Climate-protection cluster

Tank up on power – no plug needed P. 12

Your heating – an unknown quantity P. 15

Crime scene energy efficiency: 20 years EnergyAgency.NRW P. 22
Carbon Expo fair in May
International emissions-trading and climate protection experts will soon be making their way to Cologne to attend the Carbon Expo fair, being held from 26 to 28 May 2010. The Koelnmesse exhibition corporation is also organizing, jointly with the World Bank and the International Emissions Trading Association (IETA), an extensive programme of accompanying conferences. EnergyAgency.NRW will also be exhibiting, as well as highlighting the current status in Germany and Europe, in the context of two specialist events focusing on joint implementation projects. Information: Verena Müller, e-mail v.mueller@energieagentur.nrw.de

Second German Electromobile Congress in Bonn
Following the success of the first event in 2009, the “Second German Electromobile Congress” is also to be held in the energy region NRW, at the World Conference Centre, Bonn, on June 17 and 18, 2010. The developing electromobility industry will be showcased here in the context of papers and of an exhibition of current projects and solutions in the foyer of the former “Bundestag” (German parliament) building. The first results of the “model regions for electromobility” projects, which have been underway throughout Germany since the turn of the year, will be awaited with great interest. The state of North Rhine-Westphalia is, via EnergyAgency.NRW, the premium partner of this event, organised by the nova Institut.
The abandonment of fossil energy sources with the aim of reducing CO₂ emissions from both stationary and mobile applications will not be technologically feasible without efficient means for the storage of electrical energy. On a present-day view, and at least for low to medium ratings and energy quantities, electrical storage has the advantage over the majority of other physical storage methods, since its efficiency losses for energy transformation are the lowest. Achievement of climate-protection targets will be determined, in particular, by the further development of battery technology. Weight, service-life and costs play a role, in particular, in addition to the need to increase energy density. Alongside emissions-free propulsion systems, the storage of regenerative energies is one of the challenges creating, within the framework of the climate-protection targets, new market opportunities for battery producers. Hoppecke Batterien GmbH & Co. KG, a medium-sized family-owned company located in Brilon, in the hilly “Sauerland” region of NRW, and the largest European-owned producer of industrial battery systems, is working as a network partner in the “EnergyRegion.NRW” Energy Economy Cluster on innovative developments for the attainment of these climate-protection objectives. The cluster’s work on defined R&D projects makes it possible to achieve the aim of developing in the foreseeable future innovative and marketable energy-storage systems, and thus to further extend NRW’s technological leadership in industrial battery systems.

The cluster, as an impartial information and communications platform in the energy sector, provides a unique concentration of capabilities, and permits greater networking of industry, research and politics. Future-orientated projects based around regenerative energy sources and zero-emissions propulsion systems provide examples of successful cooperation within the cluster – in particular, the implementation of a fuel-cell/battery hybrid for fork-lift-truck propulsion systems, and the development of an 18-metre long articulated (“bendy”) bus with a hybrid fuel-cell propulsion system in the context of a joint German-Dutch project. The development of environmentally friendly technologies for enhancement of energy-efficiency, and for utilisation of regenerative energy sources are also an important industrial-policy strategy being promoted by the “EnergyRegion.NRW” Energy Economy Cluster and providing excellent economic potentials for medium-sized enterprises in NRW, in particular.

Dr. Marc Zoellner
CEO of Hoppecke Batterien GmbH & Co. KG, Brilon
North Rhine-Westphalia is an energy region with both a tradition and a future — the most important in Europe. The generation and use of energy have had a decisive influence on both economic and social development here since the time of the industrial revolution. Today, NRW converts and consumes more energy than any other German state, and also emits the largest quantity of CO₂. Practically 30 per cent of Germany’s electricity is generated in the region around the Rhine and Ruhr rivers, and nearly 40 per cent of the country’s industrial power is consumed here. Germany’s largest energy-supply utilities are also domiciled here. North Rhine-Westphalia is also home to numerous research institutions working in the field of energy conversion and use. All of which adds up to special responsibility.

In this context, the NRW state government has adopted an energy and climate-protection strategy which assigns the state a pacemaker function within Germany and promotes the domestic energy industry. The aim is that of achieving strong and sustainable economic growth with a simultaneous reduction in CO₂ emissions. The NRW government intends for this purpose to reduce overall energy consumption, increase the proportion of renewable energy sources used for energy supplies, increase efficiency in generation of power from fossil energy-sources, in particular, research and development — and ultimately launch — the technologies necessary for this purpose, and intensively promote international energy technology transfer.

Climate protection is, therefore, a positive economic factor for the state, and one which must be exploited. This can be accomplished only by means of close and coordinated cooperation between politicians, companies, research institutions and all social groupings within North Rhine-Westphalia.

Two lead-market energy clusters

The state government founded the “EnergyRegion.NRW” and “EnergyResearch.NRW” (“CEF. NRW”) clusters in order to implement energy and climate policy targets. These clusters concentrate all the state’s energy sector activities.


CEF.NRW is the contact address for all questions concerning energy research in North Rhine-Westphalia. Precisely because NRW’s energy industry is so powerful, the state also needs on the research side a structure which enables partners from science and industry to meet on an equal footing and practice good cooperation. This was the reason for the founding of CEF.NRW. It promotes from the research side coordinated cooperation between science and industry. The work of CEF.NRW thus assists in ensuring that research discoveries are taken up in industry more quickly than previously. CEF. NRW’s aim is that of visibly concentrating thematic focuses at outstanding centres. Examples can be found in the form of the University of Münster’s Battery Research Centre, e.f.Ruhr Forschungs-GmbH, the Institute of Energy Economics at the University of Cologne, the Jülich Solar Institute of the Aachen University of Applied Sciences and the E.ON Energy Research Centre at the RWTH Aachen University. Here, extensive
partnerships between science and industry have already grown up with the support of the cluster.

CEF.NRW orientates its work around the primary emphases of energy research in NRW, concentrating them in three groups: centralised energy generation, decentralised energy generation, and biological generation of energy sources. These are linked by the vital cross-sectional technologies of energy networks and energy economics.

The centralised energy generation group includes the topic of vital importance to NRW of fossil, nuclear and solar power-plant technology. There are, in this sector, numerous overlaps between the technologies, signifying that it was a rational step to concentrate these in one of the cluster’s groupings. Decentralised energy generation includes, in NRW, two predominant topics, in the form of “Hydrogen and fuel-cell technology” and “Photovoltaics”, in which CEF.NRW also intends to intensify international cooperation. The problems of storage of both heat and electricity is increasingly developing into a question of overriding importance for the further development of our energy system, a question to which too little attention has been directed up to now. Research in the field of the biological generation of energy sources is developing comprehensive concepts aimed at assuring sustainability even under the future intensified integration of the energy-route utilisation of biomass.

In the field of energy networks and energy economics, too, the technological, structural and economic changes in the overall energy system confront science and industry with new, supra-technological questions, which energy research must take up without delay.

The lead market energy is covered by the two state clusters, EnergyResearch.NRW and EnergyRegion.NRW. The function of the clusters is that of achieving improved networking of the participants from research and industry along the entire value chain, with the ultimate aim of improving the state’s innovative creativity and strengthening NRW as an industrial location. This task also extends to export support and assistance for NRW companies.

Consolidated management
The NRW state government has entrusted EnergyAgency.NRW and its CEO, Dr. Frank-Michael Baumann, with the management of the EnergyRegion.NRW and EnergyResearch.NRW clusters. The networks already established and functioning successfully and the existing partnerships will therefore continue to provide the basis for the work of the clusters. A total of 5,200 persons from 3,300 companies and institutions, 64 universities, 107 institutes and ninety-four associations are involved in the work of the two clusters.

Cross-network cluster management is now aimed at tailoring the clusters’ products and services even more precisely to the needs of the individual players in the energy sector in future. “This new structure will also make it easier to network with other state clusters and cooperate in cross-innovations. One example of this is the topic of electromobility, which involves cooperation between industries which have scarcely had contact with one another up to now – the automotive and energy industries, on the one hand, and also the chemicals industry and, not least of all, IT and communications technology. The ‘Fuels and Engines of the Future’ and the ‘Fuel Cells and Hydrogen’ networks can, for example, make a great contribution in this context”, comments cluster manager Dr. Baumann.

Internet: www.energieregion.nrw.de and www.cef.nrw.de
An interview...

...with Prof. Dr.-Ing. Detlef Stolten of the Jülich Research Centre

The 18th World Hydrogen Energy Conference (WHEC) 2010 is to be held at the Essen exhibition venue from May 16 to 21, 2010. The State of North Rhine-Westphalia is supporting this conference, the aim of which is to develop hydrogen as an energy source significantly further on the path to a sustainable and climate-friendly energy industry.

