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**01.12.2011: On the road to climate neutrality**

Numerous companies and municipalities have recognised that climate-neutral action yields competitive advantages and enables them to stand out from their competition. But what instruments are available? What means to achieve climate neutrality have proven their practical suitability? These questions are the focus of the “CO₂ avoidance, reduction and compensation. Municipalities and companies on the road to climate neutrality” event to be held by EnergyAgency.NRW and the Technische Akademie Wuppertal in Wuppertal’s historic civic hall on December 1, 2011. The event agenda can be viewed on the Internet at www.energieagentur.nrw.de

**29.09.2011: Regenerative Industry Day in Münster**

Current German and international developments by the regenerative energy industry will be the centre point of the Regenerative Industry Day in Münster on 29 September, 2011. Chinese industrial policy and emerging renewable energy markets for investors will be spotlighted, as will the amendment to the Renewable Energies Act and the direct marketing. Other highlights will be the NRW climate-protection strategy, opportunities for municipal participation in offshore projects, and eco-power for municipal utilities. The event is being organised by the International Economic Forum for Renewable Energies (IWR), see: www.regenerativer-wirtschaftstag.de

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The municipalities are the cradle of democracy - and article 28 of the Local Self-Government Act gives them the necessary room for manoeuvre. I should like to expand this basic principle: the municipalities are also the cradle of the energy turnaround. Nothing aimed at achieving a committed, sustainable climate-protection and energy policy supported by people escapes, at least, the attention or the involvement of the municipalities, who have for many years now been the pioneers in renewable energy sources and in energy-savings.

It is, therefore, only right and proper that the NRW state government attaches special importance to its municipalities. The revision of the law concerning economic activity by the municipalities (by the Act for Revitalisation of Legislation Governing Economic Activity by Municipalities) now permits municipalities economic involvement in the field of energy, thus according them equal status with private enterprises. And we, as the state government, are, of course, counting on the municipalities in the energy turnaround: as influential participants, as fellow travellers, who will accompany us and “scout ahead” on our road to becoming a climate-protection state. The municipalities give the energy turnaround a face: via the possible takeover of responsibility for power and heat supplies, via citizens’ wind farms and solar estates, and via the operation of local CHP plants. The municipalities, above all, set an example, motivating their citizens by means of model projects and playing a key role in informing them. Reinforcing the municipalities’ policy disseminating role is our aim.

It is clear to us in this context that an economic commitment in energy supplies - like any entrepreneurial activity - will always involve a certain risk. For this reason, we intend to provide the municipalities with consulting opportunities for all their initiatives and efforts. These will include support in the determination of the regionalised potentials for renewable energy sources, the creation of an adjudicating body to assist in the resolution of conflicts, and a comprehensive package of consulting services for the municipalities, comprising the systematic consulting services provided by EnergyAgency.NRW. This summer, we started, within the framework of my ministry’s Immediate Action Programme on Climate Protection, an information and advisory platform for renewable energy sources in NRW, the EnergyDialog.NRW, to support municipalities, private companies and citizens. This is organised within EnergyAgency.NRW. The European Energy Award, already in existence for ten years, and in which practically one in every three NRW municipalities currently participates, has also proven its worth, and is to be further expanded - a development unique among the states of Germany. Energy consulting specifically for municipalities, fur ther training of municipal employees as municipal climate-protection managers, and the on-line CO₂ balance tool are further examples.

Nowhere is policy as specific and direct as at municipal level. In many cases, this is where civic and, simultaneously, civil-social commitment is found. Towns, cities and villages are where sustainability and citizens’ involvement are reality. I am firmly convinced that only an economic commitment in energy supplies can provide the municipalities with consulting opportunities for all their initiatives and efforts. The municipalities are the cradle of democracy and, article 28 of the Local Self-Government Act gives them the necessary room for manoeuvre. I should like to expand this basic principle: the municipalities are also the cradle of the energy turnaround. Nothing aimed at achieving a committed, sustainable climate-protection and energy policy supported by people escapes, at least, the attention or the involvement of the municipalities, who have for many years now been the pioneers in renewable energy sources and in energy-savings.

Johannes Remmel, Minister for Climate Protection, Environment, Agriculture, Nature Conservation and Consumer Protection of the State of North Rhine-Westphalia

Yours,

Johannes Remmel, Minister for Climate Protection, Environment, Agriculture, Nature Conservation and Consumer Protection of the State of North Rhine-Westphalia

innovation & energy 3_2011
Municipalities shape energy change

Think globally, act locally. Nothing better expresses the fact that environmental and climate protection is an important municipal task. And NRW is acting:

Climate protection makes municipalities examples for other municipalities and for their citizens. Residents’ commitment, and their identification with their municipalities, are growing. No less than 122 municipalities in NRW have drafted climate-protection concepts, and more funds have streamed from the federal environmental ministry to NRW than to all the other federal states; 170 municipalities are balancing their CO₂ emissions, and - last, but not least - more than one hundred municipalities are committed to the European Energy Award® (eea). It looks as if municipal climate protection is now in motion - from the periphery, toward the centre of attention. “Our aim at EnergyAgency.NRW is to reinforce this transition”, states Lothar Schneider, director of EnergyAgency.NRW.

However: Climate protection is not a municipal obligation, but rather a voluntary activity which a civic treasurer could, in times of bare municipal coffers, far too precipitately strike off of the agenda. The municipalities are nonetheless among our most important assets when it comes to “living” the energy turnaround. NRW’s municipalities now play a key Germany-wide role in disseminating and implementing climate-relevant knowledge. The fact that climate protection also includes an economic gain is more than just “useful” in this context. Municipalities are, of course, under an obligation to take action; they are among Germany’s largest energy users. They consume above-average amounts of power, heat and water to operate facilities such as schools, town halls and swimming pools, and energy costs are therefore a significant budget item, and an existential problem in times of budget deficits and consolidations. “The municipalities are both policy disseminators and examples in energy-efficiency and renewable energy. The councils that take a lead here generally also succeed in motivating their citizens”, Schneider continues. “Our consulting business demonstrates: our municipalities play a key role in disseminating and implementing climate-relevant knowledge. The state government’s intention is to reinforce the municipalities’ function as policy disseminators”.

Municipal savings potentials

According to the German Energy Agency, the costs of energy supplies to the buildings of all the German municipalities (175,600 buildings in all) amount to 2.2 billion euros.
annually. Nearly 70 per cent of these costs are for heating. Total energy consumption is 37,100 GWh (gigawatt hours). The good news; there are enormous savings potentials, and between 60 and 200 million euros of energy costs annually could be saved simply by improving efficiency.

It is, correspondingly, the state government’s declared intention that the municipalities play a leading and conspicuous role in the context of the planned Climate Protection Act, and it therefore intends to submit proposals to the municipalities which will enable them to make an even better contribution to the protection of the climate. These will include support in determining the regionalised potentials of renewable energies; the “EnergyDialog. NRW” has already been set up. This proposal is intended to facilitate transition to new energy supplies by means of advisory services and, in case of conflict, by means of mediation and negotiation (www.energiedialog.nrw.de).

The European Energy Award® is also an important element: for ten years now, municipalities in NRW have been able to have their efforts at attaining sustainability certified in the context of the European Energy Award® organised by EnergyAgency.NRW. One in every three municipalities, and between 60 and 200 million euros of energy costs annually could be saved simply by improving efficiency.

Modified legislation
And even municipalities with a successful climate protection programme cannot afford to rest on their laurels! The continually changing boundary conditions for municipal action make the challenge set to the municipalities ever more complex. The legal framework, in particular, is subject to continuous alterations. An amendment to the Renewable Energy Heat Act (EEWärmeG) came into effect on May 1, 2011, for example. The essential background to the amendment were European law requirements, concerning the introduction of an official “exemplary function” for public buildings, in particular. Municipal administrations (counties, towns, cities and parishes) are particularly affected by this, in addition to the federal and state authorities. The only buildings excepted in principal from these amendments are those of public corporations which furnish services on the basis of free competition with private enterprise.

The exemplary function, and thus the obligation to use renewable energy, is incurred in case of a radical revamping in conjunction with replacement of the heating system. Unlike the Energy Saving Regulation (EnEV 2009), the amended EEWärmeG does not apply at as low as 10 per cent of the surface area of a building element, but instead in case of upgrad-

Municipal congress 13/14.10.
Municipalities and the energy turnaround will also be the focus of a two-day municipal congress held by EnergyAgency.NRW in Wuppertal on 13 and 14 October. Experts from the spheres of politics, science and administration will be examining the potentials of towns, cities and parishes in NRW. Further information and a registration form are available on the Internet at: energieagentur.nrw.de

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Herne leads: Solar register
Since early April, 2011, Herne has had a solar roof-surface register for municipal buildings, which can be viewed free-of-charge on-line (www.solarkataster.herne.de). Precise details of the solar-generation utilisation of the roofs of eighty-five municipal properties are stated; these comprise 171 individual buildings in all, with a total roof area of some 205,000 square metres. The data provided by the register includes the roofs’ orientation, their surface area, their angle of inclination, year of construction, and any photovoltaic equipment already installed. The individual useable surfaces vary in size between 100 and 5,300 square metres. Service quality is also boosted by estimates made by experts from the city’s Building Management Herne (GMH) agency concerning whether a particular roof is suitable for installation of solar equipment. According to this appraisal, this is currently the case on some 79,000 m² of municipally owned roofing. According to information supplied by the City of Herne, complete utilisation of the available space would permit recovery of nearly 3.5 million kilowatt hours of electrical energy - sufficient to supply more than 850 detached houses.
European Energy Award works

Rational and structured climate protection work, scheduled over longer periods, presupposes that municipalities can gain an overview of all municipal activities: everything starts with the “actual status” balance. Because: developments can be planned only on the basis of a reliable determination of location, and the necessary investments then systematically directed. “Our experience permits me to state that the European Energy Award® provides our municipalities with a tried and proven instrument”, affirms Jochem Pferdehirt, EnergyAgency.NRW’s project co-ordinator. For this reason, not least of all, the state subsidies up to 90 % of the costs incurred for the use of this instrument.

The history of the eea goes back to the 1990s. An evaluation of more than fifty municipal energy concepts in NRW and Bavaria was sobering: only around 5 per cent of these concepts had been implemented. As a consequence, the European Energy Award® was developed with the assistance of European funds and the support of the state of NRW, on the basis of experience gained in Switzerland and Austria. The kick-off event for the quality management system and certification procedure was held in Wuppertal ten years ago, when the state government used the occasion of the successful conclusion of a three-year pilot phase to open the eea to all its municipalities. The European Energy Award® started in Germany in 2001, featuring the three model municipalities of Bielefeld, Solingen and Wuppertal, and has now expanded to include two hundred and thirty participating municipalities throughout Germany. As Pferdehirt notes, “The eea, in combination with the ECORegion CO2 balancing tool, is a suitable instrument for steering of municipal climate protection concepts”. This tool has therefore been provided free-of-charge to all NRW municipalities, starting from this year. “There are powerful synergy effects between the eea and climate protection concepts. The eea sets up and secures the necessary structures, and establishes a permanent controlling system, whereas the climate protection concept broadens views and the spheres of action under observation”, Pferdehirt continues. The eea is an instrument recognised by the Commission of the EU for the drafting of the “SEAP – Sustainable Action Plan”, which the member municipalities of the Covenant of Mayors submit to Brussels every two years.

