Here is a **comprehensive and detailed knowledge document** on the **ENKI Protocol**, covering all aspects of the project based on your uploaded documents. This is intended to serve as a **complete internal or public reference**, suitable for documentation, wikis, pitch decks, or onboarding new community members and partners.

📘 ENKI Protocol – Full Knowledge Base

🔹 Introduction

ENKI Protocol is a **liquid staking derivative/token (LST)** platform built on **Metis**, the Layer 2 Ethereum rollup. It simplifies participation in Metis **Sequencer Node staking**, enabling any user—regardless of technical expertise or capital size—to earn yield on their METIS tokens.

ENKI provides a **non-custodial, DeFi-native solution** that makes staking **flexible, composable, and liquid**, thus expanding accessibility and DeFi integration for the Metis ecosystem.

> "ENKI is designed to democratize Sequencer staking while maximizing reward efficiency through an innovative liquid staking model."

🔹 The Problem ENKI Solves

Running a Metis Sequencer Node requires:

- Technical expertise (node setup and maintenance)
- High capital (large METIS deposits)
- Complex staking/unstaking mechanics

These barriers lock out most users. ENKI removes these challenges by creating a **liquid staking derivative model** with a simplified process and composable assets.

🔹 System Architecture

ENKI introduces a **3-token architecture**:

1. 🪙 eMetis (ENKI Metis)

- **Pegged loosely 1:1** to METIS
- Created when users deposit METIS into ENKI
- Used as a base layer for composability across DeFi

2. 💰 seMetis (Staked eMetis)

- Represents staked eMetis
- Accrues yield from sequencer node rewards
- Redeemable back to eMetis + rewards

3. ⚒️ ENKI Metis Minter

- Converts METIS → eMetis
- Boosts sequencer nodes with locked METIS
- Mints new eMetis based on user deposits

This system mimics LSDs like Lido for ETH, enabling liquidity and passive yield across Metis' smart Layer 2 environment.

🔹 How Rewards Work

ENKI automates reward distribution using a **7-day epoch cycle** aligned with the Metis Layer 1 staking pool's challenge period.

Reward Flow:

1. Sequencer earns METIS → converted into eMetis
2. 90% of eMetis → **seMetis Yield Vault**
3. 10% → **Protocol Treasury**

When users redeem:

- **70% of rewards** go directly to user
- **30% of rewards** are locked in **vesting**
- To unlock: stake ENKI tokens for a period (originally 365 days, updated to 90 days in recent revisions)

  Example:

  - Alice has 1 seMetis worth 1.1 eMetis
  - She receives 0.77 eMetis immediately
  - 0.33 eMetis is locked and requires 33 ENKI staked for 90 days to unlock

Vesting Mechanics:

- Vested eMetis tokens unlock **linearly over 90 days**
- Users can **pause vesting** by unstaking ENKI
- Already vested rewards remain claimable

🔹 Redemption Mechanism

ENKI allows users to **redeem eMetis for METIS** via a **queue-based contract**. It includes:

- **Optional speed-up** via ENKI token locking

- Users lock ENKI to fast-track redemptions
- Designed to handle Metis Layer 1's **21-day unlock period** and **no partial withdrawal rule**

  Currently, full native redemption is paused while ENKI develops better handling for Metis Sequencer node withdrawal constraints

In the meantime, **secondary markets (DEXes)** provide eMetis/METIS liquidity.

🔹 Tokenomics

📌 ENKI Token:

- **Utility + Governance token**
- Required for **reward vesting** and **redemption speed-up**
- Enables **DAO voting** on protocol upgrades and fee structures

🔢 Supply:

- Max supply: **10 million ENKI**
- Minting above 10M possible **only with a 28-day timelock and governance vote**

🧩 Allocation:

- 1M ENKI – marketing, partnerships, community contributors
- 9M ENKI – liquidity mining, community incentives
- **Zero team allocation**, zero private sales – a true **fair launch** project

