

# peaq Economics 2.0

The Economics Paper

The economic network upgrade unlocking value generation from  
Robot Money at full scale.

A companion to the Purple Paper (published 18 March 2026).

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# Before you begin

This paper is the economics companion to Robot Money, the Purple Paper. The Purple Paper describes what robot money is, why the Machine Economy needs it, and how peaq enables it. This paper defines how its token economy works to capture value from robot money for all participants in the Machine Economy.

As in the Purple Paper, we take “Machine” as a collective term for robots, vehicles, devices, sensors, and AI agents, and “operator” to mean the person or business running machines on the network.

## Abstract

Machines are becoming the main participants in the global economy. But an economic participant needs more than the ability to transact. It needs standing — a way for anyone to know what it is worth, what it has done, and what it can be trusted with. peaq Economics 2.0 is the architecture that gives machines standing and denominates it in a single unit. Every machine enters through an activation priced in US dollars and settled in the payment asset of the operator's choice.

That activation bonds PEAQ permanently to the machine's identity, creating Economic Weight: the measure of a machine's commitment, and the basis on which it is prioritized, granted access, and financed. Trust Validators — the network's single public staking venue — verify machine state and attest it onchain, earning from newly issued PEAQ and from the coordination fees machines pay in the currencies of the chains where they do business. Those fees are never converted, so value earned in an ecosystem stays in it. The Machine Pool returns 30% of the flow to the operators growing the fleet.

The resulting architecture uses stablecoins as the primary medium of transaction settlement, while native PEAQ anchors network trust and economic standing. Machine adoption becomes token demand that is visible before it happens: every machine bonds PEAQ when it joins, every renewal bonds more, and locked supply is designed to grow faster than issuance. This paper describes how that works.

## 1. Introduction to peaq Economics 2.0

Most Layer 1 economic models were built around human users and applications. Economics 2.0 is built around machines: designed to onboard robots, vehicles, and sensors at scale, enable them to create and exchange value, and let them do business inside and outside of Web3. A free machine can exist on any chain, earn in any currency, prove itself to any counterparty, and finance itself in any market. That freedom does not come from payment rails—every chain has those. It comes from the economic layer underneath: who pays for trust, who commits capital,

and how the value created by a growing Machine Economy flows back to the ecosystem that coordinates it.

Not every machine needs to be trusted by a third party — but every machine that wants to do business with strangers does. Wherever someone wants to interact with a machine they do not own or control, they face a trust gap. Closing it costs money on both sides. The machine pays to build its reputation: an unverified machine does not raise capital, and it loses the job to one that can prove itself. The relying party pays to check: a trading partner, a lender, an insurer, an auditor — each pays to query verified machine state rather than take someone's word for it. Pricing and closing this trust gap form the foundation of peaq Economics 2.0.

peaq's original economic model took the traditional approach to token utility — and it worked, carrying the network to more than 3.3 million machine identities and over 200 million transactions. But the machines kept growing, and they outgrew everything built around them: the chain they were born on, the incentives that rewarded them, and the way their trust was verified.

**Machines outgrew one chain.** Machines do not optimize for ecosystems; they optimize across them — the best payment rail, the best compute, the best service available, the best liquidity, the best place to monetize, wherever it lives. What machines cannot route around is trust: identity, reputation, and verified state that travel with them everywhere. A token built to facilitate local execution had to become a token that anchors omnichain trust and enables coordination at scale.

**One machine, many chains.** Applications are not restricted to native peaq execution. A developer can build on Solana, on Base, or on any other connected chain of the omnichain standard, and plug into the very same machine. The machine is born on peaq. Its Machine ID, its Economic Weight, and its credit score all anchor there. But the machine itself travels. Wrapped into an application on one chain. Doing business on a second. Buying a service on a third. Its identity and its standing go with it, everywhere it goes. One and the same machine can sit inside many applications on many chains at once — which is how the Machine Economy expands beyond the millions of users already living in those ecosystems.

**Machines outgrew pooled incentives.** Application-level pools reward categories. But the economic unit was never the use case — it is the individual machine, and that is where the model had to move: per-machine identity, per-machine commitment, per-machine activity, per-machine standing.

**Trust outgrew consensus.** Block production cannot verify the real-world state of a machine — that it exists, that it delivered, that it was available. That is different work, and it needs its own accountable workforce: staked, slashable, and paid for accuracy. This structural distinction introduced two core requirements: economic weight had to outgrow token stake, so that a machine earns standing by creating value and not only by locking capital. And pricing had to outgrow the token, because enterprises plan in dollars. The result is an economic model built not to secure a chain, but to coordinate an economy.

# Paving the Way for Robot Money

This upgrade serves one goal: Robot Money — machines earning, spending, and settling in whatever money fits the business. A free machine selects its own payment rail — USDT or USDC on one job, EUR stablecoins on the next, SOL, ETH, use-case-specific tokens, or even fiat where the application demands it. peaq replaces no payment rail and forces no settlement currency; the machine, or its operator, chooses the money that fits the business best.

That choice already has a clear direction: stablecoins. They are becoming the default settlement asset for digital commerce, and machines are likely to accelerate that trend rather than resist it. As relentless economic optimizers, machines will naturally gravitate toward money that is price-stable, programmable, borderless, and available 24/7. Stablecoins fit that role well, without limiting a machine's freedom to earn, hold, or settle in any other asset.

Economics 2.0 is built to grow alongside this future — not by owning the payments, but by coordinating everything behind them. Entering the Machine Economy is intentionally simple: activations are priced in USD, so anyone can onboard a machine at predictable cost, whatever payment asset they choose. That payment settles into bonded PEAQ, anchoring the machine's identity and trust in the network. From there, the machine is free to earn, spend, and settle in any currency, on any chain. Renewals deepen its Economic Weight; its verified track record builds its credit score; and coordination fees continuously feed the trust validation beneath Robot Money. As machine commerce grows, so does the value securing it.

## The System at a Glance

Economics 2.0 consolidates peaq's original six-pool model into a unified architecture built on four primitives.

**1. Machine Activation as the Entry Point.** Every machine enters the economy through an activation priced in USD and settled in the payment asset of choice. The activation creates bonded PEAQ, establishing the machine's identity, trust commitment, and Economic Weight from day one, while freeing it to coordinate, earn, and transact across ecosystems, chains, and payment rails.

**2. Trust Validators as the Single Staking Venue.** Public staking consolidates into trust validation: validators verify machines, attest real-world state, and are the network's only staking venue. Delegators stake behind them and share in the rewards.

**3. The Machine Pool as the Growth Engine.** The Machine Pool rewards operators for growing productive machine fleets through bonding rewards and onboarding incentives, turning machine activity into the engine of network expansion.

**4. One Flow, Every Currency.** Machine activations and coordination fees can be paid in the payment asset of choice, while the network bonds and distributes value through a unified PEAQ

Flow. This keeps onboarding predictable in USD while allowing machines to transact freely across currencies and chains.

### Chain Validation Separation

Consensus becomes operational infrastructure, secured by a permissioned validator set of limited size. Public staking moves to trust validation; economic incentives move to the machines.

The remainder of this paper follows the lifecycle of a machine in the Machine Economy. It begins with activation: how a machine establishes its identity, commits capital, and earns Economic Weight. It then explores how trust is verified, how value flows through the system, how growth is incentivized, and how those mechanisms create a self-reinforcing economic model. Finally, it covers governance, the transition, and the Machine Economy at work.

## The Architecture: Three Participants, Three Jobs

Everything in this economy is done by one of three participants, each holding one distinct economic position. The entire economics of peaq is the discipline of keeping these three positions distinct: machines bond, validators stake, the chain just runs.

| Participants                  | Their job                 | They commit                         | They earn                                 |
|-------------------------------|---------------------------|-------------------------------------|-------------------------------------------|
| Chain Validators              | Transactions settle       | Operational role                    | -                                         |
| Trust Validators & Delegators | Machine state is verified | PEAQ staked                         | Both flows: PEAQ + dollars                |
| Machine Operators             | Machines do business      | PEAQ bonded per machine - permanent | Credits: Bonding Rewards + Growth Credits |

