DOI: 10.25515/PMI.2017.4.487

УДК 620.9+340.1

LEGAL CHALLENGES OF THE NEW ENERGY POLICY IN GERMANY

Marian PASCHKE
University of Hamburg, Hamburg, Germany

German Energiewende has substantially changed the electricity mix in Germany. Green electricity from wind, solar, water and biomass now provides the largest contribution to the total electricity consumption. In this respect, Energiewende can be regarded as an overall success. But in parallel to this scenario, a critical discourse has evolved concerning socio-political, economic and legal issues. The congruence of objectives and measures – for example, in regards to ensuring security of supply, expansion of electricity networks, development of electricity price and environmental consequences – in the course of expansion of electricity generation from renewable sources is the main focus of socio-political and economic discussions. Accelerated phase-out of nuclear energy and constitutional disputes regarding the legality of national orientation of the promotional scheme for green electricity in respect to the integration of German electricity sector in the European internal market for energy are in the centre of the debate and have a remarkable impact on the energy policy in Russia as well. Against this background, present article examines the contribution of German Energiewende to the resolution of complex challenges of the developed industrial society.

Key words: Energiewende, legislative basis, green electricity, nuclear phase out, climate protection, energy consumption, national constitutional law, European law

***How to cite this article*:** Paschke Marian. Legal Challenges of the New Energy Policy in Germany. Zapiski Gornogo instituta. 2017. Vol. 226, p. 487-496. DOI: 10.25515/PMI.2017.4.487

Introduction. In 2011, under the impact of the nuclear disaster at Fukushima, the German government decided to convert electricity generation of around 80 % from fossil fuels and nuclear energy to 80 % from renewable energy sources in less than 40 years [1]. The concomitant political, legislative and administrative measures are referred to as «Energiewende». This term is not fully accurate, since the central measures, especially the so-called nuclear phase out and the expansion of electricity production from renewable sources, had already been decided and set in motion prior to 2011 [2]. Two basic elements of the German Energiewende, namely complete nuclear phase out and accelerated expansion of renewable energies, have already had a history of development, even if it has been a brief one so far. The decision to dispense with the production of nuclear energy, or rather the consumption of nuclear power in Germany, dates back to the year 2000, but it was accelerated by the amendment to the Atomic Energy Act in 2011 and thereby decided nuclear phase out until the end of 2022 [3]. Political, legislative and administrative support of electricity from renewable sources has been provided since the adoption of the Act on Feeding of Electricity from Renewable Energy Sources in 1990[*]; in 2014 Energiewende led to the amendment of the relevant law.

Energiewende took place in the development of energy concept, adopted by the German government in September 2010[**]. It outlines Germany's energy policy orientation until 2050 and specifies measures for development of renewable energy, development of the networks and energy efficiency. In the wake of the meltdown at Fukushima in March 2011, the role of nuclear power, as represented by the energy concept, has been re-evaluated [4]. The seven oldest, plus one additional, nuclear power plants were closed down permanently; it was also determined that the operation of the remaining nine nuclear power plants would be gradually phased out until 2022[***].

[*] BGBl (Federal Law Gazette). 1990-I, p. 2633.

[**] Federal Government. Energy Concept for an Environmentally Sound, Reliable and affordable supply of energy on 28/09/2010, available at: http://www.bundesregierung.de/ContentArchiv/DE/Archiv17/_Anlagen/2012/02/energiekonzept-final.pdf?__blob= publicationFile&v=5

[***] Federal Ministry of Economics and Technology. Die Energiewende in Deutschland (The energy transition in Germany), 2012, available at: http://www.bmwi.de/Dateien/BMWi/PDF/energiewende-in-deutschland, property=pdf,bereich=bmwi2012,sprache=de, rwb=true.pdf

DOI: 10.25515/PMI.2017.4.487

The concept of Energiewende has five general objectives: Greenhouse gas emissions should be reduced by 2050 by at least 80 %. Renewable energies should be developed into one of the cornerstones of energy supply. At the same time, the aim is to reduce energy consumption in the long term. By 2050 power consumption should be reduced by 25 % compared to 2008; by 2020 it should already be decreased by 10 %; in 2050 the final energy consumption in the transport sector should be declined by about 40 % compared to 2005. Building renovation rate needs to be doubled, from the current figure of less than 1 % per year to 2 % of the total building stock. Energiewende should also contribute to climate protection objectives of the UN Framework Convention on Climate Change [5].

