EASE Position Paper on Grid Fees and Network Tariffs

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Executive Summary

Energy storage is a key enabler of the European Union's decarbonisation and energy security objectives, yet current grid fee structures often act as barriers to its deployment. This position paper by the European Association for Storage of Energy (EASE) outlines critical challenges related to network tariffs and charges that create market distortions and discourage much-needed investments in flexibility.

EASE calls on policymakers and regulators to urgently address these issues by ensuring a level playing field for energy storage. In particular, the paper advocates for:

- The application of non-discriminatory, cost-reflective grid tariffs and levies that reflect the system benefits of flexibility providers, such as energy storage, with a preference for Time-of-Use tariffs where feasible, given their simplicity, predictability, and ease of implementation.
- The design of Time-of-Use tariffs should place particular emphasis on accurately capturing system peak periods, ensuring that storage and flexibility providers are incentivised to respond where their value is highest.
- A coordinated approach to setting injection and withdrawal charges — ensuring they are designed and aligned in relation to each other in a consistent and proportionate manner — to avoid undue penalisation of flexibility providers, such as storage facilities.
- Clear EU-level design of tariff methodologies for electricity network charges for Member States to improve consistency and facilitate integration of storage into the grid.

These recommendations build on existing EU commitments.[1] The outlined reforms to grid fee structures accelerate the energy transition, unlock the full potential of energy storage and reduce network costs.

[1] The European Commission's 2023 Recommendation on Energy Storage calls for the elimination of double-charging and the fair treatment of storage in tariff frameworks. The 2023 Action Plan for Grids highlights the need for adapted tariff methodologies to unlock flexibility, including from energy storage.

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1. Introduction: The European Energy System Needs Energy Storage

Avoiding Curtailment: Europe's path to climate neutrality by 2050 depends on an increase in renewable energy generation. By 2040, over 80% of consumption is expected to be met by renewables.[2] This brings major challenges to the grid, such as curtailment. Up to 310 TWh of renewable energy could be curtailed annually by 2040 due to insufficient grid capacity – i.e. energy that has been generated but cannot be used because of grid bottlenecks or lack of demand at the time of generation.[3] This would translate to an annual economic cost of more than €22.9 billion in 2024 wholesale electricity prices.[4]

Energy Shifting: Flexibility is essential to prevent this outcome. While various solutions can help, including interconnectors and demand-side response, energy storage stands out as the technology capable to handle shifts in renewable energy supply. Storage helps address the variability of solar and wind generation by shifting excess electricity supply to periods of low generation, stabilising the grid and reducing reliance on fossil-based backup.

Affordable Network: By storing energy when it is abundant and cheap, and discharging it during times of scarcity, storage smoothens price volatility and fluctuations. In doing so, storage absorbs excess generation and relieves pressure on a congested grid infrastructure, reducing the need for costly re-dispatch and deferring grid investment. This fosters competitive prices and resilience, while lowering dependency on fossil fuels. Studies show that the increased deployment of storage reduces wholesale electricity prices and overall system costs.[5]

Ensuring power quality and reliability: Energy Storage Systems (ESS) contribute to both system stability (e.g. frequency and voltage control) and resource adequacy, ensuring sufficient capacity is available to meet peak demand.[6] Thus, ESS guarantee power quality and power reliability in the network.

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[2] https://www.energy-storage.news/storage-a-key-element-for-new-2040-renewable-energy-targets-leaked-eu-draft-says/

[3] https://publications.jrc.ec.europa.eu/repository/handle/JRC137685

[4] This value represents the upper end of the estimated opportunity cost range.

[5] https://www.researchgate.net/publication/239809816_The_impact_of_electricity_storage_on_wholesale_electricity_prices

[6] https://ease-storage.eu/energy-storage/technologies/

2. The Different Network Tariffs and Charges

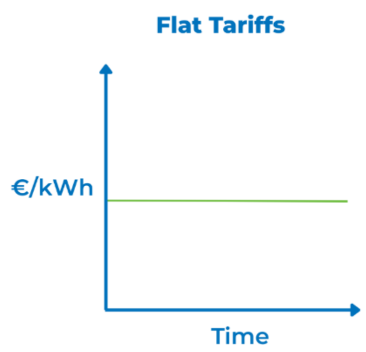
A significant portion of the costs of the European electricity grid is recovered through network tariffs and charges paid by grid users. These fees reflect the cost of both the grid infrastructure and of system operation. They cover among others infrastructure costs, system services, network operation and development. In the case of energy storage, network charges refer to the tariffs and fees applied to storage facilities when they import electricity from or export electricity to the grid.

