First, let me begin by thanking the federal government, Minister Rösler and State Secretary Kapferer for organising this event today, and their staff, for their co-operation throughout the entire review process.

I am here to present the findings of our review of energy policy in Germany. We have come to Berlin at a good time, as energy policy is very much at the fore of the present political discourse, which can only be a good thing.

I should also add that this review has attracted a lot of interest among our members, notably in Europe; when its largest energy-intensive manufacturing economy decides takes the path towards a low-carbon future, policy makers and observers take notice!

In my presentation, I will focus on your many successes since our last review, and, however, much more on the challenges ahead: such as the need to invest in new network infrastructure, reform the EEG including the cost issue and ensure a stable electricity supply as well as the impact of the Energiewende on Europe, in particular your neighbors.
Since our last review, Germany has adopted a stable long-term policy framework based around the fundamental decision to move towards a sustainable energy supply over the long term without relying on nuclear energy. The successful adoption of a respective series of measures is not only in Germany now known as the “Energiewende”.

Many of your successes over the past five years reflect the successful implementation of the recommendations contained in our previous review, which was prepared in 2007.

This concerns in particular the elimination of inefficient fossil fuel subsidies. Phasing out fossil-fuel subsidies can provide an impetus for investment, growth and jobs in renewable energy and energy efficiency. Therefore we were pleased to see the agreement to end subsidised hard-coal production in Germany finalised and that it will be terminated in a socially acceptable manner by the end of 2018. However, the German experience also demonstrate how politically difficult such a reform is and we should take that into account when discussion for example fossil fuel subsidy reform in emerging or developing economies.

We were impressed by the range of policies in place in the energy efficiency sector; notably programmes to support the energy-efficient refurbishment of existing buildings, your high target to increase the refurbishment rate of the existing building stock to 2% each year. We were also impressed by the innovative financial products developed to support the achievement of these targets.

In our 2007 review, we also referred to need for further federal government actions to promote genuine competition in energy markets. Since then we have observed a series of impressive changes in both the electricity and natural gas markets, among them: the strengthening of the Federal Network Agency, a reduction in the number natural gas market areas, from more than 20 in 2006 to six in 2009 and only two today. The publication of ten-year network development plans and increased levels of competition in both markets are significant achievements. In the electricity market, Germany has developed a strong wholesale market, where high liquidity, the availability of detailed and transparent information, and a large number of participants contribute to price formation which is used by many as a benchmark in continental Europe.
I mentioned the number of significant policy changes since the previous review; starting with the Energy Concept in 2010, and following the nuclear accident in Fukushima, the Energy Package of 2011, which completed what we know as the *Energiewende*.

The political agreement to phase out nuclear was a remarkable achievement. It is a particular achievement that all parties currently represented in the Bundestag agree on this fundamental decision. This is crucial as energy investments are long term and a broad political consensus on the basic direction of energy policies facilitates a stable energy policy framework crucial for investors. Such a long-term policy framework is now in place that provides a pathway to a more sustainable, low-carbon future. The energy transformation is a difficult road and you face many challenges some of which I would like to highlight.

It is also worth remembering that electricity flows where resistance is least: in Germany’s case often to your neighbours. Understandably, co-operation was limited when this process started; this is no longer the case, Germany is now more aware that domestic policy decisions have an impact far beyond your borders and policies must be implemented within the context of a broader European policy framework and in close co-operation with your neighbours.
Electricity from renewable sources, in particular, has expanded dramatically thanks to the support of feed-in tariffs established by the EEG. This policy tool has also been successful in bringing costs down. Conversely, the federal government has been less successful in managing the volume of new capacity. The rapid, uncontrolled deployment of PV has become a major policy concern and represents a significant cost for consumers.

We are all familiar with Germany’s PV growth in 2010 & 2011; largely driven by cost decreases in the Chinese market and policy changes in other countries. In 2011, together, Italy and Germany accounted for nearly 60% of global market growth! In both 2010 and 2011, the amount of capacity installed in Germany was more than double the forecast in the National Renewable Action Plan.

Germany reacted and quickly reformed the feed-in tariff regime. Lessons have been learned and further growth in variable renewable energies must happen in a controlled manner and in parallel with grid developments and investments in distribution networks as well as the new smart grid – it is the uncontrolled growth in renewable capacities which creates many problems not only for the grid, but also for your neighbours.
A notable feature of your energy policy framework has been its success in deploying renewable energy capacity over the past decade. In this regard, the key element of Germany’s accomplishments has been the stable policy framework for investors, the most important component of which is been the Renewable Energy Act (EEG), which, since its inception in 2000, has proven very effective in deploying renewable energy, notably electricity generation from biomass, wind power and solar photovoltaics (PV).

