Constitution Article: Metabolic Underwriting Protocol (MUP)

§1. Purpose and Non-Discretion

1. **Purpose.** The Metabolic Underwriting Protocol (MUP) exists to provide a uniform, non-purchasable, non-discretionary execution allowance ("Metabolic Allowance") so that lawful participation does not depend on wealth, sponsorship, or operator preference.
2. **Non-discretion.** No person, operator, company, or signer may selectively grant, deny, accelerate, or throttle the Metabolic Allowance to any eligible participant except as explicitly permitted by this Article.

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§2. Definitions

1. **Epoch.** A fixed, publicly defined time interval used for issuance and accounting.
2. **Citizenship Capability (CC).** A privacy-preserving, non-transferable authorization credential proving eligibility to participate under the Constitution without revealing a personal dossier.
3. **Metabolic Allowance (MA).** A per-epoch budget denominated in protocol "fuel units" used to underwrite the costs of lawful acts.
4. **Lawful Act.** An action permitted by the Constitution and validated by the HCS-01 grammar (and any required proofs/warrants).
5. **Treasury Vault (TV).** A transparent, multi-signature-controlled reserve responsible for underwriting eligible costs.
6. **Checkpoint.** A periodic commitment (hash) of Helix state anchored to an external notary chain (e.g., Bitcoin) for timestamping/finality signaling.

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§3. Allowance Attaches to Citizenship Capability, Not Nodes

1. **Attachment.** The Metabolic Allowance attaches **only** to a valid Citizenship Capability (CC), not to hardware, IP addresses, "nodes," or accounts.
2. **Non-transferability.** A CC and its associated MA are **non-transferable and non-assignable**. Selling, leasing, pooling, or delegating MA is forbidden unless explicitly permitted as a narrowly scoped, revocable delegation under a separate constitutional article.
3. **Equal baseline.** Each valid CC receives the same baseline allowance per epoch, subject only to proportional degradation defined in §7.

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§4. Deterministic Issuance

1. **Automatic issuance.** At the start of each epoch, MA issuance is executed deterministically:
2. If `CC.valid == true` at epoch boundary, then `MA = BaseAllowance × DegradationFactor`.
3. If `CC.valid == false`, then `MA = 0`.
4. **No operator gating.** No operator or signer may delay or accelerate issuance for any individual CC.
5. **Public parameters.** BaseAllowance, epoch length, and issuance formula are public, versioned, and enforceable by conformance tests.

§5. Anti-Sybil Admission That Is Not "Just PoW"

1. **Principle.** Admission must prevent identity commodification **without requiring dossiers** and **without reducing eligibility to pure spend**.
2. **Two-key requirement.** A CC may be issued only when both conditions hold:
3. **(A) Cost Throttle (PoW as throttle, not identity):** Applicant completes a local proof-of-work that functions only as a *rate limiter* against mass automation (difficulty may adapt globally, but is uniform).
4. **(B) Uniqueness Gate (non-PoW):** Applicant satisfies a privacy-preserving uniqueness gate that is not reducible to compute or money. The protocol must implement at least one of the following (or an equivalent mechanism) as a constitutional requirement: 1) **Vouch-with-Slashing:** A bounded set of existing CC holders may vouch for issuance; vouches are limited per epoch, and fraudulent/sybil vouching is punishable by deterministic slashing of the voucher's future allowance and/or credential suspension after due process; **or** 2) **Randomized Challenge Windows:** Newly issued CCs enter a public challenge period where evidence of sybil linkage can be submitted in a defined format; sustained challenges trigger a formal review and potential revocation; **or** 3) **Privacy-Preserving Proof-of-Personhood:** If adopted, it must be optional, minimal-disclosure, and not require persistent identity dossiers.
5. **Uniformity.** The Uniqueness Gate must apply uniformly to all applicants; no privileged classes.
6. **Due process.** Denial or revocation of a CC requires a written reason code, evidence format compliance, and an appeal path under the Judiciary Article.