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🔹 Key Features

✅ Liquid Staking

- Stake METIS → mint eMetis
- eMetis → stake for seMetis to earn yield

✅ Yield Vault

- Weekly rewards based on Metis Sequencer node performance

✅ Vesting & Reward Boosting

- Stake ENKI to unlock full yield
- Encourages long-term protocol alignment

✅ Redemption Flexibility

- Redeem eMetis for METIS via a queue
- Optional speed-up with ENKI lock

✅ Governance

- ENKI holders shape protocol evolution

🔹 Achievements Since Launch

Since January 2024, ENKI has:

- Minted over **110,000 eMetis**
- Integrated with HerculesDEX, Netswap, Shoebill, RetroBridge
- Ranked in the **Top 10 protocols on Metis by TVL**

- Launched the **seMetis vault**, **vesting**, and **redemption queue**

🔹 Roadmap (2023–2024 and Beyond)

Quarter	Milestone
Q3 2023	Proof of Concept
Q4 2023	Testnet release, public testing
Q1–Q4 2024	Mainnet launch, full protocol release
Q4 2024+	Major updates, Phase 2 Incentives, UX/UI upgrades, Delegation launch
Dec 2023	Stage 2 test feedback, contract auditing begins
2025+	Referral system, expanded integrations, broader ENKI utility

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🔹 Strategic Vision

ENKI is more than just a staking platform—it's a **gateway to decentralized participation** in Metis infrastructure.

Mission:

> Democratize access to Metis Sequencer node rewards and create a liquid, composable DeFi layer on Metis.

Long-Term Goals:

- Power decentralization through delegation
- Expand ENKI utility beyond staking (e.g., farming, governance, vesting)

- Enhance composability across Layer 2 DeFi
- Enable full-fledged DAO governance

🔹 Summary: Why ENKI Matters

ENKI solves a real problem in the Layer 2 ecosystem by providing:

- **Access to Metis staking rewards**
- **Liquidity through eMetis**
- **Yield through seMetis**
- **Governance via ENKI**
- **Redemption flexibility**
- **A fair, inclusive model**

It's the **first Layer 2 LSD** on Metis and a **cornerstone for decentralized infrastructure growth** in the ecosystem.

📎 References

- ENKI Litepaper V1
- ENKI Protocol Specification
- Development Timeline
- Phase 2 and Community Update

Thanks for the extensive update. Here's the **additional section** to be appended to the main ENKI knowledge document. This section expands specifically on the **vesting mechanism**,

liquidity incentives, and **recent progress updates**, reflecting the latest evolution of the ENKI Protocol.

🔹 Vesting Mechanism: Deep Dive (Updated May 2024)

ENKI's vesting system plays a **critical role in stabilizing the ecosystem**, aligning user incentives, and promoting long-term protocol engagement. It applies to all seMetis → eMetis conversions.

🧱 Vesting Structure Overview

- **Immediate Access**: 70% of total value (initial stake + accrued rewards) is claimable instantly.
- **Vested Portion**: 30% is locked for **90 days**, progressively claimable throughout the period.
- **ENKI Token Requirement**: Users must stake **10 ENKI per 1 eMetis vested** to unlock this portion.

  This was updated from the previous 100:1 ratio, significantly reducing the barrier for smaller holders.

🧪 Example Scenarios

Scenario 1: Standard Conversion (1.2x Ratio)

- **Initial Stake**: 10 eMetis
- **Unstaking Value**: 12 eMetis (due to accrued rewards)
- **Immediately Claimable**: 8.4 eMetis (70%)
- **Vested**: 3.6 eMetis
- **Required ENKI**: 36 ENKI (10 per eMetis)
- **Vesting Period**: 90 days

Scenario 2: High APR Conversion (1.5x Ratio)

- **Initial Stake**: 10 eMetis → 15 eMetis on unstaking
- **Immediately Claimable**: 10.5 eMetis
- **Vested**: 4.5 eMetis
- **Required ENKI**: 45 ENKI

🧩 Partial Staking Mechanism

Users **without full ENKI coverage** for all vested assets can **partially unlock** rewards:

- **Vested Amount**: 15 eMetis
- **Available ENKI**: 50 (out of 150 required)
- **Result**: User can progressively unlock 5 eMetis now and the remaining 10 over future cycles.

