

TECHNICAL EXECUTIVE SUMMARY

EU Energy Transition — Q3 2026

Carbon Capture & Storage • Low-Carbon Hydrogen • e-Fuels • Renewable Fuels

Reporting period: July–September 2026 | Source base: 21 tracked headlines (20 unique) across 7 thematic clusters

1. Executive Overview

The third quarter of 2026 marks the point at which the European energy-transition market started delivering physical first-of-a-kind assets rather than announcements, while the policy environment moved in the opposite direction on carbon-price stringency. On the delivery side, the EU's first full-scale CO₂ storage site (INEOS Greensand, Denmark) began injection, Yara inaugurated Europe's largest industrial carbon capture unit at Sluiskil with CO₂ shipped to Northern Lights, and import-linked RFNBO supply chains converted into contracts (AM Green's H2Global award for Germany, the Yara–Air Products NEOM ammonia deal). On the policy side, the Commission's 17 July EU ETS review proposal softens the cap trajectory, extends free allocation into the 2040s and postpones the CBAM-sector phase-out to 2038, while channelling allowance revenues into a new 'Investment Booster'. Capital discipline remains the dominant theme for blue hydrogen, epitomised by Air Products' exit from its Louisiana complex (up to \$2.9bn pre-tax charge). Demand-pull instruments — ReFuelEU (2.8% SAF supplied in 2025 against a 2% mandate), H2Global, the Hydrogen Bank and the new German–Austrian–Luxembourg eSAF auction — are now the main mechanisms translating EU targets into bankable offtake.

2. Carbon Capture, Transportation and Storage

Q3 2026 delivered the EU's first operational CO₂ storage capacity. INEOS's Greensand project in the Danish North Sea started injection in September with 400,000 t/yr in phase 1 — biomethane CO₂ trucked to Esbjerg and shipped to the depleted Nini West field — and a stated ramp-up path to 4–8 Mt/yr. Days earlier, Yara and Northern Lights inaugurated the Sluiskil (Netherlands) capture plant, Europe's largest industrial CCS unit at up to 800,000 t/yr, exporting liquefied CO₂ by ship to Øygarden (Norway); Yara expects ~12 Mt over 15 years but explicitly conditions this on 'the right framework conditions'. Policy momentum remains strong: at the 29 June Implementation Dialogue, Commissioner Hoekstra reaffirmed the 50 Mt/yr injection target for 2030 and called for an integrated EU CO₂ transport and storage market, with infrastructure and market measures now expected by end-2026 within the Energy Union package (not in Q3, as previously anticipated). The CCSA EU conference highlighted a widening funding base (Prinos €270m grant support plus EBRD financing; Marcegaglia's Italian AdriaticO₂ €31.2m from the Innovation Fund; Ravenna CCS with 30 Mtpa of confirmed demand). Shipping-based chains are consolidating as the default model for inland emitters: Ambrian Energy and Messer's CarbonBridge terminal in Bremen (~2.3 Mt/yr initially, up to ~4 Mt/yr, from 2031) received EU antitrust clearance.

- Commission Implementation Dialogue on CCS — DG CLIMA, 2 Jul 2026: 50 Mt/yr 2030 target reaffirmed; CO₂ transport/market measures by end-2026.
- "CCSA EU Conference 2026: Europe's carbon capture debate moves from ambition to execution" — Carbon Herald, 6 Jul 2026 (Prinos, AdriaticO₂, Ravenna CCS).
- CarbonBridge CO₂ export terminal (Bremen) receives EU antitrust clearance — Messer/Ambrian, 27 Aug 2026.
- Yara and Northern Lights inaugurate Europe's largest industrial carbon capture facility at Sluiskil — Hydrocarbon Processing, 7 Sep 2026.
- INEOS Greensand, the EU's first full-scale CO₂ storage site, starts operating — Reuters via Mining Weekly, 18 Sep 2026.

Source items from uploaded dataset: 5 headlines, 2 Jul–18 Sep 2026.

