

The Digest's 2026 Multi-Slide Guide to EU Advanced Biofuels Cluster Dynamics

Same port, opposite outcomes — why the incumbent's site beats the famous address

Rotterdam announced four big biofuel plants; the one that survived was the one already there.

Rotterdam attracted announcements, but the surviving project was an expansion beside Neste's existing plant.

Announcements at the port



~2.6 Mt/yr announced in 2021–23 [Reported]; four projects sought the same port advantages.

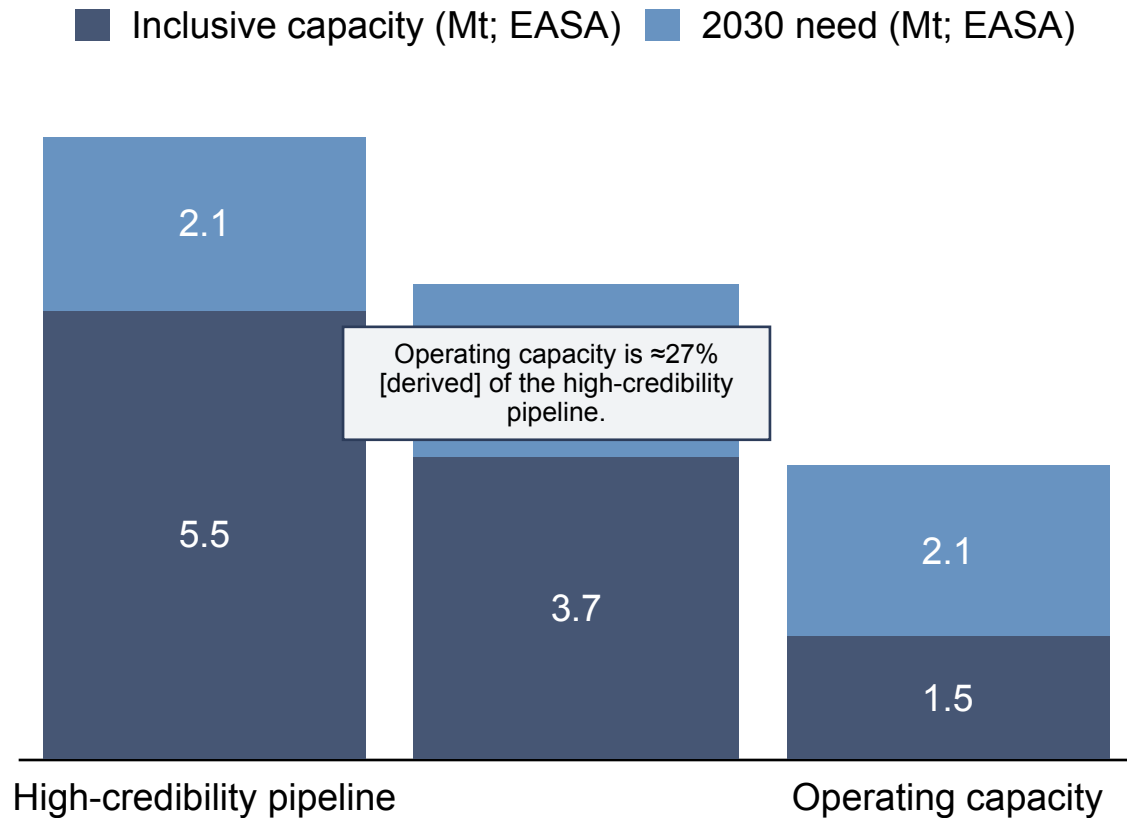
The incumbent remained



Neste's 1.3 Mt brownfield expansion continued [Reported]; about half the announced tonnage was lost [derived].

Europe's operating SAF capacity is about a quarter of its credible pipeline.

SAF capacity by project status and 2030 need



Capacity and credibility

- Operating capacity is 1.5 Mt [Regulator-observed — EASA].
- The 2030 need is 2.1 Mt [Regulator-observed — EASA], above today's operating capacity.
- Capacity including FID'd projects is 3.7 Mt; including high-credibility projects, 5.5 Mt [Regulator-observed — EASA].
- Operating capacity is ≈27% of the high-credibility pipeline [derived]; credibility grading remains a judgment.