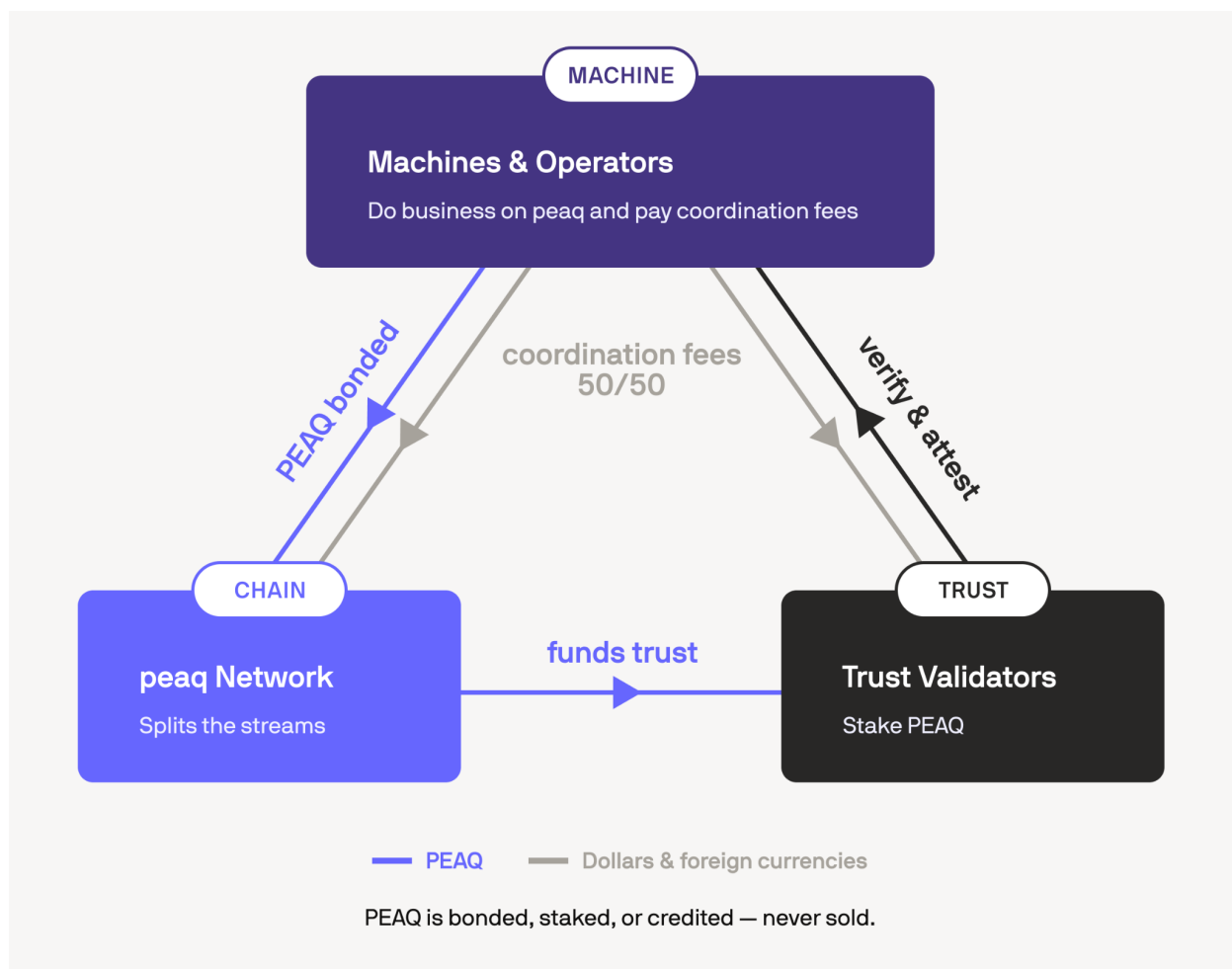
**Chain Validators.** Chain validation runs as network infrastructure on a permissioned validator set, capped at ten nodes, without public delegation. Chain validation is an operational responsibility, not a public capital market — a deliberate reallocation that sends block rewards where they compound: to machine trust and machine growth. As the network matures, Trust Validators may additionally take on chain validation — a roadmap toward progressively deeper decentralization.

**Trust Validators and Trust Delegators.** Trust Validators are a decentralized network of staked operators — conceptually comparable to established oracle networks — that verifies machine identity and attests real-world machine state onchain. Trust Delegators delegate PEAQ to validators of their choice and share rewards proportionally; validators face slashing for incorrect or malicious attestation, and delegators bear proportional exposure. The participants

with the largest economic stake in the network are also the ones responsible for the quality of the data that determines how value flows.

**Machine Operators.** Operators hold no staking position. Their standing is determined entirely by the machines they run: how many, at what tier, how long, and how productively. Operators bond PEAQ to each Machine ID to keep it active and earn two forms of network credit in return: Bonding Rewards and Growth Credits (Section 8). Commercial revenue is separate — operators price and sell machine services, and that income is theirs; coordination fees are a small per-event cost paid to the network.

## Token and Fee Flow



*Machines pay coordination fees in chain-native assets; the network splits the flow and earns nothing itself; PEAQ flows back — bonded, staked, or credited, never sold; trust closes the loop.*

## 2. Economic Weight: The Measure of Machine Standing

### Economic Weight

The normalized commitment score attached to a machine, derived from its bonded position. It is not a liquid, transferable token. Higher weight earns prioritization, deeper access, and stronger trust signaling.

Every economy has a way of measuring standing. Businesses do not earn it by claiming it. They earn it through creditworthiness. A company's standing is denominated in a common unit: capital committed, obligations met, a track record counterparties can verify. That standing quietly determines what doors open — the loan approved, the credit line extended, the terms offered, the partners willing to trade, the priority with which it is served. Creditworthiness is never just money in the bank; it is access, priority, and trust, made legible in a unit everyone can read — and it is earned, commitment by commitment, over time.

Machines entering the economy need exactly the same thing — and PEAQ is the unit their standing is denominated in. A machine's bonded PEAQ position is its net worth; its Economic Weight is that balance sheet made legible to the network. Think of someone with ten years of savings and a clean credit history. They borrow on better terms than a stranger with empty pockets — and merchants take their card without a second look. A machine works the same way. A deep bond and a long renewal history mean it is served first, reaches further into peaqOS, qualifies for financing, and sells at a premium — and in day-to-day business, its payments clear and its pay-per-use services get bought, because counterparties can see what stands behind them. In the Machine Economy, PEAQ is the unit in which machine wealth — and therefore machine standing — is measured.

Concretely, Economic Weight buys a machine four advantages:

**Prioritization.** Economic weight is how the system decides whom to serve first. A machine with more capital committed enjoys prioritization across coordination handling and system services — access and priority scale with economic stake, so accountability and privilege rise together.

**Access.** Economic commitment determines the depth of services a machine can reach. Higher tiers — deeper bonds — unlock the full peaqOS function set: advanced credit scoring, hardware-level trust attestation, financing eligibility, and rating-backed tokenization. The more a machine commits, the more of the economy opens to it.

**Trust signaling.** Economic Weight compounds across renewal cycles: each renewal bonds additional PEAQ on top of the existing position. A machine with years of continuous renewal history carries substantially higher weight than a newly activated one — a verifiable, onchain record of sustained commitment that counterparties can read before they transact.

**Provenance.** Because the bond attaches to the Machine ID, Economic Weight travels with the machine through its commercial life. When a machine is sold, its weight, event history, and trust standing transfer with it — verified provenance that commands a premium in secondary markets and does not exist in traditional equipment markets.

The same logic applies to the Trust Validators themselves: a validator's staked position determines its weight and its share of network rewards. For every participant in Economics 2.0, committed capital — denominated in PEAQ — is the measure of standing, and standing is what the system prioritizes.

### 3. Bonding: How a Machine Buys Its Standing

Bonding  
PEAQ committed permanently to a Machine ID. Bonded capital is not staked and not returned. It remains attached to the machine for its active life — or decays through burn and Treasury allocation when the machine exits.

Machine activation is built on a primitive deliberately distinct from both subscriptions and conventional staking:

| Primitive  | Capital returned | Economic Commitment | Primary Role                            |
|------------|------------------|---------------------|-----------------------------------------|
| Activation | No               | No                  | Pays for access only                    |
| Staking    | Usually          | No                  | Network security                        |
| Bonding    | No               | Yes                 | Machine alignment and supply absorption |

When a machine activates, PEAQ bonds permanently to its Machine ID. It is not held in escrow and not recoverable. This permanence is what makes a machine’s onchain standing mean something: the commitment behind it cannot be faked, borrowed, or unwound.

## Machine Activation: From Dollar Price to Economic Weight



*The operator sees a dollar price. The network handles the oracle, the swap, and the bond — Economic Weight is the result.*

## Activation Tiers

Machines activate at one of three service tiers, priced per machine per year in US dollars. The activation buys function access only; coordination fees are charged separately, per event, at the machine's tier rate.

| Tier  | Annual Fee | peaqOS Functions                                                                     | Built for                                                                                                                                                                              | Coordination Fee Rate | Tier Points |
|-------|------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------|
| Entry | \$0.02     | Activate (cross-chain identity), full Scale access, Stream                           | High-volume, low-cost devices — sensors, trackers, meters, hotspots, dashcams: fleets of thousands needing identity and market access at negligible cost                               | 1.00x                 | 1x          |
| Basic | \$0.20     | + Qualify (Machine Credit Rating), Verify (hardware attestation), Monetize, Tokenize | Machines that transact regularly — charging stations, delivery drones, connectivity nodes, vending and service machines earning revenue that feeds a credit record                     | 0.50x                 | 2x          |
| Pro   | \$40*      | + Advanced Machine Credit Rating, advanced Verify, advanced Tokenize                 | Capital-intensive machines whose business depends on financing-grade trust — industrial robots, autonomous vehicles, energy systems, robofarms seeking financing, insurance, or resale | 0.25x                 | 5x          |

(\*) Indicative. Pro pricing is currently in testing with selected partners; final pricing, like all tier parameters, is set through governance before launch.

Every tier accrues tier points each activation period and points compound into the machine's Economic Weight. Higher tiers accrue faster: 1, 2, and 5 points per period.

Each tier is a deeper commitment: more PEAQ bonded, greater Economic Weight — and with it priority in coordination, stronger trust signaling, richer provenance — plus a deeper reach into peaqOS, from identity at Entry to credit rating and hardware attestation at Basic, to advanced credit rating, advanced verification, and rating-backed financing at Pro. Multi-year activation (3, 4, or 5 years upfront, at a discount) deepens the bonded position from day one.

## Oracle-stamped USD settlement

The commercial experience is entirely USD-denominated. At activation and renewal, a designated oracle stamps the current PEAQ/USD rate; the network computes the required PEAQ and bonds it to the Machine ID, recording every stamp as an onchain event. Operators never have to actively touch the token — the oracle and settlement layer handle everything token-side, and the operator sees a dollar price.

