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LDES Governance Best Practices:

Lessons from EU Member States

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For inquiries regarding this report, please contact: Jesse Terry
Email: j.terry@flowbatterieseurope.eu
Phone: +32 2 743 29 86
Website: www.flowbatterieseurope.eu

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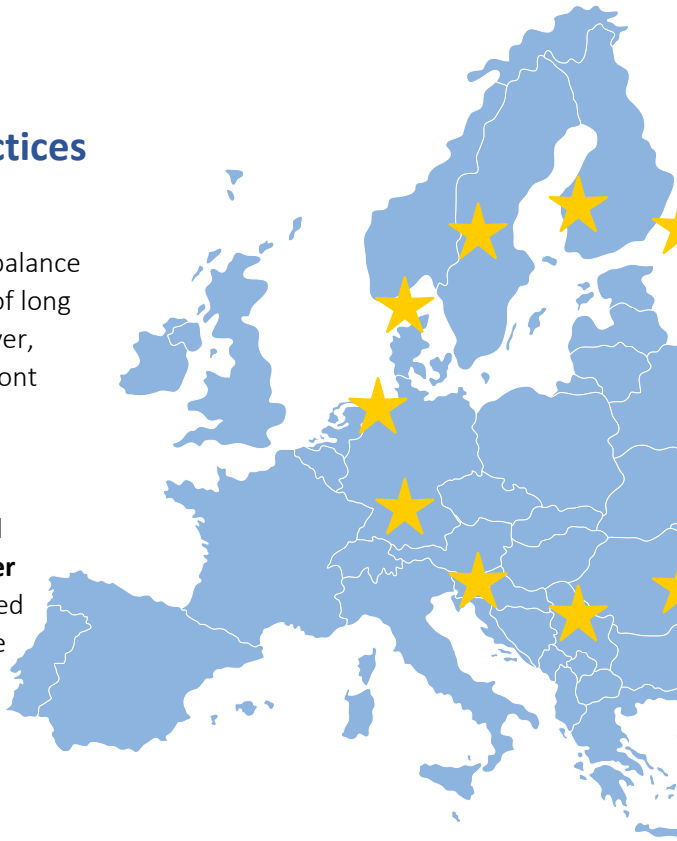


As the EU increasingly electrifies its energy system to meet its decarbonisation targets, more storage solutions are needed to balance intermittent, renewable energy sources, including a high share of long duration energy systems (LDES), including flow batteries. However, LDES technologies are not yet cost-competitive due to high upfront costs, limited market and regulatory frameworks, and revenue uncertainty.

To unlock their full potential, the EU must establish a more supportive regulatory and financial framework through targeted policies and market tools. First, it is crucial that **each EU Member State sets clear and ambitious LDES deployment targets**, aligned with their national energy and climate objectives. Moreover, the EU shall implement policies in the following **3 key areas:**

1 Targeted LDES contracts

Deploy auctions, cap-and-floor regimes, and Contracts for Difference (CfDs) that deliver viable business cases for 4–8+ hour storage, stabilising revenues while preserving market dynamics (e.g., UK cap-and-floor model, Greek Reference Revenue, Irish Floor-and-Share).

- **Revenue Certainty via LDES contracts:**
  Promote duration-specific tenders (10 –15+ year terms) with dedicated 4–8+ hour tranches. Advocate EU-wide cap-and-floor/CfD schemes tailored to LDES, building on successful national precedents to ensure bankable projects.

Greece
Reference Revenue operational support links income to actual market performance, mitigating volatility risk for flexibility providers and supporting curtailment reduction/security of supply. (p. 10)

Ireland
The Electricity Storage Policy Framework sets out Layered Procurement and a Floor-and-Share approach, and actions immediate procurement of 500 MW of 4+ hour storage on the transmission system. (p. 11)

United Kingdom
The LDES Cap-and-Floor Mechanism provides long-term revenue certainty through a regulated revenue floor while returning excess revenues to consumers via a cap (p. 22)

Italy
The MACSE mechanism, which provides long-term remuneration via competitive auctions devoted to storage, requires availability for time-shifting products with ancillary spillover; the first auction (Sep 2025) awarded 10 GWh, at prices ~65% below forecast, with an average duration of 6.6 hours. (p. 12)

- **Full Market Integration:**
  Guarantee LDES access to all markets with duration-appropriate products. Standardise flow battery safety norms to cut deployment risks. A coordinated European push on these pillars will deliver a resilient, affordable energy system, accelerate renewables deployment, and generate thousands of high-skill jobs through a predictable policy environment.

Austria
Introduced a flexibility platform where renewable energy producers and storage facility operators can trade flexibility services. (p. 4)

Spain
Recognises storage as public-utility infrastructure and aligns access/connection rules with generation, addressing dual-function classification and enabling dual-role market participation through one process. (p. 20)

2 Smarter Grids Connections and Tariffs

Eliminate double-charging across Europe, recognise storage as distinct infrastructure, and design fees that reward and not penalise flexibility.

- **Access:**
  An EU-wide harmonisation of storage as a unique asset class would materially reduce connection risk and cost by removing one-off or duplicative grid charges, fast-tracking permitting processes for storage as essential energy infrastructure, and explicitly enabling storage operators to participate fully in wholesale, balancing, and ancillary service markets.

Bulgaria
Recognises storage as an independent market participant and provides simplified connection procedures, which is a combined legal and connection upgrade that reduces pre-construction risk. (p. 5)

Czechia
Introduced rules for stand-alone large-capacity batteries to connect independently, with licensing and permitting simplified relative to the previous "grey area." (p.6)

- **Tariff Modernisation:**
  Mandate removal of TSO/DSO double-charging and taxes, while introducing time/location-differentiated tariffs that value multi-hour shifting.

Spain
Spain's time-variable grid fees create consistent temporal signals for charging and facilitate system-oriented operation. (p. 20)

Nether lands
Reduced TSO tariffs up to 65% for flexible users with ≥85% guaranteed access to the grid. (p. 15)

Slovenia
Introduced time-of-use, power-based network charges for withdrawals with 15-minute metering, rewarding storage that optimises peaks and supports local PV self-consumption. (p. 19)

Denmark
Geographically differentiated network charges steer investment toward areas with high demand and low local generation. (p. 7)

Austria
Proposes eliminating double fee obligations behind the metering point and requires regulators to factor system-friendly operation into fee-setting (p. 4)

3 Co-location and Manufacturing Boosts

Mandate single-connection fees for hybrid RES+storage projects and offer "Made in Europe" bonuses for non-degrading LDES technologies like flow batteries.

- **Co-location Efficiency:**
  Mandate single-connection fees for hybrid renewable energy and storage projects, combined with targeted "Made in Europe" bonuses for non-degrading LDES technologies, to maximise grid utilisation, reduce connection bottlenecks, and accelerate the deployment of resilient, European-manufactured clean energy solutions.

Lithuania
Introduced an innovative hybrid power plant concept that enables multiple technologies to share a single connection capacity. (p. 14)

Hungary
Requires agreements for shared use of producer lines and grid connection points and set steps for third-party co-location at the same point. (p. 11)

Portugal
introduced licensing simplificatio ns for co-located projects. (p. 17)

- **Technology-Specific Support:**
  Explicitly prioritise flow batteries in EU battery strategies, with RD&D funding, state-aid bonuses, and pilot lines for European LDES value chains (extending Germany/France plans to long-lifetime chemistries).

Explicitly prioritise flow batteries in EU battery strategies, with RD&D funding, state-aid bonuses, and pilot lines for European LDES value chains.

By implementing such measures, the EU can finally unlock the potential of LDES deployment, thus thereby accelerating its decarbonisation process and carrying out a sustainable, competitive and affordable energy transition.

Credit to YoungNH (iStock ID: 2168595727)

Why the EU Needs LDES and Flow Batteries

As the European Union (EU) commits to fully decarbonise its economy by 2050, the EU energy system will experience increasing rates of electrification across all sectors and an unprecedented surge in the share of renewable energy generation. Already in 2023, renewable energy represented 24.5% of all energy consumed in the EU.[1]

Given the variable nature of renewable energy generation, the ability of the energy system to dispatch energy efficiently will be fundamental to carry out the decarbonisation process and deliver a sustainable, secure and affordable energy transition. To achieve this, renewables will need to be complemented by other technologies, for instance nuclear and hydrogen energy plants, interconnectors and energy storage systems.

According to IDTechEx[2], when renewables generate 40-50% of the total electricity of a given country or system, achieving cost-optimal operation typically requires an average energy-storage duration of around 6 hours. This level suggests that a significant portion of national electricity systems will need to incorporate long-duration energy storage (LDES), namely energy storage systems capable of providing discharge durations of +8hours.

The increasing need for LDES is also highlighted by ACER (2025) in its latest report on the "Security of EU electricity supply",[3] where they analysed the adequacy contribution of different storage systems for future EU energy needs. The analysis showed that the adequacy contribution of batteries is expected to decrease in the future unless the average duration of storage systems increases, mainly because mainstream battery technologies cannot ensure the EU energy system's ability to withstand future scarcity events. Therefore, ACER identifies 8-hours duration battery systems as an optimal co-optimisation solution to ensure both adequacy and flexibility in response to future energy needs. According to the LDES Council, [4] the world's energy system will require ~2 GW by 2030 and 8 TW by 2040 of LDES capacity to achieve decarbonisation targets.

Given that LDES technologies are optimised for long-duration energy dispatch, they can deliver value where lifetime, duration, and cycling performance are prioritised. Even so, as underlined by both ACER[5] and IDTechEx,[6] LDES technologies are not yet cost-competitive when compared with mainstream battery systems. Their deployment is mainly hindered by high upfront investment cost, lack of harmonised technical and commercial standards, lower technology maturity and higher revenue and investment risks, and the lack of long-term guaranteed revenues and suitable market and regulatory frameworks.[7][8] Moreover, today's arbitrage revenues alone are not sufficient to provide financial security for LDES investors and developers. As a result, they often need to rely on capacity market contracts, which can offer long-term, high-volume annual revenues.

Among LDES technologies, flow battery systems provide a wide range of benefits to the energy system. They have a typical discharge duration of +10 hours, with certain systems reaching even double this figure, and an operational life exceeding 20 years with no degradation. They are non-flammable and, thus, can operate with no locational restrictions in spaces such as urban areas or indoor environments, under a wide range of temperatures (-40°C to 80°C). Moreover, flow battery technologies are made with sustainable materials, such as iron sulphates, lignin, biopolymers or vanadium, which are available in Europe.

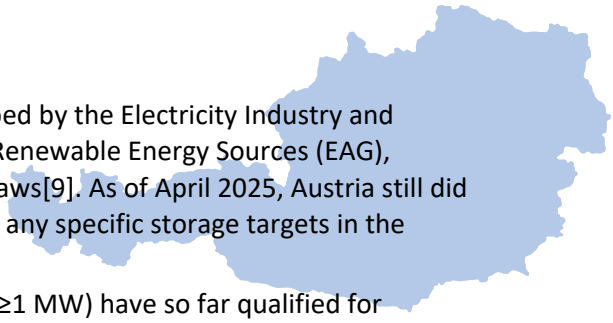
To enable LDES and flow battery developers to access the energy market and allow LDES systems to develop at full potential in Europe, the EU needs to create a more LDES-friendly regulatory and financial framework through specific policies and economic measures.

[1] Eurostat (2024). Renewable Energy Statistics. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Renewable_energy_statistics#Share_of_renewable_energy_almost_tripled_between_2004_and_2023
[2] IDTechEx (n.d.). Long Duration Energy Storage Market 2024-2044: Technologies, Players, Forecasts. https://www.idtechex.com/en/research-report/long-duration-energy-storage-market/983
[3] ACER (2025). Security of EU electricity supply. https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER-2025-Security-of-EU-electricity-supply.pdf
[4] LDES Council & Teneo (2025). Accelerating LDES Bankability. https://ldescouncil.com/new-ldes-bankability-report-out-now/
[5] ACER (2025). Security of EU electricity supply. https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER-2025-Security-of-EU-electricity-supply.pdf
[6] IDTechEx (n.d.). Long Duration Energy Storage Market 2024-2044: Technologies, Players, Forecasts. https://www.idtechex.com/en/research-report/long-duration-energy-storage-market/983
[7] IDTechEx (n.d.). Long Duration Energy Storage Market 2024-2044: Technologies, Players, Forecasts. https://www.idtechex.com/en/research-report/long-duration-energy-storage-market/983
[8] LDES Council & Teneo (2025). Accelerating LDES Bankability. https://ldescouncil.com/new-ldes-bankability-report-out-now/

State of the Regulatory Framework on (LDES) Energy Storage and Best Practices in Europe

This section provides an overview on where European countries stand regarding regulatory and financial provisions on energy storage, and it showcases best governance practices to foster the development of energy storage and LDES systems.

Austria



Austria's regulatory framework for energy storage is primarily shaped by the Electricity Industry and Organization Act (ElWG) and the Federal Law on the Expansion of Renewable Energy Sources (EAG), though specific permitting requirements vary across federal state laws[9]. As of April 2025, Austria still did not have a clear definition of "energy storage", and did not include any specific storage targets in the National Energy and Climate Plan (NECP).[10]

Regarding tariffs, only pumped storage and gas conversion plants (≥1 MW) have so far qualified for network fees exemptions, while energy storage facilities pay double charging of taxation on electricity and of both TSOs and DSOs grid fees (with exceptions based on technology and ancillary services provided). [11][12] For the latter, Austria introduced Time-of-Use tariffs[13][14].

