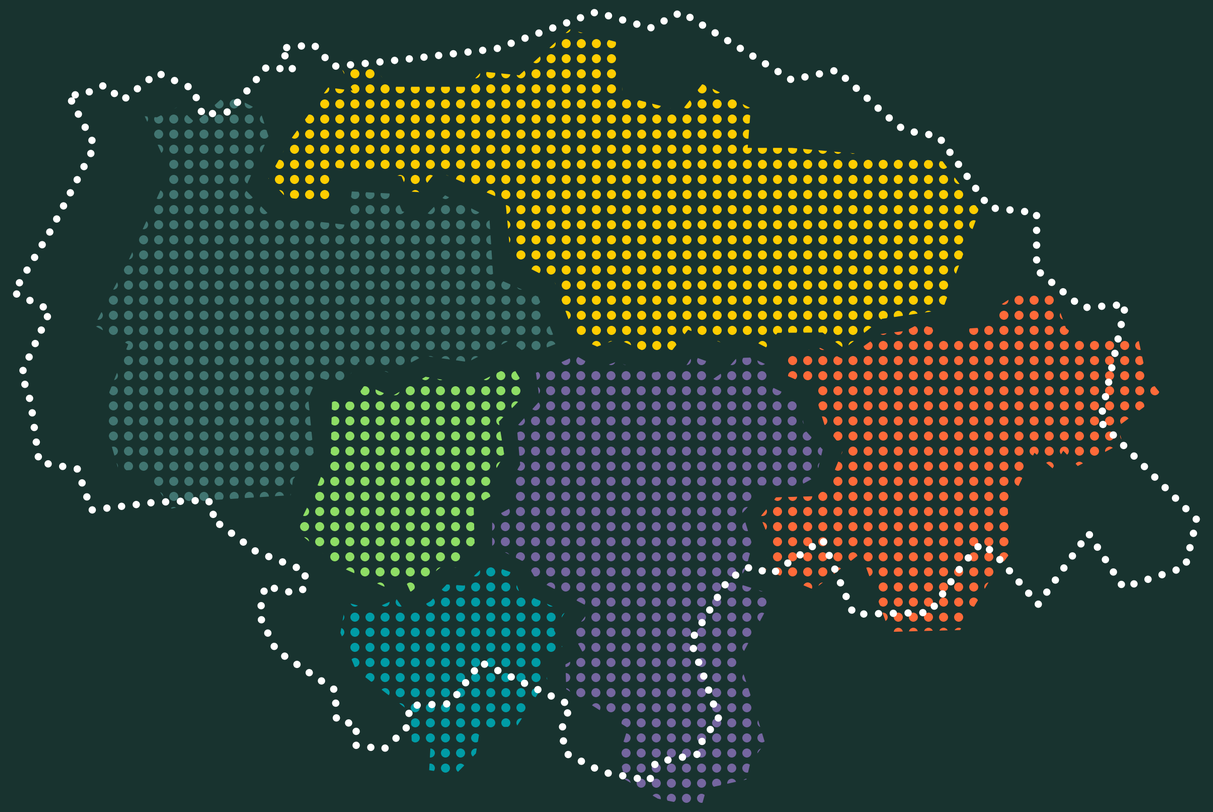
MISSION POSSIBLE PARTNERSHIP

ITA INDUSTRIAL TRANSITION ACCELERATOR

Clean industry: redrawing the map

What early successes reveal about how to scale faster



Global Project Tracker Update | November 2026

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Foreword

Faustine Delasalle
CEO Mission Possible Partnership
Executive Director Industrial Transition Accelerator

In Bahia, north-eastern Brazil, a biorefinery will soon turn a native tree into jet fuel. In May, Acelen Renewables secured the final investment it needs to start building the plant, which will eventually run on macaúba, a hardy tree that thrives on degraded land, needs little water and does not compete with food crops. Part of the crop will be grown by smallholder farmers, who receive seedlings, training and a guaranteed buyer. I'm very proud that this is one of the projects supported by the Industrial Transition Accelerator.

That project also captures the shift seen in this edition of the Global Project Tracker. A record 36 clean industrial plants reached final investment decision in the past 12 months. China financed 23 new plants, the return on years of consistent industrial policy, which have positioned the country as the most advanced clean industry powerhouse, host to one in two funded clean industry projects. And for the first time, emerging economies of the new industrial sunbelt met the pace of developed economies with six projects from Paraguay to Egypt to Thailand reaching final investment decision. These are not pilots; they are commercial-scale fertiliser factories and fuel refineries that will supply real markets for decades to come. Renewables-rich countries are turning their abundant sun, wind, hydropower, and bioresources into factories, jobs, home-grown supply chains and export revenue.

This progress comes amid a year of disruption: conflict in the Middle East, soaring costs for everything from fuels to fertilisers and extreme weather resulting in fires and floods touching every continent. Each shock exposes the same weaknesses, economies that depend on concentrated fossil fuel imports, and fragile supply chains are paying the price. Clean industry is fast becoming a strategy for security and growth, as well as for limiting the impact of the climate crisis.

But the data shows how far we still have to go to secure that future. More than 800 deep decarbonisation projects with $4.8 trillion of investment potential are in development; alongside many more circular and partial decarbonisation projects. Outside of China, good projects are stalling. Not for a lack of interested buyers, but because those buyers can't sign long-term contracts without clear and stable policy. Not for a lack of renewable energy and feedstock, but because the necessary scale-up of grids, energy storage, and supply chains has not been anticipated. And not for lack of capital, but because finance isn't structured to take on first-of-a-kind and nth-of-a-kind risks.

The solutions do exist; we have identified six acceleration levers across markets, energy, supply chains, communities, trade and finance to unlock clean industry, with all of the gains that brings. Success stories of how they have yielded progress and investments exist across sectors and geographies. The 189 projects now passed Final Investment Decision globally can inform action at scale. Another 270 projects could become financed plants over the next three years if current policies are maintained, measures under discussion are implemented, and first steps are taken in a couple of other critical sectors.

As leaders gather for COP31, the new map of clean industry is being drawn, the choices made today will decide where the next wave of clean industry is built and who benefits from them.

Executive summary

Clean industry is redrawing the world's industrial map
Clean industry recorded its strongest year yet, with every new plant that breaks ground another dot on the new industrial map. A record 36 commercial-scale, deep decarbonisation projects reached final investment decision (FID) in the past 12 months. That brings the total number of deeply decarbonised industrial plants financed or built worldwide to 189, with a further 838 in development across 70 countries. Including projects that use complementary lower-carbon technologies, like scrap metal recycling and clinker replacement in cement, the number of countries embracing clean industry increases to 89 and the number of projects to more than 1,600. The pipeline of deep decarbonisation projects represents an estimated $4.8 trillion investment opportunity: around a third for the industrial assets and two thirds for renewable power and storage needed to run it.

China shows that consistent policy turns plans into plants
China holds 23 of the 36 new plants in this period, bringing its total to 93 plants passed FID – one in every two clean industrial plants past FID worldwide. This is the result of sustained industrial policy: five-year plans that have prioritised green industry and transport since 2021, a growing domestic market for alternative fuels and an emissions trading scheme that now covers steel, cement and aluminium. The country's strategy to reduce dependence on oil and gas imports and to electrify its economy based on renewable power has shaped which industrial sectors have seen most progress: China holds over 90% of global clean methanol capacity and over 40% of clean aluminium capacity.

A step change for the new industrial sunbelt
Alongside China, emerging economies across the new industrial sunbelt, rich in renewable energy and natural resources, secured $5.3 billion for six large-scale plants this year, overtaking investment in developed economies for the first time. Four SAF FIDs in Brazil, Egypt, South Africa, and Thailand, including the largest biorefinery in Latin America and the first eSAF plant in Africa, have come to fruition, alongside first commercial-scale green fertiliser plants in Latin America and Sub-Saharan Africa. In total, these economies have now secured $32 billion across 20 projects, with a further 281 projects worth $2.5 trillion in development. Conversion remains the challenge: they host over a third of announced projects but only 13% of projects that have reached FID.

Clean power decides where investment lands
Access to abundant, low-cost renewable power is a decisive factor in where projects reach FID. It drives investment toward the new industrial sunbelt. Even in developed economies, this year's FIDs clustered in renewables-rich locations: Spain and Australia with solar, Norway with wind and hydropower. The pipeline of announced projects would need around 3,500 TWh of electricity equivalent to ~12% of total global demand today. However, industry now competes for that power with data centres, whose consumption is set to more than double by 2030, while grids are struggling to keep up, with more than 2,500 GW of new connections, for both supply and demand, in the queue globally.







Executive summary

Mandates make sustainable aviation fuel the fastest-moving market

One in three FIDs this year were for sustainable aviation fuel (SAF). Capacity passed FID now stands at around seven million tonnes a year, 3% of today's fossil jet fuel use; the announced pipeline could replace up to 11%. Binding blending mandates in Europe created this market, and now Brazil, India, Singapore, and South Korea are following with mandates coming into effect from 2027. With eSAF sub-mandates clearly visible on the horizon, South Africa secured the world's second FID for eSAF, made from captured carbon and renewable power, a scalable solution for a growing aviation market.

Projects are ready to move, but they need committed buyers for clean commodities

There is no shortage of planned projects. Announced clean ammonia projects equal around 143% of current fossil-based ammonia production and clean steel around 1% of primary steel. What holds most of them back is a lack of customers willing to sign long-term contracts. Without a guaranteed buyer, creditors will not lend to start construction. Financing terms are rarely disclosed, but of 15 project-financed FIDs, 12 had long-term offtake agreements, typically for 10 to 12 years, and almost all had direct government support. Where policy holds steady and buyers therefore commit, capital follows.

Six acceleration levers to move from tens to hundreds

Outside China, the move from announcement to investment remains slow and fragmented. Mission Possible Partnership has identified six acceleration levers to scale from tens to hundreds of financed clean plants each year: **clean markets** that give projects revenue certainty; **clean energy** at low cost and in abundance; **Clean supply chains** for equipment and feedstocks; **clean communities** that share local value; **clean trade** that connects producers with buyers across borders; and **clean finance** that mobilises catalytic capital. Together, they will set how far and how fast the shift to clean redraws the industrial map.

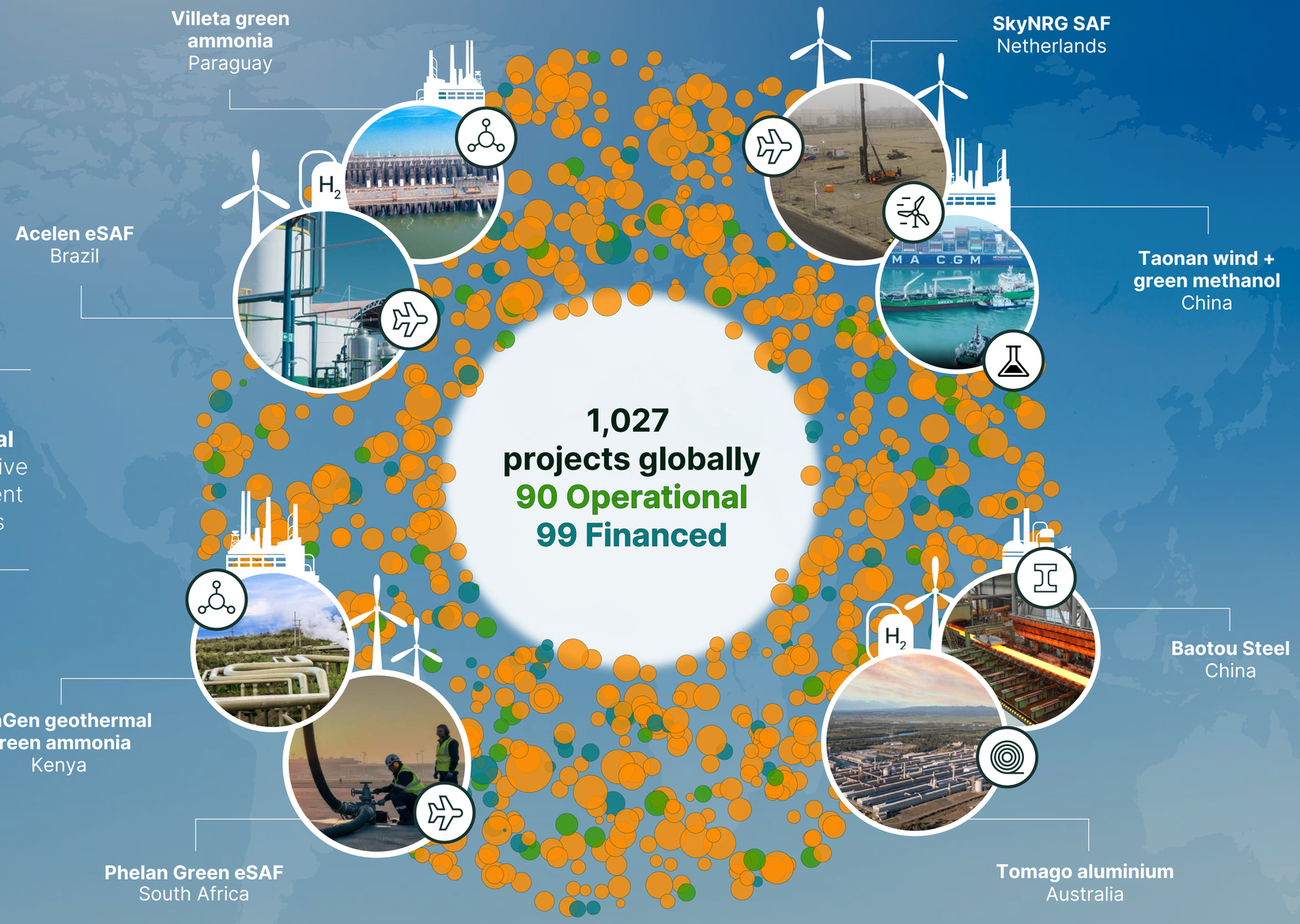








Clean industry is moving beyond traditional industrial geographies, with competitive advantages pulling investment towards new growth centres



The countries that **capture the next wave of clean industry will be those that build on their strengths** and shape markets to match

Attribution

This report was led and prepared by **Mission Possible Partnership (MPP)**. Learn more at www.missionpossiblepartnership.org. This report has been made possible with the support of QCF.