The range of eea instruments is to be supplied with an Internet capability as from 2012, in order to make it possible to keep pace with accelerating change. Thirteen counties have also been participating in the eea since 2009. An eea list of provisions which takes account of the special decision-making competences and functions of the counties has been developed for them. The first five counties have already received awards.

The eea schedule of provisions is being updated, and certain sections restructured. Municipalities’ options for action concerning the consequences of climate change are being expanded, and the municipalities’ opportunities for co-operation augmented by the target groups of private households, the housing sector, industry, commerce, the service sector and other organisations. The establishment of an “eea light” version is also being considered. This would give interested municipalities with only limited resources the opportunity of trying out the eea via a kind of “taster course”. The next twenty-nine NRW municipalities will receive their 2011 European Energy Award prizes from Minister Remmel in Wuppertal on October 13, 2011.
CHP Study: tail wind for state government

Great CHP potential

Doubling of the share held by combined heat and power (CHP) in total net heat generation in NRW would be possible without difficulty, according to the results of a study into the potentials for CHP in the EnergyRegion.NRW performed on behalf of the NRW climate-protection ministry and examined and discussed before an audience of three hundred at an EnergyAgency.NRW conference held in Düsseldorf.

“The results confirm: NRW offers outstanding conditions for the expansion of CHP, and we are under an obligation to exploit these potentials if we intend to achieve the energy turnaround”, noted climate-protection minister Johannes Remmel in opening the conference. The government-coalition parties have stated in their coalition agreement their aim of increasing CHP’s share in overall power generation to above 25 per cent by 2020. “We now intend, via networking, and via EnergyAgency.NRW’s advisory and information instruments, inter alia, to exploit the CHP potentials outlined exhaustively”, continued the minister. The study was drafted by the Bremer EnergieInstitut, the Fraunhofer Institute for Systems and Innovation Research (ISI), the Institute for Resource Efficiency and Energy Strategies IREES GmbH and the Energieberatung GmbH consulting organisation, and calculates a cost-effective CHP community-heating potential of a total of 75 terawatt hours annually (TWh/a) in NRW, equivalent to some 36 per cent of the state’s total utility-heat requirement of 222 TWh/a. The quantity of electricity generated would be around 80 TWh/a in the case of new installations; grid feed-in of community heating from CHP sources was only around 14 TWh in NRW in 2009, while installed electrical output in the same period was some 20 gigawatt (GW). A potentially highly cost-efficient option exists in large cities and conurbations, in particular. Cities of more than 150,000 inhabitants, representing 41 per cent of total heat requirement, account for around two thirds of the economic potential. Smaller towns and parishes of less than 20,000 inhabitants supply only a small portion, of around 1.4 per cent, on the other hand. Complex community-heating systems are generally not a cost-efficient solution for smaller municipalities, and individual CHP projects, applied, for example, to larger commercial, trade or service-sector properties, are a potential option.

The authors of the study also identify additional potentials in the industrial application of CHP. The analysis illustrates, for example, that even just the modernisation of the existing facilities would permit an increase in power generation by up to 12.7 TWh/a; power generation from industrial CHP facilities amounted to 6.2 TWh in 2007. The modernisation of CHP plants applies, in particular, to chemicals, foodstuffs and paper industry companies, and also to metallurgy. Remmel ascertained that the subsidies situation is of decisive importance for the exhaustive exploitation of CHP potentials. “It will be necessary to amend the CHP Act to conform with the new boundary conditions, in order to assure planning certainty”, Remmel demanded.

Start on Essen’s first climate protection estate

“The State of NRW has set standards throughout Germany with its call for the construction of 100 climate protection estates”, affirmed climate minister Johannes Remmel at the cutting of the first sod for the Dilldorfer Höhe “climate protection estate” in Essen’s Kupferdreh district recently. “The state government’s leitmotif here is: less talk, more action! The combination of energy-efficiency and the use of regenerative energy provides outstanding potentials for climate protection and, in addition, creates jobs and new perspectives in the building industry. No less than twenty estates in NRW have already been awarded ‘climate protection estate’ status, and Allbau AG’s new one in Essen will soon join them”. As the client for the project, Allbau AG, Essen’s largest housing provider, is pursuing the target set by the state of minimising heating-induced CO₂ emissions, and thus of contributing to climate protection. The CO₂ emissions from a semi-detached house located in a climate protection estate should be around 60 per cent below the corresponding reference variant on the basis of the energy-saving regulations currently applicable for new buildings. Information: Andreas Gries, Tel. +49 (0)211/86642-17, email gries@energieagentur.nrw.de, www.100-klimaschutzsiedlungen.de

Further information:
- Network Power Plant Technology in the “EnergyRegion.NRW” cluster, Margit Thomeczek; email thomeczek@energieregion.nrw.de
- Advice on energy and contracting in the CHP field: EnergyAgency.NRW, Matthias Kabus and Rüdiger Brechler, Tel. +49 (0)202/24552-0, www.energieagentur.nrw.de
- On-line calculator for CHP plant units: www.energieagentur.nrw.de
2010 Heat Pump Innovation Prize

No less than sixteen prizes in five categories were awarded at the kick-off of the Heat Pump Weeks in NRW, which simultaneously marked the start of the German Heat Pump Association’s Germany-wide “Set the Pace - Heat Pumps!” campaign. RWE Vertrieb AG handed over prizes worth 100,000 euros in total at the Zollverein world heritage site in Essen.

The 2010 Heat Pump Innovation Prize is an accolade for buildings modernised, or constructed new, using heat pumps. The aim has been to reward building owners and planners for their creativity and willingness to innovate by using heat pumps.

“The Innovation Prize has become one of the most important supra-regional heat pump competitions, and choosing the winners from so many brilliant innovative projects was by no means easy”, summarised Dr. Frank-Michael Baumann, director of EnergyAgency.NRW, on his role as a jury member. The panel was required to appraise more than a hundred entries.

The trend in the “New Detached and Semi-Detached House Construction” category was toward “Positive Energy Buildings” which, via a photovoltaics installation, annually generate more energy than the heat pump consumes. The winning buildings in the “Modernisation” category had been uprated to new-building performance level by means of corresponding insulation work, and equipped with radiant panel heating systems, enabling the heat pump, here, too, to function extremely effectively. The housing industry has also discovered the heat pump in the “Multi-dwelling Building” category, in view of the extremely low subsidiary costs. The “Service Providers” category recognised projects which utilise waste-heat from industrial processes for heating of buildings via a heat pump.

A number of special projects also received accolades in the “Special Prizes” category: two converted railway carriages, on the one hand, and, on the other hand, a building in which continuous operation of the heat pump and photovoltaics installations can be monitored and controlled via the Internet.

The prize-winning buildings can be viewed at www.waermepumpen-marktplatz-nrw.de.

Heat from waste-water for BMU

Know-how from Dortmund means that the federal environment ministry’s (BMU) new building in Berlin will be heated by waste-water from the drainage system.

This is made possible by Uhrig Kanaltechnik GmbH, which recovers heat from effluent by means of water-immersed waste-water heat exchangers, a tried and proven technology already deployed in numerous applications. Uhrig’s technology has been further developed and refined, however. Instead of water-immersed heat exchangers, refrigerant-immersed types are being installed in the drain system for the federal environment ministry’s new building. These “Therm-Liners” are thus directly integrated into the refrigeration circuit of the energy-consuming heat pump (direct evaporation). An intermediate circuit, and the associated transfer losses and operating consumption – for powering the pump, for example – are eliminated using this concept. Greater temperature difference vis-à-vis the waste-water, and thus a greater recovery of thermal energy from it, are therefore now technically, economically and ecologically possible.

Effluent, or waste-water, has also been discovered as an energy source in France. 70 metres of in-drain heat exchangers for heating of the Elysée Palace were supplied only a few weeks ago. For Uhrig, as a company, this project at the French president’s official residence is a clear sign of the political will to promote this innovative energy source.

The ministry states that the expansion of the use of renewable energy is a core element in the federal government’s energy-policy strategy: necessary in climate-policy terms, economically rational and technically possible in a range of ways. Information on heat pumps: www.waermepumpen-marktplatz-nrw.de
Spotlight on hydropower

NRW possesses watercourses totalling more than 50,000 kilometres in length. The use of hydropower in the state has a long tradition, having provided a reliable source of energy for the operation of industrial and commercial plant during the early phases of industrialisation. Today, hydropower continues, thanks to the modernisation, expansion and optimisation of existing facilities, to provide NRW with significant potentials for CO₂-free power generation.

“Hydropower is more than just an environmentally safe route for energy generation - it is also highly dependable, flexible, and storable, and assists in the use of other regenerable energy sources. Hydroelectric power has a future, and we are not the only ones investing in our facilities. And, indeed, we should be looking to find other rational applications for hydropower”, affirmed Dr. Michael Detering, head of RWE Innogy GmbH’s Asset Management Wasserkraft hydropower organisation recently before one hundred invited guests at the “Hydropower in NRW – Sustainable Generation with a Future” specialist conference organised by EnergyAgency.NRW.

Current hydropower projects include a series of provisions to achieve hydro-ecological contiguity in accordance with the European Framework Water Directive. On the River Ruhr, for example, where the Fröndenberg municipal utility has constructed a fish ladder and a residual water screw. A semi-natural rough spillway fish ladder, the attraction flow of which is boosted by means of a residual water screw to aid the orientation of migratory fish and flowing-water organisms, has been installed on the weir. The hydroelectric power plant’s turbine house, constructed in 1913, is being modernised simultaneously; the previous 30 mm fine filter screen is being replaced by a 20 mm model, in the context of fish protection provisions.

The 28 tonne residual water screw supplied by REHART GmbH and featuring installed capacity of 55 kW and a water flow, in the final expansion stage, of a maximum of 3 m³/s, will in future make it possible to supply around one hundred households with power throughout the year. The hydropower screw will rotate during normal operation at 25 rpm, thus providing a low-impact and hydro-ecologically responsible form of hydroelectric power utilisation. The fish ladder, 64 m in length and featuring seventeen basins, will be fed with water at a rate of 400 l/s; the residual water screw will also supply 2,500 l/s as residual water for the natural bed of the Ruhr. The attraction flow will make it easier for fish and the Ruhr’s benthos-fauna to find the fish ladder, and to pass the intimidating weir, with its “head” (height difference) of 3.10 metres.

