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SPE Key principles to enable full Demand Response participation into flexibility markets

Introduction to MESC

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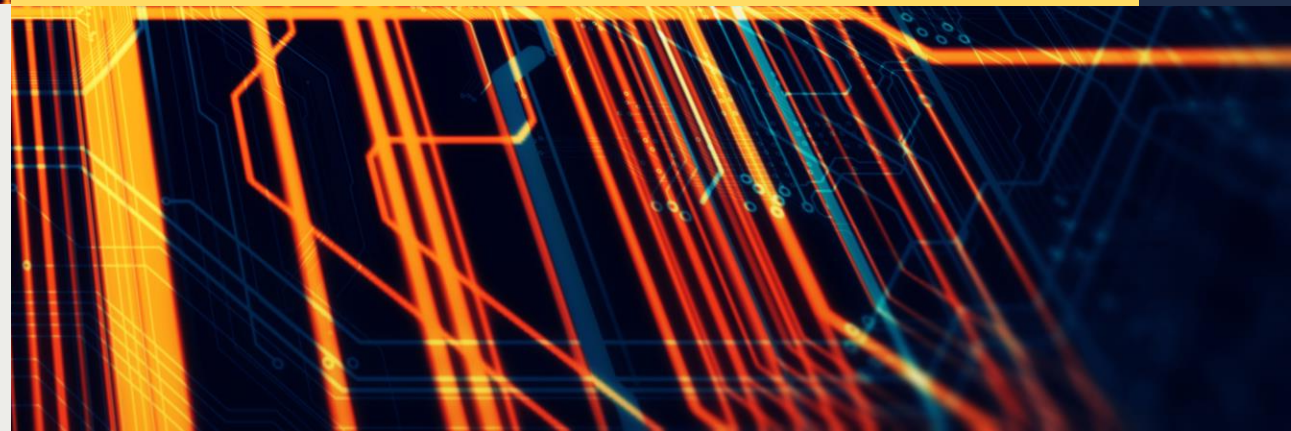
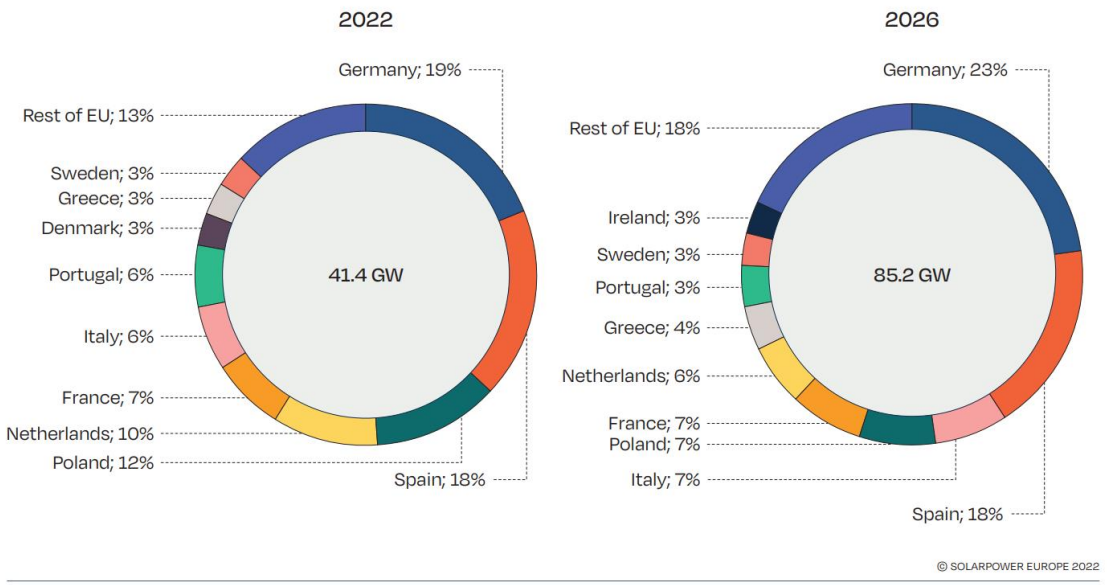
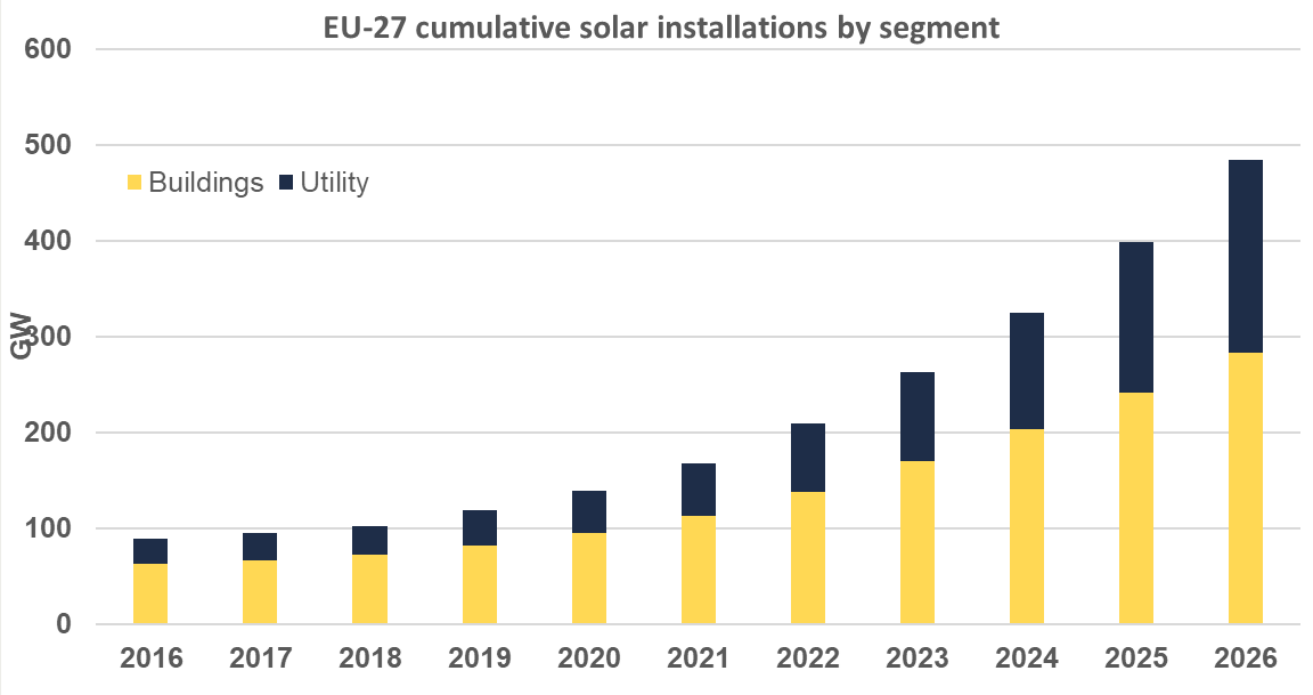


