EXPORTCENTRAL AI

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Editor's Brief

The week ending 19 December 2025 marks a decisive shift from policy announcements to infrastructure delivery and commercial validation. While global offshore wind forecasts were revised sharply downward, Poland defied the slowdown with Europe's largest auction of 2025, and the UK accelerated grid connections reform and major transmission upgrades. In parallel, the carbon capture and storage sector achieved a milestone with the world's first verified CO_2 storage certificates issued by Northern Lights, demonstrating that CCUS infrastructure has crossed from pilot phase to operational reality. This week's developments underscore that energy transition investment is now concentrating in markets with regulatory certainty, infrastructure readiness, and credible revenue mechanisms—not simply policy ambition.

One key number: 3.4 GW – the capacity awarded in Poland's first offshore wind auction on 17 December, making it the largest single auction outcome in Europe this year and exceeding the combined totals of France and Germany. For supply-chain firms across North East Scotland and the wider North Sea basin, Poland's success signals that the Baltic Sea is transitioning from early-stage to deployment-ready, creating near-term demand for foundations, cables, installation vessels and engineering services with strong European content expectations.

Action for this week: Evaluate your firm's readiness to engage with Poland's 3.4 GW pipeline (commissioning 2032) and the wider Baltic Sea opportunity (18 GW by 2040), while tracking UK grid connection reform outcomes announced this week—283 GW of generation and storage has been prioritised to 2035, with offshore wind and solar projects receiving preferential treatment. In parallel, assess how Northern Lights' first CO_2 storage certificates and Eni's CCUS partnership signal accelerating commercial deployment of carbon storage infrastructure across Europe and create opportunities for subsea engineering, monitoring systems and offshore conversion services.

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1. Global Offshore Wind Pulse (Week to 19 December 2025)

1.1 Poland Delivers Europe's Largest 2025 Auction – Baltic Sea Accelerates

Poland successfully concluded its first competitive offshore wind auction on 17 December 2025, marking a landmark moment for both the country's energy transition and the European offshore wind sector. The auction awarded 25-year Contracts for Difference (CfD) to three major Baltic Sea projects with a combined capacity of 3.4 GW, delivering the largest single offshore wind auction outcome

anywhere in Europe during 2025—exceeding the combined results of Germany and France over the same period.

The winning projects are ORLEN Neptun's Baltic East Offshore Wind Farm (1.2 GW), PGE's Baltica 9 (1.2 GW), and RWE-led Bałtyk I consortium (1.0 GW). Strike prices ranged from €113 to €117 per megawatt-hour, indexed annually to inflation for the 25-year support period. First electricity delivery to the grid is scheduled for December 2032, with the three projects expected to generate approximately 330 TWh over their support period—nearly double Poland's current annual electricity consumption.

The auction represents a significant vote of confidence in Poland's offshore wind framework at a time when other European markets have experienced cancelled or undersubscribed tenders. The 25-year support period is longer than comparable schemes in Ireland (20 years) and France (20 years), and Poland's clear regulatory roadmap—with further auctions planned for 2027, 2029 and 2031—provides the sustained pipeline visibility essential for supply-chain investment decisions. Polish companies are expected to account for over 40% of the supply chain, supporting industrial capability development in coastal regions and positioning Poland as a potential Baltic Sea offshore wind hub.

For North East Scotland and UK supply-chain firms, the Polish opportunity is both immediate and strategic. Near-term demand will centre on geotechnical surveys, foundation manufacturing (monopiles and jackets), subsea cable supply and laying, offshore substation engineering, and installation vessel services. European content expectations provide entry points for experienced contractors able to form partnerships with Polish firms, transfer North Sea expertise and meet local capability development commitments. Over the longer term, Poland's trajectory towards 18 GW by 2040 creates a sustained market for operations and maintenance services, blade and component manufacturing, and grid integration solutions.

1.2 UK Policy and Project Milestones – Consents and Infrastructure Funding

On 18 December 2025, the UK Secretary of State for Energy Security and Net Zero granted a Development Consent Order (DCO) for the Five Estuaries Offshore Wind Farm, advancing the project towards construction. Five Estuaries, owned by RWE (33.33%), a Macquarie-led consortium (25%), ESB (20.83%) and Sumitomo Corporation (20.83%), is consented for up to 1.08 GW capacity across 79 wind turbines with a maximum tip height of 370 metres. Located in the southern North Sea and designed as an extension to the operational Galloper Wind Farm, the project would generate sufficient electricity to power approximately one million UK homes annually when fully operational.

The consent marks a significant step forward for this long-planned project, which will now proceed to finalise project design, secure a route to market (likely through a future CfD allocation round), and take a final investment decision ahead of construction. The project will connect to shore via subsea cables at Sandy Point (between Frinton-on-Sea and Holland-on-Sea, Essex) and onward via underground cables to a new substation west of Little Bromley, eventually linking to National Grid's Norwich-Tilbury transmission corridor.

In parallel, the Crown Estate's Supply Chain Accelerator programme this week announced £1 million in funding for Sperra Seaworks and Bardex to advance early-stage engineering and planning for a Floating Construction Station (FCS) concept intended to expand nearshore manufacturing and assembly capability for UK offshore wind, particularly targeting the Celtic Sea's 4.5 GW floating wind pipeline. The

FCS concept, based on floating concrete caissons integrated with Bardex's OmniLift® chain jack shiplift system, aims to reduce reliance on large-scale port upgrades and enable repeatable foundation handling, launch and retrieval operations. The concept is being assessed for deployment at multiple UK ports, with Port Talbot identified as a promising candidate due to its industrial waterfront, deep water access and role in Celtic Freeport and FLOWMIS planning.

Also this week, the UK National Wealth Fund confirmed an £800 million guarantee to support SSEN Transmission's delivery of four major grid upgrade projects in the north of Scotland, reinforcing the infrastructure backbone required to connect ScotWind and other offshore wind projects to demand centres.

