Legitimate Intervention Framework (LIF) — Technical Extension

Emergency Council Power Scope

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Contents

Technical Extension to the Legitimate Intervention Framework (LIF)

This document provides a technically grounded approach to defining the scope and limits of an Emergency Council for GnosisDAO. It addresses the core question: what powers should such a body have, and equally importantly, what powers should it explicitly *not* have?

This is **Gnosis-specific** guidance, intended as a reusable template for other chains.

0.1 Executive Summary

The core proposal remains unchanged: a **scoped intervention body** (the “Emergency Council”) with predefined, narrowly bounded powers that **expire unless ratified** by the DAO.

This extension clarifies:

1. What powers are proposed (and what are explicitly excluded)
2. What intervention surfaces already exist on Gnosis Chain (Bridge Governance Board, validator coordination)
3. What the execution-layer spec implies about native chain-level capabilities
4. Concrete technical implementation paths (Safe Guards, protocol-level adoption)

Key Claim: The Emergency Council is not a “super-admin” for Gnosis Chain. It is a *scoped responder* operating within a pre-approved action registry.

0.2 Part 1: Emergency Council Power Scope

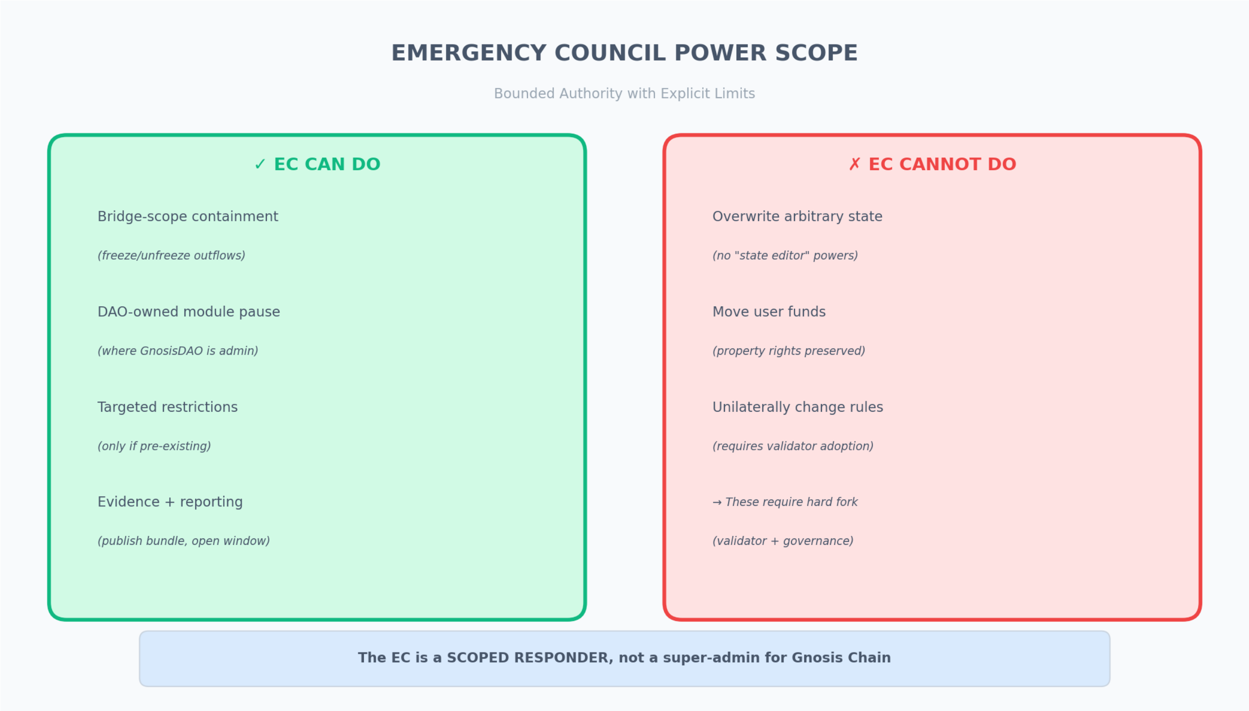

EMERGENCY COUNCIL POWER SCOPE
Bounded Authority with Explicit Limits
✓ EC CAN DO
Bridge-scope containment
(freeze/unfreeze outflows)
DAO-owned module pause
(where GnosisDAO is admin)
Targeted restrictions
(only if pre-existing)
Evidence + reporting
(publish bundle, open window)
✗ EC CANNOT DO
Overwrite arbitrary state
(no "state editor" powers)
Move user funds
(property rights preserved)
Unilaterally change rules
(requires validator adoption)
→ These require hard fork
(validator + governance)
The EC is a SCOPED RESPONDER, not a super-admin for Gnosis Chain

Figure 1: Emergency Council power scope defines what the EC can and cannot do.

