

Maintaining priority access and dispatch for renewable energy

Introduction

Given the current market structure and operation, which are not designed to accommodate increasing shares of renewable energy, priority dispatch is an important tool to facilitate the integration of renewables into the power system. Priority dispatch guarantees investors in renewables have an improved scope for planning, preventing discriminatory curtailment and reducing grid risks arising from the absence of a level playing field for renewable power generators. Notably, the lack of transparency in curtailment rules makes priority dispatch a policy-driven solution that ensures the intrinsic characteristics of flexible renewables are not a barrier to their exploitation.

In addition, not all renewable technologies display close to zero marginal costs, as is the case with wind and solar power. Therefore, priority dispatch is also needed to secure the development of a broad array of flexible technologies that complement each other and can guarantee security of supply in the long run.

As regards priority/guaranteed access, grid expansion and reinforcement at both the transmission and the distribution level is lagging behind renewable energy development. Guaranteeing the access of renewable power generators to the grid will ensure the building of a grid infrastructure necessary to effectively and cost-efficiently integrate renewables.

Three concepts behind priority access and dispatch

When considering renewable energy sources and their relation to the access to and operation of the grids, there are three concepts to be distinguished behind the terms “priority access” and “dispatch”:

- the guaranteed connection of renewable energy generation units to the grid (priority/guaranteed grid access);
- the obligation for network operators to feed energy produced by renewable generation units into the grid (priority dispatch);
- the obligation for network operators to reinforce and expand their grids to accommodate increasing shares of renewables (transmission and distribution).

Priority access and dispatch for renewables necessary after 2020

1. Priority/guaranteed grid access

Renewable energy development has long overtaken the expansion and reinforcement of the European grid, which has been stalling due to various barriers. This negatively impacts renewables: For example, most curtailments of flexible generation in Germany occurred due to local grid constraints. Guaranteed grid access – or at least transparent and fair conditions for grid access – will ensure that grid infrastructure is developed accordingly, and that it can effectively and cost-efficiently integrate renewables.

2. Priority dispatch (conducted by TSOs/DSOs)

In case of local grid constraints or oversupply in the power system, system operators are required to reduce power plants' output. Because fossil fuel and nuclear power generators are not flexible enough, it is often flexible capacity which is curtailed, leaving the polluting generators to continue running. Renewables are thus penalized due to their intrinsic characteristics and the failure of conventional power plants to ensure the security of the system. An existing oversupply in terms of inflexible generation capacity, the frequency of which will only rise as the share of renewables in the power system increases, means an increase in risks for renewable energy producers.

It is therefore necessary to maintain priority dispatch for renewables after 2020 and anchor it in the revised Renewable Energy Directive. This would have the benefit of incentivizing system operators to find technological solutions that minimize the amount of curtailed renewable electricity, such as system monitoring, forecasting tools, communication, and interoperability. It would also improve curtailment rules for various technologies, ensure the existence of fair compensation schemes for renewable power generators, and avoid discriminatory curtailment practices.

As regards the lack of a level playing field in terms of costs, priority dispatch guarantees fair handling of:

- renewables with significant marginal costs, such as bioenergy, which come after conventional energy sources in the merit order (as long as the external costs of conventional energy sources are not fully internalized);
- renewables with low marginal costs, as opposed to conventional energy sources with low marginal costs (e.g. lignite power plants and nuclear power), for which the external costs are not internalized or where insurance premiums do not reflect the actual risk;
- renewables, as opposed to conventional CHP plants, that can displace renewable energy power due to revenues from heat sales.

Priority dispatch has been a central pillar in keeping the grid risks manageable and thus reducing capital and investment costs. Maintaining priority dispatch is necessary if cost-efficient renewable energy investment is to continue. Removing it would subject renewable energy producers to unbearable grid risks.

Furthermore, in order to improve the flexibility of the internal energy market and to optimize interconnector management, renewable energy should benefit from priority dispatch at the level of interconnection. To date, conventional power plants can participate in annual auctions and secure themselves a large share of the available interconnection capacity. We suggest auctioning capacities one day ahead at the earliest, to avoid any discrimination against variable renewables.

Last but not least, advancing sector coupling would provide a solution to avoiding curtailment altogether.

3. Transmission and distribution

Renewable energy development requires infrastructure development. According to the current Directive, Member States are required to ensure that both transmission and distribution system operators guarantee the transmission and distribution of renewable power. This means reinforcing and expanding their grids, developing interconnectors, incentivizing flexibility of renewable energy producers, etc. A similar requirement should be anchored in the revised Directive.

Minimum requirements for adapting the energy system to increasing shares of (flexible) renewables

- 1. Removal of priority dispatch for all forms of non-RES power generation.**
- 2. Inclusion of priority dispatch for renewables at the interconnection level.**
- 3. External costs of conventional technologies are internalized and must-run capacities of conventional power units are reduced to the technically necessary minimum.**
- 4. Grid expansion at distribution and transmission level** in line with the needs of renewable energy development.
- 5. A satisfactory level of market transparency.** Curtailments and corresponding costs are plausibly assessed for all stakeholders. Curtailment decisions must be suitably explained by the TSOs and only constitute a last-resort measure. Studies assessing the cost-benefit of curtailment as opposed to reducing must-run obligations for conventional units should be presented. The calculation method for the amount of spilled energy, corresponding cost and eventual compensation must be clear.
- 6. Existence of functioning intraday and balancing markets.**
- 7. Conditions of intraday and balancing markets enable the participation of all renewable energy technologies.**
- 8. Sophisticated forecasting methods are in place.** TSOs and DSOs should improve their day ahead forecasting, utilising state of the art methods during operation while increasing cross-border cooperation to reduce unexpected situations due to forecasting errors.
- 9. Enabling policies for sector coupling.** Surplus power that cannot, (bottleneck management), or should not, (generation peak shaving), be fed into the grid can be utilized to decarbonise other sectors. Sector coupling can be gradually driven forward by cost-neutral incentives and can lead to the development of competitive markets and industries, providing power-to-X solutions and innovative ancillary services, as well as cost-effective emission reductions.