Some 1,500 participants from Germany and abroad are expected to attend this meeting of top scientists from around the world, with its accompanying exhibition and fringe events. The conference is also part of the European Capital of Culture RUHR.2010 programme. EnergyAgency.NRW is responsible for the organisation of the WHEC 2010. The state’s energy and economics minister, Christa Thoben, recently outlined the state’s aims for this conference: “We perceive the fuel cell as a potential ‘Made in North Rhine-Westphalia’ export hit. This technology is being developed, produced and used on a global scale, all the way from individual components up to complete systems, in our very own Energy Region No. 1. The state government is supporting a large number of research, development and demonstration programs by industry and science. Some ninety projects, with a total volume of 165 million euros, have been subsidised by the state and the European Union with funds totalling 100 million euros up to now”.

An interview with Prof. Dr.-Ing. Detlef Stolten, of the Jülich Research Center, chairman of the 18th World Hydrogen Energy Conference 2010:

Why is the 18th WHEC being held in North Rhine-Westphalia?

Prof. Stolten: “Even now, NRW occupies pole position in hydrogen and fuel-cell technology. For some ten years now, the Fuel Cell and Hydrogen network has already played a special role, within EnergyRegion.NRW, in the establishment of energy-technology capabilities in our state. This network now has 360 members from NRW, the other federal states and other countries, making it Europe’s largest network on this topic. It is, at the same time, an important location factor, as is demonstrated by the attraction of several foreign fuel cell companies to NRW”.

And what vision of the energy-supply future will the conference emphasize?

Prof. Stolten: “Hydrogen is indispensable as an energy source, for future mobility, in particular. It fits ideally into the ongoing discussion of electromobility and renewable energy. The first day of the WHEC, May 17, 2010, in particular, will set important signals, since we intend there to begin integrating the politicians and important representatives from commerce and industry into our efforts as researchers and developers to achieve improved understanding of the world of hydrogen. Uses for hydrogen range even today from portable applications, such as notebooks, via stationary facilities in the field of domestic energy, up to and including on-board power supplies for aircraft and submarines. The 2010 WHEC has the important target of providing scientists and technologists with an international forum for the interchange of information on hydrogen and fuel cells”.

Is attractively presented information available for the citizens of NRW?

Prof. Stolten: “The WHEC 2010 will also permit for the general public many diverse insights into the energy future with hydrogen applications. This comprehensive conference, which is to be conducted in English, will be backed up by an international specialist fair featuring the hydrogen industry’s latest developments, and excursions to fuel cell locations in NRW. Further items on the agenda include a “Public Day” on Sunday, 16 May, a “Pupils’ and Teachers’ Day” on 17 May, and a “Students’ Day” on 18 May. Visitors will also have the opportunity of taking test rides in fuel cell cars and of experiencing this silent and zero-emissions propulsion technology by taking a trip on a fuel-cell powered ship on Lake Baldeney. In addition, the host city, Essen, as European Capital of Culture RUHR.2010, is also organizing an extensive program of background events”. Internet: www.energieregion.nrw.de and www.whec2010.com
NRW exports energy know-how

A new Internet portal in English – the “Competence Atlas Energy NRW” – now enables North Rhine-Westphalia to highlight its capabilities in the fields of energy-efficiency, renewable energy and climate-protection. The new portal is a product of the “EnergyRegion.NRW” energy-industry cluster, which is organised by EnergyAgency.NRW.

“This portal also demonstrates that EnergyRegion.NRW is a globally leading location for energy-efficiency, climate protection, the new energy industry and innovative energy research”, affirmed NRW’s economics minister, Christa Thoben, at the inauguration of this on-line platform. The portal will spotlight numerous companies, research institutions, universities and lead projects.

North Rhine-Westphalia is Europe’s most important energy region. Its distinguishing feature is its enormous diversity, combined with outstanding capabilities. The NRW energy industry and its energy research compete with other international locations for investors, specialists and innovators. “The dual-language Competence Atlas Energy NRW focuses on the potential of the corporate and research landscape in our state”, added minister Thoben.

The aim of the “Competence Atlas Energy NRW” is to publicise internationally the state of North Rhine-Westphalia as a leading base for energy technology and the energy industry. The portal will help in establishing the EnergyRegion.NRW brand at international level.

“We intend, on the one hand, to support the decision-making process in companies looking for a site for a branch in Germany, or indeed in Europe. The benefits will include direct investments, and the creation of jobs in NRW’s energy sector”, continues Dr. Frank-Michael Baumann, director of EnergyAgency.NRW and the responsible cluster manager. As he noted, particular interest is centred on research-intensive enterprises that can assist in boosting NRW’s innovative potential and the development of clusters. Another intention is to publicise the products, services and core capabilities of companies located in NRW, to support export business. On-line media have now become the most important source of information for businesspeople and specialists when preparing decisions on investments and locations.

The innovative and competitive strengths of EnergyRegion.NRW are to be illustrated on the new portal by showcasing selected companies, research institutions, universities and specific projects.

Subdivision into a range of technological and industrial segments will permit the visitor to the portal rapid familiarisation and an overview on his or her specialisation. The locations of companies and organisations will be indicated on context-relevant maps.

The new on-line portal can be found at www.energieregion.nrw and www.energieagentur.nrw.de.

A portrait of EnergyRegion.NRW

The many diverse opportunities and services provided by the two clusters are illustratively detailed in three new publications. The 60-page “Energy Research in North Rhine-Westphalia. Forerunners in innovation” brochure contains information on projects and programs offering an impressive insight into the innovative potentials of NRW’s energy-research landscape. Research in all relevant energy-technology fields is now ongoing at no less than thirty universities and research institutions within the state.

The “EnergieRegion.NRW – the Energy Economy Cluster and its Networks” image publication devotes a full page to each of the eight networks, their working emphases and the necessary contact details. Finally, “Innovation from EnergieRegion. NRW” offers an overview of thirty-three outstanding projects from the cluster’s activities, highlighting exemplary successes: the spectrum ranges from a new, energy-efficient museum building and the use of renewable energy sources in solar and climate-protection estates, via reduction of emissions by means of intelligent power plant and network technology, up to and including groundbreaking energy utilisation in the field of fuel cells and hydrogen mobility, and the exportation of NRW’s wind-energy know-how. All publications can be downloaded and ordered from www.energieregion.nrw.de and www.cef.nrw.de.
Heat pumps are tops!

Just one year from the coming into force of the Renewable Heat Sources Act, the planning and installation of heating systems based on regenerative energy are now daily routine for German building project sponsors and planning consultancies. According to a survey performed by tns emnid on behalf of the Renewable Energy Agency, heat pumps (geothermal and ambient heat), at 41.4 per cent, made up the largest proportion of newly installed heating technologies in 2009, closely followed by solar thermal systems (39 per cent), wood- or pellet-fired systems (13.6 per cent), gaseous biomass (5 per cent) and liquid biomass (1 per cent).

It is, then, no surprise that 54,800 new heat pumps were installed in Germany in 2009. Information supplied by the German Heat Pump Association indicates that some 334,000 heat pumps are in operation in Germany; more than 55 per cent of the heat pumps sold for heating purposes in 2009 obtain their heat from the soil and from the groundwater, while 44.6 per cent of heat pumps sold utilise the heat from the ambient air.

In NRW, the Heat Pump Marketplace has now served for ten years as a network for relevant players in this sector for promotion of this environmentally friendly technology. The Heat Pump Marketplace NRW is coordinated by EnergyAgency.NRW on behalf of the State of North Rhine-Westphalia's Ministry of Economic Affairs and Energy. Around 70,000 heat pumps are in use in NRW alone, making this one of the leading regenerative-energy technologies. The use of geothermal heat, with a turnover of over 180 million euros annually, secures between 4,000 and 5,000 jobs in NRW, for example. Further information: kersten@energieagentur.nrw.de

Car abstinence like slimming diet

When it’s a question of drawing a benefit from going without, there’s no great difference between a slimming diet and leaving the car in the garage. The common aim: greater quality of life!

Jointly with partners from other dioceses, the Catholic diocesan council appealed for reduced use of cars. Since March, the gas guzzlers in the bishopric of Aachen have, increasingly, been left in the garage. The entire scheme enjoys the patronage of NRW’s economics and energy minister, Christa Thohon, and the participation of EnergyAgency.NRW.

The aim of the bishopric’s Catholic diocesan council in this campaign is to stimulate in the weeks to come a rethinking of the everyday use of the motor-car plus a search for and trial use of alternatives.

As in the case of chocolate, the initiators, from the diocesan council’s “Environment and Nature” workshop are concerned to achieve not only abstinence. Their intention, rather, is to promote new quality of life via aware mobility. Cycling and walking are excellent and healthy alternatives for short distances, while bus and rail travel is available for longer journeys.