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With special thanks to Atoma Research an independent climate technology analytics company combining AI-driven data acquisition with proprietary datasets to deliver deep insights across energy, aviation, shipping and carbon removal. Atoma works with us to find projects and project information.

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Design and data visualisaton: Round Studio, Tamsin Ogilvie Design, Building Stories with Data

Data sources
Ammonia: MPP Primary research; Low-Emission Ammonia Data (LEAD): Plants © 2026 by Ammonia Energy Association is licensed under CC BY-NC-SA 4.0. http://creativecommons.org/licenses/by-nc-sa/4.0/; Bloomberg NEF (2026), Global Renewable Fuel Projects Tracker (1.4.1) ; Bloomberg NEF (2025), Ammonia Supply Outlook 2025: Projects List; Atoma Research.

Methanol: MPP Primary research; E-Methanol, Biomethanol, and Low Carbon (blue) Methanol Plants (2026), Methanol Institute and Gena (2026) https://www.methanol.org/renewable/); Bloomberg NEF (2025), Global Green Methanol Project Database (1.0); Atoma Research.

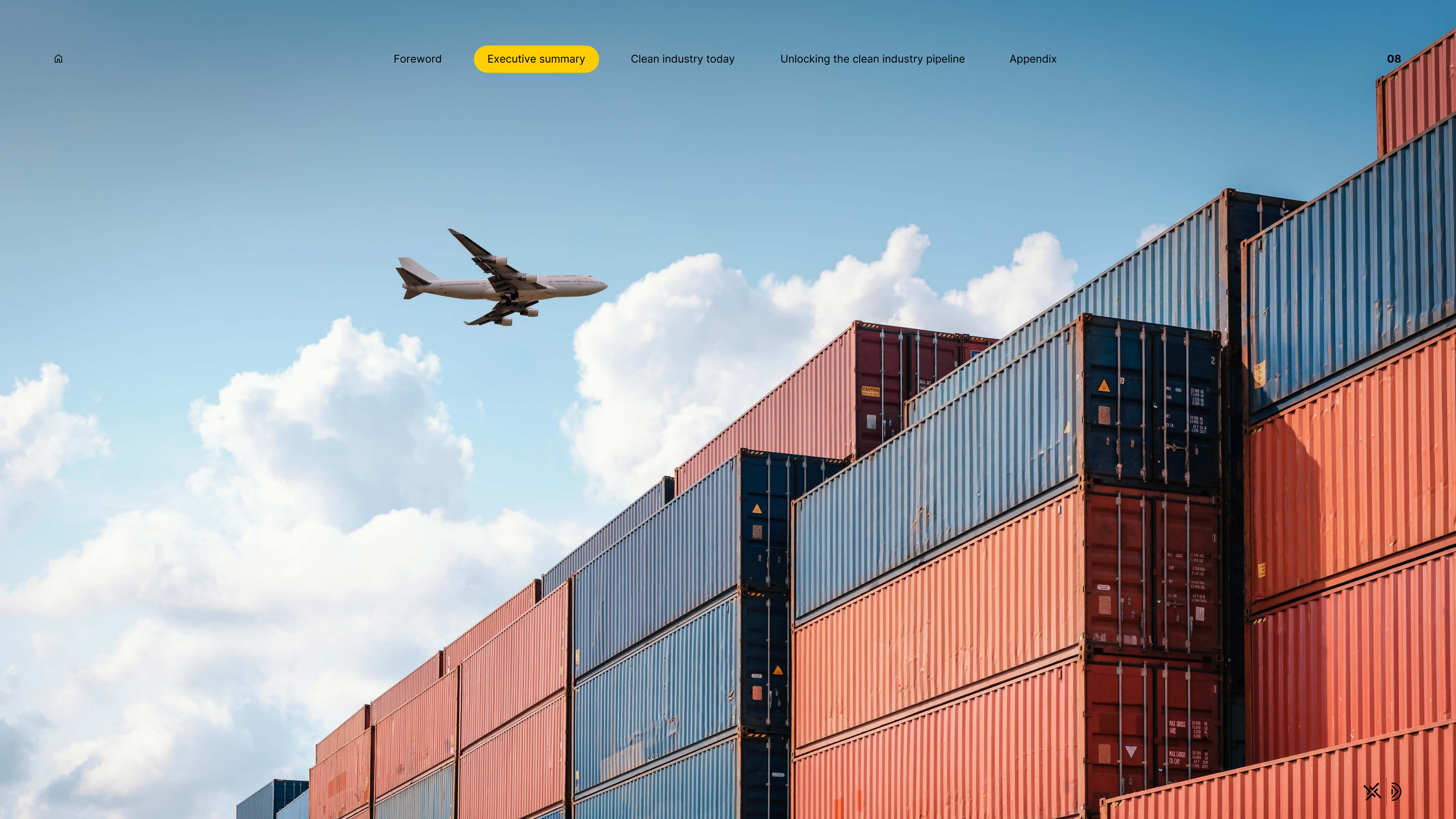
High Value Chemicals: MPP Primary research; historical data from IEA, Hydrogen Production and Infrastructure Projects Database, IEA, Paris https://www.iea.org/data-and-statistics/data-product/hydrogen-production-and-infrastructure-projects-database, Licence: CC BY 4.0); IEA, CCUS Projects Database, IEA, Paris https://www.iea.org/data-and-statistics/data-product/ccus-projects-database, Licence: CC BY 4.0; The Global Partners for Plastics Circularity Progress Tracker.

Aviation: MPP Primary research; Atoma Research; Bloomberg NEF (2026), Global Renewable Fuel Projects Tracker (1.4.1) ; Rocky Mountain Institute (RMI).

Aluminium: Atoma Research; MPP Primary research; historical data from the International Aluminium Institute, Innovations in the Aluminium Industry (2025), IAI (2026), https://international-aluminium.org/innovations-in-the-aluminium-industry/.

Steel: MPP Primary research; Atoma Research; Rocky Mountain Institute (RMI); Leadership Group for Industry Transition: LeadIT. (2026). Green Steel Tracker. Leadership Group for Industry Transition. https://www.industrytransition.org/green-steel-tracker.

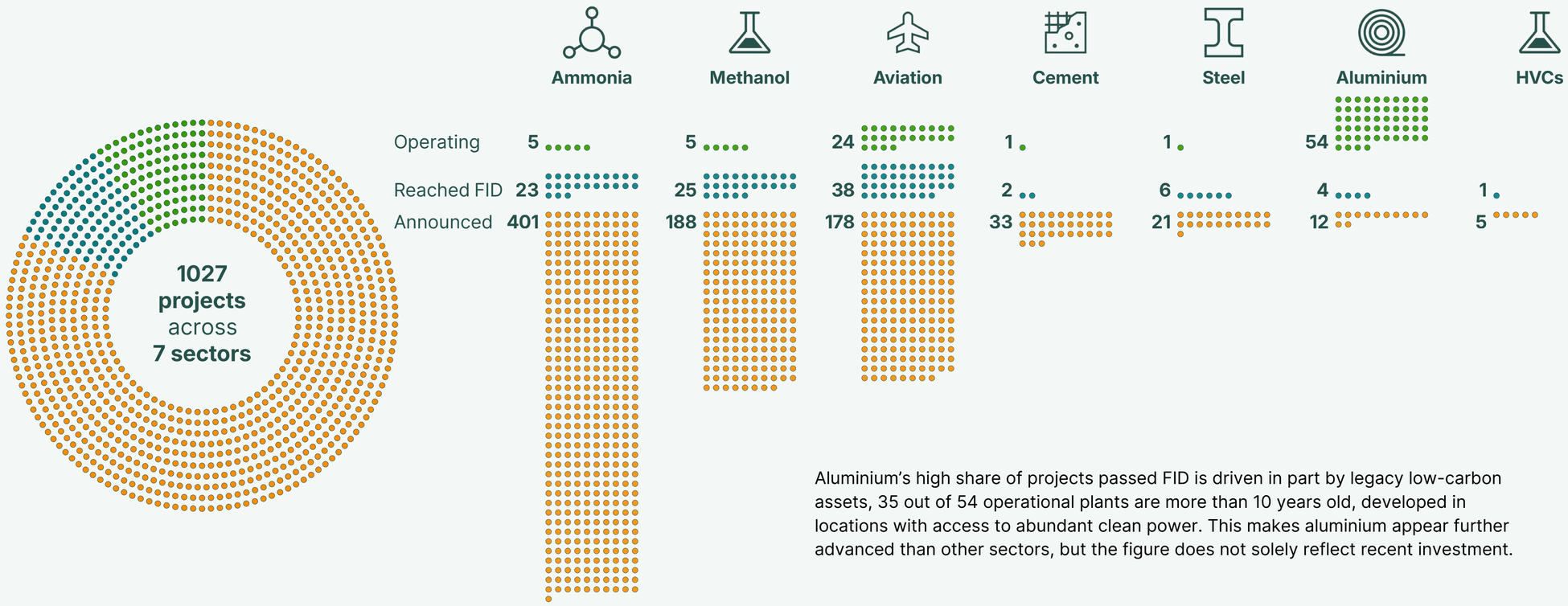
Cement: MPP Primary research; Atoma Research; MPP Primary research; historical data from the Leadership Group for Industry Transition: Green Cement Technology Tracker (2025), Lorea, C; Sanchez, F; Torres-Morales, E. 2025. Green Cement Technology Tracker, Version May 2025; Stockholm, Dataset, https://www.industrytransition.org/green-cement-technology-tracker.



Clean industry today



189 commercial-scale, deep-decarbonisation plants are now financed or built with a further 838 in development.



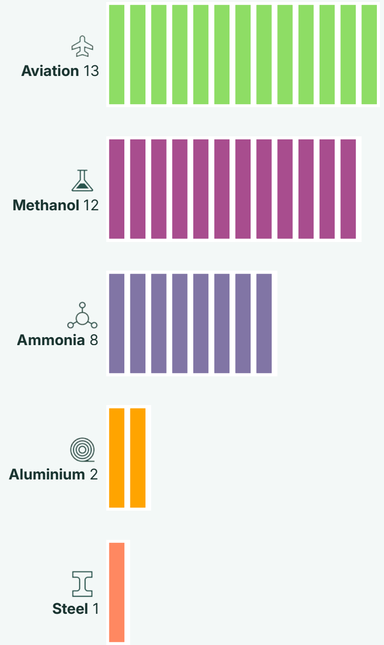
Aluminium's high share of projects passed FID is driven in part by legacy low-carbon assets, 35 out of 54 operational plants are more than 10 years old, developed in locations with access to abundant clean power. This makes aluminium appear further advanced than other sectors, but the figure does not solely reflect recent investment.

1. Projects include in-scope Category 1: Deep Decarbonisation projects only. For further definition on scoping please refer to methodology section.
2. HVC: High value chemicals include Olefins (Ethylene, Propylene, Butadiene), and Aromatics (Benzene, Toulene, Xylene) **Source:** Global Project Tracker Update | November 2026.

A record year for clean industrial investment: 36 projects reach financial close

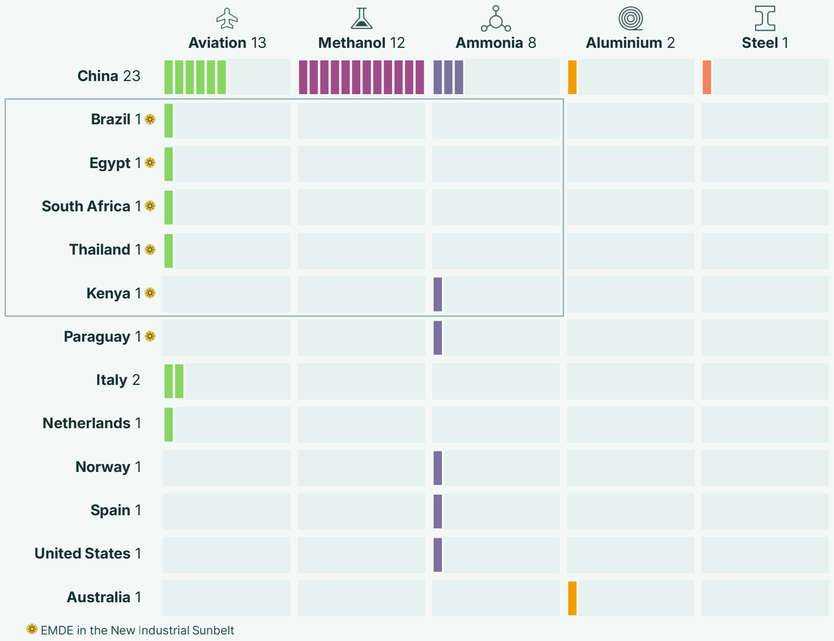
The new industrial sunbelt rises with an unprecedented six FIDs

36 commercial-scale, deep decarbonisation project FIDs spanning every sector bar cement and HVCs in the last 12 months