## The Activation Token Provision Pool

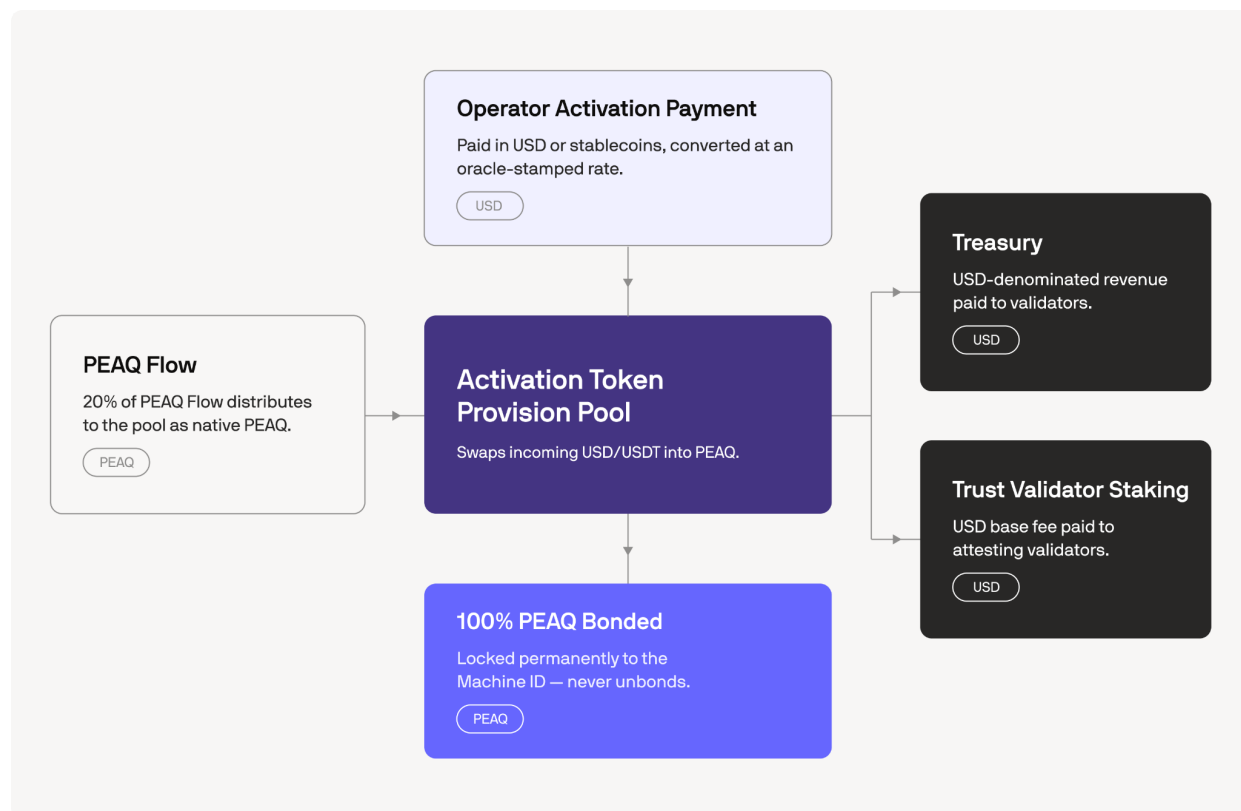
Operators pay activation fees in stablecoins such as USDT — or bond the required PEAQ directly from their own wallet. When paying in USDT, the PEAQ that bonds to the machine is sourced from the Activation Token Provision Pool, funded by 20% of the PEAQ Flow (Section 7). The mechanic is a swap: USDT in, PEAQ released at the oracle-stamped rate and bonded permanently to the Machine ID, USDT proceeds distributed 50/50 between the Treasury and the Trust Validator staking pool. Crucially, because activation pricing is fixed in US dollars while the underlying bond is denominated in PEAQ, token lock-up scales inversely with asset price. Lower market prices force each activation to absorb a larger volume of PEAQ out of circulation, establishing a built-in counter-cyclical supply sink that deepens bonding demand precisely when markets weaken.

The pool is not a treasury that accumulates. PEAQ flows in each period to fund that period's activations; at period's end, the remainder is distributed the same way as everything else — 50/50 to the Treasury and the Trust Validator staking pool.

The pool is also a fiat gateway. With an onramp provider live on peaq, operators can pay by card or bank transfer; the payment converts to stables onchain, and the pool settles it into the bond. An enterprise can activate an entire fleet without ever holding a token.

This mechanic delivers two structural advantages: every activation and renewal is dollar income, verifiable onchain, growing with adoption. And validators can plan. Because prices are set in dollars and renewals come round on a schedule, a validator can work out its income from the number of machines it covers.

## Activation Flow



*Activation settlement: USDT in, PEAQ bonded to the Machine ID, proceeds split 50/50.*

### A structural demand channel

The pool is deliberately designed as an open settlement layer. Over time, parts of this flow can be facilitated through external trading venues — transforming settlements into public market events. At scale, tens of millions of machines renewing annually represent tens of millions of settlement transactions in which PEAQ is acquired: a structural, adoption-driven demand channel embedded in the network's core mechanics.

## 4. The Machine Lifecycle: How Standing Builds, and How It Ends

A machine's lifecycle runs on fixed rules — activation, renewal, exit — and every step is recorded onchain, visible to whoever needs to rely on it.

**Activation.** The operator selects a tier; the oracle stamps the PEAQ/USD rate; the network bonds the required PEAQ to the Machine ID. The machine is live: discoverable on peaqOS, earning tier points, eligible for coordination fee discounts, carrying an auditable activation record.

**Renewal.** At each annual renewal the machine adds its tier points to its lifetime total and bonds additional PEAQ, compounding its Economic Weight. Bonding Reward balances apply against renewal costs first.

**Grace window.** If an activation period ends without renewal, a 14-day grace window begins. The machine keeps its Machine ID, Economic Weight, and history, but is suspended from the service layer and accrues no rewards. Renewal within the window returns it immediately to full active status.

**Runoff.** If the grace window expires — or a machine exits voluntarily, or fraud is confirmed — the machine enters a 14-day runoff. Over the 14-day runoff, the bonded position decays linearly; half of the decayed amount is permanently burned, half flows to the Treasury. Accumulated Bonding Rewards and Growth Credits are forfeited. The full exit timeline is deterministic and known in advance.

Exit shrinks the supply

When a machine exits, part of its bond is burned — supply falls with every exit.

Departure is not just an end state; it is a structural, ongoing deflationary mechanism.

## 5. Coordination Fees: Pricing Machine Commerce

### Coordination fees

Small, USD-denominated, per-event fees charged when peaq's infrastructure mediates economic activity between machines — collected in the native currency of the chain where the event occurs.

Coordination fees are the network's service charge on the economic activity it enables: payments coordination, escrow settlement, market matching, data sales, attestation sessions, identity transfers, cross-chain settlement. When a robot sells a skill invocation or a machine buys compute from a decentralized market, a coordination event is what the network prices. This is not hypothetical: on [robotic.sh](https://robotic.sh), peaq's open service market, machines already buy compute, inference, navigation, and data per request — each purchase a coordination event of exactly this kind. The fee model has four properties:

**Small.** Fees are set at basis-point levels or cents per event — sized so no machine is priced out of coordination, with revenue scaling with volume rather than burden per event.

**USD-denominated.** Fees are configured in dollars and collected in the native currency of the chain where the event occurs. Machines never need to hold PEAQ to coordinate.

**Per event.** Fees are charged at the moment of the triggering transaction and only then. The activation buys access; coordination is priced by use.

**Tier-discounted.** A machine's tier sets its rate: Entry pays the reference rate, Basic half, Pro a quarter. Deeper commitment earns cheaper coordination — economic weight expressed as an operating advantage.

Coordination fees are the network's external revenue — income that scales with machine activity rather than token issuance — distributed unconverted, 50/50, to the Treasury and Trust Validator staking (Section 7). They apply across the peaqOS function set: access fees at activation, event fees on payments, escrow, matching, and data sales, trust-service fees on attestation and adjudication, and cross-chain fees on settlement and bridging.

## Types of coordination fees by peaqOS function

| Function | Service                                                                  | Fee Type                    |
|----------|--------------------------------------------------------------------------|-----------------------------|
| Activate | Activation / Identity                                                    | access                      |
| Qualify  | Event submission                                                         | —                           |
| Qualify  | MCR API query                                                            | trust service               |
| Scale    | Payment coordination (machine usage)                                     | event                       |
| Scale    | Escrow settlement                                                        | event                       |
| Scale    | Machine Markets matching                                                 | event                       |
| Scale    | Order dispute                                                            | trust service               |
| Scale    | Cross-chain value settlement                                             | cross-chain · stacks on top |
| Scale    | Cross-chain message fee                                                  | cross-chain · stacks on top |
| Stream   | Dataset / chunk sales                                                    | event                       |
| Verify   | Chip certification — hardware attested to the Machine ID                 | trust service               |
| Verify   | Operator verification (KYB) — verified entity attached to the Machine ID | trust service               |
| Verify   | Verification status query (API, by Machine ID)                           | trust service               |
| Verify   | Validator adjudication                                                   | trust service               |
| Monetize | Provider opt-in & provisioning                                           | —                           |
| Monetize | Capacity settlement - workload payouts                                   | event                       |
| Tokenize | Identity / NFT transfer                                                  | event                       |
| Tokenize | Machine certification                                                    | trust service               |
| Tokenize | Cross-chain bridging                                                     | cross-chain                 |

This catalogue is an initial set. Coordination services — and the fee types attached to them — will expand as new peaqOS functions and machine patterns go live.

## 6. Trust Validation

While consensus validation operates purely as underlying infrastructure, trust validation serves as the sole public staking venue across the peaq network. The Machine Economy runs on real-world claims — whether a device actually delivered a service, earned revenue, or maintained uptime. Because standard block producers cannot verify physical reality, Trust Validators operate as a decentralized oracle network. They continuously collect machine data, verify cryptographic proofs of delivery, and attest machine state onchain — providing the ground truth for credit ratings, reward distributions, and network lifecycle decisions.

**The Machine Credit Score.** Trust Validators compute and attest a credit score for every machine, built on verifiable criteria — availability, service completion, and renewal consistency at launch, with the set expanding over time. The score is visible to operators, data consumers, and secondary market participants: the querying counterparty gets an answer backed by staked capital, not self-reported data.

