SolarPower Europe Position Paper

A Grids and Flexibility Action Plan targeted towards implementation

SolarPower Europe's key recommendations:

1. **Reinforce the governance of the EU grids policy**: the EU energy infrastructure policy is based on tools to build cross-border energy projects. We need new governance tools, based on national indicators on the grid situation, to better monitor decentralised infrastructure, and support a swift implementation.

2. **Make the Grids Action Plan into a Grid and Flexibility Action Plan**: the Grids Action Plan must not be focused only on grid development, but also on grid use optimisation, with the development of flexible resources. Further additional regulatory actions can be taken to support

3. **Investing smartly into the grid through efficient, participatory, and anticipatory planning**: connecting more renewables will also need more grid investments. Where grid reinforcement is necessary, permitting of grid infrastructure can be a bottleneck. Actions to ensure a consultative and efficient grid deployment are needed.

Where is Europe today?

In 2022, the EU installed over 40 GW of solar – twice as much as was installed in 2021. From a total solar fleet of around 200 GW today, the EU is aiming to have 750 GW of solar capacity by 2030. This is creating long queues of RES projects, waiting to be connected to the grid. Today, worldwide, 1000 GW of renewables projects are waiting to be connected in Europe and the USA[1].

Why?

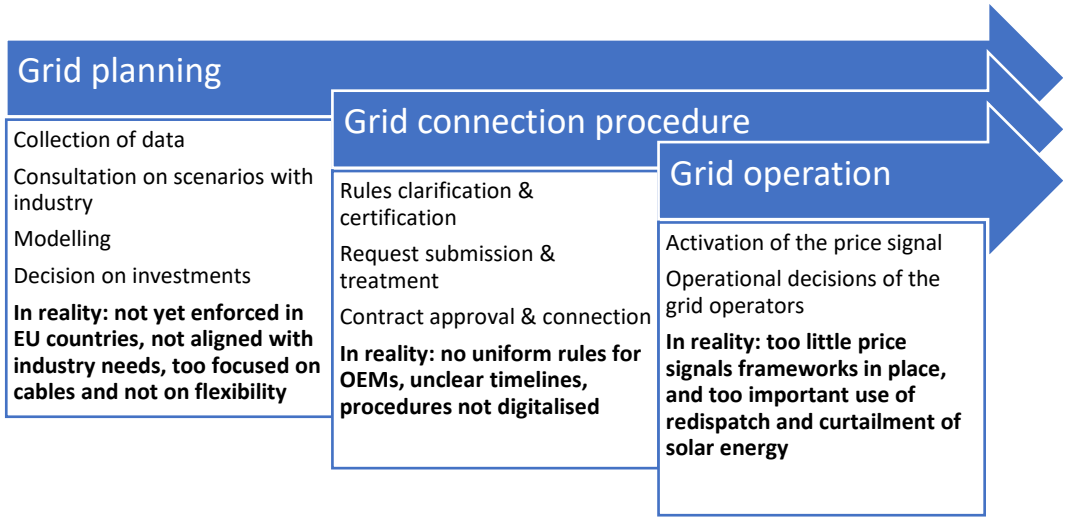
- Europe's grid infrastructure is not growing at the same pace as renewables. Between today and 2040, we will need to build more than 50 million km, and reinforce around 30 million km. Building grids takes too long – often more than 10 years for high-voltage grid infrastructure – in part due to long and inefficient permitting processes.
- Grid operators need more digitalisation and modernisation. Grid connection procedures are still operating on paper-based systems in some cases, resulting in burdensome, but also non-transparent

[1] Source : Bloomberg New Energy Finance https://about.bnef.com/blog/a-power-grid-long-enough-to-reach-the-sun-is-key-to-the-climate-fight/

application processes. Smart grid technologies are not developed enough; big data analytics infrastructure is also required.

- Finally, the European Commission's Joint Research Centre acknowledges that flexibility needs to grow by a factor of two by the end of the decade, for balancing the system outside of grid congestion needs.[2] SolarPower Europe has estimated that 200 GW capacity of battery storage would be required. However, the EU's flexibility capacity is not growing fast enough: as things stand, market predictions bring EU storage capacity to less than 130 GW by 2030.