Tariff Modernisation

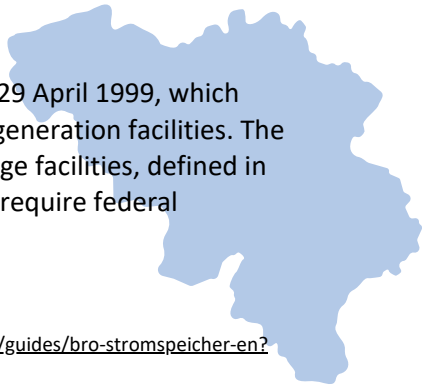
Best practices

Thanks to ongoing regulatory initiatives (the amendment of the ElWG and the Renewable Energy Acceleration Act), the Austrian government aims to incentivise the sector of energy storage by:

- Requiring regulatory authorities to take system-friendly operation of storage facilities into account when determining the fees on a cost-oriented basis as well as location suitability
- Eliminating double fee obligation for storage facilities behind the metering point
- Creating a flexibility platform where renewable energy producers and storage facility operators can trade flexibility services
- Improving planning by setting a notification obligation for grid users regarding new energy storage facilities
- Accelerating approval processes for clean energy projects, including energy storage

The Austrian government has also introduced funding research programs to develop innovative energy projects, including energy storage: the Energieforschung 2025[15] and the Clean Energy Transition Partnership[16]. Lastly, Austria recently launched the "Made in Europe" bonus for photovoltaic and energy storage systems constructed with technical components with European (EEA and Swiss) added value[17]. For energy storage facilities, this bonus translates in 10% additional investment subsidies.

Belgium



At federal level, energy storage in Belgium is regulated under the Electricity Act of 29 April 1999, which sets the legal framework for the electricity market and includes storage alongside generation facilities. The Act of 14 February 2022 extended federal permitting requirements to energy storage facilities, defined in the Royal Decree of 27 March 2023, which reports that installations above 25 MW require federal authorisation, while smaller ones only need prior notification.

[9] CMS (2024). Electricity Storage Facilities in Austria. https://cms.law/en/media/local/cms-rrh/files/publications/guides/bro-stromspeicher-en?v=1
[10] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[11] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[12] See Figure 2 in the Annex for the map on double charging across the EU.
[13] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[14] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[15] FFG (n.d.). Energy Research 2025. https://www.ffg.at/2025-1-Ausschreibung-Energieforschung
[16] FFG (n.d.). Clean Energy Transition Partnership. https://www.ffg.at/CETPartnership
[17]EAG Abwicklungsstelle (n.d.). Made-In-Europe Bonus. https://www.eag-abwicklungsstelle.at/wissen/made-in-europe-bonus/

In Belgium, energy storage can benefit from the local capacity market[18][19], storage operators they are exempted from the Reliability Option Payback Obligation and from double charging of taxation on electricity and transmission system operators' (TSO) grid fees. However, they do incur in double charging of distribution system operators' (DSO) network fees. Additionally, regarding both transmission and distribution network tariffs, Belgium has adopted ToU ones.[20][21][22]

In terms of financial incentives, several funding programs and financial incentives have also been implemented at both the federal and regional level. On the one hand, the **Belgian Energy Transition Fund** supports R&I projects for energy, including storage, amounting to EUR 25 million in 2022.[23] On the other hand, the federal government offers **tax incentives** for investments in energy storage facilities of 30% to 40% of the acquisition value of the eligible assets.[24]

Bulgaria

Access

Best practice
Since 2024, the Bulgarian government has taken significant steps in incentivising the sector of energy storage. Through several provisions, including the amendments to the Energy Act and the Electricity Trading Rules[25], energy storage facilities have been recognised as independent market participants in Bulgaria, and they have been benefitting from simplified connection procedures and the absence of negatively discriminating network charges (including double charging).[26][27]

In terms of financial incentives, the Bulgarian government has also launched the National Infrastructure for the Storage of Electricity from Renewable Sources (RESTORE) program in 2024,[28] dedicating €590 million grants to develop 3,000 MWh of energy storage capacity.

Because of these recent positive developments in the field of energy storage, Bulgaria was the third EU country for GWh of BESS installed in 2025.[29] However, some regulatory and financial barriers remain, such as the lack of concise secondary legislation and market rule for revenue stacking or the heavy use of short-duration EU funding programs rather than long-term investments.[30]

Cyprus

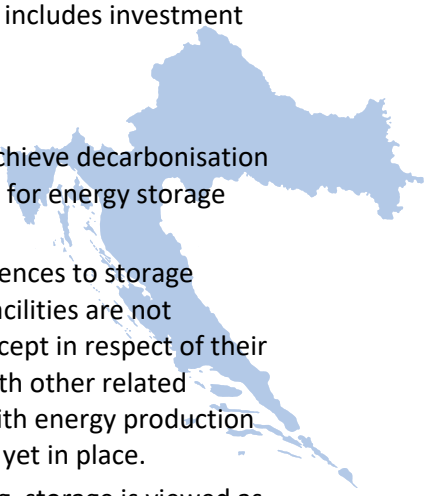
Cyprus' regulatory framework around energy storage has developed rapidly over the past years, driven by EU legislative developments and initiatives such as the Recovery and Resilience Plan. In 2019, the Regulatory Decision 03-2019[31] clarified that in-front-of-the-meter energy storage facilities are exempt from network fees during their charging cycles, complementing the exemption that allows all energy producers to avoid paying network fees on electricity injections. Thanks to these rules, energy storage operators are not subjected to negatively discriminatory charges or any double charging.[32] Two years later, to align with European laws, the Cypriot government passed the Law Regulating the Electricity Market N.130(I)2021,[33] which introduced a definition of energy storage in line with Directive (EU) 2019/944. Moreover, this legislation defined obligations and responsibilities for the Cyprus Energy Regulatory Authority (CERA) and other energy system operators in terms of storage, and it set licensing requirements and ownership provisions for storage systems.

[18] Elia (2025). ELIA PRODUCT SHEET CAPACITY REMUNERATION MECHANISM. https://www.elia.be/en/electricity-market-and-system/adequacy/capacity-remuneration-mechanism
[19] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.
[20] See Figure 2 in the Annex for the map on double charging across the EU.
[21] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[22] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU.
[23] Interreg North-West Europe (n.d.). Energy Storage in Belgium. https://vb.nweurope.eu/media/20375/energy-storage-in-belgium.pdf
[24] EY (2025). Qualifying investments for the new thematic deduction published. https://www.ey.com/en_be/technical/tax/tax-alerts/2025/qualifying-investments-for-the-new-thematic-deduction-published?utm_source=chatgpt.com
[25] New Balkans Law Office (2025). Battery Energy Storage Systems: Bulgaria's Legal Framework & Incentives. https://www.newbalkanslawoffice.com/battery-energy-storage-systems-bulgarias-legal-framework-incentives/
[26] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[27] See Figure 2 in the Annex for the map on double charging across the EU.
[28]NBL (2025). Battery Energy Storage Systems: Bulgaria's Legal Framework & Incentives. https://www.newbalkanslawoffice.com/battery-energy-storage-systems-bulgarias-legal-framework-incentives/#:~:text=Regulatory%20Measures%20and%20Investment%20Safeguards,capacity%2C%20before%20grid%20connection%20approval
[29] SolarPower Europe (2026). EU Battery Storage Market Review 2025. https://www.solarpowereurope.org/insights/outlooks/eu-battery-storage-market-review-2025-1#download

Building on this framework and thanks to the Cyprus Recovery and Resilience Plan[34], the government further amended the regulatory framework to allow energy storage operators participate in the electricity market. Specifically, the government amended Transmission and Distribution Rules (TDRs 5.3.0) and Trading and Settlement Rules (TSRs 2.2.0) that provided a clear and regulated pathway for energy storage facilities to operate commercially.

To incentivise the growth of the storage sector, in November 2024 the Cypriot Council of Ministers approved its first subsidy scheme (€35 million) for energy storage facilities, covering both existing and new renewable and self-consumption projects[35]. Under the scheme, operators under a feed-in tariff may choose either to remain under their existing contract or to switch to a one-way contract for difference (CfD), which would subject them to new regulatory requirements but that would allow them to extend the contract period up to 10 years at the newly established CfD price. The scheme also includes investment grants for storage deployment or upgrades.

Croatia

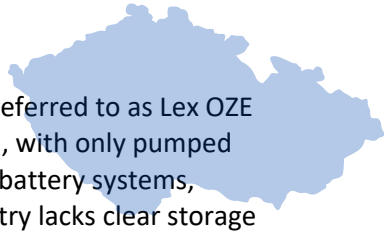


Even if Croatia recognises the strategic importance of energy storage facilities to achieve decarbonisation plans[36], detailed targets and regulatory mechanisms are still under development for energy storage facilities.

Currently, the Croatian Energy Regulatory Agency (HERA) has not yet issued any licences to storage operators as the sector is still in its infancy in Croatia. Standalone energy storage facilities are not considered end customers within the meaning of the Electricity Market Act[37], except in respect of their own consumption. This definition is expected to be further developed, together with other related regulatory provisions, including the use of electricity storage facilities collocated with energy production plants. Consequently, a fully operational tariff framework for energy storage is not yet in place.

Since legal provisions and specific tariffs are yet to be developed, for the time being, storage is viewed as an active consumer with network charges applied only for its own consumption, which implies that double charging of network fees does not apply currently to storage operators in Croatia.[38] Finally, ToU tariffs for both transmission and distribution grid fees apply in Croatia, which can benefit storage operators once the market is in place for them to operate.[39]40]

Czechia



Until the recent amendment to the Energy Act (Act No. 458/2000 Coll.), commonly referred to as Lex OZE III, the regulatory framework around energy storage in Czechia was underdeveloped, with only pumped hydro storage being legally recognised as producer. Other forms of storage, such as battery systems, lacked clear legal status and operated in a regulatory grey area. Moreover, the country lacks clear storage targets in its NECP,[41] and energy storage operators are still subjected to double charging of electricity taxes and both TSO and DSO network fees (with differences in charges depending on the storage technology).[42][43]

[30] SolarPower Europe (2026). EU Battery Storage Market Review 2025. https://www.solarpowereurope.org/insights/outlooks/eu-battery-storage-market-review-2025-1#download
[31] Cyprus Energy Regulatory Authority (2019). Regulatory Decision 03-2019. https://www.cera.org.cy/Templates/00001/data/nomothesia/ethniki/hlektrismos/rythmistikes_apofaseis/2019_03.pdf
[32] See Figure 2 in the Annex for the map on double charging across the EU.
[33] Cyprus Energy Regulatory Authority (2021). Regulatory framework for storage. https://www.energy.gov.cy/assets/modules/wnp/articles/202211/13/docs/srec_workshop181120215.pdf
[34]European Commission (n.d.). Energy Storage Regulatory Framework. https://commission.europa.eu/projects/energy-storage-regulatory-framework_en#:~:text=Copyright:%20Cypriot%20government,Amended%20TSRs%20(2.2
[35]Maisch, M. (2024). Cyprus approves its first energy storage subsidy scheme. https://www.ess-news.com/2024/11/15/cyprus-approves-its-first-energy-storage-subsidy-scheme/
[36]Energy Storage Coalition (2024). National Energy & Climate Plans 2023: Recommendations. https://energystoragecoalition.eu/wp-content/uploads/2024/01/NECP-2023.pdf
[37]Official Gazette, No. 111/21, 83/23 and 17/25
[38] See Figure 2 in the Annex for the map on double charging across the EU.
[39] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[40] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[41] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[42] ibid.
[43] See Figure 2 in the Annex for the map on double charging across the EU.

Regarding the latter, distribution ToU tariffs apply. [44][45]

Access

Best practice
The Lex OZE III amendment, approved in March 2025, introduced the official definition of electricity storage and established rules for the operations of stand-alone large-capacity battery systems, enabling their independent connection to the grid[46]. According to the law, storage operators are now subject to licensing rules determined by the Energy Regulatory Office and can benefit from less complicated permitting processes. The new framework has been praised by storage operators, as it streamlines storage project developments and the integration of battery systems[47].

Denmark

The regulatory and policy framework around energy storage in Denmark revolves mainly around technical requirements (set under the Technical Regulation 3.3.1 on the "Requirements for energy storage facilities"[48]), with complicated safety regulations and different municipal interpretations on the application of rules causing difficulties and lengthy processes for the installation of storage facilities[49]. Most importantly, the country lacks clear storage targets[50] energy storage operators incur double TSO and DSO grid charges as they withdraw and inject power to the grid,[51] but they can benefit from ToU distribution tariffs.[52][53] Currently, the Danish authorities are discussing implementing a capacity market. [54]

Tariff Modernisation

Best practice
The Danish government has introduced geographically differentiated network charges[55] for electricity producers, where areas with high demand and low local generation face lower charges compared to congested areas, which in turn are subjected to higher charges. The same reform also encourages co-location of generation and consumption units through a single connection point. This tariff system is highly advantageous for long duration energy storage (LDES) operators, as it encourages co-location with renewable generation and industrial consumption sites by lowering connection and deployment costs. Moreover, LDES facilities can take advantage of lower network costs in high-demand areas and help balance local injection surpluses.