**Staking mechanics.** Staking in Economics 2.0 mirrors delegated proof-of-stake, but functions as an active working position rather than passive yield. Delegators back validators based on attestation accuracy, directing capital toward reliable operators.

- **Multi-Currency Revenue:** Stakers earn proportionally from every network revenue stream — including PEAQ issuance plus transaction fees, USDT activation settlements, and unconverted foreign coordination fees (ETH, SOL).
- **Shared Accountability:** Confirmed misconduct triggers slashing exposure for both validators and delegators, with a standard 14-day unstaking period.
- **Active Governance:** Staked PEAQ carries voting weight over credit score criteria, slashing thresholds, and validator rules, while backing an independent dispute process for attestation challenges.

**Independence by construction.** Validators are compensated for attestation accuracy — through staking rewards from both flows — not for the scores they assign or the operators they favor. This structural separation keeps the credit score a reliable economic signal.

**Scaling with the network.** The minimum bond per Trust Validator scales with the number of active machines, on a schedule set by governance: each validator's bond rises as machines are added, but more slowly than the machine count itself. Because requirements are denominated in PEAQ, total validator-bonded supply grows with adoption independently of token price — a deeper economic bond as the network scales, not a narrowing validator set.

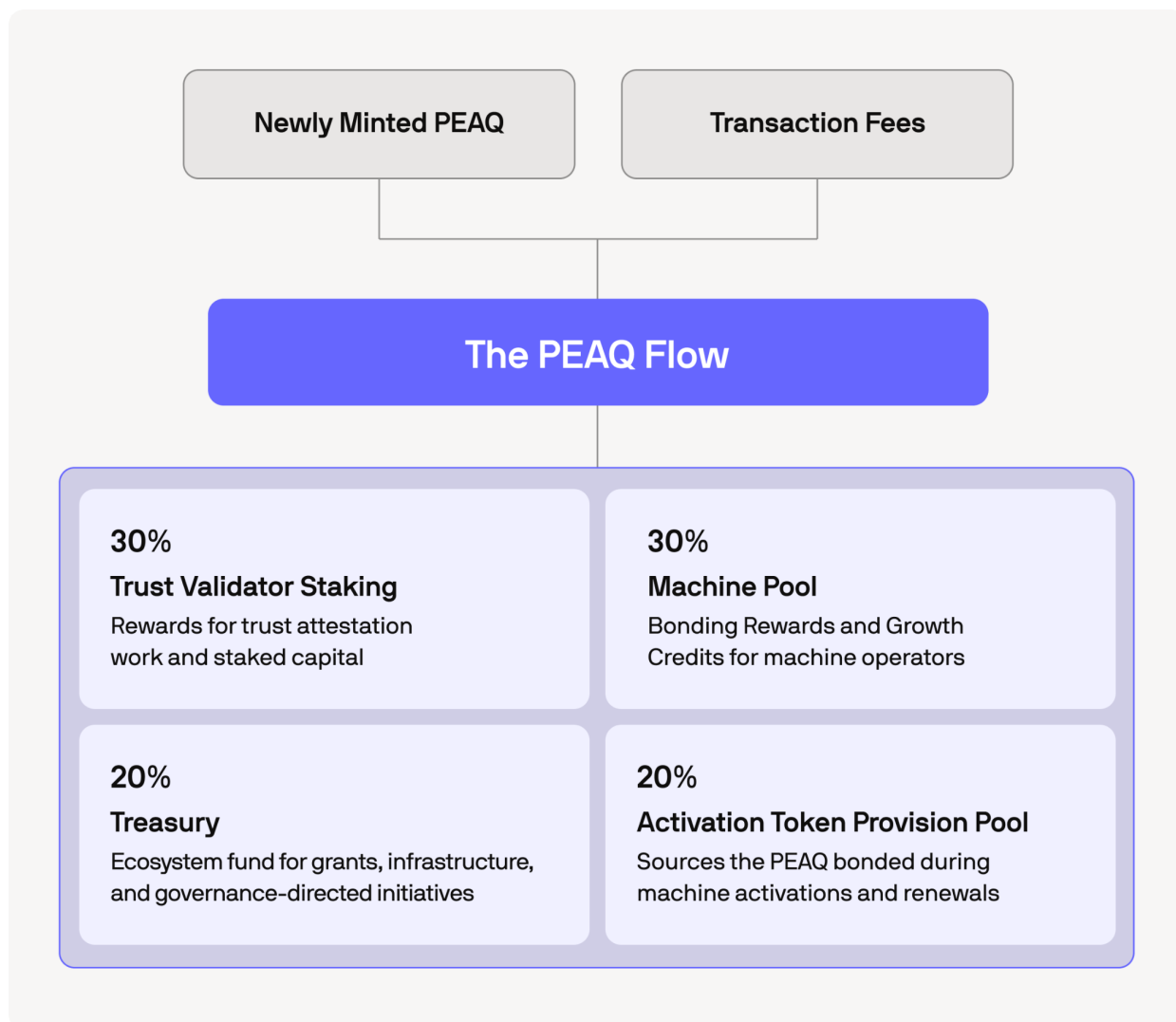
## 7. The Token Flow: Two Sources, Four Allocations

Economics 2.0 consolidates network revenue into a single distribution schedule fed by two distinct streams: the PEAQ Flow — comprising newly issued PEAQ and network transaction fees — and coordination fees, paid by machines in the native currencies of whichever chains they do business on.

The PEAQ flow and its actors

| Actors                          | Share | Purpose                                                                                                                                                            |
|---------------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Trust Validator staking         | 30%   | Rewards for trust attestation work and staked capital — the layer that makes the Machine Economy credible                                                          |
| Machine Pool                    | 30%   | Bonding Rewards and Growth Credits for machine operators (Section 8)                                                                                               |
| Treasury                        | 20%   | Ecosystem fund for grants, infrastructure, liquidity support, and governance-directed initiatives; managed by the peaq Foundation until onchain governance matures |
| Activation Token Provision Pool | 20%   | Sources the PEAQ bonded during machine activations and renewals (Section 3)                                                                                        |

The figure below traces one distribution period end to end — issuance and fees at the top, the four distributions at the bottom. In short: every unit of the PEAQ Flow ends up staked, bonded, or credited. None of it is sold.



*The PEAQ Flow: per-period distribution across the four actors.*

Distribution percentages are configuration parameters, adjustable by governance. In addition to the PEAQ Flow, Trust Validators and their delegators receive income from coordination fee revenue and from the USDT proceeds of activation settlements.

## Coordination Fee Revenue

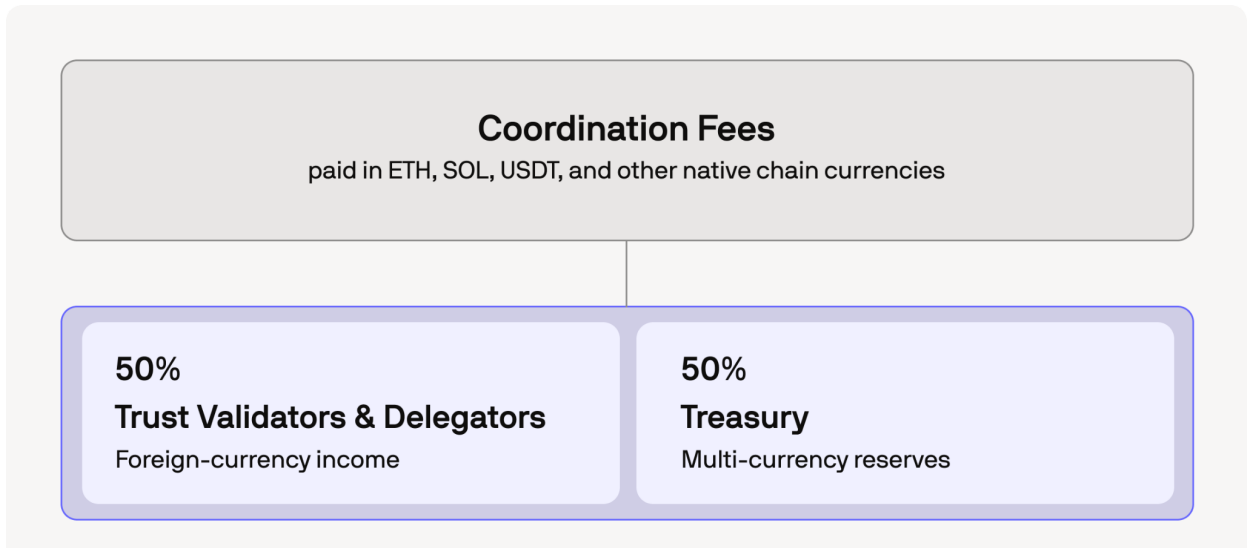
Coordination fees are collected in the native currencies of the chains where events occur — ETH, SOL, USDT, and the native assets of other connected chains — under one strict rule: foreign currencies are never converted. Each currency is distributed in the denomination in which it was collected, remaining on the chain where it was earned.

**Why foreign assets stay foreign.** The no-conversion rule is what keeps the Machine Economy neutral. The moment fee revenue was swapped back into PEAQ, every coordination event would pull value out of the ecosystem where the machine does business and force it through a PEAQ purchase — the network would be draining the very economies its machines live in. Left unconverted, the fees make peaq a participant in those economies rather than a

drain on them: value earned on Solana stays in SOL, value earned in stablecoins stays in stablecoins, and the network's revenue grows with its machines' business instead of at its expense.

**The accepted currencies are governed, not fixed.** Which currencies and tokens the network accepts for coordination fees is decided by the Trust Validators, who vote new currencies onto the accepted list — and keep voting them in as machines expand into new chains and new applications. As the Machine Economy expands, so does the list of currencies validators earn in.

