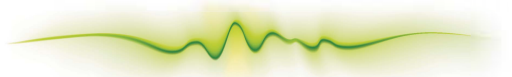
THE FUTURE IS ELECTRIFYING

ANNUAL REPORT 2009

DKE
VDE DIN

German Commission for
Electrical, Electronic & Information
Technologies of DIN and VDE



THE FUTURE IS ELECTRIFYING

STANDARDS FOR A NEW DRIVING FORCE

Dear Readers

The climate summit in Copenhagen has once again made it clear to us that our society urgently needs to find answers if we truly wish to take responsibility for the world in which and from which we live. The changes we will need to make are already being referred to as an ecological revolution – in much the same way as the Industrial Revolution.

By way of historical perspective: the previous transition, from an agricultural to an industrial society, demanded a great deal of us, including the courage to tread new paths. Two key factors in this transformation were technological progress and a steep rise in population growth. The best example of technological advancement is the steam engine, invented in the year 1769 by James Watt. It performed with such capacity that it was soon introduced to factories – until then they had operated using manual labour. It resulted in hand-operated looms being replaced with mechanical ones, for instance. Industrial production also called for greater division of labour, and with it a standardization of processes and procedures – the factors behind the success of mass-produced Ford automobiles. A second factor instrumental to industrialisation was the robust growth in population, and the consequently affordable supply of labour. In England alone, the population grew from 8 million to 18 million between 1780 and 1850, continuing to increase to some 32 million by the year 1900. The farming sector could no longer support population growth on this scale, and so large groups were forced to move to the cities. There, the new arrivals found work, but at times under such disgraceful conditions that only the workers' organizations were able to contribute to significant improvement in the circumstances in which the city dwellers worked and therefore lived.

Today, too, as we face the coming ecological revolution, the two factors relevant to transformation are technological progress and the human species itself. Fundamental change will not be limited to processes along the value chain and the supplier-customer relationship; it will also require social stakeholders to formulate their expectations and demands more and more clearly, and to assert these more and more successfully. This is also a reflection of the coming era, in which – as in the area of electromobility – consumer demand will no longer be strictly a matter of product-based attributes. Instead, the customer of today is already placing ecological con-

Dietmar Harting
President of the DKE

Foreword

siderations in the forefront when it comes to means of locomotion; questions of design and manufacturing are subordinate to the overriding factor of ecology. In the ecological revolution before us, technological progress is a means to an end, and the end is a desire to take responsibility for the circumstances of our lives.

In this revolutionary age, standardization plays a central role, as it is used in order to fulfil the requirements of the people who decide the contours of the standards enacted. More than 100 years ago, for instance, standardization in electrical technology took the fundamental concerns of the populace into account by helping protect them against the unwanted side-effects of this technology while keeping them safe in their interactions with it. This precept of recognising and acting upon people's needs and desires has become part of our flesh and blood in the standardization field, which is why our field is expanding – to do justice to new needs and desires. In the area of electromobility, for instance, there are still many open questions to which customers are entitled to answers before deciding upon a particular car of this type. Safety during battery charging, or data privacy in connection with the billing models involved can only be solved collectively, as we do in the standardization field, based on a consensus among and participation by all those with an interest in the outcome. The DKE has taken up these issues not only in the tried and tested form of the work of its technical bodies but, beyond this, it has also created a steering group on eMobility. This way, we can identify the key terms of reference in paving the way to climate-neutral mobility in accordance with common standards and specifications. You are welcome to familiarise yourself with the current state of our work in this area, either by reading this Annual Report, directly through the DKE or at the DKE Conference on 27th April 2010.

I warmly invite you to get involved in the ecological revolution today. We intend to help shape German electrotechnical standards to reflect the needs of the people in the era that lies ahead. This is a task on which the technical experts in the committees of the DKE are already hard at work. I am very grateful to them all, whether paid or voluntary, for giving us the benefit of their expertise!

Dietmar Harting

Publisher

VDE ASSOCIATION FOR ELECTRICAL, ELECTRONIC & INFORMATION TECHNOLOGIES

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Contents

MY DRIVING FORCE: NOT TO BE WOKEN UP BY ENGINE NOISE ANY MORE

It's so quiet! Nearly everyone knows what it's like on holiday when all you hear in some remote spot are the sounds of nature. In a host of research centres, universities and private companies, experts are working hard to ensure that we will soon be able to enjoy this peace and quiet much more often. The DKE offers the platform for exchange among experts and the development of consensus-ready concepts, e.g. for reducing the noise emissions of cars, aircraft and machinery.

Still, an electric car with an engine as quiet as a whisper will call for some rethinking; to cross a street safely in future, we will have to rely on more than our ears alone. This is a change, though, that we will gladly live with – and in generations to come, living with less noise and more quietness will be a fact of life.

DKE

Electromobility – resource-conscious, efficient, ecological

The automobile industry has long set its sights on manufacturing vehicles with low fuel consumption – and not just in response to their customers' reasonable and responsible consumption habits. Oil – the 'juice' fuelling mobility itself – is growing more and more scarce and should be used for 'better' things than 'mere' combustion. Still, there is no disputing that the internal combustion engine will continue to play an important role for our mobility, and for private transport in particular. At least in the short term, it is hard to imagine the traffic landscape without the internal combustion engine. But given the growing need for individual mobility, especially in the emerging markets of the world, all the efficiency improvements realised during the history of the internal combustion engine over the past 100 years will fall far short of the mark of providing enduring protection for the environment.

The future of our energy supply belongs to sources of energy that neither ransack portions of our planet nor restrict or eliminate the conditions of life. Together with the Ecodesign Directive issued by the European Commission, which calls for environmentally friendly design in energy-driven products throughout their entire life cycle and caps their energy consumption, the way has been cleared for a worthwhile future. Electromobility is not just an important aspect of this, but indeed an integral component. The approach is governed by resource-saving cycles, and processes are being developed that retain or even enhance consumer convenience while promoting lasting progress at the same time. This is precisely why ours is an exciting time in which to live and work. While our fathers, and their fathers before them, planned and developed with a keen focus, today we are increasingly called upon to keep our eyes on the 'big picture'.

The automobile has always been associated with independence and freedom. And despite our fondness for green spaces, no one would willingly part with his or her 'wheels'. This is why the issues involved in alternative drive forms and electromobility are gaining significance worldwide, a development that is one of the critical topics with immediate relevance for the future of Germany as a business location. The requirements that are needed to keep an eye on the big picture are as wide-ranging as the various concepts involved in making it a reality: fuel cell systems have been further developed to make them higher-performing; battery systems have been made more reliable and outfitted with higher storage density; hybrid drives have been developed to the point where they are now marketable. Just which drive concept will ulti-

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mately prevail, or whether several drive concepts will 'peacefully' coexist alongside one another for each application involved, depends upon a host of factors for which the political arena, and the field of standardization, must specify the framework conditions.

New magic windmills are not needed in order to make electricity conveniently available as an energy source for motor vehicles. Rather, the challenges are to be found in the automobile itself, and in its energy interfaces. In the case of the automobile, thinking globally is still primarily a question of amperes, charger outlets and the boot volume available for the battery. The developments that users ultimately accept will be the result of functionality, environmental awareness, and a sense of responsibility that transcends national boundaries. In this connection, solid skills are just as critical as creativity and innovation. The need is greatest, though, for 'round tables' at which all of the players involved share in moving new developments forward to the point at which they can be implemented in the form of standards and specifications. To assist with this, the work of the committees of the DKE offers a proven and diversified platform. Long ago, car manufacturers, electricity companies and research institutions realized how closely interwoven with one another their electromobility network is, and that the pattern of the weave can quickly change. Thus, along with conventional approaches, the work to develop cordless 'refuelling systems', compact lithium cells, and charger plugs usable worldwide is not just a matter for heated debate. The electromobile of the future will also tap into the 'smart grid' – the intelligent power supply network. Many new interfaces are emerging, at the same time offering opportunities for further developments in existing interfaces. In the end, the objective will be to specify efficient billing systems for 'fuelling procedures', uniform systems that can be used across national borders – throughout Europe – and where possible worldwide.

Given the large number of projects under way both nationally and internationally, a specific and transparent information policy is needed, not least as a way to keep synergy effects from falling victim to a false sense of competition. Those in the field know that solo efforts are just as ineffective as claiming or awaiting success that will never materialise. The same principle applies here: energy – of no matter what form – is a commodity that is not lost. If 20 per cent of CO_2 emissions in Germany are still the result of motor vehicles, the determination to prompt a breakthrough for electromobility can be expected to retain its positive charge in the years ahead.

The DKE is actively involved in shaping the contours of this challenge. Thus, taking 'THE FUTURE IS ELECTRIFYING' ['DIE ZUKUNFT ELEKTRISIERT'] as its theme, the DKE Conference on 27th April 2010 will focus on the broad set of topics involved in electromobility.

Standard charging accessories for electric vehicles

Charging accessories that drivers can use to charge their vehicles in countries other than their own are an important factor involved in successfully introducing series production of cars with electric drive. The technical experts of the DKE have elaborated a recommendation that takes into account the different requirements for plugs, socket-outlets, vehicle couplers and vehicle inlets, both nationally and internationally. The recommendation identifies accessories and interfaces between the power supply and the electric car that permit 'fuelling' with 20, 32 or 63 amps (single- and three-phase current) and with 70 amps (single-phase current only) with a maximum operating voltage of 500 volts at 50-60 Hz. This range covers the entire range of power supply systems worldwide.

All of the physical requirements, such as the structure and arrangement of the plug and socket-outlet systems and wiring, take the safety aspects and compatibility of the different charging processes into account on an equal basis with one another. The accessories specified in the recommendation also fulfil all of the relevant safety requirements, including the requirements that apply to the charging station.

The VDE application guide of the DKE also provides for bi-directional transmission of power. In other words, not only can vehicles draw power from the power grid, but they can feed power back into the grid as well. This is intended for temporary storage of power during peak periods, making the electric car a part of the 'smart grid'.

Given the requirements the German automobile industry has placed on quick availability of a normative document and the time required to draft an IEC standard along these lines, the DKE has published the VDE application guide VDE-AR-E 2623-2-2 (currently available in German only), entitled 'Stecker, Steckdosen, Fahrzeugsteckvorrichtungen und Fahrzeugstecker – Ladung von Elektrofahrzeugen – Teil 2-2: Anforderungen an Hauptmaße für die Austauschbarkeit von Stift- und Buchsensteckvorrichtungen'. An English translation of this document was presented to the IEC as a new work item proposal. Once the IEC standard is published, the VDE application guide will be withdrawn.

Standardization – action for the future

VDE application guides

The charging accessories for electric cars provide a case study of how in certain cases a longer standardization progress can delay progress. This is why, in the dynamic markets of the future such as the market for electromobility, forms of publication are needed that can be compiled in a short period of time and made available to a broad public to pave the way for the work of international standardization.

The VDE application guides offer a publication form that meets this need. While living up to the high standards of the VDE Specifications Code of safety standards, at the same time the VDE application guides offer a considerably accelerated publication process when compared with the time involved in drawing up standards. Yet before a VDE application guide can be included in the VDE Specifications Code of safety standards, there are strict requirements that must be met. These are set forth as criteria in the 'Rules for the Specifications issued by the VDE Association for Electrical, Electronic & Information Technologies' (VDE 0022).

