

# Position Paper

## Recommendations to meet the 'Flexibility Challenge'

Renewable energy sources (RES) are playing a steadily increasing role in the EU power system. Unfortunately, due to wind and sun intensity variations, it is difficult to precisely foresee RES output and to match electricity production with demand. The European Union therefore needs flexible solutions to complement variable RES and meet the so called 'Flexibility Challenge'. This requires changes to electricity market design.

### 1. Today's electricity market design

The current mechanisms designed for an electricity network driven by large thermal power plants have two principle elements:

- Energy-only market (EOM): Long-term planning of supply and demand based on forward contracts;
- Balancing mechanism (BM): Short-term supply and demand balance achieved by Transmission System Operators.

The combination of the two existing mechanisms (EOM and BM) works efficiently for power systems dominated by predictable supply and demand profiles. However, **the trading arrangements are not designed to handle the growing unpredictable variations in electricity supply.** Today they are not able to solve in a cost-efficient manner the challenge of balancing

the generation and consumption of electricity within the changing European electricity markets. Therefore the design of these mechanisms has to be adjusted.

### 2. Need for cost-efficient solutions

As a consequence of these deficits, many European countries have started to consider or even to introduce some form of capacity market, designed to **encourage investment in new capacity or to avoid the closure of existing capacity.**

A capacity mechanism works hand-in-hand with the electricity market. Its purpose is to ensure capacity adequacy on a specific power system level (e.g. a country). With the implementation of such a mechanism, EU member states hope **to overcome the investment hiatus** caused by the increased amount of subsidised renewable generation (the so-called 'missing money' problem brought about by increasingly uncertain market-based revenues for thermal plants). **Typically capacity mechanisms focus on ensuring overall capacity adequacy rather than specific types of capacity.** While this form of capacity mechanism may increase the capacity margin in a specific country and reduce risks to security of supply, **it may not deliver the required flexible capacity at the least cost to consumers.**

For example, it may introduce un-



9 December 2014

- Current energy only markets and balancing arrangements need to balance the electricity challenge of the future.
- All market participants should have balancing responsibilities.
- Price signals should remain the main drivers for investment decisions.
- The imbalance charge should reflect full costs.

EUGINE is the centre of knowledge for engine power plant technology and electricity market design. Its members are the leading European manufacturers of engine power plants and their key components. They provide forward-looking solutions for flexible electricity generation. EUGINE works with EU and national institutions in order to help the European electricity system to meet the challenges of today and tomorrow.

necessary costs in terms of reserve, emissions and wind curtailment to the extent that it allows older (and less flexible) plants to stay on the system and limits the system to take-up more energy from renewable energy sources.

The balancing mechanism and a capacity mechanism have distinct but complementary roles in seeking to ensure electricity supply security. The capacity mechanism is intended to address longer-term capacity adequacy by providing capacity providers with a secure revenue stream for their investments. Balancing arrangements provide efficient signals of the value of flexibility, influencing the type of capacity moving forward. Sharper electricity balancing prices have the potential to eliminate the need for a capacity mechanism because sufficient new investments in flexible capacity are emerging, thus providing security of supply.

**Several sources, ranging from the US department of energy<sup>1</sup> to the leading companies of the global electrical power sector<sup>2</sup>, the European Transmission System Operators (TSOs) for Electricity<sup>3</sup> and the European electric industry<sup>4</sup> as a whole are now highlighting the**

**need for a flexible power system and flexibility solutions.**

### **3. Recommendations for tomorrow's market design**

In the current political discussion there are diverging views on what the best solution might be and how it should be named. EUGINE believes that certain characteristics and requirements should be formulated and applied to any future mechanism regardless of whether it is called a capacity or flexibility mechanism and irrespective of the country in which it will be introduced:

- All market participants should have balancing responsibilities, including suppliers of electricity from renewables. If they cannot balance offer and demand, they should face the imbalance charge.
- Price signals must continue to be the main driver for market participants' day-to-day operational and longer-term investment decisions. It is therefore critical that balancing arrangements are fit-for-purpose to deal with the large deployment of intermittent renewable energy sources and are introduced before a potential ca-

capacity mechanism is considered. This is essential in order to avoid locking in less flexible capacity.

- Prior to introducing capacity mechanisms, electricity market failures should be identified and corrected. Especially balancing arrangements must be reviewed and if required corrected to signal the value of flexibility. Capacity mechanisms should be considered as 'ultima ratio'.
- Within the balancing mechanism the 'imbalance charge' (penalty) should reflect the full costs for balancing the system and the 'utilisation fee' should be based on actual marginal prices. 'Reserves' should be procured on a shorter-term basis (ideally: the day ahead or even shorter)
- The mechanisms currently in place should be modified to include the aspect of time-to-startup and a market place to trade it.

**The 'Flexibility Challenge' technically can be met by engine power plants but they need appropriate market mechanisms to be economically competitive and able to provide their valuable solutions.**

<sup>1</sup> U.S. Department of Energy (2011): The importance of flexible electricity supply

<sup>2</sup> Global Sustainable Electricity Partnership (2014): Communiqué, GSEP Summit, May 27, 2014

<sup>3</sup> ENTSO-E (2014): Market Design Policy Paper

<sup>4</sup> EURELECTRIC (2014): Renewable energy and security of supply : finding market solutions

## **Contact**

Brussels Office  
Diamant Building - Boulevard Reyers 80  
1030 Brussels - Belgium  
Phone: +32 (0)2 706 8297  
E-mail: [info@engine.eu](mailto:info@engine.eu)

Head Office  
Lyoner Strasse 18  
60528 Frankfurt am Main - Germany  
Phone: +49 (0)69 6603 1936  
E-mail: [info@engine.eu](mailto:info@engine.eu)

**Visit [www.engine.eu](http://www.engine.eu) for more information**

European  
Engine  
Power  
Plants  
Association

The logo for EUGINE, featuring the word "EUGINE" in a bold, blue, sans-serif font. The letter "E" is stylized with a circular shape on its left side, resembling a power plant or engine component.