



Recent changes to the energy storage regime in EU law

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Iberian Centre for Research in Energy Storage (CIIAE)

A pioneering infrastructure to make renewable energy a real alternative to fossil fuels.



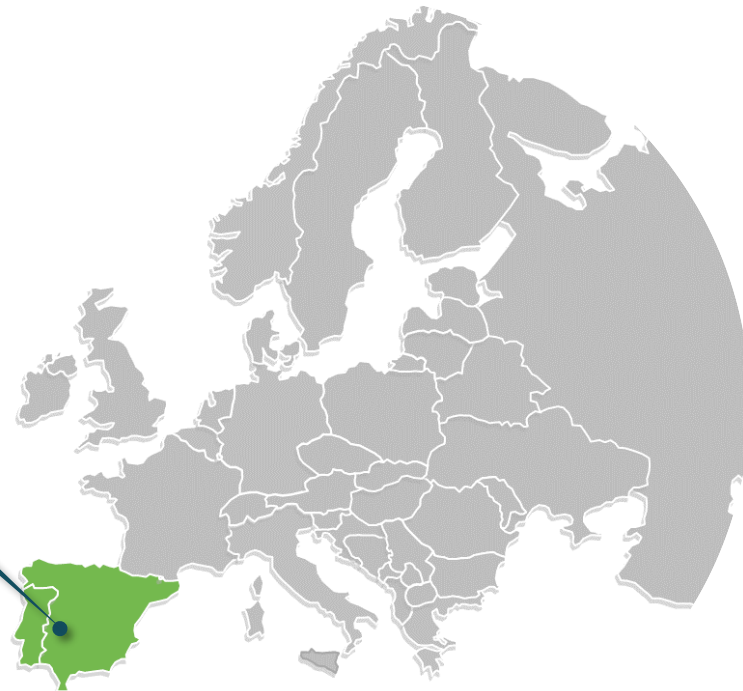
4th November 2022



≈80 M€
initial funding



>40 researchers & engineers
(125 by 2025)



Public-private financing strategy



Memberships

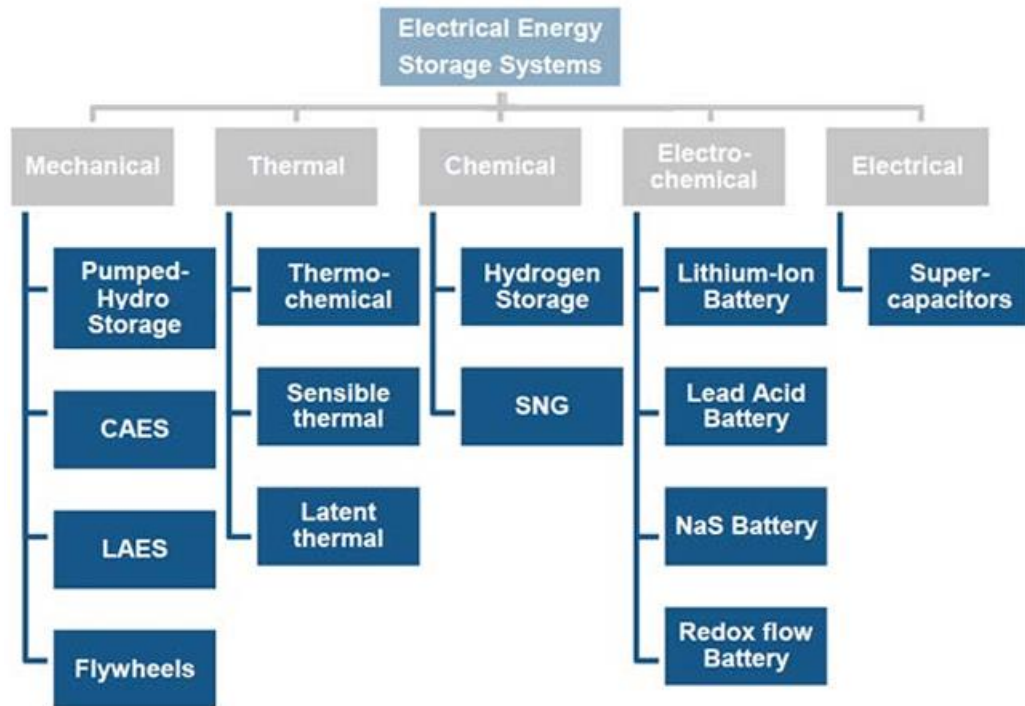


Outline

- Why storage?
- Scope of the presentation
- Incomplete transpositions
- Recently adopted directives and regulations
- Directives and regulations still in negotiation
- Main takeaways