They contain regulations for the prevention of dangers to humans, animals, property and the environment that could, for instance, result from electrical charges and currents or other sources of electrical hazards. Beyond this, a public enquiry procedure must have been completed and/or at least one committee must have authorised the contents of the VDE application guide. A VDE application guide can be initiated by anyone and published within two to three months. In addition to successful implementation of the charging accessories for electric vehicles, the offerings at the DKE have been used with success for several other VDE application guides, such as telemonitoring in medical applications.

DKE Conference 2009 – the art of standardization

Positive trends for tomorrow – standardization and specification

The changes facing our global world are growing at breakneck speed. Processes and communication structures are becoming more and more complex, and their development cycles shorter, all the time. Against this backdrop, the standardization field needs to position itself early and clearly, providing necessary inspiration for tomorrow.

Accordingly, the focus of the DKE Conference on 28th April 2009 was on a set of themes that call for an interdisciplinary approach, with integrated product and system solutions: the tasks and responsibilities facing the field of standardization as it attempts to solve these pressing questions against the backdrop of the demographic transformation of society. Around 300 German experts in electrotechnical standardization, joined by representatives of related standards bodies in Austria and Poland, responded to the invitation by the DKE to come to Offenbach.

In his welcoming remarks, Horst Schneider, Lord Mayor of the City of Offenbach am Main, emphasised the local political relevance of the topics on the meeting agenda. A region's social and demographic structure, he pointed out, created certain requirements with regard to the development of community infrastructure.

DKE – we activate potential

The Vice-President of the DKE, Professor Hartwig Steusloff, observed that it was important, particularly in times of upheaval, to identify potential that can be activated and that helps us emerge from economically difficult times even stronger than before. Standardization, he observed, is also an instrument that can make an important contribution to the market introduction of new technologies and systems within the framework of initiatives for ambient assisted living (AAL).

Since they are an outstanding source of information and reflect knowledge already in place worldwide, standards and specifications should be introduced at an early stage in the development of products and technologies as an instrument to promote innovation.

The future of the hospital and care

Offering a hospital operator's perspective, Holger Strehlau, Director of HSK Rhein-Main

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GmbH and President of the Hesse Hospital Corporation [Hessische Krankenhausgesellschaft], offered a set of scenarios for the future. Ensuring the best possible – and at the same time cost-saving – patient care requires making the most of the technical opportunities already available in the accustomed surroundings. In future, post-operative observation and aftercare in particular should be carried out in the patient's own home surroundings as a way to ensure comprehensive care beyond the cost-intensive in-patient setting. This is an area in which AAL systems have a great deal to contribute.

Acceptance of technology

In her remarks, Dr. Heidrun Mollenkopf of the Council of Experts of the German Federation of Senior Citizens' Organizations [Bundesarbeitsgemeinschaft der Senioren-Organisationen e. V. (BAGSO)] underscored the ethical dimension of enlisting technology to assist senior citizens in particular. There are obstacles that must be overcome, however, before the wide array of existing technologies can be made available to the broadest possible range of users. Not only demographic trends but also changes in the ageing process and in household and family structures have led to an increased need for technical support.

A critical aspect in the utilisation of technologies is individual acceptance of the systems themselves. Systems must be easy to use, compatible with patients' needs, and modular in their design. The work of standardization is an important source of support for all three of these factors. It is vital, though, that the focus remains on the individual patient, who must always constitute the point of departure for the selection of a particular technology.

Design for people

Klaus-Peter Wegge of the Siemens Accessibility Competence Center emphasised the decisive importance of a product's design for use by people with handicaps, senior citizens and children. Barrier-free design of AAL systems is an absolute prerequisite for both usability and acceptance by the intended users of these systems.

Even today, design standards help manufacturers design products not just with safety and user convenience in mind, but with a focus on barrier-free use as well. Specifications and standardization must be international in their orientation if progress in this area is to be effective. Within the framework of the specifications mandated by the EU, product- and sector-specific standards are now being drafted to ensure barrier-free use of products.

Smart home with intelligent assistance

Matthias Brucke of OFFIS, the Institute for Information Technology [Institut für Informatik], discussed his own experience as a resident of a 'smart home'. He pointed out that the standards to use when outfitting systems in a 'smart home' should be accepted as widely as possible, and identified alternatives for integrating services and systems. Certainly the savings in energy, at comparatively little added installation cost, represent the greatest incentive for use of smart-home technology.

Future applications range from additional energy savings through improved control of household appliances, to the enlistment of technical systems that provide medical care or ambient assisted living, to networked systems for entertainment and communication. Particularly for systems that provide medical care, or in the field of AAL, all solutions must revolve around the needs of the users, since some technical features will not gain the acceptance of the individuals using the systems. Specifications and standardization must cover the need for standardized protocols and interfaces while ensuring interoperability and system integration combined with a suitable man-machine interface.

European standardization – strategy for the future

The Director General of the European Committee for Electrotechnical Standardization (CENELEC), Ms Elena Santiago, identified the potential of the three European standards organizations for work on shaping a successful future. Based on the CENELEC strategy, she explained how European standardization helps to develop the EU into the leading business and technology location worldwide. She warned, however, against any protectionist tendencies within the EU that might manifest themselves as a result of the current global economic crisis.

Electrotechnical standardization in Europe promotes free world trade, supports efficient and resource-conscious energy use and assists with the cleanest possible mobility for its citizens. CENELEC and CEN devote particular attention to small and medium-sized enterprises (SMEs) as they are especially important to the European economy.

To provide an example of the complex topic of the 'smart grid', Michael Teigeler, DKE, addressed the networks that will need to be factored into the work of electrotechnical standardization. Activities must be taken into account at a very wide assortment of levels: at the political level, such as in the assignment of mandates by the EU, in the standards organizations, in strategic working groups as well as the relevant technical

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committees of the IEC, CENELEC or ETSI, and in the DKE. Along with this, though, the work of the VDE technical societies, and of the Forum Network Technology/Network Operation in the VDE [Forum Netztechnik/Netzbetrieb im VDE (FNN)], and of other associations, must be taken into account and coordinated.

Panel discussions: 'POSITIVE TRENDS FOR TOMORROW – Standardization & Specification'

With Ms Christiane Stein from n-tv moderating, the speakers from the conference discussed the positive kinds of influence that standardization can exercise for the development and use of assistance systems. The participants emphasised that AAL is a technical service that can simplify living in pleasant surroundings, and is by no means confined to use by individuals with special support needs.

System design must take the users of AAL systems – with all their habits and individuality – into consideration. The system requirements are determined by the particular users involved, whose needs must be identified on an individual basis. To avoid problems with acceptance, assistive technologies must not lead to stigmatisation of the users. Targeted marketing and promotional activities can help foster market acceptance of AAL systems.

When introducing innovative, complex technical systems such as AAL, standards are required to ensure interoperability and compatibility. Standardization is also a suitable way of activating all of the players on the market, from manufacturers and craftsmen to retailers and service providers.

DKE Conference 2009 – the results

Summing up the conference, Professor Steusloff noted that intelligent and complex systems, such as those needed for AAL applications, offered a major opportunity for the German and European business communities. The work of standards organizations must focus on the methods and interfaces for system convergence and product interoperability. Individual applications call for a detailed analysis of very specific user requirements.

Professor Steusloff concluded by thanking all of the speakers for their very interesting and informative presentations; he also thanked the many German experts who are so committed to contributing their knowledge to the work of standardization, representing German interests in European and international organizations in the process. He also expressed his gratitude to the organizers and the interested audience who attended the conference.

Opening up new avenues with the next generation

With the ‘Science to Standards’ initiative, the DKE paves the way for standardization at German universities. To date, standardization has always been a Book with Seven Seals for many – and not just for students – and frequently conjures up associations with terms such as ‘dry’, ‘boring’ and ‘bureaucratic’.

What this regularly overlooks, however, is that no area of our lives today could even be imaginable if not for universally applicable technical rules: uniform interfaces for electric appliances make not only equipment interchangeable, but also data as well; defined measurement regulations make products comparable with one another, while requirements for the safety of appliances protect people from hazards. Still unknown to most is that standardization can also involve dynamic processes in their own right, processes that go hand-in-hand with the research and development of new products themselves.

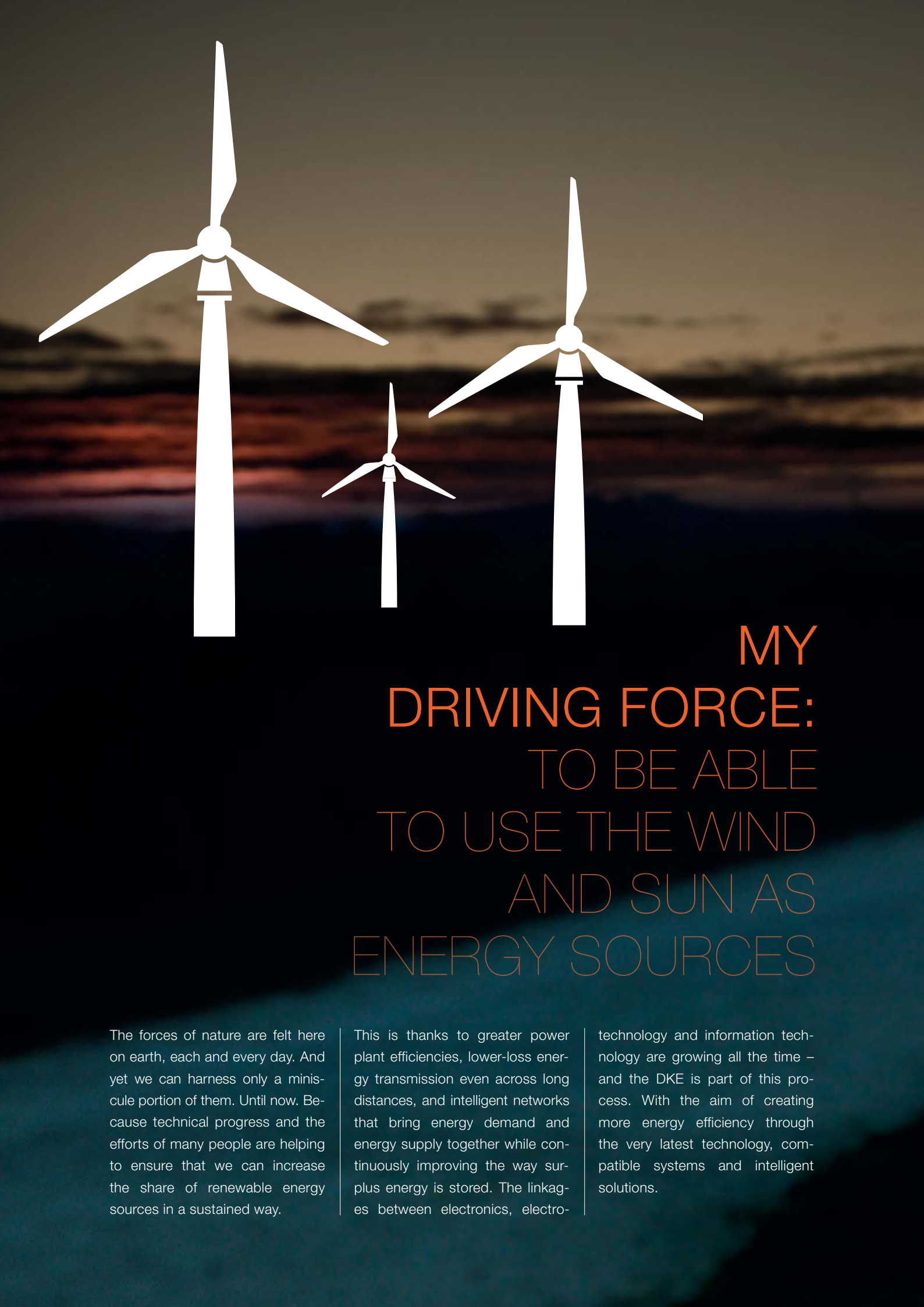
The Science-to-Standards Programme of the DKE provides students pursuing degrees in engineering with an opportunity to take an active role in shaping the future by identifying main areas of research and helping to make new products and systems marketable in the process. In their work on student research projects and diploma dissertations, the need for standards is identified and examined in a realistic setting wherever innovations are made. This is a cooperative endeavour that pays off in two ways. First, in addition to their theoretical disciplines, the students also receive an insight into the processes relevant to standardization. And second, the cumulative experience with regard to the strategic benefits of standardization in connection with the market introduction of products and systems can be profitable

University activities – using potential

for use once students graduate and embark on a career.

