

Position Paper on lighting in the smart grid (demand-side flexibility)

Summary

Since its establishment, LightingEurope has always supported initiatives from the EU that benefit consumers, the environment, and the economy. As such, LightingEurope welcomes the smart grid and demand-side flexibility (DSF).

At the same time, lighting is essential for human safety, wellbeing, comfort, and ability to function at times of the day that there is no natural light available. Therefore, interaction between lighting and the smart grid has to comply with these needs, making lighting unsuitable for full DSF integration.

Smart grid and demand-side flexibility

The potential of the smart grid cannot be stressed enough, as it can optimise the behaviours of suppliers and consumers in an automated manner to improve the energy efficiency, sustainability, reliability, and economics (e.g. cost effectiveness) of the European electricity market.

A fundamental objective of the smart grid in achieving its energy and cost efficiency targets is the optimisation of supply and demand. An important tool in realising such optimisation is demand-side flexibility (DSF), which is the automatic adjustment of energy demand using external signals and price mechanisms, such as time-varying or event-driven electricity rates.¹ It enables automatic changes in electricity usage by end-users from their normal consumption patterns in response to changes in electricity price or when system reliability is jeopardised.

Lighting and demand-side flexibility

Although lighting has properties that are interesting for DSF participation (considerable load, fast response, and no delayed consumption), the accessibility to lighting cannot be made subject to variations in electricity price and grid stability, as lighting is essential for human safety, wellbeing, comfort, and ability to function at times of the day that there is no natural light available. In addition, it should be noted that there are legal requirements for the provision of light, e.g. at work, streets, underground tunnels, emergency lighting, etc., which complicate the connection to demand-side flexibility.

¹ Demand-side flexibility (DSF), also called demand response (DR), is further elaborated in CIE 222:2017.

Instead, lighting systems cover the characteristics of DSF in a way that is compliant with legal requirements, while providing safety, wellbeing, and comfort aspects. Lighting systems generate sizeable energy savings (20 – 29 TWh/y in 2030 and 48 – 56 TWh/y in 2050), helping to reduce the energy consumption.

For these reasons, the focus should be on the energy savings by the use of lighting systems and on renovation of old lighting installations.

Contact

For further information on this topic, please contact Marion Ebel, Senior Policy Officer (marion.ebel@lightingeurope.org).

LightingEurope is the industry association that represents the lighting industry in Europe. We are the voice of more than 1,000 lighting companies that employ more than 100,000 Europeans and create an annual European turnover of over € 20 billion. Our daily mission is to advocate and defend the lighting industry in Brussels, while reconciling it with ongoing EU policy aims. In doing so, we are dedicated to promoting efficient lighting practices for the benefit of the global environment, human comfort, and the health and safety of consumers. More information is available on: www.lightingeurope.org.