Investments here total 850,000 euros; such hydro-ecological improvements are also recognised in the form of a higher feed-in tariff under the Renewable Energy Sources Act (RESA).

Hydropower screw on the Berkel

Alfers Mühle hydroelectric plant. The City of Gescher’s municipal waste-water treatment works has invested 400,000 euros at this historic hydropower location. More than 200,000 kWh of CO₂-free electricity is to be generated here annually, with an installed output of 45 kW, a head of 3.10 metres and a maximum final expansion stage water flow of 1.8 m³/s. This will enable around sixty households to be supplied with locally generated electricity throughout the year.

Here, too, the hydro-ecological contiguity of the River Berkel has been achieved via the installation of an organism ladder. A semi-natural bypass channel, fed with 350 l/s of water, is intended to enable fish and small aquatic organisms to bypass the Alfers Mühle weir system and reach the feeding and spawning grounds of the Berkel located above these weirs.

Information: Stefan Prott, EnergieAgentur.NRW, Büro für Wasserkraft, Tel. +49 (0)2945/989-189, email prott@energieagentur.nrw.de, www.wasserkraft.nrw.de
HYCHAIN – a worthy balance

A concluding event held in Herten recently marked the completion of the European Union’s HYCHAIN Mini-Trans project. The project participants can look back on six exciting years, during which fuel-cell-powered vehicles have been developed and tested in four European regions (France, Spain, Germany/NRW and Italy). The setting-up of a hydrogen infrastructure tailored to such vehicles has also been initiated; the EU donated 17 million euros in subsidies for the total budget of 38 million euros.

And the project participants’ achievements are worthy of them: Hydrogenics GmbH, of Gladbeck, gathered important experience with everyday operation of midi-buses, an achievement which would have been impossible without the support of local transport enterprises and municipalities. The project made it possible to accelerate the development of larger bus types. Air Liquide Deutschland GmbH – a HYCHAIN infrastructure partner – provided effective and efficient technology in the project region. Europe’s largest hydrogen distribution centre has now been completed at the Marl Chemicals Park.

The topic of mobility using fuel cells and hydrogen is also, on the basis of the experience in the generation of “green hydrogen” gained in various projects conducted in the Emscher/Lippe region, an essential element in the implementation of the city of Bottrop’s InnovationCity future project. The partners in this project agreed in Herten that the vehicles purchased would continue in operation in these cities; the procurement of even larger vehicles is also currently being planned.

Information: www.hychain.org

BOmobil shown at IAA

The Frankfurt Motor Show (IAA), which returns in September on its two-year cycle, is well known for notable premieres. This year, these will also feature a previously unseen vehicle, the so-called “A-Prototype” of an electric-powered vehicle from Bochum.

The “BOmobil” is probably the largest project operated by the Institute for Electromobility at the Bochum University of Applied Sciences, featuring the development of an electrically powered van suitable for series production. Visitors to the Frankfurt Motor Show will thus be able to gain an impression of this project’s degree of innovation. The “A-Prototype” presented is to be used as a test vehicle after the close of the motor show.

The institute’s second specialisation, in addition to the “BOmobil” project, is in the field of the simulation and analysis of powertrain topologies and vehicle states and situations. Measuring equipment specifically conceived for the recording and analysis of the relevant parameters of both electrical and hybrid vehicles during operation has been developed for this purpose. The use of this equipment in combination with the institute’s test vehicles thus makes it possible to analyse any routes travelled and any driving manoeuvres, including, for example, the braking process in a hybrid vehicle. Linking of the measured results to GPS data then makes it possible to include the route data in the analysis; this is of particular importance, since the performance of booster operation and recuperation is closely associated with carriageway gradient.

Analysis of this measured data permits deductions concerning the potentials for optimisation in the various power trains. The specially developed vehicles, which can travel the same route sectors virtually, but the parameters of which can be modified at will, are to be used for comparative assessment purposes. It will thus be possible to isolate the weak points in any power train, and to determine optimised parameters. Vehicle simulation will also be used to develop an energy and trip management system for electrical and hybrid vehicles.

The Bochum University of Applied Sciences Institute for Electromobility is headed by Prof. Dr.-Ing. Friedbert Pautzke, Prof. Dr.-Ing. Wolf Ritschel and Prof. Dr.-Ing. Michael Schugt. Around thirty full-time scientists are currently investigating contemporary research topics in the field of electromobility, with the support of scientific assistants and graduates.

Information: www.institut-elektromobilitaet.de
Hybrid buses coming

Examples from Bochum and Cologne

Protection of the climate and the environment confront society with great challenges. The topic of mobility plays a vital role, in view of the fact that some 20 per cent of Germany’s total CO₂ emissions are caused by road traffic. The steep rise in fuel prices, combined with the increasing scarcity of mineral oil resources, also necessitate a reduction in fuel consumption. Noise and pollutant emissions (of oxides of nitrogen, in particular) are also much discussed negative concomitants of motor-vehicle traffic.

Local public transport can make a significant contribution to meeting the many diverse demands made on future mobility, by replacing individual transportation, and by using hybrid technology in its vehicles. Two examples of future vehicle generations were recently presented.

The Solaris Urbino 18 DIWA hybrid was recently unveiled by BOGESTRA, Bochum’s public transport operator. BOGESTRA (for the tram company Bochum/Gelsenkirchener Straßenbahnen AG) has been backing climate-conserving propulsion technology since early 2008, when NRW’s first hybrid bus was introduced. In this 18 m long articulated bus featuring parallel hybrid propulsion supplied by Voith Turbo, a 150 kW asynchronous electric motor assists the diesel engine in pulling away and during acceleration. The motor functions as a generator during braking, producing electrical energy, relieving the burden on the mechanical brake, and reducing brake wear, and thus the resultant fine particulates burden. Thanks to parallel propulsion, the outputs of the combustion engine and electric motor have an “additive” effect, making it possible to select a lower-output electric motor and combustion engine, saving costs, weight and installation space and, in the case of the engine, fuel as well (“downsizing”). A so-called “supercap” system stores energy, reduces wear and also saves fuel. Haulage capacity is comparable to that of types with conventional propulsion.

The vehicle has been developed with support from the federal German ministry of transport and NOW GmbH. The prototype model has been undergoing testing in BOGESTRA’s “Model Region Electromobility Rhine-Ruhr” since February; the first series-produced vehicles are to follow in the near future.

Regionalverkehr Köln GmbH (RVK) has also gone one step further toward efficient, zero-emissions mobility with its first two hydrogen/hybrid buses featuring fuel-cell propulsion. The 18 m long “Phileas” type articulated buses have been constructed by Dutch manufacturer APTS, a VDL Group subsidiary, and incorporate German know-how. Yoslohe Kiepe GmbH, of Düsseldorf, provided the series-hybrid technology, while the NiMH battery is from Hoppecke Batterien GmbH & Co. KG, Brilon, and the 150 kW fuel cell from Canada’s Ballard Power Systems, Inc.

The Cologne and Aachen universities of applied sciences also co-operated on the development of the vehicles’ energy management system. A total of four prototype buses have been constructed; of these, two each are now in operation with RVK and with Amsterdam’s GVB public transport corporation. These vehicles tank up on 38 kg of hydrogen fuel at a pressure of 350 bar; this fuel is yielded as a by-product at the Knapsack “chemicals park” complex in Hürth. The H₂ filling station opened in 2010 is situated adjacent to the plant site. The filled tank permits a range of approx. 350 km. The buses’ exhaust consists solely of steam. As RVK director Eugen Puderbach notes: “These fuel-cell hybrid buses are an outstanding innovation in local public transport, and a trailblazing milestone in RVK’s ‘zero emissions’ environmental concept. This propulsion technology enables us to meet the requirements of our own future concept right now”.

The “Phileas” project is receiving financial support from the European Fund for Regional Development and from the state of NRW. The partners in NRW have received 2.4 million euros for development and test operation, and some 3 million euros for procurement of the vehicles. Information: Dr. Frank Koch, EnergieAgentur.NRW, Tel. +49 (0)211/866-4216, email koch@energieagentur.nrw.de, www.brennstoffzelle-nrw.de and Christopher Olvis, EnergieAgentur.NRW, Tel. +49 (0)209/167-2812, email olvis@energieagentur.nrw.de, www.kraftstoffe-der-zukunft.de
Photovoltaics NRW – compact

Energy supplies are confronted with a major change: central high-capacity power generating plants are increasingly being superseded by smaller decentralised units, and by types based on regenerable energy, in particular. In this transition, photovoltaics is one of the 21st century’s key technologies. New developments in all sectors of the value chain are required, in order to continue this process of expansion: from materials research, via production technology, up to and including modular and systems technology. NRW’s interdisciplinary research and industrial landscape offers outstanding boundary conditions for the development of efficient, rational-cost methods and systems, and thus for reduction of system costs.

The “Photovoltaics NRW compact” conference, attended by more than 130 persons, was held in the Duisburg Tectrum against this background on June 28 and 29, and focussed, in three separate events, on the diverse sectors of photovoltaics developments. The conference was organised by the EnergyRegion.NRW, CEF.NRW, Nano-Micro+Materials.NRW clusters and the University of Duisburg-Essen’s Center for Nanointegration.

The second day of the event, Photovoltaics Day NRW, then examined ideas and developments for the generations of solar cells to come. The focus here was on solar cell concepts based on nanostructures and nanomaterials. Information: Dr. Benedikt Rösen, Tel. +49 (0)209/1672817, email roesen@energieagentur.nrw.de
NRW wind industry on the up

More than 460 participants from all over Germany, plus eighty exhibitors - the Third Wind Energy Industry Day at the Essen exhibition grounds clearly illustrated how very much the focus of interest in North Rhine-Westphalia is on wind energy and the wind-energy industry. The industry day was organised by the Lorenz Kommunikation agency, of Grevenbroich, in co-operation with the Network Wind Power NRW, incorporated within the EnergyRegion.NRW energy cluster.

“The future is in renewable energy, and wind energy has the greatest potential in NRW”, commented NRW climate protection minister Johannes Remmel. Consistent repowering of facilities is the decisive factor, he noted. By 2020, wind energy’s share of total power generation in NRW is to be increased from its present three to 15 per cent. “That’s an ambitious target, but we’ll be able to achieve this output using our present facilities provided we upgrade them correspondingly by means of repowering. This is not possible on a simple, 1:1, basis, but new construction will be kept within limits”, the minister continued.

Dr. Frank-Michael Baumann, director of EnergyAgency.NRW and of the EnergyRegion.NRW energy cluster, also exhibited confidence: “We anticipate, on the basis of the state government’s new wind-energy directive, a clearly discernible increase in installed wind-energy output, thanks to both repowering and newly constructed plants. We thus also hope that all the renowned producers and subsuppliers to the industry will become aware of the market growth in NRW, and will also “put down roots” in our state, in view of the good business environment they can expect here. This, of course, would mean new and sustainable jobs for “Wind State NRW”.