The pilot project for this initiative began with a diploma dissertation on electromobility and successfully demonstrated that where innovative technologies are concerned, it is never too soon to examine R&D phase standardization – both in its individual parts and globally speaking.

The Science-to-Standards Programme, emphasising aspects of electrotechnology, encompasses the subject areas of living, mobility and transport, industrial infrastructure, communication and information, along with nutrition and health. An annual update of work on these topics enables continuous observation of the latest technological trends, combined with ongoing networking between the DKE and institutions and individuals involved in research and instruction in the German landscape of higher education.



MY DRIVING FORCE: TO BE ABLE TO USE THE WIND AND SUN AS ENERGY SOURCES

The forces of nature are felt here on earth, each and every day. And yet we can harness only a miniscule portion of them. Until now. Because technical progress and the efforts of many people are helping to ensure that we can increase the share of renewable energy sources in a sustained way.

This is thanks to greater power plant efficiencies, lower-loss energy transmission even across long distances, and intelligent networks that bring energy demand and energy supply together while continuously improving the way surplus energy is stored. The linkages between electronics, electrotechnology and information technology are growing all the time – and the DKE is part of this process. With the aim of creating more energy efficiency through the very latest technology, compatible systems and intelligent solutions.


DKE

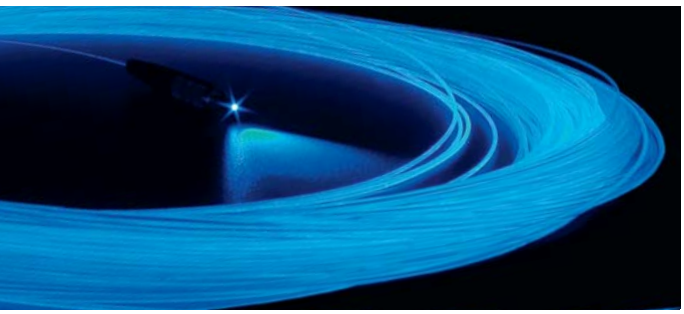
The high-speed network, hanging by a glassy thread …

Our modern knowledge society could no longer survive without the Internet. This is why complete broadband Internet access for all interested citizens is a declared aim of the German Federal Government. Data traffic for private households will continue to grow exponentially into the future. This is why a sustainable IT infrastructure must make generous provision for capacity reserves that can satisfy still-unforeseen requirements. Beginning in mid-2009, network providers in various cities in Germany began offering what are referred to as 'VDSL connections', which use optical-fibre transmission technology and are usually designed to be customer-specific. Cost-efficient and quick enhancement of data networks calls for standardized technical concepts that are capable of meeting the communication needs of private households and business operations beyond the urban areas as well.

In early 2009, a working group of the Information Technology Society [Informationstechnische Gesellschaft (ITG)] within the VDE began working to develop a universally usable technical specification for broadband connections to residential buildings (and, later on, homes) with single-mode optical fibres. As a result of this work, in December 2009 VDE application guide VDE-AR-E 2800-901 'Information Technology – Broadband Communication – Connection of Buildings (FTTB) and Homes (FTTH) to Optical Fibre Networks' was published and presented at the German Federal Government's 'Broadband Summit'. The specification was drafted to be compatible with the standard DIN EN 50173-4, 'Generic cabling systems for residential premises'. Steps have already been taken to adopt the application guide as a European Standard.

… and by a plastic optical fibre

Under the broadband strategy announced by the German Federal Government, 75 per cent of all German households will have Internet connectivity of at least 50 Mbit/s available to them by the year 2014. The only way this can realistically work out, though, is if the building or house connection is free of media fragmentation – meaning that distribution of a signal throughout a home does not require translation between optical and electrical data transmission. The DKE supports the ambitious objective of broadband access for all, through specific activities. Together with the VDE application guide VDE-AR-E 2800-901 already published for building and home connections via optical fibres, the 'User's Manual for Developing New and Existing



DKE – success through competence

Residential and Industrial Areas by Means of Optical Fibres', which was drafted by the Next Generation Access Initiative Group of the ITG, provides media-neutral decision-making assistance designed particularly for use by local governments, planning offices and end users. The previous 'optical gap' between the residential connection and end terminal can be closed using high-performance and at the same time low-cost polymer-optic fibres (POF). An INS project (Innovation with Norms and Standards) sponsored by the German Federal Ministry of Economics and Technology and entitled 'Robust Networking on the Basis of Optical Data Transmission via Polymer Optical Fibres' ['Robuste Vernetzung auf Basis optischer Datenübertragung über POF'] traces the outlines of a marketable system for simple networking in small and medium-sized enterprises and in the home, along with the standards and specifications that this entails.

The necessary technical foundations for high-speed data transmission via POF are being worked out by the 'Optical Data Transmission via Polymer Optical Fibres (POF)' working group of UK 412.7, 'Fibre Optic Interconnecting Devices and Passive Optical Components'. In this working group, European experts are working with a Japanese consortium to develop specifications needed to provide safety and compatibility for the market for broadband optical networking via POF. The results of this work will be presented directly to the IEC committee responsible.

Ecodesign/energy efficiency – objectives for distribution and power transformers

The declared goal of the Ecodesign Directive introduced in the EU is to enlist environmentally sound design to improve the environmental sustainability and energy efficiency of certain products over their entire life cycle. The Ecodesign Directive currently applies to energy-using products (EuP), with the exception of means of transportation. Hence, these are products to which energy must be added in the form of electricity or fossil fuels, or from renewable energy sources, to permit them to operate as intended – e.g. household appliances and office equipment, or devices used for heating or lighting purposes. These also include products for the generation, transmission and measurement of energy.

The end of reliance on the traditional light bulb is the beginning. In the years ahead, further rules will take effect under the 'Ecodesign Directive'. Unlike the light bulb, the other products affected will not completely vanish from

the market; instead, manufacturers will need to observe new limits on energy consumption. The European Commission ordered a preliminary study for the analysis of technologies and markets, the findings of which were discussed in July 2009 during a consultation forum in Brussels. The Commission is expected to issue legislation based on these findings by 2012.

During the current, second stage of the EuP Directive, from 2009 to 2011, part of the working programme concerns power transformers. At issue is a theoretical energy saving of approx. 20 TWh through the use of energy-efficient transformers with reduced no-load and load loss. The load-loss provisions for transformers in the current standards must be adjusted accordingly. But there must also be an assessment of the use of an optimised transformer in terms of capitalisation of the cost of the loss over the entire life of the equipment. Solutions achieved through new technologies, such as the use of 'amorphous' laminates, are also incorporated into standardization work.

Standard charger interface for mobile devices

It's something we're all familiar with: have we managed to pack all the chargers for the mobile phone, the MP3 player and the PDA in our suitcase? To date, incompatible connectors and electrical values have prevented the use of a single charger for all mobile devices.

Each newly purchased device calls for a special charger; chargers that are still in good working order are no longer needed and are relegated to electronic scrap, which must be disposed of at high cost, which ties up resources in a process that is ultimately ecologically questionable.

At the urging of the European Commission, in June 2009 the largest manufacturers of mobile telephones agreed to harmonise the charger interface for mobile telephones with data-transfer capabilities. The external chargers are made compatible by means of an integrated micro-USB connector that makers of mobile telephones and other portable electronic devices already use as a charger interface. For older equipment, an adapter can be used to provide the required compatibility.

Along with the objective of interoperability, the planned specification is also designed to provide the interference-free operation required of the standard chargers when used in connection with mobile telephones. The first generation of new mobile telephones is expected to be available on the market in the EU

DKE – success through competence

beginning in 2010. Completing the specification are charging-function requirements for efficient and safe charging of storage batteries in mobile devices.

Dialysis – safety for the patient

For thousands of patients with chronic kidney failure, dialysis is an established procedure that saves their lives. Patients must be connected to a dialysis machine two to three times each week for several hours at a time; by cleansing the blood, dialysis removes fluids and harmful substances from the body.

Carrying out the dialysis procedure requires an infrastructure that is suited to ensuring consistant quality of treatment. The guideline contained in DIN VDE 0753-4 (VDE 0753-4):2009-05 describes the process of dialysis, from patient admission to the dialysis centre to the completion of the dialysis procedure. Proper handling of medical products and the combination with other components for dialysis are presented in detail in order to exclude any risk to the patient. This guideline is the result of interdisciplinary DKE work across various technical units (manufacturers, physicians and nursing staff), as well as the application of a range of safety standards.

One particular type of risk is posed by additional electrical devices (e.g. heating pads, mains adapters for mobile telephones and computers, etc.) that can lead to inadmissible discharge current values in the patient environment. Specifying rules of conduct for staff, along with additional protective measures (e.g. use of a special equipotential-bonding connection), improves patient safety considerably.

Filling up with energy in passing

A future scenario that offers not only improved environmental protection and safety but also incredible convenience: inductive charging of electric vehicles. A technology already successfully used for forklift trucks in manufacturing workshops, for instance – whether stationary or during operation over designated routes – could be put to good use in everyday road traffic as well.

During inductive charging, energy is transmitted between the power grid and the electric vehicle without contact, through a pair of induction coils. The induction coil in the charger (primary coil) could be located beneath the asphalt road surface, for instance, with the induction coil in the electric vehicle (secondary coil) located perhaps between the suspensions. For use in

the garage at home, an add-on module could be used, for instance, that lies on the garage floor and draws its charging energy from the home power supply. As soon as the vehicle is parked over the induction coil and a minimum amount of overlap between primary and secondary coil has been achieved, the charging process can be initiated. This would turn car parks and parking spaces into chargers where no one would need to climb out of the car or fuss with plugs or outlets. Car batteries would charge fully automatically while the driver shopped in the supermarket, pampered him- or herself with specialities in a restaurant or enjoyed a good concert.

The pleasant sound of this none-too-futuristic melody is all the more harmonious in concepts that envision inductive charging even during a journey, naturally with fully electronic billing.

