

**Heinz Hilbrecht's Speech at
FSR Conference
25 May, Florence**

- Ladies and Gentlemen, it is my pleasure to speak to you today at this conference. This session is about future trends in the energy sector for the next 10 years. Let me first take you one step back to understand the rapidly evolving energy context, in which we are planning our policy for this decade and beyond.
- Sketching out what the European energy market will look like in 2020 seems both very easy and very difficult:
 - **On the one hand, we have made significant progress over the last few years in creating a fully-fledged European energy policy, covering all key objectives, namely market integration and competitiveness, sustainability and security of supply.** This legislative framework gives us clear indications on where markets should go over the decade, notably with the renewable energies directive, the third internal energy market package and the security of gas supply regulation. So, one could say that what we need to do is easy: what we need is just to implement the policies we have agreed to.
 - But we all know that the current state of implementation of European energy legislation is overall insufficient. The result of the poor implementation is an internal energy market which does not function properly yet. The main issues to be addressed relate to lack of transparency, regional cooperation, optimisation of capacity offered to the market and insufficient enforcement powers or actions by energy regulators. Moreover, the internal market continues to suffer in particular from market concentration, sometimes vertical foreclosure and in general lack of integration, amongst other issues. The third internal energy market package should address these issues, through effective unbundling of transmission activities, through the strengthening of the duties and power of national regulators and through Pan-European cooperation and

coordination with the creation of ENTSOs and ACER as drivers for the implementation of energy policy across borders.

- ACER was officially launched in March 2011 and its director Alberto Pototschnig is present at this conference. ENTSO-E (its president Daniel Dobbeni is here too) and ENTSO-G (its Secretary General Vittorio Masazzi will also speak here) have both come up with -European wide ten-year network development plans (TYNDP), identifying main investments gaps. Even if these harmonised plans are non-binding, and even if their first versions are still being improved further, the fact that their proposals build on national and regional network development plans and required extensive consultation between national TSOs on their network investment priorities, fosters cooperation and synergies of views.
- The priorities of our European energy policy have been reconfirmed again by the 4th of February European Council, which has set clear deadlines for completing the internal market – already by 2014 – and ending the isolation of remaining energy islands – 2015. And reconfirmed the 20-20-20 targets to be achieved by 2020. That means that we need to work hard to achieve all these objectives, but that we should also look beyond this decade towards to 2030 and even 2050. In this sense, we could indeed say that we know what we have to deliver.
- **However, the uncertainties surrounding the energy sector are huge, changes can be abrupt and any forecasting of what the major trends are must be cautious.** To name just a few:
 - The economic crisis has seriously dented energy demand compared to all scenarios we had up to 2008. Looking towards 2020 and beyond, a big question mark remains with regard to the extent energy efficiency measures will be able to change the energy intensity of our economies and hence our overall energy demand.

- The recent and ongoing upheavals in the Arab world have led to a rise of the oil price, while shale gas developments in the US have completely changed the global gas market in only a couple of years.
 - Following the nuclear catastrophe at Fukushima, the decision of the German government to review its nuclear energy policy and impose a moratorium on 7 reactors has significantly changed power flows on the German electricity grid and the European system in general. Policy changes in other Member States on this issue could significantly alter the competitive landscape for electricity generation over the years to come.
 - While being extremely successful in increasing generation from renewable sources, the appropriate level of feed-in tariffs, their cost to the final customer and their evolution to allow renewables to be mainstreamed into wholesale power markets are a heated debate in almost all Member States using them. At the same time, other generation technologies are worrying about future incentives for investment in an electricity system dominated by variable renewables with close-to-zero marginal costs. This issue will move to the centre stage once we move beyond the roughly 35% of renewables foreseen in our electricity mix by 2020.
- Despite these uncertainties and the challenges they represent for the European energy policy framework, the rapid birds eye view presentation I have given on where European energy markets might be heading for until 2020 and beyond allows to draw one strong conclusion: **under almost any possible future scenario, energy transmission – and distribution –infrastructures will play a key catalyst role.** ENTSOG and ENTSO-E will be able to support this assertion in more detail, but let me explain briefly why we think this is the case.
 - With a growing import dependency on oil and gas imports (as EU indigenous sources decline), the EU will need to reinforce its gas infrastructure with investments of at least 70 billion euros to make it more flexible in order to ensure security of gas supply, reduce single supplier dependency, connect

energy islands and integrate markets, but also facilitate RES integration by providing gas back-up – or even storage – capacities.