Source: Global Project Tracker Update | November 2026

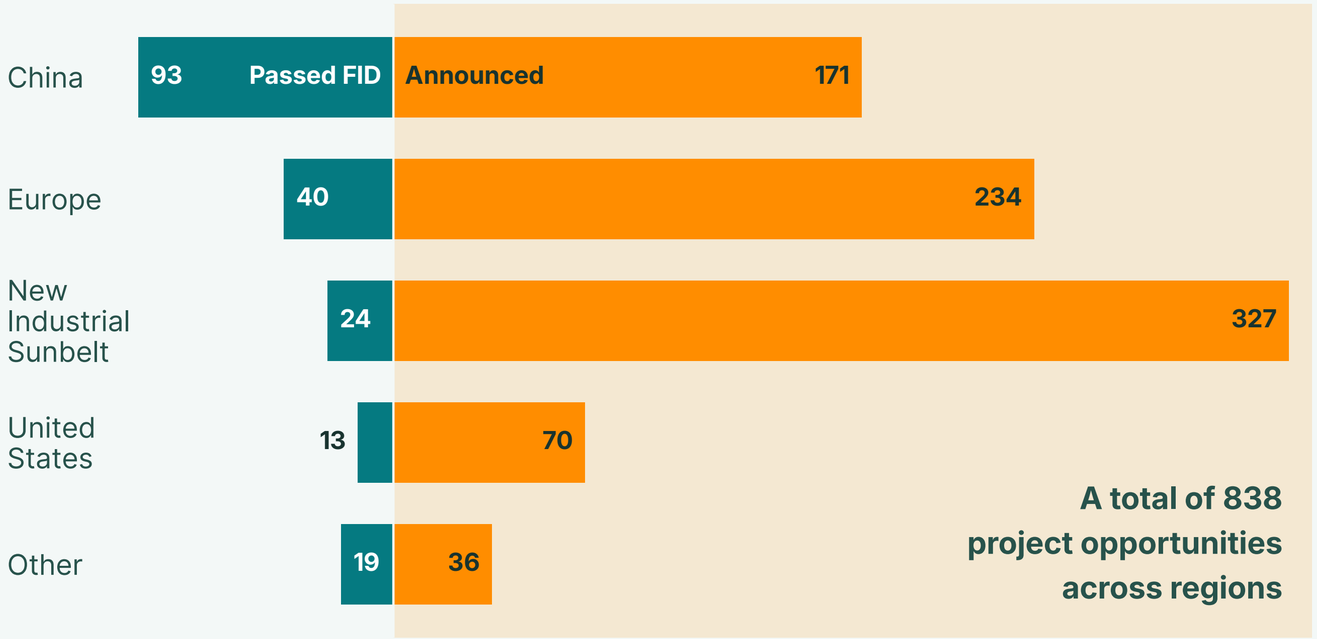
Emerging markets across the new industrial sunbelt have seen a concerted first wave of investment with six FIDs in the year



Source: Global Project Tracker Update | November 2026

The industrial map tilts towards the sunbelt

China leads on projects passed FID, but the renewables-rich sunbelt countries, mainly in emerging and developing economies, hold the largest announced pipeline



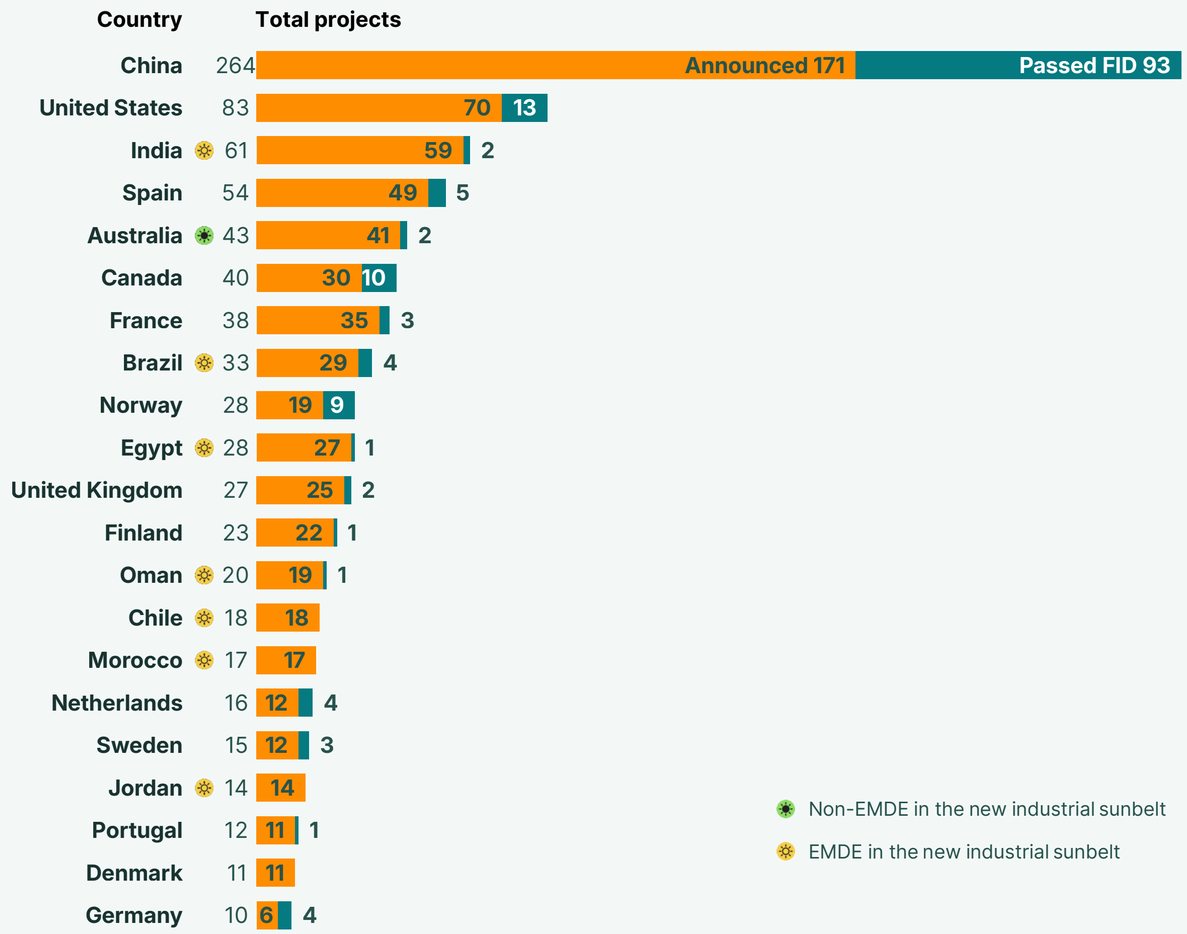
Note: Passed FID = final investment decision publicly confirmed, including projects under construction or operating. Announced = publicly disclosed, pre-FID.
Source: Global Project Tracker Update | November 2026, MPP Analysis.

China is now home to one in two projects passed FID
China indisputably leads on clean industry deployment. Domestic equipment manufacturing at scale, integrated project development and strong industrial demand drive this progress. Overall, fuels are converting the quickest, but there is also movement in the slower moving materials sectors as well. Additionally, each project China builds adds to a growing base of engineering, supply chain and operating know-how. As these learning curves steepen and expertise consolidates, China is set to move projects from planning to operation faster still.

Can the new industrial sunbelt catch the next wave?
The new industrial sunbelt holds the largest untapped opportunity with 39% of the global announced pipeline. Abundant renewable resources give these countries the potential to reduce the cost of producing clean commodities, opening up local investment and new export opportunities, with the socio-economic benefits that brings. India, Egypt and Brazil all boast strong green ammonia pipelines that could be developed for fertiliser, shipping fuel, or used as a carrier for hydrogen trade.

In developed economies, projects move where policy certainty meets access to energy and feedstock
Europe has one of the deepest and most diverse clean industry markets, but progress is uneven. Developers have shifted from headline announcements to competitive support schemes and smaller projects with credible and established buyers. Where mandates are driving new markets, projects move, sustainable aviation fuel (SAF) accounts for most of Europe's recent FIDs. In the US, where market mechanisms, like the Inflation Reduction Act incentives, have been scaled back, conversion to FID is lagging. In Australia, despite its abundant clean energy, high capital costs, infrastructure needs and uncertain export demand are hampering final investment decisions.

Clean industry leaders



This list of countries may include more than 20 countries if several of them had the same total number of projects and thereby shared the same rank.

Source: Global Project Tracker Update | November 2026, MPP Analysis.

Countries where clean energy is abundant hold the largest pipelines; plants are being built where policy creates demand

Where enabling conditions align, construction begins and clean commodities start entering the market

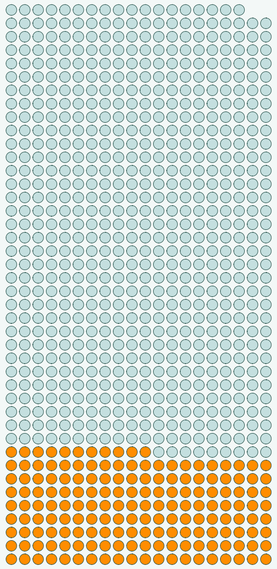
The largest pipelines sit in countries with favourable clean energy endowments. Large economies with diverse resources such as China, the US and Canada lead the field. Eight of the top 20 countries are in the new industrial sunbelt, where low-cost solar opens the door to competitive clean commodity production. Among other developed economies, abundant renewables and hydropower place Spain and the Nordics among the pipeline leaders.

The countries with the most projects passed FID are a smaller group, defined by strong policy frameworks and demand certainty. China, the US and Europe account for almost 90% of the projects passed FID shown here. In China, fuel mandates and national industrial plans create a route to market. In the US, the majority of FIDs were secured before 2024. In Europe, carbon pricing, fuel mandates and support such as carbon contracts for difference give buyers and investors confidence.

In regions with well established hydropower, headline FID counts do not tell the whole story. Nine of Canada's projects passed FID and seven of Norway's are legacy aluminium hydro-powered plants, not new investment.

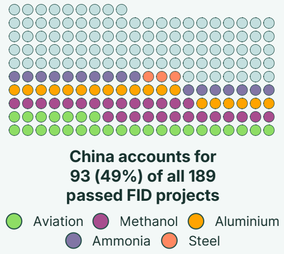
China turns projects into investment faster than the rest of the world, at present, dominating clean fuels capacity and electricity-based processes

China accounts for a fifth of announced projects but half of all FIDs



China accounts for 171 (20%) of all 838 announced projects

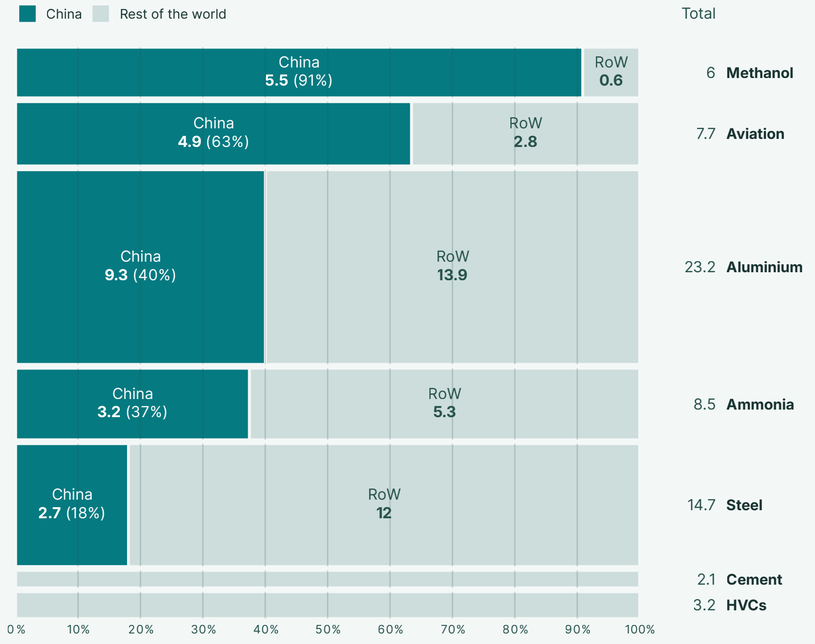
China reached FID on 43 projects in the past two years – around two-thirds of the global total - and now accounts for close to half of all projects passed FID worldwide. Its progress follows a strategy to cut oil and gas imports and electrify the economy with renewable power. State-owned developers, policy support, bank finance and provincial targets let projects go ahead before offtake is fully secured, while cheap domestic renewables and electrolysers keep costs low. Elsewhere, projects tend to have to wait for firm offtake contracts and policy certainty to secure finance. Cement is the exception in China: driven by domestic demand the sector has yet to see commercial-scale deep decarbonisation plants.



China accounts for 93 (49%) of all 189 passed FID projects

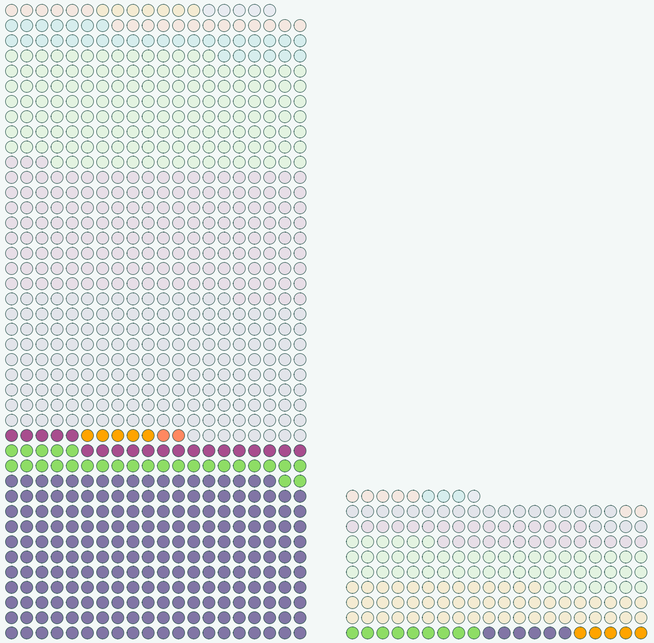
Note: There is lower visibility into the Chinese project pipeline as well as a relatively higher speed of execution in region compared to the RoW.
Source: Global Project Tracker Update | November 2026, MPP Analysis.

China leads in fuels, but the ROW holds more FID capacity in materials
Passed-FID capacity by sector, China vs rest of world (Mtpa; % China share)



Source: Global Project Tracker Update | November 2026, MPP Analysis.

Emerging economies: 34% of announcements, 13% of passed FIDs



NIS-EMDE countries account for 281 (34%) of all 838 announced projects across sectors

NIS-EMDE countries account for 20 (11%) of all 189 passed FID projects across sectors

Ammonia Aviation Methanol Aluminium Steel

Note: NIS EMDE designation excludes developed countries in the sunbelt (Australia, New Zealand and Singapore)
Source: Global Project Tracker Update | November 2026, MPP analysis.

Within the new industrial sunbelt, emerging and developing economies (EMDEs) hold a third of the global pipeline; projects are beginning to secure investment

Investment in clean fuels and fertilisers is driven by markets at home and abroad
The pipeline in emerging markets is almost entirely clean fuels and ammonia, the base ingredient for most fertiliser. Of the six projects that most recently secured investment, four are in SAF and two in green ammonia, both for fertiliser production.

