched the prevention campaign 'Gesund bleiben: von Herzen gern!' (Stay Healthy: from the Heart) in 2011. The aim of this campaign is to reduce cardiovascular disease – Germany's number one cause of death – through targeted public education.

Pandemic planning

Protecting our workforce against infectious diseases, for example against highly contagious flu viruses like swine flu or avian flu, is a top priority for us not only because of healthcare reasons. If illness means that a large number of employees who are responsible for controlling our power plants are unable to work, the secure generation of electricity could be put at risk. In the years 2009 and 2010, we therefore gave preventive injections to protect around 1,600 of our employees against swine flu. There was no threat of a comparable pandemic scenario in 2011 and we offer our employees protection against the normal wave of influenza every year.

Environmental Protection



The protection of the environment is extensively regulated by a large number of laws and the regulations in the conditions for operating licences. RWE also takes comprehensive, voluntary measures on environmental protection. This is aimed at gaining broad public support for our actions.

The nature of our business means that we have to intervene in the natural environment and use natural resources. The fuels we extract, mine and use are natural products. We structure the conditions under which fuels are mined so that their extraction is as environmentally compatible as possible within the constraints of technical feasibility. We require land for our opencast mines, power plants, and electricity and heat grids. We are making strenuous efforts to reduce our impact on the ecological systems in the area of our activities to a minimum and mitigate any unavoidable damage by carrying out recultivation measures and nature conservation projects.

Pollutants are also produced when electricity is generated at our lignite, hard-coal, gas-fired and biomass power stations. We reduce emission of these substances to a minimum by using capture procedures such as filtering and scrubber technologies, as well as pretreatment of fuels. Building new and more efficient power plants with a higher level of performance also enables us to achieve a specific reduction in emissions (> area for action [Climate Protection](#)).



OVERVIEW OF THE MOST IMPORTANT FACTS:



Stakeholder expectations

For us and our stakeholders it goes without saying that we are complying with the relevant environmental regulations and the statutory legislation. Our stakeholders also expect us to take further measures. They take a particularly critical view of the lignite production in opencast mines and our activities associated with oil and gas production in ecologically sensitive areas like the Wadden Sea which forms part of the North Sea.

The debate about the safe operation of our nuclear power stations will cease to be important following the decision reached to exit from nuclear energy in Germany. The safe operation of our nuclear facilities naturally remains a top priority for us. We are also find ourselves faced by demands in the public domain relating to a repository for the radioactive waste. However, in legal terms this function is the responsibility of the federal government, which correspondingly has to take the appropriate decisions and adopt the necessary measures.

We are being urged to reduce emissions of air pollutants caused by the generation of electricity from our coal-fired power plants as far as possible. These pollutants are primarily sulphur dioxide (SO₂), nitrous oxide (NO_x) and fine dust. We achieve this by using appropriate filter systems or replacing less efficient power-plant units with new power plants incorporating advanced technology.

Political framework conditions

RWE operates in the European Union within a substantially harmonised legal framework. Lawmakers define the high standards governing our actions. Comprehensive monitoring and extensive reporting obligations are defined from the licensing and construction phase, through the operational stage, to the decommissioning of plants. Our oil and gas production also extends to regions outside the EU and we are also building power stations there. We adopt the same standards of care and vigilance in these areas as we do within the EU. We have also made a commitment when carrying out our international activities to check the performance standards of the International Finance Corporation (IFC) of the World Bank.

Assessment of future development

We are operating in stable surroundings with approaches to environmental protection that have been well established. Measures include pollutant control, maintenance of soil and water resources, and their quality, the promotion of nature conservation and a system of waste management where avoidance takes precedence over recycling, and recycling is in turn preferable to disposal. The challenges in these areas are well known. A detailed regulatory framework and proven technologies ensure that the appropriate controls are complied with.

A more recent objective is protection of biological diversity. It demands integrated approaches that take account of the entire ecological system, the species living in the habitats affected and the diversity of genetic resources. The protection and promotion of biological diversity are becoming increasingly important issues for RWE since the amount of land we require for our business operations is increasing. This is because we are expanding our development of renewables. Compared with a conventional power station, wind farms and solar power plants require more land in order to generate



the same amount of electricity. Large areas of land are also required to cultivate biomass. Even if we are not directly responsible for cultivation, we are committed to taking responsibility for fostering sustainable approaches to the suppliers within our supply chain ([> area for action Supply Chain](#)). RWE will not purchase biomass grown on land that is cleared rain forest.

Target Attainment

During the reporting year, a significant incident of environmental damage was discovered in the course of onshore oil extraction. The assessment and remedy of the damage was ongoing by the time this report went to press. Our environmental management system now covers virtually the entire company.

Objectives in the area for action Environmental Protection		
We are committed	KPI	Target
... to operating our plants safely and in compliance with licensing regulations at all times.	Compliance with licensing requirements in %	100% compliance
... to the 100% implementation of our environmental management system to ensure that our plants and grids are operated in compliance with legal requirements at all times	Group-wide environmental management coverage in %	100% coverage

Environmental management

Taking a group-wide approach to environmental management enables us to ensure that all RWE companies share the same understanding of this issue. Our approach is based on the requirements of the ISO 14001 international standard. Each company in the Group is subject to a yearly audit by the Group Environmental Protection Department. This audit reviews all the processes and procedures relevant to the environment and provides a forum for discussing future environmental challenges confronting the individual RWE company. The audit also includes an appraisal of new-build projects for power stations and other infrastructure projects. We use this system to record virtually all the processes in the company. In future, an environmental audit will also be carried out at the Group Centre of the RWE Group. This audit will be managed by one of the companies in the RWE Group. It will enable us to get closer to our goal of our environmental management system covering 100% of the company.

The independent review by an external appraiser makes a further contribution to reinforcing our management systems. At the end of 2011, the proportion of certifications in conformity with ISO 14001 in the RWE Group relating to employee equivalents amounted to 41.6%.

Plant operations

In 2011, the plants in the RWE Group were once again operated mostly without disruption. The statutory thresholds for emissions were complied with virtually in full. Any breaches were minimal and were restricted to individual cases. They did not result in any offences and there was no harm to humans or the environment. There were also no serious incidents relating to the environment.

Nuclear power stations

We make no compromises when it comes to the safety of our nuclear power stations. Smooth-running operation is the top priority. We take precautions to ensure that any incidents are excluded within the limits of feasibility. However, we also want to avoid any faults and events that have no implications for safety or only very minor impacts. In 2011, we registered 28 reportable events and 23 in the previous year. These events were at the lowest level (event in category '0') on the International Nuclear and Radiological Event Scale (INES). INES 0 represents an event without or with minimum importance in safety and engineering terms. There were no incidents with a higher classification.

The German government took a decision in the summer of 2011 to accelerate the exit from nuclear energy and this means that environmental protection gains importance for us in the post-operational period and decommissioning phase. Safe processes are also extremely important during this period in order to avoid disadvantageous impacts on the environment. Final plans for structuring the post-operational period and decommissioning phase are not yet available – these will be formulated over the next few years in cooperation with the regulatory authorities responsible. We will then have more concrete information on how long it is expected to take to decommission and dismantle the nuclear power stations.