Therefore, in the course of short history of Energiewende, initial optimism and confidence have been replaced by sobering restraint; this is known as the «paradox of Energiewende»: an increase in electricity production from renewable energy sources has led to price declines on the electricity exchanges; this in turn has been conductive to polluting ways of electricity production (such as coal) [6]. Energiewende goes hand in hand with increasing CO_2 emissions in Germany, and despite the growing number of environmentally friendly electricity production from wind turbines, photovoltaic and biogas plants, it is not a spur, but rather, by a somewhat paradoxical contrast, a hindrance to the desired climate protection objectives.

Statement of the problem. The original concept, provided for the promotion of electricity produced from renewable sources, implied a tiered approach. Briefly outlined, the five stages include: connection of the electricity generation plants to the network; transmission of electricity to transmission system operators; equal contribution of the amount of electricity to network operators; transmission of electricity to power supply companies and then sale to the final consumer.

First, a requirement was established that local distribution network operators had to prioritize grid connection systems for the generation of electricity from renewable energy sources. In the second stage, it was accompanied by prioritized purchase and transmission of electricity from renewable energy sources by distribution system operators to a respective transmission system operator. This was not only a physical but also a commercial obligation, since receiving distribution network operators had to pay a statutory remuneration to the administering plant operators. At the third stage, a (horizontal) equalisation took place between transmission system operators to balance the differences between windy and low wind regions; finally, each of transmission system operators had to handle the same amount of electricity from renewable sources. At the fourth stage, system operators transferred electricity from renewable sources, again physically and commercially, to downstream energy companies. Quantitatively speaking, EEG quota was concerned with the amount of energy from renewable sources, physically administrated to respective transmission network operators within their control area, and with the electricity, delivered to the final consumers by power supply companies in these control areas. Transmission system operators were entitled to a legally defined payment claim for the supply of energy to power supply companies; the average price was calculated from the average of remuneration rates, weighted by the quantities delivered. Finally, at the fifth stage, power supply companies had to sell acquired electricity to final consumers. Regulatory stipulations for this final stage were not and are not provided for by law until today [7-9].

The hereby legally established concept was applicable until 2009 and formed a self-contained (promotion) model. It was characterized by the fact that it did not make use of any state resources; the cost, or rather the commercial promotion, of renewable energies was fully borne by electricity consumers. The consumers were meant to pay a levy for the promotion of renewable energies, embedded in the price of electricity. But the established model also caused substantial administrative and regulatory difficulties, especially with respect to complex calculations of volume and price components [10].

DOI: 10.25515/PMI.2017.4.487

A conceptual change was effected by the reform of 2009. It arose from realisation – acquired through accumulated experience – that physical transfer of electricity from renewable sources to power supply companies should neither exceed nor fall below a specific maximum or minimum volume. To ensure this, it was initially necessary for the transmission system operator to purchase additional quantities of electricity from conventional power generation. This did not only prove to be inefficient, but also very costly. Therefore, a new mechanism was introduced in 2009. Since then, transmission system operators no longer (physically) transfer electricity from renewable sources to downstream energy companies, instead they have a right to market respective quantities on the electricity power exchange. Spot market sales on the stock exchange do not regularly reach the level that corresponds to the fixed rates of remuneration. Transmission system operator should then be reimbursed for the resulting cost difference by a levy (the so-called EEG Levy) from power supply companies. Part of this compensation mechanism is that power supply companies in their turn add the cost of this levy to the electricity price that has to be paid by the consumer. Partial exemption from the payment of EEG levy is provided for electricity-intensive enterprises [11, 12].

In 2014, EEG was reformed again; this reformation introduced changes regarding further development of renewable energies. These changes were one element of the comprehensive legislation in the scope of Energiewende and should therefore be presented in this context.

The legislative basis of German Energiewende was created by a series of laws. They especially relate to four main areas and, in particular, include the legislative acts outlined below.