Paraguay and Kenya – as well as their neighbours – are heavily dependent on imported fertiliser for their agricultural sector, with local farmers being exposed to fluctuating costs. Local production reduces that exposure and taps into renewable energy endowments too – it gives farmers a more stable, domestic supply of fertiliser, shielding them from volatile import prices and strengthening food security.

Blending mandates for SAF are rising in Europe and starting to take effect elsewhere, in Brazil and Thailand they have introduced their own. This expands the market for clean jet fuel and creates domestic and export opportunities for producers worldwide. Countries that pair low-cost renewable power with abundant waste and residues from farming and forestry are well placed to capture them.

Construction and establishment of new production facilities brings job opportunities, skills diversification and inward investment.

Chemical and fuel pipelines could cover more than 10% of current demand, and while investment is gathering pace, acceleration is needed to impact grey markets

Pipeline capacity vs existing grey market vs passed FID, persector

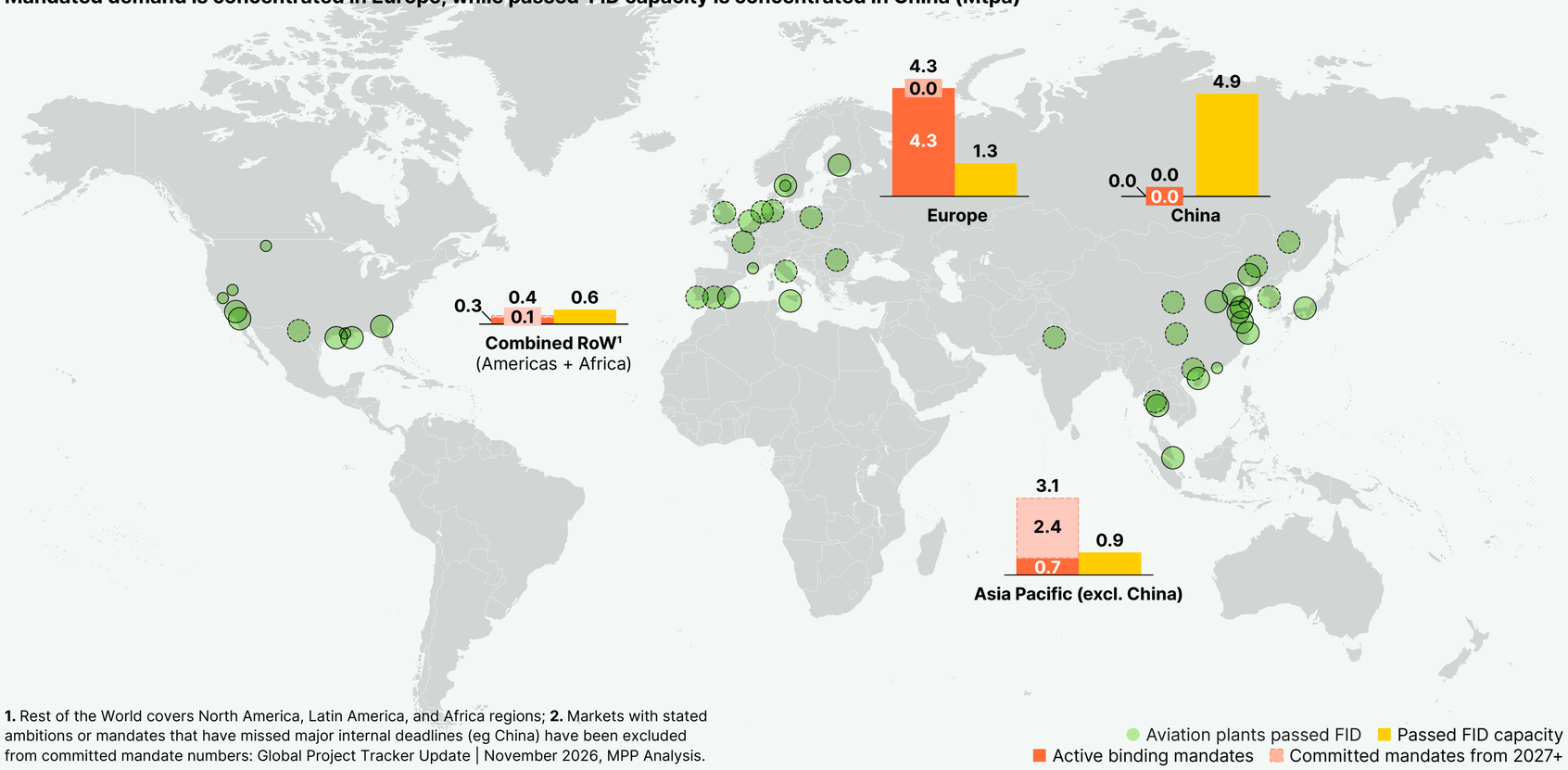


1. Aluminium's higher share reflects legacy hydro-powered smelters, not new investment; **2.** Steel given as crude steel production, without any production/end product losses.
Source: Global Project Tracker Update | November 2026, MPP Analysis.

Momentum in SAF is expected to last with global market set to grow as regulations are implemented in new geographies

Increasing blending rates already active in Europe and imminent policies from Asia to Latin America are set to drive the next wave of projects

Mandated demand is concentrated in Europe, while passed-FID capacity is concentrated in China (Mtpa)



1. Rest of the World covers North America, Latin America, and Africa regions; **2.** Markets with stated ambitions or mandates that have missed major internal deadlines (eg China) have been excluded from committed mandate numbers: Global Project Tracker Update | November 2026, MPP Analysis.

Europe's policies reach beyond its borders

Around 7 Mtpa of SAF capacity has passed FID. Mandates in Europe gave developers the predictable demand they needed and most FIDs to date rely on European offtake, even where production is outside the EU.

New mandates will push demand further

More markets are moving from targets to binding policy:

- **In force:** EU, UK, Switzerland and Norway
- **From 2027:** Brazil, South Korea, Singapore and likely India
- **By 2030:** Japan, Indonesia, Hong Kong and Malaysia are expected to turn targets into regulation
- **From 2030:** Europe's e-SAF requirements take effect, creating a new source of demand to drive FIDs.
- **Under consideration:** Australia and other markets, as supply chain disruption through the Strait of Hormuz puts jet fuel security on the agenda

Investment decisions taken now will shape SAF volumes in 2030

SAF plants take several years to build, so the volumes available in 2030 depend on projects reaching FID in the next few years.

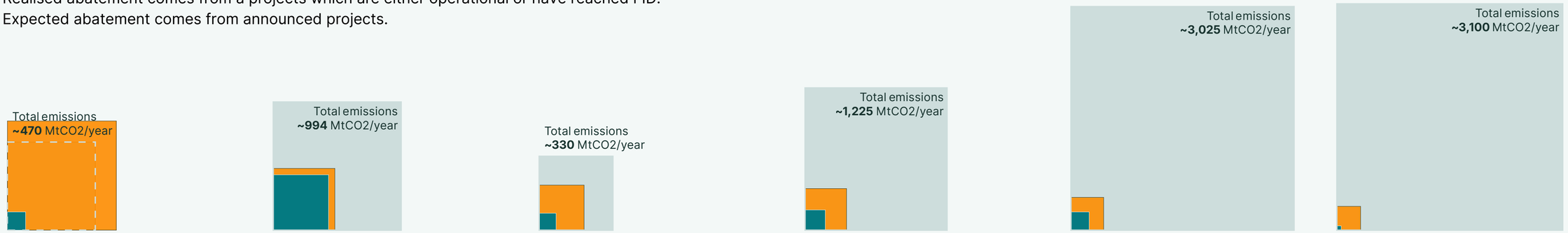
China holds most of the SAF capacity that has passed FID[2] and projects in Brazil, Egypt, South Africa and Thailand have reached FID in the past 18 months.

~269 Mt CO_2/ year emissions reduction expected from the 189 projects passed FID

Unlocking the full pipeline could achieve ~1.3 Gt CO_2/ yr emissions reduction, displacing 13% of ~10 $GtCO_2$/ yr of emissions from energy-intensive sectors

Realised and expected abatement vs current emissions, by sector
($MtCO_2$ a year)

- The total emissions, represented by the light grey squares, are the 2020 estimates of current grey production.
- Realised abatement comes from a projects which are either operational or have reached FID.
- Expected abatement comes from announced projects.



Ammonia
abatement (MtCO2/year)
20.17 (4%) realised
and an additional
701.6 (149%) expected

Aluminium
abatement (MtCO2/year)
185.62 (19%) realised
and an additional
45.2 (5%) expected

Methanol & HVCs
abatement (MtCO2/year)
17.38 (5%) realised
and an additional
105.5 (32%) expected

Aviation
abatement (MtCO2/year)
24.83 (2%) realised
and an additional
79.9 (7%) expected

Steel
abatement (MtCO2/year)
20.13 (1%) realised
and an additional
45 (1%) expected

Cement
abatement (MtCO2/year)
1.12 (0%) realised
and an additional
33.3 (1%) expected

The total ammonia pipeline abatement potential exceeds current sector emissions, as many projects have been announced in anticipation of future demand from new use cases such as shipping fuel and hydrogen exports, yet projects passed FID cover just 4% of emissions. Announced projects cover 32% of emissions in methanol and HVCs, and only 7% in aviation.

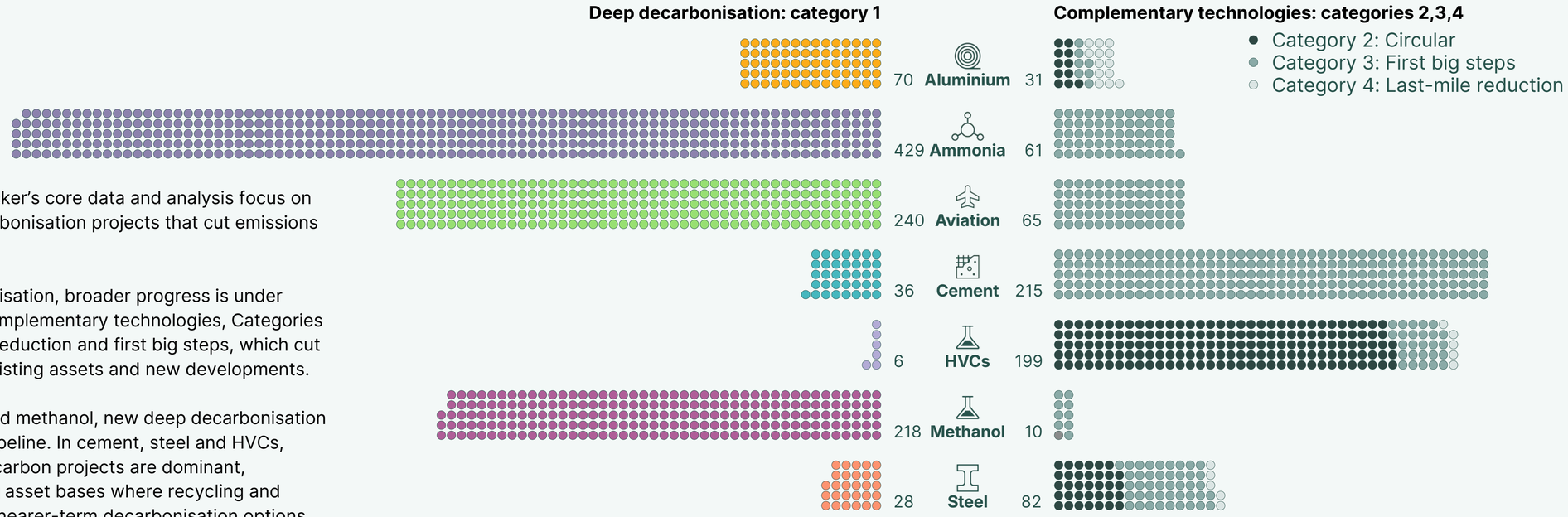
Steel and cement make up two-thirds of the 9.1 $GtCO_2e$ of industrial emissions but expected abatement only covers about 1–2% of these emissions. More projects together with the deployment of complementary technologies with smaller emissions reductions can start to shift the dial. Aluminium leads on delivery, with 19% of emissions already covered by realised projects.

Note: ~58% (107 Mtpa) reported abatement in aluminium is avoided emissions from legacy assets using renewable energy and would not reduce 2020 indicative emissions. **Source:** Global Project Tracker Update | November 2026, MPP Analysis. Note: Methanol and high-value chemicals (HVCs) are shown together, as current grey production emissions for these products are only available as a combined baseline. Additionally, some projects will supply new uses, such as ammonia and methanol for shipping fuel, hydrogen carriers or power generation. Their abatement replaces emissions in other sectors, which are not in the baseline. 58% (107 Mtpa) reported abatement in aluminium is avoided emissions from legacy assets using renewable energy and would not reduce 2020 indicative emissions

Deep decarbonisation leads where new demand is expected

Recycling and partial retrofits come first in mature supply chains where large assets exist

A wider view of industrial transformation: deep decarbonisation vs complementary project pipelines by sector
(number of projects)



The Global Project Tracker's core data and analysis focus on Category 1: deep decarbonisation projects that cut emissions by 70% or more.

Beyond deep decarbonisation, broader progress is under way. This view adds complementary technologies, Categories 2-4: circular, last-mile reduction and first big steps, which cut emissions from both existing assets and new developments.

