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The $SAF Ecosystem: A Crypto Layer for SAF Economics & Transparency

Whitepaper (Draft V1.0)

Abstract

Sustainable aviation fuel (SAF) represents one of the most critical pathways for decarbonizing global air travel, yet the systems that support its production, financing, verification, and adoption remain fragmented, opaque, and capital-constrained. Industry projections suggest the global SAF market could exceed USD 250 billion by 2050, underscoring the scale of infrastructure build-out and long-term capital required to meet aviation decarbonization targets. At the same time, financial markets are undergoing a structural shift toward on-chain infrastructure, unlocking new models for transparency, coordination, and capital formation. The $SAF ecosystem is designed to sit at the intersection of these two forces.

By combining the Solana-based SAF Data Terminal and SAF Exchange, the ecosystem introduces a purpose-built coordination layer for SAF markets. The Data Terminal anchors verifiable, real-world SAF lifecycle data on-chain, while SAF Exchange provides the economic infrastructure through which SAF-linked value can be aggregated, settled, and distributed. At the center of this architecture is $SAF, a digital asset designed to serve as the access, coordination, and participation token across both systems. The $SAF token links real-world SAF activity to on-chain data, economic flows, and future incentive mechanisms.

$SAF reimagines how sustainability infrastructure can scale, by aligning transparency, capital, and incentives through programmable markets built for a digital future.

Overview of Sustainable Aviation Fuel (SAF)

An Introduction To The Basics of SAF

Sustainable aviation fuel (SAF) refers to a class of aviation-grade fuels derived from non-petroleum feedstocks such as biomass residues, waste oils, agricultural byproducts, and emerging synthetic pathways. Unlike conventional jet fuel, SAF is produced using processes designed to materially reduce lifecycle greenhouse gas (GHG) emissions, primarily by lowering the associated carbon intensity (CI) of fuel production and combustion.

Multiple production pathways exist today, including Hydroprocessed Esters and Fatty Acids (HEFA), Alcohol-to-Jet (ATJ), Fischer–Tropsch, and developing biomass-to-methanol-to-jet routes. Each pathway exhibits distinct feedstock supply chains, carbon-intensity profiles, capital requirements, and scalability constraints. While commercial HEFA production has driven early market adoption, newer pathways are increasingly viewed as necessary to unlock greater emissions abatement potential and reduce reliance on constrained feedstock pools.

The regulatory and commercial context for SAF has strengthened substantially over the past decade. International frameworks such as the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), alongside national policy regimes in the United States, Europe, and Asia, have introduced mandates, tax incentives, production credits, and compliance mechanisms designed to accelerate SAF deployment. In parallel, airlines and cargo operators have made long-term net-zero commitments, creating durable demand for SAF volumes that far exceed current supply.

As a result, SAF is transitioning from a niche decarbonization tool into a large-scale industrial market. By 2030, the U.S. SAF market alone is projected to approach USD 7 billion, while global SAF demand is expected to exceed 5.5 billion gallons, supporting a global market valued at more than USD 25 billion. By that time, approximately four billion people are expected to live in countries that utilize SAF as part of their aviation fuel mix. Looking further ahead, industry projections suggest the global SAF market could exceed USD 250 billion by 2050, underscoring the scale of capital formation and infrastructure development required to meet long-term decarbonization targets.

Despite these tailwinds, SAF remains supply-constrained. Global production today represents only a small fraction of total aviation fuel demand, and scaling capacity requires significant upfront investment, long development timelines, and robust verification of environmental performance. The economic viability of SAF depends not only on fuel sales, but also on the monetization of environmental attributes, accurate CI accounting, and transparent data systems that determine eligibility for credits, incentives, and premium pricing.

Taken together, SAF represents both a decarbonization imperative for the aviation sector and an emerging commodity market whose economics are shaped by environmental performance, regulatory frameworks, and supply-chain transparency. This context motivates the development of new digital infrastructure—including blockchain-based coordination layers—that can improve market transparency, support capital formation, and align a growing set of participants around the long-term expansion of sustainable aviation fuel.

Economic Structure of SAF Markets Today

Sustainable aviation fuel (SAF) occupies a unique position within global energy markets, sitting at the intersection of fuel commodity economics, carbon-credit incentive regimes, supply-chain certification, and aviation decarbonization policy. Unlike conventional Jet-A fuel—whose value is primarily determined by crude benchmarks and refinery economics—SAF economics depend on a layered set of financial and environmental mechanisms that determine whether projects are viable. These mechanisms are still emerging, non-standardized, and fragmented across jurisdictions, creating a market structure that is opaque to investors, difficult for buyers to evaluate, and challenging for developers to finance.

