

Phoenix Gold Network

Technical Overview for the Panda Chain launch

24 October 2026 | Version 1.5 | Network design and allocation

Phoenix Gold Network decentralizes the custody of physical gold across independent, bonded nodes. An agreed trust holds legal title, Cyphers record gold entitlements, and the network records collateral, transactions and governance decisions. A qualified contributor can retain custody while making its gold usable for digital ownership, payments and funded liquidity.

PGN brings together five services: gold admission and Cypher issuance; physical redemption; quoted buying and selling; payments using gold claims; and participation in network income. Lending will be added progressively as funded capacity becomes available during 2027. The planned January 2027 Panda Chain launch covers Cyphers, redemption and payments through ten international nodes, with the associated operating and transparency systems.

An existing asset with additional utility

Gold is already liquid in wholesale markets, yet an individual bar in a local vault can be difficult to use for payments or financing. PGN seeks to connect that local inventory to common digital services. The network grows when depositors contribute gold, shops supply customer orders, custodians provide reliable service, and customers use the claims.

The World Gold Council reports estimated average gold trading of \$361 billion per day in 2025 across OTC, futures and ETF markets. [5] This establishes the scale of existing gold activity. It does not mean that PGN can access that liquidity automatically or capture a fixed percentage of it. Its commercial opportunity must be demonstrated through active gold balances, paid transactions, repeat customers and funded quotes.

Three distinct assets

Asset	Function	Core distinction
Cypher	Digital claim measured in fine gold ounces	Gold entitlement and redemption rights
PGC	Custody staking, incentives and governance	21 million preminted tokens; market-priced
PANDA	Panda Chain gas and ecosystem economics	Separate chain asset and buyback recipient

A Cypher is not a dollar stablecoin: its fiat value changes with gold. PGC is not a claim to one ounce, and it is not automatically equity in an operating company. Buying either asset requires understanding the specific contractual rights. PGC's value proposition is exposure to network use, collateral demand and fee-funded buybacks, not ownership of the trust's metal.

Status of this design

This paper specifies the Panda Chain launch design, including a fixed fee allocation with native event classes at genesis, Phase 2 Phoenix Yield, redemption probes and an insurance framework. Engineering confirmation, governance adoption where required and deployment evidence remain necessary. Existing Polygon rights must be preserved. Read with PGC Tokenomics Paper version 1.5, dated 24 October 2026, for the founder allocation, programme budgets and proposed vesting.

1 Legal structure and operating responsibilities

The legal and technical systems must describe the same obligations. A blockchain entry records a claim; the trust, custody agreement and local law determine the corresponding rights to metal. The operating structure therefore identifies a contracting entity, a legally authorised trustee, each custody operator, each vault relationship and the party responsible for servicing redemptions.

Gold title and individual claims

Title to admitted gold passes to the agreed trust under executed documents. The contributor receives Cyphers for the admitted fine ounces, subject to any separately agreed purchase, financing or incentive arrangement. A pooled claim should give a clearly defined entitlement to conforming network gold, with location and product availability disclosed. A specifically allocated bar claim must instead identify the bars and its different transfer and redemption conditions. These claim types must not be mixed silently.

The trust should keep admitted gold separate from operating-company property and custody collateral. Its documents must address insolvency, access to vaults, trustee replacement, liens, permitted fees and enforcement. DAO votes direct authorised network policy within those documents; votes do not substitute for trustee authority or erase legal duties to claimants.

Participants

Participant	Principal responsibility
Contributor or buyer	Supply gold or purchase funds and receive the agreed claim
Custody node	Safeguard metal, maintain collateral, allow audits and deliver
Vault operator	Provide contracted storage, access, records and physical release
Shop or merchant	Provide approved intake, sales, delivery or payment services
Liquidity provider or lender	Commit separately identified trading or lending capital
Trustee and recovery operator	Administer title and execute authorised asset recovery
PGC governance participants	Set risk budgets and network parameters within safeguards

A shop may participate in sales, intake or redemption without becoming a custodian. When it holds admitted gold overnight or otherwise assumes custody obligations, it needs the relevant custody approval and collateral. Using a large listed vault operator can support a node's trust assessment, but the node's specific contract, release rights and lien position remain decisive. A third party's listing status alone does not guarantee the network's gold.

Stephen Van Zutphen is identified in PGN's public background as a technical contributor, alongside Grigoris Yioutanis, and PandaSea identifies Steve van Zutphen as its founder. [4,9] Commercial and governance documents must separately specify the actual issuer, operating entities and decision-making authorities.

2 How gold enters the network

PGN admits gold on an accountable custodian's declaration, the applicable trust tier and posted security. It does not impose a new mandatory independent PGN inspection before every mint. Every node must nevertheless permit PGN-appointed audits at PGN's expense and remain liable for the existence, quality, title and availability of what it declares.

Four routes to an active Cypher

Node inventory. An eligible node commits its own conforming, unencumbered gold to the trust, reserves custody capacity and declares the fine ounces. Cyphers mint to the node or named contributor. Keeping the Cypher preserves the holder income entitlement; selling it transfers that entitlement to the buyer. The node can continue to hold the metal and earn custody compensation, but cannot use or sell the same metal freely.

A customer brings metal. The receiving node accepts responsibility for fine content and title and may require commercial assay or refining. Once it commits the accepted metal and posts security, the contributor receives a Cypher. The contributor may keep it or accept a separately funded cash quote. The shop earns its disclosed intake charge; neither minting nor assay creates a buyer or guarantees a spot-price exit.

A purchase finances new inventory. A buyer pays into an order escrow for gold sourced by a node. The node reserves collateral capacity when accepting the order. An active Cypher is issued only when the node admits the purchased metal to the trust. Pending purchase records remain distinct from active gold claims.

Approved external gold assets. The trust may hold an approved gold token such as XAUT as a limited backing component. This requires an authorised reserve operator, custody controls, published balances and the network's external-asset limit. It does not make the external issuer a PGN node without its agreement.

What the admission records

Each admission uniquely records the node, vault, contributor or beneficiary, fine ounces, purity, title commitment, timestamp and order reference. Track origin lots and primary-unsold ounces; this fee status is separate from active gold rights. Use bar or batch identifiers and substitution records. Documents may be access-controlled with public hashes. Repeated declarations cannot create another claim.

Fine ounces equal gross grams multiplied by fineness, divided by 31.1034768. All claim quantities use one documented integer precision; conversions round conservatively and reconcile residuals. A 100 kg gross delivery is not automatically 100 kg of fine gold. Collateral, reserve tokens and pending procurement must not also be counted as physical gold backing the same Cyphers.

Reserve stake and concentration headroom when an order is accepted. Recheck node status, current collateral value, price freshness, title commitment and capacity when gold is admitted. An administrator or delayed approval cannot bypass these conditions. Pending orders require expiry and cancellation rules so abandoned commitments do not lock capacity indefinitely.

3 Buying gold before it is in the network

Existing active Cyphers can be purchased with immediate digital settlement against a funded quote. When a purchase requires additional gold, the buyer receives a pending order receipt showing the ounces ordered, price basis, supplying node, escrow amount and delivery deadline. The interface must distinguish that receipt from gold already admitted to the trust.