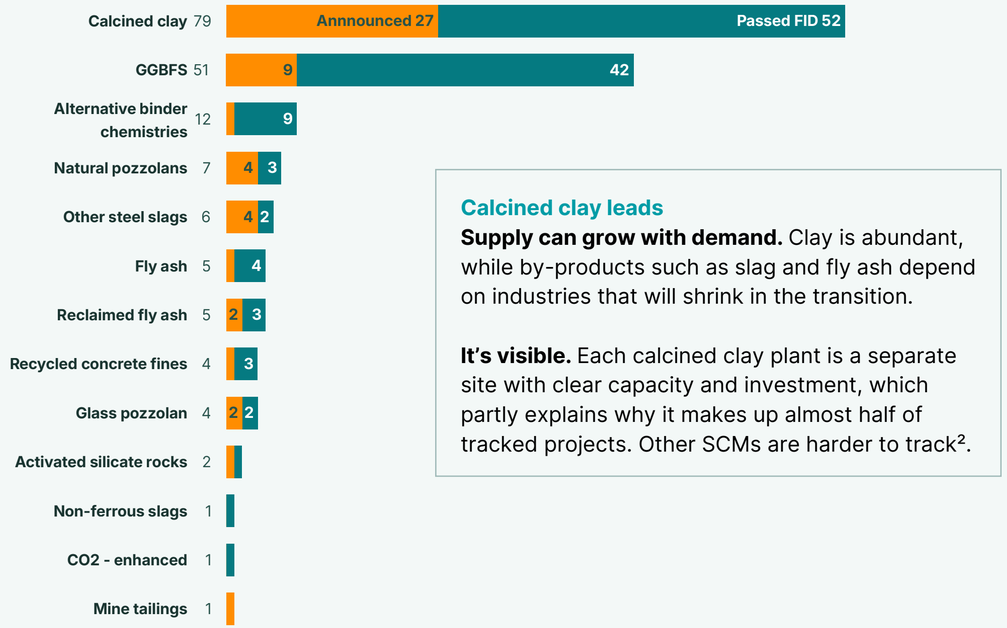
In ammonia, aviation and methanol, new deep decarbonisation production leads the pipeline. In cement, steel and HVCs, complementary lower-carbon projects are dominant, reflecting large existing asset bases where recycling and partial retrofits are the nearer-term decarbonisation options. Both routes are needed to reach net zero.

Each dot represents one project. **Category 1,** deep decarbonisation: projects producing at near-zero emissions; these make up the core Global Project Tracker pipeline shown on previous slides. Complementary technologies: **Category 2,** circular: (recycling and reuse of materials); **Category 3,** first big steps: (technologies that yield significant emissions reductions but are insufficient by themselves to reach near-zero); **Category 4,** last-mile reduction: (technologies that stack onto deep decarbonisation technologies to deliver the final emissions reduction needed to reach net zero). **Source:** Global Project Tracker Update | November 2026

In cement, complementary technologies are a growth area, supplementary cementitious materials (SCMs) are low cost and cut emissions on average by ~40%

Every tonne of clinker emissions avoided now via SCMs is a tonne of emissions that does not require future capture

178 Currently tracked SCM plants by type, number of plants



Calcined clay leads

Supply can grow with demand. Clay is abundant, while by-products such as slag and fly ash depend on industries that will shrink in the transition.

It's visible. Each calcined clay plant is a separate site with clear capacity and investment, which partly explains why it makes up almost half of tracked projects. Other SCMs are harder to track[2].

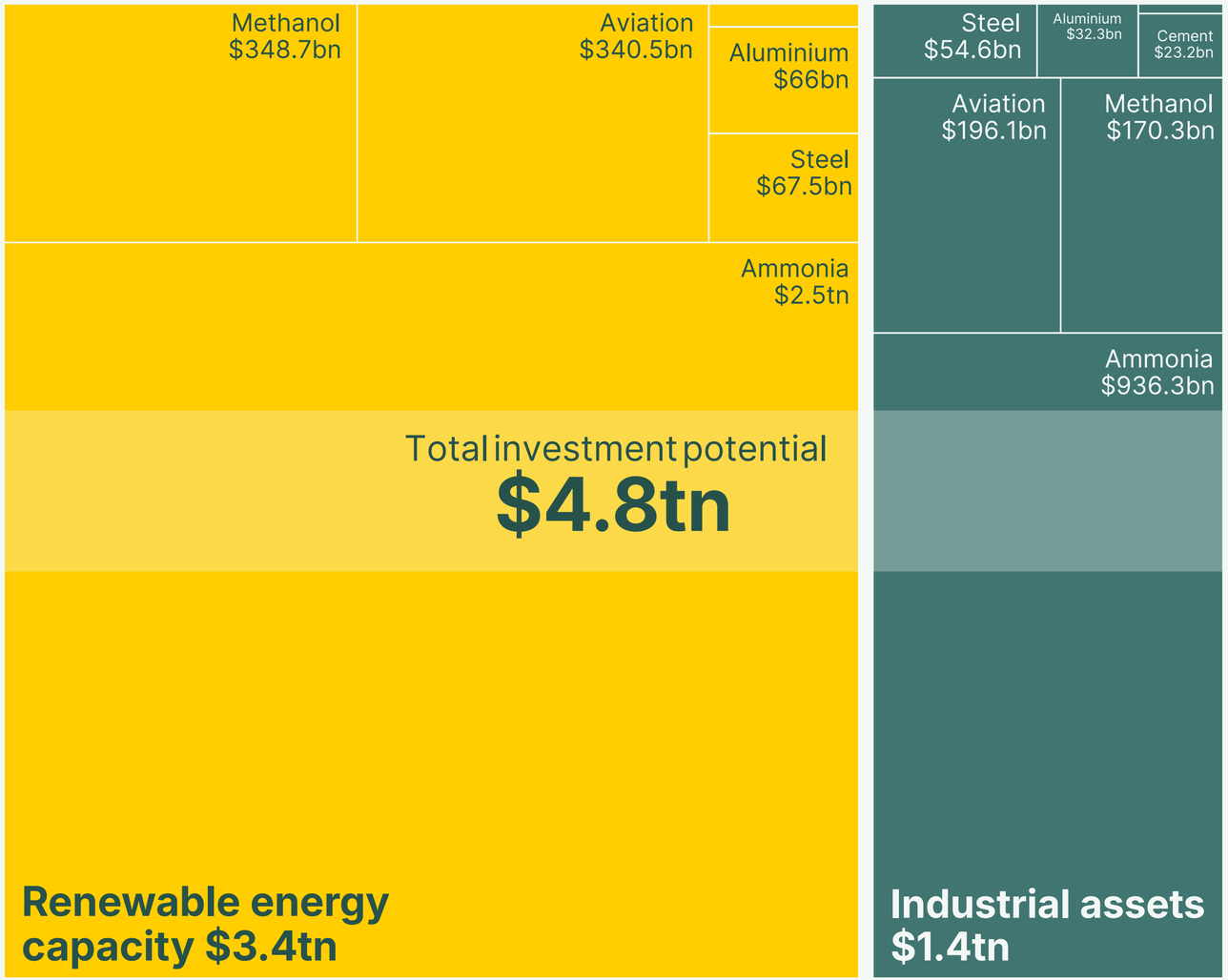
1. Depending on the SCM types and blend ratios, SCMs can generally decarbonise around 40% vs Ordinary Portland cement, although a wide range of variation exists; **2:** SCM-specific capacity tracking constraints: Almost half (82 out of 178) of tracked projects lack capacity data due to gaps in available sources and reporting. The 62 projects with a verified capacity comprise 22.99 Mtpa of SCMs and 50.92 Mtpa of low-emission cement. SCMs are difficult to track because they involve supply chain, not a capex focussed intervention, so these figures will likely rise. The operating view is partial, especially for legacy GGBFS sources. **Source:** LeadIT. (2025). Green Cement Technology Tracker. Leadership Group for Industry Transition. https://www.industrytransition.org/green-cement-technology-tracker/, Atoma Research, MPP Primary Research.

What are supplementary cementitious materials (SCMs)?
SCMs replace part of the emissions-intensive clinker in cement. They range from industrial by-products to new binder chemistries. They do not get cement to near-zero[1], but they offer the chance for significant emissions cuts this decade.

China and India, the largest cement producers, already use less clinker than the global average, which points to greater supply of SCMs and more scope to use them.

The pipeline at a glance
178 SCM plants tracked: 98 operating, 25 at FID and 55 announced. Calcined clay leads: 79 plants (44% of the pipeline), with recent growth led by Africa, Latin America and Europe.

The new industrial sunbelt is moving
17 LC3 projects reside in the new industrial sunbelt, of which seven are announced, three have reached FID and seven are operating, showing conversion has started.



The project pipeline represents an under-recognised $4.8 trillion of investment potential across industrial assets and renewable build out

$2.6 trillion of investment potential sits in the pipeline of emerging markets across the new industrial sunbelt



Unlocking the clean industry pipeline



Six acceleration levers can expedite industrial transformation

These critical enablers drive investment decisions for clean industry projects

Fundamentals



Markets

the dependable market demand needed to attract project investment



Energy

reliable access to cheap and abundant clean energy



Supply chains

coordinated and resilient equipment, feedstock and service supply chains on which clean industry depends

Final investment decisions

Communities

local value and political durability that will enable clean industry to thrive



Finance

catalytic capital needed to move projects forward



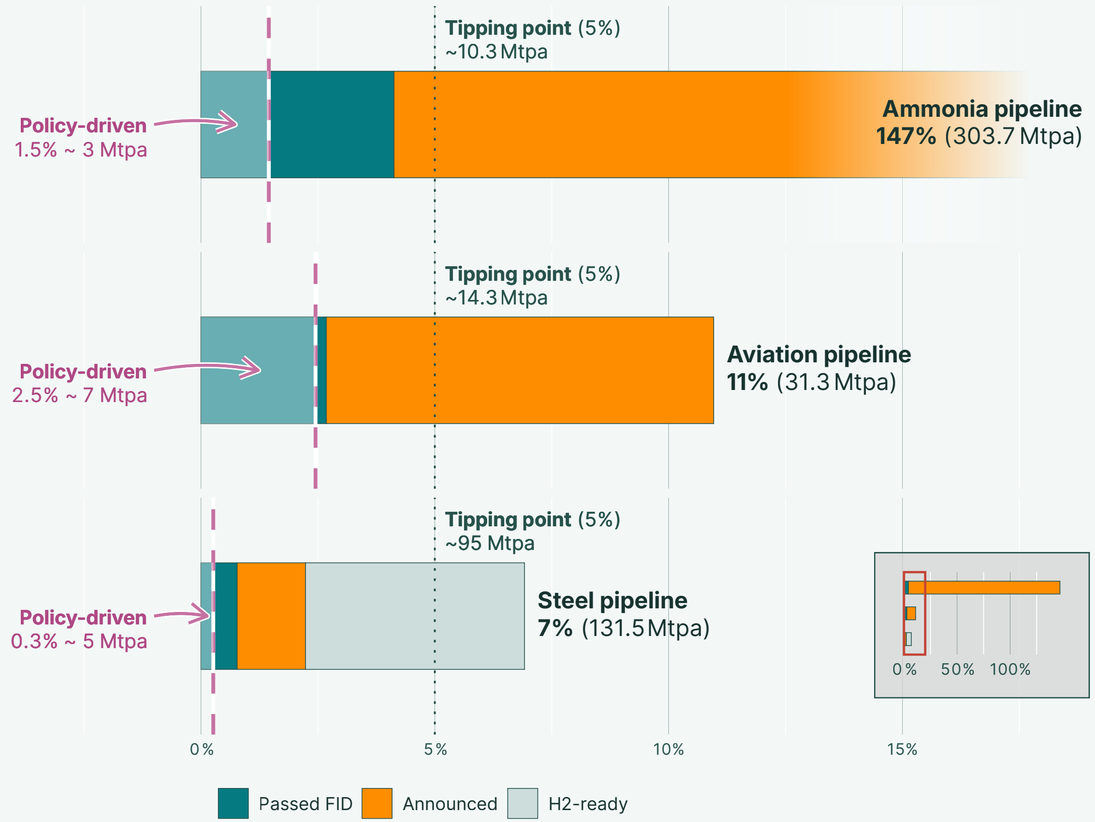
Trade

connectivity needed for clean commodities to move across borders



Enabling conditions

Comparison of clean supply volumes, expected demand, and volumes to trigger tipping points by sector*
Mt/year



Source: Global Project Tracker Update | November 2026 , MPP Analysis. *% of today's grey market (fossil fuel jet 286 MT, Ammonia 207Mt, Steel 1760 Mt) [1] **Tipping point:** clean production reaching 5–10% of today's grey market. At this share, new technologies typically move from niche to mainstream. Costs fall, supply chains mature and adoption speeds up without further support. **Policy-based demand:** clean volumes required or underpinned by binding policy in force or legislated as of [Oct 2026]. Voluntary pledges and announced targets that are not yet legislated are excluded. For steel, 5 Mt/yr is MPP's estimate of the impact of the EU Industrial Accelerator Act (IAA) policy draft.

Clean markets | In several sectors, cost tipping points are within reach if demand signals strengthen

Expected policy-driven demand by 2030 is stronger in SAF and ammonia than in steel, but still well short of the 5-10% threshold where market growth can become self-sustaining

Tipping points for technology adoption happen as new products gain market shares
Once clean production reaches 5-10% of the existing market, growth often becomes self-reinforcing: costs fall, supply chains mature and investor confidence builds, so the next wave of projects reach FID faster. Solar power and EV's both followed this pattern to become competitive with incumbents.

How sectors compare
The SAF portfolio (31 Mt) equals about 11% of today's fossil jet fuel market, just above the 5–10% tipping point needed to trigger reinforcing feedback loops that lead to exponential market growth. The ammonia pipeline (304 Mt) is around one and a half times today's grey market. In contrast, the clean steel project pipeline (41 Mt) is about 2% of primary steel production, well short of the 88 Mt needed to reach 5%. Adding plants that could later run on green hydrogen (i.e. "H2-ready" DRI plants) would lift supply into the tipping point zone.