People who are dependent on their cars can still improve their personal pollution balance via fuel-saving driving practices, and via car-sharing using environmentally friendly vehicles.

The workshop’s initiating members, Hans-Peter Katz, Reiner Lövenich and Heribert Rychert (Association for Promotion of Church Environmental Advisory Services), beat the drum intensively for their initiative for several months, gaining a number of cooperation partners, who support them in their “car abstinence” with ideas, donations in kind and events. EnergyAgency.NRW also supported the kick-off event – test drives on vehicles using alternative energy for their propulsion and a public discussion on the future of mobility, with its network.

The “Bioenergy.2020.NRW” biomass plan of action came into effect in mid-2009. The achievement of its targets is based essentially on mobilizing domestic biomass potentials within NRW.

Six bioenergy managers employed in NRW

The central element of the biomass plan is, therefore, the strengthening of regional capabilities and responsibilities. Positive experience gained at regional level has indicated that exemplary achievements are always produced if it has been possible to bring a range of different players together in a project context. Regional knowledge, and the identification of participants and biomass potentials in the particular region are necessary for the successful implementation of project ideas. The state government resolved to subsidise a bioenergy manager in six pilot regions, in order to support this development. The following counties in the state have appointed such a manager since late 2009/early 2010: Steinfurt, Unna, Recklinghausen, the cities of Bottrop and Gelsenkirchen, Wesel, Mettmann and the urban triangle of Wuppertal, Solingen and Remscheid, plus the Rheinisch-Bergische and Oberbergische districts.

The objective is to provide at county level independent regional contacts, who will contribute to increasing the generation of bioenergy, to the concomitant beneficial effects for the environment and for climate protection, and also to regional development, by opening up previously unused sources of bioenergy and by supporting local projects for production of bioenergy.

EnergyAgency.NRW is jointly responsible with the NRW environmental ministry for tight networking of the bioenergy managers, with the aim of achieving closer interchange of experience, support and evaluation within the two-year project period. Enquiries to: Cornelia Reuther, Network Biomass, e-mail reuther@energieagentur.nrw.de, Tel. +49 (0)211/4566671.

In the context of a feasibility study, the Warstein municipal utility and the GeothermalCentre Bochum are currently examining implementation of a medium-depth hydrogeothermal project, unique on this scale in NRW up to now, for supply of heat. The objective is the accessing of a massive limestone deposit in the Devonian near the town of Warstein, at a depth of some 900 m.

The karstified, and therefore extremely hydraulically conductive limestone deposit below Warstein is located at depths of between around 400 m and 900 m, making it possible to anticipate temperatures sufficiently high to permit direct utilisation. Spring discharges have already disclosed temperatures of 15°C in the vicinity of the deposit. Geochemical analyses indicate potentials for geothermal water at 40 to 45°C at depths of 900 m. A production well is to be sunk into the limestone stratum in order to access the geothermal reservoir. Plate-type heat-exchangers will be used to transfer energy from the geothermal water to a transmission circuit; the water thus cooled will then be returned underground via another well.

The municipality of Warstein envisages various properties as recipients of this heat, including an all-weather swimming facility, a secondary school, a retirement home, more than forty detached houses and a community-heating system in a nearby development zone. These can be supplied with geothermal heat either directly (in the case of the swimming facility) or indirectly, using heat pumps (the secondary school and the development zone).

The development and implementation of this pilot project in Warstein is intended, on the one hand, to spark off further hydrothermal projects in NRW and, on the other, to expand and strengthen the geothermal value chain. The state of NRW has announced its support for the feasibility study within the framework of the Innovation Competition Energy.NRW of the Target 2-program. Information: e-mail e.buescher@warstein.de and gregor.bussmann@geothermie-zentrum.de.
Battery research

When will battery-powered cars have a range of hundreds of kilometres? In twenty years time, how long will a mobile phone or a notebook operate without recharging? Key importance attaches to the question of how energy can be stored in future, with battery research thus also playing an important role in NRW. The prime concern of modern science has, up to now, essentially been the further development of lithium-ion batteries, where optimisation of performance, service-life and safety is paramount. New, tailor-made materials are needed for all these features. Cooperation between energy, automotive and materials research is vital for their development. Networking capabilities; this was therefore the motto under which the EnergyResearch.NRW, EnergyRegion.NRW and NanoMicro+Materials.NRW state clusters organised the “New Energy Technology Materials: Battery Day NRW” event in February. With their attendance at the conference held in Münster’s manorgardens, more than 120 participants from science and industry set an exclamation mark behind the campaign formulated by innovation minister Prof. Andreas Pinkwart of accelerating the development of energy technologies in NRW. As the minister stated, “What we need are improved, safe and reliable systems at lower cost and with better performance”. The ultimate target: an internationally competitive “Made in NRW” battery technology.

The holding of the NRW Battery Day in Münster was also no coincidence: not only the starting signal for the Competence Alliance North, but also the laying of the foundation stone for the Münster Electrochemical Energy-Technology Centre (MEET) took place in the city in 2009. MEET’s objective is that of closing the gap between fundamental and industrially-sponsored research in the field of electrochemical storage systems.

JARA-ENERGY with energy visions

Current energy research was the topic discussed in March by two hundred scientists at the 1st International JARA-ENERGY conference held at the Eurogress venue in Aachen. Electromobility, energy-efficient buildings, “clean” electricity and energy-efficient production were the centre of interest, while the conference, held in English, also attempted to elaborate “Pictures of Energy Futures”, i.e., visions of future energy supplies. The organisers were JARA-ENERGY, a section of the Jülich-Aachen Research Alliance (JARA) and Germany’s largest joint energy-research organisation.

“The topics selected correlate to the pressing problems to which our energy research must be devoted”, outlined JARA-ENERGY director, Prof. Lorenz Singheiser, of the Jülich Research Centre and joint founder of the conference with his colleagues, Jürgen-Friedrich Hake, also from Jülich, and JARA-ENERGY director Prof. Reinhold Kneer, of the RWTH Aachen University. “Our intention from the start was to initiate an international exchange of knowledge”, added Kneer. Undersecretary of State for Innovation Dr. Michael Stückradt emphasised the alliance’s significance for energy research: “JARA-ENERGY has been set the task of answering not only the technological questions, but also the questions of energy supply and the energy economy. The JARA MEM-BRAIN and TMFB projects are convincing in this respect, even now”. The Helmholtz Alliance MEM-BRAIN, with eighteen institutes and five industrial partners participating, focuses on the capture of CO₂ from coal- and gas-fired power plants, while the TMFB excellence cluster adopts an interdisciplinary approach for research into new, “tailor-made” fuels obtained from biomass. Fifty institutes from Jülich and Aachen are currently involved in JARA-ENERGY, with the aim of researching, improving or developing new energy technologies and system solutions.

Some 200 participants met in Aachen to discuss the energy topics of the future. Foreground: Prof. Rolf Rossaint, Deputy Rector for Research and Structure at the RWTH Aachen

Attending NRW’s Battery Day (from left): Prof. Dr. Ursula Nelles (WWU Münster), Prof. Dr. Andreas Pinkwart (NRW innovation minister), Prof. Dr. Martin Winter (WWU Münster)
New pellet plant

Erntebrück is soon to be “harvesting” pellets, too. An RWE Innogy Cogen and German Pellets joint venture has entered into a partnership in the Siegen-Wittgensteiner Land district operating, as NRW Pellet GmbH, one of the (according to its own information) world’s most modern pellet plants, with an annual production capacity of around 120,000 tonnes of DINplus pellets.

“The plant makes an enormous contribution to assuring supplies of premium pellets in NRW’s dynamically expanding wood-pellet market, strengthening the region’s economy. “Wood pellets from the region for the region!”, comments Heike Wübbele on EnergyAgency.NRW’s wood-pellets campaign. Annual demand in North Rhine-Westphalia is some 100,000 tonnes, while Germany as a whole consumes around 1.6 million tonnes per year.

The heat required for production of the pellets is supplied from RWE’s adjacent biomass-fired heat+power cogeneration plant. Within the joint venture, German Pellets is responsible for the engineering and operation of the pellet plant, and for marketing; here, German Pellets can make use, in cooperation with wood-pellets traders Kleeschulte GmbH & Co. KG, of its existing dealer network.

The production facility processes sawdust, log offcuts and wood chips to pellets. This diversification ensures supply to dealers throughout the year. Ultra-modern technology and comprehensive quality management assure production of premium-quality DINplus pellets.

DINplus pellets are ideally suitable for smaller combustion installations. The existing network of dealers provides consumers with reliable pellet supplies close to their homes.

RWE Innogy Cogen GmbH is responsible, under the auspices of RWE Innogy, for generation of power and heat from solid biogenic fuels. German Pellets GmbH, with five plants in Germany, is Europe’s largest wood-pellet producer.

