Next-gen Climate & Energy (Q1 2025): Battery, fusion, and biofuels power through policy drag

Jayathi Tillakawardana and Akshana Fernando • April 11, 2025

This Insight covers activities related to seven SPEEDA Edge hubs: Alternative Energy; Carbon Management Software (CMS); Climate Risk Analytics (CRA); Carbon Capture, Utilization & Storage (CCUS); Energy Optimization & Management Software (EOMS); Conservation Tech; and Hydrogen Economy. As our focus is primarily on emerging technologies, more established climate and energy sectors such as traditional solar, wind, and hydropower have been excluded.

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Key takeaways

Regulations

- **The US made major rollbacks to environmental regulations,** including a second withdrawal from the Paris Agreement and executive orders halting grants for clean energy projects through the Inflation Reduction Act (IRA). The Trump administration aims to reshape the country's energy policy, prioritizing traditional energy sources over renewables and bolstering domestic fossil fuel industries. This included expanding offshore oil and gas drilling in the Gulf of Mexico and the Arctic, lifting restrictions on coal mining and exports, and pausing federal support for wind and solar projects.

- **The EU launches Competitiveness Compass, with a focus on deregulation.** The introduction of new regulations such as the Clean Industrial Deal and the Affordable Energy Action Plan builds on major climate policies the EU had previously committed to. Additionally, the **European Commission has reinforced its investment in hydrogen**, committing billions of euros to develop large-scale hydrogen infrastructure and cross-border research projects. Notable among these included 1) providing over EUR 400 million (~USD 432.9 million) to Austria and Lithuania to support electrolyzer and hydrogen development projects; 2) the EU and India establishing a joint research cooperation on waste-to-hydrogen technology; and 3) Austria launching Europe's first industrial hydrogen valley.

Funding

- **Funding rounds hit a record low, reflecting a "wait-and-see" stance among investors** amid a wave of policy shifts from the Trump administration. Startups raised USD 3.4 billion in Q1 (-41% QoQ and -58% YoY) centered around **battery energy storage, fusion, and biofuels** (90% of total funding). The most notable of which was Hydrostor's USD 1.76 billion federal loan commitment to develop its 500 MW Willow Rock Energy Storage Center in California (52% of total funding). However, **funding across other industries experienced a significant slowdown**, with traditionally strong sectors such as Hydrogen and CCUS hitting record lows. CMS and CRA saw a slight uptick in activity through investments in B2B carbon intelligence and short-term weather analytics.

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Product updates

- **Technology advancements intensified** with 62 product updates (vs. 25 in Q4 2024), with innovations across **fusion, long-duration energy storage, and green hydrogen** taking center stage**.** Fusion companies such as Thea Energy, Energy Singularity, nT-Tao, and Zap Energy made advancements in superconducting magnets, compact fusion reactors, and DOE-certified prototype devices, while BYD, Fluence, ESS, and Quidnet Energy aimed to grid resilience and energy independence through new energy storage systems.

- **Major players Air Products and BP withdrew hydrogen initiatives** due to economic challenges. Nikola also continued to face technical challenges, with fuel cell truck recalls. However, there were several notable advancements in hydrogen, such as Latent Drive piloting seawater electrolysis to produce hydrogen and Clyde Hydrogen demonstrating continuous hydrogen production using decoupled electrolysis.

Partnerships

- **An uptick in collaborations was led by energy storage, fusion, and biofuel** (97 partnerships in Q1 2025 vs. 71 in Q4 2024). Energy storage companies such as BYD Energy Storage, Cactos, and Energy Vault expanded their operations across Europe, the Middle East, Finland, and Australia. While fusion companies such as Focused Energy, Type One Energy, and Kyoto Fusioneering developed pilot plants and advanced safety monitoring systems. Collaboration was also seen across biofuels, geothermal, and hydrogen industries.

- **Activity across carbon management industries was mixed**, with notable **carbon dioxide removal (CDR)** deals signed by DAC companies such as Charm Industrial (Google), Climeworks (TikTok), and Eion (Frontier coalition). Meanwhile, **CCUS activity cooled to just 16 deals** following highs seen in 2024 (28 deals in Q4), despite continued activity in carbon removal and CO2 utilization areas.

M&A

- **M&A activity centered around renewables**, with renewable fuel companies such as Infinium and Gevo expanding their operations through acquisitions, energy storage companies Energy Vault and Northvolt buying and selling to manage asset portfolios, and investment firms such as Copenhagen Infrastructure Partners and Norges Bank Investment Management acquiring large-scale offshore wind projects. We observed nine M&A deals (same as in Q4 2024).

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Value chain

- **Investments focused on outbound logistics**, with notable capital inflows from energy storage manufacturers, including Hydrostor's USD 1.76 billion conditional loan commitment and esVolta's USD 243 million preferred equity financing. Collaborations in the sector were led by BYD Energy Storage, Energy Vault, Fluence, and ESS, with a focus on developing new battery storage projects, expanding operations, and delivering to customers.

- **R&D investments were dominated by fusion startups**, including Helion Energy's USD 425 million funding round, while R&D-related product advancements and collaborations included Energy Singularity's development of a record-breaking 21.7T superconducting magnet and Thea Energy's development of the world's first superconducting planar coil magnet array.

Outlook

- **The US faces mixed prospects due to federal policy shifts under the Trump administration.** The first quarter under the new administration indicates a notable shift in what has been the status quo for renewable energy in the US. Grants for clean energy projects were non-existent, several notable energy policies of the Biden administration and the IRA grants were either under review or halted, and participation in international treaties such as the Paris Agreement was withdrawn. Meanwhile, restrictions on oil, coal, and LNG are not only being lifted, but activity in the industries is receiving federal encouragement to achieve "American energy dominance." This sets the scene for the administration's stance on energy over the next four years.

  However, while federal backing may have been pulled back, key climate hotspots such as fusion, energy storage, and biofuels have remained resilient, backed by VC investment, industry collaborations, innovation, and the global push for clean energy. It is unlikely that the absence of federal endorsement will significantly deter progress in these domains. Furthermore, President Donald Trump has voiced interest in nuclear and hydropower, potentially paving the way for advancements in nuclear fusion, clean nuclear fission, and next-gen hydropower technologies. Complementary solutions such as carbon capture also present viable pathways for mitigating emissions from high-intensity sectors such as cement and steel production.

- **President Trump's tariffs are likely to send shockwaves through the climate tech supply chain,** with significant levies on imports from Southeast Asia, East Asia, and the EU. The US tariff regime starts with a baseline 10% tariff on almost all imports, and imposes "reciprocal tariffs" of up to 50% on countries with large trade surpluses or protectionist barriers. This has far-reaching implications for clean energy sectors.

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  - **Battery energy storage:** Over 69% of grid-scale lithium-ion cells deployed in the US come from China (64.5% tariff on grid-scale batteries)

  - **Nuclear fuel:** The US imports over 90% of its uranium supply, with Canada supplying 27% (10% tariff on Canadian imports)

  - **Green hydrogen:** Electrolysers and parts are mainly imported from Germany, Japan, and South Korea (20%–32% tariffs)

  - **CCUS:** Carbon capture and storage (CCS) equipment (compressors, piping, valves) is mainly imported from the EU and Asia (25%–30% tariffs).

- **Nuclear energy continued to demonstrate a strong future.** Nuclear fusion saw accelerated progress toward commercial viability, with companies like Thea Energy, Energy Singularity, and Helican Fusion achieving industry firsts this quarter, and Commonwealth Fusion Systems staying on track to build the world's first commercial fusion power plant in the 2030s.

- **Additionally, modular nuclear fission, in the form of small modular reactors (SMRs), is gaining traction**. Capable of generating up to 300 MW of electricity on average, SMRs offer a carbon-free energy source that is regarded as safer than conventional nuclear reactors, with significantly reduced risk of radiation leakage. These reactors are also considerably more cost-effective, quicker to deploy, and modular in design, making them an attractive option for powering data centers and other infrastructure-intensive applications. Most notably, in October 2024, Google signed the world's first corporate agreement to purchase nuclear energy from multiple SMRs to be developed by Kairos Power. Several other SMR companies, including X-Energy, Seaborg Technologies, NuScale Power, and Aalo Atomics, are also gearing toward commercialization.

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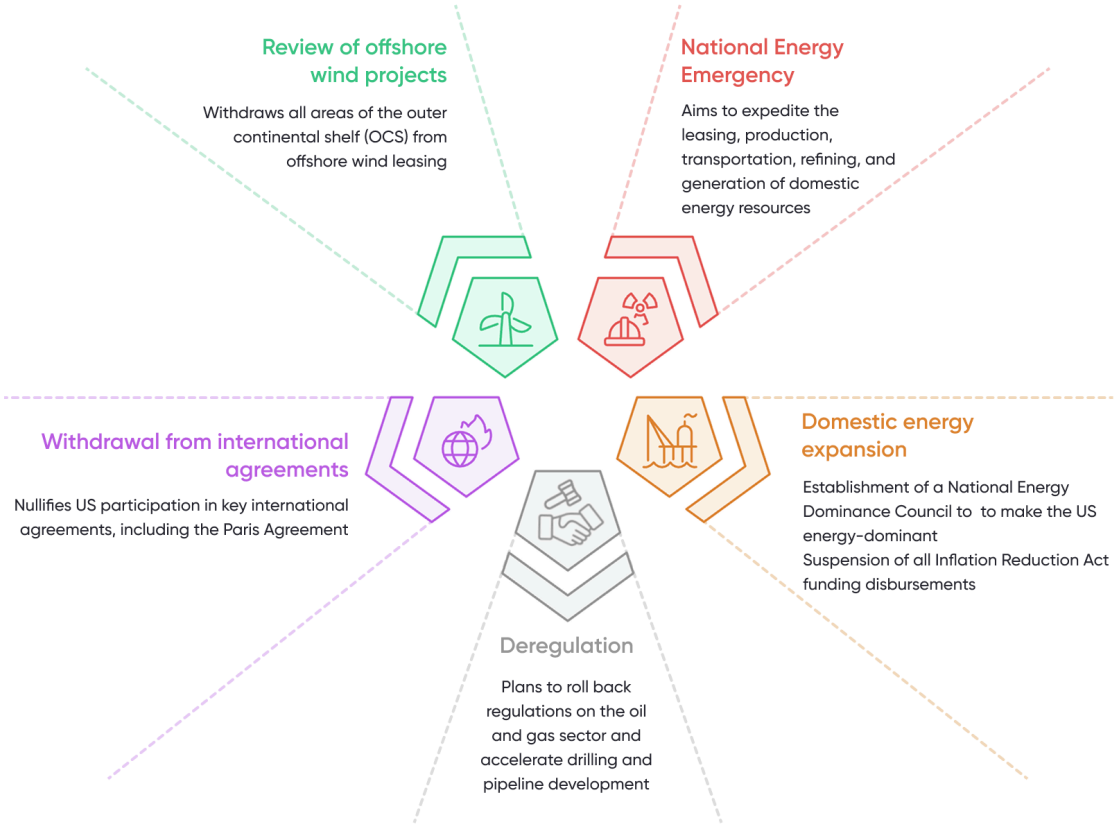
Regulations: US scales back clean energy focus, doubles down on fossil fuels

Analyst Take: The Trump administration made significant rollbacks of environmental regulations, with a renewed focus on fossil fuel development, deregulation, and reduced support for renewable energy—most notably marked by a second withdrawal from the Paris Agreement and executive orders halting disbursements from the Inflation Reduction Act (IRA) and Infrastructure Investment and Jobs Act (IIJA), delaying billions of dollars in clean energy projects. This stands in contrast to the efforts under President Biden, whose administration set ambitious national climate goals, including reducing greenhouse gas emissions by 50% to 52% below 2005 levels by 2030 and achieving a net-zero emissions economy by 2050. The current administration's actions reflect a broader agenda to reshape US energy policy by emphasizing traditional energy sources over renewables and bolstering domestic fossil fuel industries. In line with this, several major energy companies such as BP, Shell, and Equinor are already scaling back investment in renewable energy projects and shifting focus back to oil and gas production.

Energy policies introduced by the Trump Administration (Q1 2025)



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The US rapidly reorganized its climate policy, with a focus on conventional energy sources

- The Trump administration introduced several energy-related policies aimed at prioritizing fossil fuel development and reversing climate-focused regulations set by the Biden administration. Key measures included expanding offshore oil and gas drilling in the Gulf of Mexico and the Arctic, lifting restrictions on coal mining and exports, and pausing federal support for renewable energy projects such as wind and solar.

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Key energy-related legislation introduced by the Trump administration in Q1 2025

Directive	Announcement date	Summary
National energy emergency	January 2025	• Highlights the high energy costs and an unreliable energy grid in the US as threats to national security and economic prosperity • The order directs federal agencies to identify and use lawful authorities to expedite the leasing, production, transportation, refining, and generation of domestic energy resources, providing a positive outlook for traditional energy industries such as oil, natural gas, and critical minerals while creating uncertainty for renewable energy
Unleashing American energy	January 2025	• Suspended all Inflation Reduction Act funding disbursements, including those for clean energy projects that were previously green-lit by President Biden • These projects will now be subject to a review process • The order also aimed to roll back regulations on the oil and gas sector and accelerate drilling and pipeline development
Putting America first in international environmental agreements	January 2025	• Prioritizes domestic economic interests over global environmental commitments and nullifies US participation in key international agreements, including the Paris Agreement (2015) • This makes the US one of only four countries, alongside Iran, Libya, and Yemen, not party to the agreement
Temporary withdrawal of all areas on the outer continental shelf from offshore wind leasing and review of the federal government's leasing and permitting practices for wind projects	January 2025	• Temporarily withdraws all areas of the outer continental shelf (OCS) from offshore wind leasing and will remain in effect until the memorandum is revoked • The withdrawal does not affect existing wind energy leases. However, the Secretary of the Interior is directed to review these leases and consider terminating or amending them based on ecological, economic, and environmental necessity • Aims to review federal leasing and permitting practices for wind projects, citing concerns about marine life and energy costs
Establishing the National Energy Dominance Council	January 2025	• The National Energy Dominance Council aims to make the US energy-dominant by expanding all forms of reliable and affordable energy production. This includes traditional energy

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		sources like crude oil, natural gas, coal, uranium, and biofuels, as well as critical minerals and renewable energy sources like geothermal and hydroelectric power
Unleashing Alaska's extraordinary resource potential	January 2025	Lifts restrictions on oil and gas production in Alaska, including areas like the Arctic National Wildlife Refuge, and accelerates the development of Alaska's LNG export potential
EPA deregulatory action	March 2025	The Environmental Protection Agency (EPA) weakened emissions standards for power plants, vehicles, and industrial facilities, undermining the US' ability to meet its climate targets

Source: SPEEDA Edge

- Additionally, in March 2025, US Secretary of Energy Chris Wright highlighted the Trump administration's plan to provide "affordable, reliable, and secure American energy." This plan included identifying wind and solar energy as unreliable, costly, and unrealistic replacements for natural gas, promoting liquefied natural gas (LNG) projects, and focusing on nuclear fission and fusion as energy sources.