Estonia

The Estonian regulatory framework around energy storage is mainly governed by the Electricity Market Act, which provides the main legal basis for storage operators to participate in the power market and how this sector is regulated. With an amendment in 2022, the definition of "storage of electricity" and "energy storage unit" was introduced to the law, and the double transmission charges were eliminated.[56] Next to this legislative piece, the Energy Sector Organisation Act set Estonia's overall energy incentives and planning priorities, and the recent amendment of the Electricity Market Act removed also double DSO grid fees for storage operators.[57]

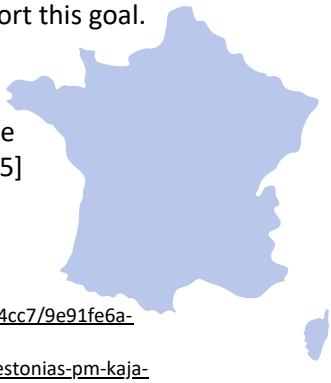
[44] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[45] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[46]Clifford Chance (2025). WHAT DOES THE LEX OZE III AMENDMENT BRING? KEY CHANGES OVERVIEW. https://www.cliffordchanceprague.com/userfiles/eng-version-lex-oze-iii-c7047ad2.pdf
[47]Interreg Danube Region (2024). Long-Awaited Legislative Reform in the Czech Republic called Lex OZE 3 Finally Approved. https://interreg-danube.eu/projects/nrgcom/news/long-awaited-legislative-reform-in-the-czech-republic-called-lex-oze-3-finally-approved
[48] ENERGINET (2025). TECHNICAL REGULATION 3.3.1 – REVISION 6 REQUIREMENTS FOR ENERGY STORAGE FACILITIES. https://en.energinet.dk/media/f5llkovv/technical-regulation-331-requirements-for-energy-storage-facilities-revision-6.pdf
[49] Kromann Reumert (2025). Battery Energy Storage Systems – Legal Challenges. https://kromannreumert.com/en/knowledge/articles/battery-energy-storage-systems-legal-challenges
[50] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[51] See Figure 2 in the Annex for the map on double charging across the EU.
[52] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[53] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[54] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.
[55]ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Reports/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[56]Konkurentsiamet (2022). Electricity and Gas Markets in Estonia Report 2022. https://www.ceer.eu/wp-content/uploads/2024/04/C23_Estiona_EN.pdf
[57] See Figure 2 in the Annex for the map on double charging across the EU.

Additionally, Estonia has ToU tariffs for both transmission and distribution grid fees.[58][59]
Estonia does not currently have significant deployment of energy storage: several projects are underway, mainly for pumped-hydro storage. To incentivise further this sector, the government should ensure that storage is allowed to participate in all electricity market segments and incentivise all types of long-duration energy storage, as signed in the statement of intent on cooperation.[60][61]
Recent steps that have been taken in this direction are the discussions around the introduction of a capacity market[62][63] and the approval by the European Commission for the implementation of an Estonian €750 million strategic reserve.[64][65][66]

Finland

The regulations on energy storage in Finland lack a comprehensive framework or strategy. The two main authorities regulating the sector are the Finnish Energy Authority, which regulates the market participation of the power sector actors, and Fingrid, the national transmission system operator, which regulates grid access, connections and operational standards.
With amendments to the Finnish Electricity Tax Act in 2019, electricity storage was legally defined as a separate entity from a taxation point of view compared to pumped storage power plants and power-to-gas facilities.[67] Electrical storage operators have been benefitting from financial incentives through tax credits[68], and from ToU for both DSO and TSO networks.[69] However, the issue of double network charges for storage persists in Finland, with exceptions offered by DSOs for certain facilities.[70][71]
In 2020, the Ministry of Trade and Industry appointed a working group to develop the "National Battery Strategy 2025", which was published then in 2021 and layed down the seven key objectives to achieve within 2025 for the Finnish battery sector.[72]
In 2022, the European Commission approved a €150 million Finnish strategic reserves capacity mechanism to safeguard security of electricity supply which will be operational until 2032.[73][74]
Moreover, to encourage the deployment of storage in less congested areas, the Finnish authorities are considering introducing targeted connection fees and revising connection principles to support this goal.

France

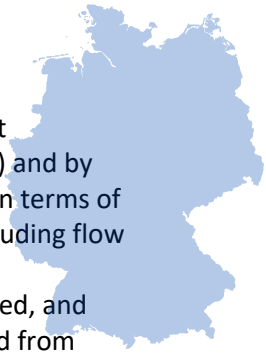


France has developed an increasingly solid regulatory framework incentivising LDES. With the implementation of the Law NOME in 2017, France has an operational capacity mechanism[75]

[58] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[59] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[60]IEA (2023). Estonia 2023. https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/11/estonia-2023_60624cc7/9e91fe6a-en.pdf
[61]Invest in Estonia (2023). Estonia's PM Kaja Kallas visit to Paris boosts CleanTech cooperation. https://investinestonia.com/estonias-pm-kaja-kallas-visit-to-paris-boosts-cleantech-cooperation/
[62] ENTSO-E (2025). The role of Capacity Mechanisms to enale a secure and competitive energy transition. https://eepublicdownloads.blob.core.windows.net/public-cdn-container/clean-documents/Publications/Position%20papers%20and%20reports/2025/entso-e_pp_capacity_mechanisms_250415.pdf
[63] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.
[64] Litgrid (n.d.). New balancing capacity market. https://www.litgrid.eu/index.php/electricity-market/balancing-market/new-balancing-capacity-market/32223
[65] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.
[66] European Commission (2025). Commission approves €750 million Estonian strategic reserve to support security of electricity supply. https://ec.europa.eu/commission/presscorner/detail/en/ip_25_2510
[67] Ramos, A., Tuovinen, M., & Ala-Juusela, M. (2021). Battery Energy Storage System (BESS) as a service in Finland: Business model and regulatory challenges. Journal of Energy Storage, 40. https://doi-org.scpo.idm.oclc.org/10.1016/j.est.2021.102720
[68] Chambers & Partners (2025). Renewable Energy 2025 Finland. https://practiceguides.chambers.com/practice-guides/renewable-energy-2025/finland
[69] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[70] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[71] See Figure 2 in the Annex for the map on double charging across the EU.
[72] Ministry of Economic Affairs and Employment of Finland (2021). National Battery Strategy 2025. https://julkaisut.valtioneuvosto.fi/server/api/core/bitstreams/c42c0634-6422-4602-92a0-a7d0bcfb8737/content
[73] European Commission (2022). State aid: Commission approves €150 million Finnish strategic reserve to support security of electricity supply. https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_22_5787/IP_22_5787_EN.pdf
[74] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.
[75] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.

administered by RTE (the French TSO),[76] that benefits LDES by offering them an additional revenue stream. Since then, electricity storage has gained ever more traction in French energy policy: after discussing storage needs mainly in terms of pumped-hydro and nuclear in the Multi-year energy programmes (PPE) 2019-2028, the French government later reviewed the document (PPE3) indicating energy storage and batteries as fundamental tools to achieve three quarters of the intra-day balancing needs[77]. Because of this, the French government announced that it intends to build a strong domestic battery manufacturing industry, with the objective of producing 100-120GWh per year by 2030.
To incentivise these sectors and tackle the issue of the remaining double charging of TSO network charges, in August 2025 France introduced optional favourable tariffs for these injection-withdrawal sites.[78][79] Additionally, France has introduced ToU tariffs for both the transmission and distribution network fees.[80][81]
On top of these measures, the French government launched a competitive aid scheme for energy storage using Contracts-for-Difference (CfDs)[82] which will run until early 2026. This scheme awards direct grants via auctions to operators that bid the lowest aid per capacity unit for providing stored electricity or demand reduction services.

Germany



Energy storage has been continuously regulated and incentivised under several provisions, most importantly under the Renewable Energy Sources Act (EEG) and the Energy Industry Act (EnWG) and by the DKE (Deutsche Kommission Elektrotechnik Elektronik Informationstechnik in DIN und VDE) in terms of technical requirements. These are set specifically for different categories of energy storage, including flow batteries and other types of LDES.[83][84]
In the various amendments of the EnWG, the definition of 'energy storage' has been incorporated, and energy storage facilities have been exempted both from double charging of electricity taxes, and from grid fees if they go online before August 2029.[85][86] Thanks to additional provisions, electricity storage facilities have recently also been incentivised when built in combination with renewable energy installations, and they have been exempted from all surcharges (provided that they are used bidirectionally) and some financial contributions to construction costs. Additionally, from 2025 storage operators can benefit from DSO ToU tariffs.[87][88]
To set clear guidance and a favourable framework, in December 2023 the Federal Ministry for Economic Affairs and Climate Protection (BMWK) published the "Electricity Storage Strategy",[89] aiming to promote energy storage in light of Germany's climate neutrality target for the electricity supply by 2035. The strategy identifies priority actions to promote energy storage, for instance:

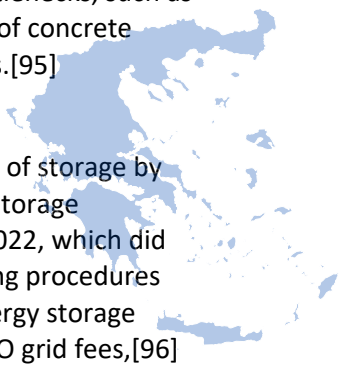
[76]Ministry of the Ecological and Supportive Transition (n.d.). Stratégie Francaise pour l'Énergie et le Climat. https://www.ecologie.gouv.fr/sites/default/files/documents/20200422%20Programmation%20pluriannuelle%20de%20l%27e%CC%81nergie.pdf
[77] Ministère de l'Économie, des Finances et de la Souveraineté industrielle et énergétique (2025). Programmation pluriannuelle de l'énergie: toutes les réponses á vos questions sur la PPE 3. https://www.economie.gouv.fr/actualites/programmation-pluriannuelle-de-lenergie-toutes-les-reponses-vos-questions-sur-la-ppe-3
[78] See Figure 2 in the Annex for the map on double charging across the EU.
[79]Thirion, B, & Morlane, M. (2025). Unlocking Energy Storage in the EU and France: Regulatory and Contractual Pathways. https://www.paulhastings.com/insights/client-alerts/unlocking-energy-storage-in-the-eu-and-france-regulatory-and-contractual-pathways#:~:text=Withdrawals%20from%20the%20grid%20for,%E2%80%94%20not%20consuming%20%E2%80%94%20electricity%20use
[80] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[81] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[82] EASE (2024). State Aid: Overview of French Scheme to Support Non-Fossil Technologies to Ensure Electricity Supply Matches Demand. https://ease-storage.eu/wp-content/uploads/2024/10/2024_EASE_StateAid_France_LINK.pdf
[83] Interreg North-West Europe (n.d.). Energy Storage in Germany. https://vb.nweurope.eu/media/20374/energy-storage-in-germany.pdf
[84] VDE (2021). DIN EN IEC 62932-1 VDE 0510-932-1 :2021-04 Flow battery energy systems for stationary applications. https://www.vde-verlag.de/normen/0500190/din-en-iec-62932-1-vde-0510-932-1-2021-04.html
[85]Federal Ministry for Economic Affairs and Climate Action (2023). Electricity Storage Strategy. https://www.bundeswirtschaftsministerium.de/Redaktion/DE/Publikationen/Energie/electricity-storage-strategy.pdf?__blob=publicationFile&v=4
[86] See Figure 2 in the Annex for the map on double charging across the EU.
[87] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[88] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[89]Federal Ministry for Economic Affairs and Climate Action (2023). Electricity Storage Strategy. https://www.bundeswirtschaftsministerium.de/Redaktion/DE/Publikationen/Energie/electricity-storage-strategy.pdf?__blob=publicationFile&v=4

- Enable energy storage operators to benefit from subsidies for the renewable energy stored, while the non-renewable portion remains unsubsidized.
- Assessment of new provisions to incentivise the development of storage facilities close to generation sites.
- Discuss future measures for storage operators' grid exemptions after 2029 with the relevant stakeholders.
- Introduction of time-of-use based grid fees for controllable consumer devices.
- Harmonisation of the technical conditions for grid connections.
- Strengthening local communities' acceptance of energy storage projects.
- Streamlining of licensing procedures.
- Development of energy storage projects as "grid booster pilot plants".
- Incorporate greater participation of energy storage operators in energy system modelling for long-term energy transition scenarios.

On top of these and the existing strategic reserves, Germany is also planning also on having an operational capacity market by 2028, which will further incentivise the use storage.[90][91] Overall, the German regulatory and financial framework for LDES, including flow batteries, is favourable for investors and operators, earning Germany the title of one of the top attractive and leading markets for battery storage in the EU.[92][93] This enabling environment is mostly due to the establishment of a clear storage strategy, frequent negative energy prices and correlated intraday spreads, and dynamic tariffs.

However, German storage operators are still subject to some regulatory and financial bottlenecks, such as the financial pressure of distribution-level charges and upfront connection costs, the lack of concrete storage targets,[94] inconsistent permitting rules across federal states and policy setbacks.[95]

Greece



The Greek National Energy and Climate Plan reports that Greece will aim to install 4.3 GW of storage by 2030. To make this possible, the Greek government has shaped a comprehensive energy storage regulatory framework over the past years. One of the key legislative pieces is Law 4951/2022, which did not only transpose the EU Directive 2019/944 but also clarified the licensing and permitting procedures for energy storage facilities, and classified them as public utility projects. Additionally, energy storage operators are exempted from double charging of both electricity taxes and of TSO and DSO grid fees,[96] and they can benefit from ToU tariffs[97] for both the transmission and distribution networks. [98][99] In terms of governance support for energy storage, between 2022 and 2025 has launched multiple auction rounds involving CfDs for energy storage and, specifically, for BESS.[100][101] The aim of the auctions program is to install a total capacity of 1GW of energy storage, with each project receiving CAPEX support and a CfD on revenues for the first 10 years. Moreover, in March 2025, the Greek government also approved the Ministerial Decision ΥΠΕΝ/ΓΔΕ/28255/1143, which established the Merchant Battery Energy Storage Systems Priority Regime and released 4.7 GW of standalone merchant energy projects.