A simple order lifecycle

Stage	Effect
Quote	Show price, fees, payment asset, node and expiry
Accepted and funded	Lock buyer funds and reserve the node's custody capacity
Procurement pending	Show an order receipt with no active gold or income entitlement
Gold admitted	Commit title, record the declaration and issue active Cyphers to the buyer
Settled	Release the agreed purchase proceeds to the supplying node
Failed or expired	Refund under the terms, release capacity and record any default

The default target is admission within 72 hours of an accepted, funded order. The quote must state the actual deadline, calendar, cutoff and any product-specific exception. If a pending object uses the same NFT collection, its status must block gold redemption, lending and active-holder distributions. A separate receipt contract is operationally simpler and is the recommended starting design.

A purchase larger than current inventory

If \$1 million of eligible gold is available and a customer wants \$2 million, the interface can offer a \$1 million immediate purchase plus a \$1 million procurement order. It must obtain acceptance of the split and show two settlement states. Alternatively, the whole order can be routed for new supply. Existing inventory is not a ceiling on demand, but new supply remains limited by node capacity and execution.

The supplying node receives the gold-sale principal on settlement, less separately quoted charges. It needs its own supplier credit or working capital until that point. An escrow funded by the customer does not solve that funding requirement if the money stays locked. Prepaid procurement should be a separately approved facility with specified use controls and stronger security, rather than an unstated feature of ordinary orders.

Failure and price movement

On expiry without admission, the buyer receives the escrowed principal and any refundable fees under the order terms. If price protection is offered, state the reference price, compensation formula, funded cap and payment source before acceptance. A gold-price increase can make an unlimited replacement promise expensive; available collateral and legal recovery do not guarantee full immediate compensation in every scenario.

Settlement binds the order, node, beneficiary, accepted ounces, payment asset and proceeds to an authenticated state transition. Emit events for reporting, but release escrow only through the validated settlement path. Duplicate callbacks and retries must have no second effect. Cancellation and partial fills update both escrow and reserved capacity; every paid ounce must correspond to exactly one issued claim.

4 Staking trust and custody capacity

The custody bond is separate from the gold represented by Cyphers. Approved gold assets provide the default security; every node also posts PGC. Let G be secured gold value and R the approved total bond ratio. Required bond is R times G , and the ordinary minimum PGC component is 10% of that bond. Higher PGC shares require express approval. Custody bonding is distinct from Panda Chain validator consensus.

Route	Required security against gold value G	Admission basis
Permissionless standard	Published overcollateralised total ratio R ; minimum 10% of required bond in PGC; approved gold assets for the remainder	Objective eligibility and legal duties; no discretionary trust vote
Approved trusted tier	Approved total ratio R ; same ordinary PGC minimum; remaining security under published asset rules	Recorded PGC governance approval and a risk limit for the operator
Specific mixed-bond exception	20% XAUT plus 85% PGC; total 105% of gold value	Express approval for the named node; PGC price and liquidity risk remain

At a 100% total bond ratio, the ordinary PGC minimum is 10% of gold value; at an illustrative 10% total ratio it is 1%. Reduced trusted-tier terms also require the insurance controls in section 22 and express approval. The named exception is 20% XAUT plus 85% PGC, totalling 105% of gold value. No 10% total ratio is automatically available.

Measure recoverable security

Value security against admitted custody, accepted pending orders and unresolved obligations, without double counting. PGC valuation uses defensible executable market prices and haircuts, not an illustrative token price. Stale or zero prices block new admission. Thin markets and concentrated holdings may justify zero eligible value. If PGC halves while gold is unchanged, the 20% XAUT plus 85% PGC exception falls to 62.5% coverage before costs.

A node may mint only within both collateral capacity and concentration limits. Propose a normal maximum of 20% of network custody per independent operator, with a disclosed, time-limited bootstrap exception for a small founding pool. Ten node addresses owned by one operator are not ten independent custodians. External-token backing has its own stricter limit and receives no bootstrap exemption.

Maintaining and releasing collateral

A node must restore deficient coverage. Suspension or inadequate collateral stops both new declarations and completion of previously pending admissions, as well as discretionary withdrawals. Distinguish falling collateral prices from missing or defective gold: one is a margin problem, the other a custody default. Agree cure periods, custody transfer and liquidation authority before taking gold.

Only genuinely free collateral can leave after the proposed seven-day delay and a fresh coverage check. An open default case retains the security needed for unresolved claims even if missing metal is removed from reported backing. Selling a Cypher does not release its custodian's bond. Granted PGC stays slashable while bonded, including after award vesting ends.

5 Audits defaults and recovery

Collateral permits admission without relying on a node's prior reputation, but it cannot prove physical facts by itself. Price gaps, token-issuer failures, illiquidity and enforcement delays can reduce recovery. The claim that overcollateralised entry is permissionless therefore means that a discretionary trust vote is unnecessary at the standard tier; it does not mean that custody has no remaining risks.

Audits and synthetic redemption probes

Every node permits PGN-appointed audits at PGN's cost. Synthetic redemption probes add randomly selected, real delivery tests funded by PGN. All tiers have a nonzero testing rate; lower trust, greater exposure or adverse evidence increases frequency. Publish completed results, delivery times and failures without revealing future selection. Section 22 defines the response to a missed deadline.

An inspection should test fine content and quantity using appropriate methods, identify where metal is held, reconcile bar or batch records, confirm vault release controls and examine evidence of liens or competing claims. A technology proof of wallet balance is useful for token assets but is not an inspection of physical bars. The public record must separate node declarations, document reviews and physical audits.

A documented default process

Missing or defective metal, undisclosed liens, false declarations or unjustified refusal to deliver opens a default case. An authenticated probe timeout can automatically freeze new intake and discretionary withdrawals. Verify delivery evidence, claimant readiness and permitted exceptions before a conflict-free quorum authorises a proportionate slash. An incident cannot cancel existing gold claims.

Slashed assets enter a segregated recovery account. A replacement custodian uses recoveries to restore existing claims with conforming gold. Record missing metal, outstanding claimant liabilities, recovery assets and remaining shortfalls separately. Replacement gold restores backing without a second mint. Keep enough remaining bond restricted until the case resolves; legal recovery and exclusion can proceed alongside slashing.

Loss allocation and limits

After a loss, notify insurers and preserve evidence while enforcing custody and bond obligations. Valid insurance proceeds, bond recoveries and other recoveries enter the segregated case account. Policy terms govern claims and subrogation; prevent double recovery. Reserve support is limited to its approved mandate. Unpaid insurance claims are not cash or replacement backing.

The proposed \$175,000 contingency and recovery reserve is a limited budget; report only actual funded assets as available capital. Reduced trusted-tier custody also requires verified insurance on the relevant property and locations with the trustee protected by the appropriate endorsement. Seek trust-level Difference in Conditions and Difference in Limits cover for specified gaps; report it as unavailable until bound. Insurance does not replace PGN-funded audits or prove full recovery.