The disposal of radioactive operating waste (low-grade and medium-grade radioactive waste) and interim storage of the spent fuel rods (highly radioactive waste) is carried out under the supervision of the responsible authorities. We transport radioactive operating waste (low and intermediate level waste) to the officially licensed interim storage site. The authorities are informed about the location of radioactive operating waste every year. At the moment, the Federal Republic of Germany still has no final repository ready to accept low and intermediate level waste. Spent nuclear fuel rods initially remain in cooling ponds before being stored safely over the medium term in Castor storage containers in conformity with nuclear regulations on the site of the power station until a final repository has been provided.

Fossil-fuel power stations

Pollutants are produced in power plants as a result of the combustion of natural gas, process gases, substitute fuels, residual materials and biomass. These pollutants include sulphur dioxide (SO₂) and nitrous oxide (NO_x). Our stakeholders expect us to reduce emission of these pollutants as far as possible and we use the most advanced filters and separators to achieve this effectively. Almost all our coal-fired power stations are fitted with flue-gas desulphurisation (FGD) units. The exceptions are the two British power stations Didcot A and Tilbury. The operating licence for both power stations expires in 2015. Didcot A will then shut down whereas Tilbury was converted to biomass in 2011.

This means that the power station only emits negligible amounts of sulphur dioxide. We therefore hope that the power station can continue to be operated with biomass beyond 2015. We equipped our lignite-fired power stations in the Rhineland mining district with flue-gas desulphurisation units more than 20 years ago. Since then we have been able to keep the specific SO₂ emissions at a consistently low level. The reduction of NO_x emissions has been achieved through optimisation of combustion and measures designed to increase efficiency. These measures ensured a consistently low level of NO_x emissions in 2011.

Oil and gas production

Special attention to environmental protection has to be exercised when extracting oil and gas. This applies also to our activities on the Mittelplate drilling platform which is surrounded by the Wadden Sea. Smooth-running operation with no incidents is absolutely essential at this World Natural Heritage site. We achieve this by comprehensive technical safeguards and precise regulation of workflows combined with strict monitoring procedures.

We cooperate with the nature conservation authorities to regularly monitor the fauna in the Wadden Sea so that we can identify any potential impacts caused by the operation of the drilling platform as quickly as possible. The animal species under regular observation include shelducks, seals, and a range of microorganisms. No negative impacts from oil production were identified with any of these species. The illumination on the Mittelplate has been improved to protect birds flying past during the hours of darkness.



[> More on Mittelplate](#)

A significant incident of environmental damage was discovered during the course of onshore gas production during 2011. Benzene escaped from one pipeline carrying production water and penetrated into the soil. The benzene had seeped through the walls of the plastic pipes. The pipes were immediately shut down. We are cooperating with the responsible authorities to determine the precise scope of the soil contamination and develop a clean-up concept. No impairment of the drinking water had been identified by the time this report went to press. We inform the affected residents on a dedicated website providing them with information on the background and current developments.



[> Citizen's information portal Völkersen](#)

Outside Europe, we are currently only producing oil and gas in Egypt. We have a 50% stake in the SUCO exploration and production company together with the Egyptian state. This is the first oil production company in Egypt to be granted certification for environmental management in conformity with ISO 14001. Occupational health and safety has been certified in conformity with OHSAS 18001. There have been no accidents that have resulted in significant impacts on people or the environment.

In 2011, various companies in Germany from the exploration and production sector were criticised because of planned exploration activities in preparatory work relating to extraction of gas from shale deposits near the surface of the earth. Some people living nearby have concerns that the use of fracking to fracture these unconventional deposits could have impacts on the water quality. In this context, conventional gas production from deep sandstone deposits such as the operations carried out by RWE Dea in northern Germany has also been critically viewed.

However, the fracking procedure used by RWE Dea differs fundamentally from the procedures for extracting gas from horizontal strata of shale deposits such as those practiced in the USA. RWE Dea in Germany produces gas from conventional deposits for natural gas at a depth of several kilometres in Germany. When fracking is deployed, we only use authorised products that are not poisonous and do not pose a risk to the environment. The fracking process used by the German gas industry has been used successfully for the past 35 years. The use of this technology in more than 250 projects has not yet resulted in any impairment to groundwater or drinking water.

Water use

Most thermal power stations need cooling water for their operation. This water is generally taken from rivers and in the United Kingdom it is also taken from the sea. However, our lignite-fired power stations are cooled with groundwater that we have to pump out anyway to keep our opencast mines dry.

Most of the cooling water removed is returned to the ecosystems. We reduce water consumption in our power plants through multiple use of recycled water. The chemical quality of the water abstracted tends to be improved by the treatment process which takes place before cooling in many cases. The water is then available for unrestricted further use. Only 7.4% of the 4,345 million m³ of water abstracted is therefore withdrawn from the ecosystem.

The heating of the cooling water creates some negative impact in the case of rivers. The limits have been specified by the regulatory authorities so that there are no significant impacts on rivers. If we reach the limits during a particularly hot summer, we scale down the output of the power plants. This did not occur during the course of 2011.

Apart from the cooling water, we also put purified wastewater from flue-gas desulphurisation plants back into the system at some locations. At these power-plant sites, limits are defined for the supply of wastewater polluted with heavy metals. Safe compliance with these limits is ensured.

Waste

The ash and slag formed from our coal-fired and biomass power stations account for the lion's share of the waste produced by RWE. We attempt to put most of the ash to further use. Nearly 76% of some 1.2 million metric tons of ash produced at hard-coal power stations is recycled, mainly as aggregates in the manufacture of building materials, and in constructing roads and footpaths. Virtually 100% of the ash produced by lignite-fired power stations in Germany is used to fill abandoned open-cast mining pits in specially designed deposits for power plant residues. In Hungary, the largest share of lignite ash is deposited in landfill and about 9% are recycled.

Large quantities of gypsum (FGD gypsum) are produced during the process of flue-gas desulphurisation at our coal-fired power stations in Germany, the Netherlands and Hungary. A total of 2.15 million metric tons were produced in 2011. If this gypsum is of the appropriate quality, we use the existing opportunities for marketing. We succeeded in recycling nearly 71% of the gypsum in 2011. We are therefore contributing to conservation of natural gypsum deposits by bringing back the recycled gypsum to the market. Extraction of natural gypsum is associated with substantial impacts on the landscape.

Apart from gypsum, other wastes amounting to 2.03 million metric tons are produced during our operations and channelled into external disposal systems. Out of this waste, 95% went into recycling. Particular priority is given to hazardous wastes. These include residues from flue-gas cleaning and fly ash from the combustion of waste. They are subject to specific monitoring requirements in the European Union. We ensure that all hazardous wastes are disposed of in compliance with statutory national regulations. A total of 157 thousand metric tons of hazardous waste was generated at RWE in 2011.