1.3 Global Offshore Wind Forecasts Revised Sharply Downward – Recovery Signals for 2026

On 18 December 2025, TGS | 4C Offshore published its latest Global Market Overview report, revising long-term offshore wind forecasts significantly downward in response to stalled auctions, delayed final investment decisions and cancelled offtake contracts throughout 2025. The report shows that forecast global offshore wind installed capacity for 2030 (excluding China) has been reduced by 28% year-on-year, falling from 192 GW to 121 GW. Europe's forecast has been cut by 21% and Asia-Pacific by 31%, underscoring the breadth of the slowdown.

Capacity expected to enter construction by 2040 (excluding China) has been reduced by 22%, from 435 GW in Q4 2024 to 341 GW, reflecting ongoing uncertainty around project economics, policy frameworks and delivery schedules. Market activity in 2025 declined sharply: new site awards totalled just 17.2 GW, down 78% compared with the 75 GW annual average recorded between 2022 and 2024. Europe's slowdown was particularly pronounced, while floating wind accounted for 5.5 GW of awarded capacity. Offtake awards fell to 3.1 GW, with contracts signed only in South Korea, France and Ireland—all for fixed-bottom projects.

Despite the challenging near-term picture, the TGS | 4C report identifies early signals of recovery in 2026. Higher award volumes are expected, with up to 17.6 GW of offtake (up from 3.1 GW in 2025) and around 20 GW of site tenders potentially secured (up from 17.2 GW), alongside 11.4 GW reaching final investment decision and nearly 10 GW moving into commercial operation outside China. Patrick Owen, senior analyst at TGS | 4C and lead author of the report, stated: "This year's sharp slowdown in site and offtake awards highlights the pressure facing the offshore wind sector, but it also marks a moment of adjustment. As policy frameworks evolve and risk-sharing improves, we expect activity to pick up again from 2026, albeit on a more measured and sustainable footing".

For floating offshore wind specifically, TGS | 4C forecasts that 4.1 GW of floating capacity will be installed or underway globally by 2030 (corresponding to approximately 0.7 GW operational), rising to 56.2 GW by 2040 as standardisation brings cost reductions. The UK, France and South Korea are currently ranked as the world's most attractive floating wind markets.

1.4 Asia-Pacific – Australia Metocean Campaign and Regional Activity

On 17 December 2025, Ocean Winds launched its first offshore wind and metocean measurement campaign in Australia, deploying an EOLOS floating LiDAR buoy in the High Sea Wind project feasibility licence area off Gippsland, Victoria. The campaign, conducted in partnership with TGS, will capture

wind, wave, current and environmental data to inform turbine selection, foundation design, environmental assessments and grid planning for the 1.3 GW High Sea Wind project. The project is forecast to power approximately one million Victorian homes annually and avoid up to 5.3 million tonnes of CO_2 emissions per year.

The measurement campaign represents a decisive transition from planning to data-led development and signals the maturation of Australia's emerging offshore wind regulatory framework. In parallel, Star of the South—Australia's most advanced offshore wind project—announced on 16 December that it had lodged its Environmental Impact Statement (EIS) for approval under the Environment Protection and Biodiversity Conservation Act, marking the first time an Australian offshore wind project has reached this stage of environmental assessment. Star of the South aims to deliver power to more than 1.2 million homes and contribute 10% of the emission reductions needed to reach Australia's 2035 climate target.

Across the wider Asia-Pacific region, the Waves Group team reported attending the final Asia Wind Energy Association (AWEA) networking event of 2025 in Singapore on 16 December, which included insights from Taiwan's Industrial Technology Research Institute. The discussions underscored that while Asia's offshore wind sector holds significant long-term opportunity, developers and technology leaders continue to navigate evolving regulatory frameworks, supply chain constraints and complex environmental conditions across Taiwan, South Korea and Japan.

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2. Hydrogen Infrastructure and Cross-Border Development

2.1 Clean Hydrogen as Critical Industrial Infrastructure – US and Global Context

On 18 December 2025, Environment + Energy Leader published analysis positioning clean hydrogen not primarily as a climate solution but as core industrial infrastructure that will increasingly shape competitiveness, trade access and manufacturing resilience in a carbon-constrained global economy. The commentary highlights that hydrogen is already deeply embedded in industrial systems—approximately 10 million metric tons are produced annually in the US alone, primarily for petroleum refining and chemical production (ammonia and methanol)—yet these processes rely on production methods that release substantial greenhouse gas emissions. As global markets begin pricing carbon into trade through border adjustment mechanisms, emissions profiles are shifting from environmental concerns to structural economic risks.

The analysis emphasises that clean hydrogen—defined under federal standards as hydrogen produced with significantly lower lifecycle emissions—represents a modernisation of existing systems rather than a wholesale energy transition. The question facing industrial economies is not whether hydrogen will continue to be used, but whether production, transport, storage and manufacturing infrastructure can be upgraded quickly enough to meet emerging carbon requirements while maintaining trade competitiveness and avoiding supply-chain dependence on foreign equipment suppliers.

For offshore energy supply-chain firms, the implication is clear: hydrogen infrastructure represents a multi-decade opportunity in pipeline engineering, compression systems, electrolyser installation and integration, industrial offtake facilities, and safety and monitoring systems. Capabilities developed in

offshore oil and gas—gas handling, industrial operations, pipeline maintenance and safety management—are directly transferable, positioning the transition as one of continuity rather than displacement.

2.2 Africa's First Integrated Green Hydrogen Facility – Plug Power Namibia Installation

On 17 December 2025, Plug Power announced the installation of a 5 MW GenEco electrolyser with Cleanergy Solutions Namibia, marking Africa's first fully integrated green hydrogen facility. While project details remain limited, the installation signals growing momentum for renewable hydrogen in regions with abundant solar and wind resources and increasing interest from European and Asian offtakers seeking to diversify hydrogen supply sources beyond domestic production.