6 Approved gold tokens and external custody

An approved gold token can serve two distinct purposes: collateral posted by a custody node, or an asset held by the trust as limited backing for Cyphers. Each purpose requires separate wallets and accounting. The same token balance cannot simultaneously back claims, secure a node and support a mining redemption reserve.

The ten percent backing limit

The initial policy caps approved external-token backing at 10% of total admitted gold backing. If physical gold is P ounces and external-token backing is X gold-equivalent ounces, $X \text{ divided by } P \text{ plus } X$ must not exceed 10%, or X must not exceed P divided by nine. With no physical backing, the external-token allowance is zero. The cap applies during bootstrap.

The intake check prevents additions above the limit. Physical redemptions can nevertheless raise the external share without any new token intake. The operating rule should suspend further external-backed issuance, publish the breach and convert or replace sufficient external backing under a defined rebalancing timetable. It must preserve existing redemption rights. An absolute ratio that is guaranteed at every moment would require funded, atomic rebalancing capacity.

Approval does not appoint an external issuer

A PGN vote can approve XAUT as an asset and approve a PGN reserve operator to hold it. It cannot make Tether an applicant, impose a PGN bond on Tether or claim Tether's endorsement. Any reduced staking requirement applies to the expressly approved PGN operator. External issuer and custodian terms remain relevant.

Tether's terms describe XAUT as an interest in one fine troy ounce, with direct physical redemption subject to eligibility, bar-size requirements and delivery arrangements in Switzerland. [6,10] These terms are not equivalent to collecting a small quantity at a local PGN shop. PGN must supply its own funded conversion and delivery arrangements if it offers that experience.

Assets on another chain

Until an approved native or bridged asset is available on Panda Chain, a segregated external-chain custody account is an option. The account needs identified legal control, a threshold signing policy, independently verified balances, stale-data limits and an enforceable liquidation process. A signed balance report is not equivalent to atomic on-chain collateral, and the asset should not be presented as permissionlessly slashable from Panda Chain.

Publish both the 10% backing ratio and aggregate exposure to each issuer across backing, node bonds and other programmes. A single issuer failure can affect several pools simultaneously even when each pool is separately accounted for. Aggregate limits and alternative approved assets should therefore be part of risk governance.

7 Cypher lifecycle and physical redemption

Cyphers are intended as ERC-721 records of gold entitlements, with quantity expressed in fine ounces. The deployment manifest must identify the actual Cypher contracts and their upgrade authorities. The published Polygon address ending e25F1e9 is identified as the PGC token, not as the Cypher NFT contract. [2]

State	Permitted treatment
Pending procurement	Order rights only; no active gold income or borrowing
Active	Transfer, trade, pay, receive income or request redemption
Pledged	Controlled by lending terms; no duplicate sale or redemption
Redemption locked	Reserved for delivery; no concurrent transfer or pledge
Delivered and retired	Delivered ounces removed from active claims
Disputed	Rights recorded while a documented recovery process applies

Redeeming physical metal

The holder selects an available node, product and delivery method. The quote states the fine ounces required, fabrication or delivery charges, location, identification requirements and collection or shipping deadline. A network-wide pooled claim does not mean every location stocks every bar size or can deliver every order immediately.

The accepted quantity is locked. The node confirms readiness, releases the metal through the agreed proof-of-delivery procedure and obtains claimant or authorised delivery evidence. The contract retires only the delivered gold quantity once the procedure is satisfied. A failed delivery leaves the claim alive and triggers the dispute process rather than treating a burn as proof that delivery happened.

Partial use and conservation of ounces

A holder must be able to spend or redeem part of a large Cypher. The claim manager can split the original into a used portion and a residual Cypher, or use another audited accounting mechanism with the same result. Splitting, merging, moving a claim into escrow and recovering a wallet must not alter the total fine ounces or create duplicate entitlements.

At every change of ownership or quantity, accrued fee and reward accounts must be settled to the appropriate beneficiaries. Existing earned amounts stay attributable to the owner who earned them; future accrual follows the transferred quantity. Pledged claims follow the agreed lender-beneficiary treatment.

Trust documents should define allocation during a location outage, how alternative nodes can fulfil a claim, treatment of transport and fabrication costs, and the rights of a holder who declines a proposed substitute. Custody transfers must reconcile both the metal and the corresponding node obligations before releasing the original bond.

8 Funded liquidity and Cypher sales

Instant liquidity is a service delivered by funded counterparties, not a property created by minting an NFT. PGN should offer executable quotes from participating dealers, nodes and liquidity providers, with a displayed settlement asset, size, spread, fee and expiry. A completed sale transfers a valid claim against payment; it need not move the underlying gold.

The first liquidity mechanism

A request-for-quote desk is the recommended launch mechanism for variable-sized Cyphers. Multiple approved buyers can quote USDC, USDT, PGC or XAUT where the network has supported settlement rails. The contract checks the active, unencumbered claim and executes delivery against payment. Buyers can decline oversized or unsupported inventory rather than offering an unfunded automatic bid.

For a large sale, the interface may aggregate several funded bids or propose staged execution. It must obtain the holder's consent to partial fills and show the minimum proceeds. If no acceptable bid is available, the holder retains the claim and can request a later quote or physical redemption. A displayed oracle price is a reference, not a counterparty willing to trade.

Liquidity pools and market making

Standardised gold balances or an audited claim wrapper can later support automated pools. The wrapper must escrow corresponding Cyphers, preserve ounce totals and make redemption and fee rights explicit. A constant-product pool can quote a trade while offering severe price impact; the existence of a pool is not proof of deep liquidity. Gold inventory exposure, reference-price divergence and stale-oracle handling require limits.

An illustrative launch budget assigns \$1.65 million to market liquidity: \$1.35 million for Cypher conversion and \$300,000 for PGC markets, subject to separately funded mandates. These are finite, separate budgets, not balances created by token allocation. Publish actual funded quotes and achievable proceeds by order size, with inventory and replenishment commitments.

Cash and collateral segregation

Customer purchase escrow, node bonds, trust gold, mining redemption reserves, liquidity-provider deposits and operating cash are separate accounts with separate rights. Neither a gold buyer's escrow nor a custody bond may be used to finance public token exits. Lending is a separate pool with its own commitments and withdrawal terms.

Liquidity providers take documented market, counterparty and protocol risk in exchange for specified economics. The network should publish funded capacity, utilisation, inventory concentration, realised spreads and withdrawal restrictions. The global gold market's depth does not automatically transfer to a new PGN venue.

9 Payments using gold

PGN payments allow a holder to transfer a small gold entitlement without moving a bar. The merchant can receive a gold claim or, where funded conversion is available, a quoted settlement asset. A desktop and mobile responsive application should make the amount, gold quantity, fee and final merchant receipt visible before authorisation.

A barcode is a payment instruction

A Cypher can generate a barcode or QR code for a payment session. The code should reference an expiring request containing the chain, merchant, amount or quote identifier, nonce and expiry. It must never expose a private key or give any person who scans a static identifier unrestricted authority to spend the holder's gold.