- For electricity, the challenge is even bigger: We are in the middle of a massive paradigm shift, from large-scale centralised electricity generation following the load curve to both centralised large-scale and decentralised small-scale, more variable generation closer to where the renewable energy resources are. This shift happens, while we are trying to further integrate the market and keep electricity supplies secure. Without an optimised and smart grid at EU level, the costs for doing this will be much bigger, inter alia because of the need for expensive back-up electricity generation to balance variable renewables output. Building the electricity networks of the future will only be possible:

- Firstly, by making demand more flexible, i.e. by rolling out smart grids all over Europe, both at distribution and transmission level. We have recently published a Communication that proposes actions on five fronts: standards, data privacy and security, regulatory incentives, competitive services to customers, and support for innovation and its rapid application. Member State feedback has been very positive, and we are working on a more concrete follow-up.
- Secondly, by developing grids enabling long-distance transport of large amounts of power, i.e. by building electricity highways. The December 2010 Florence Forum has agreed on the establishment of a platform to accompany the development of a modular development plan for an Electricity Highways System, to be prepared by ENTSO-E for 2014.
- But thirdly also, by integrating the necessary (large-scale centralised or smaller-scale decentralised) electricity storage to better balance the system, and by making optimal use of the existing generation capacities. This is about improving existing hydro storage systems, but also about developing new ones, be they based on batteries, such as those in electric vehicles, on compressed air or on other technologies. A lot of R&D is still necessary –

and the Commission has just closed a call worth about 30 million euros on large-scale storage –, but we also need to think about how to integrate these means in our electricity systems.

- For infrastructure to be able to play this catalyst role, we need to upgrade, refurbish and extend our existing infrastructures, but also build new ones within a European framework for infrastructure development and investment. And we need to do this in the course of this decade. This is what our upcoming energy infrastructure proposal will be about. In the proposal we will also have to address issues such as planning, permit granting and consultation of the public. Adequate regulation and financing will also be of prime importance.

Until now, grid systems have been largely developed at national level, with a national focus, and more recently bilateral extensions. The existing tariff systems based on the user-pays principle have delivered very well. But if we conceive of the grids as a regional, pan-European asset, we need to have regulation in place that is regional and/or European, i.e. one that also formalizes solutions when more than two countries are directly involved and when the allocation of costs and benefits for a given project are getting increasingly complex. Identifying the beneficiaries, treating uncertainty and risk appropriately and internalising as much as possible externalities: these are some of the issues we will try to address. In any case, common rules and a clear, attractive framework for investors will be more important than EU funding, but we might need to provide some additional incentives to "get the ball rolling", given the investment challenge we face and the urgency of this challenge.

- To create the adequate regulatory framework to a European Gas and electricity grid where borders do not count anymore, the Third Energy Package puts much responsibility on the regulators and the TSOs. In order to complete the internal market by 2014 regulators in ACER and TSOs in the ENTSOs must step up their work, to finish framework guidelines and network codes in time. Reaching the objective of 2014 will be a genuine challenge, for which also the clear commitment and support of Member States is necessary.
- The completion of the internal market requires linking national markets and aligning current divergent rules which act as a barrier to cross border trade. It will impact on the current market design and the operational procedures of transmission system operators that need to be made more coherent.
- The entire development process of a legally binding network code - from definition of a priority list by the Commission to its adoption through Comitology - takes approximately 3 years. That means the 2014 objective is tight but not impossible. Fortunately ERGEG, the ENTSOs and the Commission have started this work during the so called "interim period" even before the Third Package entered into force on 3 March 2011 to deliver as soon as possible the first Framework Guidelines and the linked Network Codes.
- **On the electricity side:** two Framework Guidelines have been developed namely on 1) grid connection and 2) capacity allocation and congestion management. Two others will come: 1) Framework Guidelines on system operation this year and 2) Framework Guidelines on balancing next year. In addition two comitology guidelines are foreseen, one on transparency for which ERGEG has prepared a draft already and one on governance of day-ahead market coupling which is under preparation in a small working group led by the Commission.
- The **grid connection Framework Guidelines** cover all issues to establish and to maintain a physical connection between the transmission and/or distribution grid and the grid customers in order to maintain system security, availability

and the proper functioning of the electricity market from a technical point of view. The Framework Guidelines will lead into two network codes: 1) one on generation connection and 2) one on DSO and industrial load connection. The network code on generation connection will be ready by end of this year and will impact of different types of grid users.