Biodiversity

We want to make a contribution to preserving the world's biodiversity and also gain greater acceptance in the public domain for our operations and projects. Since 2010, this commitment has entailed all international construction sites under the management of RWE Technology having to meet the performance standards of the International Finance Corporation (IFC). One of these standards relates to protection of species, plants and biotopes.

Opencast mining

Reinstatement of former opencast mines used for extracting lignite for use by people, animals and plants has been a constituent element of extraction plans right from the start of mining activities. Recultivation of these land areas is required under statutory legislation. RWE is committed to recultivation and works with the Forschungsstelle Rekultivierung (Recultivation Research Centre) to ensure that the landscape is more diverse after recultivation and the number of animal and plant species is higher than before mining operations began. Approximately 3,100 animal and plant species have so far been identified in the recultivated areas of the Rhineland mining region. Over the past five years alone, more than 300 new plant species have been recorded as growing in these areas. Many of the species were on the Red List of endangered species drawn up by the International Union for the Conservation of Nature (IUCN), including species that are under threat of immediate extinction in the Lower Rhine Basin.



> [Forschungsstelle Rekultivierung \(Recultivation Research Centre\)](#)

20,000 hectares have been recultivated since lignite mining started up in Germany. Around half of this land is now agricultural land and a further 8,000 hectares are forests and grassland. Another 800 hectares of new water area have been created in water reclamation schemes. Recultivated areas are also an integral element of lignite production in the two Hungarian opencast mines. To date, 2,560 hectares of land have been recultivated for agricultural and forestry use.

We also take steps to ensure that wetlands around opencast mines are preserved. We have to pump large volumes of groundwater out of opencast mines in order to keep the production area dry. We compensate the removal of groundwater in ecologically important areas by returning a large proportion of this water into surrounding lakes and rivers or through a drainage system into the soil, particularly in an environment of wetland areas that need conserving. We monitor the success of these measures at around 3,900 test stations, with sampling stations located in 350 wetland areas.

Grid operations

Transmission lines can prove to be a hazardous obstacle for birds. We have therefore installed special bird protection markings to make sections of grids carrying maximum voltages and high voltages safe in areas where large birds are frequently spotted. These markings prevent collisions from occurring. However, electric shocks are mainly encountered at the masts supporting medium-voltage lines as a result of phase bridging. We use technical devices to prevent this by installing protective guards and insulating the lines near the masts. In Germany, we will have implemented all essential measures by the end of 2012. In Hungary, we have also concluded the 'Clear Sky Agreement' and our aim is to equip our grid there with measures to protect birds by 2020.

Hydroelectric generation

RWE operates 41 run-of-river power plants in Germany with installed power of 318 MW. The weirs and turbines in the plants are obstacles on the routes of migratory fish like trout or salmon that they need to bypass. Pathways therefore have to be created at the barriers in the form of bypass streams, or alternatively so-called 'fish ladders' have to be installed to allow the fish to swim around the power plant without incurring any hazard. We have installed fish ladders at 73% of our run-of-river power plants so that the fish are able to continue swimming along the sections of the river and maintain the fish population.

We take account of the latest evidence-based research in aquatic ecology when we plan and construct bypass streams. The fish ladder installed at the Albruck-Dogern power plant on the Rhine in 2009 has been designed so that the fish are attracted by the continuous leading flow of water and guided along a transverse channel into the bypass stream. Gravel islands have also been established here to create additional habitats. These islands form spawning grounds for fish and provide new space for kingfishers and other species of animal near the river bank. Fishing clubs and nature conservation associations were consulted at the planning stage.

The new fish channel was officially opened at the hydropower plant in Koblenz in 2011. This defines a new standard for river continuity in the Mosel. Using a weir turbine to create a continuous leading flow at the entrance to the 'fish ladder' demonstrates that carbon-free electricity generation from hydropower plants can be harmonised with the ecological system.

RWE Innogy is involved R&D projects at several hydropower plants carrying out intensive research into improving the ecological conditions. Important research work is being carried out at the Unkelmühle pilot plant on the River Sieg and in a new research project on the River Lippe. The findings from these projects will enable us to make targeted investments in the future directed towards preserving the routes for fish migration at our plants.

Offshore wind farms

When building offshore wind farms in deep waters, the piles for the foundations generally have to be driven into the seabed. The noise resulting from these operations can disturb the sense of orientation in marine mammals such as porpoises. In May 2011, RWE joined forces with seven other operators and constructors of German offshore wind farms to conclude a joint-venture agreement under the auspices of the 'Stiftung Offshore-Windenergie' (Offshore Wind Energy Foundation) with the aim of keeping this impact on the animals to a minimum. The aim of the foundation is to test different methods for reducing noise and develop them further if they seem appropriate. RWE OLC, the offshore logistics subsidiary of RWE Innogy, has taken responsibility for managing the project. The tests were held at the so called Brodtener Pfahl (Germany) in the Baltic during August 2011. It has emerged that the noise-reduction systems bring about significant noise abatement. However, it was not possible for the systems in their current design to reliably maintain compliance with the desired emission limit value of 160 decibels at a distance of 750 metres from the noise source. Additional research and development work is therefore required.

Community Engagement



We engage with the community to gain understanding and acceptance for us as a company. In dialogue with citizens we attempt to understand the challenges confronting them. We get particularly involved in the regions and local communities that are closely associated with our company.

Supplying electricity and gas satisfies a basic human need. It forms the platform for our business model and for our economic success. People in the community more rigorously demand that we therefore meet their expectations than in the case of aspirations they have for other industrial sectors. This is because consumers have the sense that they are significantly dependent on energy utilities despite all the competition that is now ruling the supply of electricity and gas.

Our community engagement is intended to highlight the fact that we understand these aspirations. We want people to see us as part of the solution rather than as part of the problem. Alongside our business-related issues, we therefore also address areas which are important for solidarity and development within the community, such as the issue of education.

OVERVIEW OF THE MOST IMPORTANT FACTS:



The cutbacks in government budgets lead us to believe that corporate engagement will be even more important in future for the smooth-running operation and the ongoing development of our society. The attention that we achieve through community activities exerts a positive effect on our profile – irrespective of whether this is reflected in enhanced customer loyalty, the acceptance of infrastructure projects, or forming opinions in the public domain.

Target Attainment

We continued to intensify our contacts and cooperation at local and regional level in 2011. Our programme of voluntary engagement undertaken by our workforce, RWE Companius, is an integral element of our group-wide engagement. We cover our locations and all regions with our sponsoring activities. Our engagement exerts a positive impact on our reputation over the medium and long term. We continued our successful trajectory during the course of 2011 by gaining further accolades for the highest reputation compared with our major competitors (although our lead was marginal), as demonstrated by a survey by the Skopos Institute.

Objectives in the area for action Community Engagement

We are committed	KPI	Target
... to strengthening our regional reputation by making efficient use of resources.	Reputation Index	Best reputation in our peer group

Education and energy

The key challenge of the 21st century is climate protection as well as a secure and affordable energy supply. Our society will only succeed in finding answers if it takes an informed approach to engaging with this issue and also includes young people in the debate as a matter of priority. Our objective is to ensure that the information on energy issues communicated to them is factual and geared to their age group. Our projects for schoolchildren and students enable us to engage directly at a local level. Each of our Group companies has a dedicated package tailored to regional needs.