Cost and Pricing Dynamics:
SAF typically remains more expensive to produce than conventional aviation fuels due to feedstock constraints, nascent conversion technologies, and smaller production scale. These cost differentials are partially offset by policy support and by “green premiums” paid by fuel buyers seeking decarbonization benefits. However, such premiums are not universally standardized and often vary by bilateral negotiation, contract structure, or jurisdictional framework.

Incentive and Credit Mechanisms:
A significant portion of SAF economics derives not from fuel sales themselves but from environmental-attribute monetization. Mechanisms such as Low Carbon Fuel Standards (LCFS), Renewable Identification Numbers (RINs), 45Z/45Q tax credits, and CORSIA compliance units materially alter unit economics, allowing projects to become financially viable. The value of

these credits fluctuates, is jurisdictionally fragmented, and is subject to regulatory reinterpretation—creating price uncertainty and limiting institutional participation.

Offtake Structures:
SAF production is commonly supported by long-term offtake agreements with airlines, cargo operators, or fuel suppliers. These offtakes integrate several pricing components—including fuel base price, CI-adjusted premiums, credit allocation, and logistics fees—but terms are negotiated bilaterally and rarely disclosed. This lack of standardized reporting makes comparability difficult for investors and obstructs secondary market development.

Supply-Chain Traceability:
Verification of SAF's carbon performance requires consistent carbon-intensity (CI) tracking from feedstock production through refining, transportation, and end-use. Today, this data is distributed across multiple disconnected systems, often offline or proprietary, limiting transparency. Because SAF is blended with conventional kerosene in fixed ratios, attribution becomes non-trivial, and downstream buyers frequently lack visibility into origin, CI scores, or environmental credit eligibility.

Capital Formation and Financing Constraints:
SAF development is capital-intensive, characterized by long payback horizons and significant technology risk. Financing typically relies on a combination of project finance, strategic equity, and credit monetization. Broader investor participation remains constrained by insufficient data transparency, non-standardized reporting, and limited mechanisms to share in SAF-linked revenue flows without holding direct infrastructure or offtake exposure.

Regulatory Fragmentation:
Regulatory regimes for CI scoring, credit eligibility, SAF blending rules, and incentive qualification differ substantially across the United States, Europe, and Asia. These discrepancies inhibit harmonization, create arbitrage opportunities, and increase compliance burden for producers attempting to scale across multiple markets.

Limited Access for Non-Industrial Participants:
Today's SAF markets are effectively closed ecosystems. Retail investors, crypto-native capital, airlines seeking financial hedges, corporates pursuing decarbonization strategies, and other non-industrial actors have no standardized pathway to obtain exposure to SAF economics or environmental attributes outside dedicated infrastructure investments or bespoke credit procurement channels.

Additional Structural Barriers:
Beyond cost, policy, and supply-chain factors, SAF markets face technical and coordination barriers that impede scale. Data relevant to carbon-intensity scoring, credit eligibility, feedstock provenance, logistics, and fuel blending is dispersed across proprietary systems, legacy enterprise databases, lifecycle analysis (LCA) tools, emails, spreadsheets, and regulatory filings. There is no common data model, machine-readable format, or interoperability standard, limiting automated verification, comparability, and downstream packaging of environmental attributes into financial products. These data frictions are compounded by incentive misalignment across the value chain: feedstock suppliers seek price floors and CI recognition, producers rely on multi-year policy certainty, airlines prioritize verifiable CI transparency and hedging instruments, credit buyers focus on integrity and liability protection, and investors

require standardized risk metrics and yield pathways. Without shared infrastructure to coordinate these requirements, SAF projects remain viable at the plant level but fail to aggregate into scalable, transparent commodity markets.

Motivation for the $SAF Ecosystem

America Is Moving "On-Chain"

The U.S. financial system is entering a transition period in which major institutions are preparing for elements of capital markets infrastructure to migrate onto blockchain rails. This shift is being driven not from the periphery of the economy, but from the core of traditional finance. In recent public communications, multiple large firms have articulated a vision in which tokenization enables traditional assets, stablecoins, and digital-native instruments to coexist within the same distribution channels, custody frameworks, and financial interfaces.

On BlackRock's 2025 Q3 earnings call, CEO Larry Fink described a future "where investors never need to leave a digital wallet to allocate efficiently across crypto, stablecoin and exposures to long-term stocks and bonds," calling tokenization "one of the most exciting areas of growth in financial markets." Fink also cited commercial opportunities in "bridging the gap between traditional capital markets and the growing digital asset space" and pointed to tokenized money-market funds like BUIDL as early examples of how traditional products can be issued directly on blockchain networks.