Atomic Energy Law. One of the first legislative steps towards the implementation of Energiewende was a change to the Atomic Energy Law*. Thereby it was decided to (gradually) stop electricity generation from nuclear energy by 31st December 2022. Closer inspection of the therefore necessary amendment to the Atomic Energy Act shows that this change stands for the reversal of a trend that, up until that point, had not followed a straight line [13]. The starting point of this development was the «nuclear consensus» from 2000, in which the Federal Government, acting at that time, and companies of the nuclear industry agreed to end the production of nuclear energy. In order to achieve this purpose, the remaining electricity was allocated by law to the existing nuclear power plants; the assignment was based on a standard time-frame of 32 years. In 2009, after a change of government, it was politically decided to continue using nuclear energy as a bridging technology for a longer period of time. The implementation of this conception was realised with power supply companies, according to the amended nuclear consensus through statutory allocation of additional residual quantities of electricity**. As a result, it came to a statutory extension of the remaining authorised term for existing nuclear power plants. The hereby extended remaining terms were later revoked by a further amendment to the Atomic Energy Act*** in response to the nuclear disaster at Fukushima; additionally this resulted in the exact time limit for the operating life of each individual nuclear power plant. The thereby legally accelerated nuclear phase-out has been, and still is, subject to legal controversy surrounding the question of whether these actions are a de facto expropriation, which would violate the guarantee of ownership under constitutional law and regulations of the Energy Charter Treaty.

Promotion of green energy. The second legal act of Energiewende involved a change in the promotion of renewable energies. The changes introduced by EEG 2012**** were primarily intended to further increase effectiveness and efficiency of the legislation. Furthermore, CO_2 abatement costs, associated with the use of renewable energy, were meant to be significantly reduced. A con-

* Act on the controlled termination of the use of nuclear energy in the commercial generation of electricity from the 2nd of April 2002. BGBl (Federal Law Gazette). 2002-I, p. 1351.

** Cf. eleventh Amendment of the Atomic Energy Act of the 8th of December 2010. BGBl (Federal Law Gazette). 2010-I, p. 1814.

*** Cf. thirteenth Amendment of the Atomic Energy Act of the 31st of July 2011. BGBl (Federal Law Gazette). 2011-I, p. 1704.

**** Act on Granting Priority to Renewable Energy Sources (Renewable Energy Sources Act – EEG) from the 28th July 2011. BGBl (Federal Law Gazette). I-2011, p. 1634.

DOI: 10.25515/PMI.2017.4.487

ceptual reorientation followed, when the concept of promotion took a more market-oriented approach. EEG 2009 was the first amendment to consider stock market prices as a part of the promotion concept, which provided for the marketing of electricity from renewable sources by transmission system operators; a statutory target was established, according to which plant operators themselves had to operate as close to the market as possible – the aim was to establish direct marketing of green electricity by generating plant operators [15].

With the choice of direct marketing, plant operators had the chance to obtain a higher compensation than the one established by law. With the option to sell electricity from renewable sources directly to meet demand, the chances of supply and demand could thus be used for the first time. One of the established model options put electricity traders into the position to pay plant operators a higher electricity price, because they were in turn partially exempted from the EEG levy if the composition of their portfolio, from which they supplied electricity, met legal requirements. If the system operator chose another model, the market premium, he had a claim for compensation amounting to the difference between the market price and the statutory remuneration as well as additional costs of direct marketing by means of a statutory management premium.

Promotion of offshore wind energy. Amendment to the legislation on power supply[*] regulates electricity generation on high seas by way of offshore production facilities. The amendment, as a part of Energiewende, is supposed to make a substantial contribution towards meeting future energy demands of the Federal Republic of Germany. According to it, transmission system operators are obligated to provide the annual offshore grid development plan, which contains all the necessary actions for efficient, safe, reliable and economic connection of offshore installations, including a schedule of their implementation. The offshore grid development plan is reviewed and approved by the authorities and forms (in addition to the onshore grid development plan) the basis for the federal consumption plan.

Network expansion. The Grid Expansion Acceleration Act (NABEG)[**] provides for the assessments of nationwide territorial impact and planning approval from the central authority for electricity transport lines of European or national importance (especially extra-high voltage lines). Consequently, all statutory provisions relevant to the process, in particular those relating to environmental compatibility, as well as other interests of spatial planning and nature conservation law, will be examined. Procedural rules for planning and planning approval include opportunities for stakeholders to be fully incorporated. Both procedures are preceded by an application conference with ample opportunities to participate.