The federal government has reformed and refined the EEG on a number of occasions in an effort to reduce its costs: for example by introducing flexibility and market premiums, tariff reductions and a cap on eligibility. Nonetheless, the federal government must continue to explore and implement mechanisms that reduce the cost of new incremental capacity and bring new additions closer to market requirements.
There is also a welcome debate regarding the costs of the *Energiewende* and who pays. In 2013, the EEG surcharge will add an extra EUR 60 to the average annual household bill compared to last year. Low-income households are particularly under pressure.

German electricity prices are among the highest in Europe, despite relatively low wholesale prices, this must serve as a warning signal.

If the credibility of the *Energiewende* is to be maintained, the costs of the EEG and their apportionment among customer category must be reviewed. The obligations upon government are threefold:

- to reduce the costs of the EEG,
- to allocate the remaining costs in an equitable manner and
- to ensure grid investments deliver the most efficient outcome for consumers.

At the same time large energy-intensive industries enjoy the benefit of an exemption from much of the EEG surcharge at the same time as lower wholesale prices for power as a result of renewable electricity production.

Exceptions to large energy-intensive industries could also be reformed and households and businesses that generate power could also pay the EEG surcharge. And of course, when we say industry needs to pay a greater portion of the charge, we are aware of the global completion and we don’t want you to drive them elsewhere.

Here I note the announcement in February 2013, by Minster Rösler and Minister Altmaier presented a joint proposal for a short-term amendment of the EEG to claw back the rising EEG surcharge and expressed their will to fundamentally alter the EEG in the long term. We encourage both ministries to maintain this path in the future.
Germany is moving in the right direction and has implemented a number of significant policy changes and new laws, most recently, the Cabinet decision to further accelerate grid expansion. Nonetheless, the electricity networks remain under severe pressure and the stability of the grid is not always guaranteed threatening not only Germany but your neighbours.

While you survived winter 2013 without a major interruption but frequent interventions by the system operators are becoming the norm.

Large investments are needed in order to keep pace with the unpredictable growth of renewable capacity, notably solar PV and wind power.

The expansion of the transmission and distribution networks is the most important means of transforming energy supply away from nuclear power and coal towards greater levels of renewable energy.

Changes to the German Energy Act and the introduction of the Network Expansion Acceleration Act represent significant steps forward: ten-year network development plans have been published and should deliver greater investment in network expansion in a co-ordinated manner. Nonetheless significant challenges remain, not least managing the costs, estimated to be up to EUR 70 billion.

Furthermore, similar to much of Europe, planning and consenting of infrastructure remains a big problem. To date, many projects are delayed or stopped at Länder borders. I welcome the recent adoption of new legislation assigning the authority to issue planning approval for high-voltage transmission lines, which cross Länder and international borders, to the Federal Network Agency. This represents further progress.
The German electricity system is widely regarded as a secure system and over the past 20 years, the country has enjoyed the benefits of reserve capacity, both in generation and transportation networks. Customers here endure less “minutes lost” than almost anywhere in Europe.

Recent studies have indicated that despite the changing nature of the German electricity system that there is no immediate danger of the lights going out. There is adequate generating capacity and Germany should be able to meet peak demand for the next couple of years.

We recognise that Germany is at the forefront of integrating vast amounts of variable renewable energy into the grid and that there is no proven blueprint for this. So, to a certain degree, your step-by-step approach is the right one. However, at the same time, it is very understandable that there is much discussion on the need for capacity mechanisms and other investment incentives. For example, Germany should utilise existing mechanisms to seek to harmonise security of supply rules, procedures and reserves similar to arrangements in Nord Pool, and we understand - and support – your preference for markets solutions above government intervention.

Weak carbon prices and high gas costs have resulted in gas-fired plants losing competitiveness, and recent evidence suggests that some plants are being taken off line despite the flexibility they offer. So these are obvious risks that need to be addressed very soon.

There is a need to remain vigilant and look beyond 2016. Different scenarios need to be considered, for example, greater use of less flexible coal-fired generation and lower availability of imports.
Germany is one of the few IEA member countries to have successfully decoupled GHG emissions from economic growth over the last two decades and you have adopted ambitious long-term targets.