0.2.1 1.1 Proposed Powers (Bounded)

The Emergency Council (EC) should be able to execute **only pre-approved, narrowly defined emergency actions** that:

- Reduce ongoing harm (stop further extraction / laundering / bridging)
- Minimise blast radius (prefer targeted controls over broad halts)
- Expire by default (sunset unless explicitly extended/ratified)
- Leave an onchain audit trail

0.2.1.1 Acceptable EC Capabilities

Scope	Capability	Precedent
Bridge-scope	Trigger pre-approved bridge outflow freezes	Bridge Governance Board (Nov 3, 2025)

Scope	Capability	Precedent
Protocol-scope	Pause specific DAO-controlled modules (where GnosisDAO is admin)	DAO-owned infrastructure contracts
Account-scope	Initiate targeted transaction restriction (only if pre-existing mechanism adopted)	Requires governance + client adoption
Evidence + Reporting	Publish incident hash/evidence bundle; open ratification window	Public transparency

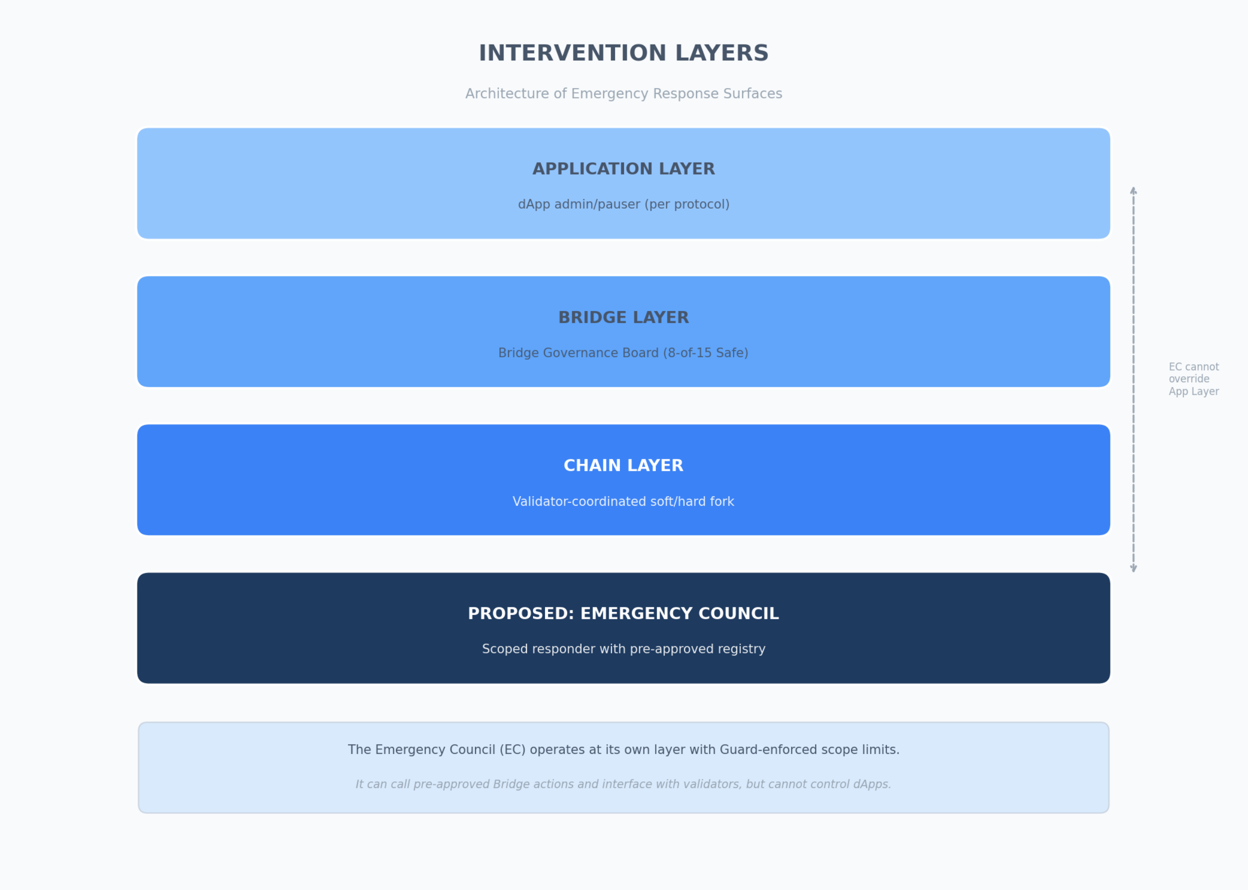
0.2.2 1.2 Explicit Non-Powers

The EC should **not** have the ability to:

Forbidden Action	Rationale
Arbitrarily overwrite chain state	No general “state editor” powers
Move user funds from arbitrary addresses	Property rights preserved
Unilaterally change protocol rules	Consensus/execution rules require validator adoption / fork

In other words: The EC is not a super-admin for Gnosis Chain. It is a *scoped responder*.

0.3 Part 2: Existing Intervention Surfaces on Gnosis Chain


INTERVENTION LAYERS
Architecture of Emergency Response Surfaces
APPLICATION LAYER
dApp admin/pauser (per protocol)
BRIDGE LAYER
Bridge Governance Board (8-of-15 Safe)
CHAIN LAYER
Validator-coordinated soft/hard fork
PROPOSED: EMERGENCY COUNCIL
Scoped responder with pre-approved registry
EC cannot
override
App Layer

The Emergency Council (EC) operates at its own layer with Guard-enforced scope limits.

It can call pre-approved Bridge actions and interface with validators, but cannot control dApps.

Figure 2: Intervention layers shows the architecture of emergency response surfaces on Gnosis Chain.