EEG 2014[***], with its changes on volume control and direct marketing, introduced significant changes to the promotion regime of renewable energy. It is the first amendment that provides for a volume control of eligible electricity from renewable sources. The Act also includes mechanisms that ought to reduce promotion costs of electricity from renewable sources in terms of cost efficiency. The volume control is carried out in such a way, that an expansion target is determined for the share of consumption of every climate neutral energy source for certain periods of time. This ought to make actual implementation more specific and predictable. Development targets for onshore wind energy are basically consistent with the annual quantities of the latest (boom) years, while targets for solar energy and biomass have been significantly reduced compared to their past developments. This states the lower economic suitability of these two forms of power generation for the support scheme. The amount of funding is adjusted four times a year, depending on the expansion of previous twelve months, to ensure control and adherence to the expansion targets. It requires extensive administrative work to develop a nationwide installation register, to which plant operators must report certain information about their plants in order to receive the funding for their installation [17].

[*] Third Law regarding the amendment on power supply from the 20th of December 2012. BGBl (Federal Law Gazette). 2012-I, p. 2730.

[**] Grid Expansion Acceleration Act (NABEG) from the 28th of July 2011. BGBl (Federal Law Gazette). 2011-I, p. 1690.

[***] Act from the 21st of July 2014. BGBl (Federal Law Gazette). 2014-I, p.1066.

DOI: 10.25515/PMI.2017.4.487

A bundle of measures was introduced to reduce electricity costs for consumers. An (additional) step towards desired market and system integration of renewable energies has been taken by the legislature by following a concept, which introduces mandatory direct marketing (for new installations) instead of previous promotion concept of «produce and forget». Another goal was to improve the integration of renewable energy in the national and European electricity markets. Furthermore, statutory provisions, which (partially) exempted energy-intensive companies from having to pay EEG levy, were amended. Originally, it was considered to reduce the number of privileged companies and thus limit the burden of EEG levy. With regard to the compatibility of the privileges with the EU Commission's guidelines on State aid for energy and environmental protection, new regulations were designed to prevent an increase in the number of beneficiary companies and the loss of revenue, as compared to previous regulations. Finally, a fundamental change in determination of the promotion amount was stated as a new principle for the promotion of green electricity. Previous administrative system, used to determine the promotion amount, had to be replaced – in the field of solar energy production on open space systems – with a new competitive system, which determines amount of the promotion and eligibility by calls for tenders. The final aim of the system change is to achieve the objectives of Energiewende with less expense. In the light of experience, particularly regarding pilot tendering process, the tendering procedure should be assigned to other renewable energies no later than 2017 [18].

Discussion. Legislation of Energiewende raises a number of legal challenges that are basically concerned with its compatibility with national constitutional law and European law. The following discussion is limited to the exposition of these key problems.

Accelerated phase-out of nuclear energy. Regarding the accelerated phase out of nuclear energy under the legislation of Energiewende, the question arises whether it is compatible with the fundamental right of property. In fact, three major energy companies have raised constitutional complaints in Germany to assert the violation of their constitutionally protected right of property. Moreover, a public energy supplier, which has its principal place of business abroad, has raised a request for arbitration at the World Bank tribunal ICSID; they asserted a claim for compensation with reference to the Energy Charter Treaty. In accordance with a controversial interpretation of the law, only the fundamental rights laid down in the Basic Law and not the EU Charter of Fundamental Rights can be used as review standards for the compatibility of the accelerated nuclear phase-out. The accelerated nuclear phase out is considered a sovereignty decision on energy policy, which establishes its legitimacy as a legal issue of national law and thus a question of national constitutional law [19].

According to the legislation, nuclear phase out cannot be considered a compensable “de facto” expropriation. The operation of affected nuclear power plants was limited, even prior to the legislation of Energiewende, by the reduced volume of residual current. This is the reasoning behind a wide-spread legal opinion that regulations on the nuclear phase out, which make it possible to return investments and generate a reasonable profit, hold up to a review of proportionality and are not beyond the discretion available to the national legislature. Another evaluation comes into question, if an energy supplier has made new investments into existing installations in reliance on the continued existence of the power plant, which then become useless in the course of legislation in the phase-out process. Overall, the most predominant reasons suggest that, from the perspective of property protection, phasing out of nuclear energy under Energiewende legislation must be understood as a non-compensation determination to the content and limits of the possession of energy generation plants and not as a “de facto”-expropriation that requires compensation.