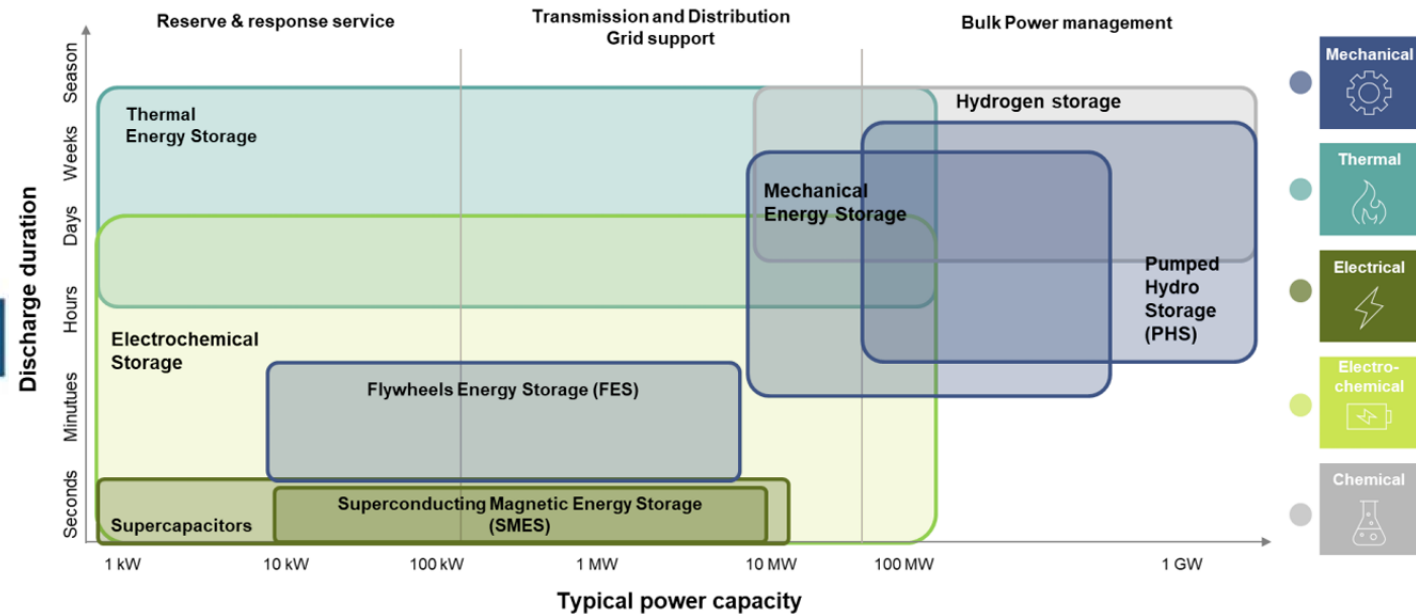
Why storage?

- Energy storage allows to move energy over time, from when it is abundant to when it is scarce (but in some cases, you can also move it geographically)
- Key for the decarbonisation, through a transition to variable RES
- A wide family of technologies



CAES = Compressed Air Energy Storage; LAES = Liquid Air Energy Storage; SNG = Synthetic Natural Gas.

Electricity storage technologies. Source: Commission staff working document, Energy storage – the role of electricity, 1.2.2017 SWD(2017) 61 final, p. 9.



Power ranges and discharge duration of different energy-storage technologies. Source: EASE, Energy Storage Targets 2030 and 2050: Ensuring Europe's Energy Security in a Renewable Energy System, 2022.

