

The Financing of Decommissioning – A View on Legal Aspects in Germany

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ABSTRACT

Nuclear power plants and other nuclear facilities such as nuclear research facilities will be gradually decommissioned. In all cases of decommissioning, no matter what type of nuclear facility is concerned, it must be ensured that adequate financial means for carrying out the decommissioning process will be available when they are needed. This paper analyses whether the necessary measures have been taken in Germany, by describing the legislative framework of decommissioning and the German system for financing the decommissioning process. The author comes to the conclusion that so far, the German system for financing the decommissioning of nuclear facilities has been successful and that currently there is no reason to doubt the amount or the security of the operators' provisions. Eventually there will be a need for modifications to the German system in order to secure the availability of financial provisions in future.

INTRODUCTION

By January 2004 18 nuclear power plants and prototype reactors, 31 research reactors and critical assemblies and 10 fuel cycle facilities had been permanently shut down in Germany.¹ In April 2005, the nuclear power plant "Obrigheim" was phased out. Two of these nuclear power plants, 23 of the research reactors and critical assemblies and one of the fuel cycle facilities were decommissioned by July 2004.² In future, a growing number of nuclear power plants as well as smaller nuclear installations in the research field will be decommissioned. Reasons for this development are to be found in technical wear-out, the fulfilment of development-tasks or the abandonment of a prototype. Another reason for the increasing rate of decommissioning is the amendment of the Atomic Energy Act (AtG) which entered into force in April 2002. By amending the AtG, the German legislator decided to end the use of nuclear energy for the commercial production of electricity. The former purpose of the AtG, the promotion of the use of nuclear energy, has now been replaced by its new purpose to end the use of nuclear energy for the commercial production of electricity in a structured manner (Sec. 1, No. 1 AtG).

In all cases of decommissioning, no matter what type of nuclear facility is concerned, it must be ensured that on behalf of the operators adequate financial means for carrying out the decommissioning will be available when they are needed. E.g. the total amount of expected costs

¹ Federal Office for Radiation Protection (ed), Übersicht zu stillgelegten kerntechnischen Anlagen in Deutschland und Europa (2004).

² Università di Roma „La Sapienza“ – Cumo/Tripputi/Spezia (ed.), Nuclear Plant Decommissioning, 2.ed. July 2004, p. 35.

resulting from decommissioning is estimated at 500,000 to 1 billion EURO per nuclear power plant.³ The costs for decommissioning all nuclear facilities in Germany are estimated at least 25 billion EURO.⁴

This paper analyses whether the necessary measures have been taken to ensure the financing of decommissioning in Germany. To this end, this presentation will start with an overview of the legislative framework, the regulatory body and the licensing procedure concerning the decommissioning and dismantling of nuclear facilities in Germany. Afterwards, the author will turn to the background to and consequences of the German system for financing the decommissioning process before drawing his conclusions.

LEGISLATIVE FRAMEWORK OF DECOMMISSIONING

The German legal framework applicable to the decommissioning and dismantling of nuclear facilities is laid down in various provisions ranging from general statutory acts to specific sub-statutory general administrative provisions, recommendations and technical safety standards.

Overview

First, a brief overview of the German legislative framework for decommissioning shall be given (Fig. 1):