RWE npower in the United Kingdom uses the 'Climate Cops' programme to help young people make their country more climate-friendly and more sustainable. RWE npower promotes this by organising project-based events, as well as providing information on the internet and teaching material free of charge. The programme is implemented in accordance with the regulations defined by the British government on 'sustainable schools'. The RWE workforce gets involved with 'Climate Cops' through our volunteer programme and shares their knowledge and experience with schoolchildren on visits to schools. In 2011, RWE npower reached out to a total of 9,000 schoolchildren through the programme.



[> More on RWE npower Climate Cops](#)

The internet website presents packages for children, young people and teachers in Germany. This portal allows us to adopt a fun-based approach to giving children a basic understanding of energy and making them aware of the need to consume energy efficiently. We provide young people with specialist information for use in seminar papers and inform them about training opportunities in the energy sector. The website also provides teaching materials for teachers, news about exciting destinations for class trips and advanced training packages. We support projects dealing with energy efficiency in schools with a competition. The competition was awarded the seal of approval 'Good Practice Energy Efficiency' by the German Energy Agency (dena).

We are promoting environmentally aware education at secondary schools in Hungary through the internet site 'Energia Schuli' (Energy School). The site received the Hungarian quality prize for internet pages appealing to children and young people. The internet site 'Energiapersely' (Energy Piggy Bank), which presents instructions for efficient use of energy, a price calculator and other helpful hints, has also received a number of accolades. The two websites are entitled to post the slogans 'Excellent Content' and 'Best CSR Solution'.

In Poland, we work closely together with Krakow Technical University. We develop a range of lecture series on sustainable energy supply with support from the RWE Academy and experts from the company. The subjects tackled include renewable energy, energy efficiency and electromobility.



[> More on 'RWE Schulforum'](#)

Strengthening the region

We contribute to strengthen the regions where we operate in many different ways. First and foremost we contribute to regional value added and support companies on the ground. We also promote educational projects and support social and cultural commitment in our core region and around our sites.

Regional economy

Our business activities are not simply directed towards generating profits for our company. We also strengthen economic power in the regions where we are operating. The value generated particularly includes wage and salary payments, but also taxes and concession fees. Substantial shares of our investments in projects are also carried out as local orders. During the construction phase of the lignite-fired power station with 'Optimised Units' (BoA 2&3), we allocated around one third of the capex volume of €2.2 billion to the domestic industry. While the plant is operational, nearly half of the expenditure for maintenance and jobs will remain in the region.

We also contribute to strengthening the infrastructure. A total of 24 businesses have become established around the Mátra power station in Hungary through our support. They work in close cooperation with the power station and employ some 750 employees in total. The power station supplies electricity, heat, gypsum and ash to the local businesses. The power plant itself sources residues from rapeseed oil production from one of these businesses, which are deployed in the power plant for co-combustion as biomass.

But we also make our knowledge and our expertise available. This is how RWE makes an important contribution to deregulating the market in Turkey. By joining forces with other market players, we are giving support to the Turkish government through our know-how and expertise as it sets up an energy exchange. This is because we believe that the energy security of a country can be best guaranteed through a deregulated energy market.

Training and vocation

Our programme 'Ich pack das!' (I can do this!) enables us to help school leavers gain access to a structured training programme that leads to useful qualifications. Although they have a school leaving qualification, some young people are frequently unable to get a vocational training contract due to a combination of poor grades and an underdeveloped set of social skills. We prepare them to meet the demands of a training scheme in a foundation course that lasts approximately one year. Since the programme started in 2008, a total of 565 young people have taken part. The 81% ratio of trainees obtaining a vocational training contract is significantly above the comparative value for similar types of programme. 103 young people are currently participating in the programme.

We would also like to become established as a partner in countries outside Europe and make a contribution to social development there. Our focus is on educational projects. RWE Dea supports elementary schools in Egypt and institutions for adult learning. We provide assistance in refurbishing classrooms, and making teaching and learning materials available. We offer training packages for women without any school qualifications and equip them to act as multipliers for disseminating knowledge within their communities.

In 2011, we provided 23 new classrooms for two elementary schools in the Turkish province of Denizli where we are building a new gas-fired power plant. This means we have significantly improved the framework conditions for providing a good school education to 800 schoolchildren in the region. The project was implemented in cooperation with the Governor's Office of Denizli, the town of Kaklik and the parent-teacher association.



[> More on 'I can do this!'](#)

Social and cultural commitment

A substantial part of our social and cultural commitment is carried out under the auspices of foundations or through RWE Companius. We also undertake direct action in other areas. For example, we support an array of non-profit and social organisations in Hungary. Our partners include the International Children's Safety Service and the Hungarian Maltese Order. We are not simply interested in providing direct support for our partners. We also encourage our employees to make a personal commitment on the ground. The Hungarian Donors Foundation awarded us first prize for the 'Most successful cooperation between partners' and the 'Community Investment Programme of the Year'. We also support the international Opera Festival in Hungary, the Symphony Orchestra in the town of Miskolc, and the local Ottó Herman Museum.

RWE works together with some major foundations in the Czech Republic to help children, pensioners and people suffering from the impact of significant health challenges. We also play an active role as a sponsor in skiing as a sport and we are committed to increasing safety on the ski slopes, as well as providing support for children, teenagers and people with disabilities. RWE promotes traditional film culture in the Czech Republic and the Prague Spring international music festival.



[> More on Social Commitment in the Czech Republic](#)

We are working together with German oil producer Wintershall in Libya to help people who were seriously injured during the civil war in 2011. Since November 2011, we have organised transport to bring injured people to Germany and made arrangements for their treatment at German hospitals. Up to now, five patients have been brought to Germany and treated there. At the beginning of 2012, RWE Dea returned to Libya with a small core team, in order to relaunch business activities. This also includes taking a new approach to the aid sector in Libya. Up to the beginning of the civil war in 2011, RWE Dea had been supporting a school for blind children with around 180 children.

RWE Companius

We support the social engagement of our workforce through our corporate volunteer programme RWE Companius. We provide €500 to €2,000 for working materials and other resources to support 'their' community projects. People outside the company can also apply for financial sponsorship if an RWE employee is playing an active role in the project as a 'mentor'. The Group companies organise their engagement under the umbrella brand RWE Companius. This ensures that their projects meet the requirements of the regional environment. RWE Deutschland for example has been supporting the voluntary engagement of its employees through the 'RWE Aktiv vor Ort' (RWE Active Local) programme since 2005. Approximately 5,000 voluntary projects have been implemented during this period. Current affairs magazine 'Politik und Kommunikation' awarded 'RWE Aktiv vor Ort' (RWE Active Local) the 'Politics Award 2011' in the category Corporate Social Responsibility. RWE Deutschland achieved this accolade in a field of more than 100 competitors.