The European Commission (EC) launched the EU Competitiveness Compass

- In January 2025, the EC introduced the "EU Competitiveness Compass," a strategic framework to enhance the region's global competitiveness while advancing decarbonization goals.

- This initiative integrates several key legislative components, including the Clean Industrial Deal, Affordable Energy Action Plan, Industrial Decarbonisation Accelerator Act, and Simplification Omnibus Package.

Key sustainability-related policies introduced under the EU Competitiveness Compass

Policy	Details	Status
Clean Industrial Deal	The Clean Industrial Deal outlines the EU's plan to turn decarbonization into a driver of growth for European industries with particular focus on **energy-intensive industries,** such as steel, metals, and chemicals, as well as **the clean tech sector** to boost future competitiveness. Focus areas included: 1) **Affordable Energy Action Plan** to lower energy bills for industries, businesses, and households 2) **Boosting demand for clean products** through the Industrial Decarbonization Accelerator Act and reviewing the Public Procurement Framework	• Introduced on February 26, 2025 • A draft State Aid Framework (CISAF) supporting the deal was launched for public consultation in March 2025, aiming to streamline state aid measures for renewable energy and industrial decarbonization

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	3) **Financing the clean transition** by mobilizing over EUR 100 billion (~USD 110 billion) to support EU-made clean manufacturing 4) **Circularity and access to materials** through creating an EU Critical Raw Material Center to jointly purchase raw materials and adopting a Circular Economy Act 5) **Act on a global scale** by launching clean trade and investment partnerships to diversify supply chains and forge mutually beneficial deals. This includes simplifying and strengthening the Carbon Border Adjustment Mechanism 6) **Develop relevant skills and quality jobs** by establishing a Union of Skills that invests in workers, develops skills, and creates jobs	• The Commission plans to adopt the framework in June 2025
Affordable Energy Action Plan	The Affordable Energy Action Plan sets out short-term measures to lower energy costs for citizens, businesses, industry, and communities across the EU; complete the energy union; attract investments; and be better prepared for potential energy crises. This includes: ● Lowering energy costs to provide immediate relief to consumers ● Supporting the development of renewable energy infrastructure ● Being better prepared for potential crises by updating the EU energy security framework to address potential threats such as cyberattacks or extreme weather events	The action plan was introduced alongside the Clean Industrial Deal in February 2025
Industrial Decarbonisation Accelerator Act	The Industrial Decarbonisation Accelerator Act will increase demand for EU-made clean products and will introduce a “made in Europe” criteria in public and private procurements	• The act was introduced alongside the Clean Industrial Deal in February 2025 • It is scheduled for adoption in Q4 2025
Simplification Omnibus Package	The Simplification Omnibus Package consists of two legislative proposals aimed at simplifying sustainability regulations in the EU. This aims to reduce reporting burdens by 25% for large companies and 35% for SMEs The "Stop-the-Clock" Directive focuses on delaying the implementation of sustainability reporting: ● **CSRD (Corporate Sustainability Reporting Directive):** Postpones reporting obligations for companies in "wave 2" (medium-sized public interest entities) and "wave 3" (smaller entities) by two years (from 2026 and 2027 to 2028 and 2029) ● **CSDDD (Corporate Sustainability Due Diligence Directive):** Delays its transposition deadline and first application by one year, shifting the start to 2028	• Introduced by the EC on February 26, 2025 • **Stop-the-clock Directive:** Adopted by the European Parliament on April 3, 2025, after approval by the Council on March 26, 2025; formal approval by the Council expected soon • The **second**

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	The Substantive Simplification Directive introduces more significant changes to the CSRD, CSDDD, EU Taxonomy, and CBAM regulations. ● Reduces the number of companies in scope by narrowing it to large undertakings with over 1,000 employees and specific financial thresholds, cutting ~80% of companies currently covered ● Limits due diligence obligations to Tier 1 suppliers unless there is "plausible information" about risks further down the supply chain ● Exempts smaller firms (fewer than 1,000 employees or turnover below EUR 450 million/USD 493 million) from mandatory reporting ● Exempts small importers from Carbon Border Adjustment Mechanism (CBAM) obligations by introducing a new CBAM cumulative annual threshold of 50 tonnes (~55.1 tons) net mass per importer	**proposal** is still under discussion and will follow the ordinary legislative process, including negotiations between the European Parliament, Council, and Commission

Hydrogen production in the EU was buoyed with funding, supportive legislation, research initiatives, and new projects

- **The EU funded the development of hydrogen infrastructure and cross-border research projects**
    - In March 2025, the EC approved state aid funding of EUR 400 million (~USD 432.9 million) for Austria and EUR 36 million (~USD 38.9 million) for Lithuania **to support electrolyser and hydrogen development project**s. The funding, part of the European Hydrogen Bank's auction, aims to support the production of 112,000 tons of renewable hydrogen in Austria and 13,000 tons in Lithuania.
    - During the same month, the **EU and India reported plans to establish a joint research cooperation on waste-to-hydrogen technology**, with an estimated budget of EUR 60 million (~USD 65.8 million) from Horizon Europe and matching Indian contributions. The collaboration will focus on developing more efficient technologies for producing hydrogen from biogenic wastes and exploring hydrogen-related safety standards.
    - Additionally, the EC approved Germany's EUR 5 billion (~USD 5.4 billion) **Contracts for Difference (CfD) scheme to support industrial decarbonization through hydrogen, carbon capture, and electrification**. The Climate Protection Contracts will offer 15-year two-way carbon CfDs to help sectors like cement, chemical, and steel production transition to cleaner energy sources.
- **Europe accelerated hydrogen operations with Austria's industrial valley, Germany's H2Global auctions, and core network expansion**

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- In January 2025, Austria launched Europe's first industrial hydrogen valley across the states of Styria, Upper Austria, and Carinthia. This has a EUR 578 million (~USD 1.01 billion) investment planned by 2030, including EUR 20 million (~USD 34.9 million) in confirmed EU funding. With 48 partners and 17 projects, the initiative is set to produce over 10,000 tons of green hydrogen annually across the three states, with the goal of meeting a demand of 13,000 tons by 2028. Integrated with the "SoutH2Corridor" hydrogen pipeline, the valley will connect to a 4,000 km network linking North Africa to Germany through Italy and Austria.

- In February 2025, H2Global, a German-initiated funding mechanism designed to accelerate the development of a global market for green hydrogen, **launched its second green hydrogen import auction worth EUR 2.5 billion** (~USD 2.6 billion), with potential to increase to EUR 3 billion (~USD 3.2 billion). H2Global establishes long-term purchase agreements for green hydrogen and derivatives like ammonia and methanol, buying at the lowest prices and selling to the highest European bidders, with government subsidies covering the price difference.

- In March 2025, the German Government made its first loan payment of EUR 172 million (~USD 186 million) toward the **construction of a 9,040 km hydrogen core network** through H2 Amortisationskonto GmbH.The project will combine repurposed gas pipelines and new hydrogen lines to connect production sites, import locations, and industrial hubs, with the first sections scheduled to launch next year.

- During the same month, Germany's Federal Network Agency (BNetzA) **established a EUR 25/kWh/h annual fixed fee** for accessing the hydrogen core network, which will remain in effect until 2055 with reviews every three years.

- **The UK removed the climate change levy for green hydrogen producers while CertifHy advanced EU certification standards**

  - In March 2025, the UK Government announced plans to **remove the Climate Change Levy (CCL) costs** from electricity used in electrolytic hydrogen production, currently charged at GBP 0.00775/kWh (~USD 0.0100/kWh), to lower production costs.

  - The Government is considering three options to implement this change: 1) adding hydrogen electrolysis to the non-fuel use exemption, 2) relieving input fuel to hydrogen production, or 3) making hydrogen supply a taxable commodity.

  - During the same month, CertifHy, a European initiative aimed at certifying low-carbon and renewable hydrogen, authorized Vinçotte, TÜV Rheinland, and TÜV SÜD as **the first certification bodies to conduct audits** under the EU RFNBO (Renewable Fuels of Non-Biological Origin) Voluntary Scheme. The certification bodies will verify hydrogen producers seeking to sell their hydrogen as renewable fuels in the EU.

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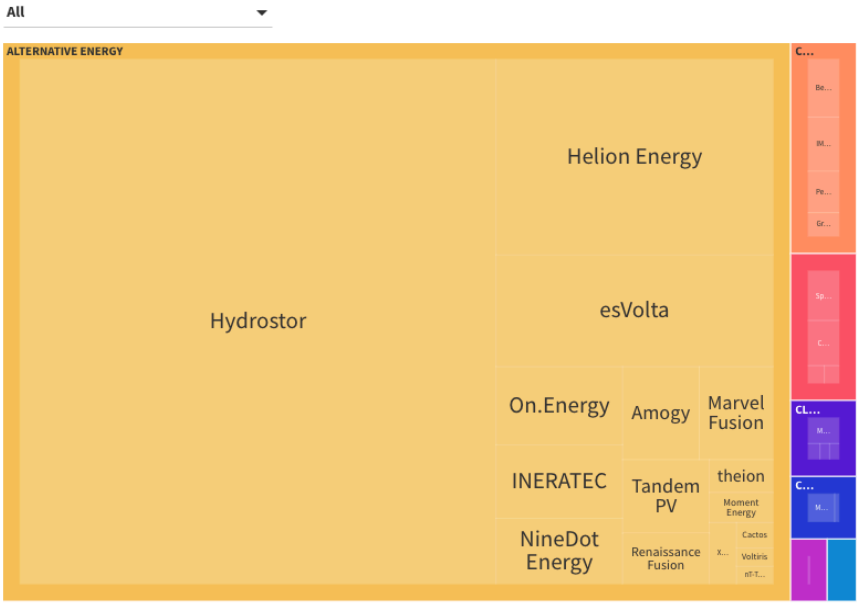
Funding: Battery, fusion, and biofuel investments steady, as climate investors pause amid policy shifts

Analyst Take: Next-gen Climate & Energy Funding saw a subdued start to 2025, with Q1 raising just USD 3.4 billion, a significant decline from USD 8.1 billion in Q1 2024. This downturn reflects a "wait-and-see" stance among investors, as the Trump administration navigates a wave of policy shifts. The number of funding rounds hit a record low, with only 36 deals compared with an average of 70 over the past four years. The quarter was marked by the absence of renewable energy grants and a shift toward legislation supporting traditional energy sectors, while previously approved renewable energy funding under the Inflation Reduction Act is now under review. Despite this, Hydrostor secured the largest round of the quarter, a USD 1.76 billion federal loan commitment from the US Department of Energy, accounting for 52% of total funding.

Investments centered around **battery energy storage, fusion, and biofuels**, with Alternative Energy accounting for 92% of total funding. In contrast, **funding across other industries experienced a significant slowdown**, with traditionally strong sectors such as Hydrogen and CCUS hitting record lows. However, **CMS and CRA saw a slight uptick in activity**, primarily driven by investments in B2B carbon intelligence companies and short-term weather analytics companies.

Next-gen Climate & Energy (Q1 2025): Funding summary



Source: Compiled by SPEEDA Edge • Funding data powered by Crunchbase • Designed by Flourish
Note: Includes only the funding rounds in which the amount was disclosed

- **Next-gen Climate & Energy startups raised USD 3.4 billion in Q1 2025.** This was a comparatively subdued start to the year compared with the USD 8.1 billion raised in Q1

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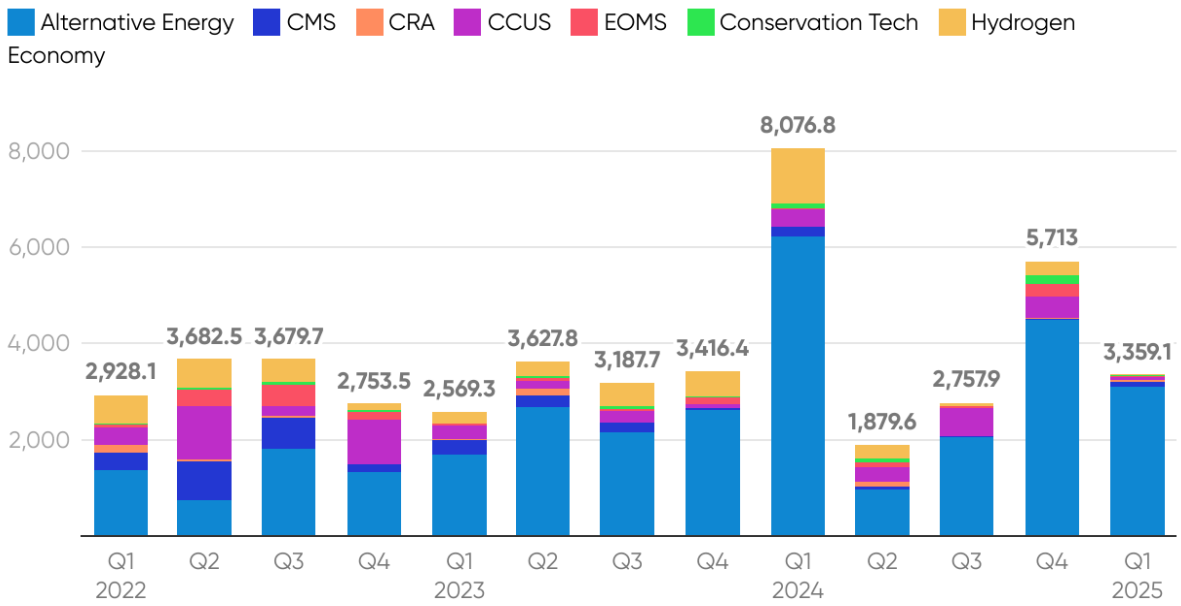
2024. This was also a significant drop (-41% QoQ) from the previous quarter and was just under the four-year quarterly average of USD 3.5 billion.

- **The number of funding rounds was the lowest seen in four years** (36 vs. 70 on average for the past four years). In particular, CCUS, EOMS, and Hydrogen Economy recorded the fewest rounds in the last four years.

