Data Sharing Infrastructure Pilot

An enabler of the Virtual Energy System
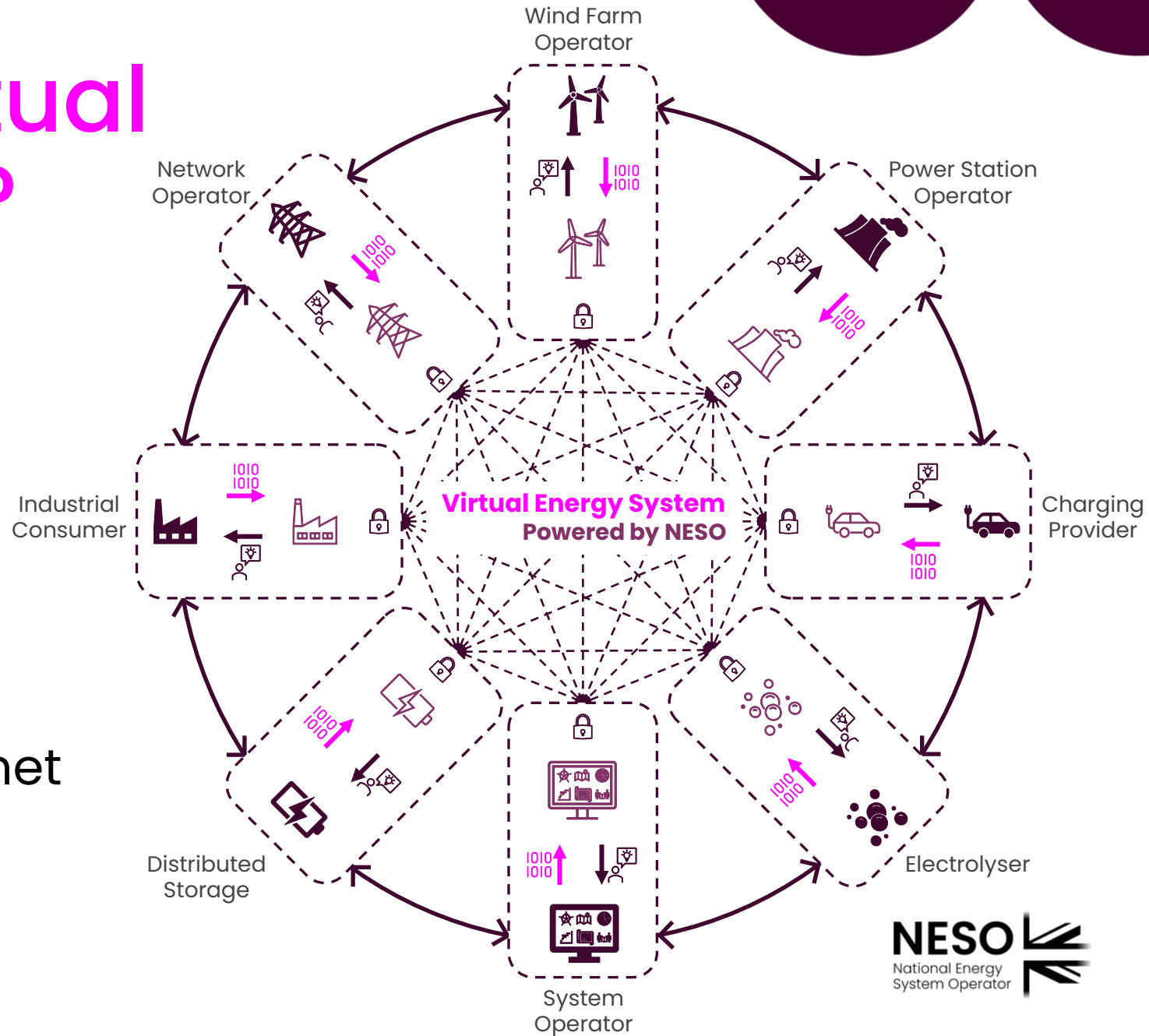
Jonathan Barcroft

NESO
National Energy
System Operator

What Is The Virtual Energy System?

Creating the **common data sharing infrastructure**.

Enabling an ecosystem of **connected digital twins**.

Facilitating the transition to net zero.

How Has The Concept Developed?

Discovery

- Explored potential use cases, users, high level problem and global best practice

Alpha

- Defined implementation roadmap, user journeys, data products and high-level design

Private Beta

- Development of the Pilot and MVP

Research has defined the need:

2022: Energy Digitalisation Taskforce recommended the Digital Spine and Data Sharing Fabric

2023: Future System Network Regulation and Distributed Flex consultations recommend Data Sharing Infrastructure.

