

A level playing field for all

Achieving carbon neutrality by 2050 needs to be pursued in a cost-effective manner across all sectors, including power generation. To such regard, a cost-effective path to carbon neutrality will only be achieved if a level playing field is ensured. This entails ensuring that all technologies are subject to the same rules and assessed under both their life cycle GHG emissions and the value they provide.

Brussels, November 2019 - The EU is committed to become carbon neutral by 2050. As power generation increasingly moves towards a decarbonised future, technologies such as PV and wind progressively become mainstream and already are, in some locations, the main form of power generation. This has led to a shift in the role of thermal generation from main electricity supplier to a reliable support role, addressing the fluctuation of weather conditions and the limited possibilities for energy storage.

Electricity is a commodity with the property that generation has to equal consumption (plus grid losses) at every point in time, as it is otherwise hard to store. When surplus electricity is dispatched to the grid, the system can collapse, causing major damages to connected electrical equipment. Conversely, when too little electricity is dispatched, there is the risk of brownout or blackout, leading to huge financial and social costs. Hence, the stability of the electricity system is of key importance.

Clear price signals are needed to trigger GHG emissions reduction while simultaneously keeping the electricity system balanced, by rewarding electricity suppliers for the provided stability and disincentivising destabilisation. This will ensure that all power generating technologies can contribute together to carbon neutrality.

Therefore, to reach this goal in a quick and affordable way, we need to ensure that all technologies are subject to the same rules. We can identify two main areas where the playing field needs to be levelled, namely:

- Life cycle GHG emissions resulting from power generation;
- Alteration of the electricity market stability in the events of under- or oversupply.

How to ensure a level playing field in GHG emission and electricity market stability?

In economic terms, we need to internalise the negative externalities connected to both the GHG emissions and the alteration of the market equilibrium. Internalising these externalities means fully compensating for the resulting damages to society as a whole.

Internalising the cost of GHG emissions will have one of two possible outcomes. Either the emitting plants will opt to pay a fair compensation for their share of GHG emissions, or they will opt to cease emitting. Here, a fair compensation refers to an accurate reflection of the cost of the damages resulting from the GHG emissions.

This would likely result in an increase of the price of EU Emissions Trading System (ETS) allowance, which in turn should incentivise plants towards the second option: stopping emitting.

Plants can stop emitting GHGs either by shifting to carbon-neutral energy sources, or by capturing their CO₂ emissions through Carbon Capture and Storage (CCS) or Carbon Capture and Utilisation (CCU). Internalising the costs associated with the destabilisation of the electricity grid can also be addressed in practice.

To this regard, the plant operators involved will also face two options, namely:

- Investing in technologies aimed at a stable and on-demand electricity supply (e.g. storage, flexible generation or demand response)
- Accepting lower prices for electricity generated at times when supply matches demand, and higher prices when additional supply is needed to meet demand

A system that needs better calibration

Although mechanisms to address these issues already exist, it is important to consider further aspects.

For one, the implementation of the EU ETS is an important solution. However, its price signal is considered too low to trigger the much needed large scale investments in CCS and CCU, the latter of which will have a key role in the production of carbon neutral fuels, essential to decarbonize sectors that are hard to electrify (e.g. steel, iron, and glass production).

For another, while in principle energy market prices adapt in real-time to the relative supply and demand to ensure the stability of the system, other mechanisms can distort price signals, as detailed in the next page.

- **Principle of preferential treatment (priority dispatch)**

In an ideal electricity market, the lowest bidder should be contracted first, while the most expensive bidder should be contracted last, provided that these prices include the cost of any undesirable effects on society or the environment.

Giving preferential access to other actors could distort this market mechanism, and potentially lead to more expensive and/or less reliable plants being contracted first. Although priority dispatch for renewable energy will be no longer applied for new installation of renewable energy as of 2020, it remains active for older installations.

- **The undervaluation of stability**

Energy technologies are often compared based on the criterion of Levelised Cost of Energy (LCOE), i.e. the lifetime cost per generated unit of electricity (e.g. a kWh or MWh). However, LCOE fails to take into account the fluctuation of electricity prices over time, hiding the actual costs of instability which final consumers will end up paying.

Fluctuations in electricity prices are better reflected by the Levelised Value of Energy (LVOE), which represents the lifetime value per generated unit of electricity. Taken together, the LCOE and LVOE provide a more accurate indication of the economic costs and benefits of a given technology. This is especially true, when considering that the share of wind and PV renewable energy – and therefore price fluctuations – will be increasing over the next decades.

Conclusions

To achieve carbon neutrality in a cost-effective way, the EU needs to create a level playing field. This requires a shift from a cost-based approach to a value-based approach when assessing generation technologies, as also supported by the European Investment Bank energy lending policy draft.

This also calls for the evaluation of all technologies on the same merits by internalising the aforementioned externalities: GHG emissions and instability in the electricity grid.

If a level playing field is guaranteed and the barriers to it are thus removed, the market should do most of the heavy lifting and drive the EU towards an affordable and clean energy system well before 2050.

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