0.3.1 2.1 Bridge Governance Board (BGB)

Gnosis already has an existing governance body with real emergency capability at the bridge layer.

Property	Value
Mechanism	Gnosis Safe multisig
Threshold	8-of-15
Ethereum Safe	`eth:0x42F38ec5A75acCEc50054671233dfAC9C0E7A3F6`
Gnosis Chain Safe	`gno:0x7a48Dac683DA91e4faa5aB13D91AB5fd170875bd`
Powers	Upgrades, limits, bridge signer/validator set adjustments (bridge contracts), bridge parameter changes

Precedent (Nov 3, 2025): The BGB executed "Freeze outflow of major tokens on canonical bridges" following the Balancer V2 exploit. This is documented in the Bridge Governance Decisions.

Key Takeaway: Gnosis already uses a **scoped intervention body** at the bridge layer. The EC proposal is a formalisation and extension of this pattern.

0.3.2 2.2 Validator Coordination: Soft Fork and Hard Fork

Gnosis Chain demonstrated chain-level intervention via validator coordination during the Balancer incident:

Intervention	Description	Timing
Soft Fork	Targeted censorship of a single attacker address	Nov 2025
Hard Fork	Validator adoption of new binaries to implement recovery path	Dec 22, 2025

The hard fork recovered approximately $9.4 million in frozen funds. This was executed after public governance discussion and coordination on the Gnosis forum (see Balancer Hard Fork thread).

Key Takeaway: Chain-level interventions exist, but they are not “EC-controlled” in the same way a Safe is. They require **validator adoption** and are inherently higher-friction.

0.3.3 2.3 Application-Level Admin

Many “pauses” are implemented at the dApp layer via upgradeable contracts / admin roles:

- If GnosisDAO is not the admin, GnosisDAO cannot pause the dApp.
- Example: Balancer’s pool pause was executed by Balancer’s governance, not GnosisDAO.

0.4 Part 3: What the Execution-Layer Spec Implies

This section is a **negative capability check**: it confirms what Gnosis *does not* have by default at the protocol level.