Experts on all pellet questions

EnergyAgency.NRW, in cooperation with the NRW Association of the Plumbing, Heating and Air-Conditioning Trades, has conducted the first ever further-training course for publicly appointed and sworn inspectors for “Heating using wood pellets”. “This course, for publicly sworn inspectors in the manual trades, is unique in Germany”, declared Dr. Frank-Michael Baumann, director of EnergyAgency.NRW. The inspectors are consulted in case of technical problems, in particular.

The work of inspectors for oil- and gas-fired boilers is already long established. Their tasks include the settlement of disputes and the drafting of appraisals acceptable as evidence in court.

Around thirty-five sworn inspectors from the region’s manual trades took part in the two-day course of further training at the Ruhr Craft Trades Centre, in Oberhausen. The director of EnergyAgency.

NRW emphasizes the special character of this training, insofar as it is unusual that the instructors trained the candidates in the ten most frequently occurring forms of damage to pellet boilers. As he comments, “The practical orientation and the holistic examination of this topic are of special importance, ranging from pellet production and storage, quality requirements and standards, waste-gas technology, combustion technology, extraction systems and hydraulics, up to and including current relevant legislation”.

Around 16,000 boilers, with an average output of 17 kW, are pellet-fired in North Rhine-Westphalia, and the trend is upward.

A list of publicly appointed and sworn inspectors specially trained in this subject and possessing corresponding experience can be obtained on request from Wood Pellets Campaign NRW and from the NRW Association of the Plumbing, Heating and Air-Conditioning Trades.

Further information: wuebbeler@energieagentur.nrw.de

Innovation

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Safe disposal of radioactive waste is an urgent scientific and social task which must be successfully tackled in the next few years. The peaceful use of nuclear energy produces low-level and intermediate-level radioactive waste, primarily containing radio nuclides with a short half-life, and also high-level radioactive waste. The low- and intermediate-level waste is stored in the Konrad final repository. The high-level waste is also to be stored in a final repository, with a need for assurance of safety for extremely long periods (several hundred thousand years). A few long-lived radio nuclides present great challenges for the long-term safety of a final repository, due to their long half-lives. Specific disposal strategies and repository concepts which will facilitate the disposal of these radio nuclides are to be developed.

Ceramic materials for final disposal and transmutation are currently being investigated in the context of fundamental and application-orientated research at the Jülich Research Centre. The prime objective of these research activities can be found in the development of highly specific materials which will contribute, with their extremely high stability, to the optimisation of innovative disposal strategies. Further information: Prof. Dr. Dirk Bosbach, Jülich Research Centre, www.fz-juelich.de

Anyone intending to take a trip in an electric car must first “tank up” with electricity from the power socket, using a charging cable – but fuelling here takes several hours, and even then, the battery has only a restricted range. Vahle, however, has developed a non-contact system based on its Contactless Power System (CPS) series of products: charger units for electrical vehicles can be positioned in car parks and garages, either as vertical units or traversable charging lanes under the road surface, concreted in, invisible and completely screened. A car positioned on the sectors, or passing over one, can charge its batteries without contact, thus tanking up on energy – with no mechanical contact and, effectively, “en passant”. The vehicle does not even need to move directly over the charging unit, there is, instead, a certain tolerance. Energy transfer is accomplished using the induction principle, similar to the way a transformer functions. An electrical conductor is installed on the primary side under the road surface below the vehicle, while the secondary side consists of a pick-up located in the vehicle. An electrical current flows through the primary conductor, generating a magnetic field. This field induces in the pick-up a current, which provides the energy for propulsion.

Non-contact energy transmission systems offer a large number of benefits: the fueling sequence is simplified, there is no need to connect any plugs or cables, and there is also no need for charger stations mounted on the surface, making the system immune to vandalism and accidental damage. In addition, the motorist no longer needs to carry a charger cable in the vehicle. As CEO Pavlidis comments on the principle developed in Kamen, which has, by the way, also been successfully tested in tram systems, “The fact that there is no need for any plug connection to charge the battery means that there is nothing to wear out or be vandalised. We are now in a position to configure the system to make it absolutely suitable for everyday use”.

Vahle’s leading position is also demonstrated by the company’s membership of the standardisation commission set up by the federal government; the members, who also include leading motor-vehicle manufacturers, agreed prior to the Frankfurt Motor Show on a so-called low-field standard, in order to exclude possible hazards from generation of heat during the charging process. The NRW company was the only exhibitor at the Frankfurt show presenting a fully functioning prototype that even now meets this low-field standard. Further information: www.vahle.de
Rhine-Ruhr model region with first projects

With the Rhine-Ruhr region, North Rhine-Westphalia is one of eight model regions for electromobility. The “Electromobility Model Regions” programme of the Federal Ministry of Transport is coordinated by the national organisation for hydrogen and fuel cell technology, Nationale Organisation Wasserstoff- und Brennstoffzellentechnologie GmbH, (NOW) whose objective is to develop Germany into the leading market for electromobility. EnergyAgency.NRW is assuming the role of regional control centre for the projects and has already been able to acquire the first five projects of the Rhine-Ruhr model region.

Around 400 electric vehicles are being tested in the model region for a variety of different applications. Hybrid buses will collect experience in urban public transport for local authorities and transport companies. Around 500 user-friendly power recharging stations will be installed at different locations. The focus is also on development of new business models, scientific support of the projects and training and further training of the relevant specialist trades.

Overview of the individual projects:
The “ColognE-mobil” project of Ford Werke GmbH, Duisburg/Essen University, RheinEnergie AG and the city of Cologne consists of fleet trials with the electric vehicles “Ford Transit BEV2” and “Ford Focus BEV” and also development of a corresponding recharging infrastructure. Within the framework of the “E-mobil NRW” project, coordinated by the utility Stadtwerke Düsseldorf, seven municipal utility companies from the region are engaging in an integrated field trial with different vehicles. It is planned to use 20 electric vehicles, 26 electric scooters and four utility vehicles. The necessary infrastructure will be developed in the form of 58 charging stations. 21 hybrid buses from various bus manufacturers will be used for local transport within the integrated Rhine/Ruhr transport system. The operation of the buses will be analysed and evaluated in cooperation with the Institute of Automotive Engineering at RWTH Aachen and TÜV Nord. The “E-Aix” project, coordinated by municipal utility Stadtwerke Aachen, is located in the Aachen region and is supported by around 50 partners from the worlds of industry and science. In addition to the use of different electric vehicles and creation of new infrastructure and mobility concepts, the subjects of intelligent power supply, market preparation, communication and knowledge transfer will be examined.

Commuter traffic in Dortmund, Essen and Mülheim an der Ruhr is a constituent part of the “Stromschnelle” project, which translates as “Rapids”. In the project, around 150 electric vehicles (Renault and converted vehicles based on the Fiat Fiorino and Fiat 500) will be employed, and work is in progress on nine business models for electromobility. RWE will install the necessary charging infrastructure.

Contact:
Regional Project Control Centre, Model Region Rhine-Ruhr: Dr. Andreas Ziolek and Dr. Frank Köster, EnergyAgency.NRW, e-mail ziolek@energieregion.nrw.de, e-mail koester@energieagentur.nrw.de

Fork-lift with fuel cell

The state government is supporting innovative use of fuel cells in the day-to-day life of industry. In the presence of secretary of state Dr. Jens Baganz the first fuel cell fork-lift reach truck for everyday use was introduced at BASF Coatings AG in Münster. The project is a joint initiative of BASF Coatings AG, STILL GmbH and Linde AG under the management of HOPPECKE Batterien GmbH & Co. KG. Altogether three different warehouse vehicles were presented. The reach truck and a counterbalance lift truck are in use in Münster. A high-level order picker is in operation in the main Hopppecke factory in Brilon. The flagship project of EnergyRegion.NRW is being supported to the tune of around 1.5 million euros within the framework of funding programme progres.nrw. Internet: www.energieregion.nrw.de and www.brennstoffzelle-nrw.de

Producing stacks in Massen

In the future, low-price high-performance fuel cells will be developed in Duisburg. In January, Economic Affairs Minister Christa Thoben handed the official approval for funding of the HiPerLoCo project (Development of High Performance and Low Cost PEM Fuel Cells) to the Centre for Fuel Cell Technology (ZBT) at Duisburg-Essen University. The funding amounts to around 380,000 euros and the project is intended to develop mass production techniques for “high-performance” fuel cell stacks which could then be less costly. ZBT will be working closely with the celebrated National Research Council Canada - Institute for Fuel Cell Innovation in Vancouver. The international cooperation makes it possible to exchange materials and scientists in order to operate direct further training in the area of different technologies and processes.

Infos: www.energieregion.nrw.de
Power and heat – It pays to combine

It pays – and more and more! Investment payback times of four or six years are not a rarity. Power and heat cogeneration is an exciting theme for the property sector.