- The **capacity allocation and congestion management Framework Guidelines** are compatible with the **target model** and cover all timeframes (forward market, day-ahead market and intra-day market).
- The network codes based on this Framework Guideline will relate to 1) capacity allocation and congestion management and 2) the forward market .
- As far as the **capacity calculation issues** are concerned the code should improve coordination, harmonisation and transparency of capacity calculation with the objective of maximization of cross border transmission capacity while ensuring system security. It will require all TSOs to use a common EU grid model with a harmonized risk assessment making possible for market participants to understand how capacity is calculated and to be confident that the maximum capacity is being made available. This network code will define the process for determining appropriate price zones and it will form the building block for implementing the rest of the target model.
- On the **day-ahead aspects issues** the code should integrate price formation in the different national markets and implicitly allocate the capacity on interconnection between markets. This means that a buyer will be automatically matched with the cheapest generation in Europe as long as there is sufficient transmission capacity. It will also mean that the experience of power flowing from high price areas to low priced ones because of poor allocation of interconnection capacity will be prevented. This will require that a single pricing algorithm which simultaneously determines volumes and prices across Europe is developed and used by power exchanges in the different Member States. The network code will take forward the work on

market coupling in a European framework, and should remove any concerns that some countries could develop isolated solutions. The results should then be a successfully integrated internal market and not a series of loosely linked regions

- Current procedures for trading across borders intraday are non-coordinated and sometimes haphazard. In many jurisdictions it is effectively impossible to trade intraday and this raises the cost of operating in different markets. The network code on capacity allocation and congestion management will also tackle this problem when addressing the **intraday platform issues**. It will establish a single pan European platform to allow market participants on either side of a border to trade energy as close to real time as possible in order to help ensure that they do not go out of balance. It will help to accommodate intermittent generation and to allow market participants to deal with unexpected events such as outages.
- The **forward market network code** will provide a single platform for secondary trading of forward rights giving to market participants long-term hedging solutions against congestion costs and the movements in day ahead prices. Currently, there are limited long term rights available to market participants and those that do exist are difficult to transfer between users, and thus difficult to trade. The forward market network code will provide price hedges across borders and weaker/peripheral markets will profit from the liquidity of larger and deeper adjacent marketplaces.
- In parallel with other elements of the target model the Commission will develop **Comitology guidelines on the governance framework** for the day ahead and possibly also for intraday platforms. The Commission has taken over this challenge not only because of the sensitivity of the topic, but also because TSOs appear to have a potential conflict of interest. The Guideline will define what the roles of the TSOs and power exchange are in carrying out market coupling and intraday trading.

- Other guidelines that will have impact on electricity market design are the **guidelines on transparency** that foresee to set up a single EU wide central data platform with timely available, reliable and complete sets of disaggregated supply-demands fundamentals data across the borders to live up to the standards of fully integrated and liquid wholesale markets.
- The Framework **Guidelines on system operation** are expected to be ready at the end of 2011 and they will probably have less impact on market participants, at least compared with the implementation of the target model. However, without progress on system operation, meeting the challenge of transforming our electricity system will be much more difficult and expensive.
- the **Framework Guidelines on balancing** will be crucial also as it is assumed that for electricity the need for balancing power will increase strongly due to increase of volatile generation sources in the system, in particular wind and solar. They are expected to be ready at the beginning of 2012 and a network code will be linked.
- We are also assessing the possibility to put forward in 2012 guidelines or legislative proposal to address **cost allocation of major technologically complex or cross border projects**, through tariff and investment rules as establishing principles for cost allocation across borders will be key for fully integrating EU energy networks.
- On the **gas side** the foreseen guidelines that will change the market design are: 1) **Framework Guidelines on Capacity Allocation Mechanisms**; 2) **Comitology Guidelines on Congestion Management Procedures** 3) **Framework Guidelines on balancing rules** and 4) **Framework Guidelines on interoperability rules**. They should all be completed by the end of 2011. A target model is also being developed for gas.
- The **Guidelines on capacity allocation mechanisms** address the lack of harmonization of Capacity allocation mechanisms between Member States, resulting in the preservation of segregated national markets. The situation now

is that shippers wishing to transport gas across one or several borders will first need to put together a puzzle of different capacity products allocated at different times through different mechanisms and at different prices.