0.4.1 3.1 Transaction Validity Path

Gnosis’ `execution-specs` repository (github.com/gnosischain/execution-specs) tracks execution-layer behaviour. A transaction becomes invalid for reasons like:

- Insufficient gas / intrinsic cost
- Nonce mismatch
- Insufficient balance
- Invalid signature
- Fee market constraints

There is no address blacklist / denylist / admin override in the execution-layer spec. The checks are purely protocol-rule checks.

0.4.2 3.2 Interpretation

Finding	Implication
No native “admin can freeze address X” primitive	Any protocol-level address censorship/freeze requires client modifications, validator-coordinated soft/hard fork, or new system contract
Freezing logic is typically in txpool / validator code	Not in EVM transaction validity rules
Aligns with Bybit’s taxonomy	“Hardcoded Lists” and “Configuration File” freezing are the most common patterns

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0.5 Part 4: Technical Implementation Paths

0.5.1 4.1 Safe-Level Enforcement (Fastest, Least Invasive)

If EC actions are executed via a Gnosis Safe, Safe Guards and scoped allowlists can enforce that signers can only call pre-approved contracts/function selectors.

Component	Function
Safe Guard	Smart contract that checks all transaction parameters before/after execution
Scoped Guard	Guard that restricts to pre-approved (contract, selector) pairs (allowlist-based)
Allowlist	Only permits transactions matching predefined recipients, function calls, or parameters

Implementation: The "emergency action registry" can be implemented as a Guard that only allows calls to a specific set of (contract, selector) pairs.

Tradeoff: Only controls what the Safe can do. Does not change protocol rules.

0.5.2 4.2 Protocol-Level Enforcement (Reference Pattern)

Gnosis could, in principle, adopt a protocol rule where clients consult a DAO-controlled onchain contract for a denylist.

Reference Pattern: - System contract at a precompile-like address - Read methods: `getBlacklistedSenders()`, `getBlacklistedReceivers()` - Admin methods: `addBlacklistedAddress(address)` - Client behaviour: Nodes query the contract (ABI call), cache results, updates take effect without restarts

Note: This only works if client software treats the denylist contract as a **consensus rule** (deterministic from state), which requires a one-time network upgrade/hard fork to adopt.

Tradeoff: This is a major credible-neutrality decision. It becomes part of the chain's rule set and requires validator adoption.

0.5.3 4.3 Validator-Level Enforcement (Soft Fork / Hard Fork)

Gnosis has already demonstrated this path.

Path	Description	Social Cost
Soft Fork	Validators agree to censor specific transactions	Medium (reversible, off-chain coordination)
Hard Fork	Validators update binaries to implement recovery/rule change	High (precedent risk, operational complexity)

Tradeoff: Highest social cost, but also the only path for state-level interventions (e.g., fund recovery).