[90] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.
[91] ENTSO-E (2025). The role of Capacity Mechanisms to enale a secure and competitive energy transition. https://eepublicdownloads.blob.core.windows.net/public-cdn-container/clean-documents/Publications/Position%20papers%20and%20reports/2025/entso-e_pp_capacity_mechanisms_250415.pdf
[92]Aurora Energy Research (2025). Italy, Great Britain, Germany Currently The Most Attractive Battery Markets in Europe, Aurora Finds. https://flowbatterieseurope.eu/wp-content/uploads/2025/10/The-Potential-for-a-Fully-European-Flow-Battery-Supply-Chain.pdf
[93] SolarPower Europe (2026). EU Battery Storage Market Review 2025. https://www.solarpowereurope.org/insights/outlooks/eu-battery-storage-market-review-2025-1#download
[94] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[95] SolarPower Europe (2026). EU Battery Storage Market Review 2025. https://www.solarpowereurope.org/insights/outlooks/eu-battery-storage-market-review-2025-1#download
[96] See Figure 2 in the Annex for the map on double charging across the EU.
[97] Under the proposed framework, the Time-of-Use (ToU) signal influences charging behavior solely during designated system peak hours, thereby targeting demand management at times of highest grid stress.
[98] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[99] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[100] Tsagas, I. (2023). Greece launches 1 GW storage tender. Pv magazine. https://www.pv-magazine.com/2023/06/20/greece-launches-1-gw-storage-tender/
[101] EASE (2024). State Aid: Overview of Greek Scheme to Support the Development of Electricity Storage Facilities. https://energystorageeurope.eu/wp-content/uploads/2024/10/2024_EASE_StateAid_Greek_LINK.pdf

Revenue Certainty via LDES contracts

Best practice
In September 2025, the Greek Regulatory Authority for Waste, Energy, and Water (RAAEW) emanated the Decision E-65/2025, with which it introduced a Reference Revenue as the basis for operational support to energy storage operators. This measure mitigates risks from market volatility for flexibility providers, reduces curtailment of renewable production, and enhances system security. Additionally, Greek authorities are discussing implementing a capacity market.[102][103]

Co-location Efficiency

Best practice
Hungary has introduced a comprehensive set of measures to foster the deployment of energy storage.[107] First, a dedicated combined investment and operational support scheme was launched under the Hungarian Recovery and Resilience Plan with a budget of 62 billion HUF (~162 million EUR): up to 45% of storage project costs can be covered through grants, while a two-way CfD mechanism ensures revenue stability for the first ten years of operation. Of the selected projects, 6 were flow-battery ones. Second, the government introduced financial and fiscal incentives, including temporary system usage and connection fee discounts, targeted investment support for transmission and distribution operator–integrated storage, and a new corporate tax relief from January 2024, allowing companies to deduct up to 30% of eligible investment costs (capped at 30 million EUR) if at least 75% of the stored energy comes from renewables. Finally, the Hungarian government launched the Solar Energy Plus Programme and the Jedik Anyos Energetikai Program to provide investment support for households and companies respectively to develop renewable generation facilities integrated with storage ones.

Hungary

Until recently, the Hungarian regulatory framework lacked specific requirements and guidelines for energy storage projects; however, the recent amendments of the Electricity Act and the Transmission System Operator MAVIR's Operational Code have clarified implementation procedures for BESS stakeholders.[104] The new measures require storage operators to establish agreements on the shared use of producer lines and grid connection points, while also setting out key steps that enable third-party generation or storage assets to co-locate at the same connection point. The latest Hungarian NECP reflects the growing importance of storage in the country, as it mentions and reports clear storage targets for the decades to come.[105] Moreover, thanks to recent regulatory developments, energy storage operators do not incur in full double charging for TSO and DSO grid fees.[106]

Ireland

Before examining the Irish energy storage sector, it is important to note that the energy market in Ireland is jointly governed with the energy market of Northern Ireland (United Kingdom) through the Single Electricity Market (SEM). Following Brexit, the SEM continues to regulate wholesale electricity trading across the whole island of Ireland, also thanks to the Windsor Framework (February 2023), which ensured the continuation of the application of relevant EU energy legislation in Northern Ireland after Brexit. Regarding specifically the sector of energy storage in the Republic of Ireland, this field was regulated until recently by a patchwork of regulations and few incentives, such as the DS3 initiative and the Capacity Remuneration Mechanism,[108] which allowed energy storage facilities to be compensated for implementing system services and to participate in capacity auctions.

[102] Entsoe. (2025). The role of Capacity Mechanisms to enable a secure and competitive energy transition. https://eepublicdownloads.blob.core.windows.net/public-cdn-container/clean-documents/Publications/Position%20papers%20and%20reports/2025/entso-e_pp_capacity_mechanisms_250415.pdf
[103] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.
[104]Lukonits, A., & Locsei, V. (2025). Charging ahead: Hungary's newly introduced rules fuel co-located BESS expansion. https://www.wolftheiss.com/insights/charging-ahead-hungarys-newly-introduced-rules-fuel-co-located-bess-expansion/
[105] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[106] See Figure 2 in the Annex for the map on double charging across the EU.
[107]ERRA & MEKH (2024). ERRA REGULATORY STORY OF THE QUARTER: THE HUNGARIAN STORAGE TENDER. https://erranet.org/download/the-hungarian-battery-storage-tender-regulatory-story-of-the-quarter/?wpdmdl=130334&refresh=68d15accbc58c1758550732
[108] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.

At the same time, Irish storage operators are not subjected to any double charging of electricity taxes and grid fees, and they have benefitted from ToU tariffs for both the transmission and distribution grids.[109] [110][111] However, energy storage operators viewed these measures as insufficient and advocated for an overarching, enabling regulatory framework and a technology neutral approach that would attract large investments in the sector.[112]

Revenue Certainty via LDES contracts

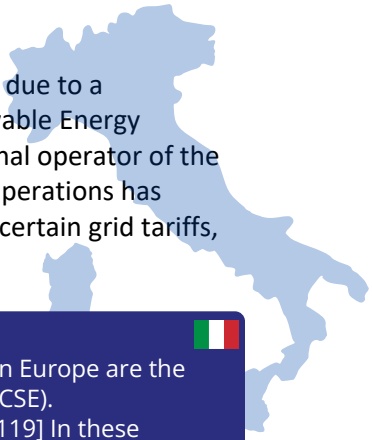
Best practice

To respond to the range of issues raised by stakeholders, informally and through consultations[113], the Irish authorities published in 2024 the "Electricity Storage Policy Framework":[114] namely a policy framework based on 10 actions to promote the development of electricity storage facilities. Among these, the government announced the intention of establishing a consistent dialogue with stakeholders and making the sector more financially attractive by supporting market access and revenue stacking, while also developing new market mechanisms. The proposed market mechanisms include Day Ahead System Auction, Layered Procurement Framework and a Floor and Share Payment Approach. The former two ensure short-term competition for storage services and long-term procurement of system services. The latter instead, incentivises flexibility services by guaranteeing a minimum revenue ("floor") for storage operators, allowing them to earn extra profits by performing arbitrage of renewable energy, and introducing the sharing of extra profits with the consumers. The framework also actioned the immediate procurement of 500MW of long duration (of 4+ hours duration) electricity storage onto the transmission system.

Some weeks after announcing the Electricity Storage Policy Framework, Ireland published its updated NECP, which welcomed EirGrid's (the Irish TSO) appeal to set a specific LDES target to integrate higher shares of renewable electricity to the grid.[115] The plan introduced a target of 1.7 GW of energy storage (4-8h) by 2030.

Italy

The sector of energy storage in Italy has been growing exponentially in the recent years due to a particularly favourable regulatory framework. Thanks to the transposition of the Renewable Energy Directive II, and to resolutions by the AEEG Regulatory Authority (ARERA) and the national operator of the electricity transmission grids, Terna, the regulatory framework around energy storage operations has consolidated and allowed storage operators to be exempted from double charging and certain grid tariffs, [116] and to participate in capacity and ancillary services markets.



Revenue Certainty via LDES contracts

Best practice

What has transformed Italy into one of the most attractive markets for battery storage[117] in Europe are the local Capacity Market[118] and the Electricity Storage Capacity Procurement Mechanism (MACSE).

The first competitive auction organised by Terna for the capacity market took place in 2019.[119] In these auctions, participants submit offers of capacity in MW, and the successful ones are awarded reliability option contracts and receive a fixed annual premium which is proportional to the committed capacity. These participants can include injection and withdrawal units, including foreign one, and capacity resources. Under these contracts, participants have the obligation to return excess revenues to Terna if the market spot price exceeds a predefined strike price. Thanks to this mechanism, storage providers are incentivised by the prospect of long-term revenue certainty, and consumers are protected from price spikes, ensuring the affordability of energy bills.

[109] See Figure 2 in the Annex for the map on double charging across the EU.
[110] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[111] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[112]Brennan, N, & van Rensburg, T. M. (2024). Unlocking the potential: Insights from industry on barriers, solutions and policy gaps in Ireland's energy storage sector. Energy Reports, 12, pp. 4143-4159. https://doi.org/10.1016/j.egyr.2024.09.063
[113]AZOROM (2023). Review of Responses to Consultation on an Electricity Storage Policy Framework for Ireland. https://assets.gov.ie/static/documents/review-of-responses-to-consultation-on-an-electricity-storage-policy-framework-for-ire.pdf
[114]Government of Ireland (2024). Electricity Storage Policy Framework for Ireland. https://assets.gov.ie/static/documents/electricity-storage-policy-framework-for-ireland-d5f310dc-bb1c-426c-bfb9-0a19dd044899.pdf
[115] Government of Ireland (2024). Ireland's integrated National Energy and Climate Plan 2021-2030. https://assets.gov.ie/static/documents/irelands-integrated-national-energy-and-climate-plan-2021-2030.pdf
[116] See Figure 2 in the Annex for the map on double charging across the EU.
[117]Aurora Energy Research (2025). Italy, Great Britain, Germany currently the most attractive battery markets in Europe, Aurora finds. https://auroraer.com/company/press-room/italy-great-britain-germany-currently-the-most-attractive-battery-markets-in-europe-aurora-finds?search=European%20Battery%20Markets%20Attractiveness%20Report%20(BatMAR)#highlights
[118] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.
[119]RSE (2023). The Italian Capacity Market. https://www.rse-web.it/wp-content/uploads/2024/01/01_CapacityMarket-inglese.pdf

Regarding the MACSE, this is the world's first long-term remuneration mechanism through competitive auctions exclusively devoted to storage systems[120]. It is open for participation to all operators in building new energy storage facilities, among which ARERA selects reference technologies every two years. The successful bidders obtain compensation through long term contracts that provide a premium in €/MWh-years, which is established through competitive auctions. To enable more flexible electricity trading, MACSE participants are required to make their storage capacity available for time-shifting products. These products allow market operators to trade energy as if it were stored virtually, and they are traded on a dedicated platform managed by the Italian Energy Market Operator (GME). Furthermore, operators are encouraged to offer any unused capacity from time-shifting products to the Ancillary Services Market, contributing to grid stability and system efficiency. Following the conclusion of the first MACSE auction at the end of September 2025[121], Italy awarded 10 GWh of BESS capacity, with an average duration of 6.6 hours[122], which are set to be operational by 2028. The awarded prices landed nearly 65% below forecast, showing how clear policy signals can scale storage deployment while driving costs down.

Italy's capacity market and MACSE auctions have contributed to make Italy one of the most attractive EU countries for the BESS market;[123] despite this, the Italian sector of storage still faces obstacles to deploy at full potential. First, wholesale price spreads do support yet a merchant business case for storage operators. Second, existing incentives and funding programs are either underfunded or prohibitive for operators in terms of complexity. Lastly, the uncertainty behind MACSE's long-term revenue potential undermines investments in the sector.[124]

Latvia

In Latvia, the regulations on sector of energy storage are administered by the Ministry of Climate and Energy, which orientates the national strategies in Latvia's Energy Strategy 2050, the Public Utility Commission SPRK, which regulates licensing and tariffs, and the system operators, that determine the technical connection requirements. In preparation and after the disconnection from the Russian grid in February 2025, Latvia has started investing ever more in BESS, inaugurating the country's first one in November 2024, and in research projects exploring innovative storage solutions[125][126].

Despite the growing investments in battery and storage systems, the regulatory framework on long-duration energy storage in Latvia still presents barriers for the industry to fully develop. On the one hand, the country lacks an official, clear definition of "energy storage"[127], and clear LDES targets should be set by the national authorities. On the other hand, the IEA also identified the need to open fully to storage operators the possibility to participate in balancing and ancillary services markets, ease permitting and connection requirements for this kind of facilities,[128] and eliminate withdrawal charges for storage providers, as Latvian network users like storage operators are still subjected to both injection and withdrawal grid fees.[129]

[120]RSE (2024). The Electricity Storage Capacity Procurement Mechanism (MACSE). https://www.rse-web.it/wp-content/uploads/2024/05/08_MACSE-inglese.pdf
[121]Terna (2025). Terna Completes First MACSE Auction: 10 GWh of Energy Storage Capacity Awarded. https://download.terna.it/terna/Terna_completed_first_MACSE_auction_8de00ea13c11e89.pdf
[122]Murray, C. (2025). 'Terna is the big winner': Taking stock of Italy's MACSE auction. Energy Storage News. https://www.energy-storage.news/terna-is-the-big-winner-taking-stock-of-italys-macse-auction/
[123] SolarPower Europe (2026). EU Battery Storage Market Review 2025. https://www.solarpowereurope.org/insights/outlooks/eu-battery-storage-market-review-2025-1#download
[124] SolarPower Europe (2026). EU Battery Storage Market Review 2025. https://www.solarpowereurope.org/insights/outlooks/eu-battery-storage-market-review-2025-1#download
[125]Interreg Baltic Sea Region (2025). Latvia's path to energy transition: Expanding renewable energy and investing in storage solutions. https://interreg-baltic.eu/project-posts/energy-equilibrium/latvias-path-to-energy-transition-expanding-renewable-energy-and-investing-in-storage-solutions/
[126]IEA (2024). Latvia 2024 Energy Policy Review. https://iea.blob.core.windows.net/assets/40d40536-4044-459e-9891-d586f1977bfd/Latvia2024.docx.pdf
[127] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[128]IEA (2024). Latvia 2024 Energy Policy Review. https://iea.blob.core.windows.net/assets/40d40536-4044-459e-9891-d586f1977bfd/Latvia2024.docx.pdf
[129] See Figure 2 in the Annex for the map on double charging across the EU.

