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A vision for electricity networks of the future

*Check Against Delivery
Seul le texte prononcé fait foi
Es gilt das gesprochene Wort*

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Ladies and Gentlemen,

It is my great pleasure to be here today to share with you this important moment for the “SmartGrids” Technology Platform: the presentation of your Vision for the Electricity Network of the Future.

Many European citizens are worried about their future. They feel that the combined forces of globalisation, the ageing population and the success of the emerging economies of the Far East are putting our future welfare in danger. Although these are concerns that we cannot deny, I don't share this pessimism. I am convinced that if we use our brains and work together, we can guarantee our children a long term future of economic prosperity and quality of life, without compromising our precious eco-system. Research is the key to unlock this future, but we need to abandon any complacency and act now.

I believe that the Vision presented today can make a significant contribution towards a bright future, based on knowledge and advanced technologies.

Before directing my attention to electricity networks and the Platform, please allow me to share with you some thoughts on European research and energy policies.

The future of European research policy

The political context is clear. Europe cannot compete through cheap labour, by accepting a lowering of social standards, or at the expense of our environment. We are not rich in natural resources. We therefore have to compete with knowledge; with world-class research and innovation. We have simply to be better and know more. This is at the heart of the Lisbon Strategy and the first priority of the renewed partnership for growth and jobs is to build the knowledge economy: an economy that turns knowledge into growth.

Of course, building this future based on knowledge requires adequate resources. The Financial Perspectives finally agreed two days ago in Strasbourg between Parliament and Council is not fully in line with my original hopes, but still represents a very substantial increase compared to the current situation. In 2013 the resources available for research will be around 75 % higher in real terms than in 2006.

And there are many other positive signals.

I strongly welcome the progress made by *all* Member States in setting the national targets for R&D investment that were agreed during the Spring Council last month.

And at the same time, research & innovation are becoming integrated in many community and national programmes. For example, the structural funds will direct much more investment towards research, education and innovation than in the past. And for the first time, there will be a new EU Framework Programme for Competitiveness and Innovation.

Providing adequate resources is only part of the story. We need to identify and systematically remove all barriers to the creation of an innovation friendly environment. For example, we need to improve cooperation between public research and industry; we can better use public procurement to create lead markets for innovative products and services; we have to quickly propose forward-looking regulation and standards, or use tax incentives to facilitate research and the rapid market penetration of new technologies.

An additional, highly valuable and concrete contribution to the debate on how to move Europe into a higher gear came recently from a group of high level independent experts chaired by the former Finnish Prime Minister Mr Esko Aho.

The report of the Aho group, which was presented in January, proposes ways and means to create an innovative Europe. This is not just to fix the faults in the European research and innovation system. Much more widely, this is their proposed response to the challenge of globalisation.

Mr Aho suggests a four-pronged strategy focused on the creation of innovation-friendly markets, strengthening R&D resources, increasing structural mobility, as well as a fostering culture that celebrates innovation.

I am pleased to inform you that just two days ago we Commissioners had a preliminary discussion on an important step towards the creation of a better environment for research - a new Framework for State Aid to Research, Development and Innovation. I have offered my full support to Ms Kroes in designing the new framework in a way that will help the development of innovation friendly markets.

When we talk about the 3% goal, we have to be aware it is not just a goal, it is also an indicator whether we are doing things in the right way. Two-thirds of our R&D investment should come from the private sector, but no-one can tell a manager that he has to invest. He should have interest and be stimulated to do so. This isn't a question for the Research Commissioner, but a cross-sectoral issue. When we look at the money there are two problems. On investment, the EU is lagging behind competitors such as US and Japan. When you look at growth trends, we are lagging behind countries such as China and India. Increasing investment in R&D will not in itself guarantee success – it is also a question of how we invest. But if we don't invest, we have guaranteed failure.

The Seventh Framework Programme

All of this represents the political context within which the Commission has elaborated the 7th Framework Programme (FP7). The Framework Programme will remain the main tool to drive excellence at European level and I want it to be the Programme for "*Building the Europe of Knowledge*".

As regards the structure, we have put more emphasis on themes and less on instruments.

Cooperation projects will be more focused on industrial needs and so aimed at supporting growth. There will be a strong "*ideas*" programme with actions for "*frontier research*" within the framework of the European Research Council (ERC). The "*people*" programme will strengthen the existing mobility actions under Marie Curie, while the "*capacities*" part will deal with infrastructures, SMEs, regions, research potential of all Member States, as well as science in society and international cooperation.

In preparing the FP7 proposal, we have maintained a balance between continuity with the past, and major new initiatives – about 25% of the programme - including, of course, the creation of the European Research Council, the establishment of Joint Technology Initiatives and the establishment of a new "Risk-Sharing Finance Facility". This facility will be managed by the European Investment Bank to step up the availability of loans for riskier research and development projects on more favourable conditions. We expect that in the next seven years, depending on the provisions made for this facility, this new financial instrument will leverage billions of Euros in venture capital and guaranteed bank loans available for major research and development projects.