3. Low Carbon Hydrogen

Blue hydrogen news flow in Q3 2026 confirms the Q2 signal of capital reallocation away from large merchant projects toward smaller, customer-anchored or retrofit configurations. Air Products formally abandoned its Louisiana Clean Energy Complex, booking a pre-tax charge of up to \$2.9bn in its fiscal third quarter and also discontinuing its Casa Grande liquid hydrogen project, citing returns below its ‘stringent return criteria’. By contrast, Air Liquide committed over \$160m to an on-site low-carbon hydrogen unit with carbon capture at an Arizona semiconductor fab (start-up 2028) — a small, contracted, single-offtaker model. In Europe, the most relevant low-carbon molecule milestone came from retrofit rather than greenfield: Yara’s Sluiskil capture plant decarbonises process CO₂ from existing ammonia production, illustrating that near-term ‘blue’ volumes in the EU are most likely to come from CCS on existing SMR/ammonia assets connected to third-party storage. No new European greenfield blue hydrogen FID was identified in the dataset for the quarter.

- Air Products will not proceed with its Louisiana Clean Energy Complex; up to \$2.9bn pre-tax charge — H2 Tech, 2 Jul 2026.
- Air Liquide invests over \$160m in low-carbon hydrogen with carbon capture for an Arizona chip fab — Air Liquide, 16 Jul 2026.
- Yara Sluiskil low-carbon ammonia: up to 800 kt/yr CO₂ captured and shipped to Northern Lights — Hydrocarbon Processing, 7 Sep 2026.

Source items from uploaded dataset: 3 headlines, 2 Jul–7 Sep 2026.

4. e-Ammonia

The Q2 question of whether Europe would be ready to absorb imported RFNBO ammonia was partly answered in Q3 through contracts rather than infrastructure. Yara and Air Products finalised the NEOM marketing and distribution agreement (1.2 Mt/yr plant; first ammonia expected in 2027), under which Yara commercialises the volumes Air Products does not crack — notably, Air Products has not yet taken FID on any of its proposed North-West European cracking plants, and the Yara deal reduces its need for that capacity. At the end of September, AM Green won the Asian lot of the H2Global auction run by Hintco: a 10-year RFNBO ammonia supply to Germany worth at least €585m, with first deliveries from Kakinada Phase 2 (India) in 2029. Certification is also moving upstream: Jakson Green’s Gopalpur project obtained CertifHy EU RFNBO pre-certification. The emerging pattern is that EU demand for e-ammonia is being secured as a commodity (fertiliser/chemical feedstock or bunker fuel) rather than as a hydrogen carrier, deferring the need for large-scale cracking infrastructure.

- Jakson Green Gopalpur ammonia plant earns RFNBO pre-certification (CertifHy) — Quantum Commodity Intelligence, 31 Jul 2026.
- Yara and Air Products finalise NEOM green ammonia marketing deal — Fertilizer Daily, 13 Aug 2026.
- AM Green wins €585m H2Global green ammonia deal for Germany — SolarQuarter, 30 Sep 2026.

Source items from uploaded dataset: 3 headlines, 31 Jul–30 Sep 2026.

5. e-Methanol

e-Methanol activity in Q3 2026 points to a segment broadening its offtake base while next-wave projects progress through engineering. The Mitsui–European Energy Kassø plant in Denmark — commercial since May 2025 with Maersk as first customer — has added chemical users (LEGO Group, Novo Nordisk) and, in Q3, RFNBO-certified supply to OMV for road transport, with the partners citing RED III as the main demand driver, particularly in Germany. In Sweden, Uniper moved NorthStarH₂ (Östersund, ~115 kt/yr from biogenic CO₂) into FEED with AFRY, Carbon Clean, Siemens Energy and Topsoe (contracts above SEK 100m), targeting FID in 2028 and operations in 2031. The quarter therefore confirms the Q2 reading of an execution-phase segment, but also highlights the time lag: projects entering FEED today will not supply the market before the 2030s, and the shipping-only offtake model has given way to multi-sector portfolios to de-risk volumes.

- Mitsui and European Energy expand Kassø e-methanol offtake to OMV (road transport) — ChemAnalyst, 24 Aug 2026.