Members of our workforce in foreign Group companies also make a commitment through RWE Companius. RWE Transgas (Czech Republic) has meanwhile supported more than 550 employee projects along this route. There were 127 in 2011 alone. It has now become a tradition that the executive management joins together in carrying out a Companius Project each year and in the process strengthens its team spirit.

In 2011, our Dutch subsidiary company Essent joined the Companius programme by offering its employees the opportunity to engage in volunteer work and receive financial support. 2011 was a pilot year for the Companius programme, during which four time windows of two weeks for sponsoring requests were opened. A total of 120 employees – roughly 2.6% of the workforce – took part, and they were joined by around 200 family members and friends. Essent's ambition is that at least 5% of the workforce will participate in Companius.

RWE Companius furthermore develops new formats for workforce engagement. These include team projects for entire working groups or departments which are increasingly popular at RWE. Many colleagues are therefore given the opportunity to embark on their first volunteering engagement. RWE Companius offers long-term engagement through mentoring programmes, for example providing support for socially disadvantaged young people to assist them in making the transfer between school and the world of work. The scheme where RWE Companius loans expertise is an innovative initiative in this area: RWE staff provide advice to charitable organisations in their community about organisational issues. So far, around 4,800 members of staff have made a commitment and this represents more than 7% of our workforce through RWE Companius.

Our Group companies also benefit from the engagement of RWE employees – and not simply when the regional press writes a report on the activities. RWE Companius has meanwhile become one element of human resource development within the Group. Learning through voluntary commitment forms an element in the promotion programme for our future managers and trainees.



- > [More on RWE Companius](#)
- > [More on RWE Active Local](#)
- > [More on volunteering by npower](#)
- > [More on commitment by RWE Polska](#)

Facts and Figures on the Social Commitment at RWE	
7,700	Funded projects (since 2007)
1,902	Funded projects (2011)
€10.3 million	Total funds (since 2007)
€2.3 million	Total funds (2011)
4,800	Engaged employees (2011)

Foundations

Our group-wide foundation activities are coordinated by the RWE Foundation based in Essen and founded in 2009. It promotes projects from the areas of education, culture and social activities focusing in particular on energy issues. As a major energy company, we aspire to make a contribution to providing education about energy in Germany. A basic understanding for the interrelated issues around the supply of energy provides a sound platform for a constructive dialogue between our company and the community. Our contribution to energy education pursues a holistic approach that encompasses other relevant issues such as ethics, geography, politics and business alongside academic and technical aspects.

As yet, there are still no academic principles in Germany defining how these issues can be established in the school curriculum, taught by teachers and learnt by pupils in schools. This lack of clarity motivated us to commission a study looking into energy education from the Leibniz Institute for Teaching Natural Sciences and Mathematics (IPN) at the University of Kiel. The study has been designed to cover a period of two years. It focuses on the three issues outlined above and the aim is to use the study to derive recommendations for the work of the RWE Foundation. This will provide us with principles for the future work of the foundation on energy education and will secure the link with our core business.

We also give children and young people access to art and culture. Our work focuses on forms of expression that are based on energy, for example light and video installations. We interpret energy in a metaphorical sense for community projects and our aim is to generate energy in young people to further support their successful development. The 'Lichtpunkte' (Light Points) promotion programme run by the RWE Foundation and the German Children and Youth Foundation aims to provide support for children and families who are caught in the poverty trap and therefore have restricted opportunities to get education and participate in society. The nationwide programme is not only directed towards children but most importantly focused on supporting parents and reinforcing family structures. Research on practical applications is carried out on the communication channels, methods and support packages that get through to parents effectively, take some of the strain off them and encourage them to play a proactive role in the development and education of their children.

Our aim is to become the premier Energy Foundation in Germany. In 2011, we approved 16 new projects to this end. We have made €1.1 million available to sponsor current projects. The expenses for sponsoring measures amounted to €12.5 million in 2011. All expenses for donations and sponsoring are stored in a central database which is managed by the Compliance Department. This enables us to review whether the resources were also used in compliance with our guidelines and the Code of Conduct.

RWE Polska established its own foundation entitled 'RWE Polska' in 2006 and pooled all its activities for community engagement. The foundation gives children instruction about using electricity safely and supports socially disadvantaged children in sports projects. The Warsaw's Streets Project was completed in 2009 and involved additional street lamps being installed to make the streets safer at night.

RWE Dea founded the 'Endowment Music Foundation' in Norway in 2000 to promote academic and cultural links between Norway and Germany. The foundation gives annual grants to talented Norwegian music students in order to assist them in carrying out specialist training during a stay in Germany lasting between five and ten months.



> [More on RWE Foundation](#)

> [More on RWE Polska Foundation](#)

> [More on Endowment Music Foundation](#)

Evaluation

We believe it is also important to ensure that the impacts of community investment can be assessed. In future, we will evaluate our projects in order to assess the impact of our engagement. The United Kingdom has already gained a long track record of experience in this area: RWE npower is a member of the London Benchmarking Group (LBG). LBG is an internationally recognised benchmark for evaluating the community engagement of companies. It includes financial donations, in-kind transfers and management costs. This model demonstrates the long-term benefits to both society and business of community investment.

The Bertelsmann Foundation launched a comparable initiative in Germany and RWE has played a role right from the start. The IOOI (Input – Output – Outcome – Impact) provides a guideline for evaluating social commitment. Germany has recently also witnessed the development of a broadly based debate focusing on the community engagement of companies. We are also involved in a number of other initiatives including the business network 'W.I.E. - Wirtschaft. Initiative. Engagement.' by major German companies.

We are already attempting to obtain more quantitative data on the results of engagement projects that are underway. A team of people who were unemployed over a long period obtained a qualification as energy consultants through our 'Cleverer Kiez' (Smart Neighbourhood) project. Today, they are providing advice to private households. We not only record the number of households that receive advice and log their level of satisfaction. Most importantly, data on the amount of electricity, heating energy and water saved is also collected and the associated cost savings are calculated. On average, the surveyed households reduced their annual costs by a maximum of about €60. This is a significant figure for a low-income household.

The 'Lichtpunkte' (Light Points) programme was also evaluated in the start-up phase. Tangible changes are evident after the programme has been running for one year, including the capability for solving conflicts and problems, reinforcing the sense of self-worth and enhancement of the social skills of the children taking part. The experiences collected will be disseminated as the project progresses and this will enable the impact of the project to be improved.

Report profile

This report entitled 'Our Responsibility. Report 2011' is aimed at analysts and investors, non-governmental organisations (NGOs), our workforce, customers and suppliers, policymakers, government agencies and the people living in the regions where we do business. It describes the most important social, environmental and economic challenges facing our core business, the conflicting aims that can arise, and the corporate responsibility (CR) strategy we have developed in response.

The CR Report is being published online for the first time. A [PDF file](#) has also been created for printouts and archiving. This report was audited by the accountancy firm Pricewaterhouse Coopers (PwC) which assessed it against the Accountability Standard AA1000 ([Certificate for independent assurance report](#)).