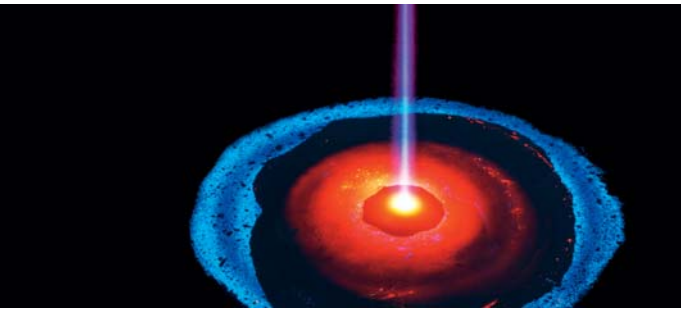
To help make these dreams come true, a working group of the DKE, DKE/AK 353.0.1 on 'Inductive Charging of Electric Vehicles' [Induktives Laden von Elektrofahrzeugen] is working on the fundamental requirements of charger systems of this type. The drafting of a VDE application guide is planned that would lay down the essential parameters such as the minimum level of efficiency, the frequency (range) or the positioning of the coils.

High-tech surfaces with electron-beam coating

The performance of thermal solar collectors is largely a function of their capacity to make maximum efficient use of as much of the spectrum of sunlight as possible. With special coatings, they can attain up to 96 per cent absorption and thus markedly lower reflection values, meaning they lose less energy through heat radiation.

Higher-efficiency surfaces such as these are produced on a large scale using plants for electron-beam heating and electron-beam coating. This technology is based on the generation of heat through collision of free electrons against a material to be heated, melted or vaporised, e.g. titanium oxide in the case of solar collectors.

In an electron gun, a hot cathode generates free electrons. A high-voltage array accelerates these free electrons to an electron beam that electric and magnetic fields then focus on the target. Generating this electron beam and efficiently directing it to the material to be treated call for high-vacuum conditions; otherwise, conversion loss and beam dispersion would increase as a result of interactions between electrons and gas molecules. Upon impact with the material to be treated, each electron in the



beam transfers its energy up to a certain depth of penetration due to collisions with the atoms of the material involved.

Since it is very flexible and can be used in a variety of settings, thermal processing equipment designed in accordance with the principle of electron-beam heating can be used for various applications on an industrial scale: electron-beam welding, surface treatment, melting or float-zone melting, and vaporisation/coating. These processes are used for applications as diverse as the production of silicon wafers or surface finishing of turbine blades for aircraft engines.

Provisions concerning the safety and testing of electroheat installations with electron guns can be found in standards of the DIN EN 60519 (VDE 0721) series, entitled 'Safety in Electroheat Installations'.

Direct current systems in the home

On account of its energy efficiency systems, attention has returned to direct current as a power supply. With the transformation that this would require from alternating current (AC) to direct current (DC) and back, the conversion loss that occurs is not negligible. If one considers the renewable energy source of photovoltaic cells, for instance, the energy must be converted from DC to AC before it can be fed into the grid. For DC consumer appliances such as PCs, the power must be transformed back to DC. A direct DC feed would avoid or diminish this energy loss due to conversion.

Initial stand-alone systems for the supply of DC current to buildings devoted to information technology are already in existence. In future, systems such as these will be significant for homes as well because the development of new technologies permits the provision of a considerable portion of household power requirements directly via DC, and thus free of energy loss due to conversion. Hence, the added cost of installing DC capability would quickly be offset.

Safety is a top priority for any change, though, and the express objective must be to achieve the same level of safety available under the current power supply system. This is precisely where further testing is required, testing of matters such as control to ensure that the arc does not die by itself when switching to higher power with direct current. In some cases, suitable protective devices and installation equipment for DC systems still need to be developed and standardized.

Initiatives have been launched at the IEC to support market application of the technology involved using standards.

Three-phase motors – classes for efficient applications

Worldwide, between 30 and 40 per cent of electrical energy is used by electric motors in industrial use alone. In Germany, there are a total of some 30 million electric motors installed in private households, industrial areas, administrative agencies and public buildings.

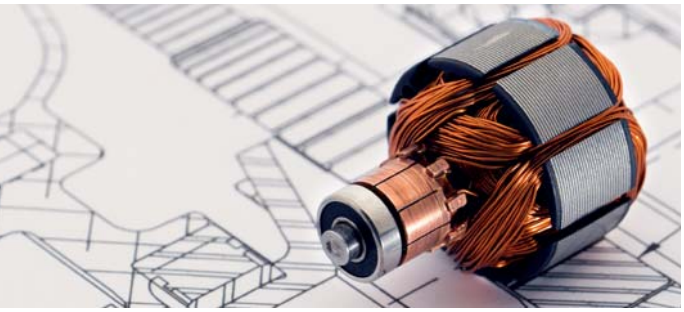
In around 80 per cent of the applications, the speed – and thus the power consumption – of electric motors is not designed to meet current and changing requirements but rather to meet maximum load. Frequently, the motor speed is mechanically braked or electrically throttled, converting unneeded energy to heat. With electronic speed controls, engine power can be adjusted to actual requirements, saving more than 40 per cent of the electrical energy in the process.

To promote energy efficiency in three-phase motors, over the past years regulations have been enacted worldwide, both regionally and nationally, but a lack of uniformity in these regulations has also made it more difficult for manufacturers to market their products internationally. Under the chairmanship of German experts, IEC/TC 2 'Rotating Machinery' has elaborated a standard that specifies the efficiency classes for three-phase motors, replacing disparate national rules and published in 2009 as DIN EN 60034-30 (VDE 0530-30).

Worldwide application of this new marking, with its three-step IE-code, will produce market benefits for the motors that are deemed the most efficient under the new scheme. In Europe, the standard, along with the associated test standards, provides an important tool with which to fulfil the EuP Directive (Ecodesign Directive), under which, from mid-2011, only high-efficiency, low-energy motors with an IE2 rating can be sold in Europe. Of course, many other emerging industrial nations have welcomed this international standard as it helps them build industrial plants with recognised levels of energy savings.

Efficient and durable – electrode-free fluorescent lamps

Induction lamps are low-pressure gas-discharge lamps among which a distinction is made between internal and external coupling of mag-



DKE – success through competence

netic energy. A new form of technology has now been developed that permits coupling of energy without the use of electrodes. These lamps are not only more economical to produce, but the electrode-free design also presents other decisive benefits: an extremely long useful life of approx. 60,000 hours, a high level of system light yield (more than 80 lumens per watt) and superb colour-rendering characteristics.

Because they are low-maintenance, these lamps are particularly attractive for use in areas that are difficult to reach (e.g. for outdoor lighting or in tunnel construction). A special electronic ballast can also lower the ignition temperature of the lamps to as low as -40 °C.

These beneficial characteristics have made low-pressure gas-discharge lamps very popular among experts and in fields that call for special applications. The safety provisions and performance specifications for fluorescent induction lamps have now been published by the IEC in international standards. This permits development of additional fields of application and with it the safe use in mass markets.

MY DRIVING FORCE:

THAT IN FUTURE DRIVING WILL BE A REALLY CLEAN BUSINESS

Petrol, hybrid, hydrogen or electricity. No matter what propels us in future, what is important is what we leave behind. And this should be as few emissions per kilometre driven as possible. This is the only way to ensure that all of humanity enjoys the lasting benefits of unlimited mobility of people and goods. And it should apply worldwide because if we wish to protect the environment, we shall need global solutions.

The DKE represents German interests in international dialogue on this subject – with the aim of achieving consensus on solid results. What is important to us is not to decide on a particular technology prematurely; rather, there is only one result that counts: clean mobility.

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DKE

According to a report by the World Bank, the member countries of the IEC are responsible for around 95 per cent of global trade in electrotechnical and electronic products. Of this total, some 28 per cent is accounted for by the European Economic Area. Much the same can be said for the production of electricity. The 30 OECD states alone generated more than 10,200 TWh of electricity in 2008. Global demand for electricity will increase significantly during the coming 20 years. Both the climate protection targets designed to reduce global warming, and the finite amount of primary sources of fossil energy, require an urgent realignment in energy policy and reduction in energy requirements per unit. Europe has set its sights high in this respect, as already formulated in the Lisbon Agenda in the form of strategic objectives.

The international and European standards organisations have responded to these challenges in a wide variety of ways. For instance, in the IEC 'Energy Efficiency and Renewable Resources' strategy group, experts from 15 countries convened to issue basic recommendations for standardization projects on electrical energy efficiency and renewable energy sources. Because improvements to individual products have in some cases already reached the limits of the technologically feasible or economically

International and European standards organizations

IEC Standards 2009

	Inventory as at 31st December 2009	Published in 2009
IEC Standards (IS)	5,520	366
IEC/TS	207	12
IEC/TR	351	40
IEC-PAS	63	22
Ongoing Projects	1,410	–
Final Drafts (FDIS)	176	291
Drafts (CDV)	459	408
New Projects (ANW + Maintenance)	–	372

CENELEC Standards 2009

	Inventory as at 31st December 2009	Published in 2009
EN	5,371	413
HD	295	5
CLC/TS	53	7
CLC/TR	73	16
CECC Specifications	316	0
Ongoing Projects	986	–
prEN + prHD	–	810

ETSI Standards 2009

	Inventory as at 31st December 2009	Published in 2009
EN	2,039	59
ES	290	26
TS	1,640	2,193
EN Drafts	–	116

sensible, consideration of complex systems and processes is all the more important as a result. A fundamental analysis and optimisation of production sequences can – if optimally operating, energy-efficient individual components are used – lead to energy savings that are above those of the individual components themselves by several orders of magnitude. The intelligent controls make use of the very latest communications technologies.

Information and communications technologies are thus themselves the focus of reflection in this area. In the industrialised countries, the power consumption attributable to this sector already amounts to up to 10 per cent of total power consumption.

The cost of the energy used to cool and air-condition high-power computer centres often exceeds the cost of the energy used to operate the high-availability server farms and data storage facilities themselves. This is why the industry is working to come up with IT facilities that operate with direct current (DC) rather than with alternating current (AC). The 'Low-Voltage DC' IEC strategy group newly created in 2009 will deal with direct current, among other things. At the European level as well, there are various initiatives in place for 'green' information technology. In 2009, a strategic CENELEC group identified the need for standardization for energy-efficient computing centres, materialising the political initiative of the EU Commission in the form of what is referred to as the Code of Conduct for Computing Centres.

The IEC Market Strategy Board (MSB) has also made information technology the focus of its activities. A workshop is planned with representatives of the IT industry who have previously enacted standardization only in forums and consortia, to discuss a closer collaboration with the IEC. Contents include how the IT industry can benefit from partnering with the IEC, and the extent to which the IEC should deal with the issue of 'forms of publication in addition to standards'. In addition to Green IT, the IEC MSB also sees activities in the areas of electric street vehicles, electric energy storage systems and inductive energy transmission as high-priority topics.

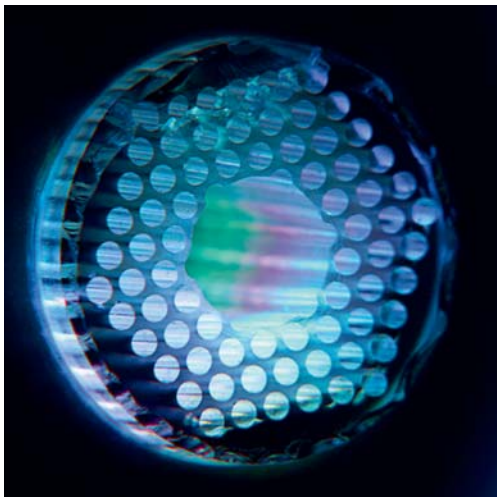
Within the framework of the European EuP Directive (Energy-using Products; soon to be ErP: Energy-related Products), the European legislature has set maximum values for permissible levels of power consumption during stand-by operation of entertainment and IT equipment; values that apply, for example, to DSL routers and set-top boxes. What this means for the end consumer is a reduction in

International and European standards organizations

annual power consumption and the costs of operation. These savings will make themselves felt, both in the budgets of individual households and in overall energy consumption levels.