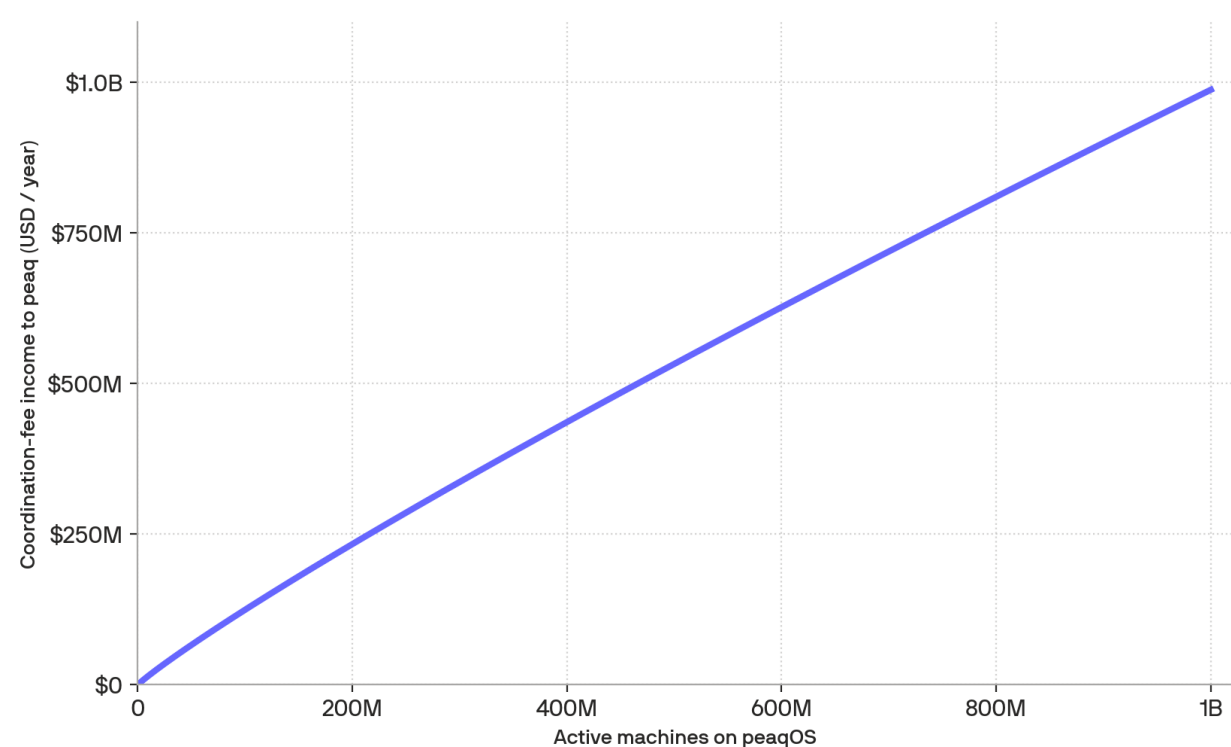
And the second flow, in one picture: coordination fee income arrives in many currencies and leaves in the same currencies — half to the Treasury, half to the Trust Validator staking pool, never converted.



*Coordination fee revenue: collected in foreign currencies, distributed unconverted.*

At each settlement this revenue splits 50/50: half to the Treasury, half to the Trust Validator staking pool, pooled network-wide and distributed proportionally to total stake. Machine operators do not receive foreign-currency distributions — their participation flows exclusively through the Machine Pool’s PEAQ-denominated credits. The separation is deliberate: the parties securing the network earn external revenue; the parties operating machines earn reduced costs and subsidized growth.

Projected coordination-fee income — Treasury share (50%)



*Demonstrates how per-event coordination revenue scales as active machines on PeaqOS approach 1 billion.*

*Illustrative only — not a forecast. Actual revenue depends on adoption, fee rates, tier mix, and machine activity.*

Coordination fees transform high-volume machine activity into a predictable, adoption-driven revenue stream. Because fees are set at basis-point levels in USD, individual operators incur negligible friction per transaction, while the aggregate network generates substantial protocol revenue as fleet adoption compounds across ecosystems.

## 8. The Machine Pool: The Growth Engine

The Machine Pool receives 30% of the PEAQ Flow (Section 7) and directs all of it toward the machine operator ecosystem — the network’s primary growth engine, split between two instruments that reward different dimensions of operator behavior.

| Instrument      | Based on                                                                  | Rewards                             |
|-----------------|---------------------------------------------------------------------------|-------------------------------------|
| Bonding Rewards | Accumulated tier points (Entry 1 / Basic 2 / Pro 5 per activation period) | Long-term commitment and tier depth |
| Growth Credits  | Service revenue generated by the operator's fleet                         | Active economic output              |

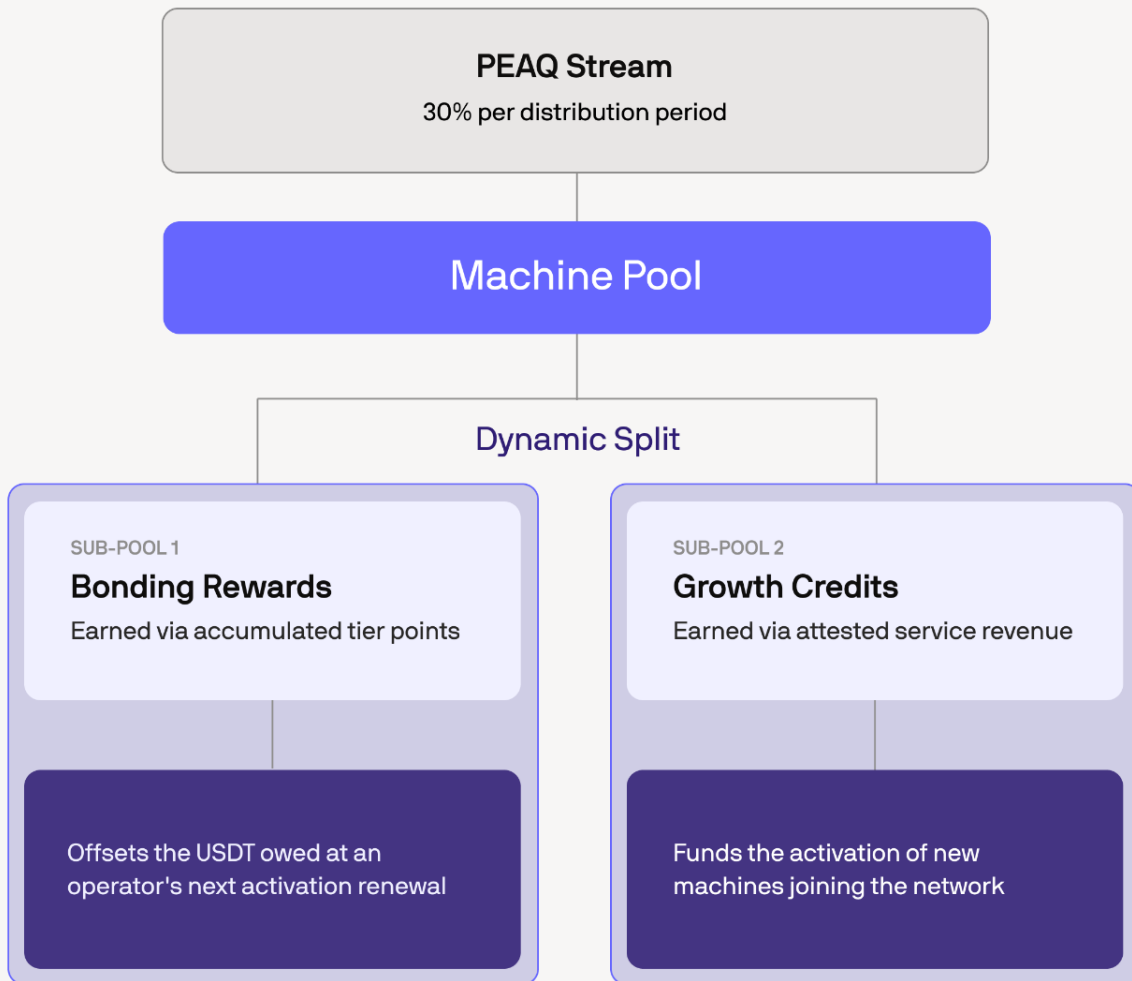
**Bonding Rewards.** Each machine earns tier points at every renewal, accumulating over its lifetime; each period, operators receive Bonding Rewards in proportion to their fleet's accumulated points relative to the network total. Bonding Rewards are credits against renewal costs — nothing else. They are not withdrawable, are forfeited if a machine enters runoff, and are capped at roughly three times a machine's annual renewal cost. An operator whose rewards fully cover a renewal pays nothing out of pocket — and each renewal still bonds additional PEAQ, deepening the machine's Economic Weight. Points reflect tier level, not price, so two operators with the same tier mix and renewal history always earn equal shares, regardless of token price at activation.

**Growth Credits.** Credits fund growth expansion: each period, operators receive allocations in proportion to the service revenue their fleets generate. Growth credits are bondable-only PEAQ — usable for exactly one thing, bonding to a new Machine ID at activation. They cannot be sold, transferred, or withdrawn; unused balances carry forward, subject to a governance-defined cap. For a productive fleet the effect compounds: credits fully fund new activations, enabling fleet expansion at zero cash cost, driven entirely by commercial activity.

#### The Flywheel

More qualified machines → more service revenue → larger Growth Credit pool → more machines activated at no cost → more qualified machines.

**The dynamic split.** The pool's allocation between the two instruments is recalculated automatically onchain. At genesis, roughly two-thirds flows to Growth Credits — the network subsidizes growth aggressively when growth matters most. As the machine base scales, the balance shifts toward Bonding Rewards, increasingly rewarding the loyalty of long-running operators, with a permanent Growth Credit floor ensuring onboarding incentives persist at any scale. Early networks need machines; mature networks need commitment. The pool funds each phase with the instrument it needs.



