RESEARCH & PERSPECTIVES

The thinking behind the thesis

SAF and the Methanol-to-Jet Opportunity

Mapping the Policy Tailwinds, Offtake Demand and Technology Readiness Behind Sustainable Aviation Fuel

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The Investment Thesis of the Family Office

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Abstract

The three preceding papers built a chain: captured carbon is a feedstock, green methanol is the product that gives it value, and direct air capture is the long-run source of that carbon. This paper reaches the end of the chain and names the demand that pulls the whole system into being. Sustainable aviation fuel (SAF) is the highest-value home for captured carbon, and the methanol-to-jet (MtJ) route is how green methanol becomes aviation-grade fuel. We map the three forces that determine whether the opportunity is real, namely policy tailwinds, offtake demand, and technology readiness, and we draw the investment conclusion consistent with the rest of the series. On policy, binding mandates are now in force or scheduled across the largest aviation markets, led by the EU's escalating blend requirement and ICAO CORSIA's move to binding compliance from 2027, creating durable demand that does not depend on voluntary uptake. On offtake, aviation is emerging as a committed, creditworthy buyer of low-carbon fuel and removal, and SAF commands a substantial premium over conventional jet fuel. On technology readiness, the decisive event has now occurred: the MtJ pathway reached ASTM approval in 2026, removing the single largest barrier that had held back commercial investment. For our family office the conclusion mirrors the direct-air-capture paper. We do not take the technology or single-project risk of building SAF plants; we favour the equipment and technology suppliers whose licensed process units and conditioning systems every MtJ facility requires, and the enabling infrastructure that serves the build-out regardless of which producer prevails. SAF is where the series' feedstock thesis is finally monetised, and the picks-and-shovels position captures that growth with the least exposure to any one plant.

Keywords: *sustainable aviation fuel; methanol-to-jet; ASTM D7566; ReFuelEU; CORSIA; SAF offtake; aviation decarbonisation*

1. Introduction: The Demand at the End of the Chain

Aviation is one of the hardest sectors to decarbonise. Batteries are too heavy for long-haul flight, hydrogen aircraft remain distant, and the industry's emissions are projected to rise as other sectors clean up faster. That leaves sustainable aviation fuel, a drop-in replacement usable in existing aircraft and infrastructure, as the only meaningful near-term lever, and the International Air Transport Association estimates SAF could deliver roughly 65% of the emissions reductions the sector needs to reach net zero. Aviation is therefore not a marginal outlet for low-carbon fuel; it is the destination that gives captured carbon its highest value.

This paper closes the series by connecting that demand back to the feedstock chain the earlier papers built. If captured carbon is a feedstock and green methanol is its most useful form, then the methanol-to-jet route is the bridge from that molecule to aviation-grade fuel, and SAF demand is what ultimately makes the whole chain worth building. The question for an investor is whether the aviation opportunity is real and financeable, which comes down to three forces: whether policy compels demand, whether buyers are committing to offtake, and whether the technology is ready. We take each in turn, then state where we invest.

2. Policy Tailwinds: Demand by Mandate

The most important feature of SAF demand is that it is increasingly compelled by regulation rather than left to voluntary choice. Binding mandates are now in force or scheduled across the largest aviation markets, which converts SAF from an optional sustainability gesture into a required input with penalties for non-compliance.

The European Union leads. Its ReFuelEU Aviation regulation mandates a 2% SAF blend from 2025, rising to 6% by 2030, 20% by 2035, and 70% by 2050, with dedicated sub-mandates for synthetic e-fuels and penalties for shortfall. ICAO's CORSIA scheme moves to binding compliance from 2027, obliging airlines on international routes to offset emissions above baseline, a requirement that SAF use directly satisfies. Beyond these, Singapore has mandated a 1% blend from 2026 funded by a levy, and other jurisdictions including India have set their own trajectories. The effect is a coordinated, escalating global demand signal with a decade-plus horizon.

Table 1

Selected Binding SAF Policy Trajectories

Jurisdiction	Requirement	Trajectory
EU (ReFuelEU)	Blend mandate + e-fuel sub-mandate	2% (2025) → 6% (2030) → 20% (2035) → 70% (2050)
ICAO CORSIA	Binding offset compliance	Binding from 2027 on international routes

Jurisdiction	Requirement	Trajectory
Singapore	Blend mandate + levy	1% from 2026, targeting 3–5% by 2030
India	Blend mandate (intl routes)	1% (2027) → 2% (2028) → 5% (2030)

Note. Trajectories reflect policy positions as of 2026 and are subject to revision. The common feature is a binding, escalating requirement rather than a voluntary target.