I would also like to emphasise that I attach particular importance to the efforts that we have put into simplifying our procedures and making the programme more user friendly. I hope that many of you will have an opportunity to benefit from them in the future. This is a crucial element for the success of the Framework Programme, and for its ability to deliver excellence, competitiveness and growth. I can assure you that in the Commission we are making every effort in this direction and I hope that our institutional partners will match our commitment.

Of course, the proposal itself will not be finalised until the formal inter-institutional approval of the Financial Perspectives agreement. The reduced budget necessarily requires some better focusing, and in some cases a delay in the launch of some new activities. Nevertheless, we have already reached a broad consensus with the Council and the European Parliament that the structure and the essential philosophy of the original proposal will be maintained. I should stress that it is now vital that we finalise the agreement on our new proposal quickly to ensure that we can begin implementation on time.

Business complained that we were not listening to them, which is why we created Technology Platforms and will base 60% of the programme on the needs identified by industry in his way. Scientists complained we were not listening to them, so we created the European Research Council, for the scientific community to support excellence in science in an autonomous way. We had complaints from both that the programme was too complicated, so we are working to make it simpler.

The energy Green Paper

Research has an important role to play both in supporting policy objectives and providing new options for policy makers. Therefore, before talking about energy research, let me say a few words about energy policy.

Issues related to energy make the headlines nearly every day: the blackouts in 2003, the ongoing geopolitical tension in the Middle East, the gas crisis this winter, the recent disputes about companies' mergers – these are just a few examples.

The challenge ahead of us is a daunting one.

Global demand for oil and gas is increasing very rapidly, leading to market volatility and high prices. Our hydrocarbon reserves are running out, so we are becoming more and more dependent on imports. Massive investments in infrastructures are needed to meet future energy demands, as much as 16 trillion dollars worldwide in the next 20 years. And most importantly, climate-change is not just happening, it is accelerating.

These challenges are common to all countries of Europe. They require a common response: a new and more efficient energy system, based on effective collaboration between producers and consumers, and a quantum leap in the production of renewable and low carbon energy. The EU is in a unique position to lead this response.

But in order to achieve this, we first need to agree on clearly identified energy goals and priorities and pursue them rigorously together. This is the fundamental reason why Europe needs a Common Energy Policy, a need that was emphatically confirmed by last month's European Council.

One month ago a debate on energy policy was opened with the publication by the Commission of the Green Paper on developing a common, coherent European Energy Policy.

The Green Paper puts forward a basis for such a Common Energy Policy. It starts from the consensus that our policy should have three core interrelated objectives, security of supply, sustainable development, and competitiveness.

The Green Paper identifies six priority areas where action is needed:

- the development of fully competitive internal energy markets;
- mechanisms of solidarity between Member States in the event of a crisis;
- the need for a more sustainable, efficient and diverse energy mix;
- measures required to address the EU's climate change goals;
- a common approach toward external energy policy; and finally,
- the important role that research and innovation have to play in meeting the overall policy objectives.

In the context of this last priority area, it is clear that "Encouraging innovation" is a key element of energy policy. Commissioner Piebalgs keeps reminding me that it will not be possible to deliver long term security of supply, sustainability and industrial competitiveness without new energy technologies.

Energy efficiency and renewables can play an important role. It is clear that the EU will have to act swiftly to increase energy efficiency and make a quantum leap in terms of its use of renewable energy, and to make a major drive to make renewable energy competitive when compared with "traditional" energy sources.

This is not simply necessary for environmental reasons. We have to work today to find a way to cope when oil supply can no longer cope with demand. This is an obligation that we have to future generations. To this end, the Commission will bring forward an Action Plan on Energy Efficiency and a Renewable Energy Road Map, covering all key issues for an effective EU policy on Renewables.

But this is not sufficient, and there is no single solution to our problem.

We need to proceed with a portfolio approach, which covers several options at all stages of the energy chain. This is why in FP7 we have identified a number of research priorities, from the development of fusion to renewable energies - including hydrogen and fuel cells, clean coal and carbon capture and sequestration, advanced nuclear fission, energy efficiency, and, of course, smart energy networks.

Although we have been active in these areas for quite some time, the level of investment has clearly been insufficient and often fragmented. The magnitude of the challenges ahead requires increased and better focused efforts and long term commitment.

This is why the Commission thinks that the EU would strongly benefit from a Strategic Energy Technology Plan. Building on the experience of the several Technology Platforms in the energy area, this would aim to accelerate the development of promising energy solutions, and also help to create the conditions to bring such technologies efficiently and effectively to the EU and the world markets.