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§6. Treasury Vault Governance and Signer Rotation

1. **Multi-signature threshold.** TV must require a threshold signature (e.g., M-of-N) with N sufficiently large to prevent unilateral control.
2. **Deterministic triggers.** Treasury disbursement for underwriting lawful acts is triggered **only** by deterministic validation rules (HCS-01 compliance + any required proofs). No discretionary "approval."
3. **Transparency.** Vault balances, disbursement totals per epoch, and parameter changes are publicly auditable without revealing citizen dossiers.
4. **Signer rotation.**
5. **Term limits:** Signers serve fixed terms with mandatory rotation.
6. **Selection:** New signers are selected from a publicly certified pool via a predefined, non-discretionary process (e.g., randomized selection weighted by conformance reputation, with caps to prevent capture).
7. **Cooling-off:** A former signer must observe a cooling-off period before re-eligibility.
8. **Emergency replacement:** Replacement requires the same constitutional threshold and must be accompanied by a public reason code and audit trail.
9. **Anti-capture rule.** No single entity (or controlled affiliates) may occupy more than a fixed fraction of signer seats.

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§7. Proportional Degradation (No Selective Exclusion)

1. **Degradation factor.** If TV reserves fall below a published target reserve, the protocol applies a **uniform proportional scaling** to all MA:
2. `DegradationFactor = clamp( TV.balance / TargetReserve, MinFactor, 1.0 )`
3. **No per-citizen throttling.** Degradation must be applied **equally** to all valid CCs. Selective throttling is forbidden.
4. **Priority classes forbidden.** The protocol may not create "premium lanes" purchasable by sats, fees, or sponsorship.
5. **Quiescence boundary.** If reserves fall below a critical floor:
6. **(A)** issuance of *new* CCs pauses (to prevent treasury drain),
7. **(B)** existing CCs continue at `MinFactor` if feasible,
8. **(C)** if `MinFactor` cannot be honored, the protocol enters **Sovereign Quiescence** for *underwritten disbursements*, while preserving local lawful operation as defined in §8.

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§8. Checkpoint-Only Anchoring Mode

1. **Default posture.** Helix may operate with internal lawful validation independent of external chains.
2. **Checkpointing.** Anchoring to Bitcoin (or any external notary) occurs only through **periodic checkpoints** that commit the internal state hash and epoch metadata.
3. **No per-act dependency.** The validity of lawful acts **must not** require per-act Bitcoin settlement. Anchoring is for timestamp/finality signaling, not runtime permission.
4. **External disruption tolerance.** If external anchoring is delayed (fee spikes, congestion, partitions):
5. lawful internal operation continues,
6. checkpoints are queued,
7. the next successful anchor commits the latest valid checkpoint plus a hash chain of missed checkpoints.
8. **Audit continuity.** All checkpoints must be verifiable as a continuous chain; missing anchors may not be used to selectively invalidate lawful internal history.

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§9. Amendments and Entrenchment

1. **Amendment threshold.** Any change to this Article requires:
2. a supermajority governance threshold,
3. a public notice period,
4. and a mandatory cooldown before activation.
5. **Entrenched clauses (hard to change).** The following are entrenched and require an even higher threshold plus two-epoch delay:
6. non-transferability of CC/MA (§3),
7. non-discretionary issuance (§4),
8. non-PoW uniqueness requirement (§5),
9. proportional degradation and no selective exclusion (§7),
10. checkpoint-only anchoring mode (§8),
11. signer rotation and anti-capture constraints (§6).

12. **No emergency amendments.** “Emergency” may trigger operational modes defined here (degradation/checkpointing/quiescence), but may not be used to bypass amendment procedures.

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§10. Conformance and Enforcement

1. **Conformance tests.** Implementations must pass a public conformance suite proving:
2. MA issuance determinism,
3. uniform degradation,
4. non-transferability enforcement,
5. checkpoint-only anchoring correctness,
6. signer rotation rules.
7. **Fail-closed.** If underwriting verification cannot be established, the system must fail closed (no disbursement), while preserving local lawful validation wherever possible.
8. **Remedies.** Violations of non-discretion, selective throttling, or privileged lanes trigger mandatory incident disclosure and constitutional remedies under the Judiciary Article.