



Time to get real: why we need a serious energy framework in Europe

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The current hype in Europe about 2050-studies imposes increasing challenges upon the task of defining an energy policy framework to 2015. This observation can perhaps be explained by the fact that it has become increasingly fashionable in energy policy to learn to run before learning to walk or, in other words, to dream about long-term visions rather than doing the hard work of building the future today.

For a few years now, the concerns about the future development of energy markets have grown as a coherent common framework for energy policy in Europe is still lacking. Today we witness many blurring and contradicting messages from national governments and European institutions alike. Some advocate liberalised markets and the benefits of competition, while at the same time promoting technology-specific feed-in tariffs for renewable energy – without developing a clear perspective on when and how to integrate renewables into the common electricity market. Some concentrate on the generation market alone and ignore its consequences for the energy transport and storage system.

Energy policy, however, needs a fact-based foundation: this avoids the traps of ideologies and wishful thinking. Energy policy can neither be developed nor pursued in isolation: it has to be embedded in a larger context of social, economic and environmental aspects. I have often used the analogy of building a bridge from a more fossil-dominated world towards a strongly renewable-based energy environment. Bridges are among the most difficult but inspiring masterpieces of engineering – and one should not forget they are based on hard facts, serious calculations and tested models, never on visionary dreams. The same fact-based analysis is therefore needed if we want to transform our whole society.

What are the key prerequisites for an energy concept?

As Mark Twain famously said, “the art of prophecy is very difficult, especially with respect to the future.” Since then, not much has changed – except that, thanks to the advances in modern information technology, mankind is now able to produce lots of forecasting material in a very appealing graphical form with many figures – with the obvious danger that the reader will be convinced by the design rather than the content. But paper doesn’t blush. Consequently, many forecasts are taken for granted, neglecting that the underlying

assumptions concerning fuel prices, population, energy savings and learning curves for technologies are crucially determining the output. Consequently, forecasts should be considered as scenarios, showing possible worlds – but they will always fail in the end. One example: In 1898 the first international urban-planning conference convened in New York. It was abandoned after three days, instead of the scheduled ten, because none of the delegates could see any solution to the growing crisis posed by urban horses and their manure: The larger and richer cities became, the more horses they needed to function. The more horses, the more manure. In The Times of London in 1894, one writer estimated that in 50 years every street in London would be buried under nine feet of manure.

Of course, technology leaps cannot be predicted – not even in which field of technology they will take place. Therefore, working with existing technologies is necessary, meaning that the technical feasibility is an issue. Concentrating on generation alone – while neglecting energy transport and consumption – is doomed to fail. Currently, the European Union is quite successful in increasing the share of renewable generation at an impressive velocity – this is certainly a good achievement. By the same token, the transport of renewable electricity production to the end customers via the grid is functioning very well. Today, only small amounts of electricity do not find their way through the grid. Naturally intermittent electricity sources, with their low load factor, need more grid capacity since they are only producing for a fraction of the time compared to conventional sources, for which the grids were built. Currently Europe is flooded with studies predicting 100 per cent renewable electricity by 2050 at the latest – and only some of them address the transport issue. Their assumptions mostly fall short compared to the complexity of capacity issues. For example, some go as far as: We only need to increase the grid connections between Spain and France from currently 1 GW to 39 GW, or Germany needs full and exclusive access to the Norwegian pump-hydro stations, or the electricity consumption of German households needs to be met by photovoltaics. And if this does not help, we will use some fancy storage equipment and smart technologies, that are neither yet fully developed nor really cheap.

So, the basic message of many studies is: In order to promote generation technology that is not fully developed yet and where we do not know the winning technologies, we definitely need transport and storage infrastructure, which is also not fully developed or even present at large scale.

A reasonable energy policy looks different. A reasonable energy policy would not only look at possible targets in the future and the intermediate steps required to get there, it would also consider the starting point. It would identify the advantages and disadvantages of the current system and map the most important steps approaching the target. It is not always necessary to re-invent the wheel; some of the conventional technologies are still an excellent solution. We already have well developed technologies to produce electricity without greenhouse gas emissions, to guarantee security of supply and to keep prices for customers within a reasonable range. Nuclear power certainly is one of those technologies. Nuclear could serve as an excellent bridge technology. Furthermore it is also an enabler for renewable production: it is flexible enough to cope with intermittent sources and it would secure supply at times when there is no renewable production, for example during a night without wind.

However, in the long run all technologies are bridge technologies – the better is the enemy of the good. A permanent change allows for development. However, we should not put all our eggs into one basket but preferably adopt a stepwise approach that allows the engineers and markets to learn from the existing system, and to draw the right conclusions. Changing too much too fast at the same time will spoil any learning efforts, endanger security of supply and waste resources to a significant extent.

Sustainability is pivotal for an energy concept. Often sustainability is reduced to environmental requirements. However, a sustainable solution is a lot more. Firstly, it has to be economic in order to avoid massive disruptions on the producer or consumer side. No generator will invest in new power plants when he expects markets which will not remunerate investors' costs. Similarly, industrial players will choose other suppliers or even countries, in the event that their energy costs are too high and do not allow profitable operations. Secondly, energy supply has to be safe. In most parts of Europe, customers are used to a very reliable energy supply. Even the most ecologically optimised energy system would be useless for future generations if it is not reliable at acceptable prices.

Certainly regions or countries with a framework which allows energy suppliers to run their operations in a sustainable way, i.e. environmentally friendly, with fair market prices and with secure supply, can act as a role model for other countries. Regions with a failing energy concept, however, will give a bad example. Even the good ideas of these regions will be

forgotten, since the overall concept did not work.

“No man is an island” said John Donne. The same is true for countries and their macro-economies. Energy prices are no longer a mere national matter without any relevance to competitiveness. Certain environmental goals do have a global impact, for example climate change, and cannot be dealt with only on a local scale. And some regions are key for securing the global supply of energy goods. Certainly, countries can decide to reduce their import dependency in order to have a more secure supply – but this will have effects on their energy bills. And certainly countries can decide to have very ambitious greenhouse gas reduction goals – but if other countries do not follow, this leads to a higher energy bill for the customers, either directly or indirectly via taxes. Hence, energy policy is no longer a national task – an energy concept needs to address international questions from the outset.

From visions to investments

One should be very sceptical that national or European master plans alone will really help. Defining the energy world in 2050 in a sound way is difficult; delivering energy in 2015 is even more difficult. Combining both is the most difficult task, but this is the way it should be done. One should be very cautious: while concentrating on nicely formulated science fiction, we might not be able to convince the people that we have to act now and invest in this future.

The current experience with citizens' initiatives is a broad opposition against anything new: the NIMBY or ‘not in my back yard’ phenomenon. New energy infrastructure like coal-fired power stations, grids and increasingly wind turbines are not accepted. Sections of the public are no longer willing to accept some disadvantages, even though there are definitely advantages for a broader and larger public. Any master plan with 2050-goals has to face this public attitude. And currently, neither politics nor companies seem to find a reasonable answer to find public acceptance.

Visions can help to create this public acceptance. But they should be seen as possible worlds – and not as granted development. And they should be connected with strategies and frameworks to give a clear picture of how we can realise the long-term goals. It is my firm belief that those frameworks have to be based on competitive markets. Open markets have proved to be the best environment to foster new ideas and to give every idea a fair chance. Currently, there is the danger that with so much belief in visions, we will fail to cope with reality in the coming years. □