- Uniper enters basic engineering (FEED) for NorthStarH2 e-methanol in Sweden — Carbon Herald, 1 Sep 2026.

Source items from uploaded dataset: 2 headlines, 24 Aug–1 Sep 2026.

6. e-SAF (Sustainable Aviation Fuel)

e-SAF was again the most active theme in Q3 2026, and the first hard compliance data arrived. The Commission/EASA report on ReFuelEU's first year shows 1.1 Mt of SAF supplied at EU airports in 2025 — 2.8% of 39.3 Mt total jet fuel, above the 2% mandate and roughly six times 2024 volumes, with ~84% produced in the EU. The picture for the synthetic sub-mandate (1.2% eSAF from 2030) is weaker: around 50 eSAF projects are still awaiting FID. Two responses emerged. On funding, Germany, Austria and Luxembourg launched a joint double-sided eSAF auction worth up to €2.12bn (subject to state-aid approval), the first concrete instrument of the eSAF Early Movers Coalition. On definitions, T&E warned that allowing 'e-HEFA' (biofuels partly produced with green hydrogen) to count towards the e-SAF sub-mandate would undermine genuine power-to-liquid projects — a regulatory risk for both developers and offtakers. Outside Europe, Phelan Green's board approved a R12bn first phase of a R47bn eSAF project in South Africa, explicitly referencing EU mandates as its market driver.

- T&E: allowing 'e-HEFA' to count towards the ReFuelEU e-SAF mandate would be a strategic mistake — 14 Sep 2026.
- Phelan Green approves R12bn Phase 1 eSAF investment (Saldanha Bay, South Africa) — Engineering News, 16 Sep 2026.
- ReFuelEU first-year report: 2.8% SAF share in 2025, ~50 eSAF projects awaiting FID — European Commission (DG MOVE), 17 Sep 2026.
- Germany, Austria and Luxembourg launch €2.12bn joint eSAF funding scheme — German Federal Ministry of Transport, 21 Sep 2026.

Source items from uploaded dataset: 4 headlines, 14–21 Sep 2026.

7. Renewable Fuels

Q3 renewable-fuels news is driven by national RED III transposition and its effect on product mix. In Germany, the GHG quota rose from 10.6% (2025) to 12% (2026) and is set to reach 17.5% in 2027; combined with the end of double counting for certain waste-based biofuels and the 7% biodiesel blending cap, this pushed HVO use to 270.7 kt in January–May 2026 versus 64.9 kt a year earlier (BAFA data). At the strategic level, a TEHA Group–Eni study presented at Cernobbio argued for biofuels as a complement to electrification, noting that over 170 million EU diesel vehicles are already HVO-compatible and estimating that biorefinery investment could generate up to €66bn of GDP and more than 33,000 jobs. For project developers, the key takeaway is that member-state quota design — not EU-level targets alone — is now the decisive variable for HVO and biodiesel demand.

- HVO demand surges as tighter GHG quota rules reshape Germany's diesel pool — Biofuels International, 26 Aug 2026.
- TEHA Group and Eni study on biofuels from renewable feedstocks — Eni, 5 Sep 2026.

Source items from uploaded dataset: 2 headlines, 26 Aug–5 Sep 2026.

8. Other Relevant Developments

Two cross-cutting policy decisions frame the quarter. First, the Commission's EU ETS review proposal (17 July) aligns the system with the 90% 2040 target but eases the near-term trajectory: the linear reduction factor falls to 3.7% for 2031–2035 and 1.7% from 2036, free allocation for heavy industry extends into the 2040s (with ~€6bn of additional allowances via revised 2026–2030 benchmarks), the CBAM-sector free-allocation phase-out moves from 2034 to 2038, and permanent removals and international credits are brought into scope. EUA prices rose about €7

after publication (up to €86), but ClearBlue Markets projects a 2030 price ~22% lower than under current law. This directly answers the Q2 steelmakers' call for an ETS 'reality check' — and lowers the carbon-price pull on CCS and hydrogen business cases. Second, the Hydrogen Bank's fourth auction (IF26) was set at €500m — less than half the previous round — with a €150m window open to low-carbon electrolytic hydrogen, a first step in blending RFNBO and low-carbon support.