Promotional scheme for renewable energy. *Compatibility with State aid rules*. The second cornerstone of Energiewende, promotional scheme for the development of renewable energies, raises questions of compatibility with European and constitutional law. In 2014 financial support amounted to 20 billion Euros. The costs are calculated by transmission system operators, allocated

DOI: 10.25515/PMI.2017.4.487

to electricity suppliers and then regularly shifted onto the final consumer. Electricity-intensive companies are privileged by means of a discount on the support costs for green electricity; these discounts in particular prompted the European Commission to initiate a formal procedure, which questions their compatibility with EU State aid law [20].

Compatibility with the free movement of goods. The question of compatibility with European law (ensuring free, competitive trade flows) also arises in the respect that promotion of green power, as a part of Energiewende, is designed as a purely national projects. Since the effects of legal provisions are not limited to Germany and German electricity markets, the basic approach taken by the promotion system is discriminatory; support mechanisms are limited to plants from the Federal territory, while green electricity from other states is excluded from the promotion [21]. This poses a question of compatibility between the promotion system and free movement of goods within the European domestic market, protected by European law. According to Energiewende legislation, green electricity is strictly a matter of priority, which means it must be purchased, transmitted and distributed prior to all other types of conventional power generation. The precedence principle does not only apply to conventional forms of domestic power generation, but also to electricity imports from EU neighbouring states. Conventional power plants in Germany and in the EU are being pushed into a reserve position by the priority given to renewable energies – with all resulting economic consequences.

The law of the European Union does not legitimize such far-reaching exemption from the principle of competition. In particular, the 2009 directive on renewable energy* does not allow for an overall foreclosure of competition. On the contrary, this Directive refers to the policy, securing competitiveness for the internal market in electricity, and leaves the European legal obligation to give reasons of competition strictly unaffected. Any other result would also be incompatible with the hierarchy of EU law: Union law makes it mandatory to ensure free movement of goods and thereby also ensures competition in the internal market for electricity. The Directive on the internal electricity market** defines this principle in regards to the electricity sector [22]. The Renewable Energy Directive grants limited restriction of competition, resulting from the mechanisms of renewable energy support, but not a complete abolition of competition in the field of power generation.

The Union law requires a competitive system of power economy in order to promote a common market of EU Member States. Member State regulations that block the competition are therefore not compatible. The German system of renewable energy support does not only cause significant restriction on the competition between electricity from renewable energy sources and conventional power generation at the national level, but also blocks electricity exports from EU region to Germany. Because of the purely national orientation to the priority principle, this applies not only to electricity from conventional power plants, but also to the use of renewable energy in the EU. Of course, it cannot be overlooked that any promotion of renewable energies implies some impairment of competition. However, this must not lead to undue discrimination of EU foreign producers of renewable energy or to a comprehensive blockade of competition. In particular, total blockade of electricity supply from other EU countries is not justified for reasons of competition law, as well as ecological aspects – with regard to the equivalence of renewable energy regardless of the production place. In future, Member States are therefore required to create a better (more coherent) balance between environmental and competitive interests under European law.

Compatibility with the German financial constitutional law. Apart from challenges of European law, green electricity is also the focus of a financial-constitutional examination. It concerns the question of whether the levy funding represents an extra duty, which would conflict with the rules

* EG Directive 2009/28 from the 23rd of April 2009. ABl. N L140, p. 16.
** 2009 Directive/72/EG from the 13th of July 2009. ABl. N L211, p. 55.

DOI: 10.25515/PMI.2017.4.487

of financial constitutional law. According to German constitutional law, extra duties are only allowed under strict conditions. These include, in particular, the criteria that the affected group must form a homogeneous category, distinguishable from the community, and that the revenue of the duty must be used for the benefit of the group members [17]. These conditions are not fulfilled when it comes to the promotion of green electricity, not only because the totality of electricity consumers is not a homogeneous group, distinguishable from the community, but also because the revenue of EEG levy is not used for the benefit of electricity consumers.