This ensures **accessibility for all**, regardless of wallet size or ENKI holdings.

🔄 Progressive Claiming

ENKI allows **fluid retrieval of vested rewards** over time:

- Users do **not need to wait 90 days** to unlock full rewards.
- Rewards are released progressively (e.g., ~15% every 14 days).
- You can choose to:
    - **Wait 90 days** to claim all at once
    - **Claim in chunks** as they unlock

This approach supports **dynamic liquidity needs** and reduces pressure on the system.

🎯 Strategic Purposes of Vesting

1. **Risk Mitigation** – prevents sudden exits that could destabilize liquidity
2. **Long-Term Engagement** – encourages users to remain involved
3. **Platform Stability** – consistent and controlled reward distribution
4. **ENKI Token Utility** – reinforces ENKI as an essential tool to maximize user returns

> “By tying reward access to ENKI token staking, the protocol drives real utility and demand for ENKI, making it a backbone asset for long-term participants.”

🎁 ENKI Token Access & Incentives

To reduce reliance on secondary markets, ENKI is actively **distributing 400,000 ENKI tokens** via staking events and community activities. This ensures that **real users—not speculators—access ENKI** for utility, not trading.

You can earn ENKI by:

- Participating in liquidity pools
- Staking METIS
- Referring users via the upcoming referral program
- Engaging in DeFi integrations (e.g., HerculesDEX, Shoebill, Eris Finance)

🔹 June 2024 & Q2-Q3 Updates

🚀 Protocol Metrics

- **1,500 METIS distributed as rewards**

- **$5.1M+ TVL**
- **~3,000 active stakers**
- **400,000 ENKI incentives launched**
- eMetis/Metis ratio updated to **1.0223**
- Estimated APR: **~20% base**, up to **50%+** via DeFi integrations

🤝 New Partnerships

- **Shoebill Finance**: Stake esMETIS as collateral with >90% APY
- **Eris Finance**: Integrates ENKI into broader Metis DeFi strategies
- **Netswap & HerculesDEX**: Points system and yield amplification

📄 Documentation Releases

- Redemption guides published
- Vesting system fully documented
- Liquidity incentives & referral program guides in development

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2. ⚙️ Protocol Architecture

ENKI consists of three main components:

a. `ENKI Metis Minter`

- **Function**: Entry point into the system.
- **Mechanism**: Users deposit METIS → contract mints an equivalent amount of **eMetis** (1:1 ratio).
- **Logic**: The deposited METIS is either:

    - Pooled and locked in **Sequencer Node contracts** (on Layer 1)
    - Or stored in preparation for node deployment
- **Constraints**:
    - Subject to the Metis Sequencer Node locking rules:
        - **21-day unbonding period**
        - **No partial unlocks** — nodes are fully terminated when METIS is withdrawn

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b. `eMetis (ENKI Metis)`

- **Type**: ERC-20 token
- **Peg**: Loosely pegged to METIS at 1:1
- **Backed by**: Underlying METIS locked in Sequencer Nodes
- **Composability**: Can be traded, staked, or used in DeFi protocols
- **Redemption**:
    - eMetis can be burned for METIS via a **redemption queue**
    - Native redemption is delayed/controlled due to Metis L1 constraints

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c. `seMetis (Staked eMetis)`

- **Type**: ERC-20 token
- **Minted by**: Staking eMetis
- **Accrues Yield**: seMetis balance stays static, but its **redemption value increases** based on rewards

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3. 🔁 Staking Lifecycle

Step 1: Deposit METIS

- User sends METIS to `ENKI Metis Minter`
- Receives **1 eMetis per METIS** deposited
- METIS is transferred to the staking pool (or Sequencer Node validator)

Step 2: Stake eMetis for seMetis

- User stakes eMetis in **seMetis Vault**
- Vault mints seMetis at a **1:1 ratio** initially
- seMetis does not auto-compound but represents a growing claim on eMetis based on periodic yield injections

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4. 📈 Yield Accrual & Distribution