The EU needs to support the expansion and modernisation of the distribution grids. Although transmission level grid infrastructure has significantly modernised in recent years. more needs to be done to accelerate the deployment of interconnections that are essential for the system integration of solar PV, and other renewables. In addition, the market design, should be opened more to clean and renewable flexibility resources. Yet, **distribution grids** should also be prioritised: in 2023, 70% of RES capacity will be connected to the distribution lines. The system integration of RES also requires connecting active customers, and new loads. The activity of DSOs is significantly shifting, as they need, for instance, to manage bidirectional flows, and the resilience of the distribution system for extreme climate events. Therefore, DSOs need to be able to work with anticipatory investments, and implement adequate network development practices. They also need to increasingly rely on flexibility resources for congestion management, instead of only using static redispatch.



SolarPower Europe recommendations for action

1. **Reinforce the governance of the EU grids policy, targeting a swift implementation.**

Although the Clean Energy Package constitutes a useful toolbox of measures to improve grid connection, and grid integration of renewables, there is little monitoring of its implementation beyond the network codes foreseen in the package. Its provisions are not yet in place, despite a deadline for transposition in June 2021.[3] Yet, the transposition of such a provision, and the modernisation of grids, is pertinent for the whole net-zero economy – renewables, heat pumps, electric vehicles, energy-intensive consumers, and prosumers. Therefore, it is critical to improve EU governance, to account for the performance in the reinforcement of the grid infrastructure, in the spirit of creating a Power Single Market. We suggest to:

[2] ACER, EEA study

[3] SolarPower Europe (2022). Grids Planning and Grids Connection report – in particular the annex offers a view of national challenges and level of CEP implementation.

- → **Create a grid key performance indicator, based on the average lead time to grid connection, to be monitored through the European Semester.** This is understood as the time it takes to connect a new solar system to the grid, and manage any 'red tape' of associated reinforcement works for solar system connections. This would be from the first permitting request, until the final test conducted by the grid operator once the physical connection is complete, to ensure it is operating as expected. It should also monitor the progress made by Member States in their plans, with full transparency and objectivity. The performance indicators should be regularly reported through the European Semester, and should be supported by an analysis of the performance and recommendations for action. **To provide the right signals to system operators' progress, rewarding financially grid operators based on performance indicators could be added**, linked to the optimisation of grid use, and the swift connection management**.** It should reflect improvements to permitting procedures for renewables, grids, and storage, together with a contingency plan to be applied in case of permitting delays beyond the limits set in the Renewable Energy Directive.
- → **Establish a high-level political venue to ensure cross-political coordination of grid modernisation and investment efforts**, for instance by setting up a High Representative for Smart Electrification and Grid Modernisation in the new European Commission. This entity could also mobilise the EU DSO entity, ACER, and dedicated expert groups with ministerial representatives, to support implementation efforts, for instance by issuing guidance, and organising an exchange of best practices.
- → **Ensure that network planning is in line with 2030 and 2050 objectives.** Network planning should be adapted to the needs of the renewable energy industry, but also to the electrification industry – heat pumps, electric vehicles, etc. It is critical that the EU ensures that EU-level and national-level network plans are aligned with the 2030 and 2050 targets, in line with the Electricity Market Design revision proposal.

2. Make the Grids Action Plan into a Grid and Flexibility Action Plan

Grid development is essential, but electricity grids still take around ten years to be built, and congestion is starting to become a problem across Europe. Flexibility resources, which refers to the ability of resources to respond and adapt to fluctuations in energy supply and demand, are already available to relieve pressure on grids, and could be considered a complement to grid development, while the network extension and reinforcement takes a long time to be built. The Electricity Market Design reform is a great first step with flexibility assessment, anticipatory investments, and targets, that need to be enforced as soon as possible. However, some elements in the regulatory framework still need attention. We suggest to:

- → **Draft a guidance to regulators and system operators on how to unlock flexibility solutions beyond local flexibility markets.** While we welcome the developments on the network code on Demand Response, the bulk of flexibility can be unlocked efficiently without resorting to market structures. Dynamic tariffs, individual or collective self-consumption (referred to as energy sharing in the market design), provide price signals for consumers and generators to mitigate local congestion, and incentivise efficient use of existing public networks. Such non-market signals should be encouraged and fully considered through future flexibility frameworks. A guidance from the European Commission on best practices is needed.
- → **Require the development of procedures for a facilitated hybridisation of RES assets at the same connection point**. Hybridisation is understood as the addition of a battery storage or another generation technology like storage, to a solar power plant. Today, the permitting procedure to hybridise projects is unnecessarily restrictive or complex. In Ireland, developers cannot change the maximum export capacity of an asset by more than 120%. On the contrary, Spain and Portugal recently adopted rules to

facilitate the hybridisation of renewables with renewables. In addition, it is worth highlighting that the grid connection procedure of hybrid projects is unnecessarily difficult, with the draft Requirement for Generators proposing to test the grid requirement on each single asset instead of the maximum power of the hybrid asset, as highlighted by the European Storage Coalition.