However, this criticism only applies if EEG levy is considered a duty that falls under the scope of financial constitutional law. According to EEG levy under the concept of German Energiewende, the public sector will not gain access to the financial resources of EEG means. According to the system of redistribution, financial resources are only available to private parties in the electricity market and therefore cannot be classified as extra duties.

Specific governmental regulatory tasks. *The management of network congestions.* In some cases, networks are exposed to a considerable amount of physical stress because of the increasing proportion of volatile electricity from renewable sources in the course of Energiewende. Traditionally they are not designed to withstand the loads coming from the new mix, which creates the risk of overuse. To avoid a black out, it is necessary to reduce the feed-in if necessary. This requires a legally defined congestion management.

German legislators have adopted a statutory scheme for the management of congestions. According to that, network operator is entitled to carry out the necessary regulations to eliminate network congestions.

Since the legislature knows about the precedence of electricity from renewable energy sources, the regulation applies to a particular situation when the network is temporarily overloaded with electricity from renewable sources. Regarding the question of how the down-regulation takes place, two contrary answers come into question: either all electricity producers – according to the principle of solidarity – are obliged to throttle their feed-in; the other answer could be that, in the interest of planning and investment security of the already connected plant operators, and in accordance with the temporal principle of priority, only the last investor or investors have to put up with the throttling.

In this regard the regulatory tasks of the legislator prove to be quite complex. Ultimately it will take a holistic management scheme, which must focus not only on various types of supply and production, but also on the situation of network expansion. The legislation of German Energiewende has accepted legislative challenges and overcome some of the regulatory tasks.

Privileged status of electricity-intensive companies. Not so small conflicts arise when it comes to the citation of electricity-intensive companies to co-finance promotion of renewable energies. To free electricity-intensive companies (completely or partially) from the financial burden is required, in particular, for competition policy considerations to keep these companies well positioned in the international competition against competitors from other locations, where they are not charged with a levy for the cost of renewable electricity. From an industrial point of view, there is a risk that without the exemption energy-intensive industries will move to other more cost-effective locations, unencumbered by the costs of promoting renewable energies. Quite the contrary can be derived from an ecological point of view, namely that electricity intensive companies should among the first be financially involved in the restructuring of electricity generation and promotion of environmentally beneficial renewable sources [14]. Moreover, for some industrial enterprises cost reduction requires redistribution of the expenses to non-privileged electricity consumers, i.e. private customers or not current intensively managed companies, which generates additional costs for the latter.

DOI: 10.25515/PMI.2017.4.487

The German legislature made a fundamental decision to (partially) exempt electricity-intensive companies from the cost burden of the levy for the promotion of renewable energies. During the revision of EEG 2014 amendment, abolishment of these privileges was considered, but ultimately rejected. The decisive factor was a potentially negative impact on the German labour market and proportionally low cost reduction that could be achieved in the short term by cutting privileges for remaining electricity consumers. The content of EEG 2014 amendment was refined by close arrangement with the EU Commission. For reasons regarding the compatibility of the exemption clause with the new guidelines of the European State aid – which came into force on 7th January 2014 – the EU Commission insisted that electricity-intensive companies had to pay 15 % of the promotion cost for the development of renewable energies and could be exempt from any further costs. The compromise regarding the State aid, negotiated with the European Commission, provides that the minimum contribution of companies from specific sectors and industries may be reduced even further. With that Germany has implemented in its legislation a potential for company discounts on the cost burden of renewable energies promotion. These discounts should be compatible with the requirements stipulated by the law of the European Sate aid.

Economic efficiency of conventional power plants and capacity management. A particular challenge is to ensure the efficiency of conventional power plants with the increasing supply of electricity from renewable sources. Diverse market effects are at the expense of conventional power supply, as a consequence of the promoted energies. The growing offer of electricity from renewable sources does not only lower the demand for conventionally generated electricity. The promoted supply also leads to lower prices. Profitable operation of conventional power plants is being hampered by generation of electricity from renewable sources. While the operating costs for renewable energy plants are almost zero and they only need to refinance their capital costs, conventional power plants in addition to the cost of capital need to cover fuel costs. The amount of electricity sold from conventional production regresses due to an increased supply of electricity from renewable sources; this also decreases the utilization of power plants. The contribution margin for the fixed costs is reduced and the full cost can no longer be generated.

