

# 5th European Grid Conference DIGITAL ENERGY AND THE POWER GRID: TRENDS AND OPPORTUNITIES

Brussels, 19 November 2015

## SUMMARY



### Keynote messages

*Antonella BATTAGLINI, CEO Renewables Grid Initiative:*

It is not just the energy system that is changing, our society is changing, too. But why is what is happening in society relevant for our energy system? Energy has always been a reason for wealth and for war, geopolitics have been shaped around the need for accessing energy resources and we are seeing the results everywhere. 50% of the capacity that has been deployed in 2014 and 2015 has been renewable. The costs for renewables are going down – for storage as well. The system that we

had in mind only a few years ago is changing – because of consumers and prosumers and because citizens actively participate. The grid is facing challenges because it was not built for this system, but countries also realise that they have energy resources that can fuel their growth. It is up to every member state to design policies for this transition. And today, we want to see how digitalisation is going to help this transition.

*Chris PEETERS, CEO Elia:*

Elia truly values RGI's contribution on how to make the grid fit for the energy transition. This transition is an exciting place to be, but there are many challenges. We see a huge increase of renewables in the power system. This has an impact on how we develop the system and on the market. Grid development is a long-term activity. We need to address the changing rules, we need to anticipate these changes and address them in real time. And, we need to make sure that the power system is balanced and stays reliable. Everything is much more complex than it was before, more parties are involved and TSOs need to get access to more and more complex information.

The major challenge is that everything needs to be tackled at the same time. We must envisage new ways to operate the power system. We will need continuous flow of real time information in order to keep an overview of this global power system. We need the right communication infrastructure, the right ICT solutions and the right processes, and new technologies, such as power-to-heat and e-mobility. All of this needs to go hand in hand with balancing and market responsibility.

We are currently moving closer to real-time solutions, such as intra-day trading and balancing markets. This is the right moment to discuss the topic of digitalisation. Elia will face huge investment challenges in the coming years in order to make the grid fit for the transition. We are taking action in order to deal with challenges related to digitalisation, we are increasing our forecasting activities, and we are collaborating with DSOs in order to improve the information exchange, for example through the creation of data hubs. Data privacy and cyber security will become more important and we are working on this topic as well.

*Gerard REID, Founder and Managing Partner, Alexa Capital & Bourbaki – The digitalisation of energy*

We see radical change in many different areas at the moment and a lot of new technologies are emerging. However, in electricity production rarely anything has changed in the last 100 years. New technologies and new business models will soon launch a revolution in this sector though – as we have seen in many other sectors. In 1988, the iPad would have been the most powerful computer in the world, but even more radical is the transformation from books to e-books, Amazon flatrates etc. Many people today don't have any CDs at home anymore, they use iTunes and Spotify and other cloud-based service providers. Over the last 25 years, we have seen a huge technology shift.

At the very same time, we are still using a traditional old value chain in the power world, with the same incumbents in place for 100 years. But we will soon see innovations that enable the energy sector to much more. They include enhanced oil and gas recovery technologies, continuously falling costs and further innovation in PV technologies, leaps in storage such as lithium-ion battery technology in automobile and non-automobile markets as well as cheap semiconductors, LEDs, communication devices and sensors.

I am convinced that electricity will become the dominant power going forward. We will also see hybrid solutions everywhere. Electric cars will probably be the reason why we will see decentralised storage in the grid. Essentially, the grid will become part of the internet of things. In ten years, I will buy a washing machine and I will most likely buy an electricity package with it because it is a business model for the manufactures, just as electricity/battery packages will be business cases for car manufacturers. The open questions are: how are grid operators going to react to this? How do we regulate such developments?

The discussion following the keynote focused on the opportunities and fears that might be sparked by an energy revolution as foreseen by Gerard Reid. An audience member commented that such a drastic change would scare a lot of people because many might have difficulty understanding the developments in detail. There was consensus among the attendees that the key to dissolving such fears is dialogue. People agreed that the energy sector has huge changes ahead and that everyone needs to educate him or herself. A dialogue with entrepreneurs was considered especially important – to find out where they are going and to learn what can be done. Instead of being reactive to new technologies, RGI and other players in the field should engage in creating the energy future and help shape a market that works for these new technologies, Reid recommended.

## Main discussion outcomes

*FIRST PANEL: How digitalisation in the electricity sector is shaping and impacting markets, new actors such as virtual power plants, prosumers and citizens*

*Including contributions from:*

- ❖ *Paul KREUTZKAMP, CEO, Next Kraftwerke Belgium*
- ❖ *Isabelle BUSCKE, Head of Brussels Office, Federation of German Consumer Organisations*
- ❖ *John DOYLE, DG CNECT, European Commission*
- ❖ *Colas CHABANNE, WG Market Design & RES Convenor, ENTSO-E*

Panellists discussed whether enough attention is paid to the consumer when new technologies are being developed. Should we simply embrace new technologies that promise an electric future or do we need to look much more at what we want to gain as a society and not only what good business models are?