“This is a dynamic market that property companies should not ignore. Practical examples show that energy supply from cogeneration plants can be attractive from the financial point of view”, explains Roswitha Sinz from the residential property association Verband der Wohnungs- und Immobilienwirtschaft (VdW) Rheinland Westfalen.

Cogeneration is moving forward, and new technical and legal aspects mean that there is a constant need for information. “The principle of power and heat cogeneration is based on simultaneous generation and use of electricity and heat. Fuel is utilised more effectively in this technology than when the two are generated separately”, explains Dipl.-Ing. Matthias Kabus from EnergyAgency.NRW. Kabus: “With combined heat and power generation, modern cogeneration plants achieve a degree of utilisation of the primary energy of between 80 and 90 per cent which is therefore considerable higher than in traditional processes for separate generation of heat and electricity.” Cogeneration plants are of particular interest in areas where a great deal of electricity and heat are required throughout the year, according to the expert from EnergyAgency.NRW. Experience shows that a cogeneration plant can be operated economically at 5,500 full utilisation hours per year and more.

The specific costs for a cogeneration plant lie between 500 and 1,500 euros per installed kilowatt electrical (kWel). The costs must be refinanced via the cheaper energy supply and the payment for feeding power into the grid, as well as reimbursement of energy tax. The Cogeneration Act currently provides for funding of 5.11 cent per kWh electricity supplied. In the case of average operational lifetimes of up to 15 years, a cogeneration plant has already paid for itself after 4 to 6 years.

Cogeneration plants have already demonstrated their suitability for everyday use many times over. One example is the Prae-Bau estate of the Dortmund Gemeinnützige Wohnungs- gesellschaft (DoGeWo21). Here, two natural- gas fired cogeneration plants have provided reliable heating for 350 residential units with 27,760 m² floor area in 18 buildings since 2006. Each plant has a capacity of 192 kWth and 124 kWel as well as two low-temperature natural gas boilers of 895 kW each. “The renovation of the Prae-Bau estate has provided an integrated solution which does not only relate to energy, although this is an important part of the entire project. The estate is provided with heating energy by a local heating network where the energy is generated in a central unit with two cogeneration modules and two peak load boilers. In total, around 40 per cent of energy was saved and CO₂ emissions reduced by 55 kg/m² residential floor area”, says Gerd Brauner from DoGeWo21.

Further information: kabus@energieagentur.nrw.de, Tel. +49 (0)202/24552-31
Your heating – an unknown quantity

Your heating system – the unknown quantity! Efficiencies of less than 70 per cent or overdimensioning of the system are no rarity. “I think that throughout the state there are three million heating systems that could be optimised hiding in the cellars”, explains Gerhard Hoffmann from anamess, a company in Bielefeld that specialises in the measuring and analysis of heating systems. And Hoffmann also knows the reason: “Heating systems are often installed in the cellar and are therefore out of sight – and therefore out of mind!” As long as it is warm enough, no-one needs to bother with them. This situation means there are savings potentials of more than one billion euros in our region, and of around five billion in the whole of Germany.

However, the potentials often remain unfulfilled because the technical implementation is not right. “Most of the heating systems are not balanced from the hydraulic point of view”, estimates Bernd Geschermann from EnergyAgency.NRW. Geschermann: “During hydraulic balancing and compensation, the resistances in the heating network must be set so that each heating consumer is able to access the volumetric flow that is necessary for the heating required.” This means that up to 80 per cent of pump energy and 10 per cent of fuel energy can be saved.

Reducing system temperatures

However, all too often the usual practice is to feed enough temperature and flow into the system so that even the most unfavourably situated user is adequately supplied. The disadvantage: the other users are oversupplied. “This would not matter so much if the system was not then operated with feed temperatures and power consumption which is too high for the pump”, says Geschermann. The superfluous pump energy is throttled down by the oversupplied users.

Greater savings can be achieved through a reduction in system temperatures, which mean lower losses at the boiler and in the piping. However, most operators of heating systems are not aware of these factors, as long as the rooms are warm. Hoffmann: “Plumbers are expensive and are only called when the heating remains cold.”

When a heating system is to be newly installed, the calculations needed for hydraulic balancing are relatively uncomplicated, as all system parameters (piping routes, radiator heating capacity, design temperatures) are known. Implementation of hydraulic balancing is one of the tasks of the system installer. The figures required for this must be provided by the owner of the building. If the figures are not available, the installer must also be tasked with determining them.

Hydraulic balancing of existing systems is much more difficult, however. Generally, the routing and dimensioning of the pipework are generally not clear – particularly if the system has been extended or modified. The costs for determining the values relating to the pipework are not at all in proportion to the possible savings, particularly as the cause of 80 per cent of the pressure loss is known anyway: the thermostatic valve!

In single-family homes, informed guesswork has proven to be the most useful tool, and calculation programs that do not require detailed input regarding the length of the pipe sections have proven useful in practice. In the case of BHTC, an automotive supply company from Lippsstadt, a large-scale heating system has initially been optimised in this way.

Further information: Bernd Geschermann, Tel. +49 (0)202/24552-14, e-mail geschermann@energieagentur.nrw.de
Auctioning of CO₂ certificates

Within CO₂ emissions trading, the EU is placing the emphasis on auctioning of emission credits – but many companies are not yet convinced.

The EU directive on emissions trading provides for auctioning of a majority of the certificates for the third trading period which begins in 2010. Around 50 per cent of all credits will be entered into auctions instead of being distributed to plant operators as been the case up to now. The framework conditions for the process are currently being discussed at European level and will soon result in a first EU Commission draft for an auctioning directive. Since January 2010 it currently offers 870,000 credits per week for auctioning through the KfW bank. According to the German Emissions Trading Authority in its first report on auctioning, small and medium-sized companies without their own trading departments are able to profit from the auctions. Other EU states are already performing auction trials.

“This subject is still somewhat out of reach for municipal supply companies or small and medium-sized plant operators”, reports Michael Müller, emissions trading expert of EnergyAgency.NRW. “However, companies are well advised to engage with the subject of auctioning now and include them in their purchasing strategy.” CO₂ experts have been able to gather their first experience in the “New rules of the game on the CO₂ market” workshop organised by EnergyAgency.NRW alongside the Dutch CLIMEX trading platform. During an online simulation, the participants took the role of a company that has to purchase the credits it needs through the auction. The auction was augmented by a fictitious secondary market – in reality a broker, for example, – where it was possible to purchase the remaining credits that were required.

“The teams that made use of both markets achieved a fair level of success” says Müller, evaluating the simulation. “Those who need low-cost certificates cannot ignore this subject.” Further information: m.mueller@energieagentur.nrw.de

Hospital in Troisdorf saves more than 500 tonnes of CO₂

Energy prices are continuing to rise, and the task of climate protection is becoming ever more urgent. This is why the non-profit-making St. Johannes hospital in Troisdorf has thoroughly examined and modernised its energy equipment. Within a short period of building, among other things a new energy-efficient cogeneration plant for heat and power was installed; renovations were completed at the start of this year. The church-funded hospital invested 750,000 euros in modernising their energy supply. This sum generally consists of funds from Economic Stimulus Package II and own funds of the hospital itself. EnergyAgency.NRW provided advice. “This was the spark we needed in order to take action,” says Bertin Blämer, Chief Executive of St. Johannes Krankenhaus gGmbH. Compared with past years, the hospital now achieves a CO₂ reduction of more than 500 tonnes per year.

The heating system was more than 35 years old, which meant considerable savings potentials. In addition to two gas boilers with a heating capacity of 1.1 MW each, two unit-type cogeneration plants were installed, each with a heating capacity of 80 kW and electrical output of 50 kW. Through the use of these plants, use of external electricity supplies can be reduced by around 35 per cent and CO₂ emissions of more than 500 tonnes per year can be avoided. In addition, an exhaust gas heat exchanger ensures optimal energy-related utilisation of the useful heat produced by the heating boilers used to cover medium loads.

Alongside innovative heat generation, use of an energy-efficient hydraulic distribution system also plays a large part. A further feature is the new method for hot water production in the old building. In place of the hot water storage tanks with a total of 14,000 litres capacity, four buffer tanks are used storing a total of 6,000 litres of water for heating.

The partner of the hospital in this project is the facilities and energy management company HSG Wolfferts Gebäude- und Energiemanagement GmbH from Cologne. HSG Wolfferts developed the savings concept, oversaw the implementation from the building point of view and will cooperate in operating the installation for the next ten years.
Always on the NRW agenda:

The Solar Check

Solar energy on the roof goes on and on. One reason: since the start of 2009, the use of renewable energies – such as for example solar panels – has been obligatory for new buildings. However, solar-thermal equipment is also technology which is useful for existing buildings in order to provide hot water and support the heating system. Photovoltaic equipment for generating solar power already brings economic benefits to many house owners through the electricity feed-in scheme.