Approach

We developed our CR strategy on the basis of the challenges posed by our business and taking account of the general conditions prevailing in individual regions. The report starts with a [Portrait of the RWE Group](#) to enhance your understanding of the background.



As in the previous year, the reporting structure is based on the [Ten Areas for Action](#) of the CR strategy. We assess the relevance of the individual Areas for Action and the expectations of the stakeholders for our company in a [Materiality analysis](#). The report also serves as our progress report for the Global Compact of the United Nations ([Progress report UN Global Compact](#)).



Basic principles

The report is based on our CR strategy and developed out of our ongoing dialogue with stakeholders. The relevant data are presented in line with the latest guidelines of the Global Reporting Initiative (GRI) to allow our readers to compare our performance with other companies. We explain how we have implemented these guidelines and the requirements of the CRI Sector Supplement Electric Utilities dated October 2007 in the [GRI Index](#). Our self-assessment of the level of compliance with the GRI guidelines (Version 3.0) is A+. This assessment was confirmed by the GRI ([GRI Level Check Statement](#)).



Data

The period under review is fiscal 2011, which began on 1 January and ended on 31 December. The data provided in this report relate to all [affiliated companies](#) of the RWE Group. This includes all those companies where we held a stake of more than 50% during the period under review. Any deviations from this are clearly stated. The financial data were taken from the [RWE Annual Report 2011](#).



For reference



This online report is published in German and English. The Executive Board of RWE AG has approved the report for publication. The editorial deadline for publication was 28 March 2012. This report continues our policy of annual reporting (> [Report Archive](#)). The next report will be published in the spring of 2013. The term 'employee' refers to male and female employees.

Forward-looking statements

This online report contains forward-looking statements regarding the future development of the RWE Group and its companies as well as economic and political developments. These statements are assessments that we have made based on information available to us at the time this report was drawn up. In the event that the underlying assumptions do not materialise or additional risks arise, actual performance may deviate from the performance expected at present. We are therefore unable to assume any responsibility whatsoever for the accuracy of these statements.

Independent Assurance Report

to RWE AG, Essen

PricewaterhouseCoopers AG Wirtschaftsprüfungsgesellschaft has performed a moderate assurance¹ engagement on the German version of the Sustainability Report and issued an independent assurance report, authoritative in German language, which has been translated by RWE AG as follows:

We have been engaged by RWE AG, Essen to perform an independent assurance engagement to attain moderate assurance on the adherence to the AA1000 AccountAbility principles and in respect of selected sustainability information in the Sustainability Report 'Unsere Verantwortung. Bericht 2011: NACHHALTIG VORWEG GEHEN (the 'Sustainability Report') of RWE AG, Essen. The Sustainability Report is published as online version on www.rwe.com/cr-report.

Responsibility of the legal representatives

It is the responsibility of the legal representatives of the Company

- to comply with the principles of inclusivity, materiality and responsiveness as defined in the AccountAbility Principles Standard (2008) (the 'AA1000 AccountAbility Principles'), and
- to prepare the sustainability information in the Sustainability Report in accordance with the criteria set out in the Sustainability Reporting Guidelines Vol. 3 (pages 7 to 17) of the Global Reporting Initiative (GRI).

This responsibility includes the conception, implementation and maintenance of systems and processes for ensuring compliance with the AA1000 AccountAbility Principles and to prepare the Sustainability Report with the application of assumptions and estimations for single CR data that are appropriate under the given circumstances.

Responsibility of the auditors

Our responsibility is to form an independent opinion, based on our assurance procedures, on whether facts have come to our attention leading us to believe that in all material respects

- the systems and processes installed by the Company are not appropriate for compliance with the AccountAbility Principles; or
- the selected sustainability information in the Sustainability Report has not been prepared in compliance with the GRI criteria.

We also have been engaged to report on recommendations for the further development of sustainability management and sustainability reporting on the basis of the results of our assurance engagement.

The websites reviewed by us are marked 'Reviewed 2011'. Our engagement concerns the German version of the Sustainability Report. Data linked from these websites were not part of our review.

We conducted our independent assurance engagement in accordance with AA1000 Assurance Standard (AA1000AS) 2008 and also in accordance with International Standard on Assurance Engagements (ISAE) 3000.

¹ 'Moderate assurance' as specified by AA1000AS (2008) is equivalent to 'limited assurance' as specified by ISAE 3000.

² 'High assurance' as specified by AA1000AS (2008) is equivalent to 'reasonable assurance' as specified by ISAE 3000.

These standards require that we fulfill our professional duties and plan and conduct the engagement in accordance with the principle of materiality so that we can form an opinion with moderate assurance¹, which is the degree of assurance that was required by RWE AG. We are independent as defined by Section 3.2 of AA1000AS (2008). Due to our expertise and experience with non-financial assessments, sustainability management as well as social and ecological issues, we have the competencies required to conduct this independent assurance engagement. An independent assurance engagement performed to obtain moderate assurance¹ is less substantial in scope than an independent assurance engagement performed to obtain high assurance², with the result that a corresponding lower level of assurance is obtained. The selection of the issues to be examined is a matter for the dutiful judgement of the independent auditors performing the engagement.

We conducted examination procedures at the level of the headquarters – RWE AG, Essen, and, at the subsidiary level, particularly at RWE Power AG, Essen, RWE Deutschland AG, Essen, envia Mitteldeutsche Energie AG (enviaM), Chemnitz, RWE Dea AG, Hamburg, Essent Gruppe, 's-Hertogenbosch (Netherlands), RWE npower, Swindon, (UK), and RWE Transgas, Prag (Czech Republic).

With regard to compliance with the AccountAbility Principles we conducted the following examination procedures:

- Obtaining a fundamental understanding of the application of the AA1000 principles by interviewing persons responsible for stakeholder management at the Group headquarters and at selected locations;
- Collecting and evaluating documentation regarding stakeholder dialogue, communication with stakeholders as well as of evaluation and interpretation for the respective subsidiaries of RWE;
- understanding the relevant documentation for analysing and prioritising sustainability topics and realization in the specific CR-areas.

With regard to selected sustainability information in the Sustainability Report, our work included inter alia the following examination procedures:

- discussion with the employees responsible for reporting of sustainability information;
- examination of the systems and processes for data collection, calculation and reporting of sustainability information;
- functional examination of selected controls for the assurance of data quality;
- review of the GRI G3-Content Index in terms of consistence with the specifications in the report and its accuracy and completeness;
- analytical assessment of sustainability data as well as limited testing of detail on a sample basis.

Material findings and judgments

With regard to the fundamental AccountAbility Principle of inclusivity:

- Internal and external stakeholders are involved in various dialogue formats to discuss current issues.
- Supraregional stakeholder dialogues are organized and controlled at group level by the central CR management and the responsible technical departments, regional stakeholder dialogues controlled by the operating subsidiaries. If there are group-wide issues, coordination took place by the central CR management according to the established internal rules of cooperation.
- Between the responsible technical departments and the central CR management a regular exchange is established.