- Mechanical
- Thermal
- Electrical
- Electro-chemical
- Chemical

Scope of the presentation

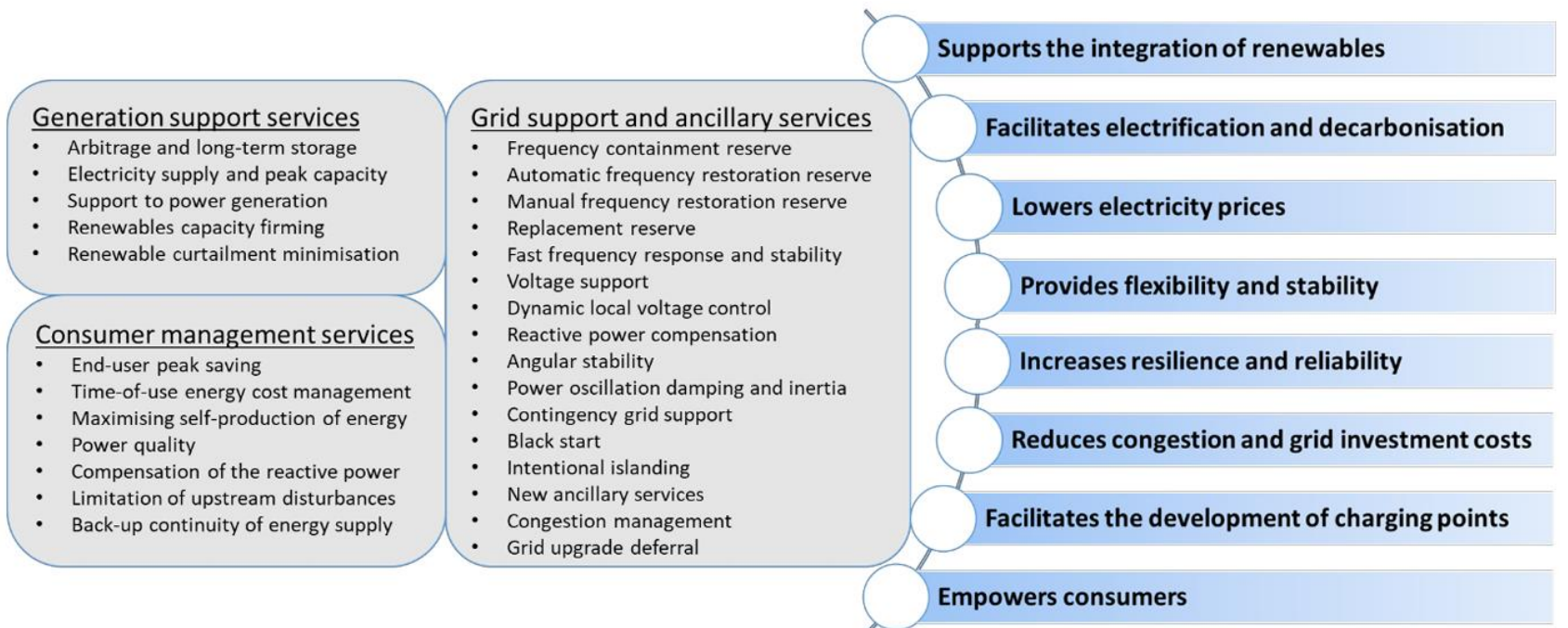
- Focus on energy storage in the electricity system:
 - The legislation is evolving the fastest over past years,
 - There was very little before 2019,
 - Directly conditions the decarbonisation of electricity generation + transportation to a large extent + a share of industry and buildings
- Energy storage is impacted in many different ways by EU energy law (general market functioning, taxes, etc.):
 - Focus here on the more explicit mentions and more related to electricity sector

Incomplete transposition

- 2019 Electricity market directive
 - Deadline for transposition: December 2020.
 - Definition of energy storage
 - Art. 2(59): *‘energy storage’ means, in the electricity system, deferring the final use of electricity to a moment later than when it was generated, or the conversion of electrical energy into a form of energy which can be stored, the storing of such energy, and the subsequent reconversion of such energy into electrical energy or use as another energy carrier;*
 - Foundations for its regime: a market-based activity with limited exceptions
 - To be owned and operated by non regulated entities (TSOs and DSOs)
 - Exceptions on art. 36 (DSOs) and art. 54 (TSOs)
 - Very much related to storage, provisions on flexibility and (local) flex markets (especially art. 32) and on EVs (art. 33 about recharging points ownership by DSOs)