Morgan Stanley has echoed the same directional vision. The firm announced plans to launch a crypto wallet capable of holding tokenized assets—including private equity—alongside the rollout of BTC, ETH and SOL trading on E*Trade. Executives described these initiatives as part of a strategy to "adapt to the change in the industry and in some cases drive the change," with an eventual blending of traditional finance rails and decentralized finance rails under a unified custody and collateral model.

This institutional posture aligns with regulatory and policy momentum. The SEC's "Project Crypto" was framed as an effort to modernize securities rules to "enable America's financial markets to move on-chain," providing a regulatory regime through which tokenized securities, credit instruments, and environmental assets could operate in compliant digital environments. The initiative reflects a recognition that blockchain may become a foundational settlement layer for U.S. capital formation over the coming decade.

Taken together, these developments signal a macro trend: capital formation, settlement, and investor participation are being re-platformed onto blockchain-based systems. This does not imply a replacement of traditional finance, but rather an expansion of its access points. Tokenized infrastructure introduces new sources of capital, new investor profiles, and new market structures that are more transparent, programmable, and globally scalable.

It is in this context that the $SAF ecosystem is being developed. Sustainable aviation fuel markets face financing constraints, fragmented data infrastructure, opaque valuation frameworks, and limited access for non-industrial participants. By positioning SAF within an emerging digital capital stack—rather than attempting to raise capital solely through conventional project finance—$SAF stands to benefit from a structural shift already underway. The $SAF token and SAF Exchange are designed to interface with this on-chain financial architecture, enabling SAF projects to tap into new forms of capital, improving transparency for buyers and investors, and introducing market participation mechanisms inaccessible in incumbent SAF markets.

In short, the migration of U.S. capital markets onto blockchain rails establishes a macro tailwind for tokenized real-world assets. The $SAF ecosystem aligns with this shift by providing a crypto-native coordination and financing layer for SAF, allowing a real-world industrial sector to intersect directly with the emerging on-chain financial economy.

Why SAF Needs a Crypto-Native Coordination Layer

Sustainable aviation fuel (SAF) today operates within a fragmented and structurally constrained market framework. Pricing is negotiated bilaterally, environmental attributes are monetized through jurisdiction-specific policy regimes, project finance depends on bespoke credit structuring, and transparency along the lifecycle—from feedstock to combustion—remains limited. These frictions suppress scale, restrict participation, and impede capital formation. Critically, they also prevent SAF from functioning as an investable asset class despite its strategic importance in aviation decarbonization.

At the same time, global financial architecture is undergoing a structural shift toward on-chain settlement, tokenization, and programmable capital markets. Large asset managers, broker-dealers, and market infrastructure providers are building toward a future in which digital wallets can hold a spectrum of assets—crypto, stablecoins, treasuries, tokenized fund shares, carbon credits, private-market allocations, and equities. In this emerging model, blockchains function less infrastructure for mere speculation and increasingly as interoperability layers for financial coordination.

For SAF, these trends is highly relevant as the industry requires:

- shared data layers to verify lifecycle carbon performance (CI scores, feedstock attributes, transportation, blending, and use)
- standardized market primitives to express environmental attributes (credits, incentives, offsets, compliance units)
- programmable mechanisms for settlement and distribution (to route revenue, subsidies, and credit value)
- new participation pathways for capital that is currently locked out of SAF markets
- transparent coordination between producers, airlines, regulators, and investors
- more flexible and modular financing channels

These are precisely the categories of market infrastructure that crypto-native rails are optimized to provide. Blockchains enable verifiable data attestations, open participation, capital pooling, automated distribution, and composable financial layers—all without requiring every participant to operate on the same proprietary system or trust boundary.

In other words, SAF markets do not merely need new capital, they require a new coordination layer and infrastructure. Without standardized transparency, verifiable data, and accessible settlement rails, SAF remains difficult to invest in, difficult to compare, and difficult to scale.

A blockchain and crypto-based coordination layer enables SAF to become:

- auditable (data can be proven, rather than asserted)
- composable (environmental attributes become tractable financial objects)
- investable (capital can participate without owning infrastructure)
- settleable (distributions can occur programmatically)
- financeable (future output becomes collateral for present funding)

The $SAF ecosystem is designed to operate at exactly the interface between real-world SAF economics and the advantages of the emerging blockchain space. It introduces $SAF as an on-chain economic layer that routes real-world value to token holders, incentivizes lifecycle transparency, and expands participation beyond incumbent fuel buyers and specialized credit traders. In doing so, it positions SAF to benefit from the broader secular transition toward tokenized financial infrastructure and on-chain market coordination.