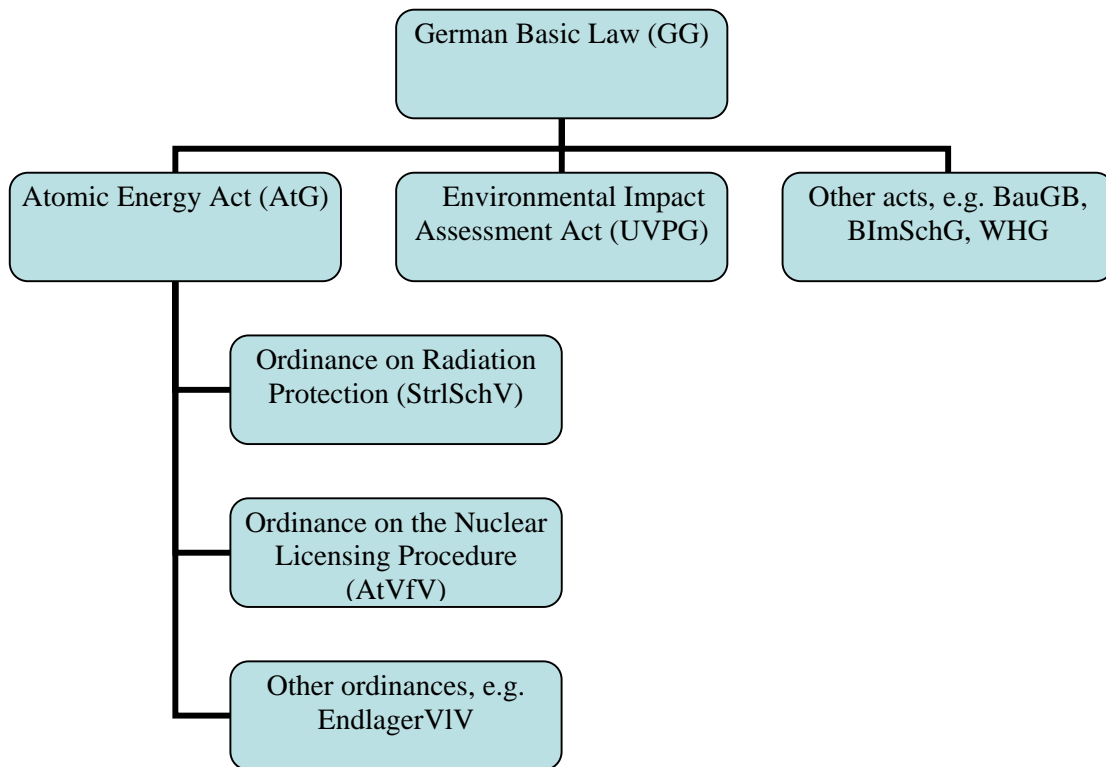


Fig. 1. GERMAN legislative framework for decommissioning – overview

³ AtW – International Journal for Nuclear Power, 7/2005, insert: “Forum in Berlin”, Report of 31.5.2005.

⁴ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (ed.), Die Stilllegung kerntechnischer Anlagen, 2001, p. 30.

The AtG is the legal basis for regulatory activities in the field of atomic law, including the decommissioning of nuclear facilities. It is supplemented by several ordinances that have been issued on its basis. Concerning decommissioning and dismantling, the most important ordinances are the Ordinance on Radiation Protection (StrlSchV) and the Ordinance on the Nuclear Licensing Procedure (AtVfV). Among other things, the StrlSchV provides the procedures and the quantitative requirements for the radiological survey that govern the release of a decommissioned site from nuclear regulatory controls (Sec. 50 StrlSchV). The AtVfV contains provisions for the nuclear licensing procedure including the performance of an environmental impact assessment and the involvement of the public in the licensing procedure.

These statutory regulations are complemented by various recommendations, guidelines and technical safety standards on the sub-statutory level. Apart from the specific nuclear provisions, there is a great number of conventional acts and ordinances that will be applied to the licensing of decommissioning projects, such as the Federal Immission Control Act (BImSchG), the Environmental Impact Assessment Act (UVPG) and the Federal Water Act (WHG). In these domestic provisions, the international obligations resulting from the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management have been taken into account.

License for Decommissioning – Prerequisites for Granting a License

Pursuant to Sec. 7 para. 3 AtG, decommissioning, safe confinement or the dismantling of a nuclear power plant or a research facility shall require a licence. Operators shall ensure that the residual radioactive material as well as disassembled or dismantled radioactive components are utilised without detrimental effects or are disposed of as radioactive waste in a regulated manner.

According to Sec. 7, para. 3, Sentence 2 AtG, the prerequisites for granting a license for the construction and operation of a nuclear facility as laid down in Sec. 7, para. 2 AtG shall be applied to decommissioning accordingly. Thus, among other requirements, a license shall only be granted if the necessary precautions have been taken according to the state of the art in science and technology in order to prevent detrimental effects resulting from the respective decommissioning project (Sec. 7, para. 2, No. 3 AtG).

Regarding the different concepts for decommissioning nuclear facilities, there are two basic strategies envisaged by the AtG: immediate dismantling on the one hand and safe enclosure prior to deferred dismantling on the other hand. The operator may choose between these options. Legally, no priority is given to one or another strategy.