Capacity and credibility

Operating SAF capacity is 1.5 Mt [Regulator-observed — EASA], versus a 5.5 Mt high-credibility pipeline [Regulator-observed — EASA]. The operating share is approximately 27% [derived]; pipeline credibility is a judgment, not production.

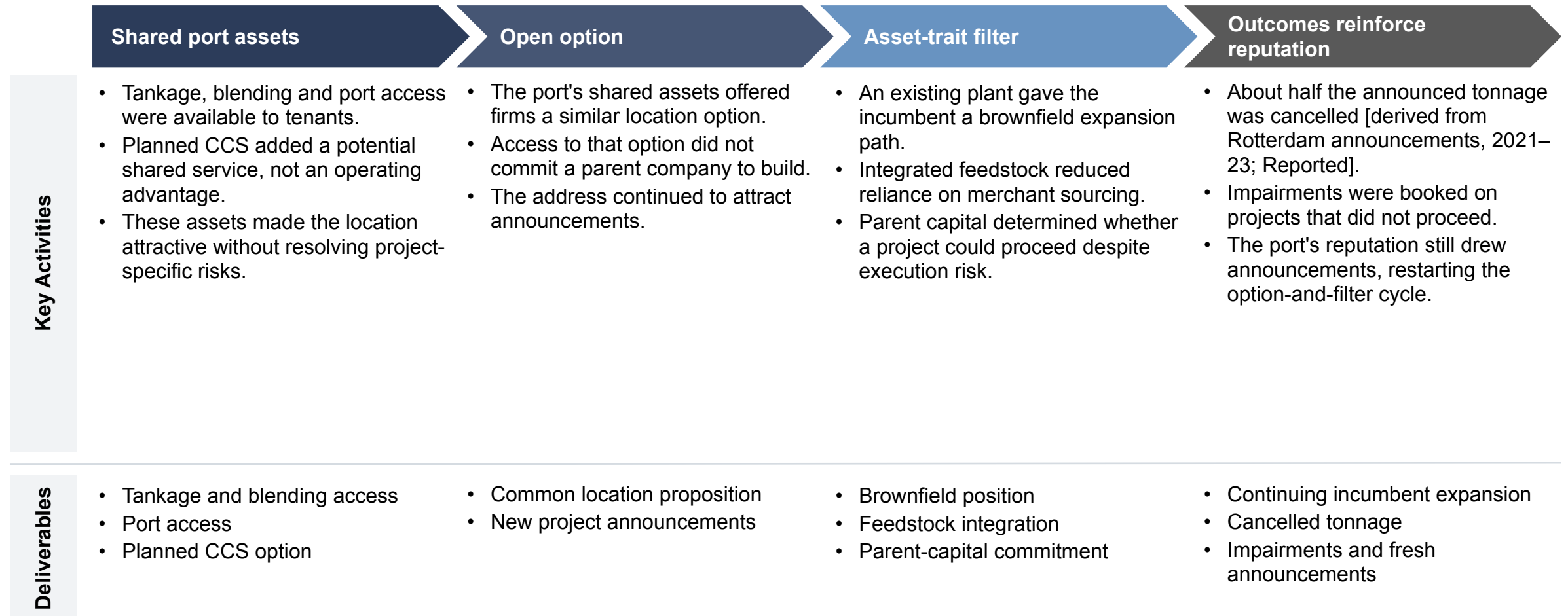
Rotterdam is a real cluster — one with very high attrition.

	Shared asset · PASS	Cross-firm flow · PARTIAL	Labour · NOT MEASURED	Inheritance · PASS	Inheritance · PASS
Evidence	Port tankage and blending are shared location advantages. Planned CCS could add another shared service [Library screen G.2].	The port supports cross-firm logistics. Project exits limit evidence of durable production links [Library screen G.2].	No labour-pooling result is provided for the port. The cluster screen does not establish workforce spillovers [Library screen G.2].	Neste's expansion inherits an existing plant site. Brownfield incumbency distinguishes the continuing project [Library screen G.2].	Neste's expansion inherits an existing plant site. Brownfield incumbency distinguishes the continuing project [Library screen G.2].
Interpretation	Access creates an option for tenants, not a guarantee of construction. Score: PASS [Library screen G.2].	Shared location does not establish integrated operations. Score: PARTIAL [Library screen G.2].	Do not infer a labour advantage from co-location. Score: NOT MEASURED [Library screen G.2].	The inherited asset is firm-specific, not available equally to newcomers. Score: PASS [Library screen G.2].	The inherited asset is firm-specific, not available equally to newcomers. Score: PASS [Library screen G.2].