→ **Remove double grid charging on energy storage.** Energy storage, in some Member States, is charged by the grid twice: as a consumer when storing energy from generators (PV, wind, …), and as a generator when releasing energy to consumers (businesses, households). This puts a high burden on energy storage, while creating an unlevel playing field with fossil assets or hydroelectric assets. Despite a strong provision of the Clean Energy Package, the provision has not been well implemented in EU legislation. It would be critical to offer guidance or review the provision of the Clean Energy Package to unlock the flexibility potential, notably at low voltage.

→ **Allow for revenue stacking of energy storage.** Today, energy storage is not able to fully function on all electricity and ancillary services markets. In most countries, it is also not possible to allow co-located battery storage with solar PV, to charge from the grid when it benefits from support scheme – although this has been solved in the UK.[4] This allows the plant to access different revenue streams, and in turn, reduces the overall cost because it allows for lower auction results. In addition to opening revenue streams for storage, new markets for the provision of remunerated system services that support grid stability, such as grid forming, provision of reactive power, obligations to install synchronous condensers, etc. The renewables industry should be remunerated for any mandatory hardware or software improvements that enhance the stability of the grid. This facilitates a better central coordination of the service from a system perspective, and would complement grid reinforcements and modernisation development from the generation side.

→ **Allow non-firm grid connections for consumers equipped with power control systems.** Distributed energy resources, such as RES, battery storage, or EV charging, paired with appropriate power control systems such as electric energy management systems, smart or hybrid inverters and building automation or EV control systems, can limit both the import and export of electricity at the connection point, based on the contractual agreement between the customer and the grid operator. This safeguards the grid against unforeseen grid events. Advances in such agreements have been seen in Denmark, the Netherlands, Ireland, and Sweden from the system operator side, which needs industry consultation. Respective advances can also be seen outside Europe, e.g in Australia (IEEE 2030.5) and standards for power control systems have already been developed in the USA. However, an EU regulatory framework that supports grid users and operators is still missing.

3. Investing smartly into the grid through efficient, participatory, and anticipatory planning.

Developing and permitting the grid infrastructure takes much more time than a solar PV plant. Coordinating grid and renewable energy development plans based on the agreed RES targets is necessary, to avoid long queues of projects waiting to be connected.

→ **Pilot anticipatory investments projects at the distribution grid level, in close coordination with industry, and integrate such practices into grid acceleration areas, and in line with renewable acceleration areas.** In this perspective, we welcome the emphasis on anticipatory investments in the draft Electricity Market Design Regulation. In 2020, the French Renewable Energy Trade Association, SER, developed a methodology to pilot an anticipatory investment scheme in the South of France, in cooperation with the local authorities, the transmission system operator, and the distribution operator.

[4] Ofgem (May 2023). Guidance for generators: Co-location of electricity storage facilities with renewable generation supported under the Renewables Obligation or Feed-in Tariff schemes

The project planned the development of its grid, following the pace of the deployment of local renewable capacities. **The European Commission should issue a recommendation and guidance to NRAs on how to enable anticipatory investments**, notably as part of the recently announced guidance on renewable acceleration areas, as part of the Wind Power Package.

→ **Reinforce the Connecting Europe Facility for Energy (CEF-Energy), for instance with regional development funds or the Just Transition Fund,** for targeted countries. Such a reinforced CEF-Energy could be empowered to finance direct works in countries, but also concrete capacity-building programmes for DSOs targeted towards the implementation of the Clean Energy Package.

→ **Take action to support the permitting of necessary grid infrastructure**, similar to the supportive actions taken by the EU to support the permitting of renewables. Such action should include the definition of accelerated procedures for grid components identified as essential as part of the renewable acceleration areas, positive administrative silence, and modernising and reinforcing administrative capacities to permit grid infrastructure.