For equipment suppliers, engineering firms and project developers, Africa's nascent hydrogen sector presents early-mover opportunities in feasibility studies, renewable energy integration, electrolyser supply and commissioning, and offtake infrastructure. However, success will depend on long-term power purchase agreements, credible hydrogen certification frameworks aligned with European and other international standards, and access to concessional finance to de-risk projects in emerging markets.

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3. Carbon Capture, Utilisation and Storage (CCUS) – Milestones and Commercial Partnerships

3.1 Northern Lights Issues World's First Verified CO_2 Storage Certificates

On 18 December 2025, the Northern Lights joint venture—equally owned by Equinor, Shell and TotalEnergies—issued the world's first certificates verifying permanent storage of carbon dioxide in the Aurora reservoir, more than 2,600 metres beneath the Norwegian North Sea. The certificates document CO_2 volumes captured at the Heidelberg Materials cement factory in Brevik, Norway, transported via ship to the Northern Lights terminal, and injected through a 100 km pipeline into the offshore Aurora storage formation since injection operations commenced in August 2025.

Each certificate is linked to a specific CO_2 ship cargo and details the exact quantity stored, with a full breakdown of lifecycle emissions from initial loading through to certificate issuance, including emissions from facilities and vessel operations. This transparent, verifiable accounting framework is designed to establish credibility and integrity in the emerging CCS industry. Tim Heijn, Managing Director of Northern Lights, stated: "Credible carbon accounting is essential to the integrity of the emerging CCS industry. It includes a precise tracking of CO_2 volumes transported and stored, as well as emissions arising across the value chain. The CO_2 accounting and measurement procedures are described in Northern Lights' Monitoring, Reporting and Verification (MRV). Data is recorded in our digital system, which is designed as a ledger for all certificates".

Northern Lights Phase 1 has a capacity of 1.5 million tonnes per annum (Mtpa) of CO_2 and is fully booked. The joint venture reached final investment decision on the $713 million Phase 2 expansion in March 2025, which is expected to increase transport and storage capacity to at least 5 Mtpa by 2028. In addition to the two Norwegian industrial emitters already connected (Heidelberg Materials and

Hafslund Celsio's waste-to-energy plant in Oslo), Northern Lights has signed commercial agreements with Yara in the Netherlands, Ørsted in Denmark, and Stockholm Exergi in Sweden, with CO_2 volumes from Denmark and the Netherlands expected to commence in 2026.

For supply-chain companies, Northern Lights' operational success and transparent certification model validate the commercial and technical maturity of offshore CO_2 storage and create a template for future multi-client European storage hubs. Demand for subsea infrastructure (pipelines, risers, injection wells), monitoring and verification systems, offshore platform conversion engineering, and shipping and handling equipment will grow as additional storage sites come online across the North Sea, Irish Sea and other basins. The certification framework also establishes a precedent for rigorous accounting that will be essential for carbon credit markets, corporate offtake agreements and regulatory compliance.

3.2 Eni Finalises Strategic CCUS Partnership with Global Infrastructure Partners

On 18 December 2025, Eni and Global Infrastructure Partners (GIP)—a leading global infrastructure investor and part of BlackRock—announced the closing of the sale of a 49.99% stake in Eni CCUS Holding, granting joint control of the company to both parties. The transaction, first announced in August 2025, has received all necessary legal approvals and confirms GIP's co-investment in a leading global player in the carbon capture and storage sector.

Eni CCUS Holding operates the Liverpool Bay and Bacton CCS projects in the UK, the L10-CCS project in the Netherlands, and holds the right to acquire 50% of the Ravenna CCS project in Italy, with potential to include additional projects within a broader CCS platform over the medium to long term. GIP's entry as a co-investor validates the commercial attractiveness of Eni's CCUS portfolio and consolidates the development plan, bringing substantial infrastructure investment expertise and capital to accelerate project delivery.

For the wider CCS industry, the Eni-GIP partnership signals that institutional infrastructure investors view carbon storage as a mature, bankable asset class comparable to conventional energy infrastructure such as pipelines, terminals and power transmission. This shift in investor perception de-risks future project finance, enables larger-scale capital deployment, and supports the build-out of integrated CCUS clusters and cross-border CO_2 transport networks.

3.3 CCUS Sector Year-End Review – Inflection Point Reached in 2025

On 17 December 2025, Carbon Herald published an end-of-year review concluding that 2025 represents an inflection point for the CCUS sector, with the number of commercial facilities and total capture capacity growing sharply after a decade of pilot plants and stop-start financing. Global trackers now show dozens more operating facilities and tens of millions of tons per year of capture capacity that did not exist three years ago. A.J. Simon, Director of Industrial Decarbonisation at Carbon Direct, stated: "After thirty years of development, 2025 marked a growing consensus that CCS is a viable and critically important climate solution. 2025 was a landmark year for CCS where ideas were turned into action in policymaking, commercial deals, and project starts".

Jarad Daniels, CEO of the Global CCS Institute, added: "CCS is delivering real, measurable results. Since 1996, more than 380 million tonnes of industrial-derived CO_2 have been captured and permanently stored underground with CCS. Our 2025 Global Status of CCS report identifies 77

operating projects, 47 additional projects now in construction, and hundreds more in various stages of development around the world".

Key 2025 milestones in the US included expansion of the 45Q tax credit for CCUS, Texas receiving primacy over geologic CO_2 storage, and the first full-scale power purchase agreement for natural-gas-fired electricity with CCS. Looking ahead to 2026, Carbon Direct expects multiple deals for natural-gas-fired electricity with CCS to power energy-intensive data centres, alongside major progress on ethanol and fertilizer capture projects along the US Gulf Coast and in areas adjacent to established CO_2 transportation and storage infrastructure.