Incomplete transposition

- 2019 Electricity market directive (cont.)
 - Incomplete transpositions, esp. in the details:
 - Double charges still imposed to active customers (prohibited by art. 15(5)) => case in Spain for behind the meter batteries
 - Lack of clear connexion and access rules for energy storage facilities (the newcomer)
 - Lack of flexibility markets or restrictive access rules (high minimum bid size, etc.) => especially for small to mid-size storage



Energy-storage applications and added value. Source: Commission staff working document, Energy Storage - Underpinning a decarbonised and secure EU energy system, 14.3.2023 SWD(2023) 57 final, p. 7.

Recently adopted directives and regulations

- Recently adopted directives and regulations:
 - 2022 Regulation to accelerate the deployment of RE
 - 2023 revised RES directive
 - 2023 recast Energy efficiency directive
 - 2023 Regulation on Alternative fuels infrastructure
 - 2023 Battery regulation
 - Commission Delegated Regulation 2023/2450 establishing a list of essential services
 - 2023 revised GBER

Recently adopted directives and regulations

- 2022 Regulation to accelerate the deployment of RE
 - Adopted in December 2022, applicable for 18 months (mid-2024)
 - Emerges as part of REPower EU plan
 - Emergency measures for more RES as effect of war in Ukraine
 - Art. 3(1) *The planning, construction and operation of plants and installations for the production of energy from renewable sources, and their connection to the grid, the related grid itself and storage assets shall be presumed as being in the overriding public interest.*
 - Art. 4(1) Shorter permitting times (max 3 months) for solar + co-located storage on artificial structures (typically rooftop)
 - Art. 6(1) MSs may exempt RE project and related grid and energy storage projects from environmental impact assessment in previously set renewables acceleration areas (requires a strategic environmental assessment)

Recently adopted directives and regulations

- 2023 revised RES directive
 - Adopted in October 2023 and to be transposed by May 2025, with exceptions: July 2024 for faster permitting (extends and deepens new provisions from 2022 regulation)
 - New definitions:
 - Art. 2(14)(g) “domestic battery”
 - Art. 2(14)(h) “electric vehicle battery” (with ref to 2023 Battery regulation)
 - Art. 2(14)(o) “bi-directional recharging” (with ref to 2023 Alternative fuels infrastructure regulation)
 - New articles 15 and 16 enshrine the 2022 regulation’s provisions into EU energy law:
 - MSs to map the deployment of RES and establish renewables acceleration areas + Areas for grid and storage infrastructure necessary to integrate renewable energy into the electricity system (storage projects may in these areas be exempted from EIA, under some conditions, incl. a strategic EIA before)

Recently adopted directives and regulations

- 2023 revised RES directive (cont.)
 - New articles 15 and 16 enshrine the 2022 regulation's provisions into EU energy law:
 - Faster permit granting for RES installations + co-located energy storage
 - 2 years outside renewables acceleration areas
 - 1 year for repowering, for installation <150kW and for co-located energy storage outside renewables acceleration areas
 - 6 months for same situation but inside a renewables acceleration area
 - 3 months for solar + co-located storage on artificial structures
 - From 2024 and “until climate neutrality is achieved”, RES + storage considered of “overriding public interest and serving public health and safety”
 - New art. 20(a)(3) sets obligations for domestic and industrial battery manufacturers + vehicle manufacturers to provide free, direct, real-time access to a battery's capacity, state of health, state of charge (etc.) to the owner or user or an authorised third party (e.g. an electricity market participant)

Recently adopted directives and regulations

- 2023 recast Energy efficiency directive
 - Adopted in September 2023 and to be transposed (mostly) by October 2025
 - Various refs to storage, demand-side resources, flexibility
 - Art. 1(1) *This Directive lays down rules designed to implement energy efficiency as a priority across all sectors, remove barriers in the energy market and overcome market failures that impede efficiency in the supply, transmission, storage and use of energy.*
 - Art. 3 about Energy efficiency first principle:
 - *MSs shall ensure that energy efficiency solutions, including demand-side resources and system flexibilities, are assessed in planning, policy and major investment decisions.*
 - Art. 22(3) MSs shall create one-stop shops for informing about topics incl. storage in buildings
 - Art. 27(2) NRAs to check TSOs and DSOs take into account benefits of demand-side flexibility in network planning and investment decision