Network Wind Power NRW provides information on the already many important players in this field. This network provides the industry with a platform on which specialists and experts can exchange experience and opinion on a topic-related and solution-oriented basis. EnergyAgency. NRW’s new “Wind energy on the up” brochure also illustrates this topic from diverse viewpoints, and is intended to contribute to furthering the use of wind power in North Rhine-Westphalia.

The same is also true of international contacts. NRW has had a partnership with the US state of Pennsylvania for a number of years now. The German-American GADORE Center USA also generates further contacts with American states, energy administrations, associations and networks. NRW is backing interchange at international level in order to develop practicable solutions for the new challenges presented by future energy policy. NRW’s environmental and climate protection ministry has, for example, been invited to participate in the American Council on Renewable Energy (ACORE) and to co-operate on this organisation’s international board. “We are pleased to accept”, comments minister Remmel. “EnergyAgency.NRW will perform this function for us, and thus further intensify German-American dialogue”.

Mechernich builds NRW’s largest solar park

North Rhine-Westphalia’s largest solar park is now taking shape in Mecher- nich. The City of Mechernich has confirmed the council’s unanimous resolution. The facility, with a peak output of 4,300 kilowatt, will be able to supply 1,100 households with electricity. The joint project between the city and a local energy utility is said to cost nine million euros. The facility is to go on line by August 31 at the latest.

The City of Mechernich holds 49 per cent of the shares in this installation, and owns the 90,000 square metre open site on which the modules are to be installed. The city has already equipped the overwhelming majority of its buildings with photovoltaic systems.

There are only few open-site facility like the one planned for Mechernich, stated Dr. Joachim Göttsche, an expert from the Solar Institute at the Jülich University of Applied Sciences, at the project unveiling, since sites of this size are a rarity in North Rhine-Westphalia.
New wind-energy decree in NRW

NRW is starting on catching up in wind energy: climate minister Johannes Remmel has now enacted the wind-energy directive, the first element in the state’s new climate-protection strategy. “The atomic age is nearing its end, and renewable energy is the future. We have now set the path for the expansion of wind energy, and transformed a ‘wind-power prevention directive’ into a ‘wind-energy enabling directive’, he stated.

The state government intends to increase wind energy’s share of overall power generation from its present good 3 per cent to 15 per cent in 2020. The new directive lowers planning hurdles, and eliminates excessively rigid rules which have frightened off many potential investors in the past.

Part of Climate Protection Act
The new wind-energy directive is an element in Germany’s first Climate Protection Act, and envisages, inter alia, the reduction of greenhouse gas emissions in North Rhine-Westphalia by not less than 25 per cent by 2020, and by not less than 80 per cent by 2050, taking total emissions for 1990 as the base year. “The wind-energy directive is also intended as an economic engine”, stated Remmel. As he noted, wind energy is already an important force for innovation in industry; some 2,800 wind-energy installations now supply nearly 40 per cent of all power generated by regenerative means in North Rhine-Westphalia, while the industry, founded on all aspects of regenerative energy, employs 26,000 persons, and achieves a turnover of more than 8 billion euros.

The new directive has been drafted on the basis of intensive and constructive dialogue with a large range of authorities, associations and organisations. Numerous proposals have been taken up during the several months of this dialogue. As Remmel notes, “The new wind-energy directive is the product of a social consensus”.

Repowering is a central element in wind-energy policy in NRW; it involves the replacement of old systems by new, more efficient and more productive equipment. Even these provisions alone can succeed in significantly increasing wind energy’s share of total electricity generated. The new wind-energy directive now facilitates repowering by, for instance, eliminating the previous 100 metre height restriction imposed by the old wind-energy directive; under present-day conditions, cost-efficient operation will necessitate installations of a height of up to 150 metres.

Good for people and nature
“The new wind-energy directive makes no compromises where the protection of residents against noise and shadow effects, or the protection of nature and species diversity, are concerned”, emphasised minister Remmel. As with all other industrial facilities, the specified limits - for noise emissions, for example - must be adhered to in future. Calculation of specific distances necessary from residential buildings will continue to be applied strictly in the residents’ favour. It is also to be made possible to use wind energy in wooded areas in future. The wind-energy directive also takes account of the need to protect and conserve the natural environment. There will, for example, continue to be no use of wind energy in nature reserves or in other areas of importance for the conservation of nature. The wind-energy directive does, however, set new accents, facilitating the construction of wind-energy installations close to infrastructural communications routes, such as rail tracks and motorways, for example. “Instead of applying global mandatory distances, we now intend to achieve a just solution by considering the various interests in each individual case. We hope that municipalities, citizens and system operators will take up our initiative aimed at achieving clean, cost-efficient, sustained decentralised energy supplies”, affirmed minister Remmel.

Advice, dialogue and public involvement
NRW’s climate ministry is to support municipalities, citizens and investors in the expansion of the use of renewable energy. A new information and advisory platform for all matters concerning renewable energy – EnergyDialog.NRW - has been created under the auspices of EnergyAgency.NRW (see page 15).

Overview
- Embedding of the wind-energy directive in the climate-protection strategy
- Comprehensive advisory services for municipalities by EnergyAgency.NRW
- Extensive transparency and citizens’ involvement, including recommendation for “citizens’ wind farms”
- Creation of an information and advisory platform at EnergyAgency.NRW for settlement of conflicts (EnergyDialog.NRW)
- Details for the identification of sites for wind energy installations in regional and land-use planning
- Improvement of the boundary conditions for repowering
- Recommendation for re-examination of height restrictions
- Orientation of safety distances between wind-energy installations and residential buildings
- Retention of the tried and proven requirements for calculation of noise emissions
- Exclusion of wind-energy installations in areas of value for the conservation of nature, combined with distance specifications and notes for approval under species conservation law
New service: EnergyDialogue.NRW

The state government’s wind-energy directive had already announced it: the new “EnergyDialogue.NRW” information and advisory service platform for renewable energy. NRW’s climate-protection minister, Johannes Remmel, gave the starting signal for the new service under the auspices of EnergyAgency.NRW during a visit to the latter’s new offices in Düsseldorf. “Our intention for EnergyDialogue.NRW is to assist municipalities, private enterprises and citizens in expanding the use of renewable energy, as a part of our overall package for support of municipal climate-protection activities”. As Remmel concludes, EnergyDialogue.NRW is to serve as a contact point for municipalities, citizens and facility operators, and is also intended to perform publicity work in case of insoluble disputes involving the topic of regenerative energy. “The expansion of renewable energy is our aim, and we are providing broad potentials for participation, in order to involve all our citizens”, noted minister Remmel. In addition, EnergyDialogue.NRW is also intended to promote the setting-up of so-called “citizens’ wind farms”, enabling citizens to participate in wind-energy projects and share in the resultant profits.

Municipalities are also to receive advice concerning the raising and exploitation of local potentials for renewable energy and the local value chain under EnergyDialogue.NRW. “Our intention here is to eliminate potential problems as far in advance of specific planning processes as possible, and to set up a dialogue, in the case, for example, of possible conflicts with the interests of nature conservation, with those of property owners, with the state’s pollution control act, and other problems of acceptance”, continued Remmel. EnergyAgency.NRW can look back on more than twenty years of experience in co-operation with municipalities, and therefore, as Remmel commented, enjoys high regard and great confidence with the municipalities and other persons involved.

Since the services provided by EnergyDialogue.NRW are intended to go beyond mere information and advice, solution meetings, up to and including the services of mediators, are to be organised in case of conflicts, and in the fields of planning and approval, in particular. “We are reaching out with this campaign not only to the municipalities, however. Citizens’ initiatives, residents, the builders and the operators of facilities for utilisation of renewable energy will also be entitled to use EnergyDialogue.NRW”, summarised Lothar Schneider, EnergyAgency.NRW director. “This service is also aimed, like our Wind Power, Biomass, Geothermal Energy and Photovoltaics networks, at accelerating the expansion of renewable energy utilisation. In NRW, we are lagging behind with our only 3 per cent share of wind energy in total power supplies, for example. So - great advances are possible! The expansion of wind energy will give the energy region NRW an important impulse”, emphasised Dr. Frank-Michael Baumann, also an EnergyAgency.NRW director.

A Hotline and an Internet site assuring direct access to energy consultants and mediators have been set up to facilitate the energy dialogue: Hotline: 0800/0036373 Internet: www.energiedialog.nrw.de

Further information: EnergieDialog.NRW c/o EnergieAgentur.NRW; Kasinostr. 19-21; 42103 Wuppertal, Germany

Energy management software overview

Energy management in companies is a complex task, to which steadily rising costs are assigning ever more importance. In addition, an Energy Management System in conformity to DIN EN 16001 is likely to be the precondition for energy and electricity tax concession from 2013 onward.

There is no shortage of software for acquisition of energy data, but the programmes available are as diverse as the tasks they are required to tackle.

EnergyAgency.NRW’s new energy-management software market survey, now published for the first time as an on-line service on the website, now provides an overview. Specialists and decision-makers in industry, commerce and government can now use the “EMS.marktspiegel” site to find, on the basis of diverse criteria, the programme which best meets their needs. Input information includes data-processing preconditions, such as operating system and interfaces, the investment total planned, and the required output and presentation modes for the data acquired. The information provided by the makers of thirty-five software packages, all of which are currently available on German-speaking markets, form the basis. This information has been obtained and evaluated, on the basis of survey questionnaires, by perpendo GmbH, of Aachen. EnergyAgency.NRW’s on-line calculator does not evaluate the makers’ products, however. Information: www.energieagentur.nrw.de/emsmarktspiegel
Citizens’ energy installations

Each individual can make a contribution to climate protection by paying attention to small things. For example, by using green energy or going to work by bus or train instead of by car. However, for larger projects, such as the construction of a wind turbine or a photovoltaic installation, it is helpful if many individuals work together. When several individuals finance or operate an installation to enable the use of renewable energies, a so-called “citizens’ energy installation” is created. Very many different types of project can be included within this concept: from a shared heating system in a block of flats up to a special climate protection savings bond from a Sparkasse bank. On the one hand, citizens can operate an installation based on renewable energies, and act as producers of electricity and heat – helping with power generation! On the other hand, citizens take on the role of capital providers under the umbrella of another organisation – helping to finance renewable energy projects! As co-owners of the operating company, they have a financial share in its success. However, at the same time they take on entrepreneurial risks and there is also a danger that capital may be lost. This is why it is essential to minimise risks by means of careful planning, use of expert installers and operators and also the provision of suitable insurance cover.

In Essen, for example, the first citizens’ solar power plant was established after the City of Essen provided roofs for the installation of photovoltaic systems. Originally, the project was to be in the form of a private partnership, but it was soon continued as a cooperative, in order to limit the liability of those involved. In the past two years, four photovoltaic systems have already been installed by the Solargenossenschaft Essen eG. The search for further suitable roofs is ongoing.