Next-gen Climate & Energy: Quarterly funding by industry

(USD million)



Note: Includes only the funding rounds in which the amount was disclosed

Source: SPEEDA Edge research • Funding data powered by Crunchbase

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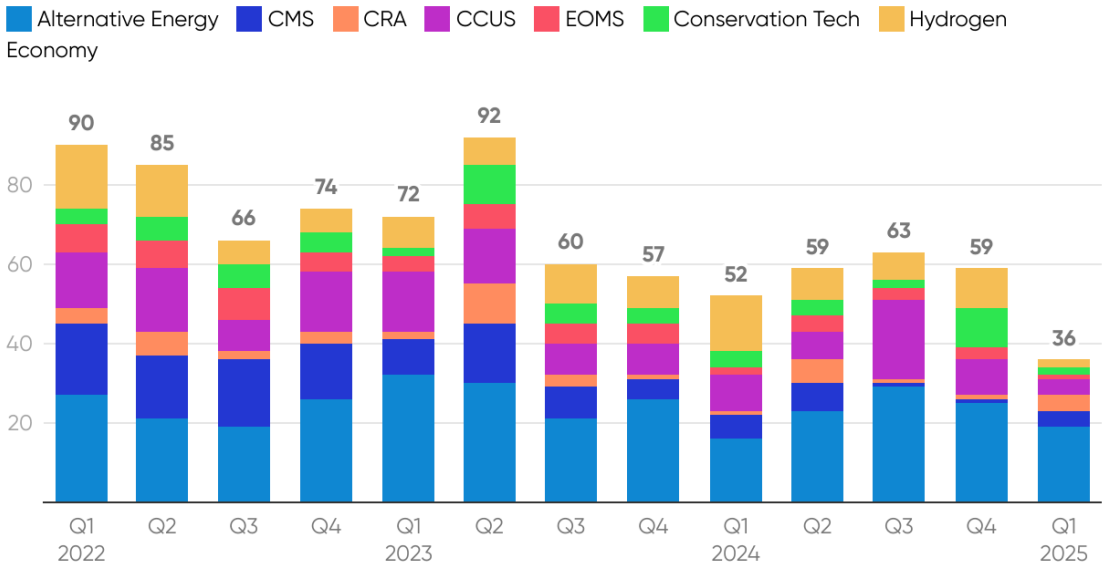
Next-gen Climate & Energy: Quarterly funding rounds by industry

(Number of funding rounds)



Note: Includes only the funding rounds in which the amount was disclosed

Source: SPEEDA Edge research • Funding data powered by Crunchbase

- **Similar to 2024, funding from grants, debt financing, and other sources (collectively referred to as "other") accounted for the majority of total funding** (USD 2.4 billion or 72% of total funding). Over 80% of this came from debt financing rounds, totaling nearly USD 2 billion across five rounds (59% of total funding). Following the change in US administration, there were only two grants awarded across the next-gen climate industries this quarter, both from non-US sources, compared with 14 grants awarded in Q4 2024.

- **There were four mega deals (rounds raising USD 100 million or more) this quarter, all stemming from Alternative Energy**

    - Most notably, long-duration energy storage startup, Hydrostor, secured a conditional commitment for a loan guarantee of up to USD 1.76 billion (52% of total funding) with the US Department of Energy's (DOE) Clean Energy Financing Program to support the development of its 500 MW Willow Rock Energy Storage Center in California. The company also secured USD 150 million convertible note financing to accelerate the deployment of Advanced Compressed Air Energy Storage (A-CAES) projects across Canada and global markets.

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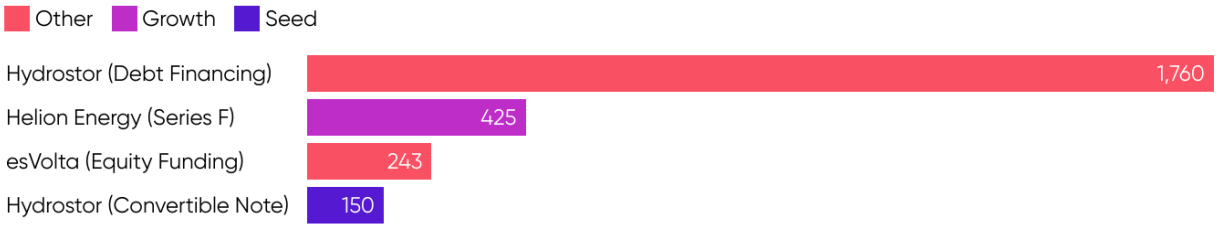
- In addition, Helion Energy, a fusion power company, raised USD 425 million in Series F funding (13% of total funding) to expand its in-house US manufacturing capabilities for capacitors, magnets, and semiconductors to support the development of its fusion power plant.

- Meanwhile, esVolta, a US energy storage developer, secured USD 243 million (7% of total funding) in preferred equity funding to develop three utility-scale battery projects in Texas.

Next-gen Climate & Energy mega deals in Q1 2025

(USD million)



Note: Includes only the rounds in which the amount was disclosed

Source: SPEEDA Edge research • Funding data powered by Crunchbase

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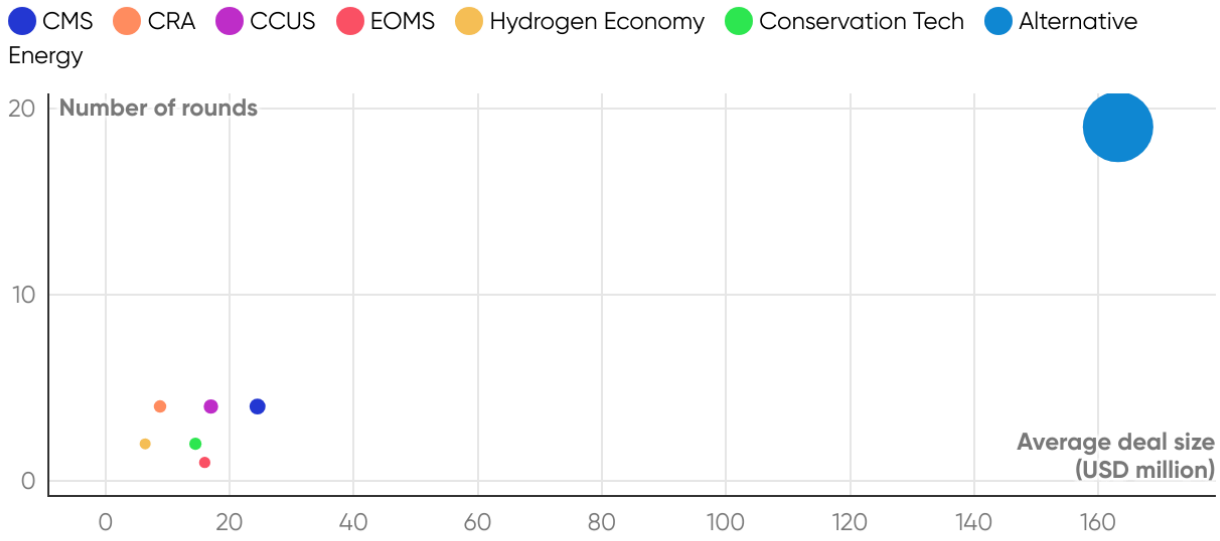
Total funding vs. number of rounds vs. average deal size (Q1 2025)



Note: The bubble sizes represent the total funding raised

Source: Funding data powered by Crunchbase • SPEEDA Edge research

- **Alternative energy accounted for 92% of the total funding, driven by investments in long-duration battery storage, fusion, and biofuels**
    - The Alternative Energy industry raised USD 3.1 billion (-31% QoQ and -50% YoY), continuing to account for the majority of next-gen energy funding and **showing above-average inflows this quarter** (USD 2.3 billion quarterly average over the past four years).
    - **Over 75% of this (USD 2.4 billion) was raised by battery energy storage companies** across nine funding rounds, primarily to facilitate the development of new projects (+71% QoQ). This was led by Hydrosor, which raised USD 1.96 billion in federal loans and convertible note financing to develop its 500 MW Willow Rock Energy Storage Center and accelerate the deployment of Advanced Compressed Air Energy Storage (A-CAES) projects globally. Other notable raises included esVolta's equity funding (USD 243 million) and On.Energy's credit facility (USD 77.6 million)
    - **Investment in fusion energy held strong this quarter, following record levels of capital inflows in 2024**. Fusion startups raised USD 518.5 million (~17% of total funding) across four funding rounds to support their commercialization plans, including building new demonstrators and expanding

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in-house component development. Most notable was Helion Energy's USD 425 million in Series F funding round, the second largest raised by a fusion energy startup after Pacific Fusion's landmark USD 900 million Series A financing round in Q4 2024.

- **Investment in biofuels was rather subdued, with companies raising just USD 129 million** (~4.2% of total funding) across three funding rounds. This follows companies raising over USD 1.6 billion in Q4 2024 to expand manufacturing capacity. Notably, INERATEC, a developer of synthetic fuels, secured a total of EUR 70 million (~USD 72.8 million) consisting of venture debt and a conditional grant to develop its modular e-fuel plant in Germany.

Key funding rounds: Alternative Energy

Tab 1: Long-duration batteries

Company	Amount (USD million)	Month	Type	Purpose
Hydrostor	1,760.0	January 2025	Debt financing	To support the Willow Rock Energy Storage Center, a 500 MW advanced compressed air energy storage project in Rosamond, California. Construction is scheduled to begin in 2025, with the project expected to be commissioned by 2030
esVolta	243.0	January 2025	Funding round	To develop three utility-scale battery projects known as Anole, Desert Willow, and Burksol in Texas. The company is targeting operational readiness by mid-2025
Hydrostor	150.0	February 2025	Convertible note	To accelerate the deployment of A-CAES projects across Canada and global markets
On.Energy	77.6	January 2025	Debt financing	To build a 160 MWh Palo de Agua battery storage portfolio across Texas
NineDot Energy	65.0	January 2025	Debt financing	To acquire nearly 100 MW of batteries for up to 20 battery storage projects in the New York City metro area
Hydrostor	50.0	February 2025	Debt financing	To build a 160 MWh Palo de Agua battery storage portfolio across Texas
Theion	16.4	March 2025	Series A	To develop low-carbon footprint batteries that provide more power and energy storage than standard lithium-ion batteries
Moment Energy	15.0	January 2025	Series A	To support the construction of the world's first gigafactory for repurposing EV batteries in the US, expand Vancouver facilities, double its

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				team size, and scale manufacturing to gigawatt-hour capacity
Cactos	7.3	January 2025	Venture round	To expand the company's battery energy storage portfolio, accelerate technology development, and support global expansion plans, with initial focus on Sweden and other Nordic markets

Tab 2: Fusion

Company	Amount (USD million)	Month	Type	Purpose
Helion Energy	425.0	January 2025	Series F	To expand US manufacturing capacity for capacitors, magnets, and semiconductors, facilitating the progress of constructing the first fusion power plant
Marvel Fusion	53.9	March 2025	Series B	To support the company's transition from R&D to industrial deployment, including the construction of a USD 150 million laser facility in partnership with Colorado State University
Renaissance Fusion	34.5	March 2025	Series A	To build a demonstrator to prove the basic components of its novel fusion reactor design, with plans to complete the demonstrator by the end of 2026
nT-Tao	5.0	March 2025	Grant	To develop a smaller, more compact fusion demonstrator (expected to be completed in two years), serving as a step toward the company's next full-scale prototype

Tab 3: Biofuels

Company	Amount (USD million)	Month	Type	Purpose
Amogy	56.0	January 2025	Venture round	To expedite the commercialization of technology in the maritime shipping and stationary power generation industries, alongside efforts to enhance research, development, and manufacturing capabilities
INERATEC	41.8	January 2025	Debt financing	To develop its modular e-fuel plant in Germany, projected to become Europe's first large-scale e-fuel plant
INERATEC	31.3	January 2025	Grant	To develop its modular e-fuel plant in Germany, projected to become Europe's

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				first large-scale e-fuel plant

- **CCUS funding slowed to a record low following a two-year high in Q4 2024,** raising only USD 68.0 million (-85% QoQ and -82% YoY) across four funding rounds. These funds were raised by direct air capture (DAC) and carbon sequestration companies, most notably Spiritus' USD 30 million Series A funding round. Companies primarily focused on advancing their manufacturing capabilities and expanding operations.

Key funding rounds: CCUS

Company	Amount (USD million)	Month	Type	Purpose
Spiritus	30.0	March 2025	Series A	To accelerate the development of three major facilities: a 1,000-ton pilot facility in New Mexico, a 2-megaton Orchard One project in Wyoming, and expansion of deployments in Saudi Arabia through partnership with Aramco
Capture6	27.5	March 2025	Series A	To advance projects that convert water treatment brine into carbon removal solutions while recovering fresh water
Carbon Reform	5.5	March 2025	Seed round	To increase manufacturing capacity and accelerate the commercialization of its Carbon Capsule technology
44.01	5.0	February 2025	Series A	To further develop and commercialize the company's technology, with plans to scale up carbon mineralization deployment in the UAE following a successful pilot

- **Hydrogen funding also slumped to a record low following a strong close in 2024.** After an uptick in investment to USD 125.6 million in Q4 2024, funding across the hydrogen industry fell to USD 12.8 million in Q1 2025 (-96% QoQ and -99% YoY). This was raised by clean hydrogen companies Advanced Ionics' USD 6.7 million and Elcogen's EUR 5 million (~USD 6.1 million) VC funding rounds. Clean hydrogen startups were key to hydrogen industry funding in 2024, raising over USD 1.8 billion, supported by federally funded infrastructure development and legislation in the US and EU.

- **Conservation Tech funding dipped following its strongest quarter in two years in Q4 2024 (USD 172.9 million).** Post-wildfire reforestation company Mast Reforestation's USD 25 million Series B funding round and biodiversity measurement platform, Nala Earth's EUR 3.8 million (USD 4.1 million) seed funding raised a total of USD 28.9 million (-83% QoQ and -74% YoY) over the quarter.

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- **CMS funding improved following a quiet 2024, raising USD 98.0 million** (+292% QoQ and -48% YoY) across four funding rounds. This followed the industry's lowest capital inflows in over four years in 2024, with only one funding round each in Q3 and Q4. Funding was primarily raised by B2B carbon intelligence startups, with carbon rating agency BeZero raising USD 32 million in Series C funding and blockchain-based carbon marketplace IMPT.io raising USD 30 million.

Key funding rounds: CMS

Company	Amount (USD million)	Month	Type	Purpose
BeZero Carbon	30.0	January 2025	Series C	To expand the company's carbon market ratings coverage, enhance its AI automation capabilities, and invest in its team of climate and data scientists to scale its ratings, data services, and risk analytics solution
IMPT.io	30.0	March 2025	Funding round	To support marketing efforts for user acquisition, brand awareness, repeat purchases, and expansion of retail partnerships
Persefoni AI	23.0	March 2025	Series C	To expand its AI offerings, including smart emission factor matching capabilities and PersefoniGPT
Gravity	13.0	January 2025	Series A	To invest in product R&D, expand its energy efficiency marketplace, and grow its team in the US and EU to deliver the platform to new markets and help customers meet regulatory reporting requirements

- **CRA funding picked up following two subdued quarters in 2024**, with short-term weather analytic companies raising a total of USD 35.2 million (+449% QoQ and 30x YoY) across four funding rounds to accelerate the deployment of their solutions. Meteomatics' USD 22 million Series C funding round was the most notable. The company intended to use the funds to scale operations, expand business in the US, improve weather models and solutions including autonomous weather drones, and expand the company's verticalized industry weather solutions.

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Product updates: Innovations in fusion and energy storage amid hydrogen setbacks

Analyst Take: Fusion remained a hotspot for technological advancements. Companies such as Thea Energy, Energy Singularity, nT-Tao, and Zap Energy are advancing fusion technologies through innovations in superconducting magnets, compact fusion reactors, and DOE-certified prototype devices such as Zap's Century platform. First Light Fusion and Proxima Fusion are also refining the efficiency and scalability of fusion.

Long-duration energy storage (LDES) is also progressing rapidly, with innovations from BYD, Fluence, ESS, and Quidnet Energy improving grid resilience and energy independence. BYD's Battery-Box HVE system (a residential energy storage system) and Fluence's Smartstack platform (a flexible energy storage platform tailored for various grid applications) are setting new standards for modular storage solutions. Meanwhile, Europe is ramping up **SAF and e-fuel** production with projects from Envilive, LanzaJet, and Liquid Wind.