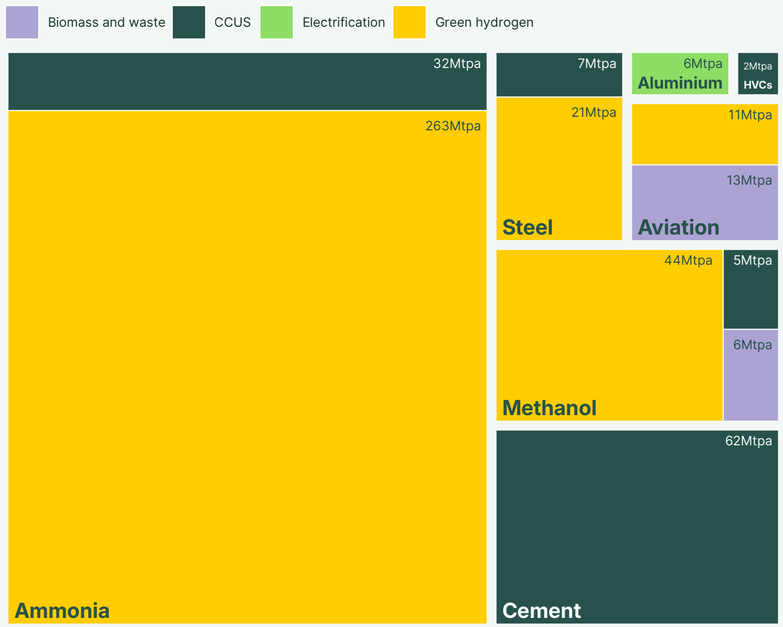
Policy support has grown, but unevenly
Aviation is the proof that mandates drive investment: blending mandates will create around 7 Mt of demand by 2030, matching the capacity that has passed FID. All other sectors would see gains from the same approach. Binding policy has secured 3 Mt of low-carbon ammonia demand so far, and scaling that to 9-21 Mt would bring the market to critical mass. Steel has the most room to grow: mandated demand needs to rise 18-fold to reach a 5% market share.

Stronger demand signals will unlock the next wave of FIDs
The constraint has moved from finding projects to creating bankable demand that enable project financing. Converting the pipeline will depend on turning policy ambition into reliable market signals, through carbon pricing, mandates, standards, public procurement, and contracts for difference that enable long-term offtake commitments.

Clean energy | Clean industry's pipeline would need 3,500 TWh of electricity a year, about a tenth of today's global demand

This makes clean industry an anchor customer for renewables, if clean power generation, grids and storage planning stay in pace with residential, industrial and AI uses

Planned technology choices across the announced pipeline vary by sector
Announced pipeline capacity by breakdown of sector and decarbonisation lever



Note: Electricity demand: Direct electrification, electrolysis based indirect electrification, and energy requirements of CCUS. Hydrogen demand includes 62 Mtpa of green and 6.3 Mtpa of blue hydrogen. 1: Source: International Energy Agency, Energy and AI report, April 2025

Hydrogen dependence turns clean industry into a major buyer of renewables
A majority of clean industry projects in the pipeline plan to use green hydrogen from electrolysis. This process is power-hungry, so every new hydrogen plant needs a large, steady supply of renewable energy. Green hydrogen based electrolysis projects makeup 89% of announced green ammonia capacity. In addition hydrogen accounts for ~78% of the combined clean methanol and steel pipeline. These industries will be one of the biggest long-term buyers of new solar, wind or other renewable energy. However, direct electrification, bio-based production and CCUS will still play an important role in sectors such as cement, steel, SAF and chemicals in decarbonising both existing and new industrial production investments.

Clean industry will compete with data centres for clean power
Data centre electricity demand is expected to more than double to around 945 TWh by 2031. Data centres can usually pay more per MWh, while clean industry needs very large volumes at the lowest possible cost. Both chase the same power contracts, grid connections and sites. Without planning, clean industry risks being priced out.

Countries that plan power and industry together can win more investment
Governments that treat clean industry as a priority load can plan clean energy scale-up, infrastructure for electrons and molecules, and energy storage at the level of key industrial clusters, taking into account industry and other energy demands. Clean energythen arrives at the same pace as the plants, rather than becoming the bottleneck.

The current pipeline represents a significant demand for clean energy, especially electricity
Total potential electricity, hydrogen, biomass and CCUS demand from the announced pipeline

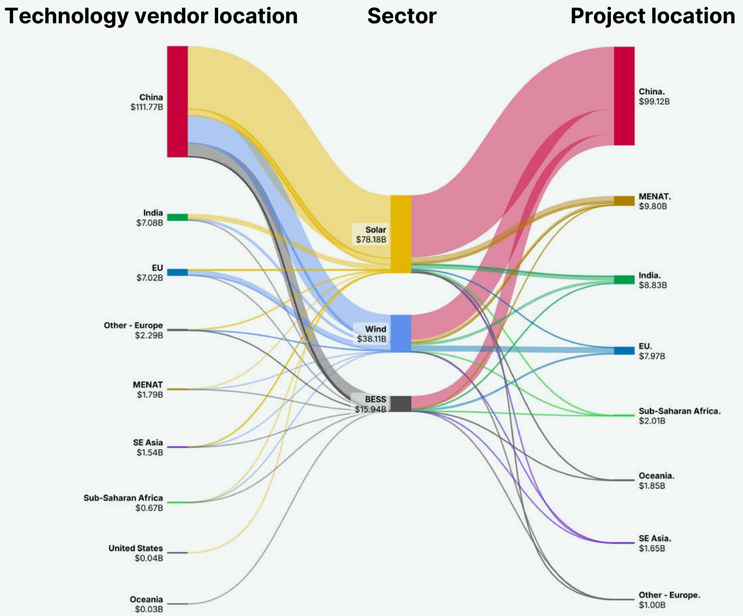
Electrification	CCUS	Hydrogen	Biomass & waste
3504 TWh	**215 Mtpa**	**62 Mtpa**	**64 Mtpa**

Clean supply chains | Supply chains for clean industrial production equipment are still emerging, with China, the EU and the US competing for market shares across sectors

China dominates renewable energy equipment to industry worldwide (85%) and is scaling its supply chains for clean industrial production equipment by serving its domestic market first

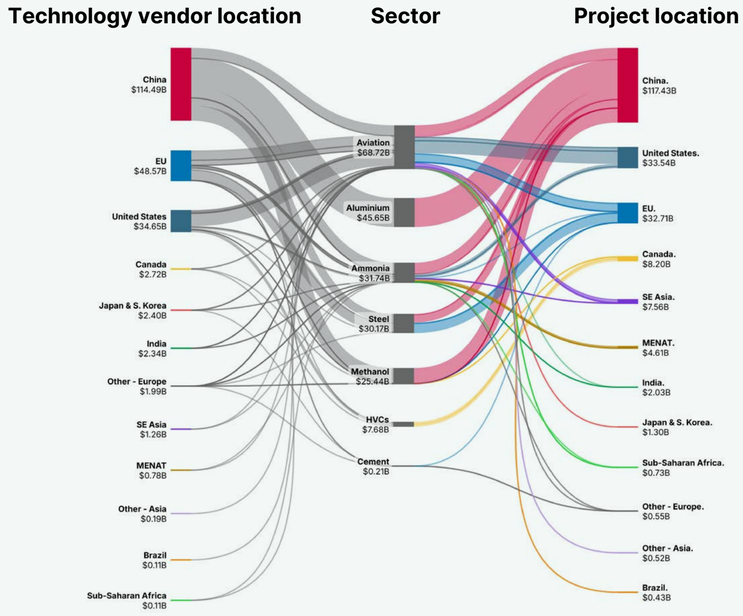
Mature and low-cost: Chinese supply of renewable technologies reaches worldwide[1]

Renewable energy equipment providers by key technologies and project locations, $bn



An open market: Chinese vendors supply 55% of industrial production equipment (mainly for domestic use) with EU and US vendors competing for 40% of orders

Production equipment providers by sector and project location, $bn

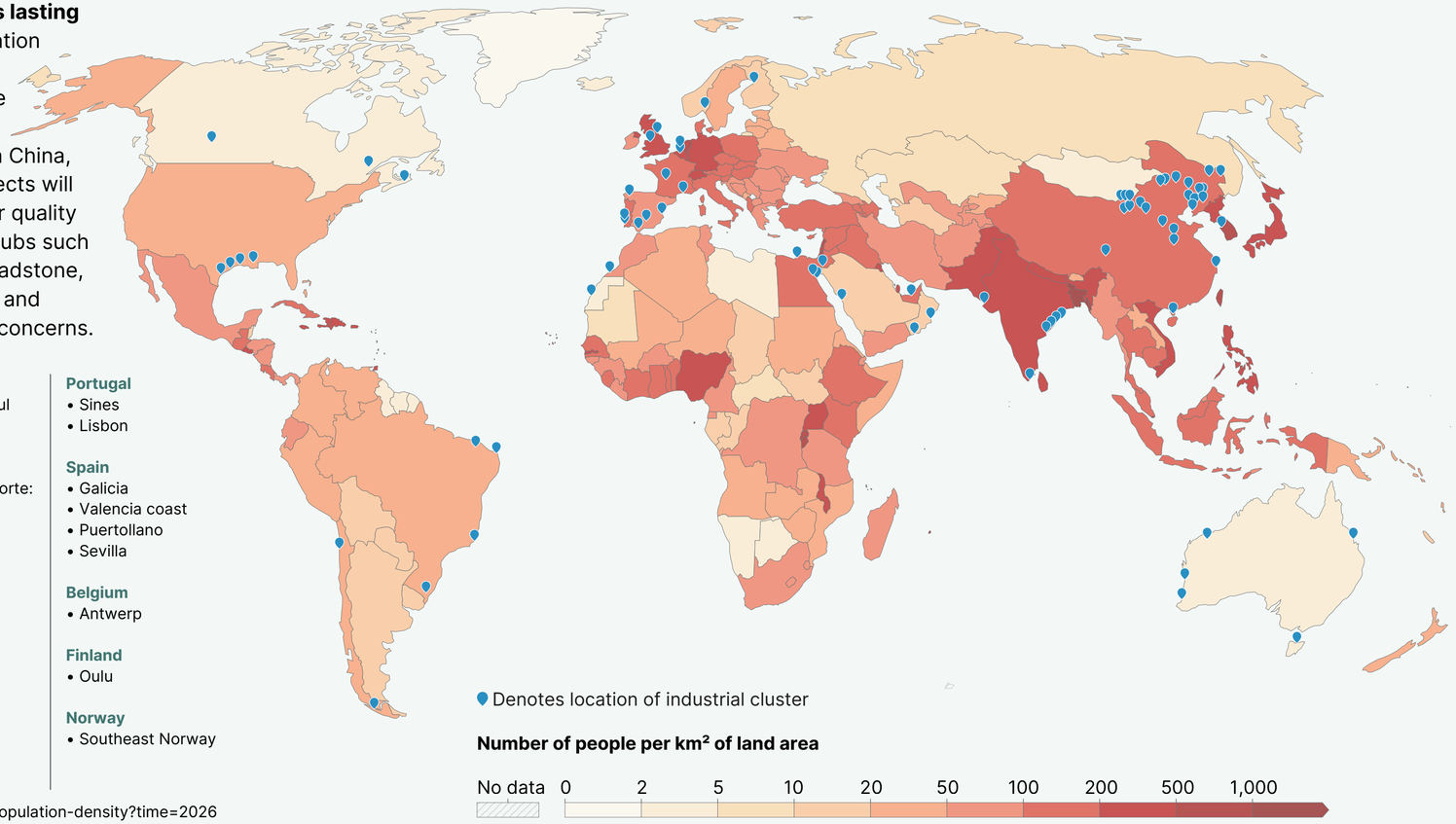


1. Methodology to calculate flows: equipment costs were aggregated across the markets. The cost of the equipment required for each individual project was estimated using techno-economic models specific to each deployed technology. The origin of the supplied equipment was identified from available publications and public announcements. Where specific OEMs were not announced, the most likely suppliers were derived from available market information, for example announcements on similar projects. The required renewable energy capacity, including solar, wind and battery storage, was estimated based on renewable energy capacity factors specific to the project location or region. The cost of renewable energy systems was estimated using the Annual Technology Baseline 2024, developed by the National Laboratory of the Rockies. **Note:** MENAT = Middle East, North Africa and Turkey

Clean communities | Clean projects are taking root in both dense and remote regions, requiring differentiated approaches to benefit local communities and strengthen public support

~70 existing and emerging industrial clusters across 22 countries hold the highest concentration of projects.
Early community engagement can help to manage cumulative impacts on people and places

Local value lowers risk and builds lasting support. The map overlays population density (shading, people per km²) with clean industrial projects in the Global Project Tracker. In densely populated regions such as eastern China, India and north-west Europe, projects will shape jobs, land use, water and air quality for large communities. In remote hubs such as the Pilbara, Antofagasta and Gladstone, workforce, housing, infrastructure and Indigenous land rights are central concerns.



Canada
- Edmonton, Alberta
- Point Tupper, Nova Scotia
- Saguenay, Quebec

United States
- Lower Mississippi Corridor, MI
- Houston – Galveston bay, TX
- Port Arthur – Beaumont, TX
- Victoria – Point Comfort, TX

Chile
- Antofagasta
- Magallanes

Brazil
- Rio Grande do Sul
- Port of Acu: São Gonçalo do Amarante
- Rio Grande do Norte: São Gonçalo do Amarante
- Piauí: Parnaíba

UK
- Teesside hub
- Stanlow

Netherlands
- Rotterdam

France
- Saillat
- Fos-sur-mer

Portugal
- Sines
- Lisbon

Spain
- Galicia
- Valencia coast
- Puertollano
- Sevilla

Belgium
- Antwerp

Finland
- Oulu

Norway
- Southeast Norway

South Korea
- Daesan

India
- Kandla
- Gopalpur
- Paradip
- Kakinada
- Pudimadaka
- Tuticorin

Australia
- Kwinana - Pinjarra
- Gladstone
- Pilbara
- Geraldton

Egypt
- Suez -Ain Sokhna
- Alexandria
- Ras Shukeir

Jordan
- Aqaba

Morocco
- Dakhla
- Tan Tan

Oman
- Duqm
- Salalah

Saudi Arabia
- Yanbu

UAE
- Abu Dhabi

China
Guangdong
- Zhanjiang

Heilongjiang
- Shuangyashan
- Daqing

Henan / Hebei
- Hebi
- Tongbai

Inner Mongolia
- Chifeng
- Urad Rear Banner
- Baotou
- Jarud Banner
- Urad middle banner
- Bairin left banner
- Linxi
- Tongliao
- Hohhot
- Otog banner
- Ulanhot
- Jungar Banner

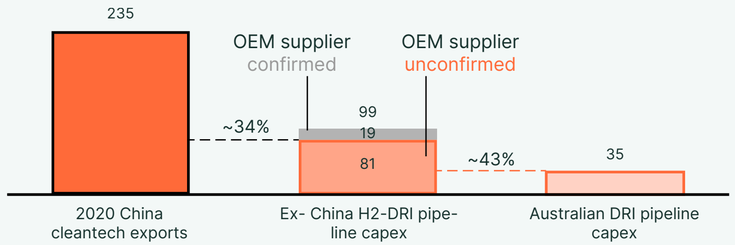
Jilin
- Songyuan
- Taonan
- Yushu
- Meihekou
- Shuangliao

Liaoning
- Kangping
- Yingkou

Zhejiang
- Zhoushan

Source: https://ourworldindata.org/grapher/population-density?time=2026

Chinese suppliers can equip DRI projects beyond China
$bn



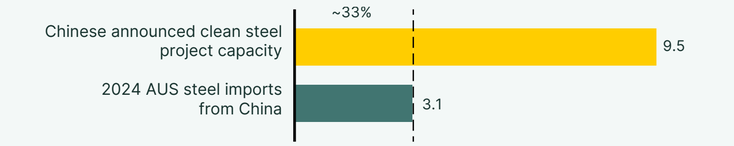
Chinese technology supply
Around $80bn of the H2-DRI pipeline outside China has no confirmed equipment supplier, equal to around a third of China's 2020 clean tech exports. This is an export opportunity for Chinese equipment makers, with Australia making up over 40% of this unconfirmed capex.