However: “We can still see great uncertainty on the part of householders if they are playing with the idea of purchasing a solar system. This uncertainty has increased still further with the new changed prices for feed-in”, explains Dipl.-Ing. Dirk Mobers from EnergyAgency.NRW. “Most of them are willing to update their houses up to the latest state of technology, but they need more information as to how solar technology can be usefully integrated.” In more than 16,000 cases, a solar check has already provided help. With the NRW solar check of EnergyAgency.NRW, private house owners can find out about technical and financial framework conditions for purchase of their own solar energy system. For 25 € (with the state of NRW taking over a further 52 €), an authorised senior tradesman will examine the individual situation in existing and new houses with regard to beneficial use of solar energy. During the check, which lasts around one hour, all relevant data are recorded and evaluated – from the orientation and angle of the roof surfaces through the piping routes up to integration and placement of the necessary system components. The checker also provides information on investment costs and current funding opportunities.

“If you are thinking about using solar energy in your house, you should make best use of any energy savings”, says Mobers.

Information:
www.mein-haus-spart.de

Lighting initiative with “People Initiative”

“Aktion Mensch” – the “People Initiative” in Bonn which funds projects to help the disabled and those with social difficulties does many good deeds. This is part of the reason why their administration building was examined for optimisation from the energy point of view. The result: the organisation is reducing CO₂ emissions by more than 56 tonnes per year through updating of the lighting equipment. The investment in the new lights and lighting equipment will pay for itself in two years through a reduction in energy and maintenance costs.

More than 240 staff work for “Aktion Mensch” in Bonn. During a tour of the premises and also a load profile analysis, the lighting equipment was identified as one of the largest consumers of energy in the building. In the lighting concept which was then developed by NET 2000 GmbH, there were two main aims: one the one hand the legal requirements with regard to lighting strength had to be fulfilled. On the other hand, energy costs had to be reduced.

Altogether around 830 lights were replaced by more efficient units. In the underground car park, in the archiving area and the service corridors, the consumption by existing neon lamps (66W VVG) has been reduced by more than 50 per cent through one-to-one changeover to TÜV and VDE certified LED-SMD lamps (28 W). Despite a slight reduction in illumination levels, the new lamps are still delivering around 215 lux – according to the Workplaces Ordinance, 200 lux are specified for storage areas where reading is necessary. A positive side effect for all employees: the new units react faster than the old neon tubes. In the case of the halogen spots in the entrance and office areas, energy costs were reduced again by 30 to 80 per cent.

“Aktion Mensch” is the largest private social organisation in Germany. Since its establishment in 1964 by the ZDF broadcasting organisation and the six top social funding associations within the private sector in Germany, its objective has been to sustainably improve the life situation of the disabled and of children and young people. Further information: E-Mail toegel@energieagentur.nrw.de, Tel. +49 (0)202/24552-34
Wind power 100, please! Energy-Agency.NRW is bringing fun to the classroom with a new energy quiz for schools. Following the format of the TV quiz show hosted by Wim Thoelke, the “Energy Experts” have to enter rounds of questions demonstrating their knowledge about energy efficiency and renewable energies. The game is available to classes of pupils on CD-ROM free of charge as from June.

In this quiz, the only important thing is what you know! This is why winning is not the most important thing in the Energy-Agency.NRW quiz. “Above all, we want to use the quiz to inform senior pupils about data and facts in the area of sustainable use of energy”, explains Andrea Fischer, Project Manager at EnergyAgency.NRW. Other items of interest: How does a thermostatic valve work? What is the difference between solar-thermal and photovoltaic? What is a passive energy house? Whoever can answer these and similar questions correctly is a real “Energy Expert”.

“The quiz promises exciting lessons in many different subjects – from energy itself through geography, biology, physics and politics. And it can also be used for special ‘project days’,” explains the project manager.

A further use for the quiz is in youth work in youth centres and churches. The maximum number of teams who can compete in the “Energy Expert” quiz is four. Starting in June, the quiz can be ordered free of charge on CD-ROM for use in schools at: www.energieagentur.nrw.de.

Companies can order a quiz module with their own logo or on their own CD by paying a licence fee. The quiz was developed by EnergyAgency.NRW following an idea of the company Sun-Concept.

Information: Andrea Fischer, Tel. +49 (0)202/24552-55, e-mail fischer@energieagentur.nrw.de

At last – a quiz for the classroom

The opening of the wood-fuelled heating system in the schools campus in Erftstadt has marked the successful conclusion of two and a half years of planning and implementation for a biomass local heating project with a total capacity of 4.88 MWth. The project was implemented and financed by the heating company Fernwärmeversorgung Niederrhein GmbH (FN) within the framework of a contracting arrangement.

The investment of contractor FN in the buildings of the schools campus amounted to around 2.7 million euros. Viewed over the contractual term of 15 years, the contract offers the town of Erftstadt a cost benefit of more than 600,000 euros. The environment will also profit from the new system, as CO₂ emissions will be reduced by 1,080 tonnes annually.

The two new wood-fuelled boilers, each with 850 kWth heating capacity, are responsible for the basic load during the heating period (autumn to spring). 85 per cent of the annual heating requirement is provided by these two boilers and is passed on via the heating network to a total of 16 stations in the individual build-
“mission E”: Took off in Wuppertal, landed in Washington

Recognition for energy efficiency “made in NRW” from abroad too: the Department of Defense of the United States of America is checking the feasibility of using “mission E” for the US military forces. “mission E” is a motivation campaign developed by EnergyAgency.NRW which was launched by the Federal Military Administration Department together with EnergyAgency.NRW under the patronage of the Federal Ministry of Defence. With the help of this campaign, the 350,000 members of the armed forces have seen their energy awareness raised since 2006.

**Pentagon develops sustainability strategy**

“The fact that the USA is coming to us as they look for possibilities of reducing energy consumption is clear indication of the innovative force and excellent reputation that our energy state of NRW now has in the area of energy efficiency and use of renewable energies”, explained Economic Affairs Minister Christa Thoben. “People in the USA have shown interest in the project of EnergyAgency.NRW, because the Pentagon is currently developing a sustainability strategy for around 380,000 buildings for which it is responsible and is looking for ways of reducing power and heat consumption that include energy awareness and resulting behaviour within the military”, explains Minister Thoben.

“We are interested in ‘mission E’ because it is a well-thought-out and effectively implemented campaign with clearly documented results”, says Shannon Cunniff, Director, Office of the Deputy Under-Secretary of Defense in the Pentagon.

**Workshop in Washington, D.C.**

The Pentagon invited project manager Tom Küster from EnergyAgency.NRW to Washington, D.C. in March in order to find out more about the concept of this energy efficiency campaign for user motivation. And as luck would have it, “mission E” had been awarded the “Good Practice Energy Efficiency” label by the German Energy Agency only a few days previously – amounting to a real recommendation to replicate the scheme. The savings achieved in the first three years by the campaign, which was implemented throughout Germany, amounts to 914 million kWh electricity and heat. At the same time, the German armed forces reduced their energy costs by around 65 million euros and avoided 216,000 tonnes of CO₂ emissions. On average, each member of the armed forces improved his or her carbon footprint by almost 620 kilograms since the start of 2007, and the personal energy balance by more than 2,600 kWh. “The inquiry from Washington on its own testifies to the quality of our work. For me, the attention that EnergyAgency.NRW is now attracting on the international stage is a challenge, telling us that we must not slow down our efforts”, says Dipl.-Ing. Lothar Schneider, Director of EnergyAgency.NRW.

**Success story “mission E”**

The story of “mission E”, conceived by EnergyAgency.NRW, is one of success. In 2009 “mission E” was awarded special recognition by the EU and was also named as an official project of the UN “Decade for Sustainable Development”. It was taken up into the National Energy Efficiency Action Plan of the Federal Government in 2007 and also in the current draft of the Energy Efficiency Act.

Further information:
Tom Küster, E-Mail kuester@energieagentur.nrw.de, Tel. +49 (0)202/24552-23, www.energieagentur.nrw.de and www.nrw-spart-energie.de

**FN as contractor can offset the CO₂ reductions achieved within the JIM.NRW project and gain tradable emission credit certificates.**

The existing natural gas peak-load boilers in the cellars of grammar school 1 (two boilers with 670 kWth each) and 2 (two boilers with 920 kWth each) are only switched in on very cold days.

Around 365,000 m³ of natural gas are saved in comparison with the old system. Use of additional efficiency modules leads to further energy savings of 15 per cent.

FN as contractor can offset the CO₂ reductions achieved within the JIM.NRW project and gain tradable emission credit certificates. The earnings resulting from this again benefit the town, which can profit from even lower heating prices. EnergyAgency.NRW acted as advisor.