Citizens generate energy!

When citizens themselves produce electricity or heat with an installation based on the use of renewable energy sources, an operating company is established. The legal form of the company should be carefully chosen for its suitability for the form and structure of the project itself. This choice has an effect on the administrative costs, voting rights and liability of the participants in the project. As co-owners of the operating company, they have a financial share in its success. However, at the same time they take on entrepreneurial risks and there is also a danger that capital may be lost. This is why it is essential to minimise risks by means of careful planning, use of expert installers and operators and also the provision of suitable insurance cover.

Citizens fund projects!

An increasing number of organisations are deciding to involve citizens by inviting them to participate financially in projects. In this model, citizens generally do not share in ownership of the installation itself, but can participate in its success at low initial cost. Citizens either provide plant operators directly with funds, or a financial institution acts as an intermediary. Both the funds of the Hertener Stadtwerke electricity supply utility are an example of the first-named case. Customers of the company were offered bearer bonds at a good rate of interest, along with flexible encashment options. The money from the “herten-fonds natürlich” fund were used to finance wind energy, photovoltaic, and heat and power cogeneration plants.

When, in other examples, a financial institution acts as intermediary, the institution not only administers and manages the funds, but in some cases also takes over the risk. This was the model used by the Kreissparkasse Steinfurt bank for example, when last year it issued a “KlimaGut-Brief” bond for the second time. Like any savings bond, it is covered by a legal guarantee. However, the special feature of the bond was that the bank promised to use the entire funds for loans to ecologically useful projects – such as for example photovoltaic installations.

A new brochure entitled “Climate Protection with citizens’ energy installations” (Klimaschutz mit Bürgerenergieanlagen) has just been published by EnergyAgency.NRW. The brochure offers an overview of operating company models and possible forms of participation based on examples of projects from NRW, and can be ordered by phoning 01803 19000. More information: Dr. Katrin Gehles, Tel. +49 (0)202-24552-41, email gehles@energie-agentur.nrw.de
New energies and the citizen

Sometimes in-depth changes to the energy system must be made in order to implement necessary climate protection measures, and this is associated with a large number of infrastructure measures and the realisation of large-scale projects. Since the discussions surrounding Stuttgart 21 rail project at the latest, it has been clear that wide-ranging citizen involvement is essential if such large-scale projects are to be implemented. This is particularly true if measures involve the use of new technologies. Against this background, more than 140 representatives of the worlds of business, politics and society itself recently discussed the change in the energy system, with special focus on stronger participation on the part of ordinary citizens. In a lively panel discussion, moderated by Lothar Schneider (EnergyAgency.NRW), Christoph Bals (Germanwatch), Dr. Achim Dahlen (NRW-Klimaschutzministerium), Markus Palm (Innovation City Management GmbH), Stephanie Schunck (RWE Power AG) and Elmar Thyen (Trianel GmbH) answered critical questions from the floor. The event was organised by the Wuppertal Institute, Bergische Universität Wuppertal and EnergyAgency.NRW in the Düsseldorf Chamber of Small Industries and Skilled Trades.

Cologne solar technology for Nairobi

The first energy-neutral office building in Africa has now been constructed in Kenya’s capital, Nairobi. UN General Secretary Ban Ki Moon (photo) opened the UNEP building in the presence of Kenyan President Kibaki and praised it as a pointer towards a sustainable future: “This building is an embodiment of the new ‘Green Economy’, which can lead us into a cleaner future, create jobs and inspire new economic growth”, said Ban Ki Moon. An important component within the energy concept is the solar power installation built on the roof of the building complex by the company Kölner Energiebau. The photovoltaic installation, featuring 4,000 solar modules in total, produces more electricity than is required by the building itself, which accommodates 1,200 staff. Each year, the users of the building, UNEP and UN Habitat, save 420,000 kg of climate-harming CO₂ with the emission-free solar technology. A documentary film about the project can be found at: www.energiebau.de/film. Energiebau Solarstromsysteme is a partner organisation of the “Photovoltaics NRW” campaign of EnergyAgency.NRW. More information: www.photovoltaik.nrw.de

New Contracting Centre for Buildings

Despite current budgetary constraints, the federal administration, states and municipalities spend almost four billion euros each year on supplying their properties and facilities with energy. Use of energy efficiency measures can considerably reduce these costs, whilst at the same time making a valuable contribution to climate protection. One contractual model which enables implementation of efficiency measures without the need for additional investment from public funds, is Energy Contracting. In fact this model is already used throughout Germany, but far more widespread use would still be possible. In order to open up the great energy savings potentials in public buildings, the Competence Centre for Building Contracting was established in 2010 on behalf of the Federal Ministry of Transport, Building and Urban Development. The main task of the centre is to make energy contracting easier through the supply of information and advice and also through exchange of knowledge and experience. The competence centre is attached to Deutsche Energieagentur GmbH (dena) in Berlin and cooperates with a country-wide expert network, to which contracting experts from regional energy agencies and planning departments belong. EnergyAgency.NRW is also a member of the network.

The participants discuss current projects and experiences from their own regions during regular meetings which take place twice a year. A central objective of these meetings is further development of the contracting instruments. For example, the theme of the last meeting, at the end of May, concerned instruments for successful project development. More information on the aims of the Competence Centre for Building Contracting and what is on offer is available from: www.kompetenzzentrum-contracting.de

Information: email toegel@energieagentur.nrw.de
Chronology of sustainability

Jugendakademie Walberberg

The youth academy Jugendakademie Walberberg in Bornheim is committed to sustainability. And while sustainability is not something that can be achieved overnight, the academy started out along its chosen path in the 1980s. The last stage: this year a new 300-kW biomass boiler (pellets) entered into service, replacing an old oil-fired boiler.

The academy offers seminars for teenagers and young adults in the area of political and religious education, social learning and intercultural and international education. “Sustainable change must above all come and grow from the bottom up. The tried-and-tested principle of ‘think global, act local’ applies as much as ever”, says Managing Director Reinhard Griep, explaining the motivation of the youth academy.

A photovoltaic installation was fixed to the roof of the main building in 2003, with an output of 9.24 kWp. Each year, around 7,500 kWh of electricity are generated. At a payment rate of 45.7 Cent per kWh, the income from the installation amounts to around 3,400 euros per year, covering approximately one third of the annual electricity costs of the academy. In addition, CO2 emissions are reduced by around 3.5 tonnes per year. The performance and the ecological benefits of the photovoltaic installation are the subject of a permanent exhibition in the foyer of the academy.

The current high point is the new pellet-based heating system, which entered into service this year, where the old oil-based system was replaced by three 100 kW pellet-fired boilers. Oil consumption under the previous system amounted to around 78,000 litres, corresponding to a heating requirement of around 780,000 kWh per year.

This requirement can now be met through the use of 155 tonnes of wood pellets (= 240 m³ pellets/a). In relation to its heating the Jugendakademie Walberberg reckons with annual cost savings of around 20,000 euros. The change of fuel also means that CO2 emissions are reduced by around 185 tonnes per year. Energy-Agency.NRW advised on the project.

Information: www.aktion-holzpellets.de

Efficient use of energy comes naturally to sportsmen and sportswomen. The Essen sports club Steele 1863 is now also making consistent use of LED technology in its sports hall - for lighting. The driving force behind this conversion was the President of the sports club, Christian Hagedorn. After testing various products, the Management Board decided in favour of TL Pro 100 from Luxerna – with an efficiency of 100 lumen per watt, measured on several occasions. The new system means that the connected rating of the hall lighting could be reduced from around 11 kW to 3.1 kW. The specific connection value is 2.07 W/m²/100 lx. In fact, the conversion means that current consumption in the hall has been reduced by around 17,500 kWh per year. The actual lamps themselves have been retained, only the starters have been replaced by bypass elements and the fluorescent tubes by LED tubes that are switch-through-proof. Because of the targeted illumination offered by the LEDs, the unsatisfactory illumination efficiency rating of the old systems has been overcome.

LED lighting was also installed in the corridors and changing rooms. “The only disadvantage is that the rooms have to be cleaned more thoroughly, because any dirt really does show up”, says Dipl.-Ing. Jörg Buschmann from EnergyAgency.NRW.

The manufacturer of the lights give a guarantee for 30,000 operating hours, so that no replacements will be necessary for at least the next 15 years. Within this time, the lighting level may be reduced by 30 per cent, due to ageing of the LEDs, but this was taken into consideration during the design phase. Because this reduction has been taken into consideration, and also because the LEDs are still more efficient than was assumed during the planning, some instructors even leave half of the lighting switched off. Information: email buschmann@energieagentur.nrw.de

Overview

| Electricity cost savings: | 3,850 € per year |
| CO₂ saving: | 10 tonnes per year |
| Hall hours of use: | 1,800 hours per year |
| Investment: | approx. 15,800 € gross |

Information: www.aktion-holzpellets.de

Youth academy uses photovoltaics and pellets
Fill up with volts – for free!

“Fill up with volts, please” this, or something like it, could be what visitors to the Tengelmann Climate Market in Mülheim/Ruhr will be asking for in future. For starting from now, customers who own an electric vehicle can charge it during their shopping trip for one hour free of charge.

The new green electricity “filling station” in Wissolstraße was recently officially opened by Karl-Erivan W. Haub, Managing Director of the Tengelmann Group. Together with Lothar Schneider, Director of EnergyAgency.NRW, he arrived - befitting the occasion - in an electric car which had been charged with certified green electricity from an Austrian hydro-electric source.

“Electromobility will be the great challenge of the next few years. Practicable concepts are in demand – particularly against the background of limited resources. Visionaries such as Karl-Erivan W. Haub are helping to bring this technology into widespread use”, says Lothar Schneider.

Two vehicles can “fill up” at the same time at specifically designated parking spaces. Customers can take advantage of their shopping time in order to charge their electric vehicle free for one hour. And this is how it works: the driver of the electric vehicle collects a charging card at the checkout, which is used for legitimation purposes at the charging point. After this, the vehicle cable can be connected with the power supply and the charging process can begin. The customer returns the card to the checkout when paying for the completed shopping.

More information: www.elektromobilitaet.nrw.de

Tengelmann commits to Electromobility: Karl-Erivan W. Haub opening the new charging station in Mülheim an der Ruhr

Muffler pulse burner for Brökelmann & Co.

The new energy generation unit of Brökelmann & Co. Oelmühle GmbH + Co. has been officially opened in Hamm. The cooking and salad oil manufacturer will in future be supplied by steam and electricity from a highly-efficient cogeneration plant.

Brökelmann will in future be able to cover its entire requirement for steam and a part of its electricity requirement from the newly-built power and heat cogeneration plant. The new energy centre because necessary when the previous, less efficient boiler system was no longer adequate and the company was temporarily supplied with steam from a mobile boiler unit. The plant was built by GETEC using contracting.