Australia builds iron to export; China's coastal south a suitable buyer
Tracked pipeline capacity, Mtpa (%)



Iron trade opportunity from Australia
78% of Australia's steel pipeline is iron (HBI/DRI) built for export. Coastal steel plants in the South of China can take seaborne iron at low cost, so they are the natural market maker for Australian exports[2]

Finished steel trade already flows from China to Australia
Mtpa



Reciprocal steel offtake from China
China is already a major supplier of steel to Australia, as 2024 AUS steel import capacity from China is equivalent to ~33% of current Chinese clean steel pipeline capacity. Clean Chinese steel could fulfil both Australian demand and enable reciprocal offtake for both sides.

Clean Trade | Clean corridors that offer complementary opportunities to both sides, can unlock FIDs across borders

A potential Australia-China iron and steel corridor illustrates what a win-win trade partnership could look like, offering offtake to Australian green iron, while opening up opportunities for Chinese equipment and steel exports

Four lessons to unlock a potential Australia–China corridor

Match complementary strengths
The corridor works because each side could contribute and benefit. Australia has iron ore and renewable power; China has clean iron demand, steelmaking capacity and competitive technology. Both gain from investment and new trade.

Turn announced demand into firm offtake
Australia has 9 Mtpa of clean iron announced but none passed FID. Long-term offtake from Chinese steelmakers, particularly coastal plants, could give first projects the certainty they need.

Align standards and carbon accounting
China and Australia now each have their own certification, but neither recognises the other's. Shared definitions would let Australian green iron count as clean in China, and Chinese low-carbon steel count in Australia.

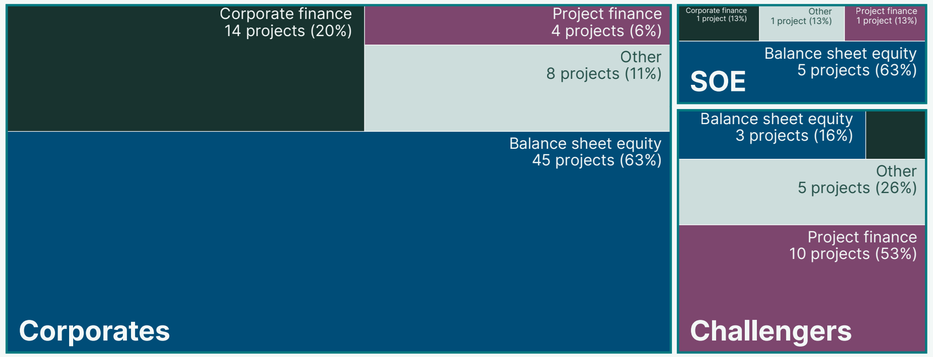
Coordinate infrastructure and share risk
Closer co-operation on ports, power, shipping and finance could cut the cost of Australian green iron by around 20% and lower first-mover risk.

1. 50% of 2024 Australian imports from China were finished steel or steel products. Current project pipeline capacity by FID status, MPP Analysis;
2. MPP report Steel's transformation: China and Australia's next horizon of clean steel finds coastal south most likely to import iron

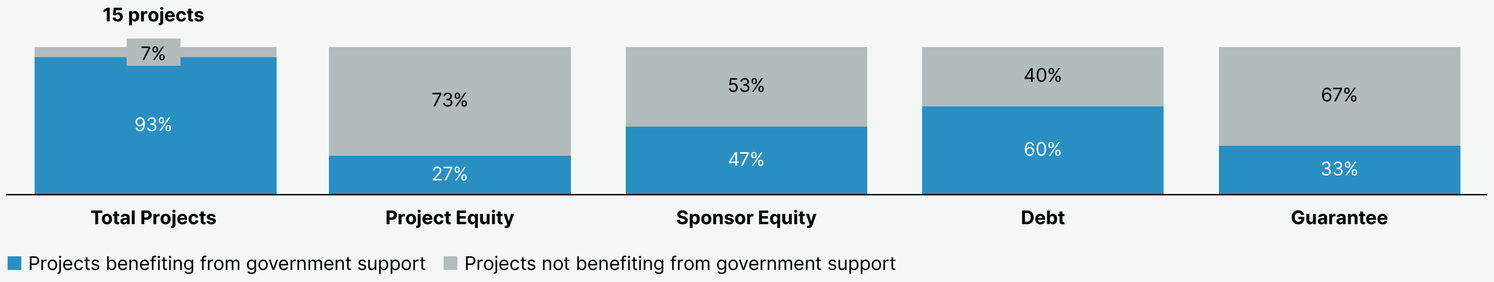
Clean finance | Strengthening corporate finance and government support, especially for new entrants, is critical to accelerate investment in clean industry projects

Most projects that have reached FID to date were supported by the balance sheets of large corporates; the few projects underpinned by project finance benefitted from strong financial support from government

Over 70% of funded projects were developed by large companies, primarily through equity and corporate finance
Number of FIDs by type of developer and Share of projects by primary funding route in each category



Nearly all project-financed investments have government support, mostly public debt
Share of project-financed projects benefitting from government support - in total and by type of support



Source : MPP Analysis, Data as of June 2026; funding structures for later FIDs are not yet fully disclosed. Note: given the confidential nature of projects detailed capital stacks, this analysis classified projects by primary funding route: *project finance* – non-recourse debt raised at project level, alongside sponsor equity; *corporate finance* – debt raised by parent company; *balance sheet equity* – funded from sponsor cash; *other* – undisclosed or hybrid. Most projects combine several sources, and detailed capital stacks are rarely disclosed

Large corporates and state-backed enterprises have carried early risk
Of the 98 FIDs with disclosed financing structures, 69 were funded through balance sheet equity or corporate finance, and only 15 through project finance. Large corporates and SOE's account for over 80% of FIDs, and were mostly funded on balance sheet or through corporate finance. These incumbents have absorbed early technology and market risk, thanks to deep pockets. New entrants have taken a different route: 10 of their 19 FIDs (14% of FID projects) used project finance, where lending is secured against the plant's future income.

Where projects raised funding on their future earnings, public backing made them bankable
This is the route that could take investment beyond the largest companies, but so far it has rarely worked without public funding. Of the 15 projects funded through project finance, 14 (93%) had government support through public debt, equity or guarantees. Public debt was the most common source, used in 60% of deals, with guarantees in 33%. Smaller developers account for two-thirds of these deals, so public support has been central to how they secure investment.

Public funds that create markets will draw in private finance
Neither route can scale on its own. Until now, governments have shared risk deal by deal. A better use of public money is market-making mechanisms, such as double-sided auctions and contracts for difference. If governments create greater demand certainty, commercial investors can have the certainty to back plants on the strength of their own earnings, requiring less public spending on project financing.

The path to unlocking the 800+ project pipeline is already visible

Targeted interventions across the acceleration levers can create bankability for today's pipeline of projects and stimulate future developments needed to scale clean industry further.

Six acceleration levers

Fundamentals



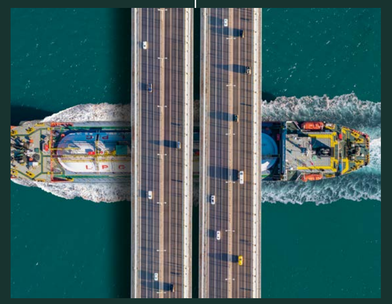
Build Clean Markets:

stimulate demand at a scale that unlocks projects and ramp up ambition over time



Build Clean Energy:

treat clean industry as a priority load for renewable power and priority use for other clean energy sources.



Build Clean Supply Chains:

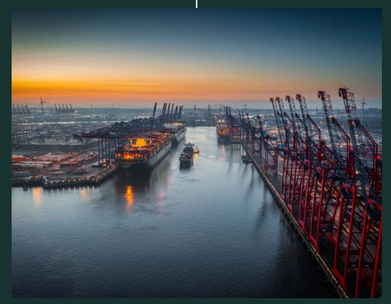
drive collaboration on shared infrastructure, supply chain arrangements, and common rules and standards, and derisk shared investments.

Enablers



Build Clean Communities:

build people and place into project design and economics from the start, especially in industrial clusters.



Build Clean Trade:

create win-win partnerships grounded in national interests and underpinned by standards that work across borders.

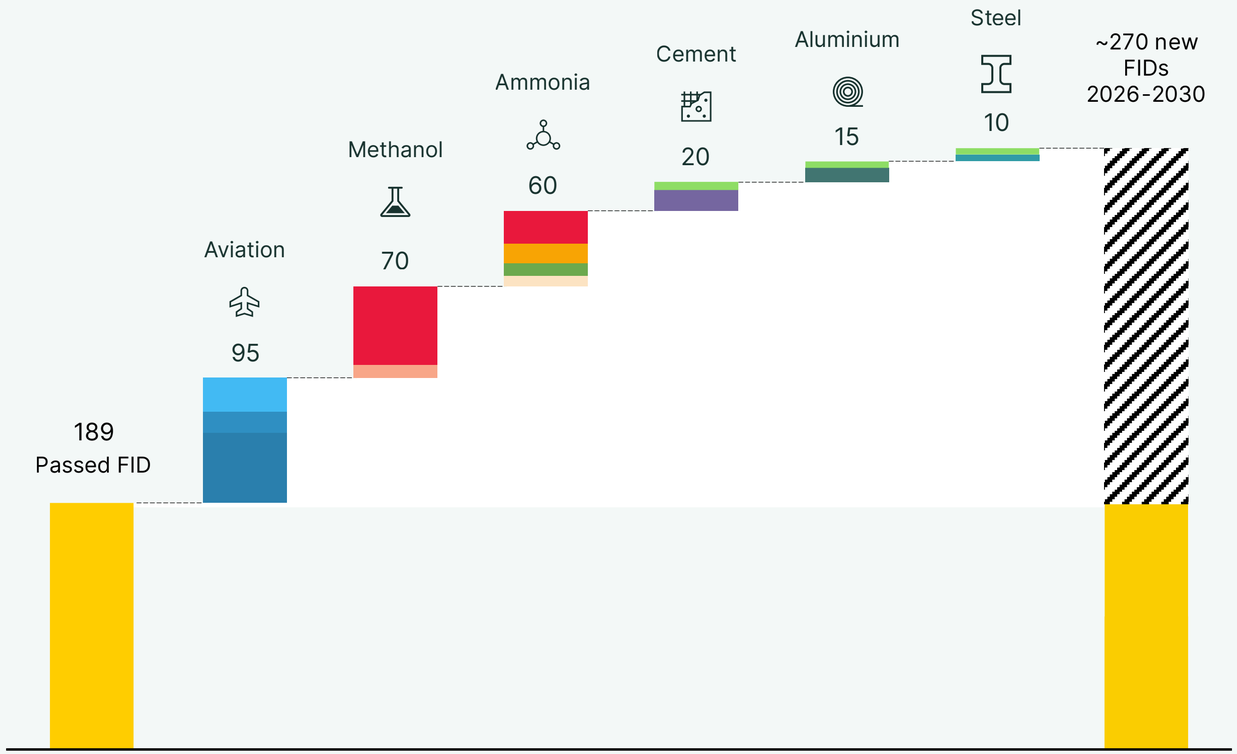


Build Clean Finance:

bring finance providers in early and use concessional finance to take on early market and project risks.