Green hydrogen production is advancing through innovative projects. Latent Drive is piloting seawater electrolysis to produce hydrogen at less than USD 2/kg, which is cost-effective compared with traditional green hydrogen (USD 3.3-7.7/kg). Clyde Hydrogen has also demonstrated continuous hydrogen production using decoupled electrolysis. However, setbacks emerge as Air Products and BP **withdraw from major hydrogen initiatives** due to economic challenges, while Nikola faces technical challenges, recalling its fuel cell trucks over safety concerns. Meanwhile, the **CCUS** industry continued to expand, albeit slowly compared with previous quarters, with Captura, NeoCarbon, Cemvita, and Avnos exploring new carbon capture and utilization solutions globally.

- **We observed 62 new product updates** (vs. 25 in Q4): Alternative Energy (31), Hydrogen Economy (16), CCUS (4), CRA (4), CMS (3), Conservation Tech (3), and EOMS (1).

Fusion energy advanced through experimental devices and tools

- Thea Energy demonstrated the **world's first superconduction planar coil magnet array**, advancing the development of compact stellarator fusion reactors. Energy Singularity developed the Jingtian, a high-temperature superconducting magnet, that achieved a **record 21.7 Tesla magnetic field strength,** shrinking fusion device size.

- nT-Tao launched the Modular Energy Generator Architecture (MEGA), a **pulsed power system** for high-energy fusion experiments, while Helican Fusion unveiled the GAs-driven Liquid metal OPeration (GALOP), a **liquid metal testing system** for evaluating plasma-facing materials and cooling solutions in fusion reactors. Commonwealth Fusion Systems installed the SPARC's **cryostat base**, the doughnut-shaped heart of the fusion reactor. Meanwhile, Zap Energy received DOE certification for its Century, a prototype fusion device unveiled in October 2024, validating its sheared-flow-stabilized Z-pinch fusion approach.

- First Light Fusion shifted its strategy from target-based inertial confinement fusion to **amplifier technology** to improve fusion reaction efficiency and scalability for higher yields. Proxima Fusion unveiled Stellaris, a **scalable stellarator-based power plant design**, and VMEC++, an

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open-source software tool for optimizing stellarator plasma configurations, to advance fusion research.

Stationary energy storage expanded to residential units and other use cases

- BYD Energy Storage launched the Battery-Box HVE, a **residential energy storage system** designed to increase home energy independence and reduce grid dependency. Fluence launched Smartstack, a flexible energy storage platform tailored for various grid applications. Meanwhile, ESS unveiled its upgraded Energy Center storage system with improved energy density to strengthen grid resilience and completed the delivery of eight units to a Florida utility.

- Plentitude, a subsidiary of Eni, opened the Guajillo battery storage facility in Texas, equipped with lithium iron phosphate (LFP) battery technology, and is expected to be operational by mid-2025. Quidnet Energy completed the demonstration and testing of a megawatt-hour geomechanical energy storage system, highlighting a novel alternative to conventional battery storage.

Europe accelerated SAF and e-fuel production plans

- Envilive began SAF production at its Gela biorefinery in Italy, using waste feedstocks such as used cooking oil and animal fats, to help meet almost a third of Europe's projected SAF demand for 2025. Enerkem's Ecoplanta, a waste-to-methanol plant in Spain, will process 400,000 tons of non-recyclable municipal waste annually. LanzaJet, in partnership with Sembcorp Utilities, plans to build a 90,000-ton SAF plant using its proprietary alcohol-to-jet technology.

- Meanwhile, INERATEC is advancing plans for an e-fuel plant in Frankfurt, positioned to become Europe's first large-scale commercial e-fuel plant. Blue Biofuels is planning a 3 million gallon plant in Florida, while Liquid Wind is set to begin construction on a 100,000-ton e-fuel plant in Sweden.

Major setbacks in hydrogen projects amid continued innovation

- **Several major companies have pulled out of hydrogen initiatives,** highlighting the continuing economic and technical hurdles in the sector. Air Products cancelled USD 3.1 billion worth of hydrogen projects in the US, while BP shelved its HyGreen plant in Teesside. On the mobility front, technical setbacks continue, with Nikola recalling 95 hydrogen fuel cell trucks due to potential leakage risks following its recent Chapter 11 bankruptcy filing.

- Latent Drive plans to trial SeaStack, the **world's first commercial direct seawater-to-hydrogen electrolyzer** stack to produce green hydrogen at less than USD 2/kg, eliminating desalination costs. Clyde Hydrogen demonstrated continuous hydrogen production using its decoupled electrolysis prototype. This system can operate on intermittent power, with plans for a fully integrated pilot system by late 2025.

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- Storegga submitted plans for the Speyside Hydrogen Facility in Scotland to produce 25 tons of green hydrogen per day. Lhyfe began construction on its fifth 5 MW green hydrogen plant in Northern France and launched a **digital product passport** system for full carbon traceability across its hydrogen supply chain. FuelCell Energy secured a USD 160 million contract to build a 7.4 MW **fuel cell plant** in Connecticut, US.

- Beyond Aero unveiled a **hydrogen-electric light jet concept** (BYA-1) with increased passenger capacity and 55% lower operating costs. Bosch Aviation converted a gasoline engine to run on hydrogen for light aircraft applications. ZeroAvia launched the SuperStack Flex, a modular fuel cell platform for aerospace, marine, and ground transportation, and received Federal Aviation Administration (FAA) certification for its 600 kW electric propulsion system.

- Daimler completed testing of a liquid hydrogen fuel cell truck in the Swiss Alps, and Keyou partnered with Komatsu to develop the **world's first hydrogen-powered dump truck** to reduce emissions by 50% by 2030.

CCUS industry expanded technologically and geographically despite headwinds

- Captura opened a pilot plant for direct ocean carbon capture in Hawaii, while NeoCarbon produced its first batch of concrete using captured CO2, showcasing multiple pathways for carbon removal and utilization.
- Cemvita's expansion into Brazil aligns with local biodiesel mandates, and Avnos' development of a DAC plant in New Jersey highlights a strategic push to tap into regional market opportunities.

CRA startups improved forecasting capabilities with high-resolution models and sustainable solutions

- Weather intelligence providers are advancing high-precision forecasting, with Meteomatics' US1k model offering one-kilometer resolution and Salient's GEM 1.0 offering 90-day ensemble forecasts with 200 probabilistic trajectories.
- Meteomatics also introduced the Meteoglider—a reusable, high-altitude radiosonde system, providing a sustainable alternative to traditional weather balloons.

Carbon accounting platforms stepped up with compliance, ratings, and emissions tracking

- Greenly launched a CBAM compliance platform to help EU importers navigate carbon tax regulations, offering AI-powered cost forecasting, automated reporting, and supplier management tools.
- Sylvera introduced ratings for biochar carbon removal projects, assessing effectiveness and permanence, amid growing demand from buyers such as Microsoft and Google.
- EcoVadis unveiled its Carbon Data Network to help companies track Scope 3 emissions and access primary carbon data from suppliers.

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Startup spotlight

Hydrostor	Commonwealth Fusion	ZeroAvia
		
Description: Develops utility-scale energy storage facilities using its proprietary adiabatic compressed air energy storage (A-CAES) technology and purpose-built underground storage caverns	**Description:** Focuses on commercializing fusion energy using revolutionary high temperature superconducting (HTS) magnets to build smaller and lower-cost tokamak fusion systems	**Description:** Developing hydrogen-based, zero-emission aviation solutions with an initial focus on 9–19 seat, 300-mile range fixed-wing aircraft for passenger, cargo, and agricultural transport. The company expects to launch its first commercial aircraft by 2025
Differentiator: First company to commercialize A-CAES technology	**Differentiator:** Spin-off of MIT building tokamak fusion systems using HTS magnets	**Differentiator:** One of the first movers in the hydrogen aviation space
Funding: Raised USD 200 million led by Canada Growth Fund (February 2025) and USD 1.76 billion loan guarantee from the US DOE (January 2025) to deploy A-CAES projects	**Funding:** Raised USD 15 million in grant funding from the US DOE to build its commercial fusion power plant (June 2024)	**Funding:** Raised USD 150 million in Series C round led by Airbus to develop hydrogen-electric engines for aviation (September 2024)
Industry: Alternative Energy (stationary energy storage)	**Industry:** Alternative Energy (renewables: Fusion)	**Industry:** Hydrogen Economy (hydrogen vehicles)
Product stage: Go-to-market	**Product stage:** Minimum viable product	**Product stage:** Go-to-market
Total Funding: USD 2.3 billion	**Total Funding:** USD 2.0 billion	**Total Funding:** USD 294 million
Why in spotlight: Raised the most funding in Q1 2025 (USD 1.96 billion) and received development approval for its Silver City Energy Storage Centre project in Broken Hill	**Why in spotlight:** Plans to build its first commercial fusion power plant, ARC in Virginia, in partnership with Dominion Energy Virginia	**Why in spotlight:** Received FAA certification in February 2025, with plans to launch its first commercial aircraft by 2025

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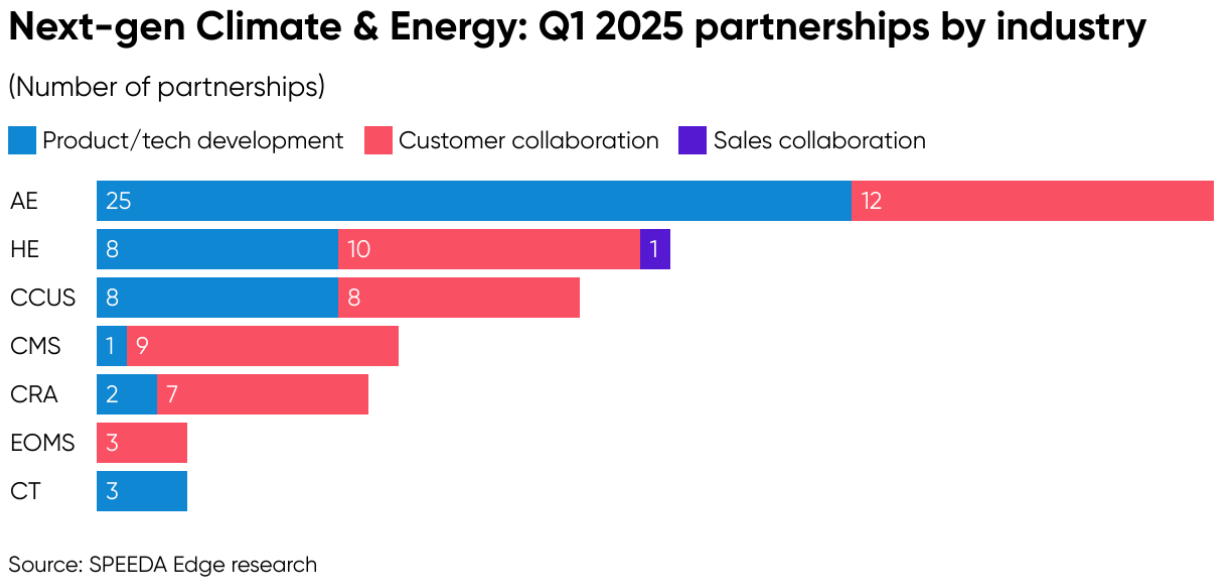
Partnerships: Battery, fusion, and biofuel collaborations took the spotlight; CCUS slows down

Analyst Take: Partnership activity this quarter reflected a similar trend to that seen in funding and product updates, with LDES, fusion, and biofuel collaborations taking center stage. **LDES** emerged as the most active sub-sector, driven by partnerships such as BYD Energy Storage's deals in Europe and the Middle East and Cactos' AI-powered battery facility with Rando Grid in Finland. Energy Vault expanded its footprint with new projects in Australia, while RheEnergise's collaboration with Anglesey Mining underlined the growing momentum around novel storage formats such as underground hydro.

Fusion also saw collaborative developments, with Focused Energy and Type One Energy pushing forward on pilot plants and supply chain resilience, and Kyoto Fusioneering and UKAEA collaborating on advanced safety monitoring systems. **Biofuel** partnerships also ramped up, with LanzaTech, LanzaJet, Anaergia, and Liquid Wind progressing plant development. Meanwhile, geothermal and industrial heat recovery players such as Sage Geosystems and Climeon secured key partners to scale up baseload solutions.

Hydrogen remained a steady presence, with partnerships spanning green hydrogen production, aviation applications, and infrastructure development. However, **CCUS** activity cooled to just 16 deals, down from Q4 highs (28), though notable efforts continued in carbon removal and CO2 repurposing for building materials and SAF production. In the **Carbon Management** space, Google partnered with Charm Industrial for biochar-based CDR, TikTok and Two Drifters backed Climeworks' DAC solutions, and Eion entered into a USD 33 million CDR deal with the Frontier coalition.

- We observed **97 partnerships** (vs. 71 in Q4). The Alternative Energy, Hydrogen, CCUS, CMS, and CRA hubs saw the most number of partnerships. Customer collaborations (49), product/tech development partnerships (47) were the most common, followed by sales collaborations (1).



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Alternative Energy partnerships focused on LDES, fusion, and biofuel

- Alternative Energy had the most partnerships (~40% of total partnerships) with LDES, fusion, and biofuel collaborations leading the way. Alternative Energy partnerships reached a record high of 38 activities (15 activities on average in 2024).

- LDES proved to be the most active subsector. Notable deals included Cactos' partnership with Rando Grid to launch an AI-powered battery facility in Finland and BYD Energy Storage's major agreements with Saudi Electricity Company and Greenvolt Group for BESS deployments. Energy Vault expanded its footprint with new purchase orders from ACEN Australia and SEC Victoria, while Fluence secured deployments with Cordelio Power and DTEK in Ukraine. In novel storage technologies, RheEnergise and Anglesey Mining partnered to explore **underground hydro energy storage**, showcasing the sector's growing diversification.

- In fusion, Focused Energy advanced its laser-driven fusion ambitions through collaborations aimed at fuel modeling and pilot plant deployment in Germany, targeting commercial-scale energy production. Type One Energy secured multiple partnerships to develop its **Infinity Two** pilot power plant and build a resilient fusion energy supply chain. Meanwhile, Kyoto Fusioneering and UKAEA are co-developing advanced tritium monitoring systems to **enhance the safety of future fusion operations**.

- LanzaTech, LanzaJet, Anaergia, and Liquid Wind are advancing biofuel and e-fuel facility development. Climeon scaled up HeatPower deployments for waste heat recovery, while Orcan Energy formed an industrial recovery partnership. In geothermal, Sage Geosystems teamed up with ABB on new projects, and Fervo Energy expanded its PPA with Clean Power Alliance to strengthen California's clean baseload portfolio.

Key partnerships: Alternative Energy

Table 1: Long-duration energy storage

Company	Partner	Description
Cactos	Rando Grid	Cactos, a Finnish energy storage company, partnered with Rando Grid, owned by JTel and Rando Ventures, to develop and operate an AI-powered battery storage facility in Kuhmoinen, Finland.
BYD Energy Storage	Saudi Electricity Company	BYD Energy Storage, a provider of energy storage solutions, partnered with Saudi Electricity Company for a 12.5 GWh grid-scale storage project, bringing their total collaboration to 15.1 GWh, including a previous 2.6 GWh project.