In Europe, the focus remains on multi-client storage hubs beneath the North Sea, with Northern Lights emerging as the operational template. In the Middle East, the UAE and Saudi Arabia have carried out numerous carbon capture studies and launched CCS pilot projects, signalling that fossil-rich economies view CCUS as both a climate tool and economic strategy.

3.4 UK Government Publishes Carbon Management Innovation Assessment

On 18 December 2025, the UK Department for Energy Security and Net Zero (DESNZ) published the Energy Innovation Needs Assessment (EINA) for Carbon Management, covering carbon capture, utilisation and storage (CCUS) and greenhouse gas removal (GGR) technologies. The report summarises analysis and findings across a range of CCUS and GGR technologies at different stages of development and commercialisation, including industrial carbon capture, BECCS (bioenergy with carbon capture and storage), DACCS (direct air carbon capture and storage), geological storage, and CO_2 transport infrastructure.

The assessment is intended to guide public and private R&D investment priorities, highlight technology readiness gaps, and inform policy design for achieving the UK Government's ambition to capture 20–30 Mtpa of CO_2 by 2030 and 90–170 Mtpa by 2050. For supply-chain firms, the report signals sustained government commitment to CCUS deployment and identifies technology areas where innovation funding, demonstration projects and commercial support mechanisms are likely to be concentrated over the next decade.

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4. Decommissioning, Marine Energy and System Flexibility

4.1 UK Launches Public Consultation on Offshore Decommissioning Regulations

On 16 December 2025, the UK Department for Energy Security and Net Zero launched a public consultation on draft regulations and guidance for offshore oil and gas decommissioning, with responses invited until midnight on 27 January 2026. The consultation follows updated decommissioning guidance published by the North Sea Transition Authority (NSTA) in late November and reflects continuing regulatory focus on ensuring timely execution of decommissioning obligations and protection of taxpayers from default risk.

The consultation represents part of a broader tightening of decommissioning enforcement, as evidenced by the NSTA's public naming in recent weeks of 13 UK offshore operators falling behind on their obligations, collectively responsible for 153 wells in arrears. For supply-chain firms specialising in

well plug and abandonment (P&A), subsea cutting, heavy-lift operations, decommissioning engineering and onshore recycling, the combined effect of regulatory pressure, backlog clearance and updated guidance confirms sustained near-term demand and reinforces the importance of financial security, technical capability and schedule certainty in securing decommissioning contracts.

4.2 Serica Acquires North Sea Assets – Decommissioning Liability Retained by Seller

On 16 December 2025, Serica Energy announced the acquisition of a portfolio of North Sea assets from Spirit Energy, with Spirit retaining decommissioning liability for all operated assets up to a cap of 115% of estimated costs. The transaction includes production assets with combined output of over 11,000 barrels of oil equivalent per day (boepd) net to Spirit in H1 2025, alongside 2P reserves of approximately 7.1 million barrels of oil equivalent (mmboe).

The deal structure—where decommissioning costs remain with the seller—enables Serica to strengthen its operational capacity for decommissioning execution while limiting near-term financial exposure. For the wider market, the transaction illustrates how decommissioning liability allocation is becoming a critical commercial negotiation point in North Sea asset transactions, with buyers increasingly seeking to avoid inheriting long-dated, uncertain decommissioning obligations. This trend reinforces the importance of rigorous decommissioning cost estimation, credible financial security arrangements and experienced engineering partners able to deliver on-time, on-budget well P&A and infrastructure removal.

4.3 Wave and Tidal Energy Market Projected to Reach $1.85 Billion by 2032

On 17–18 December 2025, DataM Intelligence published market analysis projecting the global wave and tidal energy market to grow from approximately $983 million in 2024 to $1.85 billion by 2032, reflecting a compound annual growth rate (CAGR) of 8.23% over the forecast period from 2025 to 2032. The analysis indicates that ocean-based renewable energy is expected to advance beyond experimental phases into early commercial applications by 2031, propelled by government initiatives, increased offshore energy investment and rapid maturation of wave and tidal technologies.

The report emphasises that the resurgence of interest in wave and tidal energy is anchored in grid reliability, energy security and integration with existing offshore infrastructure. Tidal energy, in particular, offers predictable generation patterns years in advance, enabling grid operators to plan capacity with high confidence—an attribute increasingly valued as solar and wind penetration grows. Tidal energy accounted for an estimated 58% of the market in 2024 (approximately $570 million), benefiting from predictable output, higher capacity factors and reduced technology risk compared to wave energy. Power generation applications remain the largest segment, constituting approximately 74% of global market value in 2024 ($727 million), supported by long-term power purchase agreements, government-backed demonstration initiatives and integration into island grids, coastal regions and remote industrial sites.

The United States is forecast to account for approximately 40% of global wave and tidal energy installations by 2032, driven by federal backing for marine energy demonstration projects, strong Pacific Northwest and Alaska research initiatives, and increasing utility interest in consistent renewable output for grid stability. Key technology providers include Carnegie Clean Energy (modular CETO wave

systems), Orbital Marine Power (tidal stream turbines with multi-megawatt capacity) and several others advancing commercial-scale installations.

For supply-chain firms with offshore engineering, subsea installation, mooring systems and marine operations expertise, the sector presents early-stage but growing opportunity, particularly in foundation design, power electronics, subsea cabling, O&M services and integration with hybrid offshore energy systems combining wind, tidal and battery storage.

4.4 EMEC Highlights UK Marine Energy Potential in 2025 Review

On 18 December 2025, the European Marine Energy Centre (EMEC) in Orkney published a year-end review emphasising that the UK is well-positioned to lead the global transition to marine renewables, with over 25 GW of wave energy capacity and 11 GW of tidal stream potential. The review highlighted that current projects are already demonstrating significant power outputs—MeyGen has generated over 84 GWh to date—and over 80% UK supply chain content, exemplified by Orbital Marine Power's O2 tidal turbine. EMEC reiterated that the sector's ability to deliver environmental and economic benefits at scale is now proven, with the key barrier to commercial deployment being sustained policy support through mechanisms such as the Contracts for Difference (CfD) scheme.