- In order to enhance cross border trade shippers engaging in cross border transport of gas should be able to book the required capacity simultaneously and under the same legal framework.
- Auctions seem to be the most non-discriminatory solution for capacity allocation in all cases. Moreover, a properly designed auction mechanism can address all kinds of scenarios, including cases of congestion and cases where ample capacity is available. Auctions allow for true price discovery through market based mechanisms and they lay the basis for subsequent introduction of possible market coupling. This will allow only direct hub-to-hub transport of gas, without additional transactions at borders between Member States and the delivery point to be moved to the trading hub within each member state rather than at the border between two member states. ACER should finalize them by July this year. Adoption of the linked network code is expected for January 2012.
- **the Comitology guidelines on congestion management procedure** will require shippers to make a partially binding day-ahead nomination and it will allow the TSOs to determine a certain quantity of unused capacity which can be made available to other shippers. This will create a day ahead primary market in firm capacity with relatively little intervention. Making some capacity available regularly on a day-ahead basis should serve as a door opener to the capacity deadlock, leading to several positive effects.
- Direct effects resulting from availability of firm capacity day ahead will be better capacity utilisation and consequently more liquidity at traded markets. Indirect effects include better incentives for capacity holders to book capacity efficiently, i.e. more closely aligned to the actually expected utilisation and/ or to sell excess capacity on the secondary markets. Making available firm day ahead capacity will lay the basis for subsequent introduction of market

coupling. The Commission decide to take congestion management forward by means of a direct Commission proposal for comitology in view of the urgency of the problem to be addressed.

- **Framework Guidelines on gas balancing are also crucial.** Balancing markets were and are rather fragmented. However, as balancing is an essential element of a functioning gas market, it is important to have compatible and well connected balancing markets in Europe if we want to achieve an integrated gas market in Europe. Gas is also an important fuel for electricity generation in many European countries. With the increase of variable generation sources, in particular wind, gas fired power plants will probably become the main source for balancing power. Hydro will remain an important balancing source in some countries but the possibilities to expand hydro capacity are limited. Thus the efficient use of gas in electricity balancing will become more important. Balancing will be an essential part of the gas target model. The Framework Guideline are being finalised by ACER and will be ready by July if possible or at latest by September 2011. Thereafter we will send a letter to ENTSOG to request the development of the respective network code.
- The Florence School here is very helpful in developing the **target model for gas,** around 3 pillars: 1) enable functioning wholesale markets; 2) tightly connect them; 3) enable secure supply patterns. The main objective is to enable functioning wholesale markets where they do not exist yet. As a second step markets need to be connected better to move forward to an integrated market. Basic conditions need to be established in all countries. No one-size fits –all solution seems possible. Different pictures all over Europe call for different approaches which are not mutually exclusive. If a country is capable of establishing a functioning market itself the establishment of one (or two) zone within this country is important; if a country is not capable of establishing a functioning market itself (e.g. due to lack of liquidity or size), there are different solutions:

1. cross-border market areas (full merger) is one solution;
 2. or access to a larger, already functioning market;
 3. or trading regions – a single cross-border zone for wholesale markets with congestion –free interconnection to national end-user zones.
- The second step (connecting markets) means price alignment between functioning markets and thereby driving market efficiency and public welfare on a European scale.
 - **Concerning the Framework Guidelines on interoperability rules** work has just started. The regulators are currently considering the scope of such framework guidelines, which they will also discuss with the Commission. As such Framework Guidelines are part of ACER's 2011 Work Programme, we expect them to still make some progress on this issue during this year and hopefully have at least an advanced draft, if not the final version, of the framework guideline by the end of the year.

As you see much work is needed to make the internal market functioning efficiently. But we are now very active for both the regulatory framework and the necessary infrastructure investments, which should both provide a good basis for the changes of the energy mix in the coming years.