Recently adopted directives and regulations

- 2023 Regulation on the deployment of alternative fuels infrastructure
 - Adopted in September 2023 and applies from April 2024
 - Refs to storage or batteries in context of EVs
 - Definitions:
 - Art. 2(10) ‘battery electric vehicle’
 - Art. 2(11) ‘bi-directional recharging’ *means a smart recharging operation where the direction of the electricity flow can be reversed, allowing that electricity flows from the battery to the recharging point it is connected to*
 - Art. 2(65) ‘smart recharging’ *means a recharging operation in which the intensity of electricity delivered to the battery is adjusted in real-time, based on information received through electronic communication*
 - Art. 3 sets targets for recharging infrastructure dedicated to light-duty electric vehicles (every 60 kms at least)
 - Few provisions on flexibility related to bi-directional charging and smart charging
 - E.g. art. 14(h) MSs shall prepare national policy frameworks for the deployment of recharging points, incl. bidirectional, to contribute to the flexibility of the energy system and the penetration RES-E

Recently adopted directives and regulations

- 2023 Battery regulation
 - Adopted in July 2023 and applies from April 2024, with many exemptions pushing to 2025 onwards
 - Regulating the whole life cycle of batteries (art. 1(1))
 - Objectives (art. 2(1)): *to contribute to the efficient functioning of the internal market, while preventing and reducing the adverse impacts of batteries on the environment, and to protect the environment and human health by preventing and reducing the adverse impacts of the generation and management of waste batteries.*
 - Art. 7: Carbon footprint declaration for batteries (applicable from 2025 to 2030 depending on the type of battery (EV, portable, industrial, etc.))
 - Art. 77: Battery passport mandatory from 2027 with battery data (materials, carbon footprint, due diligence of source materials, technical specs, etc.)
 - Management of waste batteries (from mid-2025)
 - Targets for collection of waste batteries: 63% by end 2027, 73% by end 2030
 - Targets for lithium recovery from waste batteries, for minimum levels of recycled content in new batteries, recycling efficiency target, etc.
 - Many delegated acts to be adopted

Recently adopted directives and regulations

- Commission Delegated Regulation (EU) 2023/2450 of 25 July 2023 supplementing Directive (EU) 2022/2557 of the European Parliament and of the Council by establishing a list of essential services
 - Art. 2 sets a non-exhaustive list of essential services from the energy, transportation, banking, food, digital infra, etc. sectors
 - *Services which are essential for the maintenance of vital societal functions or economic activities (Art. 1 of Directive (EU) 2022/2557)*
 - In energy sector, includes energy storage in the electricity sector
 - Also, oil storage, gas storage and hydrogen storage

Recently adopted directives and regulations

- Revision of the General Block Exemption Regulation (GBER)
=> Commission Regulation (EU) 2023/1315 of 23 June 2023 amending Regulation (EU) No 651/2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty and Regulation (EU) 2022/2473 declaring certain categories of aid to undertakings active in the production, processing and marketing of fishery and aquaculture products compatible with the internal market in application of Articles 107 and 108 of the Treaty
 - Revision to facilitate the implementation of the Green Deal
 - Storage included in various occasions to facilitate state aids
 - Energy storage in the electricity system
 - Hydrogen storage

Directives and regulations still in negotiation

- Directives and regulations still in negotiation:
 - CRM Act
 - Electricity market design reform
 - New network code + revision of previous ones
 - EPBD revision
 - Energy taxation directive revision