The $SAF Ecosystem

The $SAF ecosystem is designed as a coordination layer between sustainable aviation fuel (SAF) markets and emerging on-chain financial infrastructure. The system introduces programmable settlement, standardized data surfaces, and new participation channels for capital and counterparties that are currently excluded from SAF markets. The objective is not to replace existing SAF commercial pathways, but to augment them with additional transparency, economic linkages, and capital formation mechanisms.

$SAF is a Solana-based digital asset that anchors this architecture. The token enables interaction between two converging groups of users: (i) digital-asset participants seeking exposure to real-world industrial value streams, and (ii) SAF ecosystem actors seeking new ways to document, finance, hedge, or economically extend their SAF-related activities. For crypto-native participants, $SAF provides a channel to participate in SAF-linked value flows without owning physical infrastructure, negotiating offtake agreements, or directly managing tax credit monetization. For traditional actors—such as airlines, fuel buyers, logistics operators, or feedstock suppliers—$SAF provides a means to gain incremental economic participation in their own SAF activity, access new forms of demand-side capital, and interface with tokenized financial infrastructure without abandoning existing commercial practices. In this structure, the token serves as a bidirectional bridge: it introduces SAF to global crypto capital, and introduces SAF producers and buyers to crypto-native economic tooling.

A central component of this architecture is the SAF Data Terminal, a specialized on-chain data layer that allows lifecycle participants to inscribe verified process and operational data into the system. Data inscriptions require $SAF tokens, establishing early token utility tied directly to real-world operational activity. The Data Terminal serves multiple structural functions: it provides traceability and provenance for SAF production, enables carbon-intensity (CI) tracking and environmental-attribute mapping, and creates the transparency required for SAF to become intelligible to financial actors unfamiliar with the sector. Importantly, this data-layer utility precedes any staking or revenue-distribution mechanics, allowing the token to express non-financial utility early in its lifecycle.

Parallel to the Data Terminal is SAF Exchange, which provides transparency, settlement, and value-distribution capabilities associated with SAF economics. As SAF is produced, commercialized, and monetized through fuel sales and credit mechanisms, measurable value—such as fuel cost savings, CI-driven pricing advantages, environmental-attribute monetization, or platform-related fees—can be routed through SAF Exchange and allocated to $SAF token stakers. Allocation occurs through staking mechanisms that are performance-linked and time-bounded, aligning tokenholder outcomes with real-world SAF deployment rather than synthetic token dynamics.

With the goal of building an organic and robust on-chain community while aligning off-chain commercial SAF incentives with this community, the $SAF ecosystem is developed through phased activation. Early phases focus on establishing market liquidity for the already existent $SAF token and off-chain corporate alignment with the asset's ecosystem development. Subsequent phases introduce Data Terminal inscriptions, staking mechanics, treasury frameworks supporting future SAF development, and limited governance around platform-level decisions. Later phases introduce optional exposure to tokenized environmental assets—such as CORSIA units—allowing tokenholders to receive environmental attributes alongside stablecoin distributions. Solana is selected as the base layer due to its throughput characteristics, low transaction costs, and suitability for programmable value distribution.

Taken together, $SAF, SAF Exchange, and the SAF Data Terminal form a cohesive system linking real-world SAF economics to on-chain participation. For the SAF sector, the ecosystem introduces a new layer of transparency, standardized data infrastructure, and flexible capital pathways. For the crypto sector, it introduces an investable real-world asset that is not synthetic, not purely financialized, and not circularly dependent on crypto-native demand. In aggregate, the $SAF ecosystem enables SAF to become legible to digital markets, and digital markets to become relevant to SAF deployment.

The Current $SAF Token

The $SAF token is an existing, freely tradable digital asset deployed on the Solana blockchain. It currently circulates in public markets, where it can be acquired, transferred, and held by participants without restriction. At present, the token functions primarily as a market-traded asset rather than an operational instrument tied to SAF production or data workflows. No staking, revenue participation, governance, or data inscription functionality is active at this stage.

The token was initially launched as an experimental asset, establishing on-chain presence, distribution, and liquidity ahead of any defined utility. As a result, $SAF already benefits from real market discovery, an existing holder base, and operational familiarity within the Solana ecosystem. This early circulation allows the project to evolve utility around a live asset rather than introducing a new token solely for functional purposes.

Importantly, while $SAF is already tradable, its functional role within the SAF ecosystem is prospective rather than realized. The utility described in this whitepaper—data access, staking-based participation, revenue linkage, governance, and environmental asset integration—has not yet been activated. Instead, the token's current state provides a foundation upon which these capabilities can be layered in a transparent, phased manner.

This approach allows market participants to evaluate $SAF today while pricing in its intended evolution. The sections that follow outline how $SAF transitions from a circulating digital asset into a functional coordination token embedded within the SAF Data Terminal, SAF Exchange, and the broader SAF economic framework.