Current practices and discussions across Member States vary significantly — ranging from flat tariffs to more advanced cost-reflective models such as Time-of-Use, dynamic, and locational tariffs. Each approach offers different levels of alignment with actual grid conditions and sends different signals to energy storage operators.

This chapter provides an overview of the main types of network tariffs used or proposed across the EU. For each, we assess the relevance for energy storage, highlighting both the opportunities and limitations.

2.1. Flat Tariffs

Flat tariffs apply a uniform network fee for electricity use, regardless of the time of day, location, or system conditions.[7] They remain common in several Member States and represent a basic pricing structure that does not vary according to grid stress or grid user behaviour.



Positive aspects for energy storage:

- Flat tariffs provide stable and predictable grid costs, which can simplify the development of business cases for energy storage operators.
- They are easy to understand and implement, reducing administrative complexity for both regulators and operators.
- Flat tariffs do not require advanced metering or real-time data management, which may lower the entry barrier for smaller or less digitally integrated storage providers.

[7] Flat tariff regimes can be based on connected capacity (€/MW), energy throughput (€/MWh), or a combination of both. The design choice influences the behaviour of storage operators and determines how cost-reflective or distortionary a tariff may be. Capacity-based tariffs may discourage high-power but low-duration systems, while throughput-based tariffs can penalise frequent cycling — reducing responsiveness to market and grid signals.

Negative aspects for energy storage:

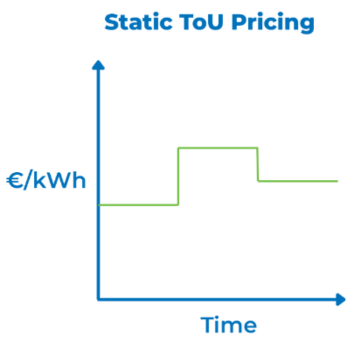
- Flat tariffs do not reflect real-time grid conditions, meaning storage operators receive no signal to charge or discharge in ways that support system efficiency.
- All storage operators face the same costs regardless of the time or location of their activity, potentially leading to inefficient grid usage or missed flexibility opportunities.
- Flat tariffs offer no granularity in price signals and are not capable of differentiating between grid users' behaviours and their consequent impact on the grid.
- Flat tariffs can result in cross-subsidisation, where flexible users (like storage operators) end up subsidising inflexible or high-impact users who place more strain on the grid.

2.2. The Cost-Reflective Network Tariffs

To fully enable the contribution of energy storage to the EU's energy transition, it is essential to modernise tariff structures. This includes adopting cost- and benefit-reflective principles, while allowing for flexibility to address specific national and local grid conditions.

2.2.1 Static Time-of-Use Tariffs

A static Time-of-Use (ToU) tariff is designed according to predefined peak and off-peak periods - and can be set or approved year-ahead by the regulator. The tariff, in this case determined in advance, is typically applied to usage over time blocks of several hours for which the price remains constant. This can be simple day- and night-pricing to reflect on- and off-peak hours.



Positive aspects for energy storage:

- Static ToU tariffs provide fixed, known pricing windows (e.g. day/night), making it easier for energy storage operators to plan charging and discharging schedules and optimise their business model.
- They encourage charging during low-demand, low-price periods (typically with high renewable output) and discharging during peak periods, helping reduce grid stress and curtailment.
- They are simple to roll out, communicate to grid users and storage operators and allow them to plan their operation.

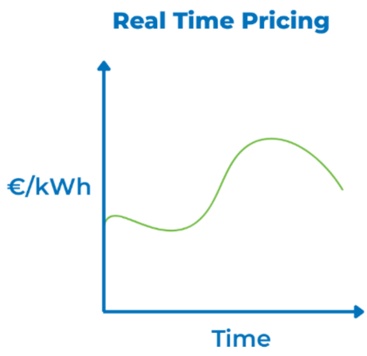
Negative aspects for energy storage:

- Because tariffs are fixed in advance, they don't always reflect actual system conditions (e.g. sudden congestion or oversupply). This limits the responsiveness and grid value that storage can offer.