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BYD Energy Storage	Greenvolt Power	BYD Energy Storage signed an agreement with Greenvolt Power, a renewable energy developer, to design and operate battery energy storage systems (BESS) with a total capacity of 1.6 GWh across two locations in Poland.
Energy Vault	ACEN Australia	Energy Vault, a Swiss NYSE-listed gravity-based, long-duration energy storage company, partnered with ACEN Australia to construct a 200 MW/2 hour battery energy storage system (BESS) at ACEN's New England Solar project in New South Wales.
Energy Vault	SEC Victoria	Energy Vault partnered with the Victorian government-owned State Electricity Commission (SEC) to deliver and integrate a battery energy storage system at the SEC Renewable Energy Park in Horsham, Victoria.
Fluence	Cordelio Power	Fluence Energy, a provider of intelligent energy storage solutions, partnered with Cordelio Power, an independent renewable power producer, to supply 1 GWh of battery storage systems across three projects starting in 2026.
Fluence	DTEK	Fluence Energy partnered with DTEK, Ukraine's largest private energy company, to develop Ukraine's first large-scale battery-based energy storage portfolio with a EUR 140 million investment.
RheEnergise	Anglesey Mining	RheEnergise, an energy storage technology provider, signed an MoU with mining company Anglesey Mining to investigate the feasibility of implementing high-density hydro (HD Hydro) energy storage at the Parys Mountain Mine, UK.
Energy Vault	NuCube Energy	Energy Vault partnered with NuCube Energy, a nuclear technology company, to develop and integrate NuCube's NuSun platform with Energy Vault's energy management and storage systems.
Energy Dome	NTPC	Energy Dome, a long-duration energy storage technology company, partnered with NTPC, India's largest power company, and India-based Triveni Turbine to implement a CO2 battery energy storage system in Karnataka, India.

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Eos Energy Enterprises	Naval Base San Diego	Eos Energy Enterprises, a US-based manufacturer of zinc-based energy storage systems, partnered with Naval Base San Diego to provide energy storage solutions through California Energy Commission (CEC) funding.
Inlyte Energy	HORIEN Salt Battery Solutions	Inlyte Energy, a US-based developer of next-gen iron and salt-based grid batteries, partnered with HORIEN Salt Battery Solutions (formerly FZSoNick), a manufacturer of sodium metal chloride batteries, to scale up iron-sodium battery production in the US.

Table 2: Fusion

Company	Partner	Description
Focused Energy	RWE	Focused Energy, a company developing laser-based fusion, partnered with RWE, an energy company, to construct a 1 GW fusion energy pilot plant. The facility will be built at the former Biblis nuclear plant site by 2035.
Focused Energy	Lawrence Livermore National Laboratory (LLNL)	Focused Energy has signed a Cooperative R&D Agreement (CRADA) with LLNL to develop simulations for fusion fuel target behavior.
Type One Energy	Tennessee Valley Authority (TVA)	Type One Energy, a company developing stellarator fusion technology, has partnered with Tennessee Valley Authority (TVA) through a Cooperative Agreement to develop plans for a 350 MWe fusion pilot power plant called Infinity Two.
Type One Energy	Pine Island New Energy Partners (PINEP)	Type One Energy and PINEP, a private equity firm, formed a strategic collaboration to strengthen the fusion energy industry's supply chain.
Commonwealth Fusion Systems	Type One Energy	Commonwealth Fusion Systems (CFS), a developer of high-temperature superconducting magnets, partnered with Type One Energy through a licensing and manufacturing agreement for fusion magnet technology.

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Kyoto Fusioneering	UK Atomic Energy Authority (UKAEA)	Kyoto Fusioneering, a fusion energy power plant engineering company, partnered with the UKAEA under its GBP 200 million (~USD 258.6 million) Lithium Breeding Tritium Innovation (LIBRTI) program, to develop tritium monitoring sensors for fusion energy.
Tokamak Energy	University of Birmingham	Tokamak Energy, a fusion energy company, partnered with the University of Birmingham after winning a GBP 1 million (~USD 1.2 million) EPSRC Prosperity Partnership funding from UKRI to develop shielding materials for high-temperature superconducting magnets.
Tokamak Energy	General Atomics	Tokamak Energy is collaborating with General Atomics, a US energy and defense company, to upgrade the ST40 fusion machine with a new waveguide system for plasma heating.

Table 3: Biofuels

Company	Partner	Description
LanzaTech	LanzaJet, Haffner Energy	Nasdaq-listed carbon transformation company LanzaTech, its spinoff specializing in sustainable aviation fuel (SAF) from low-carbon ethanol LanzaJet, and biomass-to-clean fuels provider Haffner Energy partnered to develop biomass-to-SAF projects across the production value chain.
LanzaJet	Sembcorp Utilities UK	LanzaJet partnered with Sembcorp Utilities UK, a provider of industrial energy and utility services, to develop an ethanol-to-SAF facility at Wilton International in Teesside, UK.
LanzaJet	Mitsui & Co., Cosmo Oil	LanzaJet partnered with Mitsui & Co. and Cosmo Oil to develop a large-scale SAF production facility in Japan, supported by the Japanese Ministry of Economy, Trade, and Industry's FY2024 subsidy.
Anaergia	Techbau	Anaergia, a renewable natural gas technology company, partnered with Techbau, an Italian engineering and construction firm, to develop five biomethane production facilities in Southern Italy.

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Anaergia	JGC Holdings Corporation	Anaergia signed a letter of intent with JGC Holdings Corporation to supply technology and equipment for a new RNG project in Japan.
Anaergia	PepsiCo	Anaergia partnered with PepsiCo Alimentos to provide biogas technology solutions at PepsiCo's food production facility in Funza, Colombia.
Liquid Wind	Övik Energi	Liquid Wind, a developer of e-fuel facilities, announced a new e-methanol production facility project in Örnsköldsvik, Sweden, in collaboration with Övik Energi. The development is set to begin in spring 2025, and the facility will be capable of producing 100,000 tons of e-methanol annually.
Liquid Wind	Turun Seudun Energiantuotanto Oy (TSE)	Liquid Wind and TSE, a Finnish energy company, signed an MoU to establish an eMethanol production facility adjacent to TSE's Naantali 4 power plant.
Elyse Energy	thyssenkrupp Uhde	Elyse Energy, a French sustainable aviation fuel developer, selected thyssenkrupp Uhde's BioTfueL technology for converting wood waste and forestry residues into cleaner jet fuel using clean hydrogen.
Gevo	Axens	Gevo, a renewable fuels company, partnered with Axens, a provider of technologies for cleaner fuel conversion, to develop sustainable aviation fuel (SAF) using the ethanol-to-jet pathway and advance Gevo's ethanol-to-olefins technology.

Table 4: Other third-gen renewables

Company	Partner	Description
Climeon	Landmark Power Holdings	Climeon, a waste heat recovery technology provider, partnered with Landmark Power Holdings to install four HeatPower 150 units at the Rhodesia power plant in the UK for enhanced energy efficiency.
Climeon	Undisclosed	Climeon partnered with a leading global shipping company to retrofit vessels with HeatPower 300 systems for enhanced energy efficiency.

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Orcan Energy	ebm-papst	Orcan Energy, a developer of modular ORC systems for waste heat recovery, partnered with ebm-papst, a leading manufacturer of fans and motors, to improve energy efficiency in industrial processes.
Sage Geosystems	ABB	Sage Geosystems, a geothermal baseload and energy storage company, partnered with ABB, a global technology leader in electrification and automation, through an MoU to develop geothermal power generation and energy storage facilities.
Fervo Energy	Clean Power Alliance	Fervo Energy, a geothermal power developer, expanded its partnership with Clean Power Alliance (CPA), a California community choice energy aggregator, by adding 18 MW to its existing 30 MW power purchase agreement (PPA).

Hydrogen partnerships focused on advancements in production and mobility

- Several electrolyzer manufacturers, including ITM Power, Verdagy, Hystar, Res Integra, and Charbone Hydrogen, are advancing green hydrogen projects in regions such as Norway, South Korea, and Sicily, focusing on electrolyzer systems and production plants. H2Pro is exploring decoupled electrolysis for hydrogen production, while Verdagy and Petron Scientech are targeting green hydrogen for biorefineries.

- In the hydrogen-electric aviation sector, ZeroAvia partnered with FlightSafety International, Jetcruzer International, and the US Air Force to develop hydrogen propulsion systems. On the infrastructure front, Toyota Motor Europe and ENGIE are collaborating on hydrogen refueling stations, and Deutsche Bahn is working with ITM Power to advance green hydrogen transport solutions.

Key partnerships: Hydrogen

Table 1: Hydrogen production

Company	Partner	Description
ITM Power	EDF Renewables, Hynamics	ITM Power, a UK-based electrolyser manufacturer, will collaborate with EDF Renewables UK and Hynamics for the Tees Green Hydrogen project in Northeast England.

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ITM Power	Greenstat	ITM Power partnered with Greenstat, a renewable energy company, to provide electrolyser units for the Hydrogen Hub Agder project in Fiskå, Norway.
Verdagy	Black & Veatch	Verdagy, a company manufacturing innovative hydrogen electrolyzers, partnered with Black & Veatch, a global engineering and consulting company, to conduct front-end engineering and design (FEED) studies for a clean hydrogen production facility in Texas.
Hystar	Sunbo Unitech	Hystar, a PEM electrolyser manufacturer, partnered with Sunbo Unitech, a South Korean company specializing in hydrogen generation technologies, to supply electrolyser stacks for a hydrogen production project in Boryeong.
Ohmium	Res Integra	Ohmium, an electrolyser manufacturer, partnered with Res Integra, an industrial plant EPC firm, to deploy PEM electrolysers at a petrochemical facility in Siracusa, Sicily.
Charbone Hydrogen	ABB	Charbone Hydrogen Corporation, a Canada-based green hydrogen production company, partnered with ABB, a global technology leader in electrification and automation, to develop modular green hydrogen production facilities.
H2Pro	Latvenergo	H2Pro, an Israeli green hydrogen startup, partnered with Latvenergo, Latvia's national electricity company, to explore hydrogen production using decoupled electrolysis technology.
Verdagy	Petron Scientech	Verdagy and Petron Scientech, a renewable chemical technology developer, partnered to advance green hydrogen production for biorefinery projects.
Lhyfe	Masdar	Lhyfe, a French developer and supplier of green hydrogen solutions, and MASDAR, a clean energy firm from the UAE, entered into an MoU to investigate joint development opportunities for large-scale green hydrogen production in Europe.

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Lhyfe	Inocel	Lhyfe signed a four-year offtake agreement with Inocel, a fuel cell development company, to supply 140 tons of green hydrogen for fuel cell testing.

Table 2: Mobility

Company	Partner	Description
ZeroAvia	FlightSafety International	ZeroAvia, a hydrogen-electric propulsion technology company, signed an MoU with FlightSafety International, an aviation training provider, to develop training resources for pilots and maintenance technicians.
ZeroAvia	Jetcruzer International	ZeroAvia partnered with Jetcruzer International to supply its 600 kW electric propulsion system (EPS) for the Jetcruzer 500E test aircraft.
ZeroAvia	US Air Force	ZeroAvia partnered with the US Air Force through AFWERX's Small Business Innovation Research (SBIR) grant to study hydrogen-electric propulsion integration.
Hydrogen Refueling Solutions (HRS)	ENGIE, Toyota Motor	Toyota Motor Europe (TME) partnered with Hydrogen Refueling Solutions (HRS) and ENGIE to develop fast and cost-effective hydrogen refueling infrastructure.
ITM Power	Deutsche Bahn (DB)	ITM Power and DB, a German railway company, signed a collaboration agreement focused on clean transportation and infrastructure development.

Table 3: Other

Company	Partner	Description
Lifte H2	Resato Hydrogen Technology	Lifte H2, a hydrogen infrastructure and supply chain integrator, and Dutch firm Resato Hydrogen Technology partnered to build a hydrogen refuelling station in Kreis Düren.

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Enapter	Wolong Electric Group	Enapter, an AEM electrolyser technology provider, partnered with Wolong Energy Storage Systems, a division of the Wolong Electric Group, a China-based company specializing in energy storage solutions and renewable energy technologies, to integrate lithium-ion batteries into its multicore electrolysers.
PowerCell	Undisclosed	PowerCell, a Swedish fuel cell provider, partnered with an unnamed leading European shipyard to deliver and install its M2Power 250 hydrogen-based methanol fuel cell system.
Element 1 Corp	Undisclosed	Element 1 Corp (e1NA), a methanol-to-hydrogen technology provider, partnered with an unnamed North American company for exclusive distribution rights of its L18-PSA hydrogen generators across multiple regions.

CCUS collaborations spanned CDR deals and CO2 repurposing for building materials and SAF

- CCUS partnerships were subdued, with only 16 activities recorded (28 in Q4).
- **Notable CO2 removal (CDR) deals** included Google's partnership with Charm Industrial for biochar-based carbon removal, and TikTok and Two Drifters collaborating with Climeworks on DAC solutions. Eion entered into a USD 33 million CDR agreement with the Frontier coalition to remove over 78,000 tons of CO2. Captura and MOL focused on ocean-based CDR, targeting 30,000 carbon credits, while Skytree and Return Carbon teamed up with EDF Renewables on a 500,000-ton DAC project.

- CO2-based building materials and sustainable fuels continued to gain traction this quarter. NeoCarbon and Soletair Power partnered with Carbonaide to store captured CO2 in concrete, advancing carbon-negative building solutions. Heirloom joined the United Airlines Ventures (UAV) Sustainable Flight Fund to integrate carbon removal with SAF production. LanzaJet continued to expand its SAF footprint through partnerships in Japan (with Cosmo Oil and Mitsui), Singapore (with Sembcorp Utilities), and a biomass-to-SAF collaboration with LanzaTech and Haffner Energy.

Key partnerships: CCUS

Table 1: Carbon removal agreements

Company	Partner	Description

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Charm Industrial	Google	Google partnered with carbon removal and sequestration startup Charm Industrial to remove 100,000 tons of CO2 by 2030 using biochar technology, marking Google's first biochar-based carbon removal purchase.
Climeworks	TikTok, Two Drifters Distillery	Climeworks, a Swiss direct air capture (DAC) company, partnered with social media platform TikTok and British rum producer Two Drifters Distillery to provide carbon removal solutions through DAC technology.
Eion	Frontier coalition	Eion, a carbon removal company using enhanced rock weathering (ERW), entered into a USD 33 million carbon removal purchase agreement with Frontier buyers.
Captura	Mitsui O.S.K. Lines (MOL)	Captura, an ocean-based carbon removal startup, partnered with MOL, a global shipping company, to remove CO2 from the atmosphere using seawater.
Skytree	Return Carbon	Skytree, a Netherlands-based developer of decentralized DAC systems, and Return Carbon, a project development company, partnered with EDF Renewables North America to develop DAC facilities in Texas.