Information:
goedecke@energieagentur.nrw.de

**Das Pentagon in Washington, D.C. (USA)**
Survey:
Energy suppliers offer incentives

In the energy state of North Rhine-Westphalia, the readiness of the energy supply companies to increase use of renewable energies and raise energy efficiency through their own funding programmes continues at a high level. More than half of the companies (52.3 per cent) are offering funding programmes. This is the result of a survey of 151 regional energy supply companies carried out by EnergyAgency.NRW on behalf of the NRW Economics Ministry. These programmes are often interesting additions to regional or national funding, but ordinary citizens do not always know what is available in “their” town”, says Economics Minister Christa Thoben.

Funding is available above all for natural gas. Around 61 per cent of energy suppliers offer financial support for conversion of an energy-efficient heating system to natural gas, and 46 per cent support the purchase of a gas-powered vehicle. For example, the company Emscher Lippe Energie GmbH offers a 1,000 euros subsidy for the purchase of a gas-powered vehicle for commercial use. The Technische Werke Osning in Halle contribute 400 euros towards the purchase of an electric vehicle. And conversion of heating systems to natural gas condenser technology is also funded to a large extent. In Bad Salzuflen, up to 1,000 euros is available from the energy supplier. The Stadtwerke Solingen support replacement of night storage heaters in association with installation of natural gas systems with funding of up to 1,500 euros. In addition, many suppliers provide funding for energy-saving household equipment, heat pumps, heat and power cogeneration plants and combination of gas condenser boilers with solar-thermal equipment. An overview of all funding programmes of energy supply companies in NRW can be found on the EnergyAgency.NRW website at www.energieagentur.nrw.de

Exhibition in Haus Ruhrnatur

People, climate, energy: magic or tragic triangle?

Where the white river boats moor up, behind the historic Wasserbahnhof restaurant, where the old Ruhr river lock still stands and behind this reminder of former days, there is an exhibition regarding energy generation and the earth. In the Haus Ruhrnatur Museum (Alte Schleuse 3) in Mülheim an der Ruhr a display of several million years of climate, energy and regional history can be enjoyed as part of the European Cultural Capital RUHR.2010 festival.

Where was Mülheim 400 million years ago, in the Mesozoic era? Junior school pupils are quite surprised: it was near to the Equator. And the next surprise is waiting: just 200,000 years ago, the Ruhr region lay buried beneath a thick layer of ice. The exhibition on “Climate and renewable energies – experiencing energy” in the Haus Ruhrnatur shows clearly that climate does change. And it is also clear that there is a link between climate change and use of energy.

People, energy, climate – is the “magic triangle” threatening to become a “tragic triangle”? Fossil fuel resources have decreased dramatically as man’s hunger for energy has increased. However, the exhibition makes clear that nature and use of energy do not have to be in conflict. In fact, animals can teach us how energy can be used efficiently and in harmony with nature. In many cases – for example when using wind power – technology can even learn from the natural example. For example, a corn stalk represents an ideal combination of fibrous material, flexibility and strength.

Visitors can find out how sunlight warms a polar bear, drives an engine or generates electricity. They can build and test wind generators, compare historic windmills with modern wind turbines – or play and find out about various different water wheels and turbines in a pool.

The exhibition is open from Tuesday to Sunday between 10:00 and 18:00.

Further information: www.haus-ruhrnatur.de
My house saves: 10,000 energy consultations

 Duisburg in January 2010: Engineer and architect Heinz-Eberhard Stapelmann has just performed the 10,000th energy advisory session within the framework of the “Energy savings for you” project in the presence of Economic Affairs Minister Christa Thoben and Head of the Board of the NRW Consumer Advice Centre, Klaus Müller. Result: “The energy consumption of the single family home originally built around 1900 can be reduced by more than half. Connection to the local district heating network would be better than the current system of night storage heaters and water heated by continuous flow electric heaters.” This was the diagnosis of energy expert Stapelmann.

The architect is one of currently 50 energy consultants who are working on a fee-earning basis on behalf of the NRW Consumer Advice Centre to advise householders throughout NRW who are willing to update their heating systems. The session takes place within the householder’s own home. It has been possible to expand the existing programme thanks to funding by the EU and the NRW Economics Ministry, and this is why the 90-minute session with qualified experts (architects, engineers and/or advisors with a minimum two years’ approval from the Federal Office of Economics and Export Control) only costs 60 euros. The session includes a detailed written report with individual recommendations for updating energy supply, which the first stage in preparing the necessary measures and serves as a basis for discussion with planners and tradesmen. The 22 energy advisors who are currently employed at the Consumer Advice Centre and who are co-financed by their own local councils and municipal authorities, coordinate the work of their freelance colleagues. They also perform very important networking activities in their home areas, advise residents over the telephone and have other special offers up their sleeves.

The trust which the energy advisory service of the Consumer Advice Centre enjoys when it comes to those considering install-

Minister Christa Thoben and Head of the Board of the Consumer Advice Centre, Klaus Müller, congratulate the 10,000th household to receive advice.

ing a new system is above all reflected in the number of renewals that are actually performed: more than one half of the recipients of advisory sessions implement the measures. A total (mostly private) investment volume of around 180 million euros has been triggered by the 10,000 sessions already performed. This can indirectly secure just under 2,000 workplaces in the trades for one year. But the main emphasis is naturally on the interests of consumers, and naturally only those measures are recommended that are in fact of economic benefit. But the positive effects on the environment are also worthy of mention and increasingly constitute an argument for consumers: the remediation measures save a total of around 76,000 tonnes of CO2 each year – now and in the future.

The energy advice offered by the Consumer Advice Centre is therefore making an important contribution to the climate protection and energy strategy of North Rhine-Westphalia, which is aiming at raising the modernisation rate for heating systems to three per cent. The desire to achieve this ambitious goal was one of the main reasons why Ministry of Economic Affairs and Energy brought together all the important players in the area of building renovation in NRW under the umbrella of the joint initiative “My house saves”. And the Consumer Advice Centre in NRW is an important partner in this work – above all with its “Energy savings for you” project. To make an appointment or for further information, please call +49 (0)180/1115999 (landline 3.9 ct./min., mobile price max. 42 ct./min.) or go to www.sparnachbar.de.
Energy Region No. 1 celebrates EnergyAgency.NRW

It is said that every criminal returns to the scene of the crime. And EnergyAgency.NRW was no different when it celebrated its 20th anniversary with around 100 guests at 3M in Neuss. “3M is a long-standing cooperation partner and client of EnergyAgency.NRW. The company has not only optimised its own energy efficiency, as a producer of fuel cell and photovoltaics system components and daylight reflective films, it is also an important player in the new energy efficiency economy”, says NRW Economics Minister, Christa Thoben. “EnergyAgency.NRW made a conscious decision not to hold a traditional celebration, and preferred to appeal for more energy efficiency in industry and commerce by returning to a location where its aims have been implemented in practice”, explained the Directors of EnergyAgency.NRW, Dr. Frank-Michael Baumann and Lothar Schneider with one voice. Following advice from EnergyAgency.NRW, energy consumption was reduced by a good 20 per cent at the 3M administration headquarters in Neuss. Among other things, the heating system is now regulated in relation to the outside temperature, times when lighting is used have been reduced by the central building control systems, ventilation times have been optimised and employees have been trained in how to save energy on a day-to-day basis.

“Our objective is to handle our resources with the greatest possible awareness of energy use”, explained Günter Greßler, Managing Director of 3M Deutschland GmbH. “And to this end we consulted EnergyAgency.NRW at all our company locations. We are extremely satisfied with the savings achieved so far.”

Energy efficiency and renewable energies have long been a market for the future and a driver of growth for companies in North Rhine-Westphalia. The mostly small and medium-sized enterprises in the plant and system construction sectors achieve sales of more than five billion euros per year. Minister Thoben: “The fact that EnergyAgency.NRW does not favour any particular products is a basic requirement in order to optimise know-how transfer in this area and to instigate technological developments – and to stimulate the market.” With a current total of around 80 employees, EnergyAgency.NRW is the largest regionally-funded organisation of its type in Germany. “It is only logical if...”

Innovative tubes and pipes from Neuss

In the 3M “think tank” in Neuss, the CTC (Customer Technical Center), around 250 very clever people are always thinking about possible solutions – and they find them. The company from Neuss plays a major role in the market for light tubes and light pipes.

Lighting is a subject that goes on and on. Lighting in the retail trade and in local authority properties accounts for around 30 per cent of total energy consumption. The reason: only five per cent of the electrical energy required, for example by a standard halogen lamp or a light bulb actually results in light – 95 per cent is converted into heat. Modern pipes and tubes offer a solution.

