Ladies and Gentlemen,

On behalf of German Atomic Forum (DAfF) and the German Nuclear Society I would like to welcome you to our 47th Annual Meeting on Nuclear Technology 2016 here in Hamburg. Despite the German nuclear phase-out, our congress offers a comprehensive outlook on nuclear technology, fostering international exchange in industry, research, politics and administration.

I would like to offer a special welcome to our international participants who come this year from a wide variety of countries: including Belgium, the Czech Republic, France, Switzerland and the UK, the United States, Russia and the Republic of Korea and also nuclear newcomers such as Jordan or Tunisia, who make up some 20 percent of our guests. You all will find a broad range of current issues faced by our industry.

Ladies and Gentlemen,

It is a long time since there were so many nuclear energy issues on the political agenda and on the brink of landmark decisions. We are therefore looking forward eagerly to the speech of Jochen Flasbarth, State Secretary in the Federal Ministry for the Environment, who will hopefully bring us a few answers this afternoon. We will discuss questions about the final disposal of high level waste with Steffen Kanitz, member of the Bundestag, and representatives from Finland, Sweden and Switzerland. H. E. Tomáš Jan Podivínský, Ambassador of the Czech Republic in Germany, will present us with the plans and challenges of the energy policy in his country. Dr. Ulrich Hartmann, Executive Vice-President of RWE Power, will report on current challenges in the energy market. Prof. Dr. Robert Wolf can report on a real scientific breakthrough in nuclear fusion. With Captain Manfred Müller, Head of Flight Safety Research at Deutsche Lufthansa AG, we will take a look into a sector that is also faced with high safety demands on man and machine and from which we may learn something new.

Of course, I would like to thank our partners in the exhibition where you can make direct contact with a large number of companies in our industry. In addition to the wide range of nuclear technology from Germany, we can also welcome an increasing number of international exhibitors. I would particularly like to draw your attention to the Czech pavilion where seven Czech companies and organizations are exhibiting.

Year of decisions – phase-out, financing, site selection
In Germany, we can talk about 2016 as a year of decisions in nuclear energy. The Federal Constitutional Court will rule on the complaints in connection with phasing out nuclear energy and complaints against the nuclear fuel tax, the legislature will restructure the financing of nuclear waste management and the Commission Storage of High-Level Radioactive Waste Materials will present its recommendations on designing a site selection process.

The constitutional complaints regarding phasing out nuclear energy are very important to the complainants but are also about legal certainty for long-term investments per se and therefore about Germany as a business and investment location. I found it remarkable in the reporting of the oral proceedings in March that there were references to a broad understanding of the plaintiffs' legal position. We look forward eagerly to the decision in the fall.

The other proceedings before the Federal Constitutional Court will rule on the legality of the nuclear fuel tax which expires at the end of the year. Secretary of State Mr. Flasbarth, you said at a BMUB event on 30 years of Chernobyl that there were no political plans to extend the tax. Naturally, we are very pleased about this statement.

The final report of the Commission on the Review of Financing the Nuclear Phase-out is now available. Last year the Federal Government subjected the provisions in the nuclear energy sector to a stress test which confirmed that the provisions were adequate. In addition, the Commission has now determined that the present system of provisions for the area of decommissioning and dismantling is appropriate and should be retained. For the long-term tasks in ultimate waste disposal, it has made recommendations regarding appropriate restructuring and task distribution. We very much welcome the division into short and medium-term tasks for decommissioning and dismantling on the one hand, and the long-term commitment to interim and ultimate waste disposal on the other hand. However, it was also the Commission's aim to secure funding from the state's perspective without overtaxing the performance and efficiency of the companies concerned. Unfortunately, this balance has not been achieved: ultimately, the Commission has given a higher weighting to public perception of its result than to the actual performance limits of those concerned and has placed the rather more politically than objectively justified risk premium for transferring provisions to a public-law fund beyond a limit which the companies consider to be objectively justified and economically feasible. Therefore, unfortunately, the Commission's proposals on this point are not acceptable.
Nevertheless, we are still interested in organization and financing of the nuclear phase-out by consensus, we consider the Commission's proposals as a good basis for this and are always prepared to present our arguments in further discussions with policy-makers.

None of these decisions, however, will have any impact on the phase-out of nuclear energy within the statutory time frame.