Phase 1 — Public Disclosure, Whitepaper Release & Market Formation

Phase 1 corresponds to the public disclosure of the $SAF token's long-term utility roadmap and the release of this whitepaper. The publication of the whitepaper represents the formal articulation of the project's intended design and long-term vision. Its role is to provide stakeholders with a clear understanding of how $SAF is expected to evolve from a freely traded token into a mechanism for interacting with SAF-linked economic and data flows.

The strategic purpose of this initial phase is to allow the market to digest, evaluate, and reprice the token based on forward utility. By establishing the roadmap at the outset, the project creates informational transparency and alignment before enabling SAF-linked features such as data inscriptions, staking, or revenue participation.

In parallel, Phase 1 emphasizes market access and liquidity formation. This includes efforts to support exchange availability, improve secondary-market depth, expand holder distribution, and reduce friction for participants entering or exiting positions. These steps ensure that the token is structurally prepared for future utility activation and that liquidity constraints do not impair subsequent adoption cycles.

No staking, revenue sharing, environmental-asset distributions, or SAF-linked data or cash-flow mechanisms are enabled during Phase 1. The phase is intentionally non-yielding: its purpose is to establish the informational and market foundation required for the operational phases that follow.

Phase 2 — SAF Data Terminal Activation: Establishing Data Integrity, Traceability & On-Chain Transparency

Phase 2 introduces the SAF Data Terminal, the first functional utility surface for the $SAF token and the initial operational bridge between the sustainable aviation fuel lifecycle and Solana. The Data Terminal allows actors across the SAF value chain—including feedstock originators, logistics providers, refinery processes, and downstream offtakers—to inscribe lifecycle data tied to production, carbon intensity (CI), transportation emissions, blending, and end-use. To perform these data inscriptions, users are required to provide $SAF, which is partially converted into SOL to pay for execution fees on the Solana network. Unlike conventional sustainability reporting workflows that rely on self-attested documentation, PDFs, and proprietary data exchanges, the Data Terminal provides a cryptographically verifiable and time-sequenced integrity layer anchored on-chain.

How Phase 2 Addresses Structural SAF Market Failures

SAF markets today suffer from several well-documented coordination and information failures:

Opaque reporting and traceability: CI scores, blending ratios, and environmental-attribute allocations are rarely standardized and often unverifiable by buyers.

Fragmented data environments: Project developers, airlines, credit agencies, and regulators operate off separate systems with no unified audit substrate.

Asymmetric information: SAF producers have far greater visibility into attributes than buyers, limiting contract standardization and depressing liquidity.

Certification bottlenecks: Verifiers and auditors face high documentation burdens with no shared source of truth.

Limited downstream comparability: Airlines and corporates lack reliable mechanisms to assess “like-for-like” CI and credit quality across producers.

The Data Terminal does not attempt to replace certification, compliance, or MRV systems. Instead, it provides a coordination layer that:

1. anchors SAF-related claims to an immutable ledger,
2. enables third-party verification, and
3. reduces documentation friction for downstream credit monetization and SAF procurement.

This expands the surface area of trust around SAF and lays the necessary groundwork for future tokenized environmental attributes introduced in later phases.

Mechanism Design & Token Utility in Phase 2

Phase 2 activates the first concrete economic utility for the token: data inscriptions require $SAF. Participants deposit $SAF into the Terminal, which is then partially sold into SOL via a relayer to pay for execution fees on Solana. Only the portion required for gas is converted; the remainder stays locked in the participant’s Terminal balance.

For example, if the SOL-equivalent cost of an inscription is 25 $SAF, a user may be required to contribute 100 $SAF. The relayer programmatically sells 25 $SAF into SOL to pay on-chain fees, while the remaining 75 $SAF is retained as a buffer for future inscriptions over a defined lifecycle window. This structure ensures that:

1. $SAF is required to participate in the Data Terminal
2. only a minority of contributed $SAF is sold into SOL to pay chain fees
3. locked $SAF acts as an operational buffer rather than immediate sell pressure

4. locked balances can be reused across multiple inscriptions

The relayer removes the requirement for participants to hold SOL, manage fee markets, or interact directly with crypto infrastructure. Inscription pricing becomes legible in $SAF terms, while conversions to SOL occur backend at market.

As $SAF appreciates, the SOL-adjusted cost of inscription declines, creating a rational incentive to accumulate $SAF rather than continuously incur spot purchase exposure for operational participation.