- All users face the same price signals regardless of actual local or temporal grid needs. This can result in many storage systems operating simultaneously, causing new peaks or congestion.
- As energy price volatility increases with more renewables, static ToU tariffs may not allow storage to fully monetise arbitrage opportunities in case of unexpected price spikes and dips.

2.2.2 Dynamic Grid Tariffs

This tariff structure not yet fully implemented in the EU, has as a goal to be adjusted in real time based on actual system conditions. Prices in a dynamic setting are calculated based on at least hourly metering of electricity usage, or within even higher granularity (e.g., 15 or 5 minutes). While full real-time dynamic tariffs are not yet implemented in the EU, intermediate models combining static ToU windows with more granular adjustments (e.g., day-ahead or intraday updates) are being explored.[8]



Positive aspects for energy storage:

- Dynamic tariffs' goal is to reflect actual grid conditions and link grid support (e.g. congestion, demand peaks, or renewable oversupply) with a remuneration possibility, allowing storage systems to respond where and when they provide the most value to the grid.
- They complement market price signals by incentivising storage to absorb excess renewable generation during low-price, low-demand periods and release it during high-demand periods, thereby helping to reduce renewable curtailment.

Negative aspects for energy storage:

- Dynamic tariffs, if implemented in the EU, would require continuous monitoring and fast response, often needing automated energy management systems and forecasting tools — a barrier for smaller or less digitally integrated storage operators.
- The lack of predictability in revenues can make it harder for investors to model returns and for operators to commit to long-term business plans. The lack of predictability in revenues can also lead to less optimal results for the network.

[8] https://www.acer.europa.eu/sites/default/files/documents/Publications/2025-ACER-Electricity-Network-Tariff-Practices.pdf and dynamic tariffs in Sweden: https://fsr.eui.eu/the-swedish-experience-with-dynamic-retail-tariffs/

- They depend on investing into digital infrastructure, advanced grid modelling, access to real-time price data and data transparency from system operators — policies and capabilities that are different across EU Member States.[9]
- They can undermine the desired market signals. For example, what is optimal for a DSO may not align with what is best for the overall energy system.

2.2.3 Locational Grid Tariffs

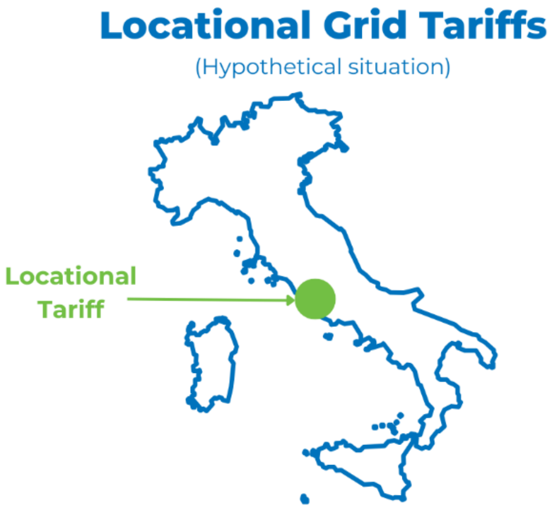
This pricing system is designed to reflect congestion and supply-demand imbalances based on local grid needs in a certain geography.[10] Similar to dynamic tariffs, this grid tariff proposal is yet to be fully implemented in EU member states.

Positive aspects for energy storage:

- Locational tariffs incentivise energy storage deployment in congested or vulnerable areas and provides specific price signals to match generation with consumption.
- They enhance granularity and decentralisation, enabling better long-term planning by TSOs and DSOs for infrastructure upgrades and flexible asset integration.

Negative aspects for energy storage:

- Varying tariffs by location can lead to a fragmented regulatory landscape.
- As grid conditions evolve (e.g. new reinforcements or generation projects), the locational advantage of a site may diminish over time, potentially stranding storage assets or reducing returns.
- Defining accurate locational signals requires advanced grid modelling and data transparency from system operators.