With regard to the AccountAbility Principle of materiality:

- In context with the so-called issue radar stakeholders' concerns and expectations are gathered and evaluated.
- This issue radar is part of the materiality analysis, which takes place annually and by which the fields of action introduced in 2006 are subject to a revolving assessment and new issues are added, if necessary.
- The results of this analysis are systematically included in the CR reporting, the CR management and single CR projects.

With regard to the AccountAbility Principle of responsiveness:

- Communication with stakeholders takes generally place in a comprehensive manner via various communication channels and is thematically balanced.
- The processes of reaction are coordinated within the group.

A standardized documentation of dialogues with stakeholders do not exist, yet

Based on our independent assurance engagement to obtain moderate assurance, nothing has come to our attention that causes us to believe that, in all material respects the systems and processes installed by the Company are not appropriate for compliance with the AccountAbility Principles, and selected sustainability information set out in the Sustainability Report has not been prepared in compliance with the GRI criteria.

Further recommendations

Without qualifying the opinions on our engagement stated above, we make the following recommendations for the development of the sustainability management and reporting:

Development of stakeholder management:

- Documentation of stakeholder dialogues in all Group companies
 - Introduction of Group-wide procedures for handling stakeholder concerns consistently and to ensure the escalation of potentially critical issue to the corporate headquarters
 - Institutionalization of the existing regular exchange of group-wide stakeholder issues.
- Improvement of reporting processes:
 - Continuation of improvement in data collection and control environment for certain CR data and ensuring of data consistency across systems within the Group
 - Extension of IT tools to support the reporting process
 - Continuation and completion of the process documentation for data collection in various group companies.

Frankfurt am Main, 30. March 2012

PricewaterhouseCoopers
Aktiengesellschaft
Wirtschaftsprüfungsgesellschaft

gez. Michael Werner gez. ppa. Juliane von Clausbruch



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AR = Annual Report 2011
PR = Personnel Report 2011
* = Status: partially reported

All core indicators are presented. Some of the numbers have been skipped because the additional GRI indicators are not recorded in the index.

A detailed GRI Index including information on the indicators of GRI Sectors Supplements Electric Utilities as well as explanations in case of reporting partially is available on the Internet. A self-assessment we have carried out estimates that the level of compliance with the GRI G3 guidelines is A+. We had this self-assessment checked by the GRI and it was confirmed.

GRI Level Check Statement



Statement GRI Application Level Check

GRI hereby states that **RWE AG** has presented its report "Our Responsibility. Report 2011" to GRI's Report Services which have concluded that the report fulfills the requirement of Application Level A+.

GRI Application Levels communicate the extent to which the content of the G3 Guidelines has been used in the submitted sustainability reporting. The Check confirms that the required set and number of disclosures for that Application Level have been addressed in the reporting and that the GRI Content Index demonstrates a valid representation of the required disclosures, as described in the GRI G3 Guidelines.

Application Levels do not provide an opinion on the sustainability performance of the reporter nor the quality of the information in the report.

Amsterdam, March 27th 2012

A handwritten signature in blue ink, appearing to read "Nelmara Arbex".

Nelmara Arbex
 Deputy Chief Executive
 Global Reporting Initiative



The "+" has been added to this Application Level because RWE AG has submitted (part of) this report for external assurance. GRI accepts the reporter's own criteria for choosing the relevant assurance provider.

The Global Reporting Initiative (GRI) is a network-based organization that has pioneered the development of the world's most widely used sustainability reporting framework and is committed to its continuous improvement and application worldwide. The GRI Guidelines set out the principles and indicators that organizations can use to measure and report their economic, environmental, and social performance. www.globalreporting.org

Disclaimer: Where the relevant sustainability reporting includes external links, including to audio visual material, this statement only concerns material submitted to GRI at the time of the Check on March 21st 2012. GRI explicitly excludes the statement being applied to any later changes to such material.

Global Compact Progress Report 2011

RWE supports the United Nations Global Compact and wants to help with the worldwide implementation of its ten principles, which have been adopted word for word in the RWE Code of Conduct.

The following chart identifies the guidelines, programmes and management systems which RWE has introduced within our sphere of influence. The table also highlights the measures that have been taken during the period under review and the specific results obtained.

Principle	Systems	Measures	Results
Principle 1: Support of human rights Principle 2: Elimination of human rights violations Principle 3: Ensuring freedom of association Principle 4: Abolition of all forms of forced labour Principle 5: Abolition of child labour	Social Charter and minimum standards for restructuring operations carried out for the European companies in the RWE Group, covering 99.6% of the workforce. (p. 98) Principles of personnel policy for employees in Egypt and Libya (0.4% of the workforce) ILO core standards are defined in the Code of Conduct (p. 98) Supplier management (p. 71)	Assessment and review of suppliers (pp. 26, 71 ff.) Stakeholder dialogue extended for procurement of hard coal and biomass (Better Coal, Dutch Coal Dialogue) (p. 73) Definition of requirements for suppliers in the terms and conditions (p. 78) Institutionalised dialogue with the workforce in Egypt and Libya	Compliance with principles 1–5 assured through national legislation in Europe, cooperation with the unions and RWE's own principles which apply to employees of the companies Above-average pay and social benefits
Principle 6: Elimination of discrimination	Diversity management (pp. 99 f.)	Commitment to the German Government to increase the proportion of women in management positions (p. 100) Mentor programmes for women in management positions, Senior Women's Network and special promotion programmes in operating companies (p. 100)	Percentage of women in management positions increased to 11.3% (p. 100) People with severe disabilities 6.0% in Germany
Principle 7: Precautionary environmental protection Principle 8: Initiatives to promote greater environmental responsibility	Environmental management (pp. 15 f., 110) Strategy to reduce the CO ₂ emission factors (pp. 28 ff.)	Climate protection, energy efficiency and environmental protection as part of the CR Programme (pp. 25, 27) Consultancy and services for intelligent use of energy with retail and business customers (pp. 49 ff.)	Low specific pollutant emissions from power stations, high recycling rates for gypsum and ash (pp. 111 f., 115) Smart Meters replace old meters (p.50) 136 local-authority efficiency projects with around 100 local authorities in Germany (p. 51)
Principle 9: Development and diffusion of environmentally friendly technologies	Strategy to reduce the CO ₂ emission factors (pp. 28 ff.) Innovation management (p. 18)	Increase in efficiencies (p. 44) Expansion of renewables (pp. 34 ff.) Development offensive Clean Coal (pp. 55 ff.)	Modernisation of the power plant portfolio (pp. 32 f.) Expansion of renewable energies (p. 34) Carbon capture and storage (p. 56) CO ₂ use (p. 57)
Principle 10: Anti-corruption measures	RWE Code of Conduct and guidelines for prevention of corruption (p. 16)	Database to enhance transparency developed further (p. 17) Internal newsletter and articles in the Staff Magazine and information events on current compliance issues (p. 17) Training of the workforce with an Intranet-based training programme and one-site training (p. 17)	No court proceedings against members of RWE's workforce are pending in relation to alleged bribery offences (p. 17)