3. Offtake Demand: Aviation as a Committed Buyer

Policy creates the obligation; offtake turns it into financeable revenue. Here aviation is following the same path that scaled renewables and is beginning to scale carbon removal: buyers are signing multi-year commitments that give producers the revenue certainty needed to build. Airlines facing compliance obligations, and increasingly corporate buyers seeking to decarbonise business travel, are contracting for future SAF and for aviation-linked carbon removal, providing the demand assurance that de-risks capital-intensive production.

The demand gap is large and growing. Global SAF use was on the order of a few million tonnes in 2025 against forecasts of roughly 20 million tonnes by 2030 and hundreds of millions of tonnes by 2050, while today's production, dominated by the used-cooking-oil-based HEFA route, is constrained by feedstock scarcity. Analysts estimate SAF output must rise roughly tenfold between 2025 and 2035 to meet mandates. That gap is precisely why a pathway that can draw on abundant methanol rather than scarce waste oils matters, and why SAF continues to command a substantial premium, historically several times the price of conventional jet fuel, that supports the economics of new production.

4. Technology Readiness: The MtJ Barrier Falls

For years the methanol-to-jet route carried a single decisive risk: it was not yet an approved pathway under ASTM D7566, the specification that governs which synthetic fuels may be blended into aviation turbine fuel. Without that approval, producers could not make commercial investment decisions, because the fuel could not legally be used. This was the gating item for the entire methanol-to-jet opportunity.

That barrier has now fallen. In 2026 the MtJ pathway passed ASTM balloting and moved to inclusion in the D7566 standard, with the sector's lead technology provider expecting the public update mid-year. As one account put it, the approval removes one of the main technical barriers facing MtJ and allows the sector to focus on project economics and investment decisions. This is the most consequential development for this paper, because it converts MtJ from a promising but un-investable route into a certified one, precisely as the policy and offtake forces above reach their stride.

The process itself is well understood and builds on mature industrial units. Methanol is converted to olefins, oligomerised into jet-range hydrocarbons, and hydrotreated to meet fuel specification, drawing on the same methanol-to-olefins technology already deployed at commercial scale. Techno-economic analysis places biomethanol-based MtJ among the lowest-cost of the novel SAF pathways, ahead of Fischer-Tropsch and advanced alcohol-to-jet routes; its higher capital intensity relative to HEFA is offset by higher yields and, critically, by freedom from the feedstock scarcity that constrains the incumbent route. MtJ is how the green methanol of the second paper becomes the aviation fuel that this one is about.

Table 2

The Methanol-to-Jet Process Chain

Stage	Conversion	Basis
Methanol-to-olefins (MTO)	Methanol → light olefins	Commercially mature (licensed)
Oligomerisation	Olefins → jet-range hydrocarbons	Established catalysis
Hydrotreating	Saturation and isomerisation to spec	Standard refinery unit
Certification	Blend qualified under ASTM D7566	Approved 2026

Note. The chain relies on established process units rather than unproven chemistry; the binding constraint was certification, which was resolved in 2026.

5. What This Means for Where We Invest

With policy compelling demand, offtake committing revenue, and the certification barrier removed, the methanol-to-jet opportunity is real. The investment question is the same one the direct-air-capture paper answered: how to gain exposure to that growth without carrying the technology or single-project risk of building the plants. Our conclusion is consistent. We favour the suppliers of the enabling technology and equipment over the producers themselves. The principles that follow guide where we deploy:

- **We back the technology and equipment suppliers, not the fuel producers.** We favour the licensors and equipment companies whose process units, catalysts, and conditioning systems every MtJ facility requires, over SAF producers exposed to feedstock prices, offtake negotiation, and single-plant execution risk.
- **We stay pathway-agnostic where we can.** Much of the enabling equipment, including methanol handling, purification, and the balance-of-plant common to conversion facilities, serves more than one SAF route, which keeps our returns from depending on MtJ alone prevailing over competing pathways.

- **We underwrite to mandate-backed demand.** Because SAF demand is compelled by binding, escalating mandates rather than voluntary uptake, we treat the policy trajectory as the durable revenue signal and favour suppliers exposed to the jurisdictions and producers building to meet it.
- **We favour the methanol-linked value chain.** Consistent with the series, we prefer positions that connect to green methanol as the feedstock, because MtJ ties aviation demand back to the same molecule, and the same enabling equipment, that anchors the clean-fuels economy.

This completes the through-line of the series. Captured carbon is a feedstock; green methanol is the product that gives it value; direct air capture is its long-run source; and sustainable aviation fuel, via methanol-to-jet, is the highest-value demand that pulls the entire chain into being. At each link our conclusion has been the same: the durable position for patient capital is not to build the plants or bet on a single technology, but to supply the essential equipment and enabling systems that the whole system depends on, wherever it is built and whoever prevails. That is the thinking behind the thesis.

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