Telecommunications network operators and service providers have launched standardization initiatives at ETSI, aimed at further reductions in the energy required to keep wide area networks (WAN) operational around the clock. In addition to the switching infrastructure in the providers' exchange installations, this also has consequences for the decentralised network access points in the form of DSLAM (Digital Subscriber Line Access Multiplexer) modules. Optimised transmission processes permitting transmission facilities to switch to defined energy-saving modes in the absence of data traffic can result in considerable savings, particularly during night-time hours.

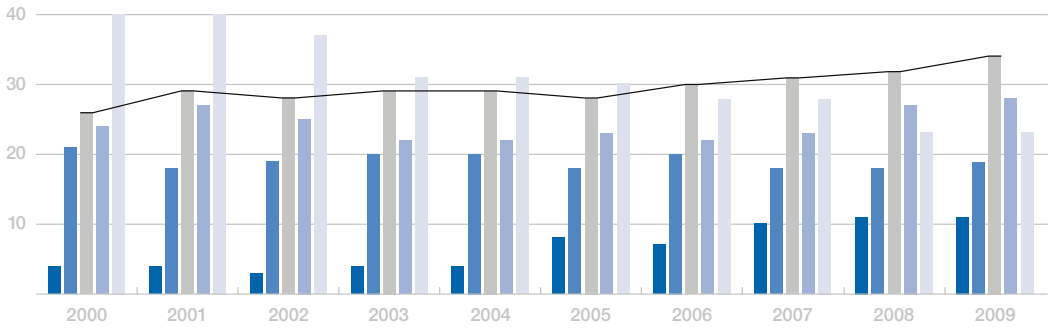
In anticipation of a coming EU directive, in summer 2009 all of the major producers of mobile telephones and similar end devices committed to supporting universal chargers in future. To this end, an international standardization project was launched at the IEC to define a uniform interface between mobile devices and chargers. This is one way in which the industry not only contributes to a more sustainable use of resources as called for in the European WEEE Directive – as chargers usually have a longer lifespan than the mobile devices for which they are used – but also has responded to calls that have long been heard from consumers for a way of charging multiple devices using a single source.



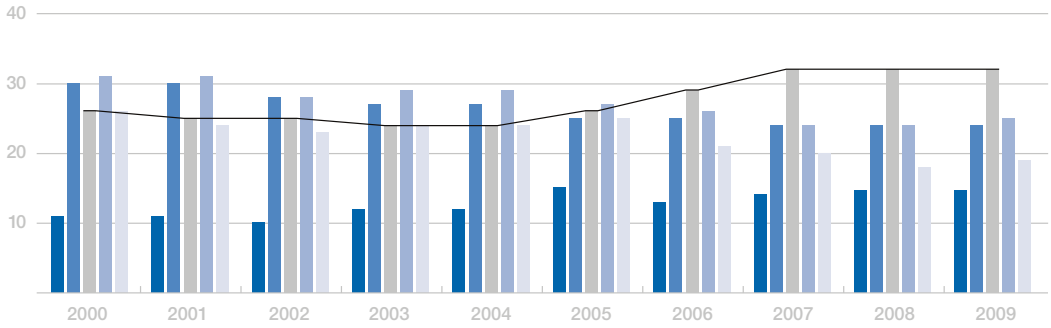
The German National Committee of the IEC – competence and continuity at a high level

Japan | France | **Germany** | USA | Great Britain

Chairmen of the IEC technical committees



Secretaries of the IEC technical committees



International and European standards organizations

International secretaries – world-class status with the German National Committee

Standardization creates competitiveness and secures markets. The filling of key international positions with qualified people – particularly given the major role exports play for the German economy – is of critical importance in this regard. The successful implementation of this strategic objective is reflected in the long-standing occupation of top positions at the secretariat level by the German National Committee: currently, 34 secretariats at the IEC and 24 at CENELEC.

The demands are high. In addition to outstanding qualifications in the field and a sound awareness of the market, negotiating skills and a command of foreign languages and cultural differences, a major source of success is also mastery of the instruments involved in the related processes and regulations.

The DKE offers a broad array of measures tailored to satisfy these requirements:

- Document and information management via the DKE document server
- Provision of electronic forms for efficient process management
- The option of virtual meetings (DKE-Web Conferencing in English) to accelerate standardization work
- Support for strategic and political orientation through the international network of the DKE
- Online access to national, European and international websites
- Current information on administrative and procedural aspects
- Individual introduction to the tasks involved through tailored training programmes and on-the-job training

In addition, the staff members of the DKE are available to assist all of the German chairmen, secretaries, working group convenors and German speakers at all times – no matter what issues are involved.

Easing the burden on European legislation through standardization mandates

Several of the nearly two dozen pressingly relevant issues involving consumer technologies that were recently added to the standardization process at CENELEC as a result of mandates involve:

- So-called 'smart meters', obligatory in new construction from 2010 and designed to register not only power consumption but also the consumption of natural gas, water and heat energy
- Noise limits for mobile telephones and portable MP3 players
- Reductions in the power consumption of external mains adapters (e.g. on set-top boxes and LAN routers)
- The energy efficiency of electrically operated instantaneous water heaters, household refrigerators and freezers, and electric motors

Through its mandates, the European Commission draws on the basic principle of self-government of industry to specify technical rules and regulations by means of standards. Under the terms of the Standards Agreement between the Federal Republic of Germany and DIN, applications for standardization work issued by the legislator must be processed with top priority.

Hence, mandates are orders by the European Commission to the three European standards organizations – CEN, CENELEC and ETSI – to specify the details of European directives by means of standards. The resultant standards are listed under the corresponding directive, giving them a presumption of conformity.

In all cases, the mandate drafts are preceded by a political and technical discussion of which standards organizations can and should take advantage, with the support of their stakeholders, in order to cast the mandates in terms that are technology-compatible and tailored to the realities of the market. In this regard, it is particularly important to remove any differences of opinion that may exist at this stage preliminary to the assignment of the mandate. In addition to this, if a mandate is refused, it may lead to initiation of procedures to issue legislation or decrees. From the point of view of the market players affected, the standardization process is the preferable alternative as it directly involves the technical experts of all interested circles, shaping the final result in a spirit of consensus.

International and European standards organizations

Hence, in future the DKE will become even more involved in the preliminary stage, with the aid of its networks, as a way to help with shaping the mandate issued. To this end, a coordinating office mandates has been created within the DKE that works closely with the technical divisions to pursue discussions involving possible mandates directly with stakeholders and the VDE office in Brussels, and to identify mandate proposals. This is how the office represents German interests via the intended political and standardization paths (German Federal Government and CENELEC) in the issuance of mandates.

Press and public relations for European standardization

Over 30 staff members of the national committees of CEN and CENELEC responded to an invitation issued by the DKE to attend an exchange of views in Frankfurt on 1st and 2nd October 2009 with their colleagues responsible for the public-relations effort of the standards organizations in Europe. The meeting, the motto of which was 'The big picture: painting the European view', focused on the role of European standardization as a future-oriented instrument for the promotion of the European economy.

Dr. Bernhard Thies, Chairman of the Board of Directors of the DKE, addressed the key public relations challenges facing European standards organizations in the European standards landscape of the future and identified ways of improving perceptions of the European standardization system. A joint brand profile on the part of European standards organizations is a tried and tested means of achieving this.

In discussions and presentations, the meeting participants presented activities that could promote the impact of the European standardization system in global markets, illustrate for young people the role of standardization work in our highly technological world, and enhance public awareness of the advantages of active involvement in and the benefits of standards and specifications.


MY
DRIVING FORCE:
TO BE ABLE
TO ENJOY
A CONCERT
ALONGSIDE
THE MOTORWAY

Visionary thinking permits purposeful action. Thanks to an exchange among experts in science, research, business and public policy, all parties affected can work together to develop better solutions for the challenges of today and tomorrow. Frequently, the exchange yields entirely new ideas – which participants in the dialogue can then implement by working together. With a very broad range of offerings, services and media at its disposal, the DKE provides a solid platform for this interdisciplinary dialogue. To generate shared progress out of a harmonious combination of very different voices.

DKE

New offerings – the advantage of the VDE Specifications Code of safety standards

For many of the standards in the VDE Specifications Code of safety standards, the VDE Verlag also offers its customers the documents in English translation. This is of use not only to foreign users of the DIN-VDE standards but also to German companies with international customer relations.

These translations are offered by the VDE Verlag as part of an enhanced subscription, either on DVD or online. The easy-to-use DVD application for the VDE standards notifies the user if translations are available. If an IEC document exists for the German standards, the user is directly taken to the IEC shop online.

But subscribers to the VDE Specifications Code of safety standards on DVD or to the 'VDE Online Offerings' can also use the new 'VDE-Plus Offering' to add other supplemental documents to their subscription as needed:

- DIN standards supplemental to the DIN-VDE standards and required for electrical installation, as a package offer commensurate with the 'Praxishandbuch Elektrotechniker-Handwerk'
- VDE application guides on electrical energy supply grids, published by the Forum Network Technology/Network Operation in the VDE (FNN)
- The English reference texts (IEC publications) of DIN EN standards with VDE classifications, where these are identical with IEC publications

A subscription to the VDE Verlag newsletter automatically lets subscribers know when new documents are published.

DKE – standardization services

Commenting on draft standards online – DIN-VDE drafts portal standards library

The drafts portal has been created as a new service to facilitate participation in standardization work by a broad segment of experts in the field. Now anyone can register free of charge and read the contents of current draft standards online, or submit comments on these drafts in the form of suggested changes or additions. Comments may be submitted, modified or supplemented throughout the entire period for comments.

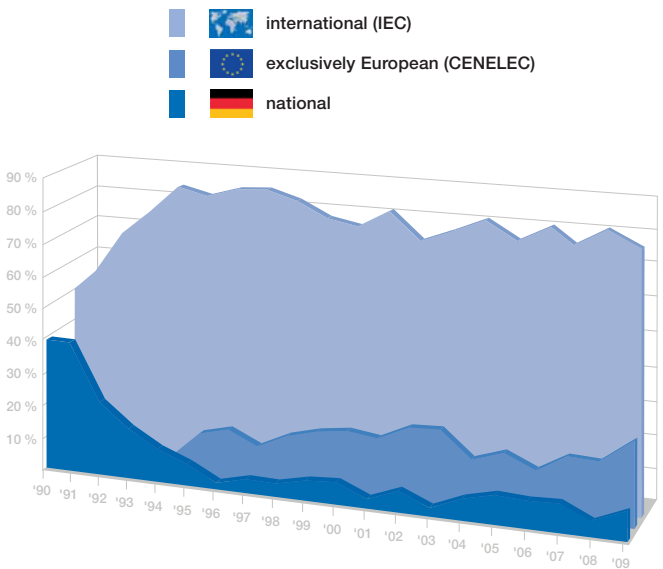
The aim of the portal is to make a significant contribution to simplifying the involvement of small and medium-sized enterprises (SMEs) in standardization work. It supplements the public access points for DIN publications found throughout Germany with an Internet-based opportunity to obtain information on the provisions of future standards. This new tool also assists the experts in the DKE working groups as they elaborate the contents of new standards.