Table 2: Carbon utilization

Company	Partner	Description
NeoCarbon	Carbonaide	NeoCarbon, a DAC technology developer, partnered with Carbonaide, a carbon-curing technology provider, to capture and store atmospheric CO2 in concrete production.
Soletair Power	Carbonaide	Soletair Power, a DAC technology company, partnered with Carbonaide to convert captured CO2 from buildings into carbon-negative concrete products.

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Heirloom	United Airlines Ventures (UAV)	Heirloom, a DAC startup, partnered with United Airlines Ventures (UAV) Sustainable Flight Fund to scale carbon removal technology and support SAF production.
LanzaJet	Cosmo Oil, Mitsui & Co.	LanzaJet, a LanzaTech spinoff specializing in sustainable aviation fuel (SAF) from low-carbon ethanol, partnered with Cosmo Oil and Japanese conglomerate Mitsui & Co. to establish SAF production in Japan, supported by government funding from Japan's Ministry of Economy, Trade, and Industry (METI).
LanzaJet	Sembcorp Utilities UK	LanzaJet partnered with Sembcorp Utilities UK, a provider of industrial energy and utility services, to develop an ethanol-to-SAF facility at Wilton International in Teesside, UK.
LanzaTech	LanzaJet, Haffner Energy	Nasdaq-listed carbon transformation company LanzaTech, LanzaJet, and biomass-to-clean fuels provider Haffner Energy partnered to develop biomass-to-SAF projects across the production value chain.

Table 3: Technology advancements and other

Company	Partner	Description
8 Rivers	Wood	8 Rivers Capital, a decarbonization technology developer, partnered with Wood, a consulting and engineering firm, for preliminary front-end engineering and design (Pre-FEED) activities on a carbon capture project in Wyoming, jointly developed with PacifiCorp.
Svante	Tenaska	Svante, a carbon capture technology provider, partnered with Tenaska, a CO2 transportation and sequestration service provider, to deliver integrated carbon capture and storage (CCS) solutions for industrial sectors.
Carbon Clean Solutions	Sønderborg Varme, Thisted Varmeforsyning	Carbon Clean, a carbon capture solutions provider, partnered with Danish district heating companies Sønderborg Varme and Thisted Varmeforsyning to implement carbon capture solutions at waste-to-energy facilities in Denmark.

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LanzaTech	Tharsis Capital	LanzaTech announced the formation of LanzaX, a joint venture with Tharsis Capital. The new business unit will focus on accelerating the development of biochemicals, biomaterials, and specialty chemicals using LanzaTech's synthetic biology platform.
Deep Sky	Low Carbon	UK-based renewable energy company Low Carbon signed a PPA with Quebec-based carbon removal project developer Deep Sky to supply solar energy for its first DAC facility, Deep Sky Alpha.

CMS startups continued to focus on cross-industry integrations and leveraging AI

- Scope3 and Cedara partnered with XR and Orisha ADgency to track and reduce CO2 emissions from digital and out-of-home advertising. Optera joined forces with SPS Commerce to monitor emissions across retail supply chains, while Royal Bank of Canada (RBC) partnered with Carbonhound to automate carbon tracking for Canadian companies.

- OpenAI partnered with CNaught to enable AI-powered carbon offsetting for the research preview of Operator, its semi-autonomous AI agent. Meanwhile, Sylvera and BlueLayer launched a live data platform for carbon projects, and Supercritical secured a 130,000-ton biochar carbon removal deal with Exomad Green.

Key partnerships: CMS

Company	Partner	Description
Scope3	XR	Scope3, a decarbonizing media and advertising company, partnered with XR, a global technology platform for creative, media, and production management, to integrate carbon emissions data into XR's creative workflow platform.
Cedara	Orisha ADgency	Orisha ADgency, a French DOOH and digital point-of-sale advertising agency, partnered with Cedara, a carbon intelligence platform, to develop sustainability solutions for advertisers and retailers.

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Optera	SPS Commerce	Sustainability management solutions provider Optera and retail network SPS Commerce partnered to launch the Retail Sustainability Collective, a solution for tracking and managing supply chain emissions data.
Carbonhound	Royal Bank of Canada (RBC)	Carbonhound, a Toronto-based carbon management software company, partnered with RBC, a global financial institution, to help Canadian businesses measure, verify, and manage their carbon emissions.
Sylvera	BlueLayer	Sylvera, a carbon data company, and BlueLayer, a digital infrastructure provider, partnered to create a platform that connects carbon project developers with buyers through real-time sharing of project and inventory data.
CNaught	OpenAI	CNaught, a provider of carbon credit solutions, and OpenAI partnered to integrate carbon offsetting capabilities into OpenAI's research preview of Operator, a semi-autonomous AI agent.
Supercritical	Exomad Green	Carbon removal marketplace Supercritical and biochar producer Exomad Green expanded their partnership, with Supercritical becoming the exclusive distributor for Exomad Green's 2025 spot market credits.
Asuene USA	Pacific Summit Energy	The US subsidiary of Asuene, a Japanese carbon accounting platform, partnered with Pacific Summit Energy (PSE), an energy and environmental trading company, to combine Asuene's cloud platform for measuring and verifying carbon emissions with PSE's expertise in renewable energy certificates (RECs).
Asuene	Artemeter	Asuene partnered with Artemeter, a carbon investment manager, to enhance corporate sustainability efforts in the Asia-Pacific region.
CEEZER	Celonis	CEEZER, a carbon credit portfolio platform provider, partnered with Celonis, a process intelligence company, to advance climate mitigation strategies through the forward purchase of carbon credits.

CRA startups partnered to provide underwriting and parametric insurance solutions

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- Climate risk analytics platforms expanded their integration into financial services, with ZestyAI leading the way in AI-driven risk assessment, working with insurers such as Safepoint, NEXT Insurance, and Lemonade. Parametric insurance solutions grew with Descartes Underwriting's collaborations with Previsico and Generali, and Floodbase's partnership with Aon. Climate X partnered with Triodos Bank and Riskthinking AI collaborated with TMX Datalinx on ESG data solutions.

Key partnerships: CRA

Company	Partner	Description
ZestyAI	Safepoint Holdings	Zesty AI, an AI-powered climate and property risk analytics provider, partnered with Safepoint Holdings, a regional property insurance group managing over 200,000 policyholders across five southeastern US states.
ZestyAI	NEXT Insurance	ZestyAI partnered with NEXT Insurance, a digital commercial insurer for small businesses, to enhance underwriting with property-level risk insights.
ZestyAI	Lemonade	ZestyAI partnered with digital insurance company Lemonade to enhance underwriting for catastrophe perils across the US.
ZestyAI	EarthDaily Analytics	ZestyAI partnered with EarthDaily Analytics, a global Earth Observation analytics company, to deliver advanced property risk insights through EarthDaily's Ascend platform for the insurance industry.
Previsico	Descartes Underwriting	Previsico, a flood forecasting specialist, partnered with Descartes Underwriting, a French parametric insurance provider, to offer businesses flood warnings and parametric flood insurance coverage in the UK and Ireland.
Descartes Underwriting	Generali Global Corporate & Commercial (GC&C)	Descartes Underwriting and Generali Global Corporate & Commercial (GC&C), an Italian insurer and asset manager, collaborated to launch the Lumyna Twelve Capital Parametric Insurance Linked Securities (ILS) Fund focused on natural catastrophe insurance solutions.

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Floodbase	Aon, Swiss RE	Aon, a professional services firm, partnered with Floodbase, a flood intelligence platform, and commercial insurer Swiss Re Corporate Solutions to develop a parametric insurance solution for hurricane-related storm surge losses.
Climate X	Triodos Bank	UK-based climate risk intelligence company Climate X partnered with sustainable banking provider Triodos Bank to enhance climate risk management and regulatory compliance.
RiskThinking.AI	TMX Datalinx	RiskThinking.AI, a climate risk intelligence provider, partnered with TMX Datalinx, the information services division of TMX Group, to provide physical asset and climate analytics data through the TMX ESG Data Hub.

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M&A: Renewable energy assets and alternative fuels acquisitions pick up

Analyst Take: We observed nine M&A deals (nine in Q4 2024) across the Alternative Energy (8) and EOMS (1) industries. In contrast to previous quarters, where activity centered around consolidation in the CMS industry, renewables were the focus of the majority of mergers and acquisitions that took place this quarter. Notably, **renewable fuel companies focused on expanding operations through acquisitions**, building on significant funding raised in 2024, such as Gevo's USD 1.46 billion conditional loan commitment to develop its Net-Zero 1 SAF facility and acquire Red Trail Energy.

Energy storage companies exhibited varied activity. Energy Vault expanded its presence in Australia and pursued its own-and-operate strategy by acquiring a 125 MW energy storage project. Nxu merged to integrate Verde's sustainable bioplastics technology into its batteries, while Northvolt sold its Northvolt Systems Industrial division as part of a restructuring and cost-cutting effort following financial challenges and a bankruptcy protection filing in March 2025. Lastly, **offshore wind activity was driven by investment firms acquiring large-scale offshore wind projects**, in turn driven by intentions to position themselves in renewable energy fields amidst a global push for clean energy, as well as the opportunity of stable and long-term revenue streams.

Key M&A deals (Q1 2025)

Tab 01: Alternative Energy: Renewable fuels

Date	Acquirer	Target	Summary
January 2025	Infinium	Greyrock Technology	Infinium, a developer of low-carbon electrofuels (e-fuels), acquired Greyrock Technology, a gas conversion provider, for an undisclosed sum in conjunction with closing the first tranche of its Series C preferred stock fundraise. The company intended to enhance Greyrock's e-fuels production capabilities.
February 2025	Gevo	Red Trail Energy	Gevo, a renewable fuels developer, acquired Red Trail Energy's ethanol production plant and carbon capture and sequestration assets in Richardton, North Dakota, for USD 210 million. The acquired assets, renamed "Net-Zero North," include an ethanol production plant, carbon capture and sequestration facilities, and pore space. Gevo expects the acquisition to contribute USD 30 million–60 million in annual Adjusted EBITDA and plans to develop the site for sustainable aviation fuel (SAF) production.

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March 2025	Varo Energy	Preem	Varo Energy, a Swiss energy company that manufactures, stores, and distributes conventional fuels and sustainable energies, entered into an agreement to acquire Preem AB, Sweden's largest fuel company and refinery operator, for an undisclosed sum. Preem’s portfolio includes two fuel production sites in Sweden. Its current biofuel production stands at roughly 400,000 tons per year, with another 900,000 tons of renewable diesel capacity to be added.

Tab 02: Alternative Energy: Energy storage

Date	Acquirer	Target	Summary
February 2025	Nxu	Verde Bioresins	Nxu, a domestic technology company focused on energy storage and charging solutions, received shareholder approval to merge with Verde Bioresins, a sustainable bioplastics production company, in a deal valuing Verde at ~USD 306.9 million. Following the merger, Verde stockholders will own ~95% of the combined company, while Verde's management team will lead the combined company.
February 2025	A leading industrial group	Northvolt Systems Industrial division	Northvolt, a battery manufacturing company, signed a sale and purchase agreement with an undisclosed industrial group to sell its Systems Industrial division, which develops and manufactures battery systems for heavy industry and off-highway markets. The value of the sale was not disclosed. The sale aims to ensure the continuation of operations, with all 2025 contracted orders to be executed as planned. The transaction is part of Northvolt's strategic review to focus on large-scale cell manufacturing as its core business.
March 2025	Energy Vault	Stoney Creek Battery Energy Storage System	Energy Vault Holdings, a Swiss NYSE-listed gravity-based, long-duration energy storage company, executed an agreement to acquire the 125 MW/1,000 MWh Stoney Creek Battery Energy Storage System (BESS) from Enervest Group, an Australian project developer, for USD 220 million. The company reports that this acquisition aligns with Energy Vault's “Owned & Operated” growth strategy. The project secured a 14-year long-term energy service agreement from the Australian Energy Market Operator Services.

Tab 03: Alternative Energy: Offshore wind

Date	Acquirer	Target	Summary

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February 2025	Copenhagen Infrastructure Partners (CIP)	Morecambe fixed-bottom offshore wind project	CIP entered into an agreement to acquire the 480 MW Morecambe fixed-bottom offshore wind project from project developers Cobra Group and Flotation Energy for an undisclosed sum. The station is to be equipped with up to 35 turbines, which will be capable of powering more than 500,000 homes annually. Completion is targeted for 2028/2029.
March 2025	Norges Bank Investment Management (NBIM)	RWE's Nordseecluster and Thor projects	NBIM, the fund management division of Norges Bank, Norway's central bank, acquired a 49% interest in RWE's Nordseecluster and Thor projects currently under construction in Germany and Denmark, respectively, for EUR 1.4 billion (~USD 1.5 billion). The deal is expected to close in Q3 2025, with RWE keeping 51% ownership and serving as operator of the wind farms.

Tab 04: Alternative Energy: Grid optimization

Date	Acquirer	Target	Summary
January 2025	EQT	Scale Microgrids	Global investment firm EQT entered into an agreement to acquire Scale Microgrids, a US-based distributed energy platform provider, from US private equity firm Warburg Pincus and other shareholders for an undisclosed sum. EQT committed to supporting Scale's growth through investments in its commercial processes, tech platform, and project execution capabilities.

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Value chain: Outbound activities draw funding, led by energy storage; collaborations and innovation center around fusion, hydrogen, and sustainable fuels storage

- **R&D** investment was primarily led by capital inflows to fusion startups, including Helion Energy's USD 425 million funding round to expand its in-house US manufacturing capabilities to support the development of its fusion power plant. Product advancements and collaborations related to R&D more than doubled compared with Q4 2024, once again dominated by fusion startups. This included Energy Singularity developing a record-breaking 21.7T superconducting magnet and Thea Energy demonstrating the world's first superconducting planar coil magnet array. Hydrogen companies such as Keyou, Sierra Space, Viritech, Beyond Aero, and ZeroAvia improved hydrogen-based vehicles.

- **Inbound logistics** led in collaborations, with the development of SAF, other sustainable fuels, and green hydrogen production facilities. Elyse Energy, Enilive, and LanzaJet established plans to develop SAF facilities, while Liquid Wind and Norsk e-Fuel developed e-fuel facilities. Amogy and Anaergia focused on global expansion, setting up projects across Italy, Japan, and South Korea this quarter. Charbone Hydrogen, ITM Power, and Lhyfe focused on expanding green hydrogen production globally.

- **Production and operational activities** centered around hydrogen, waste-heat recovery, and geothermal power. Hydrogen vehicles were prominent, with ZeroAvia introducing new fuel cell architecture, gaining FAA certification for its electric propulsion system, and supplying these systems for Jetcruzer's test aircraft. Other notable activities included Lhyfe partnering with Inocel to supply 140 tonnes of green hydrogen for fuel cell testing and Nikola having to recall 95 hydrogen fuel-cell trucks due to a design flaw. Geothermal companies Fervo Energy and Sage Geosystems established partnerships to develop geothermal power generation facilities while Climeon supplied several HeatPower systems.