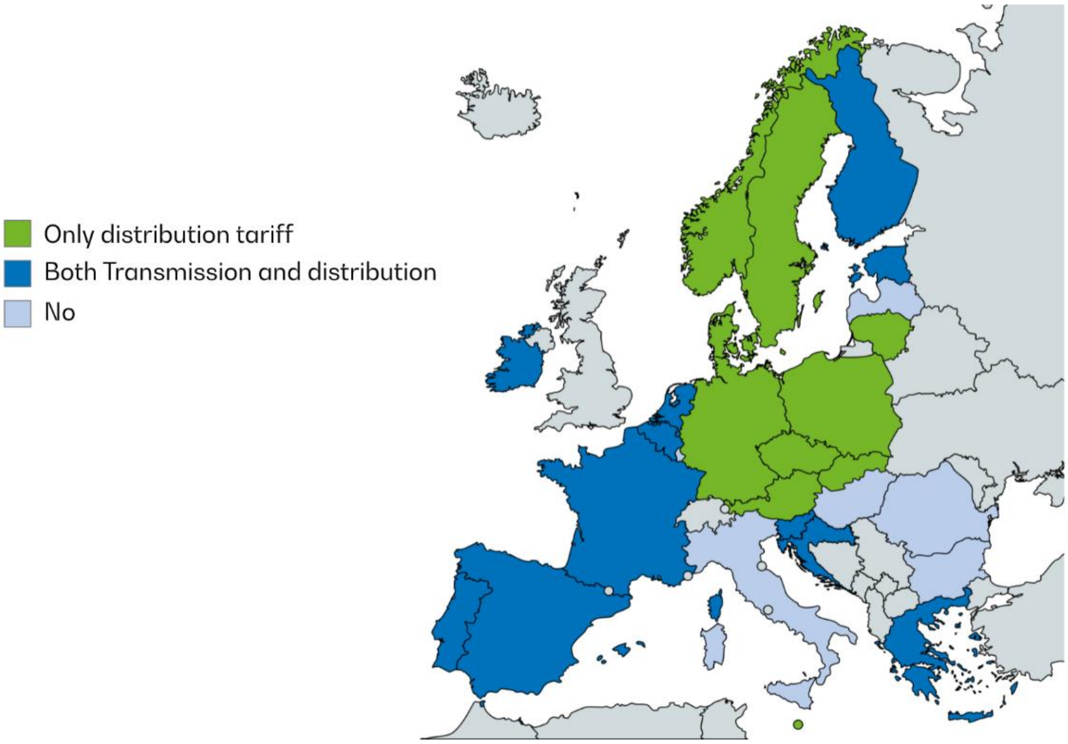
[9] Smart meters with high temporal resolution (e.g. 15-minute or 5-minute intervals), advanced metering infrastructure (AMI), automated energy management systems (EMS), secure data communication networks, and real-time access to market and grid signals.
[10] This does not refer to Locational Marginal Pricing (LMP), which is not implemented in the EU.

3. Network Charges and Tariffs in the EU

Network tariffs and charges play a decisive role in enabling—or hindering—energy storage's dual function as both a consumer (withdrawing electricity for charging) and a generator (injecting stored electricity back into the grid). This chapter analyses how uncoordinated injection and withdrawal charges distort market signals for storage operators, alongside the uneven implementation of cost-reflective tariffs—such as Time-of-Use models—across EU Member States.

3.1. Network Tariff regimes in the Member States

Reforms have been introduced in some member states at either the distribution or transmission level — or both — to enact an electricity tariff structure where the cost of grid use varies depending on the time of day (so called Static Time-of-Use tariffs, e.g. day and night tariffs).



Source: [ACER report on network tariff practices – Getting the signals right: Electricity network tariff methodologies in Europe – March 2025.](#) In yellow and purple are the member states that apply some sort of Time-of-Use tariffs.

These reforms aim to encourage behaviours that lead to more efficient network use. However, as seen in the image above, implementation remains uneven across the EU. This weakens not only the EU's internal market, but limits the deployment of flexible assets, as e.g. energy storage, and its role in optimising the European energy system.