Promotion of renewable energies essentially leads to a displacement of conventionally generated electricity and is economically necessary for lowering profitability of existing or new conventional power plants. The greatest pressure is put on new low CO_2-producing and energy-efficient plants, and not on (fiscally amortized) brown coal power stations or fossil generated plants, recently fired by cheap hard coal, regardless of their adverse environmental impact.

On the other hand, conventional power plants are indispensable for the transitional period. They are needed to fulfil the back-up function in the interests of conversion from fossil-based electricity generation to renewable energies, which is essential for a reliable power supply in times when the wind does not blow and the sun does not shine. Transmission system operators require continuous balancing energy to bridge any supply shortfalls, which currently can only be reliably provided by conventional power plants. The extreme pressure of profitability does not just threaten to decommission power plants, affected by the base load, but also to abandon future-securing investments in conventional power plants.

The legislature of German Energiewende has not yet mastered these challenges of economic efficiency of conventional power plants. So far only regulations to improve the framework conditions were enacted to ensure security of supply in the power plant sector. The broader question, concerning proper market design, creation and promotion of so-called capacity markets, is merely being debated. Capacity markets would, in the interests of security of supply, ensure the willingness to invest in power plants and secure a reliable supply of electricity. The conceptual basis for the creation and design of such capacity markets has not yet been specified; concrete models are still lacking.

DOI: 10.25515/PMI.2017.4.487

Conclusion. Germany has made its way to assume a pioneering role for the renewal of energy industry and regulatory framework for the integration of renewable energy in the industrial environment. This role has its price. It is a price that includes not only economic but also political, social and legal costs. The steps on the path of Energiewende in an industrial society, which is committed to the concepts of sustainability, integrity of creation and responsibility towards future generations, have not yet been tested to any great extent. Accordingly, the course and directions of development are still experiencing a number of teething troubles, cause significant learning costs and are associated with significant legal risks.

Expanded promotion of green electricity in the course of Energiewende might be a major step towards the fulfilment of climate protection objectives, urgently required in the interest of the general public. Responsible energy policy will have to combine this task with other objectives; apart from environmental objectives other goals of economic and social nature must be considered and fulfilled. Conversion of energy system through the accelerated phase-out of conventional power generation and transition to climate-protecting energy production from renewable sources is the major target of German Energiewende; at the same time, attention should be given to the security of supply, economic affordability and social justice for various affected energy consumers. So far these complex objectives have not been achieved.

The reform from the heart of Europe is, because of its objectives, not only important for the energy industry and national economy of Germany. It has a pan-European dimension, not only because of its effect on cross-border competition, but also in terms of whether it is possible to develop an exemplary Europe-wide reform. Experience proves that a reform cannot succeed without economic support. Coping with the thereby resulting national conflicts between affected stakeholders and the tension in cross-border areas is one challenge of national energy policy that often receives little consideration. It requires an extensive effort from all participants both at Member State level and at the level of the European Union.

German Energiewende, and the thereby established legislation, is an ongoing, not yet completed process. In the struggle to achieve a legal order that is appropriate for these complex objectives, a proper coordination of market and regulatory elements is needed. There is an increasing move towards a more competitive and less regulative conception of the development of renewable energies. A master plan and a road map are not yet developed; legal framework will be further modified and adapted in the ongoing evaluation process of the gathered experiences.

REFERENCES

1. Bickenbach C. Die Finanzierung der «Energiewende» in der Zwickmühle aus Finanzverfassung und Art. 107, 108 AEUV. *Die Öffentliche Verwaltung*. 2013. Vol. 24, p. 953-961.

2. Degenhart C. Gesetzgeberische Sorgfaltspflichten bei der Energiewende. Nomos Verlagsgesellschaft mbH & Co. KG, 2013.

3. Di Fabio U., Durner W., Wagner G. Kernenergieausstieg 2011. Nomos Verlagsgesellschaft mbH & Co. KG, 2013, p.9.

4. Gawel E. Die EEG-Umlage: Preisregelung oder Sonderabgabe? *Deutsches Verwaltungsblatt* (DVBl). 2013. Vol. 128. N 7, p. 409-417.