The merchant scans the code, the holder confirms the merchant and amount in the wallet, and the contract checks the nonce, signature, expiry and available unpledged ounces. It splits or transfers the required quantity, settles the fee and produces a receipt. Replay protection prevents the same approval from being used twice. The remaining claim stays in the holder's account.

Two merchant settlement choices

Receive gold. The merchant becomes owner of the transferred fine ounces and receives the corresponding future fee and reward accrual. No physical redemption or sale to cash is implied. If the payment fee is charged in gold, the fee mechanism must preserve total claims and account for the gold received by the fee recipient.

Receive a settlement asset. A funded dealer or pool quotes the conversion before authorisation. The merchant receives the disclosed USDC, USDT or other supported asset on settlement. Expired quotes require renewed consent. The customer should see the combined payment and conversion cost rather than several hidden charges.

Commercial controls

The system needs merchant onboarding, receipts, refund workflows, transaction histories and clear support arrangements. A refund is a new authorised transfer under the merchant's policy; blockchain settlement does not automatically create card-style chargeback protection. Lost-key recovery, delegated spending and account-abstraction features require explicit security and custody choices.

The intended merchant payment rate is 1.00%, with a 1.00% ceiling for the payment class, including embedded PGN conversion. The PANDA buyback budget is 0.25% of payment notional. First gold sales remain at 2.24% and secondary trades at 0.20%; using a QR code does not change a gold sale into a merchant payment. PANDA gas is separate and may be sponsored. Section 23 defines the classes and eligibility controls.

January 2027 readiness means a customer and merchant can complete a real payment, receive an auditable receipt and reconcile both balances. A screen showing a barcode without these controls is not a completed payment system.

10 Holder income and PGC rewards

Every active Cypher participates in the holder share of eligible network fees through a dynamic account. No additional Cypher staking or PGC purchase is required for that fee entitlement. Pending procurement records do not earn active-gold income. Actual distributions depend on fees earned and collected by the network.

Fee income accounting

Use an accumulated fee-per-fine-ounce index for each payout asset. When a fee allocation is funded, the index increases by the holder distribution divided by eligible active ounces. Each holder account records the quantity and the index at its last settlement. Minting, transferring, splitting, merging, pledging and redeeming first settle the accrued entitlement, then update quantity and index.

If no eligible ounces exist, the allocation stays in its designated account under a disclosed rule; it must not become an administrator windfall. Rounding residuals remain accounted for. Funds already earned by an outgoing holder do not pass accidentally to a new owner, and a new mint cannot claim fees earned before it existed.

A separate finite token incentive

The proposed gold-holder reward budget is 5.25 million PGC over 120 monthly epochs, with a ceiling of 43,750 PGC per epoch. Entitlement is based on eligible fine-ounce time during the epoch. Splitting one Cypher into many does not increase that share. Inactive or unfilled programme capacity does not require a catch-up distribution.

The recommended new reward terms make 50% claimable at settlement and lock 50% for 12 months from award. This lock applies to the PGC incentive, not the holder's gold. The earned fee balance remains separately claimable. Existing contracts and accrued rights must be preserved through migration.

Understand the source of the return

Statements separate actual fee income, finite PGC rewards and gold-price movements. Phoenix Yield adds a fourth source only for participants who opt in: collected lease interest after disclosed charges. An accrued lease receivable or a marked value for locked PGC is not cash or gold already received.

Phoenix Yield is the proposed Phase 2 leasing product for 2027. Holders voluntarily lock eligible Cyphers against identified leased inventory and accept stated maturity, exit and credit terms. Qualified shops pay for that inventory use. Section 21 defines the controls. Ordinary holder fee income remains automatic and does not require leasing. Monetary Metals provides a useful reference for controlled inventory finance, not a PGN return guarantee. [13,14]

A participant that also operates a qualifying node can receive custody compensation in addition to its holder income. This reflects two services and must be shown as two accounts. If another operator runs the node, the participant's share of its net income must be explicitly contracted.

11 Borrowing against gold during 2027

Lending liquidity is planned to come online progressively during 2027 as PGN grows and lenders commit funds. Gold admission and Cypher minting can begin before borrowing is available. A participant should not commit metal on the assumption of an immediate loan unless a lender has actually agreed and funded that facility.

The lending transaction

A lender accepts specified active Cyphers, establishes a valuation and haircut, and agrees a loan amount, interest model, duration and settlement asset. The borrower places the eligible claim under lending control. The contract transfers funded proceeds and prevents the pledged ounces from being sold, redeemed or pledged a second time until the debt is repaid or the lender enforces its rights.

A proposed initial ceiling is 60% of eligible Cypher value. LTV includes principal, accrued interest and applicable fees divided by the lender's accepted collateral value. Margin triggers, cure periods, liquidation thresholds and settlement discounts must leave sufficient room below expected recovery value. Higher LTVs require separate risk approval; a larger deposit alone is not safer collateral.

Borrowing capacity is not the original contribution

Where part of an initial gold contribution funds XAUT collateral or expenses, a loan percentage applies to the remaining eligible Cyphers. In the illustrative Querétaro allocation, 100 kg of fine gold supports 79.17 kg of Cyphers, 15.83 kg equivalent of XAUT and a 5 kg equivalent participant reserve, conditional on PGN supplying the required PGC stake. A 60% loan against those Cyphers is approximately 47.5% of original gold value before borrowing charges.

The special PGC grant, custody approval and expense reserve in that illustration are negotiated terms, not universal admission costs. The gold contributor keeps its economic interest in unused reserves and releasable security, subject to actual obligations. Borrowing adds debt; loan proceeds are not yield.

Phased operating scope

Stage	Required capability
Initial bilateral facilities	Named funded lenders, clear claim control and tested physical recovery
Controlled pooled lending	Published utilisation limits, pricing, reserves and lender withdrawal terms
Broader collateral markets	Demonstrated liquidations, diverse custodians and deeper funded markets

A lender needs enforceable transfer or redemption rights even if its borrower also operates the vault. On enforcement, proceeds repay debt and agreed costs, with surplus returned under the loan terms. Loan default alone does not justify custody-bond slashing; failure to deliver the gold after valid enforcement can be a separate custody breach.

Futures, leverage on leased gold and other derivatives are later products requiring separate funding, controls and legal review. They are not represented as January 2027 launch deliverables.

12 Fees incentives and operating finance

The PGN protocol constant is the allocation: 40% of every eligible fee goes to custodians, 10% to active Cypher holders, 25% funds purchases and permanent retirement of PGC, and 25% funds PANDA purchases. Event classes have different rates. Ordinary rate or class changes cannot alter these shares; any proposed change to the commitment requires separate governance authority, public notice and review.

Recipient	Share of eligible fees	Purpose
Custodians collectively	40%	Compensate accountable custody and service
Active Cypher holders collectively	10%	Make ownership participate in network income
PGC market buybacks	25%	Buy PGC and permanently retire it
PANDA market buybacks	25%	Support the Panda Chain ecosystem

Eligible fees are the PGN charges actually collected, net of applicable refunds. Gold and loan principal, customer escrow, taxes, PANDA gas, holder lease interest and separately quoted third-party reimbursements are excluded. Standard market fees enter the split in full; overhead is funded separately. Each node receives its earned portion of the custody pool. Publish allocated buyback funds, actual market purchases and PGC retired as distinct amounts.