On-Chain Data Architecture

For privacy, confidentiality, and cost efficiency, data itself remains off-chain. The Terminal:

- ingests documentation via secured interface
- hashes the content and metadata
- commits the hash and timestamp to Solana
- enables third-party audit via recomputation

This pattern creates a tamper-evident audit substrate without forcing enterprise participants into full on-chain document disclosure.

Demand Formation & Onboarding Logic

Phase 2 allows flexibility in how ecosystem participants initially acquire $SAF:

- Southern Energy may subsidize pilot deployments (e.g. issue or loan $SAF to pilot actors)
- Actors may source $SAF on secondary markets as liquidity deepens
- Service providers may accumulate $SAF as part of workflow integration

This structure creates demand-side token mechanics before staking, revenue sharing, or environmental-asset issuance are active. It also allows the token to transition from a speculative asset to a functional access token that confers participation rights in the verification substrate. As the Data Terminal becomes a prominent venue for lifecycle traceability, carbon-intensity validation, and SAF documentation integrity, it can evolve into a critical data source for the SAF industry. Over time, as more participants rely on the Terminal for provenance, compliance, and audit coordination, network effects begin to form, driving additional participants to integrate, inscribe data, and ultimately hold $SAF to access the system.

Phase 3 — Staking Activation & Performance-Linked Revenue Participation

Phase 3 marks the activation of $SAF staking and the introduction of performance-linked economic participation, anchored explicitly through SAF Exchange as the system's primary value-distribution layer. This phase represents the first point at which the $SAF token provides direct exposure to real-world sustainable aviation fuel economics, while maintaining clear separation between tokenholder participation and Southern Energy's operational control.

Through SAF Exchange, SAF-related economic value—such as fuel sales margins, pricing premiums, or other commercially realized SAF benefits—is programmatically routed into on-chain distribution mechanisms. $SAF holders may stake their tokens to participate in a predefined share of this value, receiving regular distributions denominated in stablecoins. These payouts are tied to real-world SAF activity and performance rather than speculative issuance, establishing a direct economic bridge between industrial SAF deployment and on-chain capital.

Staking capacity is explicitly capped and expands only as SAF-related revenues increase. This design ensures that rewards are not diluted by unrestricted participation and that each staked token maintains a predictable, proportional relationship to the revenue pool. Staking access is opened in defined windows on a first-come, first-served basis, with unstaked tokens able to queue for future participation as additional capacity is unlocked. This structure aligns tokenholder expectations with the actual scale and growth of SAF operations.

The percentage of SAF-related revenue allocated to stakers is set by Southern Energy and may be adjusted over time based on commercial performance, market conditions, and platform maturity. Revenue-sharing parameters remain under Southern Energy's authority.

Phase 3 also introduces platform transaction fees associated with SAF Exchange activity. These fees are directed toward a SAF Exchange Development Fund to support ongoing infrastructure buildout, maintenance, and operational scalability. Over time, Southern Energy may elect to allocate a portion of these fees to staker distributions, further strengthening alignment between platform usage and tokenholder participation.

While this phase focuses on stablecoin-based revenue participation, it also establishes the foundation for future distribution of tokenized environmental assets, such as carbon credit offsets or CORSIA-related instruments. These assets are not distributed in Phase 3 but are explicitly enabled by the SAF Exchange architecture and the data integrity established through earlier phases, with activation planned in subsequent stages.

From a market-structure perspective, Phase 3 leverages crypto-native rails to address long-standing capital formation challenges in SAF. Tokenization enables fractional participation, global accessibility, and continuous settlement. This allows crypto-native investors to earn real-world income from industrial activity, while also enabling SAF market participants such as airlines or fuel buyers to gain incremental economic exposure to the SAF ecosystem.

By activating staking through SAF Exchange, Phase 3 establishes the core economic feedback loop of the $SAF ecosystem. It transforms SAF deployment into an on-chain, performance-linked participation opportunity, expands the capital base available to support SAF scaling, and sets the stage for governance activation and environmental-asset integration in the phases that follow.

Foundation for Tokenized Environmental Asset Distribution

Although Phase 3 focuses on stablecoin-based revenue participation, SAF Exchange is designed to support additional value layers in later phases. In particular, it provides the settlement and accounting infrastructure required to distribute tokenized environmental assets—such as carbon offsets or CORSIA-related units—alongside or in lieu of cash-based payouts.