Licensing - Competences and Procedure

In the following, some brief information about the licensing procedure shall be given:

Due to Germany's federal structure, the competences with respect to nuclear facilities are divided: According to Art. 87 c German Basic Law (GG) in conjunction with Sec. 24, para. 1, Sentence 1 AtG, the States have to execute the AtG and its associated ordinances by order of the Federation. Therefore, the licensing procedure is carried out by the State in which the respective nuclear facility is located. The States also have to supervise the nuclear facilities. The States, in

turn, are supervised by the Federation with respect to the lawfulness and appropriateness of the measures taken and are subject to directives issued by the Federation (Art. 85 para. 3, 4 GG). The authorities responsible for nuclear licensing and supervision on the States level are the supreme States authorities as designated by the States governments. The federal supervision of the States authorities is performed by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU).

In fulfilling its regulatory tasks, the BMU is supported by the Federal Office for Radiation Protection (BfS), a subordinate authority of the BMU that is concerned with a broad range of tasks in the fields of nuclear safety and radiation protection. The BMU may also consult experts and independent expert organisations as, for instance, the Technical Inspection Associations (TÜV) as regional and the Reactor Safety Association (GRS) as central technical expert organisations in the field of nuclear safety. Apart from this, the BMU receives further advisory support concerning questions of fundamental importance from the Reactor Safety Commission (RSK) and the Commission on Radiological Protection (SSK).

The procedure for granting a license for decommissioning and dismantling referred to in Sec. 7 AtG is governed by the Nuclear Licensing Procedures Ordinance (AtVfV). On applying for a license, the applicant must submit documents and information which, among other things – e.g. construction plans or information concerning the anticipated environmental impacts – must include the information necessary for assessing whether the state of the art in science and technology is being applied. The stipulations of the AtVfV also require an environmental impact assessment for the decommissioning and dismantling of nuclear power facilities. Once the license has been issued the authority has to supervise the implementation of the works permitted in order to ensure its compliance with the specified conditions and restraints of the license.

FUNDING

Turning to the funding of decommissioning as it is handled in Germany, it has to be stressed that the decommissioning of nuclear facilities represents a fundamental task to the owners as well as to the regulators and authorities. Apart from legal and technical aspects of decommissioning, a matter of special importance is the financing of these projects. Both regulators and operators need to ensure that adequate financial means for decommissioning will be available when they are needed, so that there are no liabilities to be financed by the taxpayer. However, there are no specific rules regulating the financing of decommissioning in Germany. In particular, the AtG does not contain any provision in this respect as far as the decommissioning process itself is concerned.

The financial aspect also arises with respect to radioactive waste, which must necessarily be disposed of. A large part of radioactive waste resulting from decommissioning stems from nuclear power plants and fuel cycle facilities; a smaller part originates from the decommissioning of nuclear research facilities. The total amount of radioactive waste to be disposed of as a consequence of decommissioning is roughly estimated at about 150,000 tonnes.⁵ In contrast to decommissioning, the financing of final disposal of radioactive waste has been regulated in the AtG and its ordinances.

⁵ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (ed.), Die Stilllegung kerntechnischer Anlagen, 2001, p. 29.

From the legal point of view the financing of decommissioning activities and radioactive waste management is a very complex matter since provisions from various legal fields are applicable. The author would therefore like to give a short survey of the financial precautions for the decommissioning of nuclear power plants and the disposal of nuclear waste which have been taken in Germany so far:

Facts Relating to the Financing of Decommissioning

The responsibilities and procedures of funding differ according to whether a nuclear facility is owned by a private company or whether it was established and financed by the State. The costs for decommissioning publicly owned nuclear installations, such as research or prototype facilities and the “inherited” nuclear installations of the former GDR, have to be borne by public funds, i.e. by the respective current budget of the State. The research installations are, generally speaking, financed by the Federation (90%) and the States (10%). In contrast, the decommissioning of privately owned nuclear power plants and nuclear fuel cycle facilities in Germany is financed by these Companies as a transposition of the general environmental “polluter-pays principle”. The electricity companies thus manage decommissioning and dismantling on their own responsibility under the supervision of the competent authorities. They are expected to bear all costs connected with nuclear activities.

Lacking a specific legal framework regarding the funding of decommissioning by the operators, financial resources for nuclear asset retirement are currently provided in the form of provisions built up during the operational phase in accordance with commercial law that applies to the whole economic sector. The provisions are intended to cover the expected costs associated with the decommissioning of their respective plant. These include the costs of the licensing procedure and supervision, the costs of dismantling and the cost of the interim storage and disposal of all radioactive wastes from decommissioning and disposal of spent or irradiated fuel, as well as the expenses for safe confinement. The provisions have to be recorded in the company’s annual accounts.