Sequencer Rewards:

- Sequencer Nodes earn **native METIS** on Layer 1
- Every **7 days**, METIS rewards are:
    - Bridged to Layer 2 (Metis Andromeda)
    - Converted into eMetis via the Minter
    - **Distributed** to the protocol as follows:
        - **90% → seMetis Vault (yield)**
        - **10% → Protocol Treasury**

seMetis Yield Accounting:

- Vault updates internal accounting:
    - Each seMetis token is now worth more eMetis
    - Users redeem seMetis → receive base + reward in eMetis
- Exchange rate evolves over time (e.g., 1 seMetis = 1.1 eMetis)

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5. 💸 Unstaking, Vesting & ENKI Integration

Unstaking Logic:

- User unstakes seMetis → protocol calculates current eMetis value
- **Reward split**:
    - **70% of total** value: Immediately transferred in eMetis
    - **30% of total**: Sent to a **vesting contract**

Vesting Contract:

- Time-based linear release over **90 days**
- Accessing vested funds requires:
    - **Staking 10 ENKI per 1 eMetis vested**
- Claiming is **progressive**:
    - Rewards can be claimed proportionally throughout the 90-day period
    - ENKI staking must remain active during this time

Partial ENKI Staking:

- Users with insufficient ENKI can unlock **proportional amounts** of vested eMetis
- ENKI stake scales the amount of vested eMetis claimable
- ENKI tokens are not burned; they are locked and can be unstaked to pause vesting

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6. 🔄 Redemption: eMetis → METIS

Redemption Flow:

- Users can submit eMetis to the **Redemption Contract**
- Redemption is **queued** — FIFO (first in, first out)
- Fulfilled once METIS becomes available via:
    - Sequencer node termination
    - New deposits enabling a rolling redemption mechanism

Optional Fast Redemption:

- Users can **accelerate their queue position** by **locking ENKI**
- More ENKI = higher queue priority
- Ensures flexibility while maintaining system stability

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7. 📊 On-Chain Accounting

- **eMetis Minting** is tracked against actual METIS deposits
- **seMetis** total supply corresponds to total staked eMetis
- Internal contracts manage:

- Reward periods
- Exchange rate updates
- Redemption status
- Vesting status

All data is **on-chain**, accessible via read-only functions for integration with analytics and dashboards.

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8. 🧠 Governance

ENKI Token serves as the governance asset for:

- Protocol parameter adjustments (fees, yield split)
- ENKI minting beyond 10M cap (requires 28-day timelock + vote)
- Approving new DeFi integrations, reward sources, node operators

ENKI holders can vote directly or delegate their votes.

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9. 🛑 Constraints & Design Tradeoffs

Metis Layer 1 Constraints:

- 21-day unbonding for node withdrawals
- No partial unbonding — full node termination required
- 7-day challenge period for bridge transfers

These constraints affect ENKI's liquidity management and redemption process. Hence:

- Liquidity incentives (DEX pools) are prioritized

- Redemption is asynchronous via queue
- Partial conversions to METIS occur only under certain conditions

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10. 🧱 Contract Ecosystem Overview

Contract	Function
`MetisMinter.sol`	METIS → eMetis minting
`StakingVault.sol`	eMetis → seMetis staking and tracking
`RewardsDistributor.sol`	Handles 7-day reward logic + updates
`VestingContract.sol`	Manages 90-day linear vesting
`RedemptionQueue.sol`	Handles delayed eMetis → METIS redemption
`ENKIToken.sol`	Governance and vesting token

All contracts are **modular**, allowing upgrades and independent testing.

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11. 🧬 Protocol Invariants

To ensure protocol integrity, the following **safety conditions** are enforced:

- 🔐 **1 eMetis must always be backed by 1 METIS** (either locked or liquid)
- ⚖️ **seMetis vault can never distribute more eMetis than it receives**
- 🧱 **ENKI token supply capped at 10M unless voted otherwise**
- 🔄 **Redemptions are rate-limited and metered via the queue**
- 🧰 **Yield distribution ratios (90/10) fixed unless changed via governance**