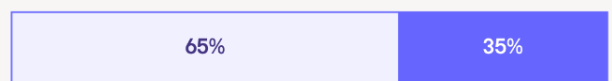
Both credit types are locked-purpose and non-transferable — never liquid, tradable tokens.

## The split is dynamic, not fixed

As the network scales, the pool shifts weight from growth credits toward rewards — growth credits never fall below a 10% floor.

- 1 Split begins at roughly 65% growth credits / 35% rewards at genesis and shifts toward rewards as the network scales.
- 2 Crossover to a 50/50 split occurs at roughly 3.75M active machines.
- 3 Growth credits never drop below a 10% floor, regardless of network scale.

GENESIS · 0 MACHINES



Growth Credits

Rewards

CROSSOVER · ≈3.75M MACHINES



Growth Credits

Rewards

LONG-RUN FLOOR



Growth Credits (floor)

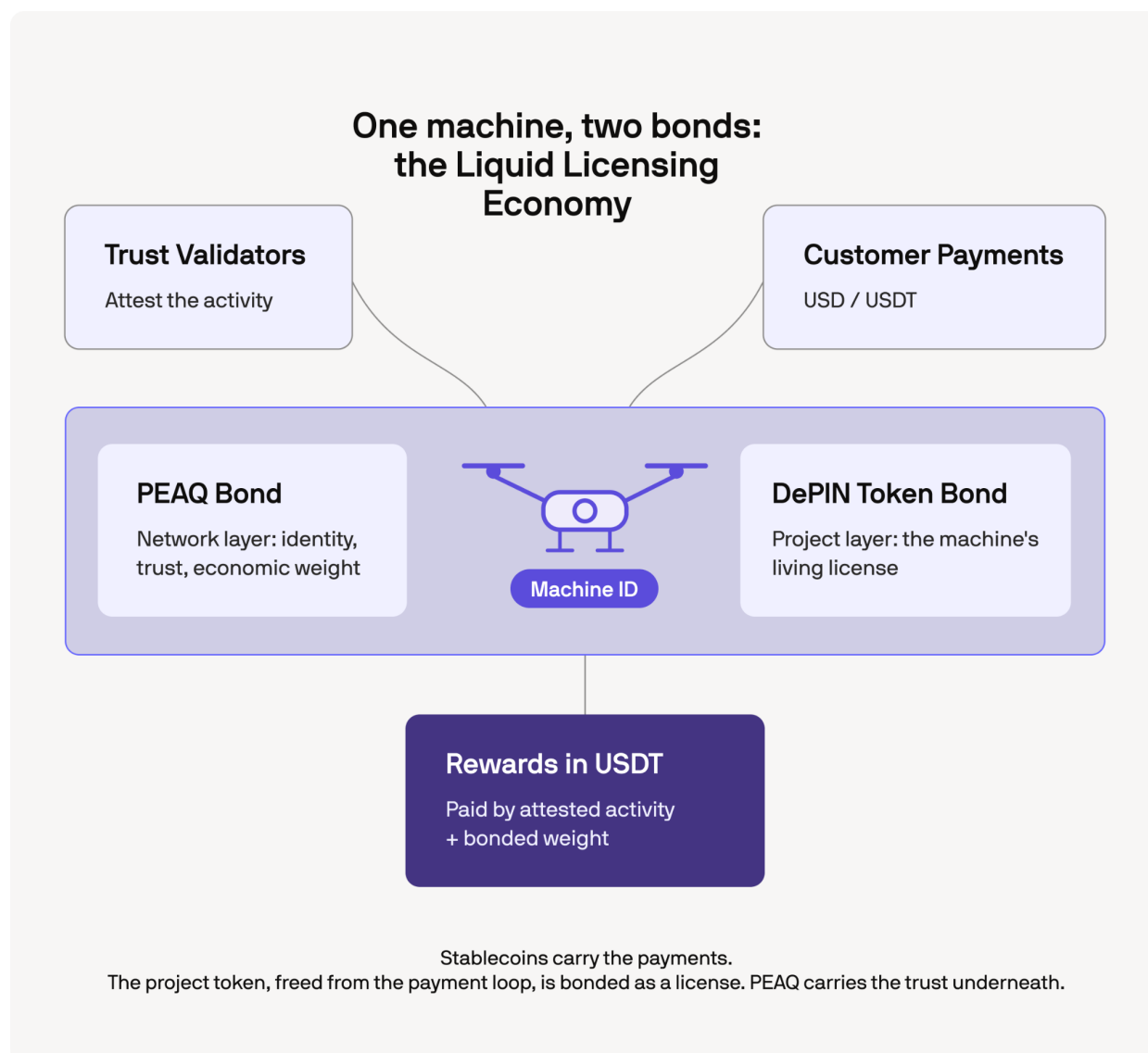
Rewards

## 9. Bonding on a Scale: Same Model for DePINs, Manufacturers, and Web2

Everything described so far is the network layer: PEAQ as the unit of machine standing, with stablecoins rising as the currency of machine payments. The bonding model can generalize along exactly that split — and this is where the picture could get much bigger. The same primitive that anchors Economics 2.0 offers a blueprint any machine project could adopt at its own layer: what we call the Liquid Licensing Economy. It is a potential path, not part of the core network today — this section sketches where it could lead.

**DePINs: from payment tokens to licensing tokens.** The first generation of DePINs forced their token into the payment loop — users had to buy and spend it, exposing every customer to volatility and every project to structural sell pressure. The next generation inverts this. Revenue moves to stablecoins: data consumers, charge sessions, and compute buyers pay in USD or USDT, the currencies businesses actually plan in. The project token, freed from payments, becomes a licensing token instead — bonded to machines, not spent by customers. Bonded tokens act as a machine's living license, unlocking capabilities, subscriptions, and reward-pool participation, with a pricing oracle translating stable USD activation prices into the required token bond. Renewals bond new tokens; non-renewal burns half the bonded position and routes the other half to the project treasury. Token utility becomes sustainable precisely because it is decoupled from payments — demand grows with machines deployed, not with tokens forcibly circulated.

This is what lets a DePIN grow: demand for its token scales with machines deployed and licensed, not with tokens forced through checkouts — and the same machine can carry several licenses at once. A single sensor can be bonded into two networks on one Machine ID, earning stablecoin rewards from both, its activity attested once by Trust Validators and read by every project it serves. Dual usage multiplies the revenue per machine while each project's token stays locked underneath it.



*One machine, two bonds: PEAQ underneath as the network layer; the project's licensing token on top; customers pay in stablecoins, rewards flow by attested activity and bonded weight.*

**Manufacturers: machine tokens on the same blueprint.** Robotics manufacturers can launch their own tokens on the Liquid Licensing model: hardware manufacturing bootstrapped by the token launch, software subscriptions sold at stable USD prices, tokens bonded per machine as its active license, and an ecosystem reward pool paying bonded machines by their bonded economic weight — the same wealth logic, applied at the project layer. The manufacturer earns recurring software revenue that doesn't move with the token price, plus sustainable token demand; the machine owner earns lower long-term software costs and participation rewards; and the robot keeps charging its own customers in dollars. Licenses attach to the machine itself, not a wallet — secured, verified, and continuously attested through peaqOS.

**Web2, without a token at all.** Because pricing is USD-led and the Activation Token Provision Pool handles all token mechanics behind the scenes, a traditional manufacturer or fleet operator needs no token of its own — and never has to touch one. It pays USD-priced activations in stablecoins; the network sources and bonds the PEAQ; its machines gain

verifiable identity, credit scores, and Economic Weight. Web2 companies get the trust, licensing, and financing rails of the Machine Economy with zero crypto exposure on their balance sheet — and a clear upgrade path to their own licensing token later, if they ever want one.

One substrate underneath

Every project-level bonding economy — DePIN, manufacturer, or tokenless Web2 fleet — runs on the same substrate: peaqOS Machine IDs, Trust Validator attestation, and PEAQ bonded underneath as the network-layer currency of economic weight. The more bonding economies launch on top, the deeper the demand for the trust underneath.

## 10. Economic Value Accrual and Supply

All value captured across Economics 2.0 lands in three core economic destinations: permanently bonded to machines, staked behind Trust Validators, or credited back to expanding fleets. By design, token flow functions strictly as committed capital or active infrastructure rather than liquid circulating supply.

PEAQ performs four core jobs in this system:

- **Bonding unit:** PEAQ is committed permanently to Machine IDs, forming the basis of Economic Weight.
- **Staking collateral:** Trust Validators and their delegators stake PEAQ to secure trust validation, earning from every revenue stream the network collects — PEAQ and foreign currencies alike.
- **Governance instrument:** Staked PEAQ carries voting weight over network rules, including credit score criteria, slashing parameters, validator requirements, and the accepted-currency list.
- **Settlement asset:** Activations and renewals settle through oracle-stamped USD conversions, with the resulting PEAQ permanently bonded.

In each role, the token serves as committed capital or working infrastructure. None of these functions require PEAQ to act as a circulating payment currency, nor do they generate protocol sell pressure.

**For PEAQ token holders.** Demand is tied to machines, not markets: every activation, renewal, and validator bond converts PEAQ into committed capital, a channel that deepens as adoption compounds. The supply architecture tightens with adoption — supply absorption through bonding, runoff burns, reward recycling, and scaling validator bonds all pull in the same direction. The network never sells PEAQ for operations; rewards are staked, bonded, or credited, and coordination revenue arrives in external currencies distributed as-is. And there is one clear venue for participation: delegating to Trust Validators — earning in both flows, PEAQ and dollars.

**For Trust Validators and their delegators.** The single staking position earns in every currency the network collects: 30% of the PEAQ Flow and 50% of coordination fee revenue — the latter in liquid, widely held external currencies, unconverted — plus half the USDT proceeds of activation settlements. Because fees are USD-priced and renewal cycles predictable, validators can project settlement income directly from the machine count under attestation, and every machine a validator helps onboard increases its recurring revenue. As with machines, a validator's economic weight — its bonded and delegated position — determines its share of rewards and its role in trust governance.