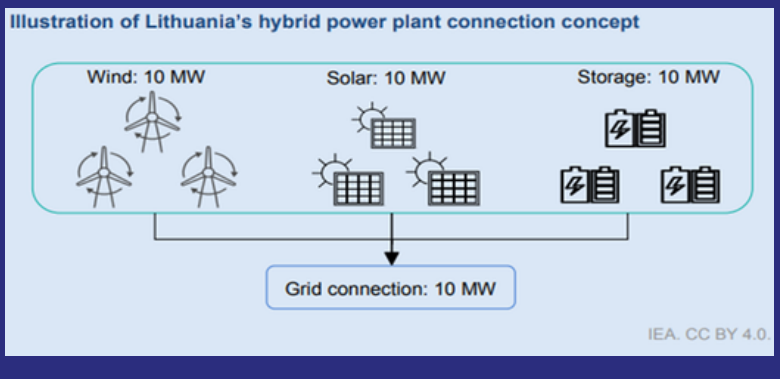
Lithuania

With the disconnection of the Baltic states from the Russian grid in February 2025, energy storage has recently acquired more relevance than ever before in Lithuania. The National Strategy for Energy Independence identifies storage facilities as fundamental assets to ensure the independent functioning of the Lithuanian grid, and the latest NECP has set clear storage targets for the country.[130] Based on these, the Lithuanian grid will soon integrate 4 large battery storage systems with a total capacity of 200 MW, and, in the long term, 1.5 GW of battery parks by 2030 and 4GW by 2050[131]. In accordance with this strategy, the day before the disconnection from the Russian grid, Lithuania announced a major energy storage procurement initiative, dedicating €102 million to develop 800 MWh of energy storage facilities by 2028.[132] Regarding network charges, Lithuanian storage operators have not been subjected to any negatively discriminating network charge (including double charging),[133][134] and have benefitted from ToU tariffs for distribution grids.[135][136]

However, Lithuania still lacks a clear, official definition of ”energy storage”.[137]According to the International Energy Agency, fostering the development of energy storage in Lithuania requires creating appropriate market signals, incentivising grid operators to promote flexibility and make more efficient use of existing infrastructure, and removing barriers that limit batteries and other flexible assets from participating in multiple market services simultaneously (“value stacking”)[138]. For instance, Lithuania established an availability service procured annually by the TSO, which resembles a capacity market but is in practice not accessible to energy storage operators.[139][140]

Best practice

To be able to accommodate the ever-faster development of renewable energy and storage plants, in 2022 the Lithuanian government approved the Breakthrough Package for Renewables. This package introduced the new legal concept of “hybrid power plants", namely a system that allows multiple generation and storage facilities be built and connect at the same connection point for coordinated injection and withdrawal. Concretely, a grid connection with a certain level of available capacity can host simultaneously several equivalent capacities of solar, wind and storage facilities, which would then form one integrated hybrid plant (see figure below)[141].



Source: IEA, 2025.

Co-location Efficiency

[130] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[131]IEA (025). Energy Policy Review Lithuania.https://iea.blob.core.windows.net/assets/0f37fbed-856d-4fde-8f2b-4db10d9bfd2a/Lithuania2025.pdf
[132]PV magazine energy storage (2025). Lithuania expands energy storage scheme amid overwhelming interest. https://www.ess-news.com/2025/07/25/lithuania-expands-energy-storage-scheme-amid-overwhelming-interest/
[133] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[134] See Figure 2 in the Annex for the map on double charging across the EU.
[135] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[136] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[137] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[138]IEA (025). Energy Policy Review Lithuania.https://iea.blob.core.windows.net/assets/0f37fbed-856d-4fde-8f2b-4db10d9bfd2a/Lithuania2025.pdf
[139] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[140] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.
[141]IEA (025). Energy Policy Review Lithuania.https://iea.blob.core.windows.net/assets/0f37fbed-856d-4fde-8f2b-4db10d9bfd2a/Lithuania2025.pdf

Luxembourg

Energy storage and battery regulations in Luxembourg falls under the regulation of the Ministry of the Economy, SMEs, Energy & Tourism for policy strategy, the Luxembourg Regulatory Institute for tariffs, and the local network operators for grid connection requirements. Since the launch of the "Third Industrial Revolution" in 2015 [142], the Luxembourg government has recognised decentralised energy storage as a priority for the energy transition. However, no specific legislation or plan was ever published to encourage storage deployment or set related targets, not even in the most recent National Energy and Climate Plan,[143][144] until July 2025, when the Luxembourg Storage Strategy was announced[145]. This plan identified the main challenges for the development of the energy storage and battery industry: a vague and unclear regulatory framework, complicated technical regulations and limited visibility on business case models. To face these issues, this strategy outlined 20 key measures to create a strategic framework for battery development, integrate batteries efficiently in the system, financially support and raise awareness on the sector, and reform the grid tariff structure. Currently, storage operators do not face double charging as injection charges do not apply,[146] and to make the tariff structure even more flexibility-friendly, authorities are discussing implementing tax benefits for the co-location of battery and renewable energy plants and develop a tariff structure that assesses through KPIs the "grid-friendliness" of BESS.

Malta

In Malta, energy storage facilities are regulated through Energy Networks (Grid Development) Regulations, in line with the National Energy and Climate Plan (NECP) 2021-2030.[147] Authorities like the Regulator for Energy and Water Services (REWS) and the local Planning Authority have set clear licensing, permitting, tariffs and incentive schemes, while also launching several projects to deploy storage facilities. As Malta does not apply tariffs on the electricity injected in the system,[148] no double charging of network fees applies in the country,[149] where storage operators also benefit from ToU tariffs for DSO grid fees.[150][151]

Among the key initiatives, Interconnect Malta issued two major BESS tenders, while REWS continues to provide grants for renewable energy and storage projects.[152] In parallel, Malta is investing in major energy infrastructure upgrades, including a second interconnect with Italy and utility-scale battery storage projects.[153]

Netherlands

Given the high population density and the growing concentration of renewable energy facilities and electricity demand, the Netherlands' grid is often highly congested. Despite this, the Dutch government has not developed a comprehensive regulatory framework on energy storage. This has created uncertainty around topics such as suitable locations for storage facilities, connection requirements and permitting processes, while enforcing high and discriminating grid tariffs for storage operators. Indeed, even though the double charging of TSO grid fees does not apply in the Netherlands, the one of DSO grid

[142]IEA (2020). Luxembourg 2020 Energy Policy Review. https://iea.blob.core.windows.net/assets/8875d562-756c-414c-bc7e-5fc115b1a38c/Luxembourg_2020_Energy_Policy_Review.pdf
[143]Government from Grand-Duché of Luxembourg (2024). Integrated National Plan on Energy and Climate Change in Luxembourg for the Period 2021-2030. https://commission.europa.eu/publications/luxembourg-final-updated-necp-2021-2030-submitted-2024_en
[144] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[145]Government from Grand-Duché of Luxembourg (2025). Luxembourg Storage Strategy. https://meco.gouvernement.lu/dam-assets/publications/strategie/20250709-meco-spicherstrategie-ltzebuerg.pdf
[146] See Figure 2 in the Annex for the map on double charging across the EU.
[147]European Commission (n.d.). Policies in Malta. https://clean-energy-islands.ec.europa.eu/countries/malta/legal
[148] ACER (2023). Report on Electricity Transmission and Distribution Tariff Methdoologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_electricity_network_tariff_report.pdf
[149] See Figure 2 in the Annex for the map on double charging across the EU.
[150] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[151] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[152]Chetcuti Cauchi Advocates (2025). Renewable Energy and Property in Malta: Laws and Their Application Explained. https://www.ccmalta.com/publications/renewable-energy-in-malta-the-laws-and-their-application-explained#
[153]European Commission (n.d.). Policies in Malta. https://clean-energy-islands.ec.europa.eu/countries/malta/legal

fees and electricity taxation still do.[154] Despite these inconsistencies, the Dutch BESS market has become one for the most attractive in the EU, mainly due to ToU tariffs,[155] [156] high price volatility, the TSO's storage requirements, VAT exemptions and dynamic tariffs.[157]

However, several regulatory hurdles still need to be addressed by the authorities to unlock the Dutch storage potential. According to the trade association of the Dutch energy storage sector, Energy Storage NL,[158] the Dutch government should declare clear energy storage targets, provide financial incentives for BESS, exempt them from grid tariffs, and introduce a capacity mechanism. Second, the relevant authorities should designate suitable locations for storage facilities, while also clarifying permitting and connection requirements. Lastly, the government should temporarily designate storage facilities as 'generators' rather than 'consumers' while developing a more suitable legal status tailored to storage facilities.

Best practice

To tackle the issue of high grid tariffs for Dutch storage operators, the Dutch grid operator TenneT has introduced the ATR85 contract, also known as Time-Based Transport Rights (TDTR).[159] TenneT expects this initiative to cut grid tariffs up to 65% for participating large-scale energy storage and flexible users,[160] who in turn agree to have grid access ensured for at least 85% of the time. This measure benefits storage facilities and helps the grid deal with congestion issues: however, it is viewed by the energy storage industry as a temporary fix to high grid tariffs, from which storage operators are exempted in other European countries.

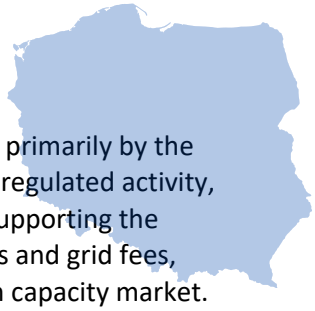
Norway

Norway's energy storage sector is deeply shaped by the country's long-standing reliance on hydropower, making reservoir-based systems the main providers of energy storage in the country and constituting approximately half of Europe's total reservoir storage capacity[161]. In terms of battery systems, Norway's EVs market -the biggest in Europe- has fostered the uptake of BESS and stimulated the creation of a market for repurposing used EV batteries for stationary storage.

The regulatory framework governing energy storage in Norway is primarily anchored in the Energy Act (Energiloven), which establishes the overarching legal basis for electricity generation, transmission, trading, and system operation. Within this framework, the Norwegian Energy Regulatory Authority (RME) serves as the independent regulator for the electricity and natural gas markets, responsible for enforcing regulatory provisions, issuing licenses, and overseeing market functioning, including trading and network activities. While energy storage is not regulated through a standalone legal regime, hydropower reservoirs are fully integrated into market-based operation, with production and storage decisions guided by current and expected electricity prices to balance short-term supply needs with long-term water resource management. As a member of the European Economic Area, Norway is also bound by key elements of the EU internal energy market legislation, including the EU Battery Regulation.

In recent years, Norway has complemented its regulatory framework with targeted strategic initiatives aimed at strengthening its position in the energy storage sector. In July 2022, the Norwegian government launched a national battery strategy[162] based on 10 action points to promote the creation of a Norwegian battery value chain. One of the actions regards international cooperation, mainly with EU countries and the EU as a whole. For instance, Norway has started a strategic partnership with Germany on further developing the clean energy sector,[163] and has participated in EU Projects of Common Interest related to BESS.

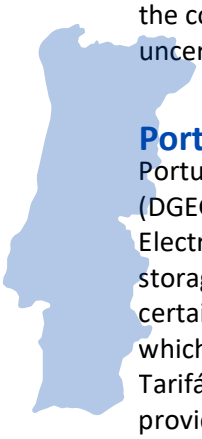
[154] See Figure 2 in the Annex for the map on double charging across the EU.
[155] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[156] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[157] SolarPower Europe (2026). EU Battery Storage Market Review 2025. https://www.solarpowereurope.org/insights/outlooks/eu-battery-storage-market-review-2025-1#download
[158]Energy Storage NL (n.d.). Policy Priorities. https://www.energystoragenl.nl/beleidsprioriteiten/
[159]TenneT (n.d.). Time-dependent transport rights (TDTR). https://www.tennet.eu/nl-en/time-dependent-transport-rights-tdtr
[160]TenneT (2025). TenneT provides 9 gigawatts of capacity on the high-voltage grid for customers on the waiting list. https://www.tennet.eu/nl-en/news/tennet-provides-9-gigawatts-capacity-high-voltage-grid-customers-waiting-list
[161] IEA (2022). Norway 2022 Energy Policy Review. https://www.oecd.org/content/dam/oecd/en/publications/reports/2022/08/norway-2022-energy-policy-review_8dd73551/7411c642-en.pdf?utm
[162] Norwegian Ministry of Trade, Industry and Fisheries (2022). Norway's Battery Strategy. https://www.regjeringen.no/contentassets/a894b5594dbf4eccbec0d65f491e4809/norways-battery-strategy_singlepages_web.pdf
[163] Federal Ministry for Economic Affairs and Energy (2023). Norway and Germany intensify cooperation on energy on the path towards climate neutrality. https://www.bundeswirtschaftsministerium.de/Redaktion/EN/Pressemitteilungen/2023/01/20230105-norway-and-germany-intensify-cooperation-on-energy-on-the-path-towards-climate-neutrality.html



Poland

The Polish energy storage sector operates under the regulatory framework established primarily by the Polish Energy Law, which was amended in 2021 to explicitly define energy storage as a regulated activity, and under licences made from the Energy Regulatory Office. Among the main factors supporting the energy storage sector there are the exemption from double charging of electricity taxes and grid fees, [164] the introduction of ToU tariffs for distribution networks,[165][166] and the Polish capacity market. [167] This market has seen an increasing share of storage facilities, specifically of electrochemical batteries, which accounted for 15% of the contracted capacity in the 2028 auction compared to 7% in previous auctions[168]. Next to the capacity market, the reform of Poland's ancillary services market in June 2024 created additional revenue streams for BESS[169]. Following this reform, in July 2024, the President of the Energy Regulatory Office issued the first report focused solely on energy storage in Poland[170], assessing the strengths and challenges ahead of the sector.