- Environmental asset distributions are not active in Phase 3
- Activation occurs in later phases once governance and data maturity are established

Why SAF Exchange Matters

By launching SAF Exchange in Phase 3, the project creates a scalable bridge between real-world SAF activity and on-chain capital:

- Enables crypto-native investors to earn real-world income tied to industrial activity
- Opens SAF economics to a broader, global participant base
- Provides airlines and SAF counterparties with optional financial participation beyond physical fuel procurement
- Uses crypto rails to coordinate value flows at a scale and efficiency not achievable through traditional market infrastructure

Phase 3 marks the point at which the $SAF ecosystem moves beyond transparency alone and into economic coordination. With SAF Data Terminal capturing verifiable operational truth and SAF Exchange routing value from that activity, $SAF transitions into a functional economic instrument—positioning the system for governance activation, treasury mechanisms, and environmental asset integration in the phases that follow.

Phase 4 — Limited Governance Activation, Treasury Framework & Environmental Asset Integration

Phase 4 expands the $SAF ecosystem beyond revenue participation by introducing limited, staker-based governance, a formal Treasury Framework, and the initial integration of tokenized environmental assets. At this stage, the system evolves from a purely economic participation model into a coordinated platform where long-term stakeholders can influence how the ecosystem grows, while all SAF commercial economics remain firmly under the control of Southern Energy.

Phase 4 addresses one of the core structural limitations of today's SAF market: participation is narrowly concentrated among producers, financiers, and a small group of industrial buyers, with limited mechanisms for broader stakeholder alignment or coordinated industry development. By introducing a scoped governance layer anchored in $SAF staking, the ecosystem opens participation to a wider set of actors—crypto-native capital, airlines, corporates, and sustainability-focused participants—who can now engage with the evolution of SAF infrastructure through blockchain-based coordination. Rather than relying on closed committees, bilateral negotiations, or opaque industry processes, SAF Exchange provides a transparent, on-chain forum where aligned stakeholders can collectively influence platform growth, capital allocation, and market expansion, while preserving operational discipline. This diffusion of participation lowers coordination costs, accelerates feedback loops, and creates a shared economic incentive structure around SAF scaling. The aim is to allow the industry to evolve through open, programmable governance rather than fragmented, off-chain decision-making.

Limited Governance Activation

Governance is introduced in a deliberately scoped manner and is restricted to platform coordination and capital allocation, rather than operational or commercial decision-making. Governance rights are available exclusively to staked $SAF holders, ensuring that participation reflects long-term alignment rather than short-term trading behavior.

Staked token holders may participate in governance decisions related to:

1. Expansion of staking capacity as SAF-related revenues grow
2. Allocation of platform transaction fees toward development and ecosystem initiatives
3. Oversight of treasury usage within predefined constraints
4. Approval of major platform upgrades or integrations

Critically, governance does not extend to SAF pricing, production decisions, or revenue-sharing percentages, all of which remain exclusively controlled by Southern Energy. This preserves commercial discipline and prevents governance-driven dilution or instability in real-world economics.

Treasury Framework & WBTC Reserve

Phase 4 formalizes a Treasury Framework, including the activation of a Wrapped Bitcoin (WBTC) Treasury Reserve. A portion of platform-generated fees may be allocated into WBTC or other Solana-based assets, including $SAF, creating a strategic reserve designed to support long-term platform resilience and expansion.

Through governance, staked token holders may vote, within clearly defined rules, on limited treasury actions, such as:

1. Whether WBTC reserves may be sold at predefined future dates
2. Whether reserves may be borrowed against to fund platform development or SAF-related buildout
3. Capital allocation priorities tied to ecosystem growth rather than short-term yield
4. This framework provides financial flexibility while maintaining transparency, predictability, and strict guardrails around treasury usage.

Environmental Asset Integration

Phase 4 also introduces tokenized environmental assets into the ecosystem, such as CORSIA units and other verified environmental credits. These assets may be:

- Purchased outright on the platform, or

- Earned by $SAF stakers as part of a hybrid reward structure alongside stablecoin-based revenue distributions

This integration allows participants to gain exposure not only to SAF-linked cash flows, but also to the environmental attributes generated through low-carbon fuel activity. Environmental assets are optional and additive, enabling participants to tailor their exposure based on regulatory, sustainability, or portfolio objectives.

Maintaining Clear Boundaries

Phase 4 is explicitly designed to balance decentralization with operational clarity:

- Southern Energy retains full authority over SAF commercial terms and revenue allocation
- Governance is limited, structured, and predictable
- Treasury actions are transparent and rule-based
- Environmental asset distribution enhances, rather than replaces, economic participation

By introducing governance, treasury coordination, and environmental assets in a controlled manner, Phase 4 positions $SAF as a mature, multi-layered platform—one that aligns long-term capital, sustainability outcomes, and real-world SAF economics without compromising commercial execution or trust.