- **Outbound activities** attracted the most investments and were boosted significantly (+50% QoQ) by Hydrostor's USD 1.76 billion conditional commitment for a loan guarantee from the US DOE. Other battery manufacturers such as BYD Energy Storage, Energy Vault, Fluence, and ESS focused on developing new battery storage projects, expanding operations, and delivering to clients. Of these, BYD Energy Storage partnering with Saudi Electricity Company for 12.5 GWh of energy storage projects and ESS achieving its 2.5 GWh milestone of total installed capacity were notable.

- **Support activities** were dominated by CCUS and CMS disruptors. Notable capital inflows included BeZero Carbon and IMPT.io raising funds to enhance their technology and expand operations. Partnerships continued to be high, with companies such as

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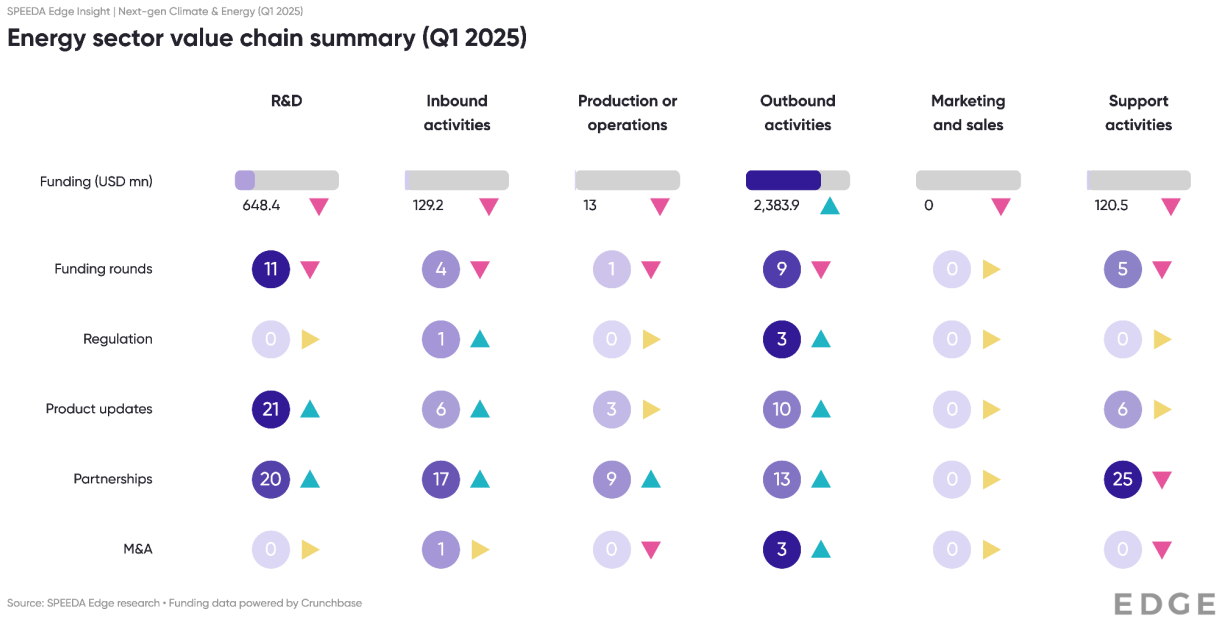
CNaught, CEEZER, Optera, and Supercritical forming partnerships to offer carbon emission offsetting, carbon credits, and emission tracking solutions, while others introduced new products, including EcoVadis' Carbon Data Network for Scope 3 emissions tracking and Sylvera's new biochar carbon removal project ratings.

- Notably in CCUS, Google partnered with carbon removal and sequestration startup Charm Industrial to remove 100,000 tons of CO2 by 2030 using biochar technology, marking Google's first biochar-based carbon removal purchase. Other CCUS companies such as Avnos, Captura, and Skytree established new DAC facilities, while Charm Industrial, Heirloom, and Climeworks offered carbon removal solutions.



Note: The CRA and Conservation Tech industries have been excluded from the energy sector value chain

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Appendix

Appendix I: Key climate and energy-related policies introduced through the EU Competitiveness Compass

Policy	Summary	Current status
Clean Industrial Deal	The Clean Industrial Deal outlines the EU's plan to turn decarbonization into a driver of growth for European industries. The measure has given particular focus to **energy-intensive industries,** such as steel, metals, and chemicals, as well as **the clean-tech sector,** to boost future competitiveness. *Focus areas* **7) Affordable energy** ● Adopted the **Affordable Energy Action Plan** to lower energy bills for industries, businesses, and households **8) Boosting demand for clean products** ● The **Industrial Decarbonization Accelerator Act** will increase demand for EU-made clean products ● The Commission will review the **Public Procurement Framework** in 2026 to introduce sustainability, resilience, and European preference criteria in public procurement for strategic sectors **9) Financing the clean transition:** Mobilize over EUR 100 billion (~USD 110 billion) to support EU-made clean manufacturing. ● Strengthen the **Innovation Fund** and propose an **Industrial Decarbonization Bank,** aiming for EUR 100 billion in funding ● Adopt a new **Clean Industrial Deal State Aid Framework** to accelerate the approval of state aid to roll out renewable energy ● Launch a dedicated call under **Horizon Europe** to stimulate research and innovation ● Amend the **InvestEU Regulation** to increase the amount of financial guarantees that InvestEU can provide to support investments **10) Circularity and access to materials**	Introduced on February 26, 2025 A draft State Aid Framework (CISAF) supporting the deal was launched for public consultation in March 2025, aiming to streamline state aid measures for renewable energy and industrial decarbonization The commission plans to adopt the framework in June 2025

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	● Set up a mechanism enabling European companies to come together and aggregate their demand for critical raw materials ● Create an **EU Critical Raw Material Centre** to jointly purchase raw materials on behalf of interested companies ● Adopt a **Circular Economy Act** in 2026 to accelerate the circular transition and ensure that scarce materials are used and reused efficiently **11) Acting on a global scale** ● Launch the first **Clean Trade and Investment Partnerships** to diversify supply chains and forge mutually beneficial deals ● Ensure the EU industry is economically secure and resilient in the face of global competition and geopolitical uncertainties through a range of **trade defence** and other instruments ● Simplify and strengthen the **Carbon Border Adjustment Mechanism**, the EU's tool to put a fair price on the carbon emitted during the production of carbon-intensive goods **12) Skills and quality jobs:** The EU's workforce requires skills to support the transition to a low-carbon economy. As such, the Commission will: ● Establish a **Union of Skills** that invests in workers, develops skills, and creates jobs ● Implement **Erasmus+**, which will reinforce education and training programs to develop a skilled and adaptable workforce and address skills shortages in key sectors, with up to **EUR 90 million** (~USD 99 million) in funding	
Affordable Energy Action Plan	The Affordable Energy Action Plan sets out short-term measures to lower energy costs for citizens, businesses, industry, and communities across the EU; complete the Energy Union; attract investments; and be better prepared for potential energy crises. *Key initiatives* ● **Lowering energy costs to provide immediate relief to consumers:** Lower energy bills in the short term with cost-saving structural reforms that will reinforce the EU's energy system and make it more resilient against potential future price shocks ● **Supporting renewable energy infrastructure:** Provide support to member states to adopt renewable energies and the modernization of grid infrastructure	The action plan was introduced alongside the Clean Industrial Deal in February 2025

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	• **Being better prepared for potential crises:** Update the EU energy security framework to address potential threats such as cyberattacks or extreme weather events. Make the EU's energy system more resilient to external price shocks with an increased share of home-grown renewables	
Industrial Decarbonization Accelerator Act	• The Industrial Decarbonization Accelerator Act will **increase demand for EU-made clean products** • This will include the introduction of **"made in Europe" criteria** in public and private procurements • Launch a **voluntary carbon intensity label** for industrial products, starting with steel in 2025, followed by cement • Simplify and harmonize carbon accounting methodologies	The act was introduced alongside the Clean Industrial Deal in February 2025 It is scheduled for adoption in Q4 2025
Simplification Omnibus Package	The **Simplification Omnibus Package** consists of two legislative proposals aimed at simplifying sustainability regulations in the EU. Overall, it aims to reduce reporting burdens by **25% for large companies** and **35% for SMEs.** First Proposal: "Stop-the-Clock" Directive This proposal focuses on delaying the implementation of certain sustainability reporting and due diligence requirements. The goal is to provide businesses with more time to adapt to these regulations while EU institutions finalize broader simplifications. • **CSRD (Corporate Sustainability Reporting Directive):** Postpones reporting obligations for companies in "wave 2" (medium-sized public interest entities) and "wave 3" (smaller entities) by two years (from 2026 and 2027 to 2028 and 2029) • **CSDDD (Corporate Sustainability Due Diligence Directive):** Delays its transposition deadline and first application by one year, shifting the start to 2028 Second Proposal: Substantive Simplification Directive This proposal introduces more significant changes to the CSRD, CSDDD, EU Taxonomy, and CBAM regulations. Key points from each include: **CSRD:** • Reduces the number of companies in scope by narrowing it to large undertakings with over 1,000 employees and **specific** financial thresholds, cutting ~80% of companies currently covered • Eliminates sector-specific reporting standards and limits	Introduced by the European Commission on February 26, 2025 **Stop-the-Clock Directive:** Adopted by the European Parliament on April 3, 2025, after approval by the Council on March 26, 2025; formal approval by the Council expected soon The **second proposal** is still under discussion and will follow the ordinary legislative process, including negotiations between the European Parliament, Council, and Commission

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	what large companies can request from SMEs in their supply chain **CSDDD:** ● Limits due diligence obligations to tier 1 suppliers unless there is "plausible information" about risks further down the supply chain ● Reduces stakeholder engagement requirements to specific stages of due diligence ● Harmonizes member state implementation to prevent regulatory fragmentation **EU taxonomy:** ● Exempts smaller firms (fewer than 1,000 employees or turnover below EUR 450 million/USD 493 million) from mandatory reporting ● Introduces voluntary reporting options for companies partially aligned with taxonomy criteria **Carbon Border Adjustment Mechanism (CBAM):** ● Exempt small importers from CBAM obligations, mostly SMEs and individuals, by introducing a new CBAM cumulative annual threshold of 50 tonnes (~55.1 tons) net mass per importer ● This eliminates CBAM obligations for ~182,000 or 90% of importers, while still covering over 99% of emissions in scope	

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Appendix 2: Partnerships

Alternative Energy				
January 2025	Anaergia	PepsiCo	Anaergia, through its Canadian subsidiary, Anaergia DB Inc., partnered with PepsiCo Alimentos to provide biogas technology solutions at PepsiCo's food production facility in Funza, Colombia.	Customer collaboration
January 2025	Antora Energy	Electrified Thermal Solutions, RedoxBlox, Rondo Energy, Fourth Power	Antora Energy, Electrified Thermal Solutions, RedoxBlox, Rondo Energy, and Fourth Power formed the Thermal Battery Alliance, the first industry group focused on thermal battery technology for industrial and power sectors.	Product/tech development
January 2025	Fluence	DTEK	Fluence Energy partnered with DTEK to develop Ukraine's first large-scale battery-based energy storage portfolio with a EUR 140 million investment.	Customer collaboration
January 2025	Anaergia	Techbau	Anaergia partnered with Techbau to develop five biomethane production facilities in Southern Italy.	Product/tech development
January 2025	Energy Vault	NuCube Energy	Energy Vault partnered with NuCube Energy to develop and integrate NuCube's NuSun platform with Energy Vault's energy management and storage systems.	Product/tech development
January 2025	LanzaJet	Sembcorp Utilities	LanzaJet partnered with Sembcorp Utilities UK to develop an ethanol-to-SAF facility at Wilton International in Teesside, UK.	Product/tech development
January 2025	Liquid Wind	Turun Seudun Energiantuotanto Oy (TSE)	Liquid Wind and Turun Seudun Energiantuotanto Oy (TSE) signed an MoU to establish an eMethanol production facility adjacent to TSE's Naantali 4 power plant.	Product/tech development

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January 2025	Kyoto Fusioneering	UK Atomic Energy Authority (UKAEA)	Kyoto Fusioneering partnered with the UK Atomic Energy Authority (UKAEA) under its GBP 200 million (~USD 258.6 million) Lithium Breeding Tritium Innovation (LIBRTI) program.	Product/tech development
January 2025	LanzaTech	LanzaJet, Haffner Energy	LanzaTech, LanzaJet, and Haffner Energy partnered to develop biomass-to-SAF projects across the production value chain.	Product/tech development
January 2025	Tokamak Energy	University of Birmingham	Tokamak Energy partnered with the University of Birmingham after winning a GBP 1 million (~USD 1.2 million) EPSRC Prosperity Partnership funding from UKRI to develop shielding materials for high-temperature superconducting magnets.	Product/tech development
January 2025	Energy Dome	NTPC, Triveni Turbine	Energy Dome partnered with NTPC and Triveni Turbine to implement a CO2 battery energy storage system in Karnataka, India.	Customer collaboration
February 2025	Sage Geosystems	ABB	Sage Geosystems partnered with ABB through an MoU to develop geothermal power generation and energy storage facilities.	Product/tech development
February 2025	Focused Energy	Lawrence Livermore National Laboratory (LLNL)	Focused Energy signed a Cooperative R&D Agreement (CRADA) with LLNL to develop simulations for fusion fuel target behaviour.	Product/tech development
February 2025	Cactos	Rando Grid	Cactos partnered with Rando Grid to develop and operate a grid-scale battery storage facility in Kuhmoinen, Finland.	Product/tech development

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February 2025	Type One Energy	Tennessee Valley Authority (TVA)	Type One Energy partnered with TVA through a Cooperative Agreement to develop plans for a 350 MWe fusion pilot power plant called Infinity Two.	Product/tech development
February 2025	Type One Energy	Commonwealth Fusion Systems	Commonwealth Fusion Systems (CFS) partnered with Type One Energy through a licensing and manufacturing agreement for fusion magnet technology.	Product/tech development
February 2025	HB11 Energy	US Department of Energy	HB11 Energy joined the Industrial Council of TINEX, a USD 180 million US Department of Energy initiative focused on commercializing clean fusion energy.	Product/tech development
February 2025	Gevo	Axens	Gevo partnered with Axens to develop SAF using the ethanol-to-jet pathway and advance Gevo's ethanol-to-olefins technology.	Product/tech development
February 2025	Liquid Wind	Övik Energi	Liquid Wind announced a new e-methanol production facility project in Örnsköldsvik, Sweden, in collaboration with Övik Energi.	Product/tech development
February 2025	Energy Vault	State Electricity Commission (SEC), Victoria	Energy Vault partnered with the Victorian government-owned SEC to deliver and integrate a battery energy storage system at the SEC Renewable Energy Park in Horsham, Victoria.	Customer collaboration
February 2025	Type One Energy	Pine Island New Energy Partners (PINEP)	Type One Energy and PINEP formed a strategic collaboration to strengthen the fusion energy industry's supply chain.	Product/tech development