Regarding the challenges for energy storage in Poland, these include the lack of clear zoning rules, lack of storage targets in the NECP,[171] the fragmentation and complexity of legal and regulatory requirements, the constraints around TSOs and DSOs involvement in the operations of storage facilities, and the uncertainty regarding the long-term revenue predictability of the ancillary services markets.



Portugal

Portugal's energy storage sector is governed primarily by the Directorate-General for Energy and Geology (DGEG) and the Portuguese Energy Services Regulatory Authority, and it is structured under the National Electricity System Law. The regulatory framework lays out provisions also for non-hydropower energy storage since 2019, specifically regarding licensing procedures, market participation, exemptions from certain environmental impact assessments and compensation to municipalities hosting large facilities which may already be present on the territory. As reported under Article 56 of the Regulamento Tarifário[172], storage facilities have been exempted from paying network access tariffs until 2029, provided that the electricity withdrawn is intended for subsequent injection into the public electricity network.[173]

Co-location Efficiency

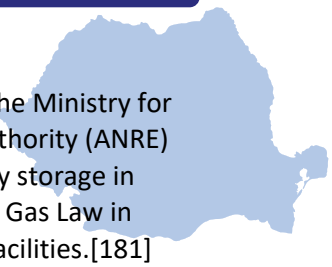
Best practice

Since the Iberian Peninsula blackout in April 2025, the Portuguese government has identified energy storage as a key sector to strengthen grid management and avoid future incidents. Therefore, in July 2025 Portugal announced €400 million investments plans including battery deployment, and two joint orders aiming at clarifying provisions regarding environmental impact assessments for both co-located and autonomous energy storage projects[1][2].

[164] See Figure 2 in the Annex for the map on double charging across the EU.
[165] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[166] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[167] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.
[168]Energy Regulatory Office (2024). Electrical energy storage – first report issued by the President of URE. https://www.ure.gov.pl/en/communication/news/389,Electrical-energy-storage-first-report-issued-by-the-President-of-URE.html
[169]S&P Global (2025). Unlocking Poland's energy storage potential. https://www.spglobal.com/commodity-insights/en/news-research/blog/energy-transition/052925-unlocking-polands-energy-storage-potential
[170]Energy Regulatory Office (2024). Electrical energy storage – first report issued by the President of URE. https://www.ure.gov.pl/en/communication/news/389,Electrical-energy-storage-first-report-issued-by-the-President-of-URE.html
[171] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[172] ERSE (2025). Regulamento tarifário. https://www.erse.pt/media/t00pob1q/articulado_rt-se.pdf
[173] See Figure 2 in the Annex for the map on double charging across the EU.
[174]Macedo Vitorino (2025). Portugal Simplified Energy Storage Projects' Licensing. https://www.macedovitorino.com/es/conocimiento/insights/Portugal-simplifies-energy-storage-projectsrsquo-licensing/6782/#:~:text=Portugal%20simplifies%20energy%20storage%20projects'%20licensing%20*,are%20exempt%20from%20EIA%20without%20case%2Dby%2Dcase%20analysis%2C
[175]Goncalves, S. (2025). Portugal to invest $466 million to boost grid management, battery storage after outage.https://www.reuters.com/sustainability/boards-policy-regulation/portugal-invest-466-million-boost-grid-management-battery-storage-after-outage-2025-07-28/

Despite these advances, the Portuguese energy storage sector continues to face significant challenges. Portugal indeed lacks a clearly defined energy storage strategy and transparent timelines for capacity allocation, and the regulatory framework still benefits pumped hydropower over all other types of long duration energy storage: while pumped hydropower facilities are fully exempt from both transmission and distribution charges when withdrawing electricity from the grid, stand-alone storage facilities (such as batteries) generally pay most of the same withdrawal charges as regular consumers.[176] At the same time, storage operators can benefit from both transmission and distribution ToU tariffs.[177][178] A further possible measure to support energy storage would be the implementation of a capacity market, which is currently being discussed by the Portuguese government.[179][180]

Romania



In Romania, the targets and direction of the energy storage sector follow the guidance of the Ministry for Energy and the licensing, tariffing and technical rules of the National Energy Regulatory Authority (ANRE) and CNTEE Transelectrica, the transmission system operator. The latest definition of energy storage in Romanian legislation was introduced through an amendment of the Electricity and Natural Gas Law in 2024, and since then more specific regulatory requirements have been issues for storage facilities.[181]

Energy storage has been identified by the Romanian government as a key sector in the National Energy and Climate Plan 2025-2030,[182] which sets the target of achieving 1.200 MW of power battery capacity by 2030 and 2.000 by 2035, with total storage capacity to reach 4.500 MW by 2040. To support the storage industry, the Romanian government has launched a call funded through PNRR funding to support the construction of grid-connected battery storage systems[183] and to incentivise investments in local battery production, assembly and recycling.[184] A major policy reform that contributed to create a better regulatory environment for energy storage in Romania is the end of double charging for transmission and distribution grid fees, which was operationalised by ANRE in July 2025.[185][186] This reform allows electricity withdrawn from storage to be exempt from charges that were previously applied twice, such as transmission and distribution tariffs, system service fees, and green certificate costs.
To further incentivise the sector of energy storage, financial measures such as CfD could be expanded beyond renewable energy producers to include storage operators, thereby providing greater revenue stability and investment certainty. In parallel, more transparent and comprehensive technical and regulatory standards would help clarify the operational framework for storage facilities.

Slovakia

The energy storage sector in Slovakia is primarily regulated by the Regulatory Office for Network Industries (RONI), which oversees electricity and gas markets, tariffs and licenses for market participants. Key legislative instruments include the Energy Act and the Act on Regulation of Network Industries, which

[176]ACER (2023). Report on Electricity Transmission and Distribution Tariff Methodologies in Europe.https://www.acer.europa.eu/sites/default/files/documents/Publications/ACER_electricity_network_tariff_report.pdf
[177] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[178] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[179] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.
[180]Entsoe. (2025). The role of Capacity Mechanisms to enable a secure and competitive energy transition. https://eepublicdownloads.blob.core.windows.net/public-cdn-container/clean-documents/Publications/Position%20papers%20and%20reports/2025/entso-e_pp_capacity_mechanisms_250415.pdf
[181]Tpa (2024). Harmonisation of the legislative framework on electricity and natural gas. https://www.tpa-group.ro/news/harmonisation-of-the-legislative-framework-on-electricity-and-natural-gas/
[182]European Commission (2024). Romania – Final updated NECP 2021-2030 (submitted in 2024). https://commission.europa.eu/publications/romania-final-updated-necp-2021-2030-submitted-2024_en
[183]Ministry of Energy (2024). Premiere at the Ministry of Energy: the First PNRR Contracts Signed for the Deveelopment of Electricity Storage Capacities in Batteries and First Romanian Investment in the Porduction of Photovoltaic Panels. https://energie.gov.ro/premiera-la-ministerul-energiei-primele-contracte-pnrr-semnate-pentru-dezvoltarea-capacitatilor-de-stocare-a-energiei-electrice-in-baterii-si-prima-investitie-romaneasca-in-productia-de-panouri-fotov/
[184]IEA (204). Subsidies for battery and PV panel production and electricity storage. https://www.iea.org/policies/17404-subsidies-for-battery-and-pv-panel-production-and-electricity-storage
[185]Interreg Danube Region (2025). Energy Storage and the Intermittency of Renewables – Why it Matters for Romania and Hungary – Part 3. https://interreg-danube.eu/projects/storemore/news/energy-storage-and-the-intermittency-of-renewables-why-it-matters-for-romania-and-hungary-part-3
[186] See Figure 2 in the Annex for the map on double charging across the EU.

establishes RONI and regulates market rules. In July 2022, Slovakia amended both pieces of legislation to transpose EU Directive 2019/944, enabling the non-discriminatory participation of renewable energy sources and energy storage in all markets and establishing the regulatory framework for storage providers to offer flexibility services. In 2024, Slovakia also introduced the energy data centre, which aims at providing a centralising market information and facilitate access for new participants.[187] Regarding network charges, these differ according to the storage technology, size and ancillary services provided, [188] and distribution ToU tariffs apply.[189][190]

As of 2023, Slovakia had two megawatts of operational battery storage with 6.5 MWh capacity, with plans to expand the capacity to 15 MW by 2030 if all planned projects are realised. The country also introduced financial incentives and developed ancillary services to support additional storage deployment.[191] Despite these advances, Slovakia faces significant challenges in scaling energy storage and enhancing system flexibility. The transmission and distribution systems require modernisation to support new generation units, while also clear rules for aggregation, and streamlined market entry for new participants are fundamental to unlock the potential of energy storage in Slovakia.

Slovenia

The sector of energy storage in Slovenia remains relatively underdeveloped, with recent reforms clarifying tariffs, incentives and regulatory requirements. In the Slovenian National Energy and Climate Plan, energy storage plays a key role in achieving the energy system flexibility, though much of the focus for LDES is on green hydrogen. In terms of battery storage, the Slovenian government aims at deploying 400 MW of BESS by 2030[192].

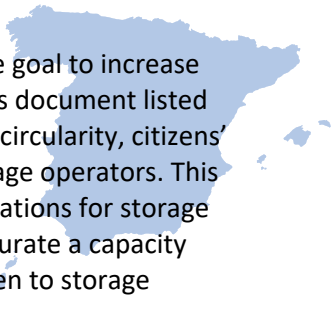
To incentivise the sector of energy storage, the Slovenian government has introduced ToU for both the transmission and distribution grids,[193][194] and it plans to establish the Electricity Supply Act, which aims at improving the network integration of renewable energy and enabling the secure operation of the grid and flexibility services, including the operations of energy storage facilities[195].

Regarding double charging of DSO and TSO network fees, this does not take place in Slovenia, as grid users is charged only for withdrawal of power.[196][197] Moreover, as of 12 July 2025, new battery electricity storage systems that receive approval for connection before 12 July 2028 and that connect directly to high- and medium-voltage networks do not pay DSO and TSO network fees for three years since the date of obtaining the operating permit, and they also are not subjected to the one-time network connection charge[198].

[187]IEA (2024). Slovak Republic 2024. https://iea.blob.core.windows.net/assets/d2f59c8b-1344-4b98-8a00-52ef074cfa06/Slovak_Republic_2024.pdf
[188] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[189] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[190] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[191]IEA (2024). Slovak Republic 2024. https://iea.blob.core.windows.net/assets/d2f59c8b-1344-4b98-8a00-52ef074cfa06/Slovak_Republic_2024.pdf
[192]Balkan Green Energy News (2024). Slovenia adopts updated Integrated National Energy and Climate Plan. https://balkangreenenergynews.com/slovenia-adopts-updated-integrated-national-energy-and-climate-plan/
[193] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[194] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU.
[195]Republic of Slovenia (n.d.). Renewable Energy and Energy Efficiency. https://www.gov.si/en/registries/projects/the-recovery-and-resilience-plan/about-the-recovery-and-resilience-plan/green-transition/renewable-energy-and-energy-efficiency/
[196] Pravno-Informacijski Sistem Republike Slovenije (2024). Akt o metodologiji za obračunavanje omrežnine za elektrooperaterje. https://pisrs.si/pregledPredpisa?id=AKT_1266
[197] See Figure 2 in the Annex for the map on double charging across the EU.
[198] Pravno-Informacijski Sistem Republike Slovenije (2025). Zakon o oskrbi z električno energijo (ZOEE). https://pisrs.si/pregledPredpisa?id=ZAKO8141

Best practice
Slovenia's recent electricity tariff reform, effective from 1 October 2024[199], introduces time-of-use, power-based network charges calculated in 15-minute intervals. First of all, the reform has introduced time differentiation for capacity charges, dividing the year into high and low seasons and applying five time blocks per year, four per month, and three per day, depending on the season and whether it is a working or non-working day. This structure ensures that capacity charges more accurately reflect variations in demand, encouraging consumers and storage operators to optimize their energy use and reduce pressure on the grid during peak periods. It is specifically relevant for long-duration storage, as seasonal and daily price differentiation enhances the value of shifting energy over extended periods.
The granular 15-minutes metering allows precise cost allocation based on actual grid usage, incentivising storage operators to optimize charging and discharging patterns, aligning with periods of lower network stress and lower tariffs. By rewarding flexibility and self-consumption, particularly when combined with photovoltaic generation, the reform promotes more efficient grid operation.

Spain



In 2021, the Spanish government approved the "Energy Storage Strategy",[200] which set the goal to increase the national energy storage capacity from 8.3 GW to 20 GW by 2030 and 30 GW by 2050. This document listed 10 lines of action and 66 measures to promote the sector, including measures to enhance its circularity, citizens' participation, the creation of new jobs and the elimination of administrative barriers for storage operators. This strategy complemented the Royal Decree 1183/2020 by aligning access and connection regulations for storage systems with the ones for generation facilities. Moreover, the Spanish government will inaugurate a capacity market in 2026,[201][202] whose first auctions have taken place in summer 2025 and are open to storage operators.[203]

Best practice
Following the blackout crisis of April 2025, Spain approved the Royal Decree-law 7/2025 to foster the deployment of renewable energy and energy storage. This regulation introduced administrative simplification measures for energy storage facilities, exempted them from certain environmental assessments when located along existing renewable energy plants, and recognised the public utility of such entities, entitling them to the same legal treatment as generation facilities for permitting processes. Most importantly, the decree recognised the dual nature of storage facilities.
In terms of financial incentives, energy storage facilities have also been benefitting from time-variable grid fees in Spain since 2021,[204] encouraging energy withdrawal during off-peak times to optimize the grid efficiency and enabling storage operators to maximise economic returns for their flexibility services.[205] As part of the Strategic Project for Economic Recovery and Transformation (PERTE) for renewable energies and energy storage,[206] the Spanish government has launched state aid programs to promote energy storage, including a separate line of investments for stand-alone and thermal storage. In December 2024, a total of €156.4 million was allocated to 35 innovative stand-alone energy storage projects and 10 thermal storage projects.[207] The stand-alone projects, all based on electrochemical battery technology, will collectively add 690.2 MW of power and 2,820 MWh of storage capacity to the system once operational.
The increasing regulatory and financial support for energy storage has made Spain one of the most attractive and fast-growing BESS markets in the EU.[208] Among the driving factors for this are funding programmes, the ongoing discussions on the introduction of a capacity mechanism,[209] and hybrid projects permitting.