Participants agreed that we talk about digitalisation as if it is only the development of new technology, but actually much of the technology is already there. What is needed much more to advance digitalisation is a proper regulatory framework, and the consumers need to be on board and trust in the new technology that is offered. The question is: do they trust that the person who is providing them with digital reserves actually has the physical reserves? This also underlines the fact that there is a real need for an appropriate regulatory framework. Commercial companies are using data and only very few people know how. If smart meters are being put in people's homes without telling them which information is being recorded, there will not be a gain of trust. Instead, people will feel like they are being spied on. Behavioural economics show that 80% of consumers mainly trust, without being particularly informed. But if something goes wrong this trust is lost. We therefore need much more consumer involvement than is currently the case, but we also need to enable an evolution of the electricity sector and create a regulatory framework that allows for new actors and business models.

*2<sup>nd</sup> PANEL: Digitalisation is linked to big data. Managing and accessing data will enable actors to prosper and deliver the energy transition. An update on recent developments*

*Including contributions from:*

- ❖ *Jukka RUUSUNEN, President and CEO, Fingrid*
- ❖ *Baard EILERTSEN, Founder, Maingate*
- ❖ *Paul-Georg GARMER, Senior Public Affairs Manager, TenneT*

Big data is a part of the solution to coordinating more and more decentralised energy production, consumers and storage, and not the problem. That was the theme for this second panel. Panellists agreed with the previous panel on needing new regulatory rules and the fact that much of the needed technology is already there. However, they took a more open position with regard to data privacy, mainly discussing the tolerance towards smart meters that can be observed in Finland. All houses in Finland have been equipped with smart meters since 2014 without any data privacy discussion so far. Fingrid is now aiming to build a data hub that collects information useful to the grid operator, but could also be open to other service providers. Yet, comments from the audience showed that an openness towards sharing personal information/data might just be characteristic for Nordic countries and not apply to many other countries in Europe, especially Germany, where data protection is held in very high esteem.

One thing that all panellists agreed on though, is that TSOs are slowly moving into the direction of becoming, at least partly, IT companies. There was also consensus that such an internal business digitalisation is a step in the right direction. Panellists also ask audience members to refrain from using the term ‘big data’ in the future as it evokes fear and is actually not what most companies are looking for. The question is rather what is the right data, the one we need to make the energy transition happen, and how do we best procure that.

*3<sup>rd</sup> PANEL: Flexibility and demand response: the silver bullet of the energy transition?*

*Including contributions from:*

- ❖ *Andreas FLAMM, Director Regulatory Affairs Europe, EnerNOC*
- ❖ *Stephan SINGER, Chairman of the RGI Board and Head Global Energy Policy, WWF International*
- ❖ *Oliver RAPF, Executive Director, Buildings Performance Institute Europe*
- ❖ *Dr. Jörg SPICKER, Head of Market Operations, Swissgrid*

We can speed up the future if we have the right legislative framework – that was the theme of the day and panellists in this third discussion round could only agree. They called for a more open regulatory framework that gives new players the possibility to enter the market.

It became clear in the course of the discussion that there is not simply one silver bullet that can be the key to a successful energy transition. However, generation and demand have always provided some flexibility, but currently TSOs have to deal with a lot of challenges and instabilities to which flexibility markets and real-

time pricing could be solutions. Another approach could be creating a bigger role for consumers. With the help of IT solutions, consumers might be able to adapt to price signals, using applications that will automatically react and having a service provider steer the process. It is also important not to neglect a better incorporation of the building sector into the overarching thought process of how to achieve the energy transition, as buildings could have quite an elementary balancing effect.

## **Closing speech**

*Konstantin STASCHUS (Secretary-General, ENTSO-E) & Wendel TRIO (Director, Clime Action Network (CAN) Europe) on: why do we work together?*

The two closing speakers united in calling for a strong signal from the Paris COP that is needed to move to a more renewable future – for this, NGOs and TSOs need to work together. Particularly, because the power sector has an important responsibility to combat climate change, as it is part of the problem that we are facing, but also part of the solution. In order to find this solution, NGOs and TSOs must work together in calling for and help creating an internal market and a power system that is built to allow optimal demand management and can be as flexible needed. The BESTGRID project, that was funded by the EU and managed by RGI, was a great example of what such NGO-TSO collaboration can look like and how many fruits it can bear.