- European Hydrogen Bank 4th auction (IF26): €500m, incl. €150m for RFNBO and/or low-carbon electrolytic hydrogen — HydroNews, 10 Jul 2026.
- Commission publishes EU ETS review proposal (LRF 3.7%, free allocation into 2040s, CBAM phase-out to 2038) — ClearBlue Markets analysis, 17 Jul 2026.

Source items from uploaded dataset: 2 headlines, 10–17 Jul 2026.

9. Strategic Summary — Implications and Opportunities

Q3 2026 shifts the EU market from an execution-risk phase to an early-operations phase: the first CO₂ storage and large-scale capture assets are running, and import-linked RFNBO and eSAF volumes are being contracted through public market-making instruments. At the same time, the ETS review reduces the strength of the carbon-price signal that underpinned many business cases. For engineering, EPC and technical due-diligence stakeholders, three implications stand out.

- **Shipping-based CO₂ chains as the reference model:** Greensand, Sluiskil–Northern Lights and CarbonBridge show that EU CCS is scaling through liquefaction, intermediate storage, ports and ships rather than pipelines alone. Interface risk (capture–liquefaction–terminal–ship–injection), availability guarantees and liability allocation across multiple operators should become core due-diligence items.
- **Weaker carbon-price pull, stronger public co-funding:** with a lower LRF, extended free allocation and CBAM phase-out delayed to 2038, projects relying on ETS-cost avoidance should be re-tested against lower EUA paths; conversely, the Investment Booster (~€30bn from 2028), Innovation Fund, Hydrogen Bank and H2Global make grant/CfD structuring a larger share of value.
- **Definitional and certification risk in e-fuels:** the e-HEFA debate, RFNBO pre-certification of overseas plants and the absence of FIDs on EU ammonia crackers mean that regulatory eligibility — not process technology — is the main swing factor for eSAF, e-ammonia and e-methanol revenues.

For a technical advisory or due-diligence practice, the near-term opportunity set is concentrated in (i) independent review of CO₂ shipping chains and terminals (Bremen, Esbjerg-type hubs, Mediterranean projects such as Ravenna, Prinos and AdriaticO₂), ahead of the Commission's end-2026 CO₂ market package; (ii) bankability and bid-support reviews for eSAF and e-methanol projects entering FEED or competing in the DE/AT/LU double-sided auction and the Hydrogen Bank IF26 round; and (iii) scenario-based stress-testing of CCS-, hydrogen- and e-fuel-linked capital programmes against the post-review ETS trajectory. The blue-hydrogen retreat in the US (Air Products) should be read as a warning on greenfield merchant projects, not on CCS retrofits of existing European ammonia and refinery assets, which remain the most credible near-term source of low-carbon molecules.