All DIN-VDE draft standards published since 1st July 2009 are available online through the VDE Verlag, at www.normenbibliothek.de. The portal is updated with new additions on a weekly basis; the new content can be consulted online until the period for comments has expired. The draft standards are presented in segmented form in the browser window and have been formatted for the best on-screen display. Several user-based functions, such as full-text searching, convenient comment features and automatic messaging of changes to individually selected VDE specifications help simplify standardization work.

The comments on draft standards thus submitted online are forwarded to the DKE body responsible for the matter in question. There, these comments are dealt with along with all of the other objections received within the framework of the public enquiry procedure for draft standards, in accordance with the principles for standardization work.

Electrical standardization worldwide

Since the mid-1990s, international, European and national standardization for electrical, electronic and information technologies has been clearly oriented to markets worldwide. In 1996, in their 'Dresden Agreement', the IEC and CENELEC agreed to prevent duplicate preparatory work for standards and to accelerate standardization processes. Since then, it has been possible to coordinate European and international standardization projects in parallel procedures; this way, standards can be endorsed even if their preparatory work has been carried out only at a single level – either at the European or international level.



The majority of electrotechnical DIN standards are – as intended – the result of international standardization work. In 2009, international work accounted for a 73 per cent share. At the DKE in 2009, 20 per cent of the electrotechnical and information technology DIN standards were based exclusively on European standardization work. Accordingly, only about 7 per cent of the standards originated purely in Germany.

Worldwide cooperation is growing even more significant for the markets of the future. Particularly the innovative work areas, such as electromobility or smart grids, call for the speedy creation of compatible building blocks across national boundaries. No country can afford to falter. The benefits to be reaped are greatest when countries work together on the success factor of specifications, and standardization activities are seen as welcome pioneers.

The DKE is an acknowledged platform

As an expert platform and competence centre for electrotechnical standardization, the DKE offers all interested parties in Germany an opportunity to participate in standardization work at all levels, while at the same time actively representing German interests. The principle of delegation in place at the IEC and CENELEC particularly permits small and medium-sized enterprises to successfully make their concerns known internationally in the standardization field.

DKE – the figures

DKE – the work results

During the past year, while the number of standards published declined slightly – as a result of a decline at the IEC – the already-high level of market-oriented implementation of European standards seen in the previous year was consolidated even further.

The share of electrotechnical safety standards published in 2009 (DIN standards with VDE classification) in the total number of electrotechnical safety standards in 2009 was around 60 per cent.

In mid-2009, VDE application guides were added to the VDE Specifications Code of safety standards for the first time. Implementation of a VDE application guide is subject to demanding initial requirements designed to satisfy the high level of the VDE Specifications Code of safety standards.

Costs of electrotechnical standardization work

About 95 per cent of the financing for the DKE office comes from the proceeds of standards and documents prepared by the DKE. The results of DKE work are sold through the VDE Verlag and Beuth Verlag. The remaining amount of the DKE budget is provided by the member companies of the DKE Union of Sponsors [Förderer-Gemeinschaft], six associations of the electrical industry and nine associations closely related to electrotechnical standardization.

With a high level of commitment, these groups make an extraordinary contribution to promoting standardization, both nationally and worldwide: they bear the cost of sending their experts themselves.

DKE Standards 2009

	Inventory as at 31st Dec. 2009		Published in 2009	
	Number	**Pages**	**Number**	**Pages**
With VDE classification				
DIN standards	2,407	69,750	314	12,040
Draft standards	780	42,997	257	15,264
Application guides (AR)	6	175	6	175
Without VDE classification				
DIN standards [1)]	3,758	82,959	169	7,259
From the ETSI area	1,828	80,577	46	3,454
Draft standards [1)]	630	33,682	210	15,643
Manuscript proceedings (MV) [1)]	–	–	6	174
MV from the ETSI area	–	–	57	3,158

[1)] Without co-authorship of other organizations and without work results from ETSI

Competence centre for electrotechnical standardization

Globalisation, worldwide competition, efficient environmental protection and sustainability, as well as a commitment to safe products and systems – these are the conflicting priorities involved in electrotechnical standardization work at the DKE. With more than 3,500 technical experts from interested circles in Germany, it is a modern service organization which elaborates VDE safety specifications and standards covering the areas of electrical engineering, electronics and information technology.

Electrical energy is the basis for quality of life, prosperity, safety and growth. With its extensive networks, efficient processes and the competence of its experts, the DKE represents the state of the art for the safe and rational generation, distribution and use of electricity – much to the advantage of humankind and the environment.

Global challenges call for worldwide competence – particularly where the concerns of SMEs in Germany are involved. The DKE is the nationally and internationally recognized platform for electrotechnical standards:

- German member of the IEC International Electrotechnical Commission, Geneva, Switzerland
- German member of CENELEC, the European Committee for Electrotechnical Standardization, Brussels, Belgium
- The national standardization organization responsible for Germany of ETSI, the European Telecommunications Standards Institute, Sophia Antipolis, France

Structure of the DKE

Standardization is a joint effort: companies and organizations in industry, public authorities and other institutions that support the work of the DKE both financially and by sending technical experts, constitute the DKE Union of Sponsors. The Council (LA) lays down the guidelines for the DKE, particularly those that apply to standardization policy and strategy, basic organizational matters, and the actual standardization work. It consists of 30 leading personalities from industry, science and administration. The Chairman of the LA represents the DKE both within the organization and in public.

DKE – the organization

The Council is assisted by advisory boards that are responsible for the major areas under its purview:

- Technical Advisory Board International and National Coordination which also represents the German committees of the IEC and of CENELEC
- Technical Advisory Board ETSI
- Technical Advisory Board Evaluation for Conformity
- Permanent Advisory Group Technology
- Finance Advisory Board

The membership of the Council and Technical Advisory Boards is summarised from page 61 onwards. The DKE Board of Directors conducts the DKE business in accordance with the guidelines approved by the Council. With regard to technical aspects it reports to the Director of DIN and the VDE Board of Directors, while with regard to financial aspects it reports exclusively to the VDE Board of Directors.

The DKE operating principle

In 2009, with foreign sales of roughly EUR 70 billion, exports accounted for 46 per cent of total sales by the German electrical and electronics industry. Accordingly, the work of the DKE is internationally oriented towards the IEC, and nationally structured in such a way that the DKE bodies are generally assigned as counterparts to the international bodies – taking CENELEC into account. Roughly 85 per cent of European standards correspond to the results of the IEC work: this demand-oriented focus on international standardization also constitutes the basis for ongoing development of the internal European market – yet without confining itself to the markets of Europe.

The use of electronic products and systems is steadily expanding. This is why, when topics of an interdisciplinary nature and with convergent technologies arise, the nine technical divisions of the DKE, their assigned standardizing bodies, and the division standardization all work closely with other organizations, the VDE technical societies, and the bodies of DIN.

Market relevance and efficiency are decisive objectives of electrotechnical standardization – accordingly, the Council nominates one divisional chairman from among its members for each of the divisions; this divisional chairman plays a leading role in coordinating the work of standardization performed in the committees and subcommittees of the DKE by the technical experts designated by the interested circles.

DKE – the basis of our work

The DKE German Commission for Electrical, Electronic & Information Technologies of DIN and VDE was established in 1970 by the VDE and DIN. It operates on the basis of the Standards Agreement of 1975 between the Federal Republic of Germany and DIN.

The DKE constitutes a joint organization of DIN German Institute for Standardization [DIN Deutsches Institut für Normung e.V.] and the VDE ASSOCIATION FOR ELECTRICAL, ELECTRONIC & INFORMATION TECHNOLOGIES [VERBAND DER ELEKTROTECHNIK ELEKTRONIK INFORMATIONSTECHNIK e.V.] – the VDE is responsible for the daily operations of the DKE.

The standards issued by the DKE are part of the German standards collection. If the standard in question concerns safety regulations, it is also included in the VDE Specifications Code of safety standards.

The results of the standardization work by the IEC and CENELEC, along with the European standards of ETSI, are implemented at national level by the DKE in accordance with the rules stipulated by DIN. The basic elements of standardization in this respect are the public enquiry procedure and the principle of consensus.

In standardization activities, the DKE provides needs-based consulting for the drafting of national, European and international electrical, electronic and information technology standards designed to promote innovation and assist development.

If safety and environmental aspects are involved, regardless of the bodies of the DKE, the results of the standardization work may also be published as VDE application guides, with or without public enquiry procedures.

DKE – the organization

DKE – our objectives

Safety
Overall safety for electrical products and installations, and their related services , andlabour protection.

Compatibility
System compatibility of products and installations in networked systems and applications.

Market orientation
Accelerated diffusion of new technologies on the market by supporting information processes via standards and specifications.

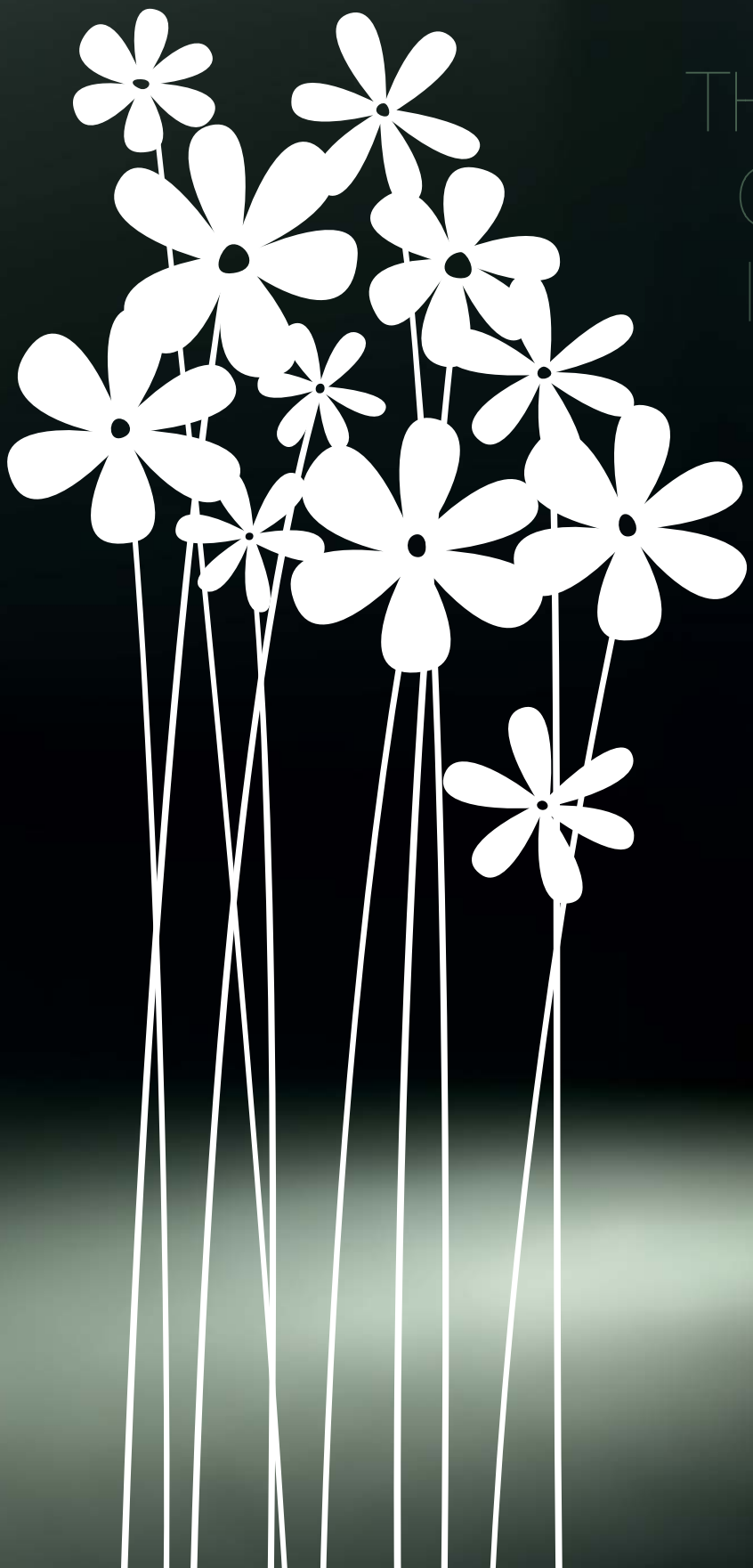
Consensus building
Bringing together the knowledge and the interests of all associated parties, building consensus around controversial technical issues.