Directives and regulations still in negotiation

- Critical Raw Materials (CRM) Act (regulation)
 - Agreement between Council and EP in November, awaiting final adoption
 - Few direct mentions of energy storage or batteries => but massive impact on their supply chain
 - Sets a list of strategic (SRM) and CRMs:
 - Art. 3 and 4: Annex I and II: Bauxite, Lithium, Cobalt, Copper, Nickel, etc.
 - Targets for local extraction, processing and recycling of SRMs
 - Art.4a: by 2030: 10% of extraction, 40% of processing and 25% recycling in the EU + no single supply country accounting for more than 65%
 - Art. 5: The EC can recognise as strategic projects those that would make a meaningful contribution and would be implemented “sustainably”. May also apply to projects outside the EU
 - Art. 9: Strategic projects have a priority status, they shall be considered as of public interest or serving public health and safety, and may be considered as having an overriding public interest
 - Art. 10: Permit granting max 27 months for strategic extraction projects and 15 months for processing or recycling

Directives and regulations still in negotiation

- Electricity market design reform: a regulation amending the 2019 Directive and Regulation on the electricity market
 - Agreement before end of year?
 - In general, new rules for PPA and CfDs, which will impact storage
 - Amendments to 2019 Directive:
 - Art. 7(a): TSOs can procure a new peak shaving product
 - Art. 31(3): DSOs can offer flexible energy storage connection in congested areas
- Amendments to 2019 Regulation:
 - Art. 2(80) defines “Flexibility”: *the ability of an electricity system to adjust to the variability of generation and consumption patterns and grid availability, across relevant market timeframes*
 - Art. 8(3) Nominated electricity market operators (NEMOs) *shall provide products for trading in day-ahead and intraday markets with minimum bid sizes of 100kW or less to allow for the effective participation of demand-side response, and energy storage => from 500kW previously*

Directives and regulations still in negotiation

- Electricity market design reform
 - Amendments to 2019 Regulation:
 - Art. 19(e)(1) MSs using a capacity mechanism shall consider promoting the participation of non-fossil flexibility such as demand side response and storage by introducing additional criteria or features in the design of the capacity mechanism
 - Where insufficient to achieve identified flexibility needs, MSs may apply flexibility support schemes consisting of payments for the available capacity
 - This specific support scheme can also directly apply without capacity mechanism
 - Art. 50(4) New notion of flexible energy storage connection in congested areas that TSOs can offer

Directives and regulations still in negotiation

- New network code + revision of previous ones
 - Proposal for a new demand response network code by ENTSO-E + EU DSO entity submitted to public consultation in Oct-Nov 2023.
 - Adopted by end of 2024?
 - Will organise the detail of flexibility markets, detailed role of local market operator, etc.
 - Will detail the rules to allow an SO to develop, own and operate energy storage (exception in the 2019 E-Directive) and to share the ownership and operation of a storage facility
 - Ongoing revision process for 2 network codes
 - Network Code on Requirements for Grid Connection of Generators (RfG NC) + Network Code on Demand Connection (DC NC)
 - Public consultation over summer of 2023
 - Current versions barely mention energy storage and with focus on PHS.

Directives and regulations still in negotiation

- Energy Performance of Buildings Directive (EPBD) revision
 - In trilogue
 - Few mentions of energy storage, mostly via EVs and recharging points
 - Art. 20: *MSs shall lay down requirements to ensure that from 2025, new residential buildings and residential buildings undergoing major renovations are equipped with: (b) effective control functionalities to ensure optimum generation, distribution, storage and use of energy.*
 - Art. 12: New residential and non-residential buildings (or undergoing major renovation) with more than 3 or 5 parking spaces shall have recharging points that are capable of smart charging and, where appropriate, bidirectional charging

Directives and regulations still in negotiation

- Energy taxation directive revision
 - In negotiations at Council
 - Art. 22 proposes to consider electricity storage facilities as “redistributors” of electricity, to avoid double taxation

Main takeaways

- Since adoption of 2019 Electricity market directive:
 - A significant broadening and deepening of the regulation of energy storage
 - From a scope on definition, ownership and operation rules...
 - ... To the integration into many other legal texts, either:
 - Directly, as energy storage or batteries
 - Or indirectly, as flexibility or demand-response
 - In sectors of electricity generation, transportation and buildings
 - ... And to the regulation of the whole life-cycle of batteries:
 - Extraction, processing and recycling of materials
 - Manufacturing of batteries, recycling of their wastes
- A lot will still change:
 - Negotiation and adoption of various texts (mostly for 2024)
 - Their application or transposition (peak period 2024-2027)



Thank you for your attention

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