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5. Global Market Context and Regional Opportunity Mapping

5.1 Europe – Poland, UK Grid Reform and Transmission Investment

This week's Polish auction outcome (3.4 GW), UK consents (Five Estuaries 1.08 GW), grid connection reform results and National Wealth Fund transmission investment (£800 million for Scottish grid upgrades) collectively confirm that Europe—and particularly the North Sea, Baltic Sea and Celtic Sea basins—remains the anchor region for offshore wind investment, CCUS infrastructure development and grid modernisation.

For North East Scotland companies, the opportunity landscape now spans:

- Baltic Sea offshore wind deployment: Poland's 3.4 GW pipeline commissioning in 2032, with further auctions planned through 2031 targeting 18 GW by 2040, creating sustained demand for foundations, cables, substations, installation vessels and O&M services with European content preferences.
- UK floating wind progression: Celtic Sea 4.5 GW floating pipeline supported by Crown Estate funding for innovative manufacturing infrastructure (Floating Construction Station concept), ScotWind 25 GW pipeline, and INTOG 5.4 GW, requiring mooring systems, dynamic cables, floating substructure fabrication and heavy-lift vessels.
- CCUS cluster build-out: Northern Lights operational Phase 1 (1.5 Mtpa) and Phase 2 under construction (5 Mtpa by 2028), Eni's UK and Netherlands projects (Liverpool Bay, Bacton, L10-CCS), and UK Track-1 clusters (East Coast Cluster, HyNet) advancing towards operational status, creating demand for CO_2 pipelines, compression, injection wells, subsea infrastructure and monitoring systems.

- Grid and interconnection upgrades: Ofgem's prioritisation of 283 GW of generation and storage connections to 2035, with offshore wind and solar receiving preferential treatment; accelerated delivery of Eastern Green Link 3 and 4 subsea cables (2 GW each, August 2034 target) and Grimsby-Walpole connection (December 2033); and National Wealth Fund backing for Scottish transmission reinforcement.

5.2 Asia-Pacific – Australia Progressing, Regional Pipeline Intact Despite Slowdown

Australia's offshore wind sector advanced materially this week with Ocean Winds' High Sea Wind metocean campaign launch (1.3 GW project, Gippsland) and Star of the South's Environmental Impact Statement lodgement—the first Australian offshore wind project to reach this regulatory milestone.

While the wider Asia-Pacific region was affected by the global offshore wind forecast reductions reported by TGS | 4C (31% cut to 2030 forecast capacity), Taiwan, South Korea and Japan continue to advance regulatory frameworks, supply chain development and auction schedules. As noted by industry participants at the AWEA Singapore event this week, the sector faces real-world challenges including supply chain constraints, evolving regulations and complex environmental conditions, but momentum remains supported by ongoing investment, innovation and growing regional supply-chain capability.

For North East Scotland firms, Asia-Pacific opportunities centre on floating wind technology and harsh-environment engineering expertise (turbine design, mooring, dynamic cables, O&M in typhoon-exposed waters), marine logistics and HSE systems adapted from North Sea standards, and grid integration and storage solutions to manage high renewable penetration in island and coastal grids.

5.3 North America and Emerging Markets

The United States did not feature prominently in this week's offshore wind developments, consistent with the continued policy uncertainty noted in previous weeks. However, the US is forecast to lead global wave and tidal energy deployment, with approximately 40% of installations by 2032 driven by federal marine energy demonstration programmes and utility interest in predictable baseload renewable capacity.

Namibia's installation of Africa's first fully integrated green hydrogen facility (Plug Power 5 MW electrolyser) signals early-stage hydrogen opportunity in regions with abundant renewable resources, though commercial viability will depend on export offtake agreements, credible certification and concessional finance.

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6. Policy, Regulation and Grid Investment Signals

6.1 UK Grid Connections Reform – 283 GW Prioritised to 2035

On 8 December 2025, the National Energy System Operator (NESO) and Ofgem published the results of the GB grid connections queue reform, officially clearing the backlog of non-viable projects and establishing a new pipeline of prioritised projects aligned with national energy targets including Clean Power 2030. Projects that met readiness and strategic alignment criteria received "Gate 2" priority

status, while others received "Gate 1" offers. Across delivery phase 1 (connections up to 2030) and phase 2 (2031–2035), NESO claims to have unlocked 283 GW of generation and storage and 99 GW in transmission-connected demand, expected to unlock up to £40 billion in annual sector investment.

The results show that offshore wind and solar PV projects fared well in prioritisation, while over 150 GW of battery energy storage system (BESS) capacity was deprioritised or removed from the queue due to oversupply in specific regions and speculative applications. Ofgem also approved Connection and Use of System Code (CUSC) modification proposal CMP448, introducing a progression commitment fee (PCF) for Gate 2 projects that fail to meet planning milestones, designed to discourage speculative applications and maintain queue discipline. The PCF is set at £2,500/MW initially and ratchets up by £2,500/MW every six months to a ceiling of £10,000/MW.

For developers and supply-chain firms, the reform provides much-needed clarity on which projects are likely to connect in the 2025–2035 timeframe, enabling more confident investment decisions in manufacturing capacity, port infrastructure, installation vessels and workforce planning. The prioritisation of offshore wind reinforces the sector's central role in achieving UK decarbonisation targets and validates supply-chain investment in turbines, foundations, cables and grid connection equipment.