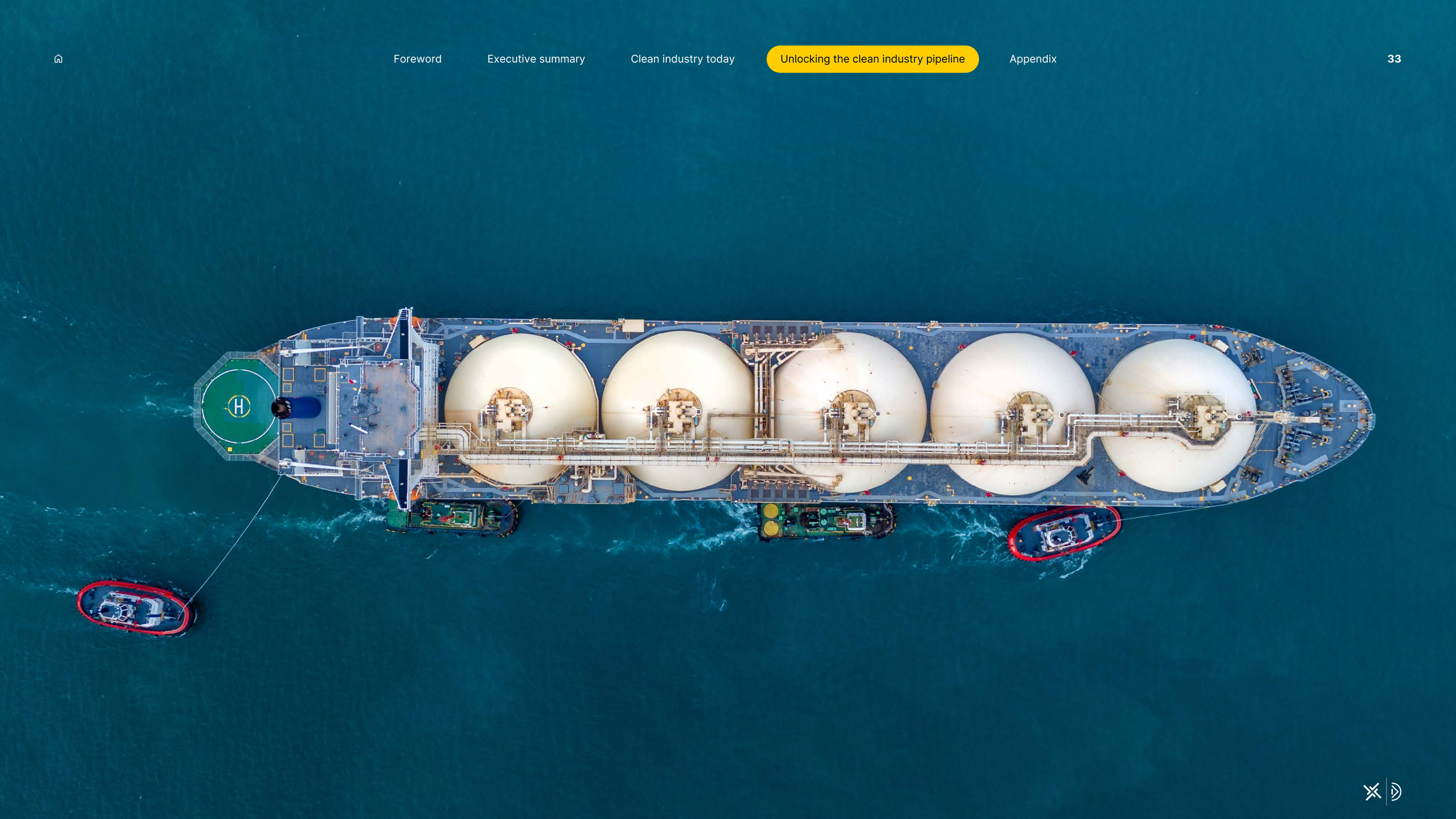
2030 acceleration opportunity | ~270 new clean industry project FIDs could be achieved, delivering a 5x increase in investment in clean materials, chemicals and fuels plants

Number of project FIDs per sector and driver by 2030

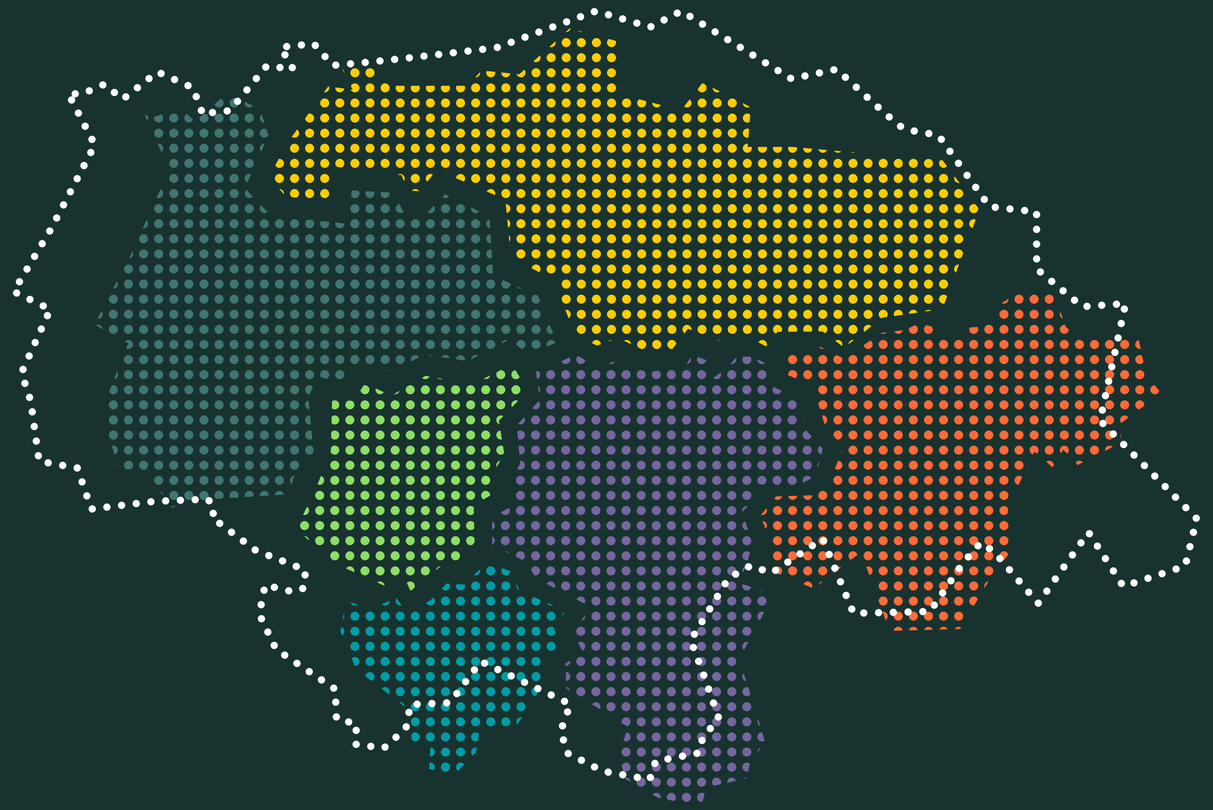


Key interventions on the horizon	Sectors
Existing SAF mandates	
Future SAF mandates	
Announced ambitions	
IMO Net-Zero Framework	
Chinese methanol deployment strategy	
FOAK green fertiliser in top 15 import-exposed markets	
RED III full adoption	
Japan ammonia co-firing strategy	
Ambitious EU IAA targets	
One FOAK CCUS per non-EU G20 country	
50% of smelters with RE cost <25$/MWh transition	
One FOAK in 5 major steel markets without a FOAK yet	

1: Comprising approximately $250bn of direct industry equipment and $345bn in RE build out between 2027 and 2030



Appendix



Category definitions

Tighter parameters have been set to identify clean industrial projects as near-zero production, while new categories recognise complementary approaches driving broader moves towards clean industry across sectors.

1 Deep decarbonisation technologies
Core focus

Major technology routes without which the sector cannot reach near net zero (>70–80% emissions reductions across production processes). Required for the bulk of the journey to net zero.

- Green H2-DRI
- CCS
- Electrolysis-based NH3
- (e)SAF production

2 Circular technologies
Needed for full sector decarbonisation

Technologies that reduce emissions through recycling and reuse.
Projects are not always additional.

- Scrap-based steel
- Scrap-based aluminium
- Plastics / chemicals recycling

3 First big step technologies
Important for clean industry transformation

Technologies that yield significant emissions reductions but are insufficient by themselves to reach near-zero. Important particularly in the short term, provided they do not lock projects into suboptimal assets such as fossil fuel infrastructure.

- Partial H2-DRI
- Calcined clay (SCMs)
- NH3 process emissions capture
- BF + bio-energy

4 Last-mile technologies
Required for full sector decarbonisation

Technologies that stack onto critical decarbonisation technologies to deliver the final emissions reduction to reach net zero.

- Inert anodes
- Low-carbon alumina
- Ancillary EAF electricity

The Global Project Tracker: methodology and updates

Recent updates reflect a continued effort to improve data accuracy, consistency and regional coverage across the global pipeline of commercial-scale decarbonisation projects. This cycle focused on deeper data validation, stricter inclusion criteria and expanded regional research to better capture real-world deployment trends.

Enhanced duplicate verification and data integrity refinement	A comprehensive duplicate review was conducted in collaboration with data partners, resulting in the identification and removal of overlapping entries. This was particularly relevant in regions such as China, where multiple sources and naming conventions had previously led to double counting.
Refined treatment of defunct projects	Projects with no public evidence of progress since 2023 have been systematically reclassified as defunct. This ensures the tracker reflects a more realistic view of the active pipeline and avoids overstating near-term deployment potential.
Stricter feedstock eligibility criteria	A more stringent approach to feedstock classification has been applied to Category 1 projects. Projects relying on first-generation (Gen 1) feedstocks (food-grade fats and oils) have been downgraded to the First Big Steps category. Feedstock choice is a key driver of lifecycle emissions and projects using similar technological pathways can have materially different decarbonisation outcomes depending on input sources.
Expanded regional coverage	Data coverage has been further strengthened through expanding regional expertise across APAC markets and continued deep-dive research in China. Work across Brazil, MENAT, India and Australia has also continued, further improving visibility into emerging project pipelines and better reflecting regional deployment dynamics.

1. For additional information on key data sources, methodologies and set thresholds for each sector, please refer to the Global Project Tracker at tracker. missionpossiblepartnership.org
2. We reserve the right to make data adjustments within 30 days of the publication.

Detailed methodology and definitions

The data for this edition of the Global Project Tracker follows updated methodology across all projects and sectors, with the following criteria in the scope of Category 1: Deep Decarbonisation projects:

Sector	Data sources	In-scope products	In-scope Category 1 technologies[1]	Threshold[2]
Ammonia	AEA, Primary Research	Ammonia	Electrolysis (ALK/PEM/SOEC), Grey H2 + CCS (ATR/Gasification/SMR)	0.1 Mtpa
Methanol	Methanol Institute, Primary Research	Methanol	CCS (Natural Gas), Electrolysis + CO_2, Electrolysis + Gasification (Biomass/Residual waste), Gasification	0.1 Mtpa
High Value Chemicals	Systemiq, IEA, Global Partners for Plastics Circularity	Ethylene, Propylene, Olefins	Green MTX (biogenic), Cracker + CCS	0.1 Mtpa
Aviation[3]	Atoma Research, Primary research	SAF	Fischer-Tropsch (BtL/PtL), Methanol-to-Kerosene, Ethanol-to-Kerosene (AtJ), HEFA-BtL, Pyrolysis-BtL	0.01 Mtpa
Aluminium	Primary research, IAI historic data	Primary Aluminium	100% clean electricity[4]	0.1 Mtpa
Cement	Primary Research, LeadIT historic data	Cement	Traditional production + CCS	0.1 Mtpa
Steel	LeadIT, Atoma Research, Primary Research	Primary Steel, Iron	Green H2 Direct Reduction, NG/COG-DR (transitioning to H2), DRI + CCS	0.1 Mtpa

1. Includes Category 1 technologies for each sector for which commercial-scale projects have attained in-scope pipeline status definitions.
2. For each sector, only projects above the set capacity threshold were included. Commercial-scale plants and demo projects with noted commercial ambition were included on a case-by-case basis; pilot and R&D level projects are excluded where identified.
3. Aviation technology categories adjusted to broadly align with ASTM pathways as well as Power to Liquid (PtL), Biomass-to-Liquid (BtL) and Power Biomass to Liquid (PBtL) categorisation.
4. Assumes fully decarbonised smelting of primary aluminium; does not include projects without ties to specific smelters.

Back-up: tech routes per category

Ammonia	• Deep: Electrolysis (ALK, PEM, SOEC, Pressurized Alkaline, Other); Grey H2 + CCS (ATR, Gasification, SMR flue gas + process emissions capture, Partial Oxidation, Other) • First big steps: Grey H2 + CCS (SMR/gasification only process emissions capture); Grey H2 + CCU; Gas reforming (Biomethane + Natural gas)
Aluminium	• Deep: 100% clean electricity[1] • Last-mile: Inert anodes; Low-carbon alumina • Circular: Scrap-based secondary production • First big steps: Partial clean electricity; Bioenergy for anode production
Steel	• Deep: Green H2 DRI; NG/COG-DR (with concrete plans to transition to H2) • Circular: Scrap-based secondary production • First big steps: BF + Bio; BF + CCUS (<80% capture); H2 Production; NG/COG-DR (no concrete plans to transition to H2); Traditional production + CCUS; Biocovers; DRI + CCU
Cement	• Deep: Traditional production + CCS • First big steps: Alternative Binder Chemistries; Alternative Fuels; Conventional SCMs; SCM: Calcined clay; Traditional production + CCUS[2]
Methanol	• Deep: CCS (Natural Gas); Electrolysis + CO_2 (biogenic/non-biogenic); Electrolysis + Gasification (Biomass/Residual waste); Gasification (Biomass/Residual waste); Gas reforming (Biomethane) • First big steps: CCUS (Natural Gas); Gas reforming (Biomethane + Natural gas); CCU + H2 (non-renewable)/ETL
High Value Chemicals	• Deep: Green MTO (biogenic); E-cracker • Circular: Chemical recycling; Mechanical recycling; Pyrolysis; Depolymerisation; Gasification; Biological Treatment; Landfill gas upgrading; Landfill gas to power; WtE + CCS • First big steps: Ethane cracking + CCUS (byproduct); Methane pyrolysis (carbon black byproduct); Partial biomass; H2-fuelled cracker; CCU (EOR); CCS
Aviation	• Deep: Fischer-Tropsch Synthesis-PtL, Fischer-Tropsch Synthesis-BtL, Fischer-Tropsch Synthesis-PtL/BtL; Methanol-to-Kerosene (PtL, BtL, PtL/BtL); Ethanol-to-Kerosene (AtJ) (BtL, PtL, PtL/BtL); Hydrothermal Liquefaction-PtL/BtL; Novel-BtL; HEFA-BtL • First big steps: HEFA-BtL (Coconut oil feedstock); Ethanol-to-Kerosene (AtJ)-BtL (Gen 1 feedstock); Fischer-Tropsch Synthesis-PtL/BtL (Gen 1 feedstock); Bio-ethanol dehydration; Plastic pyrolysis

1. Refers to the Rio Tinto Arvida AP60 extension and legacy projects. **2.** Usually cases are CCU or unclear how the captured carbon will be utilised.

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