Key Figures at a Glance

Field	Performance indicator		2011	2010	2009	2008	2007	
Economy	External electricity sales volume	billion kWh	294.6	311.2	282.8	317.1	306.4	
	External gas sales volume	billion kWh	322.2	395.4	332.0	327.8	335.0	
	Electricity customers	million	16.6	16.2	16.5	14.4	14.6	
	Gas customers	million	7.8	7.9	8.0	6.2	6.3	
	External revenue	€million	51,686	53,320	47,741	48,950	42,507	
	Share of the RWE Group's revenue earned in countries with a high or very high risk of corruption ¹	%	12.4	12.0	12.7	12.9	11.8	
	Net income	€million	1,806	3,308	3,571	2,558	2,667	
	Value added	€million	1,286	2,876	3,177	3,453	2,970	
	Capital expenditure	€million	7,072	6,643	15,637	5,693	4,227	
	Environment	Power plant capacity	MW	49,238	52,214	49,582	45,196	44,533
		NO _x emissions	g/kWh	0.60	0.58	0.67	0.67	0.76
SO ₂ emissions		g/kWh	0.31	0.29	0.34	0.39	0.57	
Particulate emissions		g/kWh	0.021	0.019	0.024	0.028	0.034	
Primary energy consumption		billion kWh	390.6	403.0	368.2	396.0	411.7	
Water consumption ²		m ³ /MWh	1.62	1.41	1.70	1.49	1.69	
Specific CO ₂ emissions		t/MWh	0.787	0.732	0.796	0.768	0.866	
Scope 1 CO ₂ emissions ³		million mt	163.8	167.1	151.3	174.5	189.7	
Scope 2 CO ₂ emissions ⁴		million mt	2.4	3.1	3.5	3.8	3.6	
Scope 3 CO ₂ emissions ⁵		million mt	121.0	135.7	128.1	127.0	127.8	
Share of the Group's electricity generation accounted for by renewables ⁶		%	4.3	4.0	3.5	2.4	2.4	
Society	Employees ⁷		72,068	70,856	70,726	65,908	63,439	
	Share of women in the company	%	27.1	26.2	26.1	25.6	25.2	
	Share of women in executive positions ⁸	%	11.3	10.8	9.0	8.9	8.9	
	Fluctuation rate	%	10.1	8.3	8.7	8.8	9.1	
	Health ratio	%	95.8	95.6	95.4	95.4	95.6	
	Lost-time incident frequency	LTI _F ⁹	2.8	3.5	4.3	5.3	6.1	
	Fatal work-related accidents ¹⁰		3	1	5	12	9	

1 Countries rated lower than six on a scale of zero to ten in the Corruption Perceptions Index by the anti-corruption organisation Transparency International, with ten corresponding to the lowest risk of corruption.

2 Difference between power plant water withdrawals and returns to rivers and other surface waters; excluding power plants with seawater cooling

3 Scope 1: direct CO₂ emissions from in-house sources (oil and gas production, gas transmission & electricity generation).

4 Scope 2: indirect CO₂ emissions from the transmission and distribution of electricity purchased from third parties.

5 Scope 3: indirect CO₂ emissions that do not fall under scope 1 or 2, produced through the generation of electricity procured from third parties, the transmission and distribution of electricity in third-party networks, the production and transmission of used fuel, as well as the consumption of gas sold to customers.

6 Electricity generation based on wind (4.1 TWh), hydro (2.8 TWh) and biomass (1.9 TWh).

7 Converted to full-time positions

8 2009 excluding Essent.

9 Lost Time Incident Frequency (Number of accidents leading to the loss of at least one person day per million working hours); excluding employees of third-party companies.

10 Including employees of third-party companies.

Commentaries to the figures

The following commentaries are specific annotations to the figures. Those are assorted corresponding to the categories in the data tool. Commentaries to the same category are displayed among each other.

Category	Commentaries
Power generation	Including electricity procured from power plants not owned by RWE that we can deploy at our discretion on the basis of long-term agreements. In fiscal 2011, it amounted to 22.9 billion kWh, of which 20.8 billion kWh were generated from hard coal.
Power plant capacity	Including capacities of power stations not owned by RWE that we can deploy at our discretion on the basis of long-term agreements. As of 31 December 2011, these capacities amounted to 8,547 MW, of which 6,382 MW were based on hard coal.
CO ₂ emissions	<p>Includes power stations not owned by RWE that we can deploy at our discretion on the basis of long-term agreements. In the year under review, they produced 20.4 million metric tons of CO₂ and were allocated certificates for 18.9 million metric tons. Based on the electricity production, not including emissions from biogenic fuels.</p> <p>Scope 1: direct CO₂ emissions from in-house sources (oil and gas production, gas transmission & electricity generation).</p> <p>Scope 2: indirect CO₂ emissions from the transmission and distribution of electricity purchased from third parties.</p> <p>Scope 3: indirect CO₂ emissions that do not fall under scope 1 or 2, produced through the generation of electricity procured from third parties, the transmission and distribution of electricity in third-party networks, the production and transmission of used fuel, as well as the consumption of gas sold to customers.</p>
Pollutant emissions	Not included plant fired by gas from blast furnaces.
Fuels	Fiscal 2007 adjusted since 'Our Responsibility.Report 2007'. Fossil fuels used.
Waste	Owing to a change in the rules the use of ash to refill disused opencast mines no longer counts as recycling as of 2010.
Water	Difference between power plant water withdrawals and returns to rivers and other surface waters excluding power plants with sea water cooling.
Reportable nuclear incidents at our nuclear power stations (INES)	INES: International Nuclear Event Scale.
Workforce	FTE = Full-Time Equivalent: Converted to full-time positions. 2009 excluding Essent.
Occupational Health and Safety	Lost Time Incident Frequency (Number of accidents leading to the loss of at least one person day per million working hours) excluding employees of third-party companies. Including employees of third-party companies.
Customers	Not included minority stakes.
External electricity & gas sales volume	<p>Including sales volumes achieved by RWE Energy Nederland in the first three quarters of 2009.</p> <p>Including sales of the Renewables Division and of companies stated under 'Other, consolidation' (primarily Amprion).</p>

Category	Commentaries
Financial figures	<p>RWE Innogy was established in February 2008.</p> <p>Countries rated lower than six on a scale of zero to ten in the Corruption Perceptions Index by the anti-corruption organisation Transparency International, with ten corresponding to the lowest risk of corruption.</p> <p>Since 2008, EBITDA has also included operating income from investments.</p>
Dividend/dividend payment	<p>Dividend proposal for RWE AG's 2011 fiscal year, subject to approval by the 19 April 2012 Annual General Meeting.</p>
Value added	<p>2007 adjusted as per the Annual Report 2008, 2006 excluding discontinued operations (American Water).</p> <p>Only the taxes actually paid are included, not tax expenditure 2007 adjusted as per the Annual Report 2008, 2006 excluding discontinued operations (American Water).</p> <p>2008 adjusted as per the Annual Report 2009, 2007 adjusted as per the Annual Report 2008, 2006 excluding discontinued operations (American Water).</p>

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