3.2. The Injection and Withdrawal Charges

In many cases, storage is charged a fee both when withdrawing electricity from the grid for storage and again when reinjecting it:

✓ = Yes ✗ =No	Double charging of grid fees on projects connected to the transmission network?	Double charging of grid fees on projects connected to the distribution network?	Double charging of taxation on electricity from storage assets?
Austria	✓	✓	✓
Belgium	✗	✓	✗
Czechia	✓	✓	✓
Finland	✓	✓	✗
France	✓	✗	✗
Germany	✗	✗	✗
Greece	✗	✗	✗
Italy	✗	✗	✗
Ireland	✗	✗	✗
Netherlands	✗	✓	✓
Poland	✗	✗	✗
Spain	✗	✗	✓
Sweden	✓	May vary regionally	✗

Source: EASE – LCP Delta's European Market Monitoring for Energy Storage 9.0 (EMMES) – published in 2025. This shows that while a number of countries have abolished double-charging, this varies among EU member states.

As seen in the image above, system operators often apply injection and withdrawal charges as if injection and withdrawal add to system costs. However, since energy storage operates both ways, for example when it alleviates grid congestion, it does not necessarily add to system costs.

When injection and withdrawal grid charges are applied uncoordinatedly in relation to each other, they can discourage or at the least not incentivise grid supportive behaviour from grid users. Uncoordinated charges can distort market signals by sending the wrong economic incentives to storage operators. If charges for injection and withdrawal are inconsistent or disconnected from the actual system needs, then storage operators might choose to either inject or withdraw less than an optimal amount from the perspective of the grid, depending on the pricing structure.

4. Principles for Tariffs and Charges

As stipulated in the European Commission's Action Plan for Affordable Energy, more efficient network charges reduce energy system costs. To maximise the flexibility potential from the market and to fully support the integration of energy storage, tariff and grid fee structures must be adapted to reflect the specific value and costs that a flexibility source, such as energy storage, has on the electricity grid.

This chapter outlines a set of guiding principles for EU institutions and Member States to consider when proposing, designing or revising tariff frameworks.

These principles are structured into three key areas:

- Principles for implementing cost-reflective network tariffs,
- Principles for setting separate injection and withdrawal charges, and
- Cross-cutting principles that ensure coherence, consistency, and regulatory clarity across the EU.

Together, these recommendations aim to create a level playing field and enable energy storage to contribute effectively to a flexible, and cost-efficient energy system.

4.1. Principles for Implementing Cost-Reflective Network Tariffs

EASE outlines the following principles for designing tariff frameworks that reflect the real costs and benefits of storage, encourage efficient system use, and ensure regulatory consistency across the EU.

a) **A cost-reflective tariff framework should clearly define which costs are being accounted for.**

b) **The framework should clearly indicate whether its objective is solely to recover system costs or also to influence behaviour** by optimising the existing grid and postponing unnecessary investments.

c) **Energy storage should be guaranteed cost reflectiveness in the EU,** by abolishing non-cost reflective grid fees that still exist in national regulations, prioritising the full implementation of the electricity market design (and notably art. 18 of the Electricity Regulation 2019/943).

d) **Time-of-Use tariffs should be prioritised over dynamic, locational, and flat tariff models.** ToU structures strike a balance between simplicity and cost-reflectiveness: they offer predictable pricing signals that can be easily understood and integrated into business planning by all grid users. Unlike solely dynamic or locational tariffs, which often require advanced forecasting tools or complex modelling, ToU tariffs can be implemented in many Member States using existing metering infrastructure.

e) **The design of ToU tariffs should aim to accurately reflect system peak periods,** ensuring flexibility providers such as storage can respond where their impact is greatest. Additionally, regulators should consider integrating a locational element to reflect local grid conditions, support congestion management, and incentivise deployment in high-need areas.

f) **A time-limited last-resort exemption or reduction of network tariffs for energy storage directly connected to the grid may be appropriate only if tariff regimes do not take into account flexibility sources' role in the system** through cost-reflective network tariffs, therefore unduly penalising ESS deployment. However, once the exemption period ends, the regulatory framework and resulting tariffs should be designed in a way that ensures a smooth and predictable transition for those affected.

g) **Tariff designs that seek to reflect the cost- and benefit impact of storage on the grid should be incorporated into the national regulatory frameworks**.

h) **Regulatory oversight of tariffs is paramount**, which takes into account national characteristics, such as the renewable electricity generation patterns, smart meter rollouts, and developments in the grid infrastructure.

i) **Continuous adaptation of tariffs through regulatory oversight** is key to ensure that tariffs remain predictable and cost-reflective, without undermining investment security.

j) **Cost-reflective grid tariff structures should be applicable to all flexibility providers,** independently where in the grid they are situated. For storage systems this means among others, co-located/hybrid or stationary facilities (e.g. batteries, pumped hydro or thermal energy storage).