Representation of interests
Representing German interests in the development of international and European standards, in order to eliminate obstacles to trade and to open markets worldwide.

Quality
Maintaining a high level of technical rules in a consistent portfolio of standards oriented towards market and consumer requirements.

Conformity assessment
Worldwide acknowledgement of conformity assessment results.

MY DRIVING FORCE: TO BE ABLE TO SMELL THE SCENTS OF NATURE IN THE CITY ONCE AGAIN



Urban habitats have important functions to fulfil: they provide a place to live and work as well as social and cultural centres. But despite all of the economic aspects involved, we must not lose sight of the needs of the people who live there. Urban planners and architects are forever in search of better planning concepts that will put the focus on people while bringing nature back to the cities in spite of dense construction. Intelligent mobility concepts are an important part of the solution.

The technical experts of the DKE not only help to make emission- and odour-free electric cars a reality but also work on new ideas for public transport and intelligent parking guidance systems. The objective is to make our cities a more liveable place for us all.

DKE

Once again, the DKE would like to take this opportunity to congratulate all of the experts who have been honoured, and to thank them for their dedicated work in the electrotechnical standardization bodies. This dedication is the indispensable basis for the representation of German interests in the work of international electrotechnical standardization.

DKE Award 2009

At the DKE Conference held on 28th April 2009, Professor Dr. Hartwig Steusloff, Vice-President of the DKE, presented the DKE AWARD in recognition of particularly active and dedicated technical experts. This award was granted for the first time in 2005 and is presented to no more than 10 experts each year.

The following were honoured in recognition of their outstanding contribution and commitment to electrotechnical standardization:

Hans Brückner
(Siemens AG, Erlangen)

Prof. Ernst Gockenbach
(Gottfried Wilhelm Leibniz University, Hanover)

Bernhard Mund
(bedea BERKENHOFF & DREBES GMBH, Aßlar)

Wolfgang Reichelt
(BLOCK Transformatoren-Elektronik GmbH & Co. KG, Verden)

Dieter Seibel
(BG Elektrotechnik Textil und Feinmechanik, Cologne)

Gerd Weking
(HARTING KGaA, Espelkamp)

Robert Zapp
(Busch-Jaeger Elektro GmbH, Lüdenscheid)

Staff news & awards

IEC 1906 AWARD – for outstanding commitment

Standardization is a field that is dependent on the achievement and commitment of technical experts. This is why the International Electrotechnical Commission (IEC) – upon nomination by the Chairmen and Secretaries of the IEC Committees – honours outstanding work by presenting the IEC 1906 AWARD.

The prize was conferred upon a total of 119 experts in 2009; 12 of these awards were presented to technical experts from Germany. 'The German National Committee of the IEC is proud of the encouragingly large number of awards granted to experts across a broad spectrum of electrotechnical standardization work. At the same time, these awards are an incentive to continued commitment in all areas of international standardization,' remarked Dr. Bernhard Thies, Chairman of the DKE Board of Directors. At the awards presentation ceremony held on 4th November 2009 in Frankfurt, he thanked the experts for their competent and dedicated work, without which successful standardization would be impossible.

The IEC 1906 AWARD was presented to the following German experts:

Axel Bauer
TC 48 'Electromechanical components and mechanical structures for electronic equipment'

Udo Döbrich
TC 65 'measurement control and automation'

Hansgeorg Haupt
TC 112 'Evaluation and qualification of electrical insulating materials and systems'

Hans-Gerd Kaiser
TC 34 'Lamps and related equipment'

Karl-Hans Kaul
TC 85 'Measuring equipment for electrical and electromagnetic quantities'

Dr. Manfred Kratzat
TC 3 'Information structures, documentation and graphical symbols'

Dr. Frank Sabath
TC 77 'Electromagnetic compatibility'

Leo Stühler
TC 3 'Information structures, documentation and graphical symbols'

Dieter Vondereck
TC 17 'Switchgear and controlgear'

Heinz Walker
TC 17 'Switchgear and controlgear'

Hans Westermann
TC 51 'Magnetic components and ferrite materials'

Norbert Wittig
CISPR 'International Special Committee on Radio Interference'

IEC Lord Kelvin Award to Dr. Uwe Klausmeyer

On 22nd October 2009, on the occasion of the general meeting of the IEC in Tel Aviv, German standardization expert Dr. Uwe Klausmeyer was presented with the Lord Kelvin Award of the International Electrotechnical Commission (IEC). The award recognizes long-standing exeptional work in the field of international electrotechnical standardization. Honoured along with Dr. Klausmeyer were the American and Japanese experts Thomas Hanson and Koichi Mori.

Dr. Klausmeyer has worked since 1985 in various capacities in the field of explosive atmospheres at the Physikalisch-Technische Bundesanstalt (PTB) in Braunschweig. As Chairman of the IECEx Management Committee from 2003 to 2008, he initiated and successfully implemented the institution of a conformity assessment system for equipment in explosive atmospheres. Under his chairmanship, it was possible to convince legislatures on all five continents of the benefits of reference to IEC standards in the field of explosive atmospheres during the drafting of their technical rules on the subject; in Europe, this is referred to as the 'ATEX Directive'.

IEC President Jacques Régis presents Dr. Uwe Klausmeyer (r.) with the IEC Lord Kelvin Award

Prof. Dr. Klaus Wucherer elected IEC President

Shortly after the election in Tel Aviv, word reached Frankfurt on 22nd October 2009 that Professor Dr.-Ing. Klaus Wucherer is the new President of the IEC. The General Assembly voted the Chairman of the German National Committee of the IEC and former board member at Siemens to succeed Canadian Jacques Régis. Beginning in 2010, Professor Wucherer will hold a leadership role as President-elect of the IEC, where he will assume a three-year presidency at the beginning of the year 2011, followed by a two-year period as Past-President.

Professor Wucherer has many years of experience in standardization. Most recently as a member of the VDE Supervisory Board, and prior to that as President of the VDE, he will also direct the international standardization plans at the helm of the IEC with global expertise. During his time in office, he will pay particularly close attention to future fields such as the smart grid and eMobility.

Prof. Dr. Klaus Wucherer
President of the IEC

Staff news & awards

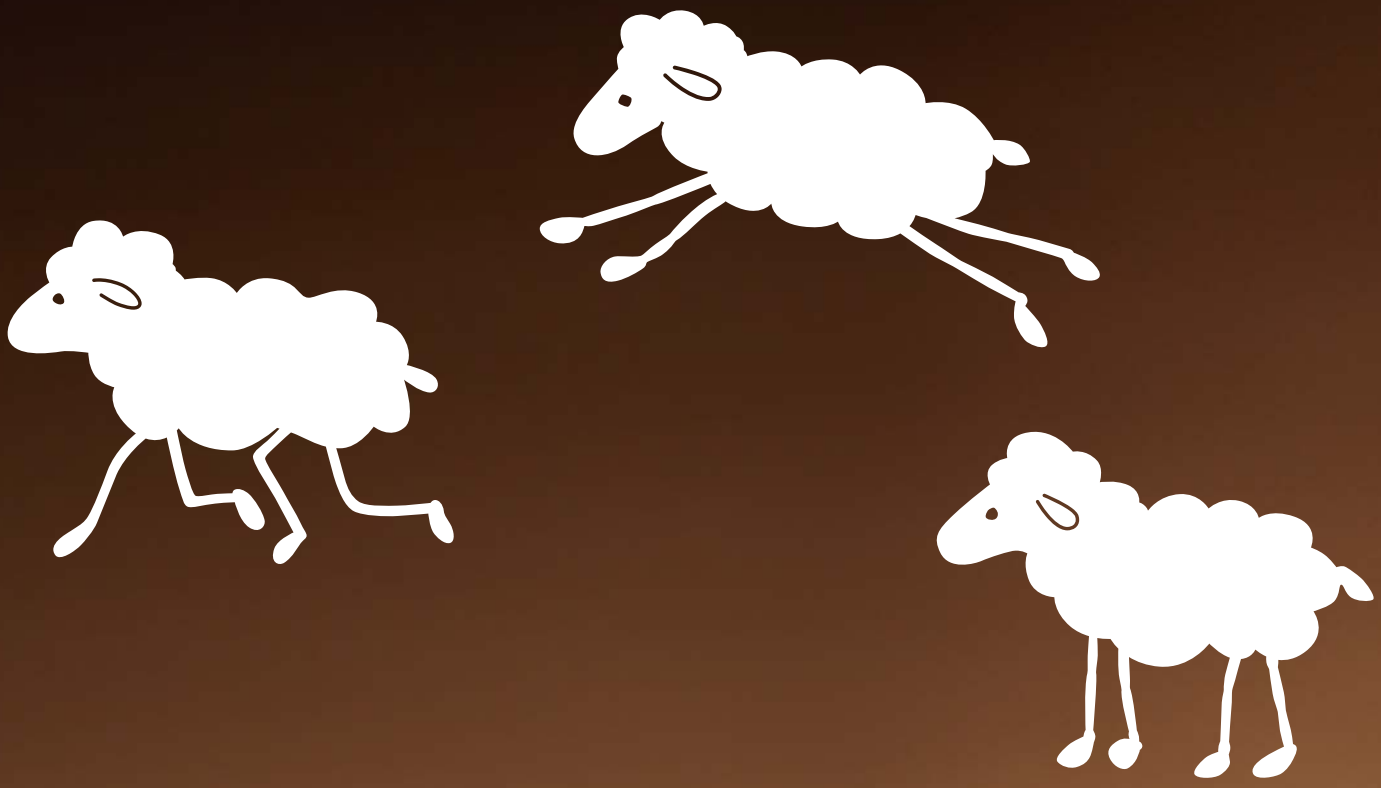
Friedrich Harleß assumes chairmanship of the Technical Advisory Board International and National Coordination

The Technical Advisory Board International and National Coordination of the DKE is responsible for coordinating technical issues across all technical divisions of the DKE, and for the formation of opinion with regard to national and international technical issues. The Technical Advisory Board International and National Coordination principally acts as the representative of the German National Committee of the IEC and of CENELEC.