Solar PV Markets are growing fast, to continue connecting to the grid, and maintain a reliable and balanced electricity system we need flexibility, digitalisation and interoperability

FIGURE 11 EU27 SHARES OF TOP 10 SOLAR MARKETS IN 2022 AND 2026



SolarPower Europe Market Outlook 2022



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SolarPower Europe 7 Key Messages

1. **Principles for storage ownership** : Storage must by default be developed by market parties and such ownership be restricted to cases where markets have demonstrated to fail. In such cases storage assets should be tendered by TSO and DSOs in a way that offers a maximum degree of freedom for third parties to (over)size and optimize the battery in times where the system operator does not need it.

2. **Principles for flexibility value stacking in flexibility products**: The possibility to perform several different flexibility services at the same time, and to stack existing and future flexibility products across pan-European and local markets should be carefully reviewed and analysed to maximise revenue redistribution to consumers. New flexibility products should by default be stackable with pan-European wholesale and balancing mechanisms unless dully justified at national levels (and validated by NRAs).

3. **Use of Baseline based on near real-time data:** Baselines for the calculation of the flexibility services should be as precise as possible, based on local distributed energy generation (DER) near-real-time data instead of statistical methods.

4. **Pan-Europe certification of Dedicated Measurement Devices (DMDs):** DMDs are the source of key operational data required to manage DER transactions with markets. Necessary pan-European rules and processes should be established for their certification and type test approval as well as subsequent interoperable and standardised data exchange processes (as defined through the parallel implementing act).

5. **Standardisation of pan-European balancing pre-qualification and provision for DERs:** The pre-qualification process and attributes for service provision for all common pan-European balancing products should be standardised at the European level. The network code should foresee the development of a harmonized DER certification and type test approval process for mass-produced DERs (aligned with their associated DMDs as defined in point 2).

6. **Principles for Service provider switching:** Many PV installations coupled with battery storage have been deployed through European markets due to high retail prices and positive revenue returns to consumers. A large share of these distributed assets are presently connected digitally and remotely maintained and operated through dedicated DER operators/technical aggregators (often represented by DER/inverter OEMs) on behalf of consumers. The flexibility code should define processes, rights, and obligations under which the enrolment of such distributed assets into flexibility service provider portfolios with consumer consent occurs. The process should standardise sufficiently data exchange to ensure harmonised and seamless accessibility to data and controls. This would allow a flexible service provider switching and avoid consumer lock-in. Similar approaches are expected to emerge with solar PV coupled to EV Smart and bi-directional charging which will soon become significant shares of DER flexibility moving forward.

7. **Standardisation of grid flexibility activation and monitoring signals**: Standardised pan-European APIs should be defined to manage DSO/TSO data exchanges with DER operator/technical aggregator communication on grid power signals.

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Current balancing market integration bottlenecks

Diversified interfaces and comms standards represent significant market entry barriers for small mass-produced DER assets particularly

IT interfaces for wholesale markets similar across countries, but different for balancing

Market	Netherlands	France	Germany	Belgium
DAM	**EPEX Spot ETS**	**EPEX Spot ETS**	**EPEX Spot ETS**	**EPEX Spot ETS**
IDM	**EPEX Spot M7**	**EPEX Spot M7**	**EPEX Spot M7**	**EPEX Spot M7**
Congestion Mgmt	EPEX Spot (starting in 2023)	N/A	N/A	N/A
BRP Schedule	MMC Hub (XML)	TOPASE (XML)	?	E-Nomination / Probid (XML)
FCR Bid	**Regelleistung (Rest API / XML)**	**Regelleistung (Rest API / XML)**	**Regelleistung (Rest API / XML)**	**Regelleistung (Rest API / XML)**
FCR Acceptance	CPS (EDI)	TOPASE (XML)	?	BMAP (XML)
FCR Availability	MMC Hub (XML)	RMC	?	ATP (XML)
aFRR Capacity Bid	CPS (EDI) / MMC Hub (XML)	RACOON (XML)	Regelleistung (Rest API / XML)	STAR (XML)
aFRR Energy Bid	CPS (EDI) / MMC Hub (**XML**)	TOPNIVEAU (**XML**)	Regelleistung (Rest API / **XML**)	BIPLE / ECL
aFRR Nomination	MMC Hub (XML)	TOPASE (XML)	?	ECL?
aFRR Availability/Settlement	MMC Hub (XML)	Data Portal?	?	ATP (XML)
mFRR Capacity Bid	CPS (EDI)	RACOON (XML)	Regelleistung (Rest API / XML)	STAR (XML)
mFRR Energy Bid	CPS (EDI)	SyGA (**XML**)	Regelleistung (Rest API / **XML**)	BMAP (**XML**)
mFRR Nomination	CPS (EDI)	TOPASE (XML)	?	ECL?
mFRR Activation	Oracle Forms	TAO	?	Probid (XML)

- Despite there being a lot of different interfaces, most of them are based on XML or REST, and most bid information is the same across markets due to European standardization

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Example of IT interfaces in balancing, wholesale and congestion markets <u>for 4 countries only</u>

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Thank you for your attention!

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