## Supply dynamics

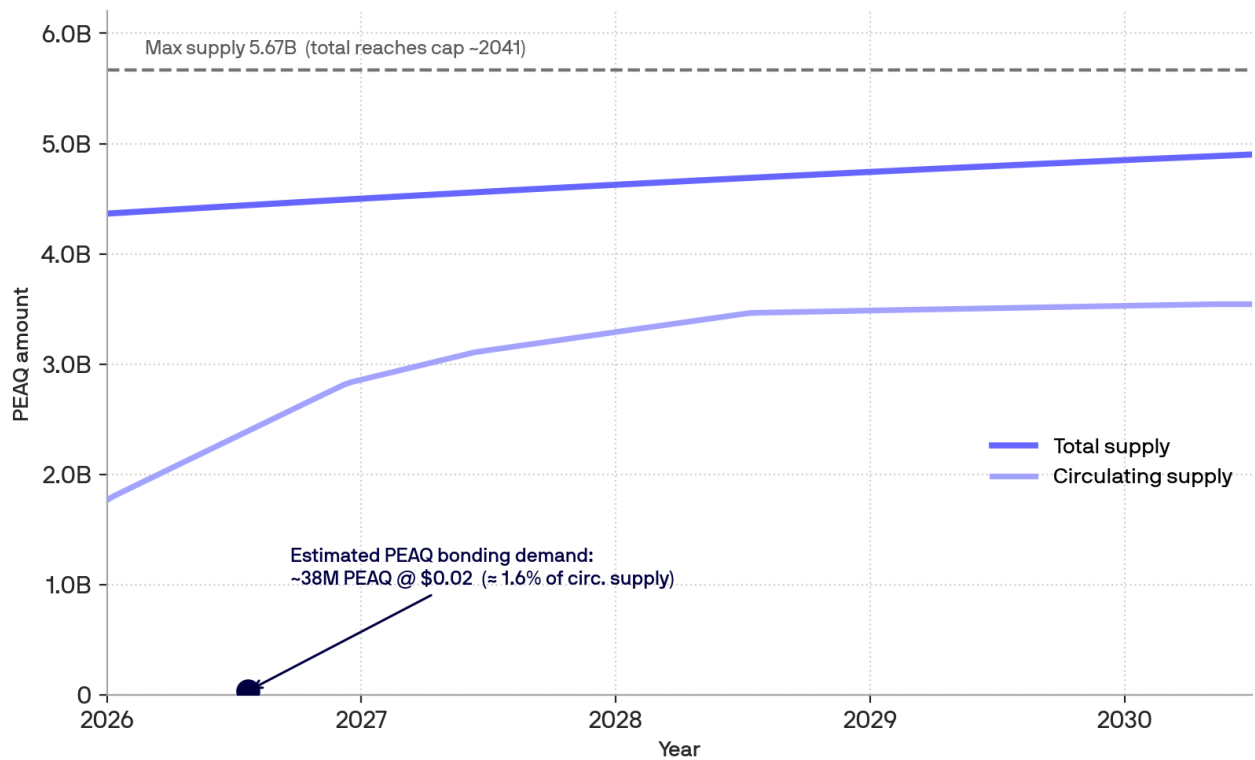
PEAQ follows a disinflationary issuance schedule anchored by a hard cap. Genesis supply is 4.2 billion tokens; annual issuance begins at 3.5% and decreases by 10% each year until stabilizing at a 1% floor, with total supply capped at approximately 5.67 billion PEAQ. The 1% floor funds trust validation, machine growth credits, and the Treasury until the cap is reached — designed so that real network revenue progressively replaces issuance as the dominant incentive source.

That schedule is one side of the supply equation: how PEAQ enters circulation. The other side is what Economics 2.0 changes — how PEAQ leaves it. Every activation bonds tokens, every validator locks them, and both scale with machine adoption.

The three charts below put numbers on this: what today's machines would already absorb; where bonding demand goes as the fleet grows; and how trust validation deepens alongside it. Together they demonstrate one claim: locked supply is designed to grow faster than issuance.

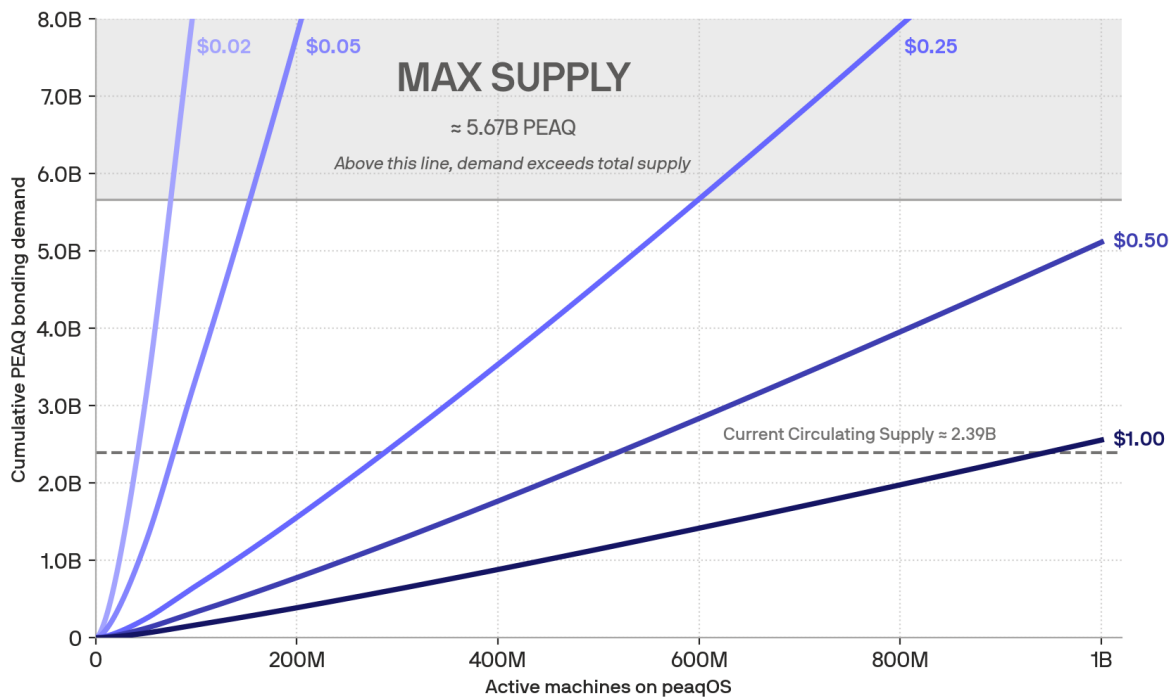
At today's 3.3M machine base, bonding demand alone — approximately 38M PEAQ at the reference rate used throughout this section (\$0.02) — equals roughly 1.6% of circulating supply. At a lower price, the same activations absorb proportionally more.

*Illustrative only. None of these charts is a forecast.  
Actual bonding and income depend on adoption, tier mix, and market conditions.*



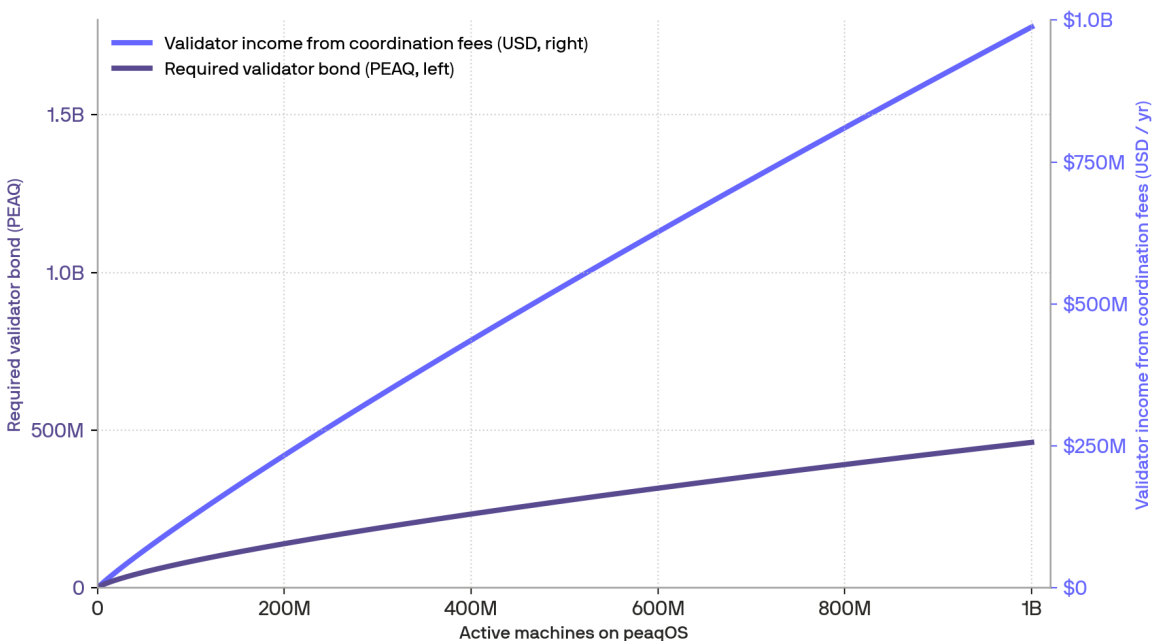
*Supply schedule vs. bonding demand from today's machine base*

Because activation prices are fixed in dollars, the token price sets how much PEAQ each machine locks — the lower the price, the deeper the bond. Bonding demand strengthens exactly when markets weaken, by construction.



Bonding demand by token-price scenario vs. max supply

Minimum bonds scale with machine count, and validator income scales with machine activity — locked stake and earnings deepen together.