In some specific areas, Europe should act through large-scale integrated actions with the necessary critical mass. Private business, Member States and the European Commission should join forces in large public/private Partnerships, which will lead to the development of “leading markets” for innovation. The long-term ITER project is an example of a concerted EU and international action to achieve specific goals.

This plan should also be complemented by policy measures required to open the market and to facilitate the market penetration of technologies that are effective in addressing climate change.

Electricity Networks and the Platform

At this point I would like to focus on electricity networks and your platform.

Electricity networks have served us well for many years. When I go home, the light always turns on. I cannot think of any system that has been more reliable. So why do we need to change? Why do we want to make our networks ‘*smart*’?

There are many reasons, and the Platform has made a very good case in the Vision Paper. I will mention just a few.

- Firstly, to make the electricity system compatible with the new form of energy resources and carriers that we are developing. Many of them are very different in size and behaviour from well established ones, especially the renewables based generators. Some are small or medium in size; others are intermittent or even more unpredictable. They are the so called Distributed Energy Resources: wind generators, fuel cells, photovoltaic panels, micro-turbines, just to mention a few.
- Secondly, the use of Intelligent Control and Demand Side Management techniques, which allows balancing of demand and supply, will increase system efficiency overall, and therefore lead to less pollution and better prices.
- Thirdly, widespread use of Information and Communication Technologies could enable the development of new services and innovative markets. I can imagine a future where thousands or millions of users will own their generators in their homes, becoming both producers and consumers of electricity. All these generators will be interconnected through a fully interactive intelligent electricity network.

In the shorter term, to improve network security, increase trading between Member States and support a real European electricity market we need a *de facto* single European grid.

But to enable this future, we need to act at technical, commercial and regulatory level. Some of these issues are well addressed in the Green Paper and your contributions will certainly bring further light to the debate.

It is predicted that in the next 20 to 30 years the worldwide investments in the electricity system alone will require up to 10 trillion Euros (10.000.000.000.000). Half of these funds will be necessary just for the transmission and distribution infrastructure. Maintaining leadership in these technologies will also bring tremendous commercial opportunities to our industry.

It will not be easy. In a well established market with such a broad spectrum of stakeholders, many different and sometimes conflicting interests, and where the investment decisions of today will have consequences lasting many decades, sharing a common vision and establishing a joint strategy is a real challenge.

I therefore very warmly welcome the Technology Platform on Future Electricity Networks. The Platform will facilitate dialogue, and share a common vision and a joint research agenda to guide the actions of all the relevant stakeholders.

By putting all actors around a table, the “SmartGrids” Technology Platform has contributed to identifying the scale and scope of the challenge ahead. It has made a clear case for the need for action and innovation. And it has explained why we need to act now.

Fortunately, we have already a number of important ongoing projects which form the knowledge foundation on which you will build your Technology Platform. If you walk through the poster exhibition located just outside this room, you will see that there are already many projects up and running, worth tens of millions of Euros, covering a variety of concepts, approaches and technical solutions. But the path ahead is still long.

In the near future, I hope that the Platform will help to identify R&D priorities, to maintain coherence between European and National Programmes, and, most importantly, to reinforce private R&D investment in the area.

Finally, I am sure that the platform will provide a valuable input to the debate that we have opened with the publication of the Green Paper.

Conclusions

The famous physicist Niels Bohr used to say: “Prediction is very difficult, especially about the future”. I couldn’t agree more, yet there are a few things about the future of which I am certain.

To ensure the future well-being of our citizens and the competitiveness of our industry, we’ll need a flexible, efficient, robust and economic electricity system.

We need to invest in energy networks, including new lines. Research and technology must help in finding new solutions to improve the public acceptability of this new infrastructure.

We need to adapt the grid to clever and more efficient energy resources and technologies, such as Renewables and Combined Heat and Power. The many difficulties already experienced with Wind Integration are just a reminder of the challenge.

I am confident that a strong integration of energy and communication networks will become a reality, and this will allow a better management of electricity and gas networks.

To enable this future, all actors must be constructive and accept their responsibilities.

Energy regulators must do their part to create an environment which is supportive for research and innovation.

Transmission System Operators must intensify their collaboration, both on short and long term issues. The Green Paper suggestion for the creation of a European Centre for Energy Networks should be carefully examined. Even if with a scope limited to research, some TSOs are already working on this idea. I will encourage their efforts and monitor their progress.

Researchers and equipment suppliers must continue to develop and refine new ideas, without which real breakthroughs are not possible.

All actors in the Technology Platform must now work to transform their Vision into action.

The next step is the delivery of an ambitious but realistic Strategic Research Agenda, with clearly identified priorities.

The public sector and private actors should then seek to find the resources to co-finance the research, development and demonstration projects that are necessary to transform the Vision into reality. I trust this will lead to an inversion of the trend of declining private R&D investment in the electricity sector.

I would like to wish the Technology Platform every success, and I look forward to seeing its activities lead to greater energy sustainability in Europe and beyond.

Thank you.