6.2 UK Confirms AR7 Budget Allocations for Onshore Wind, Solar and Floating Offshore Wind

On 8–16 December 2025, the UK Department for Energy Security and Net Zero confirmed budget allocations for Allocation Round 7 (AR7) of the Contracts for Difference scheme. Pot 1 (onshore wind, solar PV, and other established renewables) has been allocated a maximum budget of £295 million for projects delivering in 2027/28 or 2028/29, including a ringfenced minimum budget of £160 million specifically for onshore wind and remote island wind projects. A separate maximum budget of £295 million applies to solar PV to ensure its clearing price is separated from other Pot 1 technologies. Pot 2 (less established technologies including tidal stream and wave) has a maximum budget of £15 million for projects with delivery years 2028/29 or 2029/30. Floating offshore wind has been allocated a dedicated budget of £180 million to secure Test & Demonstration projects vital to the development of the UK's floating wind sector.

The AR7 budget allocations signal government commitment to diversifying the renewable energy mix, unlocking constrained onshore wind and solar capacity (following removal of planning restrictions), and supporting floating wind progression from demonstration to pre-commercial scale. Results of AR7 are expected to be announced in 2026 and will provide further clarity on strike prices, successful project locations and supply-chain demand over the 2027–2030 period.

6.3 Germany Approves €1.6 Billion E-Truck Charging Hub Programme

On 18 December 2025, the European Commission granted state aid approval to a significant German funding programme designed to enable rapid deployment of heavy electric commercial vehicle (e-truck) charging hubs along the national motorway network. The scheme, backed by up to €1.6 billion in public support, will subsidise construction of high-power charging stations for heavy-duty battery electric vehicles (e-HDVs) primarily at unmanaged motorway rest areas. The inaugural procurement round covers around 130 sites with a planned 1,410 charging points at over 120 locations, with each hub equipped with at least 400 kW CCS ports and 1,000 kW MCS (Megawatt Charging System) ports.

The programme aligns with the EU's Fit for 55 climate framework and Alternative Fuels Infrastructure Regulation (AFIR) objectives, which mandate minimum alternative fuels infrastructure deployment targets across the Trans-European Transport Network (TEN-T). The Commission's approval sends an important signal about the viability of large-scale public support for heavy-duty charging infrastructure and creates opportunities for equipment suppliers, engineering firms and construction contractors across Europe.

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7. Skills, Workforce and Just Transition Implications

The regulatory tightening in UK decommissioning (consultation launched 16 December, NSTA enforcement actions), combined with the ongoing transition away from hydrocarbon production, underscores the urgency of targeted reskilling programmes for offshore workers. Simultaneously, Poland's 3.4 GW auction outcome, UK grid connection reform prioritising 283 GW of renewables and storage, and operational commencement of Northern Lights CCUS infrastructure confirm that high-quality engineering and project management roles are increasingly tied to integrated, multi-vector projects combining offshore wind, hydrogen, CCUS and decommissioning capabilities.

Workforce strategies that treat these sectors as separate verticals will miss the real demand pattern: systems-level capabilities that operate at the intersection of offshore engineering, subsea infrastructure, digital optimisation, grid integration and late-life asset management. Regions and companies that recognise this convergence and structure training, recruitment and business development accordingly will be best positioned to capture sustained employment and commercial opportunity over the next two decades.

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8. Weekly Feature Deep-Dive: "Poland's Baltic Sea Breakthrough – What the 3.4 GW Auction Means for European Supply Chains"

Poland's successful conclusion of its first competitive offshore wind auction on 17 December 2025 represents more than a national energy milestone—it signals the arrival of the Baltic Sea as Europe's next major offshore wind theatre and resets expectations for auction design, supply-chain engagement and regulatory stability at a time when other European markets have struggled to attract bids or deliver projects on schedule.

The Auction Design and Outcome

The auction awarded 25-year Contracts for Difference to three projects totalling 3.4 GW: ORLEN Neptun's Baltic East (1.2 GW), PGE's Baltica 9 (1.2 GW), and RWE-led Bałtyk I (1.0 GW). Strike prices ranged from €113 to €117 per megawatt-hour, indexed annually to inflation. All three projects are scheduled to commence electricity delivery in December 2032, with combined generation of approximately 330 TWh over the 25-year support period—nearly double Poland's current annual electricity consumption.

The outcome is particularly notable in the context of 2025's global offshore wind malaise. As reported by TGS | 4C Offshore and noted by Bloomberg and other analysts, the year saw widespread auction cancellations, undersubscribed tenders and downward forecast revisions across Europe, Asia and North America. Poland's auction was the largest single offshore wind award anywhere in Europe in 2025, exceeding the combined results of France and Germany.

Why Poland Succeeded Where Others Struggled

Several design features distinguish Poland's approach:

Long-term support period: The 25-year CfD term is longer than Ireland's 20 years and France's 20 years, providing greater revenue certainty over turbine and substructure design life and improving debt financing terms.

Inflation indexation: Annual adjustment of strike prices to average inflation protects developers from cost escalation and currency risk, addressing one of the key challenges that led to project cancellations and auction failures elsewhere in Europe in 2024 and 2025.

Clear pipeline visibility: Poland has committed to further offshore wind auctions in 2027, 2029 and 2031, with a roadmap towards 18 GW by 2040 and potentially over 30 GW by 2050. This sustained, predictable auction schedule enables supply-chain firms to make long-term capacity investment decisions with confidence.

Strong local content expectations: Polish companies are expected to account for over 40% of supply-chain value, creating incentives for international contractors to form partnerships with Polish firms, transfer technology and expertise, and invest in local manufacturing and port infrastructure.

Integration with broader energy policy: Poland's offshore wind expansion is explicitly linked to its transition away from coal (currently the country's dominant electricity source) and alignment with EU climate targets, giving the sector strong political backing and policy durability.

Supply-Chain Implications for North East Scotland and the Wider North Sea

For companies based in North East Scotland and across the North Sea basin, Poland's 3.4 GW pipeline commissioning in 2032 creates near-term commercial opportunities across the offshore wind value chain:

Geotechnical and environmental surveys: Site characterisation, metocean data collection, geophysical and geotechnical surveys, and environmental baseline studies are already underway or imminent for all three projects. Survey vessel operators, geotechnical drilling contractors and environmental consultancies with Baltic Sea experience or transferable North Sea expertise should prioritise engagement with Polish developers and project partners.