5. Kloepfer M. 13. Amendment of the Atomic Energy Act and fundamental rights. *Deutsches Verwaltungsblatt mit Verwaltungsarchiv*. 2011. Vol. 126. N 23, p. 1437-1446.

6. Kloepfer M., Bruch D. (2011). Die Laufzeitverlängerung im Atomrecht zwischen Gesetz und Vertrag. *Juristen Zeitung*. 2011. Vol. 66(8), p. 377-387.

7. Kröger J. Die EEG-Umlage ist keine Sonderabgabe – zugleich Anmerkung zu OLG Hamm, Urteil vom 14. Mai 2013 – 19 U 180/12. Zeitschrift für Umweltrecht. 2013, p. 480-483.

8. Ludwigs M. Die Energiewende im Zeichen des Europa-und Verfassungsrechts. *RW Rechtswissenschaft*. 2014. Vol. 5. N 2, p. 254-276.

9. Nebel J.A. Das Eigenverbrauchsprivileg des EEG 2014 im Kontext des EU-Beihilfeverfahrens und der Umwelt- und Energiebeihilfeleitlinien 2014 – 2020. *Neue Zeotschrift für Verwaltungsrecht*. 2014. Vol. 14, p. 765-770.

10. Manssen M. Die EEG-Umlage als verfassungswidrige Sonderabgabe. *Die Öffentliche Verwaltung*. 2012. Vol. 24, p. 499-503.

DOI: 10.25515/PMI.2017.4.487

11. Müller T., Kahl H., Sailer F. Das neue EEG 2014 – Systemwechsel beim weiteren Ausbau der Erneuerbaren Energien. *Energierecht*. 2014. Vol. 4, p. 139.

12. Ohms M. J. Recht der Erneuerbaren Energien: Klimaschutz im Wirtschaftsverwaltungsrecht. Verlag CH Beck, 2014.

13. Ossenbühl F. Verfassungsrechtliche Fragen eines beschleunigten Ausstiegs aus der Kernenergie. Nomos Verlagsgesellschaft mbH & Co. KG, 2012.

14. Paschke M., Büdenbender U., Gärditz K.F., Ludwigs M., Löwer W., Stoll P.-T., Wolfrum R. Rechtliche Rahmenbedingungen für die Reform der Förderung erneuerbarer Energien in Deutschland. In: Wolfrum (ed.). Berlin, 2014, p. 42.

15. Pielow J.-C. Die Energiewende auf dem Prüfstand des Verfassungsund Europarechts. *Europäisches Umwelt- und Planungsrecht*. 2013. Vol. 11. Iss. 3, p. 150-165.

16. Säcker F. (ed.). Energierecht. 3rd edition. R&W, 2014. Vol. 2.

17. Salje P. EEG 2012. Kommentar. 6th edition. Carl Heymanns Verlag, 2012, Introduction, § 33g, p. 13 ff.

18. Baur J.F., Salje P., Schmidt-Preuß M. (ed.) Regulierung in der Energiewirtschaft. Chapter 34. 2011, p. 497-501.

19. Schmidt-Preuß, M. Das Erneuerbare-Energien-Gesetz: Aktuelle rechtliche Fragen und Probleme. In: Klees A., Gent K. Festschrift für Peter Salje. Carl Heymanns Verlag. 2013, p. 397-401.

20. Schneider J.-P. in: Schneider/Theobald (ed.), Recht der Energiewirtschaft, 4th ed. 2013, § 21, p. 1245-1325.

21. Wieland J. Verfassungsfragen der Beendigung der Nutzungder Kernenergie. *Zeitschrift für das gesamte Recht der Energiewirtschaft*. 2013. Vol. 6, p. 252-259.

22. Vergoßen J. Das Einspeisemanagement nach dem Erneuerbare-Energien-Gesetz. Nomos Verlagsgesellschaft mbH & Co. KG, 2012.

***Autor* Marian Paschke,** *Doctor of Legal Sciences*, *Professor*, *marian.paschke@jura.uni-hamburg.de* (*University of Hamburg*, *Hamburg*, *Germany*).

The paper was accepted for publication on 6 February, 2017.