[199]ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[200]Ministry for the Ecological Transition and the Demographic Challenge (2021). Energy Storage Strategy. https://www.miteco.gob.es/content/dam/miteco/es/prensa/estrategiaalmacenamiento_tcm30-522655.pdf
[201] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
[202] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.
[203]Ministry for (n.d.). Plan de Implementación Actualización 2025. https://www.miteco.gob.es/content/dam/miteco/es/energia/files-1/electricidad/seguridad-de-suministro/mecanismos-de-capacidad/20250526_PlandeImplementacion_Vf.pdf
[204] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[205]LDES Council (2024). Deploying LDES: Implementation Best Practices. https://www.ldescouncil.com/assets/pdf/FINALDeployingLDESImplementationBestPracticesShortUpdated220125.pdf
[206]Spanish Government (n.d.). PERTE de energías renovables, hidrógeno renovable y almacenamiento. https://planderecuperacion.gob.es/como-acceder-a-los-fondos/pertes/perte-de-energias-renovables-hidrogeno-renovable-y-almacenamiento
[207]Ministry for the Ecological Transition and the Demographic Challenge (n.d.). El MITECO asigna 156 millones a 45 proyectos innovadores de almacenamiento independiente y térmico. https://www.miteco.gob.es/content/dam/miteco/es/prensa/24_12_11_NdP_El_MITECO_asigna_156_millones_a_45_proyectos_innovadores.pdf
[208] SolarPower Europe (2026). EU Battery Storage Market Review 2025. https://www.solarpowereurope.org/insights/outlooks/eu-battery-storage-market-review-2025-1#download
[209] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.

voltage control markets.[210] According to SolarPower Europe, the Spanish storage sector could be further incentivised by developing the wholesale arbitrage and ancillary services market, reducing administrative burdens for storage operators, and modernising flexibility requirements contracts.[211] Lastly, even though double charging of TSO and DSO network fees does not apply,[212] and ToU tariffs are in place for both transmission and distribution grids,[213][214] double charging still applies to electricity taxes.

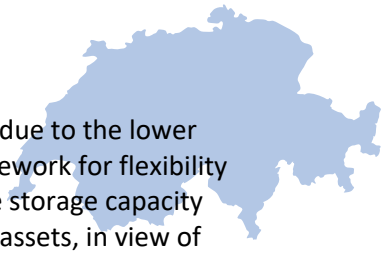
Sweden

Due to the large availability of hydropower, the regulation and participation in the energy market for storage facilities has been limited in Sweden. Currently, BESS regulation is under development mainly thanks to European legislative initiatives such as the EU Battery Regulation, and they are overseen by the Swedish Energy Markets Inspectorate (Ei).

Due to an ambiguous regulatory framework, the lack of a straightforward compensation mechanism and storage targets, and unsuitable tariff structures, the deployment of energy storage facilities in Sweden is constrained. Importantly, even though double charging of electricity taxation has been ruled out for energy storage operators, they are still subjected to the double charging of TSO and DSO grid fees,[215] with regional variations for the latter ones. At the same time, Sweden also introduced dynamically varying tariff elements, with distribution ToU tariffs varying across the country depending on local DSOs' decisions.[216][217]

To respond to these issues, some energy storage operators sign conditional grid connection agreements, even though also these lack standardisation and create uncertainty for the operators and investors. Additionally, the European Commission recently approved the Swedish €300 million strategic electricity reserve to safeguard security of electricity supply in emergency situations, which will take the form of strategic reserves.[218][219] However, the programme does not represent a business case for energy storage operators.[220]

Switzerland



The Swiss battery sector is relatively less developed than in other European countries due to the lower penetration of intermittent renewable energy in the country's grid, unclear legal framework for flexibility services providers, and Switzerland's heavy reliance on the hydropower sector (whose storage capacity amounted to 8 TWh in 2021[1]). However, Switzerland needs to increase its flexibility assets, in view of the growing share of renewables being connected to the grid, and the country's dependence on hydropower, which fluctuates with seasonal climatic conditions. To answer this need, Switzerland has been reviewing its legal framework around the grid integration of flexibility solutions and funded BESS research[2], though it still prioritises developing hydro storage capacity, in line with its high seasonal flexibility needs[3]. These plans were reflected in the publication of the Federal Energy Act, which entered into force in January 2018, and that comprised the Swiss Energy Strategy 2050. To implement this, the

[210] SolarPower Europe (2026). EU Battery Storage Market Review 2025. https://www.solarpowereurope.org/insights/outlooks/eu-battery-storage-market-review-2025-1#download
[211] SolarPower Europe (2026). EU Battery Storage Market Review 2025. https://www.solarpowereurope.org/insights/outlooks/eu-battery-storage-market-review-2025-1#download
[212] See Figure 2 in the Annex for the map on double charging across the EU.
[213] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[214] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU.
[215] See Figure 2 in the Annex for the map on double charging across the EU.
[216] ACER (2025). Getting the signals right: Electricity network tariff methodologies in Europe. https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf
[217] See Figure 3 in the Annex for the map with all existing ToU tariffs across the EU
[218]European Commission (2025). Commission approves €300 million Swedish strategic reserve to support security of electricity supply. https://ec.europa.eu/commission/presscorner/api/files/document/print/nl/ip_25_1870/IP_25_1870_EN.pdf
[219] See Figure 1 in the Annex for the map with all existing and planned/discussed EU capacity markets.
[220] Contini, S. et al. (2026). Implementation of Commission Recommendation on Energy Storage in the Member States. European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC144586
221] IEA (203). Switzerland 2023 Energy Policy Review. https://iea.blob.core.windows.net/assets/b6451900-e6ef-45a8-922d-117520e09a82/Switzerland2023.pdf
[222] Swiss Federal Office of Energy (n.d.). Batteries. https://www.bfe.admin.ch/bfe/en/home/research-and-cleantech/research-programmes/batteries.html
[223] IEA (203). Switzerland 2023 Energy Policy Review. https://iea.blob.core.windows.net/assets/b6451900-e6ef-45a8-922d-117520e09a82/Switzerland2023.pdf

Electricity Grid Strategy was approved to enhance grid modernisation and development, and also clarify how storage facility operators and electricity producers can offer their flexibility to third parties such as DSOs. Next to this, also the Act on a Secure Electricity Supply from Renewables was approved by national referendum in 2024[224]. With these developments, storage of energy during solar production peaks is encouraged, and energy storage operators are not charged for some grid fees under certain conditions. [225]

United Kingdom

The United Kingdom's (UK) electricity system and market are divided into two: one covering Great Britain, and one Ireland (namely both Northern Ireland and the Republic of Ireland). Regarding the former, Great Britain has developed one of the most advanced energy storage markets globally thanks to clear market signals, targeted public funding, and regulatory certainty.

At a national level, the UK has reached approximately 4.5 GW of energy storage capacity in 2024[226]. In terms of BESS capacity specifically, the UK government foresees it will need to reach 23-27 GW by 2030[227] to support the transition to renewable energy, and that LDES will "particularly important for longer-term flexibility and additional operability needs.[228]

The advancement of this market in Great Britain and the UK is quite recent, as until recently the sector of energy storage operated in the absence of an explicit regulatory framework. This changed in 2020, when the government authority Ofgem clarified that electricity storage should be treated as a subset of electricity generation under the Electricity Act 1989,[229] requiring storage operators to hold a generation licence unless an exemption applies. This reform was accompanied by the introduction of formal definitions of "electricity storage" and "electricity storage facility", as well as a dedicated Standard Licence Condition (SLC E1) applicable to storage operators, which were codified in the Energy Act 2023. In parallel, Ofgem addressed a key structural barrier to investment by ending the double charging of storage assets for network use through the Targeted Charging Review.[230]

The UK has also implemented a range of policy instruments aimed at improving long-term revenue visibility for energy storage assets. Storage operators have indeed been able to participate in the Capacity Market and, even though only indirectly, to CfDs when co-located with renewable generation plants and have to Feed-in Tariffs programs, now closed. [231]

More recently, the UK efforts to foster the development of the energy storage sector internally have been increased. In November 2023, the UK government published its Battery Strategy,[232] committing to strengthen domestic battery manufacturing and R&D, accelerate grid connection times, support start-ups, and attract foreign investment. The strategy includes £38 million to enhance the UK Battery Industrialisation Centre, £12 million for the Advanced Materials Battery Industrialisation Centre, and new financial mechanisms targeting early-stage companies. More importantly, the strategy explicitly recognises LDES and flow batteries as a promising solution for large-scale and long-duration applications. The importance of LDES was further reinforced in December 2024 in the UK's Clean Power Action Plan. [233] The Plan sets out the pathway to decarbonise the energy system by 2030, and it reiterates the importance of both short and long-duration flexibility sources for an energy increasingly dependent on

[224] Swiss Federal Office of Energy (n.d.). Federal Act on a Secure Electricity Supply from Reneable Energy Sources. https://www.admin.ch/gov/en/start/documentation/votes/20240609/federal-act-on-a-secure-electricity-supply-from-renewable-energy-sources.html#:~:text=The%20demand%20for%20electricity%20in,been%20sought%20against%20this%20legislation.&text=The%20proposed%20legislation%20prepares%20the,new%20energy%20projects%20remain%20possible.

[225] PV magazine (2025). Switzerland expands rules for rooftop solar, storage, energy communities. https://www.pv-magazine.com/2025/02/24/switzerland-expands-rules-for-rooftop-solar-storage-energy-communities/#:~:text=Under%20certain%20conditions%2C%20remuneration%20for,GW%20and%201.56%20GW%2C%20respectively.

[226] UK Government (2024). Clean Power 2030 Action Plan: A new era of clean electricity. https://assets.publishing.service.gov.uk/media/677bc80399c93b7286a396d6/clean-power-2030-action-plan-main-report.pdf

[227] UK Government (2024). Clean Power 2030 Action Plan: A new era of clean electricity. https://assets.publishing.service.gov.uk/media/677bc80399c93b7286a396d6/clean-power-2030-action-plan-main-report.pdf

[228] National Energy System Operator (2025). Future Energy Scenarios: Pathways to Net Zero. https://www.neso.energy/document/364541/download

[229] Norton Rose Fulbright (2024). Energy Act 2023: Electricity Storage. https://www.nortonrosefulbright.com/en-be/knowledge/publications/bc3890ae/uk-energy-act-2023-electricity-storage

[230] Interreg North-West Europe (n.d.). Energy Storage in the United Kingdom. https://vb.nweurope.eu/media/20371/energy-storage-in-the-uk.pdf

[231] Interreg North-West Europe (n.d.). Energy Storage in the United. https://vb.nweurope.eu/media/20371/energy-storage-in-the-uk.pdf

[232] UK Government (2023). UK battery strategy. https://www.gov.uk/government/publications/uk-battery-strategy

[233] UK Government (2024). Clean Power 2030 Action Plan. https://www.gov.uk/government/publications/clean-power-2030-action-plan

intermittent renewable energy sources. To implement a fully clean energy system, the plan estimates that the UK will require 40–50 GW of dispatchable and long-duration flexible capacity by 2030, within which 4–6 GW of LDES, and that the government would establish a specific LDES Cap & Floor Mechanism.

Revenue Certainty via LDES contracts

Best practice

The LDES Cap & Floor Mechanism[234] was officially announced in October 2024, and it provides a regulated revenue floor to ensure bankable minimum returns and a revenue cap through which excess revenues are returned to consumers. The first application window opened on 22 April 2025, targeting 2.7–7.7 GW of capacity up to 2035 and imposing stringent eligibility requirements, including a minimum 8-hour storage duration, a minimum 400 MWh project size, and a 25-year operational life with no performance degradation. Eligible technologies are divided between Stream 1, covering mature technologies such as pumped hydro storage, and Stream 2, covering proven innovative technologies including vanadium flow batteries and other flow battery technologies. The first round attracted 171 bids,[235] indicating strong market interest and suggesting sufficient project depth to meet the LDES requirements anticipated by NESO ahead of its Strategic Spatial Energy Plan in 2026.

Overall, the UK BESS market can be considered one of the most advanced in Europe, thanks to the forward-looking, substantial and clear support provided by the national government. This framework has made it possible for storage operators in the UK to benefit from one of the most diverse revenue stack according to SolarPower Europe,[236] which reports that storage operators can access several ancillary services, wholesale markets, and the capacity market. Apart from attracting the interest of global investors, the UK regulatory and financial framework around energy storage has made storage solutions as attractive as traditional grid extension services for system operators.[237]

[234] UK Government (2025). Long Duration Electricity Storage: technical details of the scheme and its operation. 22lications/clean-power-2030-action-plan

[235] Lynas, M. (2025). UK parliament approves long duration storage cap and floor scheme. pv magazine energy storage. 22lications/clean-power-2030-action-plan

[236] SolarPower Europe (2026). EU Battery Storage Market Review 2025. 22lications/clean-power-2030-action-plan

[237] Bourgeois, M. (2026). Cities can prevent grid congestion - but Europe needs to back them up. 22lications/clean-power-2030-action-plan

Conclusion

As discussions around grids resilience, flexibility and energy storage gain increasing traction at the EU level, most Member States are implementing policies and measures on the ground to foster the development of energy storage systems. Both flexibility and capacity mechanisms are increasing in number all across the EU, spanning from capacity markets (5), strategic reserves (3) and measures such as CdF and cap-and-floor mechanisms. Moreover, many EU Member States have also started tackling major issues to energy storage deployment such as double charging of DSO and TSO network tariffs.