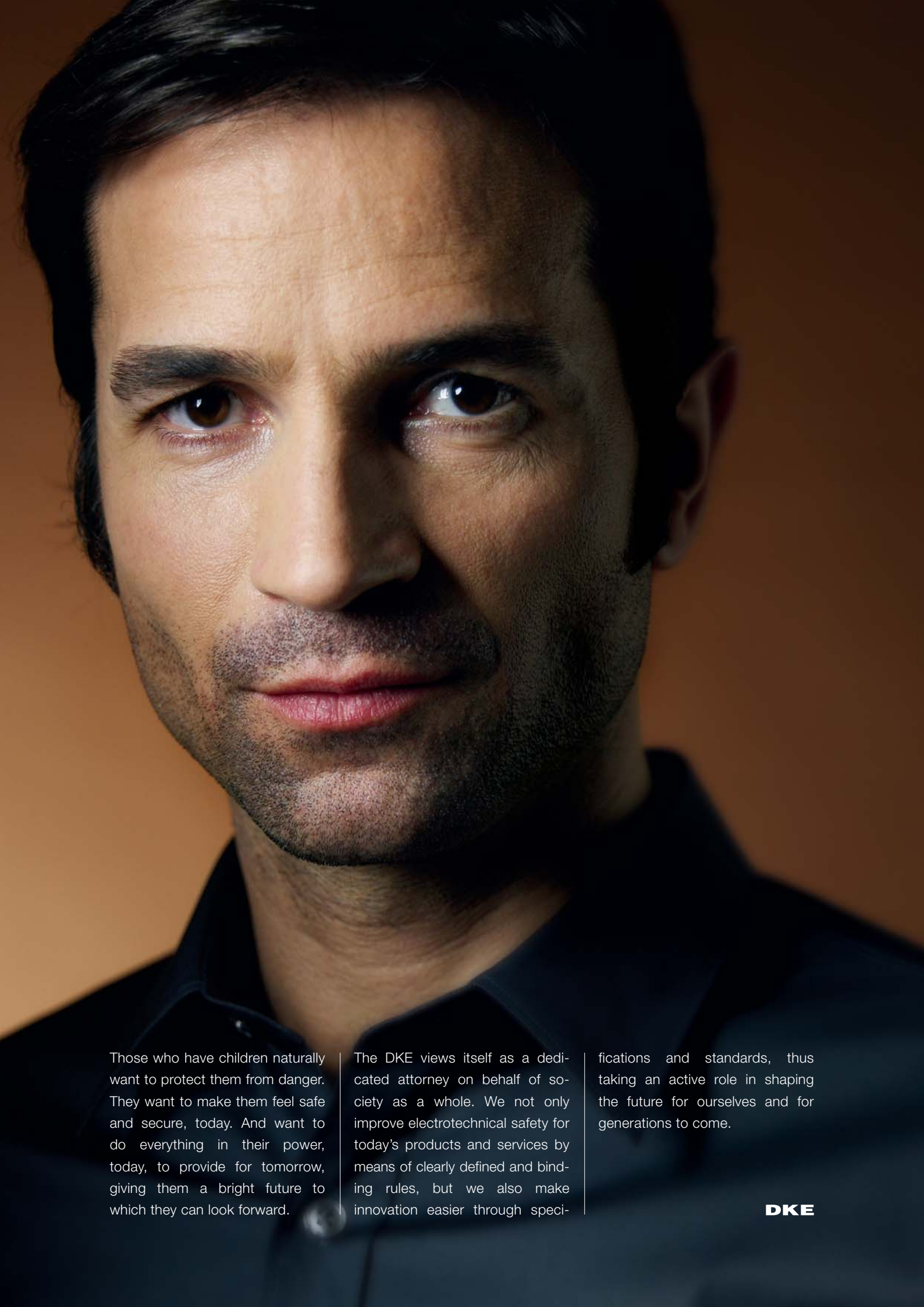
Following the departure of Dr. Horst Gerlach after many years of work as Chairman in autumn 2009, Friedrich Harleß was elected the new Chairman of this Technical Advisory Board. Friedrich Harleß has been active in DKE committees since 1987, and in his leadership role there he has continued accumulating expertise on standardization and questions of policy eversince. After taking his degree in electrical engineering at the University of Erlangen/Nuremberg, since 1975 Friedrich Harleß has been involved in various capacities at the Siemens Group at its location in Erlangen: first in development in the area of medical technology, and beginning in 1987 as head of the Safety & Electrotechnology unit within the Corporate Standardization & Regulation department. Along with his national committee work, as convenor for a variety of DKE bodies including the Technical Advisory Board International and National Coordination ACOS (Advisory Committee on Safety) Working Group, Friedrich Harleß is also deeply involved in international standardization. Accordingly, since 2002 he has been Chairman of the IEC/TC 44 'Safety of Machinery – Electrotechnical Aspects'; he has chaired the IEC/ACOS since 2004, and at the European level he is the German delegate to the CLC/TC 44X 'Safety of Machinery – Electrotechnical Aspects'.

The aim of the new Chairman of the Technical Advisory Board International and National Coordination is to continue to build upon the position of the DKE within the international standardization landscape, and to advance the topics of eEnergy, eMobility and AAL – all of which are important to German industry – at the international level.

Friedrich Harleß, Chairman of the Technical Advisory Board International and National Coordination



MY
DRIVING FORCE:
TO ENABLE
OUR CHILDREN
TO SLEEP
WITH THE
WINDOW OPEN



Those who have children naturally want to protect them from danger. They want to make them feel safe and secure, today. And want to do everything in their power, today, to provide for tomorrow, giving them a bright future to which they can look forward.

The DKE views itself as a dedicated attorney on behalf of society as a whole. We not only improve electrotechnical safety for today's products and services by means of clearly defined and binding rules, but we also make innovation easier through specifications and standards, thus taking an active role in shaping the future for ourselves and for generations to come.

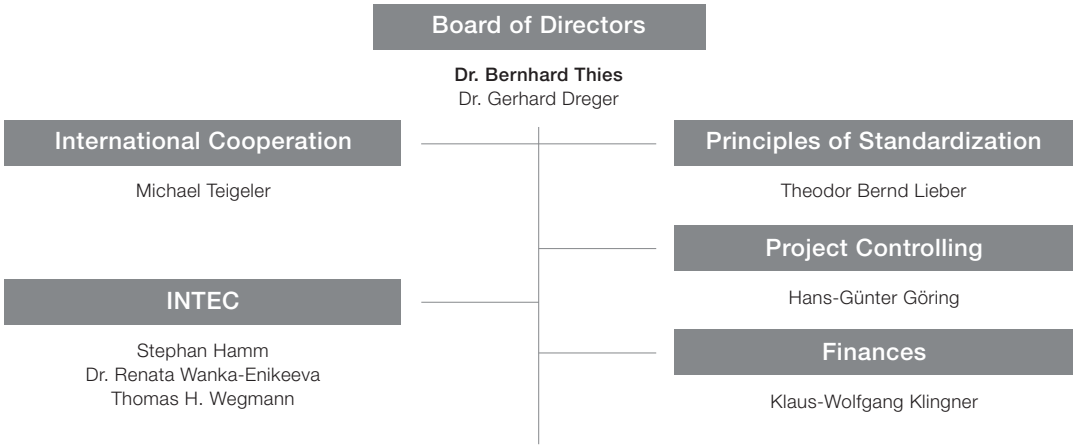
DKE


Life Needs Power


ES IST EINE KUNST,
INNOVATIONEN VORANZUTREIBEN
UND GLEICHZEITIG VERBRAUCHER
UND UMWELT ZU SCHÜTZEN

The people at the DKE

Structure of the DKE business organization



Divisions

Division 1: General electrical engineering, materials for electrotechnology, environmental protection

Klaus-Wolfgang Klingner I Karl Heinz Topp

Division 2: General safety; design, installation and operation of electrical energy supply installations

Dr. Gerhard Imgrund I Dirk Barthel Jürgen Grau Peter Haß Guido Heit Bernd Schröder

Division 3: Electrical equipment for power engineering

Dr. Gerhard Imgrund I Arno Bergmann Ulrich Krieger Andreas Marschner

Division 4: Electrical equipment for current supply, communication cables

Johannes Stein I Wolfgang Kluge Lorenzo Uhl

Division 5: Electrical appliances for domestic and similar purposes, installation equipment

Klaus-Wolfgang Klingner I Thomas Brüggemann Peter Klement Karl-Heinz Panitz Frank Steinmüller

Division 6: Electronic components for telecommunication and electronics

Theodor Bernd Lieber I Rainer Difflipp Dieter Hinterwäller Thomas Sentko

Division 7: Information and telecommunication technologies

Bernd Schwarzzenberger I Klaus-Peter Bretz Gerhard Henninger Dr. Elmar Kallas Jürgen Kipf

Division 8: Electromedical equipment, electroacoustics, ultrasonics, lasers

Bernd Schwarzzenberger I Dr. Klaus Neuder Henryk Sieradzki

Division 9: Process measurement and control technologies

Johannes Stein I Thomas Adler Stefan Emde Ingo Rolle

Standardization

Dr. Stefan Heusinger I Henriette Boos Nadine Metzger Georg Vogel

Status: 31.12.2009

DKE – members of the steering bodies

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HARTING KGaA, Espelkamp
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N.N.

2nd Vice-President:

Professor Dr. Hartwig Steusloff
Fraunhofer Institute for Information and Data Processing IITB, Karlsruhe

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RAG Aktiengesellschaft, Herne

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transpower stromübertragungs gmbh, Bayreuth

Karl Dungs
Karl Dungs GmbH & Co. KG, Urbach

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RWTH Aachen, Aachen

Martin Gerstl
Robert Bosch GmbH, Gerlingen-Schillerhöhe

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Gottfried Wilhelm Leibniz University, Hanover, Schering Institute, Hanover

Jochem Graßmuck
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VGB PowerTech e. V., Essen

Hans Kalthoff
Walther Werke, Ferdinand Walther GmbH, Eisenberg

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Undersecretary Maria Vleurinck
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Chairman, Finance Advisory Board

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Axel Birsul
Siemens AG, Berlin

Werner Sterk
Commission for Occupational Health and Safety and Standardization (KAN), Sankt Augustin

Dr. Wolfgang Leetz
Siemens AG, Healthcare Sector, Erlangen

Georg Luber
Siemens AG, Regensburg

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Secretary of the German National Committee of the IEC
Secretary of the German National Committee of CENELEC

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Siemens AG, Erlangen

1st Vice-President:

Thomas Niemand
RWE Rheinland Westfalen Netz AG, Essen

2nd Vice-President:

Uwe Kampet
BSH Bosch und Siemens Hausgeräte GmbH, Berlin

Divisional Chairmen:

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RWTH Aachen, Aachen

Additional Members:

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Klaus Kuonath
Daimler AG, Sindelfingen

Enno Liess
Bonn

Dr. Michael Schaefer
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Friedrich Schöpf
Robert Bosch GmbH, Ditzingen

Dr. Ulrich Spindler
Moeller Eaton Holding GmbH, Bonn

Werner Sterk
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Volker Gebauer
Federal Network Agency [Bundesnetzagentur], Mainz

Friedrich Harleß
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Dr. Georg Lütteke
Philips GmbH, Aachen
ZVEI TK FV 14

Hans Meierhofer
Federal Network Agency [Bundesnetzagentur], Bonn

Publisher

VDE ASSOCIATION FOR ELECTRICAL,
ELECTRONIC & INFORMATION TECHNOLOGIES

Responsible for the daily operations of the

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Electrical, Electronic & Information
Technologies of DIN and VDE

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