0.6 Part 5: The "Optimistic Freeze" Model (Refined)

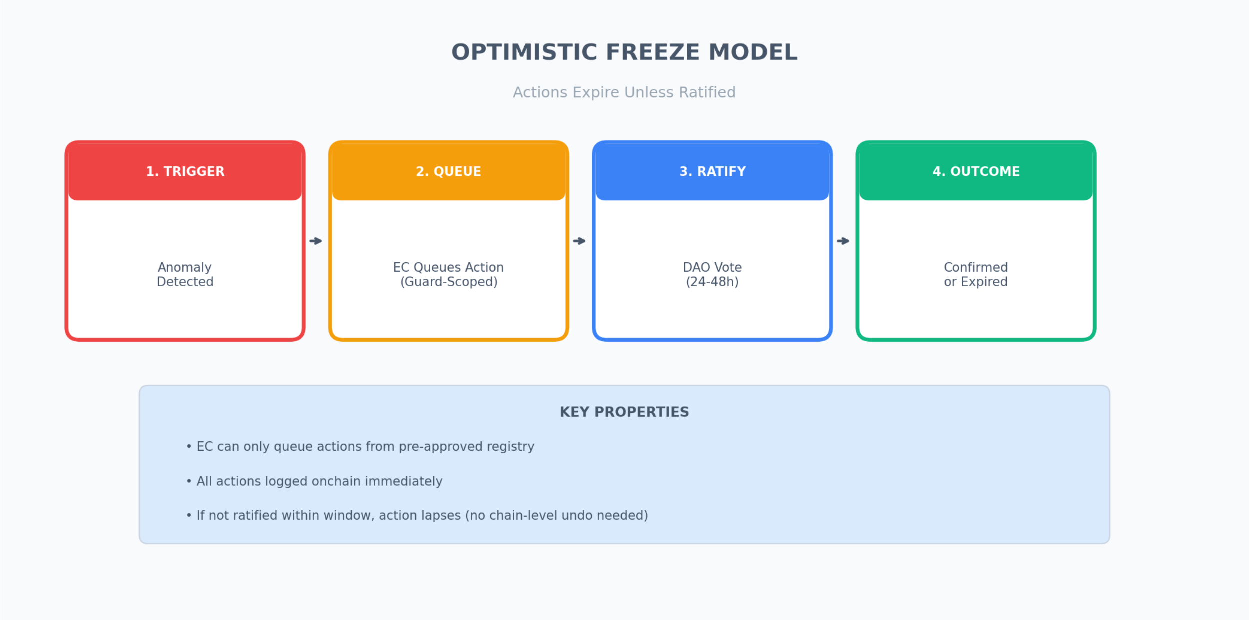
OPTIMISTIC FREEZE MODEL
Actions Expire Unless Ratified
1. TRIGGER
Anomaly Detected
2. QUEUE
EC Queues Action (Guard-Scoped)
3. RATIFY
DAO Vote (24-48h)
4. OUTCOME
Confirmed or Expired
KEY PROPERTIES
• EC can only queue actions from pre-approved registry
• All actions logged onchain immediately
• If not ratified within window, action lapses (no chain-level undo needed)

Figure 3: Optimistic Freeze model — actions expire unless ratified within the challenge window.

0.6.1 5.1 Key Properties

1. EC can only queue actions from the pre-approved registry
2. Actions are logged onchain immediately
3. DAO ratification is required within 24-48h
4. If not ratified, action lapses (does not need to be "undone" at chain level)

0.7 Part 6: Recommended Next Steps

0.7.1 For GnosisDAO

1. Adopt Safe Guard Pattern: Implement the "emergency action registry" as a Guard attached to the EC Safe
2. Define Allowlisted Actions: Document the specific (contract, selector) pairs the EC can call
3. Establish Ratification Timeline: Define the 24-48h window in the GIP
4. Consider Protocol-Level Path: If account-scope intervention is desired, initiate governance discussion on an onchain denylist contract (with full community debate on credible neutrality implications)

0.7.2 For the Working Group

1. Integrate this technical grounding into the draft framework
2. Map the proposed EC powers to the Hierarchy of Precision (Levels 2-5)
3. Draft the Guard contract specification for audit

0.8 Data Sources & References

Source	Description	Link
Gnosis Chain Docs — Bridge Management	BGB threshold + Safes	docs.gnosischain.com/bridges/manag
Gnosis Chain Docs — Governance Decisions	Bridge outflow freeze (Nov 3, 2025)	docs.gnosischain.com/bridges/manag
Gnosis Forum — Balancer Hard Fork	Soft fork + hard fork coordination	forum.gnosis.io/t/balancer-hack-hard-fork/11884
Gnosis Execution Specs	Execution-layer behaviour	github.com/gnosischain/execution-specs
Safe Documentation — Guards	Safe Guard and Module Guard specs	docs.safe.global
Bybit Security Lab (Nov 2025)	166 chains analysed, freezing taxonomy	Bybit Report
LIF Repository	Full research repository	github.com/e3o8o/legitimate-intervention-framework

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0.9 Appendix: Glossary (Extended)

Term	Definition
Emergency Council (EC)	Designated multisig with authority to trigger pre-approved emergency actions.
Bridge Governance Board (BGB)	Existing 8-of-15 multisig controlling Gnosis bridge operations.
Safe Guard	Smart contract that checks transaction parameters before/after execution.
Emergency Action Registry	Pre-approved list of (contract, selector) pairs the EC can call.
Optimistic Freeze	Immediate queue, expires unless ratified by DAO within challenge window.
Soft Fork	Validator-coordinated censorship of specific transactions.
Hard Fork	Validator-coordinated protocol rule change requiring binary update.
Credible Neutrality	Rules that do not favour any party, defined in advance.

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