Headline	Date	Source
Carbon Capture, Transportation and Storage (5 items)		
Commissioner Hoekstra convenes CCS 'Implementation Dialogue': EU reaffirms 50 Mt/yr injection-capacity target for 2030; Commission to present CO2 transport infrastructure and market measures by end-2026 (Energy Union package)	02/07/2026	Link
CCSA EU Conference 2026: Europe's CCS debate moves from ambition to execution - Prinos (GR) EUR 270m grant support, Marcegaglia Adriatic CO2 (IT) EUR 31.2m Innovation Fund grant, Ravenna CCS with 30 Mtpa of confirmed CO2 demand	06/07/2026	Link
Ambrian Energy and Messer obtain EU antitrust clearance for CarbonBridge, Germany's first CO2 export terminal (Bremen): ~2.3 Mt/yr initially, up to ~4 Mt/yr, operations from 2031	27/08/2026	Link
Yara and Northern Lights inaugurate Europe's largest industrial carbon capture facility at Sluiskil (NL): up to 800,000 t/yr CO2 from ammonia production shipped to Øygarden (NO) for permanent storage	07/09/2026	Link
INEOS starts Greensand (DK), the EU's first full-scale CO2 storage site: 400,000 t/yr in phase 1 (biomethane CO2 shipped from Esbjerg to Nini West), scalable to 4-8 Mt/yr	18/09/2026	Link
Low Carbon Hydrogen (3 items)		
Air Products will not proceed with its Louisiana Clean Energy Complex (blue hydrogen/ammonia): pre-tax charge of up to \$2.9bn in fiscal Q3; Casa Grande liquid hydrogen project also discontinued	02/07/2026	Link
Air Liquide invests over \$160m in an on-site low-carbon hydrogen facility with carbon capture to supply an advanced semiconductor fab in Arizona (start-up 2028)	16/07/2026	Link
Low-carbon ammonia: Yara Sluiskil carbon capture (up to 800 kt/yr CO2 to Northern Lights) enters operation - ~12 Mt CO2 expected over 15 years, subject to 'the right framework conditions'	07/09/2026	Link
e-Ammonia (3 items)		
Jakson Green's Gopalpur (Odisha, India) renewable hydrogen and green ammonia project secures CertifHy EU RFNBO pre-certification	31/07/2026	Link
Yara and Air Products finalise NEOM green ammonia marketing and distribution deal (1.2 Mt/yr plant, first ammonia expected 2027); Air Products still without FID on its proposed NW-Europe cracking plants	13/08/2026	Link
AM Green wins H2Global Asian lot (Hintco): 10-year RFNBO ammonia supply to Germany worth at least EUR 585m, first deliveries 2029 from Kakinada Phase 2 (India)	30/09/2026	Link
e-Methanol (2 items)		
Mitsui and European Energy broaden Kassø (DK) e-methanol offtake: after Maersk (shipping) and LEGO/Novo Nordisk (chemicals), RFNBO e-methanol to OMV for road transport	24/08/2026	Link
Uniper moves NorthStarH2 e-methanol (Östersund, SE; ~115 kt/yr, biogenic CO2) into FEED with AFRY, Carbon Clean, Siemens Energy and Topsoe; FID targeted 2028, operations 2031	01/09/2026	Link
e-SAF (Sustainable Aviation Fuel) (4 items)		
T&E: allowing 'e-HEFA' to count towards the ReFuelEU e-SAF sub-mandate would be a 'strategic mistake'; most fuel suppliers have no own e-SAF capacity or offtake yet	14/09/2026	Link
Phelan Green family board approves R12bn Phase 1 of R47bn eSAF project near Saldanha Bay (South Africa); financial close targeted Q1 2027, first fuel Q2 2029	16/09/2026	Link
Commission/EASA ReFuelEU first-year report: 1.1 Mt SAF supplied in 2025 (2.8% vs 2% mandate), ~6x 2024 volumes; ~50 eSAF projects still awaiting FID	17/09/2026	Link
Germany, Austria and Luxembourg launch joint eSAF double-sided auction scheme (up to EUR 2.12bn: DE 2bn, AT 60m, LU 60m), subject to EU state-aid approval	21/09/2026	Link
Renewable Fuels (2 items)		
HVO demand surges in Germany as tighter GHG-quota rules (12% in 2026, 17.5% in 2027) and end of double counting reshape the diesel pool; Jan-May HVO use 270.7 kt vs 64.9 kt in 2025 (BAFA)	26/08/2026	Link
TEHA Group-Eni study (Cernobbio): renewable-feedstock biofuels compatible with 170m+ EU diesel vehicles; biorefinery investment could generate up to EUR 66bn GDP and 33,000+ jobs	05/09/2026	Link
Eventual Others (2 items)		
European Hydrogen Bank 4th auction (IF26) set at EUR 500m - EUR 350m for RFNBO and EUR 150m for RFNBO and/or low-carbon electrolytic hydrogen - to be held by year-end	10/07/2026	Link
Commission publishes EU ETS review proposal: LRF cut to 3.7% (2031-35), free allocation extended into the 2040s, CBAM-sector phase-out postponed to 2038, EUR 30bn 'Investment Booster' from 2028	17/07/2026	Link