



In this factsheet:

Electricity Market Design
(EMD)

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Reform of the Electricity Market

Current conditions

The electricity market follows the economic principles of demand and supply, aiming at ensuring that demand is served at any moment in time in the most cost-effective way. In very basic terms, electricity generators sell their production on the wholesale market. This is further sold by suppliers to consumers via the retail market.

The wholesale market in the EU is a system of marginal pricing, where all electricity generators get the same price for the power they are selling at a given moment. The cheapest electricity is bought first, next offers in line follow. Once the full demand is satisfied, everybody obtains the price of the last producer from which electricity was bought. This model provides costs based only on LCoE. Overall, it is better for consumers to have a transparent model that reveals the true costs of energy.

The retail electricity market in the EU fix the price that customers pay per kWh of electricity used during a certain period of time. The bill includes the electricity price - reflecting the consumption-, the transmission and distribution network tariffs, as well as taxes and levies.





Electricity market design

There is a need to reform the electricity market, because:

- Electricity high price crisis caused by reduced Russian gas imports, nuclear and hydro shortages. Ukraine invasion exacerbated this.
- About 20% of EU electricity generation comes from flexible gas plant.
- Current price rules doesn't incentives or fiscal rewards for baseload and predictable (geothermal) renewable energy generation, and there is no support for flexibility, storage or energy savings.
- Southern European countries had problems because of the heat wave that added greater pressure on their electricity systems.
- Electricity system also came under pressure from the jump of e-transport and of Heat Pumps. The use of geothermal heat pumps is also an important element of energy security.



Key new provisions

- Stable prices with long-term contracts such as power purchase agreements whereby the electricity company generator agrees to sell electricity directly to consumers at a certain price.
- Secured revenue : Investments in new power-generating assets based on wind energy, solar energy, geothermal energy, hydropower (without reservoir) and nuclear energy will be made in the form of two-way contracts for difference (CfDs).

New rules will also make it easier to integrate renewables into the system with flexibility and storage .

ACER estimated that the electricity system in Europe will require more than twice the current quantity of flexibility resources by 2030.

Member States have to assess their flexibility needs at national level and design adequate support schemes for flexibility :

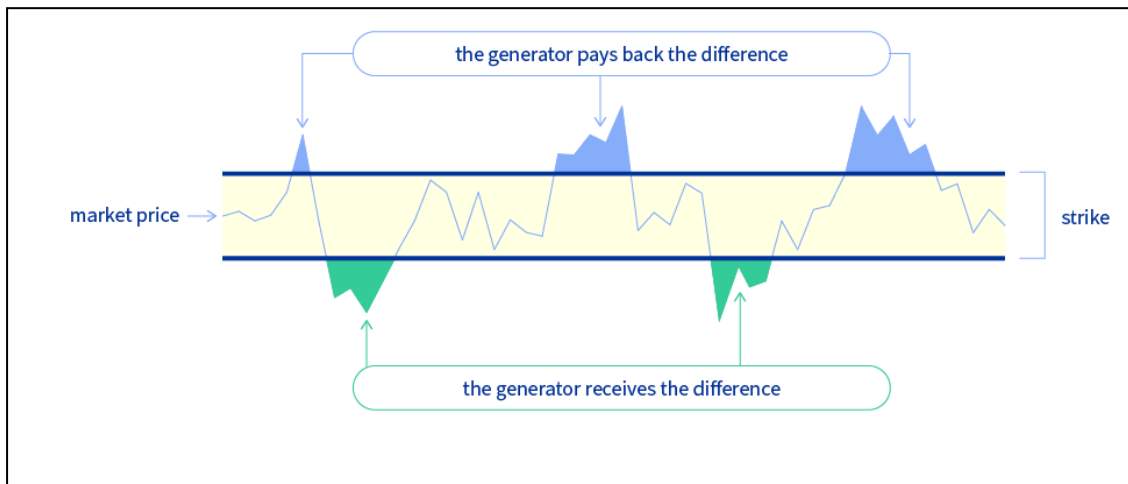
- Storage, including underground thermal storage is key for flexibility
- Dispatchable power generation (e.g. geothermal),
- Other instruments include transmission networks, demand management, virtual batteries...



Focus on financing

Towards contracts for difference

This is the main way in which governments can now finance new electricity generation capacity in a few technologies. Two-way CfDs means the generator receives income when the price of electricity collapsed but consumers receive it, to some extent, when prices go above the agreed ceiling. The proposed two-way CfD rules to tender new capacity must include non-price to go beyond a LCoE approach.



Main take-aways

1. The reform of the electricity market design recognize the role of geothermal and brings new opportunities.
2. A Frame for Power and Heat purchase agreements ensures stable prices.
3. Public incentives will now take the form of contracts for difference.
4. Geothermal is recognised as one of the five technologies to benefit from CfD.
5. Flexibility is recognised as an essential tool to achieve the energy transition.
6. Underground thermal storage is providing this flexibility with seasonal storage.
7. Dispatchable power generation from geothermal is another source of flexibility.