A light pipe is an clear acrylic cylinder with a metal vapour lamp. Using a special film, known as Optical Lighting Film, the light is guided so evenly into the pipe that it shines like a tube. This means that the pipes are above all suitable for use in warehouses, office buildings and sports halls. Lighting strips up to 300 metres in length can be implemented with only one main connection point through the use of connectors. The advantage: the pipes can be dimmed by up to 50 per cent – and therefore help to save energy. “Sustainability and energy efficiency are much more important to us when we develop new products than short-term economic gain”, says Dipl.-Ing. Gert Behling (photo right), Director Manufacturing & Engineering at 3M Deutschland.

With a lifetime of up to 25,000 hours – in combination with modern power supply units – the light pipe can last almost as long as an LED (around 30,000 to 50,000 hours). To compare: a traditional light bulb has a lifetime of around 1,000 hours. 3M also attracted attention for
North Rhine-Westphalia, as Energy Region Number 1, is also the home of the Number 1 energy agency. In our fast-changing times, characterised by social and economic transformation, Energy-Agency.NRW stands for continuity and consistency. For more than two decades it has been a reliable partner of companies, research institutions and municipal authorities in our country. I would like to congratulate the workforce at 3M and thank them for the success of their work”, explained Thoben.

Energy-Agency.NRW was established on 1.3.1990 by the then Economics Minister and later President of the Landeszentralbank Reimit Jochimsen. The initial task of the agency was to advise and educate companies and local authorities on questions of efficient use of energy and use of renewable energies. The range of activities has widened as the years have passed. Thoben: “With its wide range of activities, the Agency is a central instrument for implementation of the NRW energy and climate protection strategy in practice.” For example, it coordinates the “My house saves” initiative on behalf of the Economics Ministry in order to encourage renovation of buildings in the region. Up to now, more than three billion euros of funding has been directed into building renovation from central government to the state of North Rhine-Westphalia.

“Energy-Agency.NRW” not only enjoys an excellent reputation with the public”, says Thoben. It stands for a good 20,000 requests for advice each year, which have resulted in completion of around 7,300 high-investment projects in companies and local authorities since 1990. It stands for 500,000 participants in training and further training in the area of energy efficiency. The name also stands for 50 solar estates, and will soon encompass a further 100 climate protection estates, for more than 100 local authorities in NRW which participate in the European Energy Award®, for more than 5,000 members of the energy sector cluster “EnergieRegion.NRW”, for further development of the fuel cell, for more than 100,000 visits to the energy advice bus, for 45,000 building and solar checks performed by the trades and by architects. The name also stands for 16,000 households in North Rhine-Westphalia which heat with wood pellets and for 70,000 households which heat their homes using heat pumps. And the name also stands for well prepared information which is both neutral and independent: in 2009 alone, the Energy Agency NRW website was visited around 29.5 million times.

Innovations in use of daylight at Potsdamer Platz underground station in Berlin. In this installation, daylight is brought underground through “tubes”. The tubes are lined with a special film so that 94 per cent of the daylight captured above ground arrives at its destination. Powered lighting is therefore only needed at night. “Our successes are also recognised by our American parent company, particularly where environmental-friendliness and efficiency are concerned. Ideas from Germany are always well received”, says Behling.

Excellent and Energy-Efficient – products bearing the name 3M also embody the 3Es. The company, with its German headquarters in Neuss, employs a workforce of around 4,500, of whom 3,000 work at the NRW locations in Neuss, Jüchen, Hilden and Kamen. Energy efficiency is the theme of the moment at 3M: last year it was possible to reduce electricity consumption in the main administration building alone by 19 per cent and natural gas consumption by 20 per cent. “Just through plucking the ‘low-hanging fruits’, explains Stefan Dévény, structural engineer responsible for maintenance at 3M Deutschland GmbH in Neuss. Without the need for big investment, the switch-on times for heating and ventilation were newly regulated, the corridor lighting in the cellar and ancillary rooms were optimised and a second heating boiler switched off periodically. “We have also had our employees trained in energy-saving in their everyday behaviour by EnergyAgency.NRW, says Dévény.

3M does not only produce the well-known Post-it® notes. The German offshoot of the American company also manufactures adhesives, abrasives and specialist surface coatings for wind turbine rotor blades. “This means that the leading edges of the blades are protected against abrasion by water or sand”, explains Martin Reul, Sales Director of the Renewable Energy Division Deutschland at 3M. The company, which is also engaged in the Desertec project, has bundled these activities into its “Renewable Energy” division. Around 30 members of staff work within the division – 15 of them concerned solely with research. In addition to activities related to foil and adhesive solutions for solar installations and products for optimising use of daylight, they are also involved in work on fuel cells.
**In brief**

**ZIM backs medium-scale firms**

“ZIM”, (the German abbreviation for the federal government’s Central Innovation Program for Small and Medium-sized Enterprise initiative) is aimed at sustainably supporting the innovative creativity and competitiveness of this sector of industry and commerce. ZIM is a nationwide promotion program independent of technology and industry for such enterprises and for research institutions working close to industry and cooperating with small and medium-sized companies. The initiative is intended to stimulate such companies into greater efforts at market-orientated research, development and innovation, and improve innovation, cooperation and network management within them. Small and medium-sized companies, in particular, from NRW are eligible. Further information: www.zim-bmwi.de/zim-ueberblick

**Sun Week**

The German Solar Industry Association’s nationwide “Sun Week” solar campaign is to run again from May 1 to 9, 2010, with commercial companies, solar initiatives, schools and municipalities providing information on the topic of solar energy. The events offered by the numerous campaign participants range from open days, via solar festivals and series of addresses, to solar-consultancy days. Further information: www.woche-der-sonne.de

**CHP of the year is from NRW**

The Federal Cogeneration Association and the “energy & management” magazine have selected the unit-type cogeneration plant (CHP) installed at the Maritim Berghotel Braunlage as their “CHP 2009”. The plant, operated on a contracting basis by favis, of Essen, was constructed by Sokratherm, of Westphalia. “The winner scored with its cost-efficient design, incorporating virtually complete electrical self-sufficiency, the exemplary contracting concept, and the anticipated “multiplier” effect on potential cogeneration locations”, was the jury’s verdict.

**New wood-fired power plant in Bielefeld**

Bielefeld’s first wood-fired power generating plant was commissioned at the Bielefeld municipal utilities’ site in late January. The plant will generate up to 5.5 MW of thermal energy and 1.2 MW of power annually on a cogeneration basis with no harm to the climate, using the regenerative material, wood, as its fuel. Around 44,000 MWh of heat will be generated – sufficient to supply some 1,700 households with community heating. The 9,000 MWh of electricity generated is enough to supply 2,700 households. Like the photovoltaic installations on the roofs of the Schüco Arena and the moBiell workshops, the Friedrichsdorf wind farm and the biogas plant in the Deppendorfer Strasse, the new power plant, in which 8.5 million euros have been invested, is an important modular element in the Bielefeld municipal utilities’ energy strategy.

**100,000 euros award for heat-pump projects**

The RWE Vertriebs AG’s Prize for Heat Pump Innovation carried a value of no less than 100,000 euros; the award ceremony was conducted by Dr. Jens Baganz, Secretary of State at the NRW Economics Ministry, at the DEUBAU fair, in Essen. The aim was to find innovative projects employing heat-pump technology, the competition being open to building project clients, architects and planners submitting projects for new and refurbished residential blocks and commercial properties. 1st prize in the Residential Block category (up to twenty residential units) was awarded to architects Hillebrand and Welp for a newly constructed residential building in Lengerich, while this accolade in the “above twenty residential units” category went to the Kreiswohnungsbaubau- und Siedlungsgesellschaft Siegen property management company for a refurbishing project and 1st prize in the “Services” category to the Elektroanlagenbau Wagner GmbH firm of electrical engineers for construction of the new Kemperhof radiation-therapy centre in Koblenz. The special-category prize was awarded to CastleSolar GmbH for the refurbishing of the heating at Burg Reichenstein castle. Information on these prize-winners: www.Waermepumpen-Marktplatz-nrw.de

**Schneidewind new president of Wuppertal Institute**

The Wuppertal Institute has a new president, in the person of Prof. Uwe Schneidewind. Innovation minister Prof. Andreas Pinkwart announced the incremental increase of the state’s base financial support for the institute to 4 million euros up to 2012 – almost doubling the 2009 budget of 2.2 million euros. “This institute is a scientific ‘think tank’ investigating supra-disciplinary questions in sustainability research”, Pinkwart stated. Schneidewind began his career in the Strategic Environmental Management Consulting department at Roland Berger & Partner, before moving to the Institute for Economy and the Environment at the University of St. Gallen. In 1997 he took up a post at the University of Oldenburg, subsequently serving as its president from 2004 to 2008. Information: www.wupperinst.org