Rotterdam passes the shared-asset, inheritance and production tests, while cross-firm flow is partial and labour is unmeasured [Library screen G.2]. Judge the cluster at the port or mill-site level; a member-state supply share cannot explain project attrition.

The port offered every firm the same option; asset traits decided who could exercise it.

Shared port infrastructure created an option for tenants, not a guarantee of construction. Brownfield incumbency, integrated feedstock and parent capital filtered which projects could proceed.



The cancellations were newcomers or non-core projects; the survivor expanded beside its own plant.

Neste's brownfield expansion continues despite higher costs and a later start; Shell, UPM and BP cancelled or discontinued their projects.

Rotterdam projects: site position and outcome

Project	Capacity	Site type	Outcome
Shell Pernis	0.82 Mt [Reported]	Non-core project	Cancelled; ~\$1.4bn impact [Reported]
UPM Maasvlakte	0.5 Mt [Reported]	Greenfield	Discontinued May 2025 [Reported]
BP	10 kb/d [Reported]	Non-core project	Cancelled Sep 2025 [Reported]
Neste Rotterdam	+1.3 Mt [Reported]	Brownfield expansion beside own plant	Continuing; cost €1.9bn → €2.5bn [Reported]; start 2026 → 2027 [Reported]

Oil-major strategy shifts may explain the exits as much as the cluster does.

Rotterdam's project outcomes support two plausible readings: incumbent site advantage and oil-major strategy shifts. Neither makes a famous address sufficient; parent commitment is an asset trait investors must underwrite.

Cluster reading

- Rotterdam offered shared port assets, but access alone did not secure construction.
- Neste continued its expansion beside its existing plant; Shell and BP cancelled projects [Reported].
- The contrasting outcomes are consistent with incumbent advantage, but do not establish that the port caused the exits.
- Site characteristics matter most when the parent remains willing to fund the project.

Corporate reading

- Shell and BP changed corporate direction; their exits need not imply a failure of Rotterdam's shared assets.
- A non-core project can be cancelled even when its location remains attractive.
- Neste's continuation is consistent with stronger parent commitment, not proof of a superior port offer.
- For investors, test whether the parent will sustain funding when priorities shift.

A modest captive input beat a large merchant one.



Mill-linked supply, with a ceiling

- UPM Lappeenranta sits beside the Kaukas pulp mill: 130 kt/yr [Reported] at €179m [Reported].
- St1 Gothenburg uses SCA tall oil: 200 kt/yr [Reported].
- Preem Lysekil Synsat added ~900,000 m³/yr [Reported, Jun 2025]; its scale does not make tall oil unlimited.
- Tall oil is a capped residue; mill-linked access helps secure input, but constrains replication.

Mill-linked access can make a modest plant more resilient than a larger project dependent on merchant inputs. Tall oil's limited supply also caps how far that advantage can scale.