2024: Digital Spine Feasibility Study recommendations published
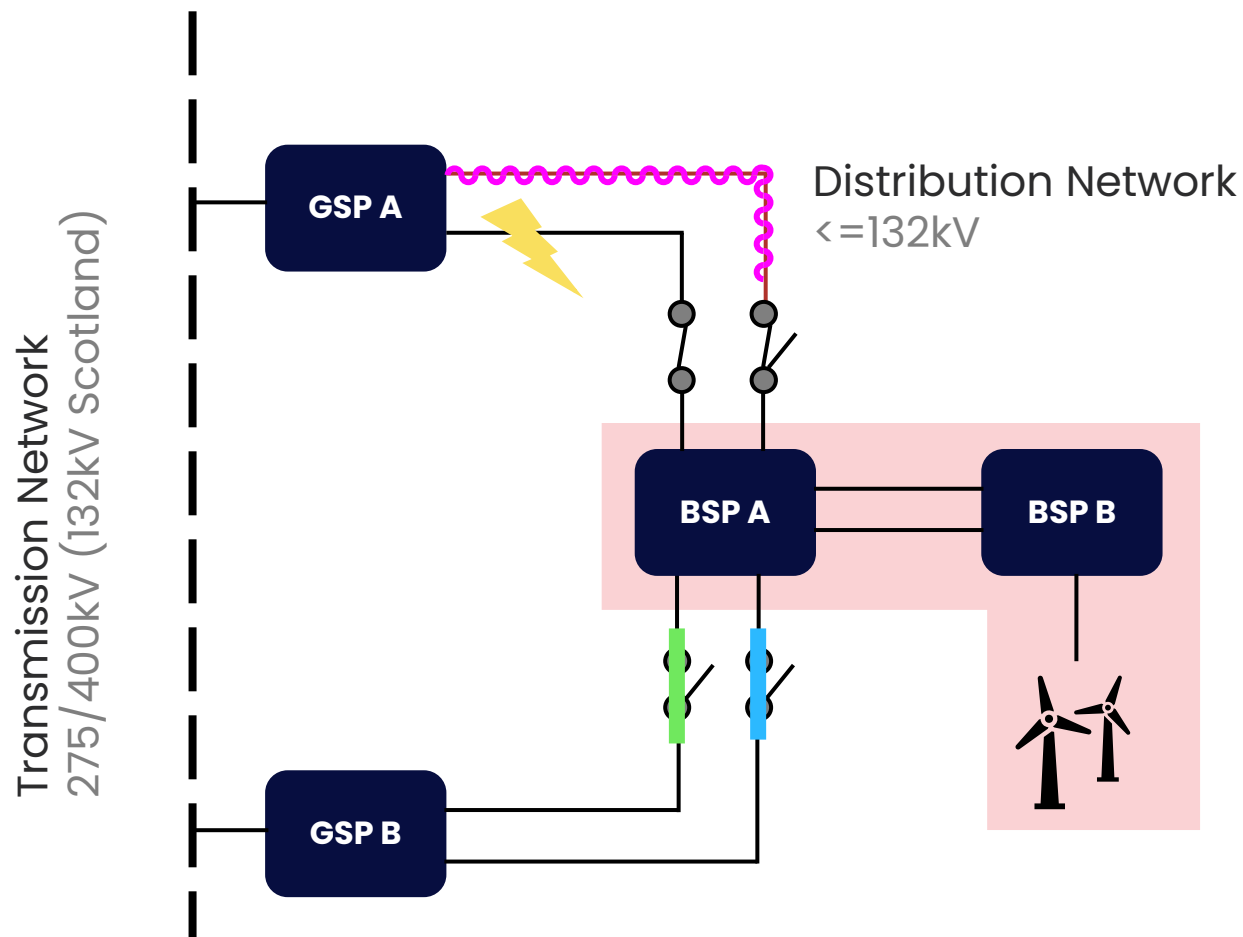
Project Partners

Pilot Use Case

Operational Planning Pilot Use Case

Explore data exchange between DSOs, TOs, and NESO to support coordination of operational planning

Transmission Network
275/400kV (132kV Scotland)

Distribution Network
<=132kV

GSP A

GSP B

BSP A

BSP B

What Are The Opportunities?