The factory requires more than 195,000 tonnes of steam per year and up to now this was provided using natural gas, and prior to this, using heavy heating oil. The new solution of a power and heat cogeneration plant with flame tube-smoke tube boilers and subsequent depressurisation of the steam by means of a backpressure steam turbine proved to be the most cost-effective variant for the future energy supply. The boilers have a capacity of max. 270 t/h, and the electrical output of the turbine is around 520 kWel. The steam is generated in a shell boiler with muffler pulse burner. The saturated steam at 22 bar is depressurised to the pressure required by the consumer - of around 10 bar - by means of a downstream single-stage back-pressure steam turbine. The electricity that is produced - around 2,700 MWh/a - covers a part of the electricity requirement of the factory and would be sufficient to supply around 500 households. The new, high-efficiency combined heat and power plant makes use of the energy content of the fuel, pulverised brown coal, at an efficiency of considerably more than 90 per cent. This means that all the steam that is required for the factory can be provided.

In addition to the building and financing of the energy supply installation, the Energy Contractor from Magdeburg will also maintain, repair and manage operation of the plant for 15 years. Information: Rüdiger Brechler, EnergyAgency.NRW, Tel. +49 (0)202/24552-15

Muffler pulse burner for Brökelmann & Co.
Three questions for...

Hartmut Miksch

Interview with Hartmut Miksch, President of NRW Chamber of Architects, on the subject of climate protection and adjacent owners law.

The North Rhine-Westphalian Chamber of Architects already gave its support to a change in adjacent owners legislation in the last legislative period. Why are architects particularly affected by this subject?

It is not only in North Rhine-Westphalia that construction work is no longer mainly concerned with new building, but with the renovation of existing building stock. Our clients and the users of the buildings require building solutions for a society which is ageing and which has to be sparing in its use of resources. This means that improvement of older residential buildings from the energy point of view has become an important task, requiring a responsible approach. In the case of buildings which abut onto others, the problem exists that retrofit of outer insulation is only possible if the neighbours agree – and in many cases it is not possible to achieve agreement, or it is expensive. This is where the new “duty to tolerate” is naturally a great help – in the final analysis working in favour of climate protection and residents. In future, it will be possible for the owners of buildings to carry out upgrades even without the agreement of the neighbours.

Do you fear that in future, it will not be architects who decide about the type of renovation to be carried out, but rather legal experts and courts?

Of course I hope not. The neighbour must tolerate the retrofit heat insulation measures, if a comparable level of heat insulation could not achieved by different means at reasonable expense, and in so far as encroachment over the neighbour’s boundary does not limit use of the site or only limits it to a minor extent. Prior to installation of the external insulation and encroachment over the boundary, the alternatives must be examined. Access rights such as routes to courtyards or garage driveways must not be restricted. All of these arrangements are logical and we hope they will lead to neighbours being able to agree peacefully with other about insulation measures.

During the legislative procedure you criticised the fact that the design of facades and the appearance of towns and cities were not been taken into consideration. Where do you see the problems here?

La Corbusier is credited with the saying that “All houses should be white by law.” With all due respect to the master – he would certainly not have wanted to see blanket insulation of our towns and cities with insulating elements covered by render. What we want is that in addition to such systems, other insulation techniques using cladding or covering brickwork should also be possible, as long as they remain within the thickness that has to be tolerated. Due account has to be taken of the previous appearance of the building, the many different “faces” of our houses and therefore of our towns and cities, because this is the only way in which towns and cities can retain their own unique personalities. Intelligent, differentiated concepts are needed, not a “one size fits all” approach. Good insulation is an important criterion for the design and ease of living of a house – but not the only one!

New adjacent owners law makes energy renewal easier

When people hear the words “adjacent owners law” many of them think immediately of conflict with neighbours. And not infrequently, the legislation is also invoked when buildings are renovated – for example, if insulation projects over onto the neighbour’s land. New arrangements are intended to prevent conflicts and make renewal easier.

“The greatest proportion of the energy consumption of an old building – around 80 per cent – is required for room heating. High energy consumption results from heat being lost during cold weather through walls, windows, roof and floors, if houses are insufficiently insulated or if they are not draught proof or sealed”, says Matthias Strehlke from EnergyAgency.NRW. Previously, the adjacent owners law of 15 April 1969 applied in NRW. This legislation contains regulations regarding minimum distances of buildings and plants from boundaries and also regarding fences. This means that in the case of buildings which stand directly on the boundary between one site and another, it was only possible to apply external insulation with the agreement of the owner of the neighbouring site, and a great deal of bureaucracy was involved. In many cases, a strip of the neighbour’s site had to be purchased, with all the associated costs. “In the past, some renewal projects failed because of these difficulties”, says Strehlke. As early as 2007 the Federal Constitutional Court decided that despite all this, renovation measures could still be carried out under certain circumstances. With the changed arrangements in NRW, owners of real estate are also now obliged to tolerate the heat insulation if it projects onto their property. And all the changes to
High-pressure geothermal drilling

In future, a new drilling rig will penetrate into warm layers of the earth in Bochum and Olpe - using high pressure. The intention is to “harvest” geothermal heat as a renewable energy source even more efficiently. Reason enough for Svenja Schulze - Minister for Research in North Rhine-Westphalia – to find out about the new development at the International Geothermal Centre at Bochum University. Prof. Rolf Bracke – Director of the Center and Siegbert Ottersbach – Sales Director and Product Manager of Hütte Bohrtechnik – presented the brand new drilling rig, manufactured by Hütte, to the Minister. The Bochum researchers developed this new generation of drilling rigs together with the machine manufacturers from Olpe during development of the “Geotechnikum” complex – the large-scale research infrastructure in Bochum for application-based research on all questions regarding geothermal energy.

The high-performance, high-pressure pump which is also needed for drilling was built and supplied by the company Kamat from Witten. Innovative and low-cost drilling methods are only possible because of the flexible pressures up to 1,500 bar that the pump can provide. This is important for the research at the Geothermal Centre, in order to be able to develop ideas on new drilling processes under realistic conditions of use until they are ready for the market. “Of course it is important for us to know that the Minister and the Land support geothermal energy as a technology of the future and that they support Bochum, with the Centre as a focus for research”, says Bracke. Starting from the summer, the new drilling rig - together with the pump - will not only be used for research projects in Bochum, which will be initiated jointly with cooperation partners from industry and commerce. Academic and non-academic training and further training are also important tasks for the future. Further information: Leonard Thien, Büro für Geothermie, Tel. +49 (0)234/3210715, email thien@energieagentur.nrw.de

Spacers for double glazing

“Made in NRW”

Based on the fact that energy-based building renovation is expected to be a profitable business sector in the future, the US company Edgetech IG in Heinsberg has taken up production of energy-saving plastic spacer systems for double or multiple glazing tasks. In the medium term, this production will create 150 new jobs. “Edgetech’s decision is impressive proof of the fact that North Rhine-Westphalia is an attractive location for manufacturing companies. The advantages on offer in NRW fortunately mean that we were able to win through even against competitors from outside Germany”, says Petra Wassen, Head of the Management Board of NRW.

INVEST. The company established a sales office in Neuss as early as 2004, which served as a base for opening up of markets in continental Europe. Up to now, production has only been based in The USA and in Great Britain. According to Edgetech, the rapidly increasing demand for the first metal-free spacer system in the world led to the decision to develop production facilities in Germany, not least in order to be able to supply manufacturers and processors of double and multiple glazing much more rapidly. Edgetech IG has a workforce of around 800 worldwide.

Further information: email strehlke@energieagentur.nrw.de
IngenieurImpulse 2011 for energy self-sufficiency

“Vain hope or amazing engineering achievement?”

A house that is self-sufficient from the point of view of energy has been technically possible since the 1990s – but is it really useful and appropriate? Around 140 experts discussed the future value of the zero energy house, the plus energy house and all the rest at the IngenieurImpulse engineers’ event of EnergyAgency.NRW and Ingenieurkammer-Bau NRW at the end of July in Wuppertal. The experts met in the immediate vicinity of the contribution to the Solar Decathlon Europe, a zero-energy house created by a team led by Prof. Dr.-Ing. Karsten Voss from the University of Wuppertal. Participants in the event were able to hear first-hand experience from a scientist from the university who is currently “test driving” the house by living in it himself.

Prof. Dr.-Ing. Karsten Voss (from the chair of building physics and technical building installations at the University of Wuppertal), Dipl.-Ing. Karl-Friedrich Hofmann (NRW Bank, Düsseldorf), Prof. Dipl.-Ing. Ingo Gabriel (Gabriel Architekten, Oldenburg) and Dipl.-Phys.-Ing. Jörg vom Stein (Energiebüro vom Stein, Cologne) were on the podium.

It was soon clear: construction engineers see the zero-energy house as their contribution to the renewable energy revolution. However, opinions on this type of house differ widely - from considering it a cure-all to condemnation as an expensive extravagance. It seems obvious that there is no one right answer when it comes to the zero-energy house. Does it make more sense to develop fully self-sufficient buildings, or is it better to think about efficient ways of linking to existing energy networks? The use of batteries for storage of electricity for domestic use was also subject to criticism, as currently very large and very expensive sets of batteries are required for this purpose. The experts also had mixed opinions as to whether all houses should be fitted out as “pure” passive houses, or whether pragmatic solutions in the form of “merely satisfactory” insulation of the building shell, combined with utilities based on renewable energies would be acceptable.

“In any event, it is not new buildings that are the sinners as far as energy is concerned, but existing buildings”, as Joachim Decker of the EnergyAgency.NRW reminded the audience. So do zero energy houses only cure “phantom pain”? Decker: “The energy standard of buildings - for both new construction and renovation - will not be determined by transient fashions, but rather by legal requirements and economic sense.”

And this is why the new version of the German Energy Saving Ordinance(EnEV) on the basis of the EU Directive on the Energy Performance of Buildings, which has been in force since 2010, provides sufficient fuel for further discussion, as here, among other things, the introduction of “nearly zero energy building” criteria for all new buildings is planned as from 2019 for public buildings and as from 2021 for residential property. “This means that it is really only a question of time until the legislature makes the zero energy house the standard for all new buildings.”, says Klaus Beck, Architect from Bielefeld and Moderator of the event. Conclusion: in future too, engineers will be faced with planning tasks that carry a great deal of responsibility. IngenieurImpulse NRW is an annual forum of EnergyAgency.NRW and the engineer association Ingenieurkammer-Bau NRW that enables engineers to exchange their ideas and experiences. More information: email decker@energieagentur.nrw.de
Using the power of water

Fourth-largest pumped storage power station

Energy group Trianel and the town of Simmerath in the Eifel have a common purpose. The aim: Simmerath wants to become a model municipality for the renewable energy revolution. In order to make this possible, in addition to a wind farm, Trianel is planning to erect a pumped storage power station at the Rurtalsee reservoir.