The EU-ETS will play a central role in meeting Germany’s targets but not at present low prices. Recent efforts to reform the EU-ETS have floundered and deeper reform will take time. Germany needs to decide what it wants, and in the absence of a European solution in the medium term, find strong partners in Europe with a shared political desire. Look, for example, to the United Kingdom, which recently introduced a carbon price floor.

Current low carbon prices, however, send the wrong signal for new energy investment decisions. This is particularly important in Europe because one-third of fossil power capacity will be retired over the next decade.

The EU remains committed to action on climate change and can only succeed with strong German support. Germany is already feeling the impact of a low carbon price: coal consumption is increasing, gas-fired generating plants are being taken off line and the Energy and Climate Fund is facing a significant shortfall.

Accordingly, I urge Germany to take a leadership role in the search for an agreed solution in this matter.
Natural gas can provide a flexible source of electricity supply in the medium term and, as nuclear capacity is phased out, can help smooth the path to a low-carbon power sector.

The strategic role of natural gas, especially its use in the electricity sector, in the Energiewende needs further strengthening and greater thought needs to be given to its use and place in the energy supply mix of the future.

Furthermore, if Germany is to meet its 2020 GHG emissions reduction target of 40% in the absence of much of its nuclear fleet a cleaner alternative to coal use needs to be found. Natural gas use can support the transformation of the electricity sector to a low-carbon future and as a tool to manage the system risks related to the integration of large amounts of wind power and solar PV.

Germany can look to what is happening elsewhere for examples of innovative policies to ensure a diverse generation mix, notably the United Kingdom, which is proposing to introduce emissions performance standards, which will regulate CO2 emissions from electricity generation.
Key recommendations (1/2)

For the Energiewende to succeed the IEA recommends that the federal government should:

- Take steps to manage the cost of future renewable energy capacity via cost-effective market-based approaches.
- Monitor the costs of Energiewende and ensure their fair and equitable allocation across all customer groups.
- Ensure that the large-scale transmission and distribution developments necessary are put in place in an efficient and timely manner.

We have already highlighted the scale of the challenge facing Germany in terms of transforming the energy economy and meeting the cost of this transformation.

We recognise the steps that Germany has taken to date to place downward pressure on the cost of new renewable energy capacity. Nonetheless, we recommend that the federal government:

**Take steps to manage the cost of future renewable energy capacity via cost-effective market-based approaches, which will:**

- *bring new capacity closer to market needs*
- *support investment in appropriate locations*
- *complement planned network expansion and*
- *ensure that growth in renewable electricity capacity keeps pace with grid developments*

Secondly, we recommend the federal government to:

**Take strong measures to place downward pressure on the costs of the Energiewende are minimised and allocated fairly and equitably across all customer groups including households and small businesses, producers of renewable energy and energy-intensive industry. The present arrangements that burden households and small businesses with an inappropriate share of EEG costs may not be sustainable in the long term.**

Thirdly, a lot of efforts have been made to ensure progress of grid expansion, as there is a great need to build new transmission and distribution network infrastructure in Germany. Many policies and laws have been introduced for this purpose. Nonetheless, the IEA recommends that the federal government should:

**Ensure that the large-scale transmission and distribution developments necessary are put in place in a timely manner and that the Federal Network Agency has access to the necessary resources to maintain a regulatory system that protects consumers, provides sufficient financial incentives for investors and mobilises the necessary investments in distribution networks.**
At present, generation capacity is sufficient to cover peak demand under existing market conditions but there are some concerns regarding the medium- to longer-term. On this basis, we recommend that the federal government should:

Assess, in coordination with all relevant stakeholders, the extent to which the present market arrangements enable the financing of economically viable investments in new flexible gas-fired generation and cost-effective electricity storage. Part of this assessment is the need to examine the suitability of capacity markets as a transitional measure to support the adjustment to a post-nuclear power system.

Closely related to this is our sense that greater thought needs to be given to natural gas and its place in the electricity supply mix of the future. Accordingly, we recommend that the federal government:

Communicate policies that convey a clear understanding of the role of gas in the Energiewende and ensure that the short-term boom in coal use by the electricity sector does not crowd investment in flexible gas-fired capacity.
Energy Policies of IEA Countries – Germany
2013 Review is available at: www.iea.org