Fixed allocation with rates by event class

For settled notional V and class rate r , the fee is V times r ; each buyback budget is 25% of that fee. On \$10,000, a primary sale generates \$224: \$89.60 to nodes, \$22.40 to holders and \$56 to each buyback. A payment generates \$100: \$40, \$10 and \$25 respectively. A secondary trade generates \$20: \$8, \$2 and \$5 respectively. Gas and separately quoted costs are additional.

Configure native classes in the Panda Chain fee router at genesis. Each 25% buyback allocation equals 0.56% of primary-sale notional, 0.25% of payment notional and 0.05% of secondary-trade notional. Zero-fee classes generate no application-fee buyback. Grigoris must confirm enforcement and production configuration before launch; these terms do not establish that code is deployed.

Why nodes participate

Nodes earn custody compensation, disclosed services, dealing margins and routed orders within capacity. Phoenix Yield adds a proposed 2027 inventory-finance opportunity, subject to underwriting and real holder funding. Routing considers price, location, performance and free capacity. Early entry builds evidence, but does not guarantee orders, cheaper bonds or token gains.

How operations are funded

This split allocates all eligible fees, so operations and reserves need separate funding. Illustrative launch budgets are \$275,000 for engineering and security; \$1.65 million for market liquidity; \$525,000 each for node integration and legal, compliance and operations; \$350,000 for distribution; and \$175,000 for contingency and recovery. These figures do not establish committed funding. Treasury spending must fit approved network budgets, preserve existing rights and disclose price risk.

13 PGC supply and network allocation

PGC has a fixed lifetime economic supply of 21 million preminted tokens: 1 million for network founders and 20 million for network programmes. The public register identifies the Polygon token and stated supply. [2]

Migration replaces valid ownership without duplicating supply. Upgrades cannot add economic supply or remint retired PGC; implementation evidence must substantiate those restrictions.

Lifetime allocation	PGC	Supply share
Network founders	1,000,000	4.76%
Virtual mining	8,400,000	40.00%
Cypher holder rewards	5,250,000	25.00%
Node and ecosystem incentives	2,100,000	10.00%
Market liquidity inventory	1,050,000	5.00%
Development and contributor rewards	1,050,000	5.00%
Treasury and mission reserve	2,150,000	10.24%
Total	21,000,000	100.00%

These are gross allocation targets within the same supply, including historical amounts assigned to each category. They do not mean that all tokens remain uncommitted. The existing mining site describes 95% allocated to mining. [3] Reallocation therefore depends on verified ownership, contract permissions and any required holder or miner agreement. Historical founder allocations count toward the 1 million total; obligated inventory cannot be assigned twice.

Founder allocation and proposed vesting

The founder allocation replaces the earlier private-sale category within the same supply. The 1.05 million development and contributor budget pays for earned network work, with no automatic second founder allocation. Founder-related awards require documented work, valuation and conflict controls. Existing enforceable rights must be reconciled before adoption.

Proposed founder vesting has no launch release, a three-completed-month cliff and 24 equal monthly releases in months four through 27. T0 is the later of qualified PGN launch and activation of the adopted founder vesting arrangements. The aggregate founder-release ceiling is 210,000 PGC in any rolling 30 days. The schedule is proposed, not evidence that existing holdings are locked. It does not limit later sales of accumulated vested tokens or releases from other network programmes.

Virtual mining distributes existing inventory rather than creating new coins. The proposed ceilings are 70,000 PGC monthly for mining and 43,750 for gold-holder rewards, each for up to 120 months and within reconciled remaining inventory. Historical commitments reduce the available budget. The combined gross annual ceiling is 1.365 million PGC. Buyback demand must be compared with that distribution and other unlocks; scarcity alone does not ensure price appreciation.

PGC Tokenomics Paper version 1.5 specifies the current allocation, proposed vesting, tariff sensitivities and bond-demand scenarios. This overview uses the same allocation. The supply ceiling, permanent retirement and preservation of legacy rights apply throughout. Collateral-demand ratios are not token-price forecasts.

14 Governance upgrades and Polygon migration

Governance with enforceable boundaries

PGC holders govern approved assets, node risk tiers, reward budgets, fees and protocol changes. Cypher holders retain contractual redemption, audit-request and recovery rights regardless of whether they buy PGC.

Unallocated treasury inventory should not vote, and unvested awards should not automatically become discretionary voting power. Vested bonded PGC may vote under disclosed delegation rules, with conflicts managed for node-specific decisions.

Proposals need published voting periods, a quorum definition based on eligible voting supply, execution delays and an accountable emergency process. A proposal affecting a node's own bond or a related-party transaction requires independent review. Governance cannot retrospectively confiscate trust gold, manufacture backing or unilaterally rewrite accrued vesting rights merely to benefit token holders.

Upgradeable contracts

The operating contracts should be upgradeable with audited authorisation and storage-layout controls. [12] Propose a threshold security council for narrow emergency pauses, a seven-day public timelock for routine economic upgrades and independent review of changes to issuance, custody, vesting and recovery. Emergency authority should limit damage, not grant unrestricted asset transfer powers.

The 21 million economic supply ceiling needs enforcement outside changeable issuance logic; retired PGC must not be reminted. Until independently enforceable restrictions are deployed and verified, the cap is a policy commitment rather than a demonstrated technical immutability claim. Upgrades must preserve gold rights, vesting, migration accounting and pending actions.

One economic supply across chains

Publish a reconciled Polygon snapshot, including ordinary holders, LP positions, miner rights, locked rewards, treasury inventory and all liabilities. Choose a documented one-way migration or a controlled bridge design. If tokens are locked on Polygon and represented on Panda Chain, the locked original must not be counted again as transferable economic supply. If originals are burned, successor issuance must correspond exactly to authorised burns.

The effective supply is the sum of spendable native tokens and valid outstanding representations, excluding duplicates permanently burned or demonstrably immobilised against those representations. Failed transfers, replayed proofs, late claims and compromised signing keys need explicit handling. A snapshot by itself does not disable legacy balances or prevent them from remaining tradable.

Miner payments, claimable PGC and existing reward locks are separate rights and must migrate consistently. No exchange listing, native XAUT or stablecoin deployment should be announced as completed before the corresponding chain contracts and counterparties are verified. The transition must publish a single canonical deployment register and retire conflicting operational instructions.

15 Contract architecture and accounting controls

Production issuance requires upgradeable contracts, collateral controls and reviewed settlement paths. The intake prototype implements only part of this architecture; section 20 records its gaps. The genesis router accepts registered modules, with separate product policies. Publish registration and upgrade powers; rate changes preserve PGN allocations, accrued balances and accepted quotes.