**Where will the Final Repository Commission lead us?**

The task of the Commission on the Review of Financing the Nuclear Phase-out was to draft recommendations for financing; the Commission Storage of High-Level Radioactive Waste Materials will continue to deliberate on the specific route to a final repository for high-level waste until the middle of June. This decision will have the most lasting long-term effect.

In the meantime, it has been possible to find common positions in spite of much controversy in the Commission. These particularly include the reorganization of structures and responsibilities in waste management and the recommended disposal route, the final disposal of high-level radioactive waste in a deep geological formation with the option of retrievability/recoverability. Other issues, such as the scope of legal remedies in the proceedings or the participation concept are still controversial.

The Commission's work is time-consuming and complex, and its members have tight schedules and high workloads. Our thanks go to Dr. Fischer and Prof. Jäger for their dedicated work in the Commission.

The selection process has received some important stimuli. As a result among other, there is greater awareness of the situation in the local communities of the interim storage facility sites.

However, there are also doubtful interim results. One example of this is the discussion surrounding the function of the cap rock. Although the underlying safety concept is geared to containment of the radionuclides in the isolating rock zone (IRZ), an almost acrimonious discussion is being conducted on assessment of the overburden's protective function as a consideration criterion. It is seriously being proposed to postulate specific criteria for such a protective function only for the host rock salt but not for clay and crystalline host rock. This would run the risk of excluding suitable sites at an early stage.
It is to be hoped that the Commission will reflect on the results of the Working Group for the Selection of Repository Sites (AkEnd) and will abstain from burdening the future process with criteria that are unnecessary, hamper the comparability of different solutions and are only aimed at discrediting individual solutions. It is also essential, in terms of a transparent and confidence-building search process, for host rocks and therefore also sites which may be considered for a final repository to be assessed according to consistent scientific criteria.

The anticipated time required for the process is of great interest, particularly to the public who want a quick and safe solution to waste disposal and to the interim storage facility sites. According to the Site Selection Act [Standortauswahlgesetz = StandAG] and the National Waste Management Program, the site decision is due to be made in 2031 and commissioning of the facility should take place in 2050. Experts inside and outside the Commission and numerous observers consider this timeframe to be unrealistic. Regrettably, there has been no targeted discussion so far as to how the process can be streamlined without sacrificing safety. For example, the analysis of projects abroad has made it clear that underground exploration on a scale comparable to the complex and time-consuming German procedure is not carried out in any other country prior to site selection. Technical advances in above-ground exploration allow the selection process to be shortened significantly without sacrificing safety.

Moreover, little consideration is given to the impacts on time when organizing public participation and legal remedies.

Accordingly, the result is tantamount to recommendations that will significantly extend the duration of the process. One example of this discussion is the issue of legal remedy: The legal remedy provided in Section 17 of the Site Selection Act relating to the selection of sites for underground exploration does not meet the requirements of European law. The Commission therefore proposes to provide a legal remedy in Section 19, in connection with the final site decision. It would therefore be logical to remove the legal remedy provided by the legislature in Section 17 for selection of the exploration. However, this is disputed in the Commission resulting in the threat of a further delay to the process.

Indeed the Commission has not yet completed its work, and public participation in the report is ongoing, so there is still a possibility of changes emerging. We look forward eagerly to the Commission's final report.

Electricity market challenge
You are aware that economic considerations and the issue of the nuclear fuel tax played a major role in the decision regarding the end of operation in Grafenrheinfeld. Since then, the situation in the electricity market has worsened from the producer's perspective. In the intervening period, there have been prices of EUR 20 per MWh for base load electricity in the Phelix Base Year Future, and the price is barely more than this at present. The market situation has become so acute that nuclear power plants are under economic pressure even without the nuclear fuel tax. They would be economically unable to cope with an extension of this tax with its cost impact of around EUR 15 per MWh. Let me stress again at this point that safety is our priority. No compromises will be made when it comes to safety, plants will be rather shut-down prematurely if economic prospects cease to exist.

Successful operation of nuclear power plants – achievement for the energy transition

Even in the fourth year after the accelerated phase-out of nuclear power, nuclear power plants have made their reliable contribution to the power supply. Often, the plants also do load following operation to compensate for the fluctuating input of power from renewable energies. Investments in safety are ongoing to maintain and further improve the high level of safety.