Required validator bond (left, in PEAQ) and projected annual validator income (right, in USD) as the machine base grows.

Four supply-side forces act directly on circulating supply as adoption compounds: absorption permanently removes PEAQ with every activation (deepening at zero cost when funded by Growth Credits); the runoff burn destroys half of an exiting machine's remaining bond; reward recycling restricts Bonding Rewards to renewal offsets rather than liquid emissions; and scaling validator bonds force minimum stake requirements to grow alongside machine count.

Together, these mechanics ensure locked capital grows faster than network issuance — the more machines join, the stronger the net supply sink.

## 11. Governance: Steering the Economics

The governance matures in phases: structured community input with Foundation safeguards initially; onchain proposals, an elected Council, and a Technical Committee in the midterm; fully open onchain governance long-term. Flow splits, tier prices, fee rates, lifecycle windows, credit score criteria, and validator requirements are governance-adjustable parameters — the numbers in this paper are a starting configuration, not a settlement.

## 12. The Transition: Migrating Stakers, Validators, and 3.3 Million Machines

Any upgrade comes down to a practical question: what happens to the participants already here?

Delegation shifts cleanly into Trust Validation—the network's sole public staking venue under Economics 2.0. Instead of securing block production, staked PEAQ now backs machine trust, earning staking rewards from every source the network collects: the PEAQ Flow, coordination fee revenue in the currencies machines pay in, and the USD proceeds of activation settlements. Core delegator rights remain unchanged: holders choose which operators to back, earn proportional rewards, and unstaking remains available with a 14-day unstaking period.

Existing chain validators have a clear path into the new architecture. Eligible validators will migrate into Trust Validation — taking on validation work and earning across all of the network's income flows. In parallel, a selection of validators will be appointed to the permissioned chain validation set, continuing to secure consensus as operational infrastructure. Full guidelines and eligibility will be published alongside transition docs.

The roughly 3.3 million Machine IDs already on peaq are carried into the bonding model — identities, histories, and standing preserved — so the system launches with an installed base of bonded machines from day one.

The migration will be managed in phases, with current and new systems running in parallel for a defined window. Full guidelines, eligibility criteria, timelines, and a dedicated Q&A will be published ahead of the switchover.

## Rollout: A New System, Already Running

The 2026 demonstrations show two things: the system operates, and the machine is free — in what it sells, where it runs, how it pays.

LG CLOi robots sell skills as onchain services, paid per use in the buyer's own money ([view post](#)). Machines source decentralized compute through Akash ([view post](#)), and Arcium brings confidential computation to machine data ([view post](#)). Virtuals pairs AI agents with physical machines as one economic actor ([view post](#)), while peaqOS Stream distributes and monetizes machine data peer-to-peer ([view post](#)).

Behind these showcases sits the installed base: more than 3.3 million machines, robots, devices, vehicles, and agents with verified identities. Over 60 applications across energy, mobility, connectivity, spatial intelligence, and AI. More than 200 million transactions processed. And a validator base with institutional breadth — Bertelsmann Investments, Deutsche Telekom, Lufthansa Innovation Hub, and the Technical University of Munich among them.

These demonstrations are peaqOS at work. Economics 2.0 is what makes the patterns pay.

## 13. Economics 2.0 at Work

Four snapshots of the model in operation, each drawn from patterns already live on peaq. The applications run on many chains; the machine, its identity, and its standing live on peaq — and travel with it.

### The robot manufacturer

An industrial robotics company finances fleet deployment through tokenization: each robot activates at the Pro tier, its Machine NFT fractionalized at manufacture, capital raised from distributed owners. As the fleet operates, Trust Validators attest its revenue; Bonding Rewards cover fleet renewals and the Growth Credit balance funds new activations at zero cash cost. For the most ambitious operators, becoming a Trust Validator adds a second income path: earning from the whole network, not just their own machines. Note the geography. The fractional-ownership application runs on Base. The robots sell their skills to buyers on Solana. The compute comes from Akash. One machine, three ecosystems — with its Machine ID and Economic Weight anchored on peaq, travelling with it.

### The DePIN: a drone-charging network

A decentralized infrastructure network deploys autonomous charging pads on rooftops, depots, and cell towers, where delivery and inspection drones land, recharge, and lift off — paying per session in stablecoins. Each pad is a Machine ID at Basic tier; each drone joins at Entry. Every charge session is a coordination event: the drone's agent negotiates the price, the pad delivers

the energy, and Trust Validators attest the delivery. Bonding Rewards follow the fleet's accumulated tier points, while Growth Credits grow with session revenue — so the busiest air corridors fund the next pads at zero cash cost. A pad that submits fraudulent session data goes into runoff: rewards forfeited, bonded position decaying daily. Drone operators pick pads by Machine Credit Score without auditing a single station — and the DePIN's customers never touch a token: they pay in stables, while the pads' Economic Weight does the trust work underneath. The chains split the same way: the charging network's application is built on Base, the drones' agents settle sessions in USDC on Solana, and the pads themselves — identity, weight, credit score — live on Peaq and travel wherever the business goes.

## The equipment lessor

A robotics leasing company finances industrial robots on fixed-term contracts. The bond attaches to the Machine ID, not the lessor's account — so when a lease ends and a robot is sold, its Economic Weight, event history, and trust standing transfer with it. A machine with years of verified service history commands a premium in secondary markets: the buyer acquires established credit, cleared trust validation, and onchain provenance that traditional equipment markets simply do not have. And because the Machine ID is chain-agnostic, the resale can happen on a marketplace on any connected chain — the machine's history travels to wherever its next buyer is.

## The end user

Someone rents an electric vehicle for a cross-city trip and charges it mid-journey at an independent station. Two Machine IDs — the vehicle's and the charger's — each earn service revenue from the coordination event; Trust Validators attest the delivery; rewards accrue to both machines in the background. The renter sees a completed charge and a settled fee. The consumer completes the transaction seamlessly, without creating a wallet, managing tokens, or interacting directly with underlying chain infrastructure. The economics work precisely because nobody has to think about them.

# 14. Set the Machines Free

The Purple Paper established the foundation: in a Machine Economy that runs across many chains, the scarce resource is not blockspace — it is neutral, verifiable coordination. Economics 2.0 turns that into token architecture — and the architecture comes down to one mechanism.

Every machine that joins creates demand the network can already count. Activation bonds PEAQ to the machine; every renewal adds to it. If the operator pays in stablecoins, PEAQ is bought at settlement. If they bond directly, PEAQ leaves circulation. Either way, the moment a machine activates, everyone can already see what follows: tokens bought over the years ahead, or tokens taken out of supply. Multiply that by millions of machines, and the point of Economics 2.0 is simple — machine adoption is token demand, visible before it happens.

peaq began by giving machines identity. Economics 2.0 gives every DePAI, DePIN, manufacturer, and traditional company an economy to build on, while the machines settle in the money they choose — increasingly stablecoins. This is Robot Money at full scale: stablecoins carry the money, PEAQ carries the trust, and this is the architecture it runs on.

## Glossary

**Bonding** — PEAQ committed permanently to a Machine ID; never returned, it stays with the machine or decays through burn and Treasury allocation on exit.

**Economic Weight** — The normalized commitment score attached to a Machine ID, derived from its bonded position; earns prioritization, access, and trust standing.

**Trust Validator** — A staked operator in the decentralized network that verifies machines and attests real-world machine state onchain; the only place in the peaq ecosystem where PEAQ can be staked.

**Trust Delegator** — A PEAQ holder who delegates stake to a Trust Validator, sharing rewards and slashing exposure proportionally.

**PEAQ Flow** — Newly issued PEAQ and network transaction fees, split 30/30/20/20 across Trust Validator staking, the Machine Pool, the Treasury, and the Activation Token Provision Pool.

**Coordination Fee Revenue** — Coordination fees collected in the native currencies of connected chains, distributed unconverted, 50/50, to the Treasury and Trust Validator staking.

**Machine Pool** — The growth engine receiving 30% of the PEAQ Flow, distributed as Bonding Rewards and Growth Credits.

**Bonding Rewards** — Non-transferable credits earned by accumulated tier points; usable against renewal costs only, capped at roughly three times a machine's annual renewal cost.

**Growth Credits** — Bondable-only PEAQ earned in proportion to fleet service revenue; usable for new machine activations only.

**Activation Token Provision Pool** — The settlement pool, funded by 20% of the PEAQ Flow, that sources the PEAQ bonded when operators pay activations and renewals in USDT.

**Machine Credit Score** — The verified trust score of a machine, computed and attested by Trust Validators from criteria such as availability, service completion, and renewal consistency.

**Grace window / Runoff** — The 14-day period after a lapsed activation in which a machine can return to full status by renewing; followed, if unrenewed, by a 14-day runoff in which the bonded position decays — 50% burned, 50% to the Treasury.

**Liquid Licensing Economy (LLE)** — the project-layer version of the bonding model (machine.fun). A project's own token bonds to its machines as their active license, priced in stable USD by an oracle, while revenue flows in stablecoins. Non-renewal burns half the bond and routes the other half to the project treasury.

**DePIN** — Decentralized Physical Infrastructure Network: a project whose machines — sensors, hotspots, mappers, chargers — are deployed and operated by a distributed community rather than one company, coordinated and rewarded through a token.

**DePAI** — Decentralized Physical AI: decentralized networks of robots and AI agents operating in the physical world.

*This paper describes the target design of peaq Economics 2.0. Specific parameters, rates, and settings are reference values subject to adjustment in the best interest of the network. Nothing in this paper constitutes financial advice or a promise of returns; Bonding Rewards and Growth Credits are non-transferable network credits, not yield instruments. Bonded PEAQ serves solely to establish Economic Weight, a non-transferable commitment score attached to a Machine ID; it is not a deposit, an investment, or a claim to returns.*