Module	Authoritative record
Node registry and bond vault	Operator identities, trust tiers, obligations, collateral and withdrawal queues
Gold intake and claim manager	Admitted fine ounces, title commitments and Cypher ownership
Purchase order escrow	Pending orders, buyer funds, reserved capacity and settlement state
Panda Chain fee router	Registered products and classes, validated fee bases, versioned rates and fixed PGN allocation
Redemption manager	Locked quantities, delivery evidence and unresolved claims
Liquidity router and payment gateway	Funded quotes, atomic settlement and signed payment authorisations
Fee and reward distributor	Collected fees, ounce-time entitlements, funded budgets and claim debts
PGC vesting and migration manager	Founder and programme grants, release limits, legacy rights and migration proofs
Governance and upgrade control	Roles, approved parameter changes, timelocks and incident permissions
Lending controller when activated	Funded loans, pledged claims, debt and enforcement rights
Probe controller and recovery manager	Test orders, delivery evidence, incident holds and authorised recovery
Phoenix Yield when activated	Locked claims, assigned lease inventory, maturities and funded interest

Required invariants

Each claim has one state and corresponding eligible backing. Separate ordinary gold from assigned lease inventory; underlying Cyphers and lease receipts count once. Pending orders and local certificates are not admitted claims. Report deficits without cancelling claimant rights. Admission and substitution cannot create duplicate claims.

Reserve capacity for admitted gold and pending orders; retain security for unresolved defaults. Recheck admission and withdrawals. Substitution never mints again. Settlement is exact-once; ownership changes settle accrued rights. Preserve primary-unsold quantities through splits, merges and wrappers. Respect the founder allocation, funded programme budgets, release limits and vesting.

Operational testing

Test suspension and repricing before admission, expiry, retries, duplicate orders, shortfall withdrawals and substitution. Exercise re-entrancy, stale oracles, issuer failure, collusion, failed delivery, replay, partial liquidation and migration disputes. Operator drills must include physical release and recovery. Shared router code still requires each product to be tested.

Upgrade rehearsals preserve ounces, default liabilities, income, vesting and pending actions. Plan independent review, including the intended Entersoft cycle subject to engagement, before production. Drill probe evidence and insurer notification. Compilation or a small successful test suite does not establish these controls.

16 Launch programme and commercial expansion

The planned January 2027 launch on Panda Chain targets ten international nodes and working Cypher issuance, redemption and payments, with the responsive web application and operational systems ready. “Ready” should mean a production transaction can complete across each relevant service with known responsible operators, support and recovery procedures.

Period	Delivery focus	Evidence of readiness
Before January 2027	Supply reconciliation, legal structure, ten-node onboarding, contract review and liquidity commitments	Approved rights, published deployments, funded accounts and completed operator drills
January 2027 launch target	Active Cyphers, issuance, redemption, payments, quotes and transparency	Real issuance and delivery records, merchant receipts, balances and service availability
Progressively during 2027	Funded bilateral lending then controlled pooled capacity	Executed lender commitments, enforceable collateral and tested recovery
After operating evidence	Broader geographies, deeper markets and optional additional products	Measured demand, funded capacity, local permissions and separate risk approvals

Node recruitment

Start qualified nodes with small limits under ordinary PGN standards and build history through observed deliveries and probes. A local shop certificate is an optional pilot, not a prerequisite: it needs a separate issuer, contract collection and visual identity, redemption only against that shop, and no implied trust backing or PGN liquidity promise.

Local certificates receive no automatic PGN fee share, PGC rewards or loan eligibility. Independently witnessed activity may inform an application, but private customer trades alone do not prove network readiness.

Conversion requires acceptance of real gold, the normal bond and title commitment, and cancellation of the local liability before a PGN Cypher is issued. Launch nodes can use the simpler ordinary entry route.

Launch gates

Before announcing ten active nodes, evidence operators, locations, collateral, insurance, audit access and redemption duties. Publish delivery probes and funded quotes. Grigoris must sign off the genesis class registry, settlement integrations, fee tests and upgrade powers. The application must distinguish ordinary, pending, leased and local-certificate states and show the complete quoted cost.

Launch communications should report achieved milestones separately from planned ones. The public legacy roadmap and documents need to be brought into alignment with the Panda Chain plan, the current claim rights, the revised reward structure and the actual migration method. Existing Polygon holders should receive clear notice and a supported route through the transition.

A launch target is not a guarantee of every later feature. In particular, borrowing availability grows with committed capital during 2027, and futures or leveraged products require their own subsequent approvals.

17 Transparency economics and material risks

A practical transparency page

Show physical and external-token backing, ordinary claims, locked lease claims and deficits without double counting. Each node page shows the independent operator, capacity, bond, audit scope, completed probe statistics and incidents. Publish insurer, covered locations, limits, deductibles, expiry and material exclusions; display unbound cover separately. Keep future probe selections private.

Token reporting should show the legacy reconciliation, founder beneficiaries and wallets, total supply, transferable circulation, locked and unvested balances, programme inventory, rewards earned, releases completed, market purchases and token retirements. Treasury and liquidity funds need separate statements. On-chain publication helps users inspect accounting; it does not prove that every disclosed off-chain fact is correct.

Evaluate the economics honestly

A growing gold balance does not by itself produce high fee income. Income depends on paid activity, the effective tariff, costs and distribution rules. Reward tokens are a finite acquisition budget. They can improve participation but also increase sellable supply as they unlock. The tokenomics paper models this relationship and distinguishes distributions from organic buyback demand.

PGN should track active holders, repeat transactions, funded quote depth, time to redemption, failed deliveries, net node earnings, cost per ounce serviced, fee revenue per active ounce and the share of rewards retained after unlock. Early activity subsidised by incentives should be reported separately from repeat unsubsidised use.

Principal risks

Physical risks include theft, quality defects, liens, operator fraud and inaccessible vaults. Financial risks include PGC price declines, thin token markets, gold-token issuer failures, stablecoin or bridge failures, liquidity withdrawals and correlated defaults. Technical risks include contract defects, price-feed failures, compromised administrators and migration errors. Commercial risks include insufficient usage, high transaction fees, limited operating runway and incentives that attract short-lived activity.

Trust, custody, payments, token sales, holder distributions and leasing require jurisdiction-specific legal analysis. Making Phoenix Yield optional separates consent and risks; it does not establish a securities exemption for that pool or ordinary Cyphers. A participation amount alone does not establish eligibility. Definitive documents and actual activities determine rights and regulatory treatment. [11,16]

The model aims to disperse custody and improve practical access to gold. It does not make physical property immune from law or eliminate counterparty risk. PGC's investment outcome depends on execution and demand; no fixed yield, gold-price floor, token-price floor or Bitcoin-relative return is promised.

18 Deployment references and adoption decisions

Published Polygon references

PGN's transparency page identifies the following legacy roles. [2] These are reference addresses, not a certified current holder snapshot or proof of unrestricted treasury ownership. A migration register must separately identify the actual Cypher deployments and all successor contracts.