According to the European Commission, by the end of 2002 the total provisions built up by the German operators of nuclear facilities to finance the decommissioning of nuclear facilities amounted to about 35 billion EURO. Approximately 45% of this sum is intended to cover the costs of decommissioning and dismantling, whereas about 55% is meant to provide for radioactive waste management.⁶

Legal Basis for Building up Provisions, Sec. 249, 253 HGB

In the following, the author would like to inform briefly about the legal basis for building up the aforementioned provisions also known as reserves:

According to German commercial law (Sec. 249 of the German commercial code - HGB), in general each company has to build up financial provisions for obligations which are uncertain with regard to the amount, time of occurrence or the asset but which can be expected to a sufficient degree of certainty. The existing or probable obligation has to be caused financially

⁶ COM (2002) 605 final, 6.11.2002.

before the balance sheet day. According to Sec. 253 para. 1, Sentence 2 HGB, provisions must be built to the amount that is necessary according to reasonable commercial judgement.

Financing of Decommissioning

As mentioned before, Sec. 249 HGB constitutes a duty to build up provisions only if an obligation exists or is probable. In this respect, it needs to be distinguished between the decommissioning process as such and the final disposal of radioactive waste resulting from decommissioning: In spite of the licence requirement for decommissioning established in Sec. 7 para. 3 AtG, according to the prevailing view neither this provision nor other provisions of the atomic legal framework constitute any enforceable obligation on behalf of the operators to shut down and to decommission their nuclear facilities. Nevertheless, Sec. 7 para. 3 AtG is used as the legal basis for building up financial provisions for the decommissioning process. Thus, the existing or probable future obligation required for the building up of provisions according to Sec. 249 HGB is generally based on commercial law in conjunction with Sec. 7 para. 3 AtG. As a consequence, operators are not only recommended, but even obliged to build up provisions in order to take the financial precautions necessary for decommissioning and dismantling their plants.

With regard to disposal of radioactive waste, recourse is had to Sec. 9 a para. 1 und 2 AtG in conjunction with the respective provision of the StrlSchV, forming the legal basis for the operator's future obligation under Sec. 249 HGB.

It has to be stressed, though, that the provisions built up by the operators must not be understood as a decommissioning fund in the proper sense: As the provisions are needed only when the obligations become due, there are no restrictions on the operator companies with regard to the allocation of these provisions until this time.

Financing the Final Disposal of Radioactive Waste

The costs arising from final disposal of radioactive waste are being financed according to Sec. 9 a, 21 a, 21 b AtG. Since the State is responsible for the planning and construction of a repository for radioactive waste, the State initially bears the necessary expenses for the planning and construction of radioactive waste disposal facilities. The polluter pays principle, however, has to be complied with through different mechanisms of refinancing their costs. Therefore, the AtG allows the State to charge the said operators with contributions and advance payments (Sec. 21 b AtG) necessary for the construction of a repository and with fees and expenses (Sec. 21 a, para. 1, Sentence 1 AtG) for the use of the repository. The advance payments according to Sec. 21 b AtG are addressed in detail by the Regulation on advance payments for final disposal of radioactive waste (EndlagerVIV). To sum up, the necessary expenses are initially borne by the State, but these costs are refinanced by means of contributions, advance payments, fees or expenses. A part of these costs are also included in the operator's calculation of the aforementioned provisions.

CONCLUSIONS – ALTERNATIVE OR SUPPLEMENTARY METHODS OF FINANCIAL SAFEGUARD

So far, the German system of financing the decommissioning of nuclear facilities has been successful. Up to now there have been no cases where the lack of financial means has posed a problem for decommissioning projects. At present there is no reason either to doubt the amount or the security of the operators' provisions. Eventually there will be a need for modifications to

the German system in order to secure the availability of financial provisions in the future. The BMU is currently analysing whether the changes of the nuclear power scene – e.g. nuclear phase-out, competition in the electricity market and privatisation - have an impact on the availability of the provisions by the time they are needed for decommissioning.

According to the Interinstitutional Statement of the European Council, Parliament and Commission, which was made in June 2003 in the context of the European Directive concerning the Electricity Market, the aim must be

- that financial resources for decommissioning and waste management are adequate, that means that the sum has to be sufficiently high
- that the financial means are available when needed
- and that they are managed in a transparent way.