The wind farm, featuring 17 wind turbines with a total capacity of 51 MW, will be installed in the forest near Lammersdorf. Investment costs: over 85 million euros. “The new NRW Wind Energy Ordinance means that we can go along an innovative route here”, according to the Mayor of Simmerath, Karl-Heinz Hermanns.

In addition, the Aachen municipal power plant network Trianel is planning construction of the fourth-largest pumped storage power station in Germany at the Rurtalsee reservoir. It is intended that the plant will go online with an output of around 640 Megawatt. Construction work is to begin in 2016 and last for three years. The investment costs will amount to around 700 million euros.

The Rurtalsee reservoir is to serve as the lower reservoir of the power plant. Initial consideration suggests that an upper reservoir for more than 7 million cubic metres of water could be created. For comparison: when filled to capacity, the Rurtalsee reservoir offers a storage area of around 780 hectares for 202 million cubic metres of water. This means that the Rursee is the second largest reservoir in Germany. The upper and lower reservoirs could be linked via a tunnel around three kilometres long.

Pumped storage power stations pump water from a lower reservoir to a higher-level upper reservoir when electricity consumption is low, but input from wind or solar energy is high. When the demand for electricity is high, the water is fed into a turbine through a pressurised pipeline, thereby producing electricity. Further information: www.trianel.com

“Progress NRW” initiative

In May the “Forum of Progress” series of dialogues got off to a flying start in the Institute for Advanced Study in the Humanities (KWI) in Essen. During the initial event, NRW Science Minister Svenja Schulze discussed the challenges of climate change for science and research in NRW with renowned figures from the world of science. The expert discussion was at the same time the starting signal for the “Fortschritt NRW” (“Progress NRW”) initiative. The aim of this initiative is to make progress visible, to initiate a discourse throughout wider society regarding a modern concept of progress, and above all to take forward and encourage regional innovation networks.

Within the framework of this initiative, so-called “Places of Progress” in North Rhine-Westphalia - where progress is truly visible - continue to be singled out for recognition. In addition, the Science Ministry supports the development of regional networks with universities in the regions, local companies and above all, with people. Interdisciplinary lecture courses also continue to be supported.

At the second “Forum of Progress”, in June 2011, Svenja Schulze discussed the potentials of the green economy for North Rhine-Westphalia with experts. On 16 June 2011 The first award for a “Place of Progress” went to the Institute of Energy and Environmental Technology (IUTA) in Duisburg.
Renewables potential in Arnsberg

District Council in favour of expansion

The administrative district of Arnsberg is the first in North Rhine-Westphalia to order a regional feasibility study on the potential of renewable energies. Initiated by the Regional Council (Regionalrat) in 2009 and commissioned by the District Government (Bezirksregierung) in mid-2010, the study, entitled “Potentials for Renewable Energy Sources in the District of Arnsberg”, is now complete and the results were recently presented to the public.

In order to fulfil the climate protection requirements for development of renewable energies at the levels of the federal administration and the states by 2020, considerable efforts will be needed on the part of all those involved in the regions. The conclusion of the study, undertaken by assessors from Siemens, is that the District of Arnsberg is basically capable of covering up to 100 per cent of its electricity requirements from renewable energy sources. By the year 2020, the proportion of renewables within power supplies could be raised from its current level of 78 to 27 per cent (approx. 11,000 GWh/a) in the District of Arnsberg. This means that the target of the government of North Rhine-Westphalia, which is to secure 25 per cent of electricity consumption through renewable energy sources, could be reached. However, in order to reach this goal, a new way of thinking and increased acceptance of the use of local renewable energies is necessary within the general population. As a result of the study, the Regional Council unanimously called upon the District Government to develop a programme of action with concrete measures that can be implemented fast and easily. District Government is being asked to develop South Westphalia into a model region for renewable energies. The full and the condensed versions of the feasibility study and also the decision of the Regional Council can be found at the following link to the District Government of Arnsberg: www.bezirksreg-arnsberg.nrw.de (Press). Further information: Stefan Prott, EnergyAgency.NRW, Büro für Wasserkraft, Tel. +49 (0)2945/989-189, email prott@energieagentur.nrw.de, www.wasserkraft.nrw.de

Energy supply of tomorrow

The result of the 6th NRW Schools Competition “Fuel Cell Box 2011” on the theme of hydrogen and fuel cell technology is now known. The competition was organised by EnergyAgency.NRW and h-tec GmbH. Twenty teams of pupils from school years 9 to 11 investigated hydrogen as a source of energy along with the highly-efficient fuel cell and this time, using the “Fuel Cell Box” technical kit, built a radio transmitter mast system to a model scale, which can be supplied with renewable energy as a stand-alone unit. The high point of the award ceremony at the company AIR LIQUIDE Deutschland GmbH in Düsseldorf was a competition using with self-built models, in which the teams had to mobilise their strategic skill in the use of renewable energies and demonstrate the capability of their designs. The winners, from the Albert Einstein Gymnasium (higher secondary school) in Duisburg (Photo) received prizes in the form of modern Internet radios. NRW Climate Protection Minister Johannes Remmel was full of praise for the participants during the award ceremony: “NRW has a leading position in Germany as regards hydrogen and fuel cell technology. This key technology, which offers great opportunities, needs excellent and skilled workers, today and most especially in future. The school pupils of today are the urgently sought after skilled operators, technicians and engineers of tomorrow. And this is exactly what we want to achieve with this competition; we want to awaken curiosity about technology and build enthusiasm for university studies and apprenticeships in this sector.”

The winners:

■ 1st place: Reichenbach Gymnasium, Ennepe-rath, with Benjamin Wiese, Felix Figge, Hans-Georg Babin; taught by Achim Schäfers
■ 2nd place: Ingeborg Drewitz Comprehensive School, Gladbeck, with Mary Mayen Gay, Vanessa Krätzschmar, Alexander Kamps; taught by Guntram Seippel
■ 3rd place: Liebfrauenschule Köln, higher secondary school in Cologne, with Johanna Schultz, Oliver Feith; taught by Tim Wallraf
■ 4th place: Albert Einstein Gymnasium, Duisburg, with Moritz Hilger, Robin Stallmann, Fabian Kirstein; taught by Marc Brode
■ 5th place: Städtisches Gymnasium (higher secondary school) Erwitte, with Annika Frede, Eva Grafkemper, Ines Wiek; taught by Torsten Schulze-Buxloh

Around 1,000 teams with 2,500 pupils have taken part in the six competitions to date. Information: www.fuelcellbox-nrw.de

(Photos: © Jakob Kamps)
Singles use electricity differently

Households consisting of only one person have a different electricity consumption profile than that of family households. This is one of the central findings of the empirical study “Where is electricity used in the household?” of EnergyAgency.NRW. With the help of the “Electricity checks for households” on the Internet, consumption data from 380,370 households consisting of between one and six people were collected, and have now been analysed. It is also true that from the statistical point of view, all households have - regardless of their size - some aspects of consumption in common.

“The study proves that, depending on the number of people living within one household, electricity consumption is differently distributed over the different areas such as for example office, lighting and washing”, summarises Tom Küster from EnergyAgency.NRW. For depending on the size of the household, there are not only variations in the appliances owned, but also in some cases considerable variations in the way in which they are used - which means that their share in the overall electricity consumption of the household also varies. But one further central finding from the data analysis is that the private office or study and the TV/ Audio equipment - the two areas of information and entertainment electronics - are the areas that consume the most electricity. Added together, they account for almost one quarter of private electricity consumption, at 24.8 %”, Küster stresses.

But the EnergyAgency.NRW not only split the roughly 380,000 datasets according to twelve areas of consumption, but also according to six sizes of household. This analysis led to the conclusion that different sizes of household have specific consumption profiles in some respects. The following applies for single-person households: in the areas office (15.4 %), cooling (15.0 %), hot water (14.0 %), TV/Audio (12.9 %) and light (10.1 %) purchasing and user behaviour based on energy awareness is particularly worthwhile – this alone accounts for around two thirds of electricity consumption in single-person households (67.4 %). In contrast, optimisation of the areas of cooking (7.9 %), miscellaneous (7.2 %), recirculation pump (6.2 %), washing (3.9 %), rinsing and drying (each with 2.5 %) and also deep freezing (2.4 %) hardly lower electricity bills at all. In five-person households, on the other hand, the areas of office (11.8 %), lighting (10.7 %), TV/Audio and hot water (each with 10.6 %), drying (8.8 %) and cooking (8.5 %) account for the largest shares of electricity consumption – together amounting to 61 %.

EnergyAgency.NRW collected this data over recent years with the help of the “Electricity Checks for Households” feature which has recently been comprehensively overhauled. Information: www.energieagentur.nrw.de/haushalt/energiecheck.

Did you know? By the end of the year, uninsulated upper storey ceilings in blocks of flats will have to be insulated. This is a requirement of the German Energy Saving Ordinance (EnEV).

This is true regardless of whether the residents of the property make use of an attic or not. Only owners of individual homes and homes for two families are released from this obligation – in so far as they purchased the property before 1 February 2002. However, according to a resolution by the Technical Committee for Building Technology of the Construction Ministers’ Conference (Fachkommission Bautechnik der Bauministerkonferenz) which was published at the end of June 2011, there is also no requirement for insulation in the cases of solid ceiling structures built since 1969 and wood beam ceilings of all ages.

“Nevertheless: this should be a reason for considering whether an attic is to be converted into living space”, advises Dirk Mobers from EnergyAgency.NRW. In this case it could make sense to insulate the roof instead of the current ceiling of the room below. EnEV 2009 expressly permits this.

If no loft conversion is planned, insulation of the upper floor ceiling is a more cost-effective option than roof insulation. House owners who have some skill with manual work can even do the work themselves. If the loft is used as a storage space, the insulation material should be able to withstand pressure. The limit values for the minimum heat insulation that is required (heat transfer coefficient of the ceiling of max. 0.24 watt/(m²K)) can easily be achieved with the help of modern insulating materials. The heat transfer class of the material indicates its performance. The principle here is “the lower the value, the better the insulation”. A 14 cm thick layer of insulation, laid over the entire area without gaps, is sufficient in order to fulfil the requirements.