Despite these encouraging national-level developments, LDES and, specifically, flow batteries have not yet been fully recognised as a crucial enabler of the energy transition, even though they play a key role in ensuring system flexibility and reliability. LDES require targeted support to reach their full potential and deploy at large scale, and the EU should take a leading role in guiding Member States in accelerating the creation of an enabling storage-friendly regulatory and financial framework.

For this to succeed, it is crucial that **each EU Member State sets clear and ambitious LDES deployment targets**, aligned with its national energy and climate objectives. Clear national targets provide long-term visibility for investors, help steer network planning and system operation, and ensure that policies, market designs and support schemes move in the right direction to integrate ever higher shares of renewables into the grid. National LDES targets would not only contribute to recognise the central role of energy storage in the EU's energy transition, but they would also make it possible to monitor progress, identify gaps and adjust measures in time to safeguard security of supply and decarbonisation pathways. Moreover, building on the best practices outlined above, the EU could implement the following measures in **3 key areas:**

1 Targeted LDES contracts

Deploy auctions, cap-and-floor regimes, and Contracts for Difference (CfDs) that deliver viable business cases for 4–8+ hour storage, stabilising revenues while preserving market dynamics.

- **Revenue Certainty via LDES contracts:** Promote duration-specific tenders (10–15+ year terms) with dedicated 4–8+ hour tranches. Advocate EU-wide cap-and-floor/CfD schemes tailored to LDES, building on successful national precedents to ensure bankable projects.
- **Full Market Integration:** Guarantee LDES access to all markets with duration-appropriate products. Standardise flow battery safety norms to cut deployment risks. A coordinated European push on these pillars will deliver a resilient, affordable energy system, accelerate renewables deployment, and generate thousands of high-skill jobs through a predictable policy environment.

2 Smarter Grids Connections and Tariffs

Eliminate double-charging across Europe, recognise storage as distinct infrastructure, and design fees that reward and not penalise flexibility.

- **Access:** An EU-wide harmonisation of storage as a unique asset class would materially reduce connection risk and cost by removing one-off or duplicative grid charges, fast-tracking permitting processes for storage as essential energy infrastructure, and explicitly enabling storage operators to participate fully in wholesale, balancing, and ancillary service markets.
- **Tariff Modernisation:** Mandate removal of TSO/DSO double-charging and taxes, while introducing time/location-differentiated tariffs that value multi-hour shifting.

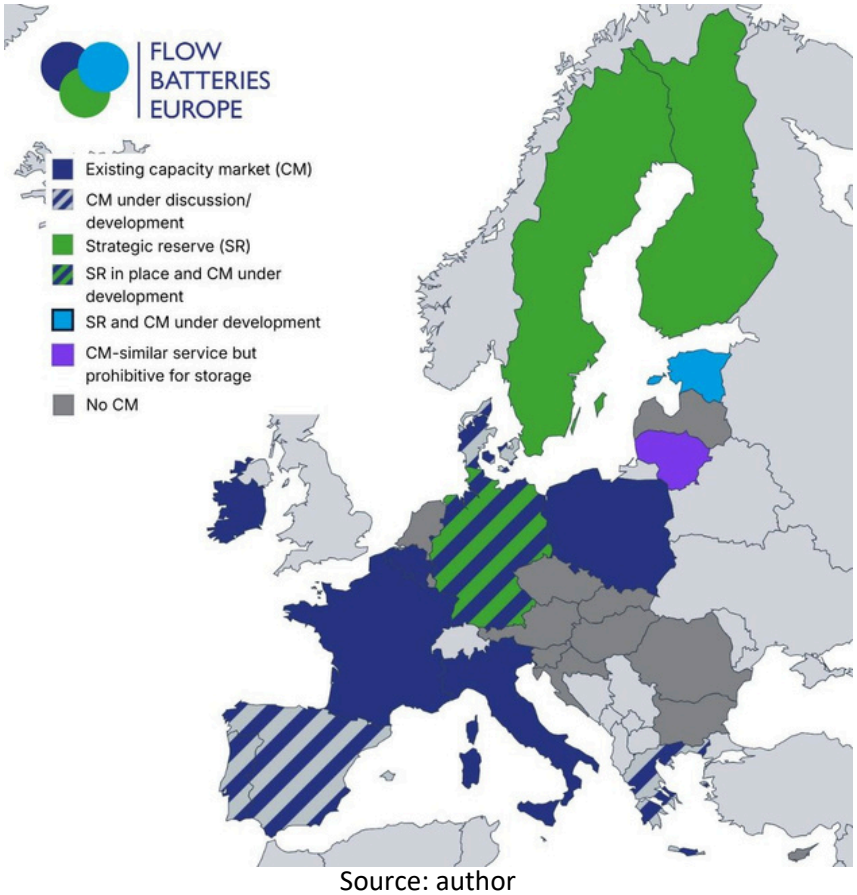
3 Co-location and Manufacturing Boosts

Mandate single-connection fees for hybrid RES+storage projects and offer "Made in Europe" bonuses for non-degrading LDES technologies like flow batteries.

- **Co-location Efficiency:** Mandate single-connection fees for hybrid renewable energy and storage projects, combined with targeted “Made in Europe” bonuses for non-degrading LDES technologies, to maximise grid utilisation, reduce connection bottlenecks, and accelerate the deployment of resilient, European-manufactured clean energy solutions
- **Technology-Specific Support:** Explicitly prioritise flow batteries in EU battery strategies, with RD&D funding, state-aid bonuses, and pilot lines for European LDES value chains.

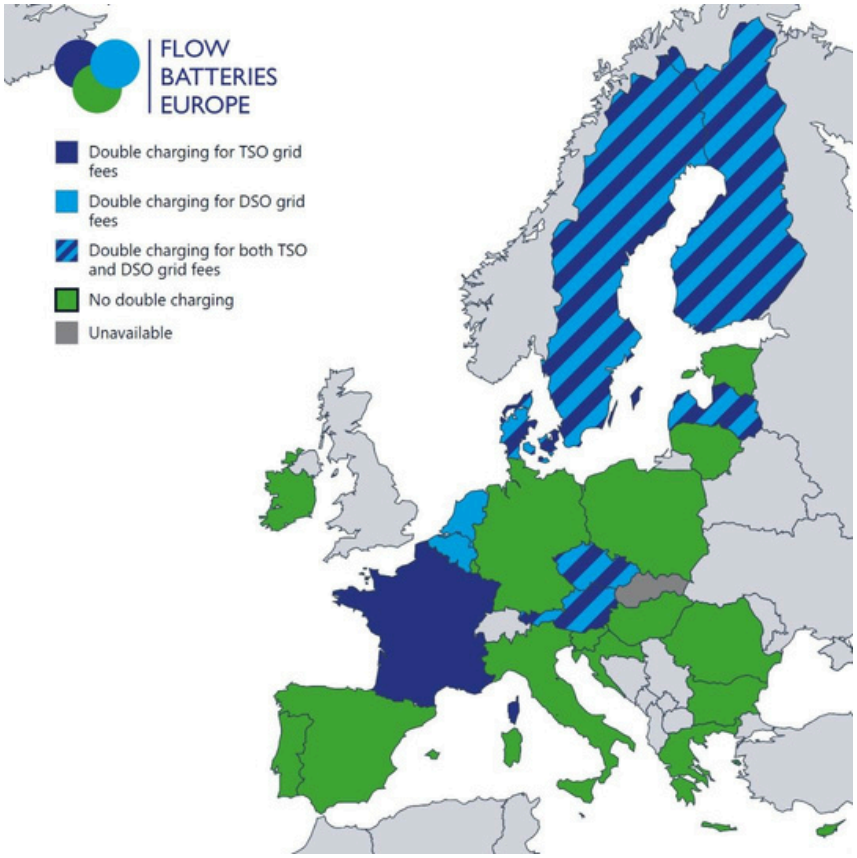
Annex

Figure 1: Map of capacity mechanisms in the EU



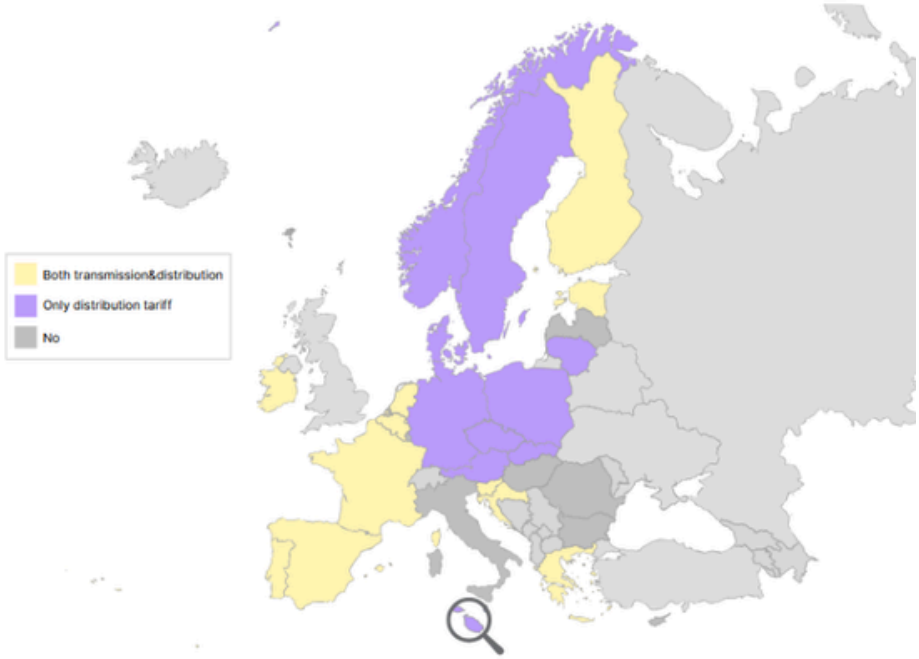
Source: author

Figure 2: double charging in the EU



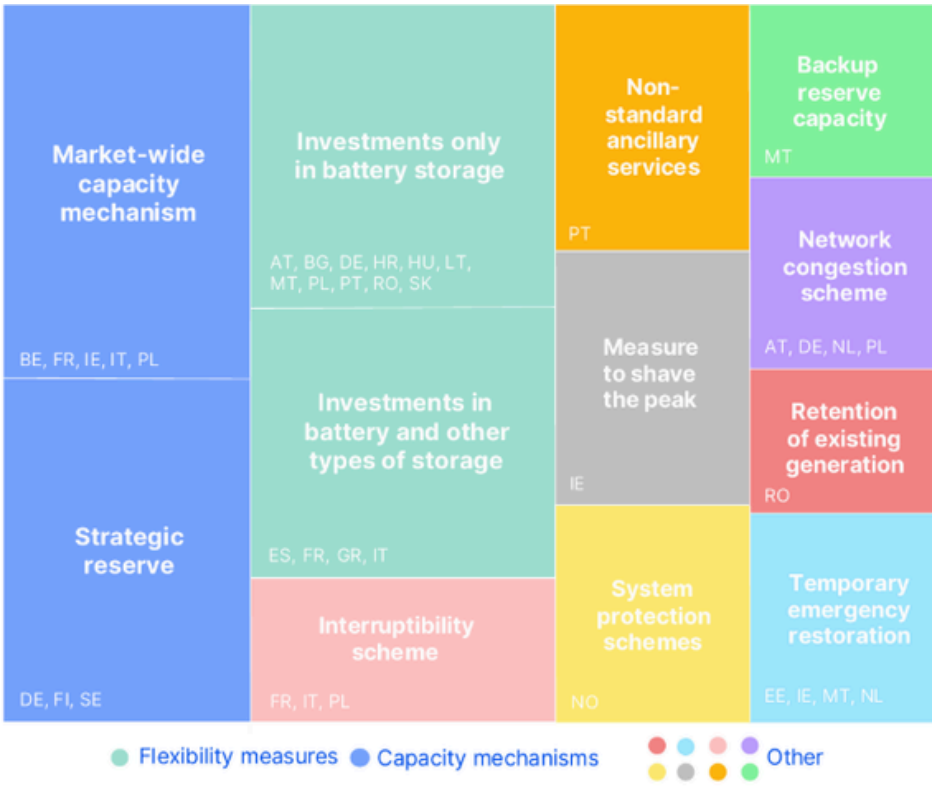
Source: author

Figure 3: ToU tariffs in the EU



Source: ACER (2025). *Getting the signals right: Electricity network tariff methodologies in Europe.*

Figure 4: Support measures across EU Member States



Source: ACER (2025). *Security of EU electricity supply.*

ABOUT FLOW BATTERIES EUROPE

Flow Batteries Europe (FBE) represents flow battery stakeholders with a united voice to shape a long-term strategy for the flow battery sector. We aim to provide help to shape the legal framework for flow batteries at the EU level, contribute to the EU decision-making process as well as help to define R&D priorities. FBE is working to create and reinforce networks between key stakeholders in the flow battery industry.

Avenue Adolphe Lacomblé 59/8BE
1030 Brussels, Belgium
d.pohl@flowbatterieseurope.eu
+32 (0) 2 743 29 86
www.flowbatterieseurope.eu