Phase 5 — Governance Maturity & $SAF Sales

Phase 5 represents the mature end state of the $SAF ecosystem, where SAF Exchange, the SAF Data Terminal, and the $SAF token operate as a coordinated, governance-enabled platform for long-term SAF scaling and capital formation. At this stage, the system introduces a transparent mechanism for financing additional SAF development through controlled $SAF token sales, while maintaining strict separation between community participation and Southern Energy's operational authority.

A defining feature of this phase is the introduction of a governance-mediated $SAF sales framework. Southern Energy may propose structured, forward-scheduled sales of $SAF tokens held on its balance sheet, with proceeds earmarked for SAF infrastructure buildout, project development, or platform expansion. Each proposed sale is disclosed in advance, including its size, timing, and intended use of proceeds, creating a level of transparency that is rarely present in traditional SAF financing models.

Governance does not grant token holders direct control over SAF pricing, production, or revenue-sharing parameters. Instead, governance functions as an indirect coordination and signaling layer. Staked $SAF holders can approve, limit, delay, or reject proposed token sale volumes through on-chain voting. In response, Southern Energy retains discretion to adjust the proportion of SAF-related revenue shared with stakers. This establishes a feedback loop in which community support for capital formation influences the pace of SAF expansion, without transferring commercial decision-making authority away from the operator.

At a structural level, Phase 5 introduces the following coordinated mechanisms:

- **Governance-mediated $SAF sales:** Token sale windows are proposed by Southern Energy and subject to approval by community members staking $SAF, ensuring transparent and paced capital formation.

- **Feedback loop between capital and incentives:** Community approval of token sales can be met with increased revenue-sharing incentives, aligning long-term participation with SAF growth.

- **Treasury oversight within defined bounds:** Staked token holders participate in decisions related to the deployment of treasury assets (e.g., WBTC or $SAF), including future sales or borrowing, under predefined rules.

- **Expanded environmental asset integration:** Tokenized environmental assets and other verified environmental credits become more prominent and may be distributed to stakers or traded via aligned venues.

Environmental asset integration deepens further in this phase, reinforcing SAF Exchange as a hub not only for SAF-linked cash flows but also for the environmental attributes generated by low-carbon fuel activity. These assets provide an additional dimension of participation for token holders while strengthening the link between SAF deployment and measurable climate outcomes.

By enabling a programmable, governance-aware capital formation model, Phase 5 addresses one of the core shortcomings of traditional SAF markets: the lack of scalable, transparent mechanisms for bringing in new capital and participants. Rather than relying solely on bilateral financing or closed industrial consortia, the $SAF ecosystem diffuses participation across a broader set of actors through blockchain rails. Phase 5 completes the transformation of $SAF into a coordinated economic layer where SAF development, capital formation, environmental value, and community participation reinforce one another within a clearly defined and disciplined framework.

Future Applications: SAF Exchange as an Environmental Asset Coordination Hub

While SAF Exchange is initially designed to support sustainable aviation fuel economics, its underlying architecture is intentionally extensible. As regulatory clarity improves and on-chain adoption accelerates, the platform can evolve into a broader coordination layer for environmental assets. The $SAF ecosystem can become an on-chain nexus where real-world sustainability outcomes, compliance instruments, and digital markets intersect.

At its core, SAF Exchange combines three elements that are increasingly relevant across environmental markets: verifiable operational data (via the SAF Data Terminal), programmable economic settlement, and governance-enabled capital coordination. This structure is not specific to SAF alone. Similar dynamics exist across carbon markets, renewable fuels, industrial decarbonization credits, and other environmental attribute systems that rely on fragmented data, opaque pricing, and limited market access.

Over time, SAF Exchange could support additional categories of tokenized environmental assets. These may include jurisdiction-specific carbon credits, low-carbon fuel incentives, renewable energy attributes, or other verified environmental or social outcomes generated by real-world activity. By anchoring these assets to transparent data flows and standardized on-chain settlement, the platform can help reduce verification friction while improving comparability and market confidence.

From a capital-markets perspective, SAF Exchange also creates a framework through which environmental value can be accessed by a broader set of participants. Crypto-native capital, institutional investors, corporates pursuing decarbonization strategies, and non-industrial participants can engage with environmental economics without direct exposure to physical infrastructure, bespoke contracts, or fragmented registries. This expands the addressable capital base available to support climate-aligned projects while preserving operational control with project developers.

As financial markets continue moving on-chain, platforms that can bridge real-world environmental activity with digital settlement and governance will become increasingly relevant. SAF Exchange positions itself as one such platform—initially focused on SAF, but architected to support a wider ecosystem where environmental performance, economic value, and on-chain markets converge.

In this way, the $SAF ecosystem is not only a mechanism for scaling sustainable aviation fuel, but a foundation for future environmental finance models that prioritize transparency, coordination, and scalable participation across global sustainability markets.