With the end of commercial operation in the Grafenrheinfeld nuclear power plant on 27 June 2015, this was the first time since the so-called moratorium during the accident in Fukushima that a plant had been shut down. In the 33 years since the first grid synchronization, the Grafenrheinfeld nuclear power plant generated more than 333 billion kWh of electricity and achieved an availability of almost 89 percent. This achievement reflects the skills and efficiency of the staff on site, service providers, experts and authorities and therefore the quality of "nuclear technology made in Germany".

A good year for nuclear energy worldwide

From a global point of view, 2015 was a successful year for nuclear energy. Ten new plants went online and construction began on a further seven plants. This development of nuclear energy after a period of considering due to the accident at Fukushima is gratifying and indicates the potential of nuclear energy for climate protection. In Germany, when it comes to climate protection there is unilateral reliance on renewable energies for power generation, while many other countries pursue a broader policy and also assign a long-term role to
nuclear energy and CCS technology. Studies by the International Energy Agency, the IPCC or the World Energy Council assign an important share of the climate policy to nuclear power. As a result, nuclear energy continues to have prospects globally; new construction projects, however, must be handled reliably and be economically feasible.

The European Commission is aware of nuclear energy's contribution to climate protection and states in its current Nuclear Illustrative Programme (PINC) that, with 27 percent electricity production from nuclear energy and 27 percent electricity production from renewable energies, the EU is one of the three major economic areas which produces the majority of its electricity with low CO₂ emissions. Important aspects of PINC are therefore the question of financing options for what is deemed to be the essential need to replace 95 to 105 GW of nuclear power capacity by 2050 and, above all, effective standardization of licensing requirements in order to implement the construction of new plants more quickly, at lower cost and at the same time more safely. Other key points in the current program are safety, particularly with a view to extension of the running times, and the financing of decommissioning, demolition and waste management. The Commission estimates the total investment required by 2050 for the construction of new plants, long-term operation, safety upgrades and all the waste management in the EU at EUR 650-760 billion. By comparison: for the power supply overall, the requirement is estimated at EUR 3,200 to 4,200 billion, i.e. nuclear power's share is about 20%, this also corresponds to the share in total electricity production set for it.

Nuclear expertise required in the long term

The decision to phase out nuclear energy is not a decision to phase out nuclear technology and certainly not a decision to phase out nuclear expertise. The knowledge of nuclear engineers is essential in the long term. This applies to demolition and waste management, to the manufacturing and supply industry, to expert organizations, to research, medical application and to authorities. In the case of high-level radioactive waste, it will be decades until new challenges arise that require an increase in staff in nuclear technology. An increase which will only be possible if we focus on continuity.

In this context, it would be disastrous if the filling of publicly-financed nuclear professorships was to be delayed or called into question and if tight limits were to be imposed on research. Not only do we need a Commission report for waste management, we also need competent people who can turn an idea into a project with a result. In addition to this, in 20 years' time we still want to participate in a
qualified way in the exchange of information and ideas relating to safety standards for international nuclear power plants.

We can also contribute our extensive nuclear expertise constructively abroad. We know that there is great interest in it. Our industry has a wealth of safety technology to offer which was demonstrated yet again after Fukushima. The state should therefore assist German industry with exporting to preserve the necessary expertise.

The AMNT also contributes to maintaining expertise in Germany. Among other things this year, the "Preserving Competence" workshop will take place on Wednesday and Thursday morning. It will be coordinated by Dr. Wolfgang Steinwarz who has been involved with this topic for many years. I would also like to draw your attention to our Nuclear Energy Campus on Wednesday from 10.30 to 15.30 for students of schools and universities who are interested in nuclear engineering and radiological protection.

**Successful AMNT**

As in other years, the program of our meeting is sustained by the commitment and expertise of those who participate in designing the program, who are responsible for sessions and who give presentations in their specialist fields. I would like to thank you all very much because, thanks to your contribution, in 2016 the AMNT has once again become the most important forum for exchanging knowledge and experience of our industry in Germany with a large proportion of international participation.

Finally, I would like to invite you to the German Atomic Forum's reception which starts at 19.00 and will flow seamlessly into the traditional social evening provided by our exhibitors, to which I would also like to invite you on their behalf.

Ladies and Gentlemen

I wish you all a successful meeting. Enjoy your participation and your stay in the beautiful city of Hamburg.