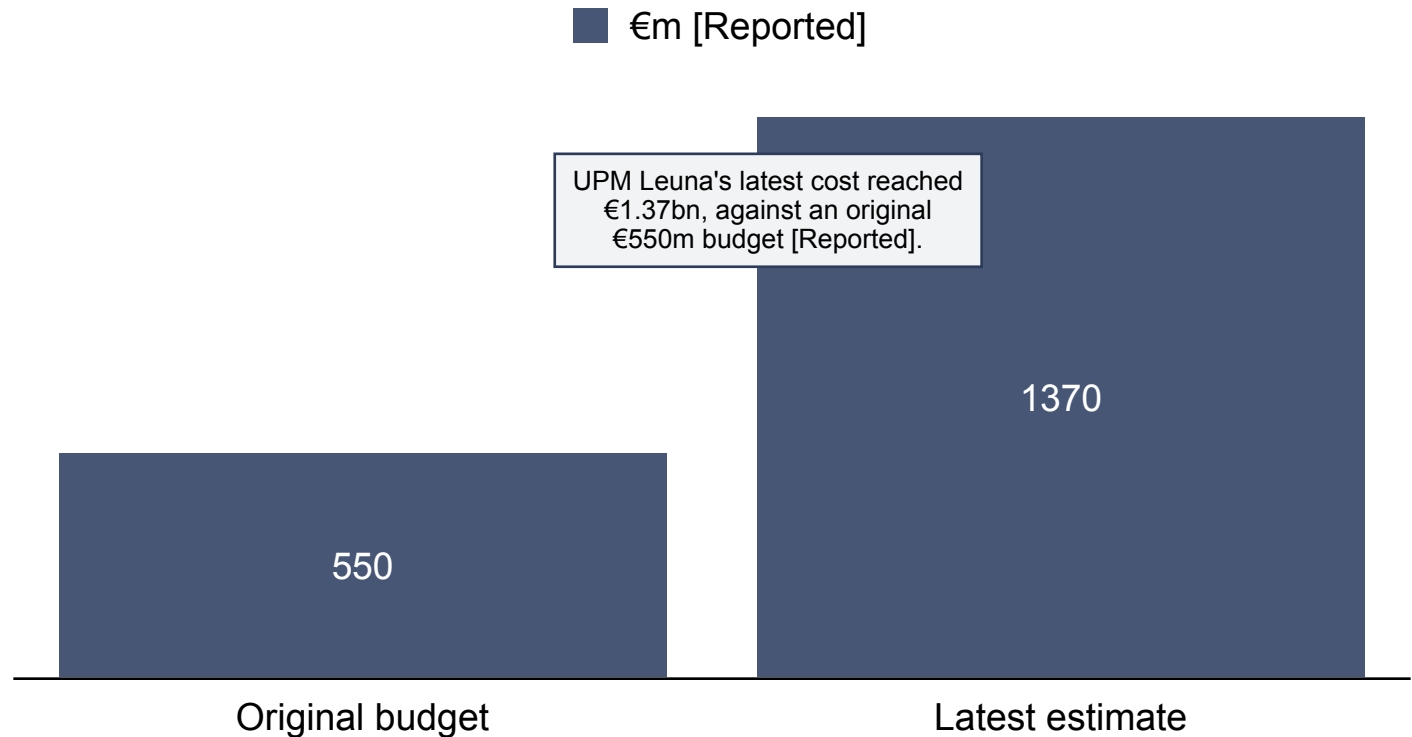
Shared infrastructure lowers entry cost but cannot rescue a process that overruns.

InfraLeuna's shared infrastructure supports tenants, but UPM Leuna's latest project cost substantially exceeds its original budget. Kalundborg shows that contracted industrial symbiosis can generate savings; those savings do not establish that shared infrastructure can offset a tenant's process overrun.

Shared assets, separate process risk

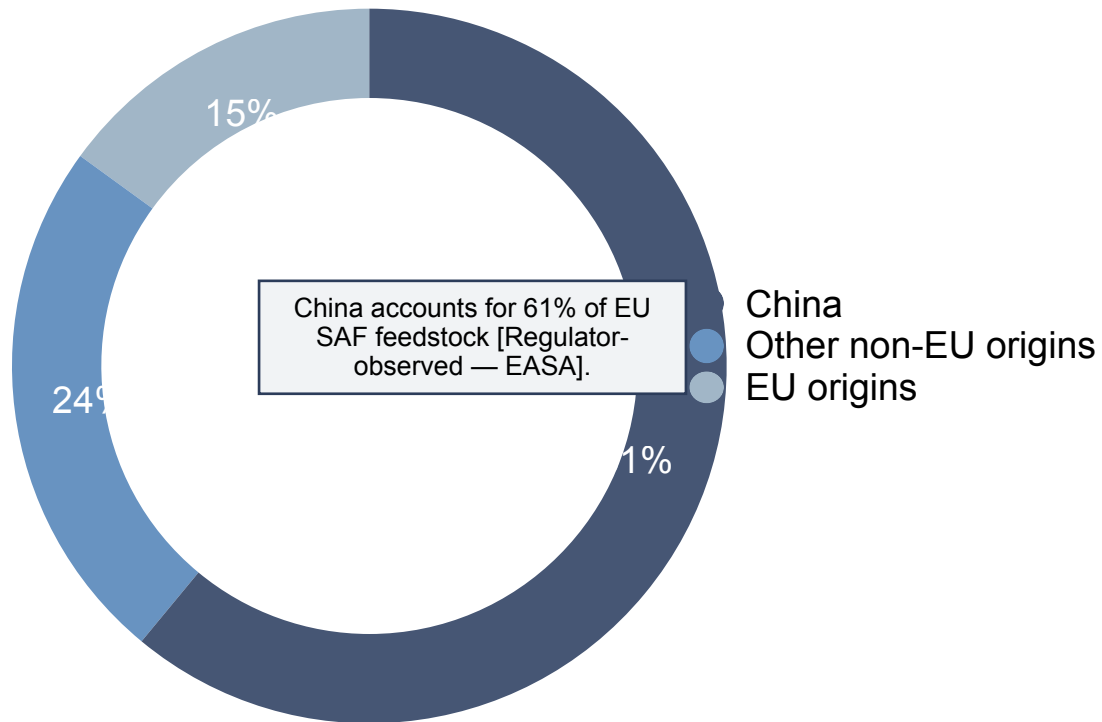
- >€100m invested by InfraLeuna in supporting infrastructure [Reported].
- UPM Leuna's budget rose from €550m to €1.37bn [Reported].
- UPM booked a €373m impairment; first product followed in Dec 2025 [Reported].
- Kalundborg's contracted symbiosis saves DKK 137–182m/yr [Reported]; that is a separate site, not a Leuna offset.