Further information: email strehlke@energieagentur.nrw.de, www.mein-haus-spart.de
Cooperation with Chile

Within the framework of an EU project, EnergyAgency.NRW has concluded a contract with the Chilean Energy Ministry for a cooperation over six months aimed at strengthening the energy market in Chile. It is intended that EnergyAgency.NRW will support the creation of networks around national energy themes. CEO Dr. Frank-Michael Baumann and the Coordinator for International Contacts, Stephanus Lintker, signed the Agreement alongside representatives of the Chilean Agency for International Cooperation (AGCI). Following this, the Energy Efficiency Agency of Chile (ACHEE) and the Center for Renewable Energies in Chile (CER) will be actively supported in the development of network structures within the country. In Chile itself, the cooperation will also be supported by the German Embassy, the German Society for International Cooperation, Gesellschaft für Internationale Zusammenarbeit GmbH, and the German Chambers of Commerce Worldwide Network. Further Information: Stephanus Lintker, Tel. +49 (0)211/86642-12, email lintker@energieagentur.nrw.de, www.energieagentur.nrw.de

Geothermal energy: Two conferences and one fair in Bochum in the autumn

Three important events for the geothermal energy sector will soon take place in Bochum: EnergyAgency.NRW with its Geothermal Energy Network and the International Geothermal Center in Bochum will be holding the 7th NRW Geothermal Energy Conference on 06.10.2011 at Bochum University. The main focus will be on examples of projects by local authorities and on projects of regional energy suppliers. In addition to the “traditional” players in the geothermal sector, the event is targeted at local authorities and municipal energy supply companies. The German Geothermal Energy Congress 2011 will take place from 15.-17.11.2011 in the RuhrCongress conference centre in Bochum. In addition to expert forums and workshops for deep and near-surface geothermal energy, excursions to geothermal heating projects in the region will also be on offer. The geoENERGIA 2011 fair will take place at the same time as the Congress, from 15.-16.11.2011. Further information can be found at www.geothermie.de and at www.energieagentur.nrw.de/geothermie

Climate-friendly clubbing

For the first time in Germany, a pilot project is targeting energy consumption and the effects of clubs, discotheques and music events on the climate. Following the initiative of the country-wide Green Music Initiative (GMI) and of EnergyAgency.NRW, six clubs from North Rhine-Westphalia want to reduce their energy consumption and carbon emissions in a targeted way and therefore to make a contribution to climate protection. First experiences and findings from the project are already available – and the club scene is talking about how to party in a climate-friendly way in future.

The clubs that are taking part (Club Bahnhof Ehrenfeld und Gloria from Cologne, Ufer 8 from Düsseldorf, Club Butan from Wuppertal, Bahnhof Langendreer from Bochum and Stereo from Bielefeld) have been investigating their so-called Green Club Index since April 2011, with the help of EnergyAgency.NRW and the GMI. The Index shows the energy consumption of each visitor to the club and provides a benchmark for the club operators as to where they stand with regard to climate protection. Now, individual measures are being developed with the energy experts in order to reduce the Index rating in the coming months. "A club operator generally knows about his kitchen and his food, his DJs, his door security and also the legislation concerning protection of young people. With the help of the Green Club Index, we are now making it possible gather real experience and implement energy efficiency measures", explains Jacob Bilabel, founder of the Green Music Initiative. During their first club visits, the advisors of EnergyAgency.NRW recorded energy consumption of between 47,000 and 180,000 kWh of electricity per year, which corresponds to annual costs of between 10,000 and 40,000 euros or up to 90 tonnes of CO2. The electricity consumption is mainly attributable to room ventilation, light and sound equipment, kitchens - and above all to the use of refrigerators and cold stores. According to initial measurements, between 30 and 40 per cent of electricity consumption is attributable to these alone. On the one hand there is the question here of the technical equipment. How much refrigeration and cooling is really required? Does the equipment work in an energy-efficient way? And on the other hand, it is important that equipment users behave in a climate-friendly way: "The clubs could certainly save between 10 and 15 per cent of their current energy requirements. In the same way as heating can be optimised over the day in an office building, cooling should be optimised in clubs", says energy advisor Michael Müller.

By the spring of 2012, the Green Club Index NRW will develop independent know-how as regards both technology and climate-friendly user behaviour. At the end of the project, awards will be presented for successful energy saving and active commitment on the part of the participating clubs. The results are also to be placed at the disposal of more than 5,500 clubs and discotheques in Germany. Tobias Widt from Club Butan: "Really I would like to show something very simple: the parties will remain as good as ever, but I need to use much less energy for them than before. That would be fantastic". Further information: EnergyAgency.NRW, Michael Müller, email m.mueller@energieagentur.nrw.de and Stefan Leuchten, email leuchten@energieagentur.nrw.de, www.greenclubindex.de
New fuel and mobility strategy

The traffic sector is again coming to the fore in current discussions regarding energy policy. The aim of the Federal Government is to reduce actual vehicle energy consumption by 10 per cent by 2020 and by 40 per cent by 2050. This will be made possible by means energy-efficient drives, new (green) fuels, battery-driven electromobility and innovative mobility concepts. The fuel strategy of the Federal State from 2004, with its evaluation of traditional and alternative fuel options, formulated stipulations for a future-proof fuel and vehicle drive market that take due account of increasing requirements as to climate protection and reduce dependence on oil. New technical developments (e.g. drive train electrification), mean that the stipulations now have to be updated. Other modes of transport – such as aviation, which is increasing in volume, and also shipping – can become more climate-friendly through the use of green fuels, for example. A wide range of players are involved in this area, coming from the worlds of research, applications and politics. First results were presented at the kick-off event, organised in Berlin by the German Energy Agency on behalf of the Federal Ministry of Transport, Building and Urban Development, and it is expected that the discussions will conclude in 2013. NRW is in a good position to implement sustainable mobility. Well-known and respected companies and research institutes are driving forward the realisation of future-proof fuels and drives for all the relevant modes of transport. The networks that have been built in the course of pilot and model projects up to the present time also encourage participation of new partners from innovative areas of application. In addition, the many different types of cities, towns and villages in the region offer a wide range of opportunities for trying out new climate-friendly mobility concepts.

Further information: Lars Schulze-Beusingsen, EnergyAgency.NRW, Tel. +49 (0)209/167-2815, email schulze-beusingsen@energieagentur.nrw.de, www.kraftstoffe-der-zukunft.de

Electric vehicles for the energy turnabout

A great deal is expected from this technology of the future – electric vehicles are supposed to make an important contribution to the renewable energy revolution. But what has to happen in order for electromobility to become a means of mass mobility? What progress has already been made, and what hurdles are still to be overcome? These questions were in the spotlight at the 3rd German Elektro-Mobil Congress in Bonn, during which 400 visitors were welcomed to the World Conference Center.

“The German Elektro-Mobil Congress is happening at just the right time in order to draw some initial conclusions. It constitutes an important platform from which to discuss questions of mobility with the players of the future, and helps to ensure that the public becomes aware of the available options”, remarked NRW Environment Minister Johannes Remmel at the opening of the Congress. “Electromobility enables widespread use of renewable energies. For the sake of climate protection, we must be sure to make the very most of this potential”.

North Rhine-Westphalia is making every effort in order to drive forward the development of electromobility at full speed. With the model region Rhine-Ruhr, NRW is managing one of the eight model regions for electromobility in Germany. According to the Federal Government’s programme for electromobility, these will be continued and supplemented as from 2012 by means of even larger so-called “showcases”. NRW will take part in the tendering process for these showcase regions in the autumn. Until 2015, NRW will be supporting the activities of the Federal Government in the area of electromobility with the help of EU funds from the EFRE Programme. The sum involved is at least 100 million euros. Further information: www.elektromobilitaet.nrw.de

3rd Elektro-Mobil Congress in Bonn

innovation & energy 3_2011
1st Wood Pellets Week NRW

Great events generally cast long shadows. This is also true of the “1st Wood Pellets Week NRW”, which is to take place in North Rhine-Westphalia. All over the region between 8 and 15 October 2011, pellet manufacturers, buyers and sellers and also plant and equipment installers will open their doors to the wider public. All over the region, up to now over 600 owners of pellet heating systems have declared themselves ready to demonstrate them live by prior arrangement. “Whatever I can do to help the climate, I do willingly”, was, for example, the watchword of Ludger Griese from Münster. He will be opening up his cellar for inspection together with the installation company Mey. Griese: “The reasonable cost speaks in favour of pellets, as does consideration of the environment. When I look at the developments in oil-producing countries in Africa or the Arabian Peninsula, wood pellets provide a secure and reliable alternative source of fuel.” The EnergyAgency.NRW will be offering four lots of three tons of wood pellets each to be won by participants in the event. All dates can be found at www.aktion-holzpellets.de

Baedeker leads to renewable energies

From the solar estate in the Düsseldorf MediaHarbour up to the hiking lodge in the Karwendelgebirge mountains that runs on renewable energies – there is a great deal to discover in Germany when it comes to renewable energies. The Baedeker travel guide “Deutschland – Erneuerbare Energien” (“Germany - Renewable Energies”) links climate protection with fun leisure activities. In his guide, author Martin Frey has brought together 160 energy-related destinations in the whole of Germany: “At each station on the journey it is possible to relax and at the same time learn a great deal about the future of energy supplies”, says Frey. Contact: www.baedeker.com and www.agenturfrey.de

The zero is a must!

Zero energy house, plus energy house – there are many “buzzwords” in the discussions about the architecture of tomorrow. The book “Nullenergiegebäude” (Zero Energy Building) wishes to convey the message that “zero energy is possible”. The book presents 23 examples which - despite different types of use, layouts and sizes, scales and climates, have one think in common: they generate the energy that they consume (for the most part) themselves. Karsten Voss/Eike Musall, Nullenergiegebäude: Klimaneutrales Wohnen und Arbeiten im internationalen Vergleich, Verlag Ins. F. Int. Architektur, Price: 49.90 euros

NRW Day in Bonn

The North Rhine-Westphalia Day 2011 will take place in Bonn from 1 to 3 October together with the celebrations for the Day of Germany Unity. Together with the regional forestry management organisation Landesbetrieb Wald und Holz NRW, EnergyAgency.NRW will present some interesting exhibits at the stand of the NRW Ministry for Climate Protection. In addition, the clusters EnergyRegion.NRW und EnergyResearch.NRW will feature along the region’s “innovation route” with the theme of “Solar energy for North Rhine-Westphalia”. The energy advice vehicle of EnergyAgency.NRW will also be there.

150 years of friendship: Germany and Japan

On 19 and 20 September a special event will take place at the Zeche Zollverein former mining site in Essen, entitled “Japan and NRW: a strong team for high-level technologies – the challenge of energy supplies in changing times”. The event will be organised by the NRW Science Ministry together with the German-Japanese Society on the Lower Rhine and EnergyAgency.NRW. This two-day event on the one hand looks back to the start of the special relationships between Japan and NRW, and on the other looks forward to possible cooperation between the two nations in the energy sector. Further information: www.energieagentur.nrw.de

Bochum introduces Masters Degree in “Electromobility”

Bochum University is to offer a Masters Degree in Electromobility, starting in the winter semester. On the agenda for the engineering students will be electrification of the drive train, electrical and mechatronic systems in high-voltage vehicles, energy storage systems, battery management, lightweight construction and intelligent use of information technologies in electric vehicles. The course of study is aimed at engineers and informatics specialists (Bachelor, Diplom) in the fields of electrical and automotive engineering and mechatronics, and replaces the current Masters Degree in “IT-Automotive”. Further information: www.hochschule-bochum.de/studienangebot.

www.energieagentur.nrw.de