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February 2025	Climeon	Landmark Power Holdings	Climeon partnered with Landmark Power Holdings to install four HeatPower 150 units at the Rhodesia power plant in the UK for enhanced energy efficiency.	Customer collaboration
February 2025	BYD Energy Storage	Saudi Electricity Company	BYD Energy Storage partnered with Saudi Electricity Company for a 12.5 GWh grid-scale storage project, bringing their total collaboration to 15.1 GWh, including a previous 2.6 GWh project.	Customer collaboration
February 2025	RheEnergise	Anglesey Mining	RheEnergise signed an MoU with Anglesey Mining to investigate the feasibility of implementing high-density hydro (HD Hydro) energy storage at the Parys Mountain Mine, UK.	Product/tech development
February 2025	Tokamak Energy	General Atomics	Tokamak Energy is collaborating with General Atomics to upgrade the ST40 fusion machine with a new waveguide system for plasma heating.	Product/tech development
February 2025	Anaergia	JGC Holdings	Anaergia signed a letter of intent with JGC Holdings Corporation to supply technology and equipment for a new RNG project in Japan.	Product/tech development
February 2025	Fluence	Cordelio Power	Fluence Energy partnered with Cordelio Power to supply 1 GWh of battery storage systems across three projects starting in 2026.	Customer collaboration
February 2025	Energy Vault	ACEN Australia	Energy Vault partnered with ACEN Australia to construct a 200 MW/2 hour battery energy storage system (BESS) at ACEN's New England Solar project in New South Wales.	Customer collaboration

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February 2025	LanzaJet	Mitsui, Cosmo Oil	LanzaJet partnered with Mitsui & Co. and Cosmo Oil to develop a large-scale SAF production facility in Japan, supported by the Japanese Ministry of Economy, Trade and Industry's FY2024 subsidy.	Customer collaboration
February 2025	Climeon	Undisclosed	Climeon partnered with a leading global shipping company to retrofit vessels with HeatPower 300 systems for enhanced energy efficiency.	Customer collaboration
March 2025	Fervo Energy	Clean Power Alliance	Fervo Energy expanded its partnership with Clean Power Alliance (CPA) by adding 18 MW to their existing 30 MW PPA.	Customer collaboration
March 2025	BYD Energy Storage	Greenvolt Power	BYD Energy Storage signed an agreement with Greenvolt Power to design and operate battery energy storage systems (BESS) with a total capacity of 1.6 GWh across two locations in Poland. The projects are set to begin deliveries in 2028 and have secured capacity market contracts.	Customer collaboration
March 2025	Eos Energy	Naval Base San Diego	Eos Energy Enterprises partnered with Naval Base San Diego to provide energy storage solutions through California Energy Commission (CEC) funding.	Customer collaboration
March 2025	Orcan Energy	ebm-papst	Orcan Energy partnered with ebm-papst to improve energy efficiency in industrial processes.	Product/tech development
March 2025	Elyse Energy	thyssenkrupp Uhde	Elyse Energy selected thyssenkrupp Uhde's BioTfueL technology for converting wood waste and forestry residues into cleaner jet fuel using clean hydrogen.	Product/tech development

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March 2025	Focused Energy	RWE	Focused Energy partnered with RWE to construct a 1 GW fusion energy pilot plant. The facility will be built at the former Biblis nuclear plant site by 2035.	Product/tech development
March 2025	Inlyte Energy	HORIEN	Inlyte Energy partnered with HORIEN Salt Battery Solutions (formerly FZSoNick) to scale up iron-sodium battery production in the US.	Product/tech development
Hydrogen Economy				
January 2025	Lhyfe	Masdar	Lhyfe and MASDAR entered into an MoU to investigate joint development opportunities for large-scale green hydrogen production in Europe.	Product/tech development
January 2025	Verdagy	Petron Scientech	Verdagy and Petron Scientech partnered to advance green hydrogen production for biorefinery projects.	Customer collaboration
January 2025	Hydrogen Refueling Solutions (HRS)	ENGIE, Toyota Motor Europe (TME)	TME partnered with HRS and ENGIE to develop fast and cost-effective hydrogen refueling infrastructure.	Product/tech development
January 2025	Nel Hydrogen	Korea Hydro & Nuclear Power (KHNP)	Nel Hydrogen signed an MoU with KHNP to collaborate on clean hydrogen production technology.	Product/tech development
February 2025	ITM Power	Greenstat	ITM Power partnered with Greenstat to provide electrolyser units for the Hydrogen Hub Agder project in Fiskå, Norway.	Customer collaboration
February 2025	ZeroAvia	Jetcruzer International	ZeroAvia partnered with Jetcruzer International to supply its 600 kW electric propulsion system (EPS) for the Jetcruzer 500E test aircraft.	Customer collaboration
March 2025	Lhyfe	Inocel	Lhyfe signed a four-year offtake agreement with Inocel to supply 140 tons of green hydrogen for fuel cell testing.	Customer collaboration

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March 2025	H2Pro	Latvenergo	H2Pro partnered with Latvenergo to explore hydrogen production using decoupled electrolysis technology.	Product/tech development
March 2025	Enapter	Wolong Electric Group	Enapter partnered with Wolong Energy Storage Systems, a division of the Wolong Electric Group, to integrate lithium-ion batteries into its multicore electrolysers.	Customer collaboration
March 2025	Lifte H2	Resato Hydrogen Technology	Lifte H2 and Resato Hydrogen Technology partnered to build a hydrogen refuelling station in Kreis Düren, Germany.	Customer collaboration
March 2025	Charbone Hydrogen	ABB	Charbone Hydrogen Corporation partnered with ABB to develop modular green hydrogen production facilities.	Customer collaboration
March 2025	Hystar	Sunbo Unitech	Hystar partnered with Sunbo Unitech to supply electrolyser stacks for a hydrogen production project in Boryeong.	Customer collaboration
March 2025	Ohmium	Res Integra	Ohmium partnered with Res Integra to deploy PEM electrolysers at a petrochemical facility in Siracusa, Sicily.	Customer collaboration
March 2025	Verdagy	Black & Veatch	Verdagy partnered with Black & Veatch to conduct front-end engineering and design (FEED) studies for a clean hydrogen production facility in Texas.	Product/tech development
March 2025	PowerCell	Undisclosed	PowerCell partnered with an unnamed leading European shipyard to deliver and install its M2Power 250 hydrogen-based methanol fuel cell system.	Customer collaboration

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March 2025	ZeroAvia	US Air Force	ZeroAvia partnered with the US Air Force through AFWERX's Small Business Innovation Research (SBIR) grant to study hydrogen-electric propulsion integration.	Product/tech development
March 2025	ITM Power	EDF Renewables, Hynamics	ITM Power will collaborate with EDF Renewables UK and Hynamics for the Tees Green Hydrogen project in Northeast England.	Customer collaboration
March 2025	ZeroAvia	FlightSafety International	ZeroAvia signed an MoU with FlightSafety International to develop training resources for pilots and maintenance technicians.	Product/tech development
March 2025	Element 1	Undisclosed	Element 1 Corp (e1NA) partnered with an unnamed North American company for exclusive distribution rights of its L18-PSA hydrogen generators across multiple regions.	Sales collaboration
March 2025	ITM Power	Deutsche Bahn (DB)	ITM Power and DB signed a collaboration agreement focused on clean transportation and infrastructure development.	Product/tech development
Carbon Capture, Utilization & Storage (CCUS)				
January 2025	Deep Sky	Low Carbon	Low Carbon signed a PPA with Deep Sky to supply solar energy for its first DAC facility, Deep Sky Alpha.	Product/tech development
January 2025	Svante	Tenaska	Svante partnered with Tenaska to deliver integrated carbon capture and storage (CCS) solutions for industrial sectors.	Product/tech development
January 2025	Charm Industrial	Google	Google partnered with Charm Industrial to remove 100,000 tons of CO2 by 2030 using biochar technology, marking Google's first biochar-based carbon removal purchase.	Customer collaboration

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January 2025	LanzaJet	Sembcorp Utilities	LanzaJet partnered with Sembcorp Utilities UK to develop an ethanol-to-SAF facility at Wilton International in Teesside, UK.	Product/tech development
January 2025	Soletair Power	Carbonaide	Soletair Power partnered with Carbonaide to convert captured CO2 from buildings into carbon-negative concrete products.	Product/tech development
January 2025	NeoCarbon	Carbonaide	NeoCarbon partnered with Carbonaide to capture and store atmospheric CO2 in concrete production.	Product/tech development
January 2025	LanzaTech	Tharsis Capital	LanzaTech announced the formation of LanzaX, a joint venture with Tharsis Capital. The new business unit will focus on accelerating the development of biochemicals, biomaterials, and specialty chemicals using LanzaTech's synthetic biology platform.	Product/tech development
January 2025	LanzaTech	LanzaJet, Haffner Energy	LanzaTech, LanzaJet, and Haffner Energy partnered to develop biomass-to-SAF projects across the production value chain.	Product/tech development
February 2025	Climeworks	TikTok, Two Drifters Distillery	Climeworks partnered with TikTok and Two Drifters Distillery to provide carbon removal solutions through DAC technology.	Customer collaboration
February 2025	LanzaJet	Mitsui & Co., Cosmo Oil	LanzaJet partnered with Cosmo Oil and Mitsui & Co. to establish SAF production in Japan, supported by government funding from Japan's Ministry of Economy, Trade, and Industry (METI).	Customer collaboration
February 2025	Heirloom	United Airlines Ventures (UAV)	Heirloom partnered with UAV Sustainable Flight Fund to scale carbon removal technology and support SAF production.	Customer collaboration

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March 2025	8 Rivers	Wood	8 Rivers Capital has partnered with Wood for preliminary front-end engineering and design (Pre-FEED) activities on a carbon capture project in Wyoming, jointly developed with PacifiCorp.	Product/tech development
March 2025	Skytree	Return Carbon	Skytree and Return Carbon partnered with EDF Renewables North America to develop DAC facilities in Texas.	Customer collaboration
March 2025	Eion	Frontier coalition	Eion entered into a USD 33 million carbon removal purchase agreement with Frontier buyers.	Customer collaboration
March 2025	Captura	Mitsui O.S.K. Lines (MOL)	Captura partnered with MOL to remove CO2 from the atmosphere using seawater.	Customer collaboration
March 2025	Carbon Clean Solutions	Sønderborg Varme, Thisted Varmeforsyning	Carbon Clean partnered with Sønderborg Varme and Thisted Varmeforsyning to implement carbon capture solutions at waste-to-energy facilities in Denmark.	Customer collaboration
Carbon Management Software				
January 2025	Optera	SPS Commerce	Optera and SPS Commerce partnered to launch the Retail Sustainability Collective, a solution for tracking and managing supply chain emissions data.	Customer collaboration
January 2025	Cedara	Orisha ADgency	Orisha ADgency, a French DOOH and digital point-of-sale advertising agency, partnered with Cedara, a carbon intelligence platform, to develop sustainability solutions for advertisers and retailers.	Customer collaboration
January 2025	CNaught	OpenAI	OpenAI partnered with CNaught to integrate carbon offsetting capabilities into OpenAI's research preview of Operator, a semi-autonomous AI agent.	Customer collaboration

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February 2025	Carbonhound	Royal Bank of Canada (RBC)	RBC partnered with Carbonhound to help Canadian businesses measure, verify, and manage their carbon emissions.	Customer collaboration
February 2025	Sylvera	BlueLayer	Sylvera and BlueLayer partnered to create a platform that connects carbon project developers with buyers through real-time sharing of project and inventory data.	Product/tech development
February 2025	CEEZER	Celonis	CEEZER partnered with Celonis to advance climate mitigation strategies through the forward purchase of carbon credits.	Customer collaboration
March 2025	Supercritical	Exomad Green	Supercritical and Exomad Green expanded their partnership, with Supercritical becoming the exclusive distributor for Exomad Green's 2025 spot market credits.	Customer collaboration
March 2025	Asuene	Artemeter	Asuene partnered with Artemeter to enhance corporate sustainability efforts in the Asia-Pacific region.	Customer collaboration
March 2025	Scope3	XR	Scope3 partnered with XR to integrate carbon emissions data into XR's creative workflow platform.	Customer collaboration
March 2025	Asuene USA	Pacific Summit Energy (PSE)	The US subsidiary of Asuene partnered with PSE to combine Asuene's cloud platform for measuring and verifying carbon emissions with PSE's expertise in renewable energy certificates (RECs).	Customer collaboration
Climate Risk Analytics				
January 2025	Climate X	Triodos Bank	Climate X partnered with Triodos Bank to enhance climate risk management and regulatory compliance.	Customer collaboration

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January 2025	RiskThinking.AI	TMX Group	RiskThinking.AI partnered with TMX Datalinx to provide physical asset and climate analytics data through the TMX ESG Data Hub.	Customer collaboration
January 2025	Previsico	Descartes Underwriting	Previsico partnered with Descartes Underwriting to offer businesses flood warnings and parametric flood insurance coverage in the UK and Ireland.	Customer collaboration
February 2025	Descartes Underwriting	Generali Global Corporate & Commercial (GC&C)	Descartes Underwriting and GC&C collaborated to launch the Lumyna Twelve Capital Parametric Insurance Linked Securities (ILS) Fund focused on natural catastrophe insurance solutions.	Product/tech development
February 2025	Floodbase	Aon, Swiss RE	Aon partnered with Floodbase and Swiss Re Corporate Solutions to develop a parametric insurance solution for hurricane-related storm surge losses.	Product/tech development
February 2025	ZestyAI	Safepoint Holdings	ZestyAI partnered with Safepoint Holdings to assess large property portfolios more efficiently and improve risk management across Florida, Louisiana, Texas, Mississippi, and Alabama while maintaining reliable coverage for policyholders.	Customer collaboration
February 2025	ZestyAI	NEXT Insurance	ZestyAI partnered with NEXT Insurance to enhance underwriting with property-level risk insights.	Customer collaboration
March 2025	ZestyAI	Lemonade	Lemonade partnered with ZestyAI to enhance underwriting for catastrophe perils across the US.	Customer collaboration

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March 2025	ZestyAI	EarthDaily Analytics	ZestyAI partnered with EarthDaily Analytics to deliver advanced property risk insights through EarthDaily's Ascend platform for the insurance industry.	Customer collaboration
Conservation Tech				
January 2025	OroraTech	SpaceX	OroraTech launched FOREST-3, its latest thermal satellite for wildfire detection. The satellite was launched in collaboration with SpaceX and received support from the German Space Agency at DLR and the European Space Agency (ESA).	Product/tech development
January 2025	OroraTech	Rocket Lab	Rocket Lab signed a contract with OroraTech to launch eight satellites equipped with advanced thermal infrared cameras for global wildfire detection and monitoring.	Product/tech development
February 2025	ARC Marine	Material Evolution	ARC Marine partnered with Material Evolution to integrate Material Evolution's MevoCem cement into marine construction products.	Product/tech development
Energy Optimization & Management Software				
March 2025	Univers	Albert Heijn	Univers partnered with Albert Heijn to implement microgrid and energy management solutions aimed at achieving net-zero emissions.	Customer collaboration
March 2025	Uplight	San José Clean Energy	Uplight partnered with San José Clean Energy to enhance their demand response program, aiming to enroll 25 MW of dispatchable capacity by 2028.	Customer collaboration
March 2025	EnergyHub	Ameren Illinois	EnergyHub partnered with Ameren Illinois to implement residential and commercial EV managed charging pilots.	Customer collaboration

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