UPM Leuna project cost: original budget versus latest estimate (€m) [Reported]



Europe's advanced-fuel clusters run on feedstock bought from markets they do not control.

Origins of EU SAF feedstock flowing into ARA



Exposure at the port

- Outside-EU origins supply 85% of EU SAF feedstock [Regulator-observed — EASA].
- China alone supplies 61% of EU SAF feedstock [Regulator-observed — EASA].
- ARA's tanks and berths enable imports; they do not secure feedstock at its source.
- Global prices, trade policy and supply-chain integrity matter more than local feedstock availability.

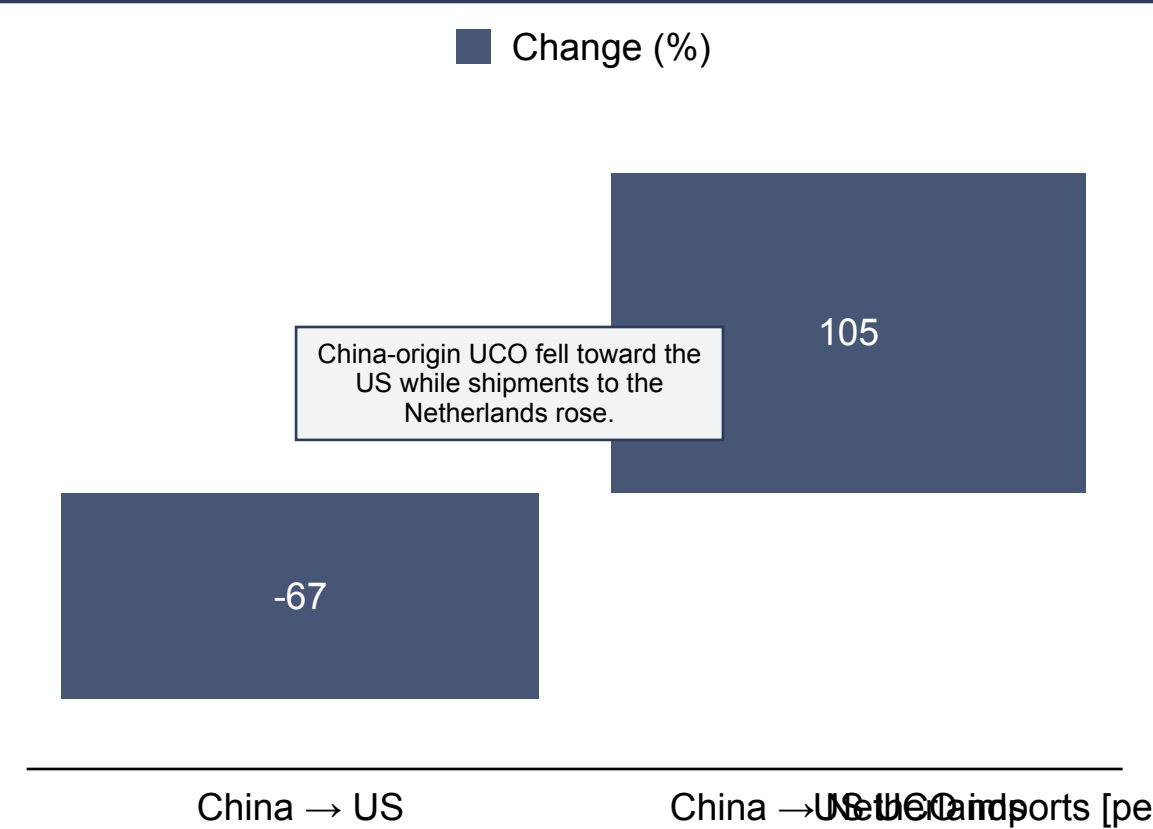
Exposure at the port

ARA's port infrastructure can receive imported feedstock, but it cannot secure the supply or govern its origin. Exposure to global prices, trade policy and integrity persists at the cluster level.

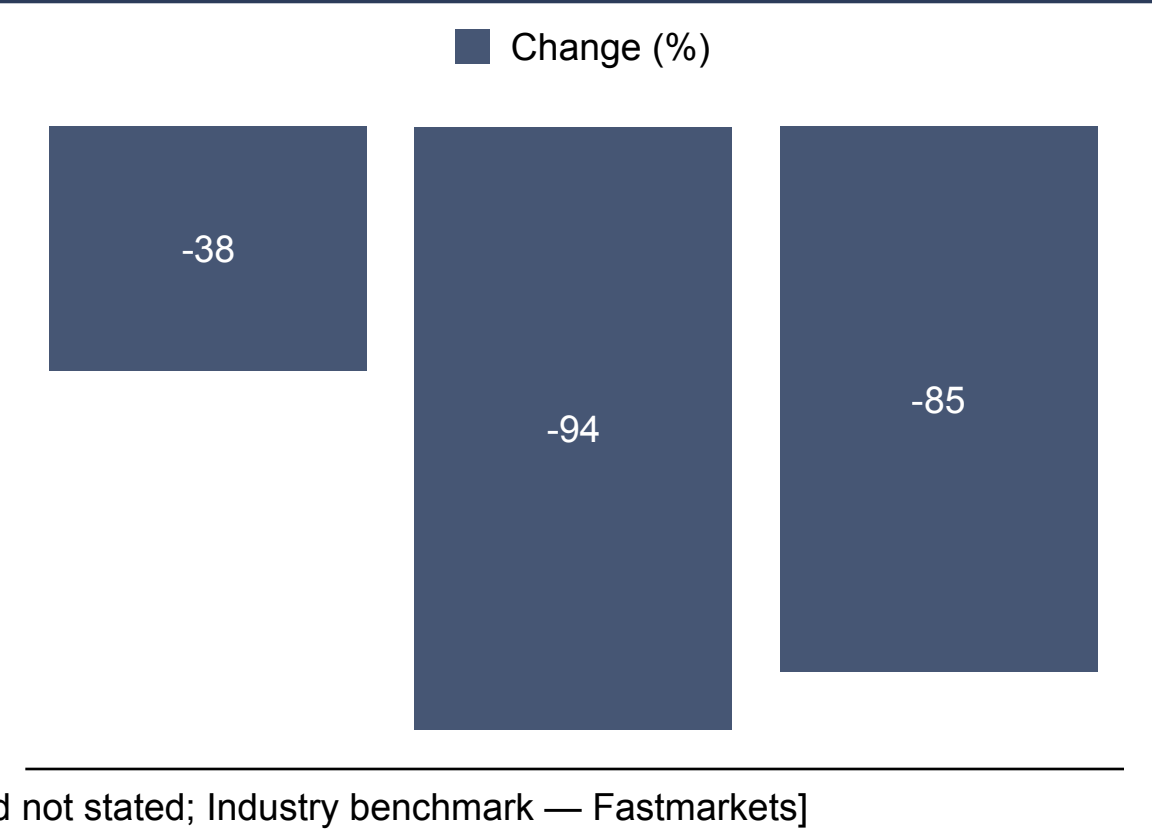
When the US excluded imported feedstock from 45Z, Chinese UCO turned toward the Netherlands.