Published role	Polygon address
PGC token	0x76C40AB3cC140c81A75b92d3F42186476e25F1e9
Mining contract	0xaf885E01EC90b3F07E1C9E3461D217dd6Dbc2C49
PGC and USDC pool	0x261F03aE05d78b5a5385Db5c1F04a785B09CbAD4
Retired mining contract	0xF4E0690a5667b26451A80d07d8C7df4811C469Fc

Decisions required for adoption

Approve the founder and network allocation, legacy reconciliation, proposed vesting, the genesis tariff registry, bond tiers, custody and insurance terms, reserves, upgrades and funded trading. Record accountable owners. Validate the selected fee design before operation. Phase 2 leasing needs separate consent and activation evidence. Sections 19 to 23 specify commercial, intake and assurance controls.

The large wallet described by management as belonging to PGN must be mapped to its actual legal controller, contract role and liabilities. Wallet control does not establish that all balances can be reassigned. Before activating allocations or releasing new grants, certify a block-height supply reconciliation covering founder holdings, existing holder and miner rights, outstanding commitments and uncommitted programme inventory.

Sources

Sources reviewed on 21 and 23 October 2026. Additional references accompany sections 21 to 23. Historical material establishes context; new PGN terms require adoption.

- [1] Phoenix Gold Network introduction. [Open source](#)
- [2] PGN transparency and published contract register. [Open source](#)
- [3] PGN existing virtual mining programme. [Open source](#)
- [4] PandaSea platform and founder information. [Open source](#)
- [5] World Gold Council Gold as a Strategic Asset 2026 liquidity analysis. [Open source](#)
- [6] Tether Gold terms and conditions. [Open source](#)
- [7] Monetary Metals gold leasing model. [Open source](#)
- [8] PolygonScan PGC token and holder reference. [Open source](#)
- [9] PGN project background and technical contributors. [Open source](#)
- [10] Tether Gold fee schedule. [Open source](#)
- [11] SEC US exempt offering pathways and investor eligibility. [Open source](#)
- [12] OpenZeppelin upgradeable contract design and storage controls. [Open source](#)
- [13] Monetary Metals lease withdrawal and replacement rules. [Open source](#)
- [14] Monetary Metals inventory monitoring and insurance controls. [Open source](#)

19 Shop participation and inventory controls

A shop can add digital gold services while using its existing customer relationships, premises and vault arrangements. Qualification lets it hold network gold locally. The commercial benefit depends on actual sales, earned fees and the cost of maintaining its bond; issuance alone does not create spendable cash.

Participation choice	What the participant receives	Continuing obligation
Keep its Cyphers	Gold exposure, holder fee allocations and PGC rewards	Bond and service duties if also the custodian
Sell its Cyphers	Agreed proceeds from a funded buyer; custody income can continue	The sold claim's metal stays available; its bond remains locked
Serve other contributors	Disclosed intake or delivery charges and eligible custody fees	Mint to the contributor; honour that owner's rights
Fulfil network orders	Payment for supplied gold and agreed dealing margin	Reserve capacity; admit gold and settle within the quote

Earning and measuring the node fee

The opening recommendation distributes the 40% node fee pool by qualifying custodied fine-ounce time. Pending orders and the number of wallets or NFTs do not increase weight. Publish the treatment of suspended nodes and settle already earned amounts separately from disputed accrual. Nodes may charge disclosed services, but cannot collect the same charge twice.

Evaluate fees, dealing margins and service charges against storage, insurance, staff, transaction and bond funding costs. PGN pays for its appointed audits and probes. Qualified Phase 2 lessees also pay a lease rate. Vested grants can assist entry but remain finite and slashable when bonded. A claim sale releases capital only to the extent that net proceeds exceed new security and other costs.

Keeping the metal available

Under ordinary custody, a shop may replace inventory only after equivalent conforming, unencumbered metal is admitted to the trust through a recorded substitution. The replacement backs existing claims and creates no new Cypher. Alternatively, the shop acquires matching claims and completes the authorised retirement and release process. Paying a spot-price amount into an account does not itself release trust gold.

Keep inventory identifiers, reconciliations and release controls; disclose insurance terms and protected beneficiaries. Phoenix Yield can finance inventory under its separately agreed lease rules. Replacement is required before removing leased metal under the proposed pilot, and its balance must never fall below leased ounces. Ordinary Cyphers retain their existing redemption terms. [13,14]

20 Intake prototype review and implementation requirements

The supplied GoldIntake_2.sol identifies itself as GoldIntake v1. It is a constructor-based prototype with PGC-only security, DAO registration and a verifier required for every mint. The supplied test.js targets GoldIntake.sol and exercises the v1 flow. It does not establish the later v2 features described in the discussion. This source review is not an independent security audit or a new execution of the supplied tests.

Useful mechanism to retain	Required production treatment
Reserve security for pending ounces	Include accepted orders; recheck status, prices, bond and caps at final admission
Separate pending and admitted records	Use the node declaration and approved security as the admission basis; audit separately
Delayed release of free stake	Recheck at execution and retain security while default liabilities remain open
Delivery and incident records	Use delivery evidence, separate claim liabilities and recovery balances, and a decision quorum

Two defects visible in the current source

First, attest() checks only that a deposit is pending. It can mint after the node is suspended or its required collateral rises. It must repeat the applicable admission checks. Second, slash() reduces custodiedMoz, which reduces requiredStake(); the remaining bond can then appear free despite unresolved Cypher claims. Recovery obligations need their own restriction until settled.

Features still to implement

Separate registry and bond vault from intake. Support gold assets, the ordinary PGC minimum and explicit bond exceptions. Add standard-tier entry, beneficiaries, unique orders, expiry, exact-once escrow settlement and the 10% external-backing cap through bootstrap. Registered settlement modules must use the genesis fee router. Probe freezes and authorised slashing remain separate powers.

Implement upgradeability with protected initialisation, restricted upgrade authority and storage validation. Constructor state and field defaults cannot simply be reused behind a proxy. [12] Separate emergency pauses from mint, slash and upgrade authority. Gold quantity, title commitments, default liabilities and accrued holder rights must survive every upgrade.

Acceptance checks for Grigoris

Test repricing or suspension before admission, stale prices, duplicate settlement, shortfall withdrawals, replacement without minting, external caps and upgrades with live obligations. Probe tests cover late evidence, failed collectors and false reports. Phase 2 needs lease segregation, maturity, funded interest and default tests. Include the real Cypher and escrow contracts.

Track primary-unsold fine ounces by origin lot. A registered primary sale or eligible merchant checkout clears only its settled quantity and records the fee class used. Test partial fills, price bounds, related wallets, splits, merges, wrappers, migration, duplicate callbacks and refunds. Import legacy status from reconciled records. Authenticate caller, product, class, notional, fee asset and quote version. Checkout requires an approved merchant and invoice reference; test rejection of gold sales, cash-out, self-payments and fabricated checkout routes. Refunds must preserve the returned quantity's prior status without reversing unrelated holders' history. Publish the funded fee-refund reserve and distribution rules; completed buybacks cannot simply be reversed.

21 Phoenix Yield opt in inventory finance

Phoenix Yield is proposed for Phase 2 during 2027, after underwriting, insurance, legal documentation and audited contracts are ready. It lets willing gold owners finance qualified shops' working inventory. The shop pays a contractual lease rate; participating holders receive the collected return after disclosed charges. Launching PGN does not itself activate a lease or promise a rate.