Foundation manufacturing and supply: The three projects will require approximately 100–120 monopile or jacket foundations depending on final turbine selection and site conditions. While Poland is developing domestic fabrication capability, near-term capacity constraints and quality assurance requirements create opportunities for experienced North Sea fabricators (e.g., SeAH Wind on Teesside, Smulders, Sif) able to deliver on schedule and meet European content commitments. Partnership

models combining international expertise with Polish manufacturing or port facilities (Gdańsk, Gdynia) are likely to be favoured.

Subsea cables – inter-array and export: Each project will require inter-array cables connecting turbines to offshore substations and export cables to shore. Cable suppliers (JDR, Nexans, NKT, Prysmian) and cable-laying contractors (Boskalis, Jan De Nul, Van Oord) with experience in complex North Sea and Baltic seabed conditions and proven ability to deliver on time will be well-positioned. Export cable routes will require careful routing to avoid existing infrastructure, munitions and environmental constraints, demanding sophisticated survey, route engineering and installation capabilities.

Offshore substations and HVDC/HVAC systems: The 3.4 GW capacity will be collected and transmitted via offshore substations and onshore grid connection. Engineering, procurement and construction contractors specialising in offshore HVAC or HVDC platforms (Aibel, Dragados Offshore, Saipem, Semco Maritime) and high-voltage equipment suppliers (ABB, GE Grid Solutions, Siemens Energy) should engage early with project developers and Polish transmission system operator PSE to secure positions in upcoming tenders.

Installation vessels and marine logistics: The concentration of three large projects with overlapping construction schedules (likely 2030–2032) will create peak demand for jack-up installation vessels, heavy-lift vessels, cable-lay vessels and support vessels. While the Baltic Sea has lower metocean severity than the central and northern North Sea, installation vessel availability across Europe is constrained. Vessel owners (Cadeler, DEME Offshore, Jan De Nul, Seaway 7, Van Oord) should evaluate Baltic mobilisation and scheduling well in advance. For service vessels, crew transfer vessels (CTVs) and accommodation support, Polish or regional vessel operators may have cost and logistics advantages, but North Sea operators with proven safety and efficiency records can compete through partnerships or direct charter.

Operations and maintenance: From 2033 onwards, the three projects will require long-term O&M services including scheduled and unplanned turbine maintenance, substation maintenance, cable monitoring and repair, vessel operations, and spare parts logistics. North East Scotland has deep O&M expertise developed through Beatrice, Moray East, Seagreen and other projects, directly transferable to Polish conditions. Early engagement with developers to understand O&M strategies, base port selection (Gdańsk and Gdynia are leading candidates) and local content expectations will be critical to securing long-term service contracts.

Lessons for Other Baltic and Emerging Markets

Poland's auction success provides a blueprint for other countries seeking to scale offshore wind rapidly and attract international investment:

- Durable policy frameworks matter more than headline capacity targets. Clear auction schedules, long-term support mechanisms and inflation protection reduce cost of capital and improve competitiveness.
- Local content requirements, when balanced with realistic capability timelines, can strengthen rather than hinder supply chains. Poland's 40%+ target creates incentives for partnerships and technology transfer without imposing unachievable short-term constraints.

- Integration with broader industrial and energy policy amplifies political support and longevity. Poland's offshore wind expansion is framed as a coal-transition strategy, European climate alignment, and energy security measure—creating multi-stakeholder buy-in.

Other Baltic nations (Lithuania, Latvia, Estonia) and emerging offshore wind markets in Southeast Europe (Bulgaria, Romania) and the Mediterranean should study Poland's auction design and adapt its successful features to local conditions.

Conclusion: Baltic Sea as Europe's Growth Market

Poland's 3.4 GW auction outcome, achieved against a backdrop of European offshore wind slowdown, confirms that the Baltic Sea is transitioning from early-stage to deployment-ready. With Poland targeting 18 GW by 2040, Germany advancing its Baltic offshore plans, and Lithuania, Latvia and Estonia developing their first projects, the Baltic basin is set to become Europe's second-largest offshore wind region after the North Sea over the next 15 years.

For North East Scotland companies, the Baltic opportunity is both immediate (2025–2032 project delivery for the current 3.4 GW) and sustained (ongoing auction pipeline through 2040 and beyond). Success will require early relationship-building with Polish developers and supply-chain partners, flexibility in commercial structures (partnerships, joint ventures, licensing), investment in understanding local regulatory and permitting requirements, and adaptation of North Sea-proven technologies and services to Baltic conditions.

Poland has demonstrated that clear policy, credible revenue support and supply-chain engagement can deliver competitive auctions even in challenging market conditions. The Baltic Sea's offshore wind era has begun.

References

1. UK Government (2025). "Morgan Offshore Wind secures Development Consent for major Irish Sea wind farm." 18 December 2025. **https://www.gov.uk/government/news/morgan-offshore-wind-secures-development-consent-for-major-irish-sea-wind-farm**

2. NOF Energy (2025). "Sperra Seaworks and Bardex receive funding from The Crown Estate to advance new infrastructure concept for UK offshore wind." 12 December 2025. **https://www.nof.co.uk/news/sperra-seaworks-and-bardex-receive-funding...**

3. TGS (2025). "Offshore Wind Forecast Slashed, but Signs of Recovery Emerge for 2026." 18 December 2025. **https://www.tgs.com/press-releases/offshore-wind-forecast-slashed-but-signs-of-recovery-emerge-for-2026**

4. Wind Tech International (2025). "TGS 4C report highlights slowdown in global offshore wind activity during 2025." 18 December 2025. **https://www.windtech-international.com/industry-news/tgs-4c-report-highlights-slowdown...**

5. Ocean Winds (2025). "Ocean Winds launches its first offshore wind and metocean measurement campaign for High Sea Wind project in Australia." 17 December 2025. https://www.oceanwinds.com/news/uncategorized/ocean-winds-launches...