China-origin UCO shipments shifted away from the US and toward the Netherlands after the US excluded imported feedstock from 45Z. The observed flow change exposes port-based fuel producers to rules set outside their own market.

China-origin UCO: US and Netherlands flows



US import declines after the 45Z change



Porthos was sized to signed emitters — and its customers are still waiting.

Porthos reached FID in Oct 2023 [Reported] with named industrial customers, 2.5 Mt/yr of capacity and a €1.3bn budget [Reported]. Its start has slipped to H2 2027 [Announced], leaving those customers waiting for shared infrastructure.



The measurable cross-border signal is feedstock flow; the cost of coordination friction has not been measured.

Feedstock origin and redirection are observable; the cost or effectiveness of cross-border coordination is not. National supply shares cannot establish what happens between firms at a port or mill site.

Evidenced

- EU SAF feedstock imports show exposure beyond local port supply: 85% originates outside the EU [Regulator-observed — EASA].
- China accounts for 61% of EU SAF feedstock [Regulator-observed — EASA].
- China-origin UCO shipments shifted toward the Netherlands after the US excluded imported feedstock from 45Z [Industry benchmark — Fastmarkets].
- The Netherlands supplied 29% of EU SAF [Regulator-observed — EASA]; this is an outcome measure, not proof of port-level coordination.

Not yet evidenced

- No cross-border coordination-friction cost has been measured; assigning one would overstate the evidence.
- Annex IX feedstock volumes by member state are not measured in this evidence set.
- Import shares cannot establish whether firms coordinate procurement, logistics or certification across borders.
- Treat coordination as a hypothesis to test at port and mill sites, not a finding inferred from national totals.

Leaders expand beside their own plant on captive feedstock; laggards bet on a famous address.

Structural advantages versus execution	Observable traits of stronger and weaker biofuel projects			
• An existing plant provides a site-specific advantage that a prominent port address cannot replicate. • Captive residues reduce exposure to merchant feedstock availability and origin risk. • Parent commitment determines whether a proposed project reaches construction. • Count operating and FID'd capacity separately from announcements. Source: project comparisons and EASA evidence supplied.	Observable	Leaders	Laggards	Structural or execution?
	Site	Expansion beside own plant	Greenfield in a famous port	Structural
	Feedstock	Captive residue or integrated supply	Merchant imports, one dominant origin	Structural
	Parent commitment	Renewables are the core business	Non-core in an oil-major portfolio	Execution
	Reporting	Operating plus FID'd	Announced	Execution

Existing sites and controlled inputs offer structural advantages; parent commitment and capacity reporting determine whether those advantages become deliverable supply.

After quitting Rotterdam, UPM called its mill site "the nucleus" of its biofuels business.

Rotterdam attracted the project, but the mill site remained central to UPM's biofuels business. Site-specific inheritance matters more than the prominence of the address.

What the contrast reveals

- UPM discontinued its Rotterdam Maasvlakte greenfield project in May 2025 [Reported].
- UPM described its Lappeenranta mill site as "the nucleus" of its biofuels business [Reported].
- A famous port gave newcomers option value, not survival; an existing site offered assets the newcomer could not inherit.
- Incumbents capture cluster advantages first. Announced capacity reflects a cluster's reputation, not its output.



Underwrite operating and FID'd capacity, prefer incumbent brownfield, and treat feedstock origin as the main risk.

Operating and FID'd supply deserves underwriting priority; announced capacity does not. Feedstock origin and incumbent site assets determine resilience.

Obligated parties

Contract against operating supply.
Include FID'd projects cautiously.
Exclude announced-only capacity.

Investors and lenders

Prefer incumbent brownfield expansions.
Test captive feedstock access.
Stress-test origin and parent commitment.

Port and policymakers

Track announced-to-operating conversion.
Separate cancellations from delays.
Report port-site outcomes, not national totals.

Watch list

Neste Rotterdam start: 2027 [Reported].
Porthos start: H2 2027 [Announced].
Track China's feedstock share and operating SAF against the 2030 need of 2.1 Mt [Regulator-observed — EASA].