Separate consent and one claim per ounce

Only unencumbered eligible Cyphers may enter. The holder accepts the lessee, use, term, rate, fees, insurance, default process and exit conditions, then locks the claim. Assign matching fine ounces to the lease ledger and separate them from gold available to ordinary holders. A vault receipt records the beneficial interest; it adds no second gold claim. Segregation must be reflected in enforceable trust and custody documents.

Leased claims cannot also be spent, redeemed on demand or pledged for an ordinary loan. Base fee allocations and PGC incentives may continue under the ordinary eligibility rules, credited once to the beneficial holder through the vault. Lease participation creates no extra reward allocation or voting privilege.

Inventory covenants and income

Maintain at least the leased fine-ounce balance in qualifying, unencumbered metal assigned to the pool. For the pilot, replacement metal must be accepted into the trust before outgoing metal leaves; in-transit purchases do not count as available gold. Record substitutions without minting again. Require inventory reporting, release controls, PGN audit access, insurance and a cure or recovery procedure. Any later transit allowance needs separate consent and security.

Lease principal and interest due are measured in fine ounces. Claims become payable only from actual collected assets. An existing Cypher transfer can pay interest; new claims require newly admitted backing. Publish gross rate, servicing charges and net proceeds. Lease principal and holder interest are excluded from the ordinary fee base; only the disclosed PGN servicing fee enters the 40/10/25/25 allocation.

Maturity risk and a worked example

At maturity, return the assigned ounces to ordinary custody before unlocking claims. Earlier exit requires a funded buyer or an agreed release; it is not guaranteed. Lease losses follow that pool's documented recovery rights and must not be silently charged to unrelated gold holders. Bond, insurance and legal recovery may still leave a loss.

Illustration: 100 fine ounces leased for one year at an assumed 3% gross rate generates 3 ounces due before fees and losses. This is not a quoted PGN rate or a promised 2–4% return. Opt-in structure does not itself create a securities exemption; eligibility and offering terms require specific review. [13,16]

[16] SEC transactions involving crypto assets. Open source

22 Redemption probes and the insurance stack

Real deliveries selected at random

Synthetic redemption means a protocol-funded test of real physical delivery, not a fabricated transaction. PGN buys or uses a valid active Cypher from a separately funded test account and submits a request within the node's published product, quantity and location limits. A hidden random selection schedule gives every tier a nonzero testing rate, increased for lower trust, greater exposure, stale audits or adverse events.

The order records the authorised collector, readiness requirements, deadline, evidence and permitted extensions. A verified missed deadline freezes new intake and discretionary withdrawals automatically. A conflict-free quorum checks physical evidence and excuses before slashing. A timestamp or absent message alone cannot prove that metal was missing or delivery refused.

Retire delivered claims through the normal redemption process. Collected test metal remains outside backing until it is admitted again; never count it twice. Budget acquisition capital and execution costs separately. Exclude test activity from organic volume and incentive metrics. Publish completed tests, response times, genuine failures and reversals. Probes complement inspections; passing a small delivery does not establish an entire vault balance.

Cover verified before reduced trusted tier admission

Layer	Required treatment
Node or vault policy	Insurer confirms trust-owned bullion, scheduled premises, custody and permitted transit. Obtain the appropriate trustee loss-payee or equivalent endorsement.
Trust supplemental cover	Seek Difference in Conditions and Difference in Limits coverage for specified gaps. Publish bound coverage, sublimits, deductibles and exclusions; never assume all losses qualify.
Bond and recovery reserve	Maintain slashable collateral and a separately funded recovery reserve under its approved mandate. The \$175,000 figure is a proposed budget. Insurance receivables are not immediately liquid collateral.

Make verified cover a condition of reduced trusted-tier admission; it does not automatically justify a 10% bond. Check wording and endorsements, not just a certificate, with a qualified broker and the insurer. Monitor cancellation and expiry, freeze new intake on lapse, and apply the agreed cure or custody-transfer process. Rider costs and availability must be quoted. Dishonesty, unexplained shortages, liens and contractual non-delivery may remain excluded. [15]

After theft, notify insurers and preserve evidence immediately while securing remaining inventory and bond. Coordinate insurance, collateral and legal recoveries in one case ledger, including subrogation and limits on double recovery. Insurer delay or denial must remain visible; no layer promises universal reimbursement.

[15] Jewelers Mutual coverage limits and exclusions. [Open source](#)

23 Event tariffs and genesis fee routing

Eligible PGN fees allocate 40% to nodes, 10% to holders and 25% to each buyback. Rates are native genesis parameters. Checkout starts at 1.00%, capped at 1.00%; discounts preserve the split. Raising that ceiling requires a separately adopted policy and revised disclosures. Validate configuration and enforcement before operation.

Event class	PGN charge	PANDA buyback budget
First PGN sale of newly admitted gold	2.24% of notional	0.56% of notional
Secondary trade of an existing fee-paid claim	0.20% of notional	0.05% of notional
Eligible QR merchant checkout including conversion	1.00% of notional maximum	0.25% at the 1.00% rate
Wallet transfer split or merge	0% notional fee	No application-fee allocation
Physical admission or redemption without a trade	0% automatic notional fee	25% of any eligible PGN service fee
Loan draw or principal repayment	0% of principal	25% of any eligible PGN servicing fee

One charge per settlement

Charge once per matched settlement and identify the payer. Rates are per settlement, not round trip. Procurement pays at settlement, not again on activation. Eligible checkout includes embedded PGN conversion without another trading fee. A separate gold purchase before payment remains a quoted gold sale. Show spreads, gas, taxes and services separately; contribution without a sale has no automatic notional fee.

Primary-unsold quantities clear only through a registered first gold sale at 2.24% or genuine eligible checkout at 1.00%. Record the quantity and tariff; later standalone trades use 0.20%. Purchase orders can clear at issuance; transfers alone cannot. This lets contributed gold fund a merchant purchase without a first-sale surcharge. Section 20 specifies quantity conservation and refund controls.

Checkout covers non-financial goods or services from onboarded merchants. Gold, Cypher, token and currency purchases, cash-out, self-payments and circular transactions use their applicable market or transfer class. Bind merchant and invoice to the quote; apply limits, monitoring and suspension for misuse. Contracts cannot prove off-chain sales are genuine, so records and enforceable terms remain necessary. Transfers and wrappers preserve fee history. Link refunds to the original settlement and fund any fee refund before distributing the corresponding revenue.

PANDA gas and deployment scope

All PGN on-chain transactions pay PANDA gas, from a user or sponsor. Gas can use existing holdings and is not automatically a new market purchase. Report any gas burn under verified chain rules. Fee-funded buybacks are separate, with ring-fenced balances and execution limits. [18]

The router can serve TSE, PandaXchange and USDp under separate product policies. Published universal 0.56% buy-and-sell wording must align with PGN's revised policy. [18] BullionVault publishes 0.50% to 0.05% dealing rates plus custody charges. [17] Lower fees do not establish future volume.

[17] BullionVault published dealing and custody tariff. [Open source](#)

[18] PandaSea published gas and Value Router model reviewed 23 October 2026. [Open source](#)