6. NS Energy Business (2025). "Ocean Winds commences initial offshore wind measurement campaign in Australia." 19 December 2025. https://www.nsenergybusiness.com/news/ocean-winds-commences...

7. ESG News (2025). "Ocean Winds Launches Offshore Wind Measurement Campaign For 1.3 GW High Sea Wind Project In Australia." 18 December 2025. https://esgnews.com/ocean-winds-launches-offshore-wind-measurement-campaign...

8. Environment + Energy Leader (2025). "Clean Hydrogen Becomes Critical U.S. Industrial Infrastructure." 18 December 2025. https://www.environmentenergyleader.com/stories/clean-hydrogen-becomes-critical-us-industrial-infrastructure,108444

9. Plug Power (2025). "Plug Power Installs 5MW GenEco Electrolyzer with Cleanergy Solutions Namibia for Africa's First Fully Integrated Green Hydrogen Facility." 17 December 2025. https://www.ir.plugpower.com/press-releases/news-details/2025/...

10. Carbon Herald (2025). "CCUS In 2025: An End-Of-Year Review." 17 December 2025. https://carbonherald.com/ccus-in-2025-an-end-of-year-review/

11. UK Department for Energy Security and Net Zero (2025). "Energy Innovation Needs Assessment: Carbon management." 18 December 2025. https://assets.publishing.service.gov.uk/media/69449ce19273c48f554cf641/einas-2025-carbon-management.pdf

12. Eni (2025). "Eni CCUS Holding finalizes strategic partnership with GIP for 49.99% equity stake." 18 December 2025. https://www.eni.com/en-IT/media/press-release/2025/12/eni-ccus-holding-finalizes-strategic-partnership-with-gip.html

13. JPT (2025). "Northern Lights Issues First Carbon Dioxide Storage Certificates." 18 December 2025. https://jpt.spe.org/northern-lights-issues-first-carbon-dioxide-storage-certificates

14. Indian Chemical News (2025). "Northern Lights issues world's first certificates for permanently stored CO2." 15 December 2025. https://www.indianchemicalnews.com/ccus/northern-lights-issues-worlds-first-certificates...

15. UK Government (2025). "Oil & Gas: decommissioning of offshore installations & pipelines." 16 December 2025. https://www.gov.uk/guidance/oil-and-gas-decommissioning-of-offshore-installations-and-pipelines

16. Serica Energy (2025). "Acquisition of North Sea Assets from Spirit Energy." 16 December 2025. https://www.serica-energy.com/downloads/presentations/Acquisition%20of%20North%20Sea%20Assets...

17. Yahoo Finance (2025). "Waves and Tidal Energy Market to Approach USD 1.85 Billion by 2032." 17 December 2025. https://uk.finance.yahoo.com/news/waves-tidal-energy-market-approach-165800461.html

18. Offshore Energy (2025). "Wave and tidal energy to reach $1.85B by 2032, commercial deployment by 2031: report finds." 18 December 2025. https://www.offshore-energy.biz/wave-and-tidal-energy-to-reach-1-85b-by-2032...

19. EMEC (2025). "2025 – innovation in action at EMEC." 18 December 2025. https://www.emec.org.uk/2025-innovation-in-action-at-emec/

20. Waves Group (2025). "Waves Group joins Asia Wind Energy Association networking event in Singapore." 17 December 2025. https://www.waves-group.co.uk/general-news/waves-group-joins-asia-wind-energy-association...

21. Osborne Clarke (2025). "Ofgem completes GB grid connections overhaul to 2035." 16 December 2025. https://www.osborneclarke.com/insights/energy-transition-ofgem-completes-gb-grid-connections-overhaul-2035

22. UK Government (2025). "Contracts for Difference and Capacity Market scheme update 2025." 16 December 2025. https://www.gov.uk/government/publications/contracts-for-difference-and-capacity-market-scheme-update-2025...

23. European Commission Alternative Fuels Observatory (2025). "German €1.6 Billion E-Truck Charging Hub Funding Approved by European Commission." 18 December 2025. https://alternative-fuels-observatory.ec.europa.eu/general-information/news/german-eu16-billion-e-truck-charging-hub...

24. WindEurope (2025). "Poland powers ahead: first offshore wind auction delivers strong results." 19 December 2025. https://windeurope.org/news/poland-powers-ahead-first-offshore-wind-auction-delivers-strong-results/

25. Bloomberg (2025). "Poland Defies Europe's Offshore Wind Malaise With First Auction." 17 December 2025. https://www.bloomberg.com/news/articles/2025-12-17/poland-defies-europe-s-offshore-wind-malaise...

26. Notes from Poland (2025). "Poland completes first offshore wind power auction, allocating 3.4 GW of capacity." 19 December 2025. https://notesfrompoland.com/2025/12/19/poland-completes-first-offshore-wind-power-auction...

27. Baltic Wind (2025). "Historic Offshore Wind Auction Outcome in Poland. Three projects secure guaranteed support." 17 December 2025. https://balticwind.eu/historic-offshore-wind-auction-outcome-in-poland...

28. National Wealth Fund (2025). "National Wealth Fund backs major grid upgrade in the north of Scotland." 17 December 2025. https://www.nationalwealthfund.org.uk/news-and-publications/news/national-wealth-fund-backs-major-grid-upgrade...

29. Star of the South (2025). "Star of the South takes major leap forward." 16 December 2025. **https://www.staroftheSouth.com.au/news-media-releases/star-of-the-south-takes-major-leap-forward**

30. Westwood Energy (2025). "Westwood Insight – Five offshore wind themes to watch in 2026." 15 December 2025. **https://www.westwoodenergy.com/news/westwood-insight/westwood-insight-five-offshore-wind-themes-to-watch-in-2026**

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