4.2. Principles for Setting Injection and Withdrawal Charges

To ensure fair and efficient participation of energy storage in the energy system, national tariff structures must avoid practices that penalise its dual role as both consumer and generator.[11] Energy storage operators should be charged for withdrawal and injection in a way that reflects their actual impact on the grid, without discouraging grid-supportive behaviour. Several principles should guide EU institutions and member states in this process:

[11] Including to storage facilities that are co-located with other demand or generation assets like e.g. renewable energy generators.

a) **National regulatory frameworks should reflect energy storage's unique role** in the energy system.

b) **Energy storage should not be classified solely as either a consumer or a generator**, if this limits the ability of regulatory frameworks and system operators to account for its dual role in both injecting and withdrawing electricity from the grid.

c) **Unfair injection and withdrawal charges which are uncoordinated in relation to each other should be removed.** A regulatory framework should be established that gives energy storage operators and all users a fair treatment, based on a calculation of the actual costs for the grid.

d) If storage facilities are subject to fees both when withdrawing electricity from the grid and when reinjecting it, National Regulatory Authorities (NRAs) should ensure coordination between the two charges when setting them.

4.3. Cross-cutting Principles in Tariff Setting

To advance these goals, this chapter outlines the following all-encompassing principles for improving the regulatory treatment of energy storage across the EU that should guide institutions and member states in this process:

a) **A harmonised definition of Energy Storage Operator is essential to ensure consistent regulatory treatment across Member States.** Such a definition would clarify the role and rights of storage operators, distinguish them from generators or consumers, and reduce legal uncertainty.

b) **Member States should consider at least a certain share of capacity-based (MW) charges**, as they can provide a cost-reflective approach and help guide infrastructure planning and reinforcement where it is needed.

c) **EU legislators should develop an EU-wide approach or guidance text to help Member States define cost categories and fee adaptations for energy storage.** While the NRAs rest with the competency for tariff setting, institutional orientations such as a set of EU-wide recommendations serve as a general starting point to encourage common understandings on the national level.

5. Conclusion

Cost-reflective, along with separate injection and withdrawal charges coordinated with each other are essential to unlock the full potential of flexibility providers such as energy storage. They support a flexible, decarbonised, and resilient energy system. EASE calls on Member States and EU institutions to act and consistently eliminate regulatory barriers, implement tariff designs that recognise energy storage, and ensure that it is rewarded for the value it brings to the grid.

In particular, we highlight the following priorities for enabling storage deployment through fair and future-proof grid fee design:

- The implementation of **cost-reflective network tariffs** — and, where this is not yet feasible, the possibility for **time-limited exemptions** for energy storage.
- **Prioritise Time-of-Use tariffs** over dynamic, locational and flat tariffs, as they are simpler, cost-reflective, and feasible with existing infrastructure.
- Design Time-of-Use tariffs to **capture system peaks and consider a locational component** where appropriate.
- **Establishing withdrawal and injection charges coordinated with each other**, that reflect the dual role of energy storage as both consumer and producer, in order to avoid distortive cost signals.
- A clear and consistent **definition of the Energy Storage Operator**, distinct from consumers or generators, to ensure fair regulatory treatment.
- The development of **harmonised EU-level guidance on network tariff methodologies** to support coherent implementation across Member States and avoid market fragmentation.

To reach this goal, a level-playing field among technologies and an EU-wide approach is needed. Member States should integrate these principles into national tariff-setting frameworks through close collaboration between National Regulatory Authorities (NRAs), system operators, and policymakers.

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About EASE:

The European Association for Storage of Energy (EASE) is the leading member - supported association representing organisations active across the entire energy storage value chain. EASE supports the deployment of energy storage to further the cost-effective transition to a resilient, carbon-neutral, and secure energy system. Together, EASE members have significant expertise across all major storage technologies and applications. This allows us to generate new ideas and policy recommendations that are essential to build a regulatory framework that is supportive of storage.

For more information please visit www.ease-storage.eu

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