Reduce rework and manual data processing

Identify and reduce risk and costs on the system

Better situational awareness for neighbouring users

Develop and evolve further modelling capabilities

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Data Sharing Infrastructure

Data Preparation Node (DPN)

A containerised application for deployment by organisations in their own infrastructure.

- Interfaces to organisational data sources and destinations

- Label data with security tags and perform schema assurance

- Metadata for sharing data catalogue of available sources

- Interface for data exchange and data sharing mechanism communication

Data Sharing Mechanism (DSM)

A control plane for the security and governance to facilitate data exchange between nodes.

- Security and organisational identity services

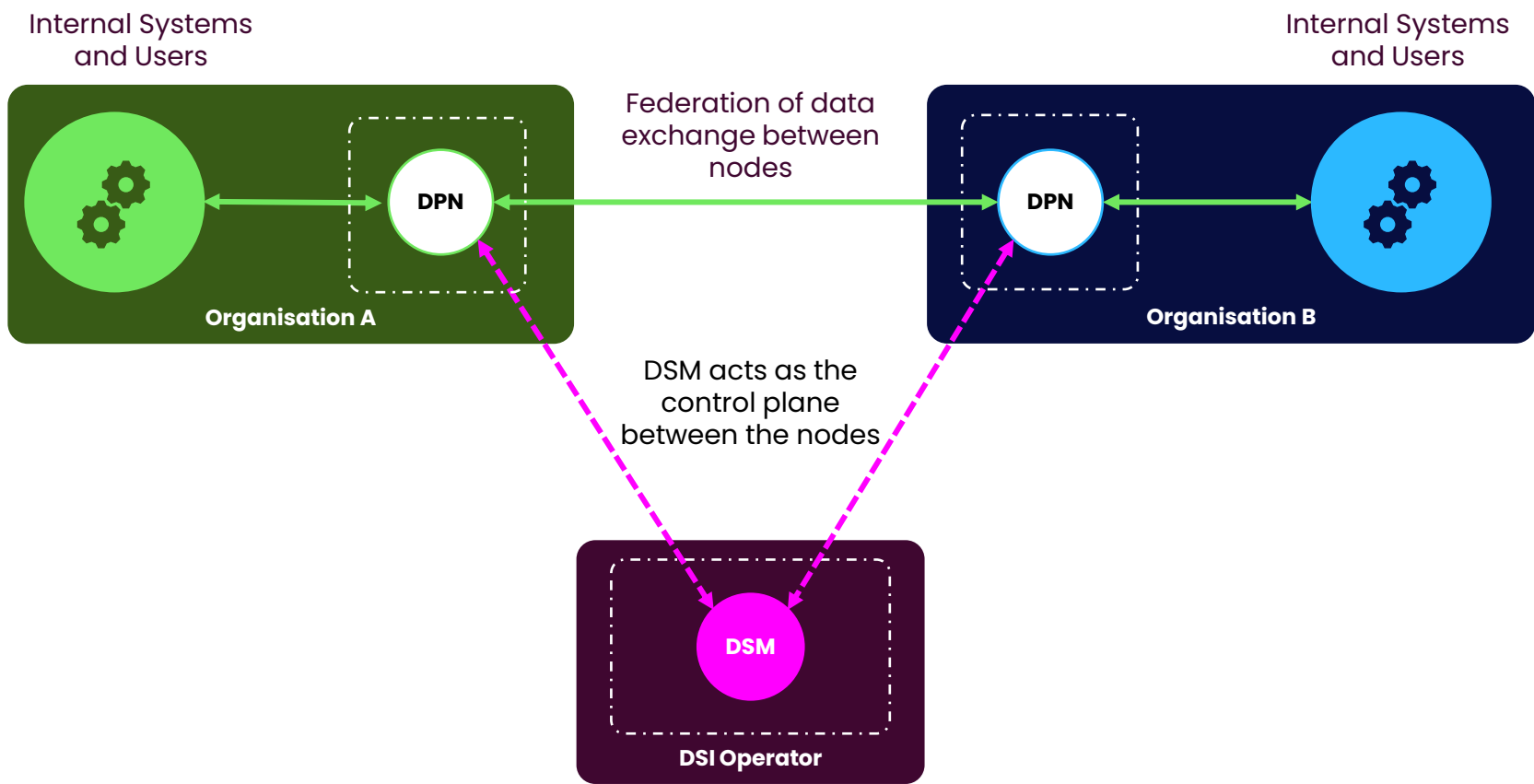- Trust services to establish user's confidence, right & legality to share data

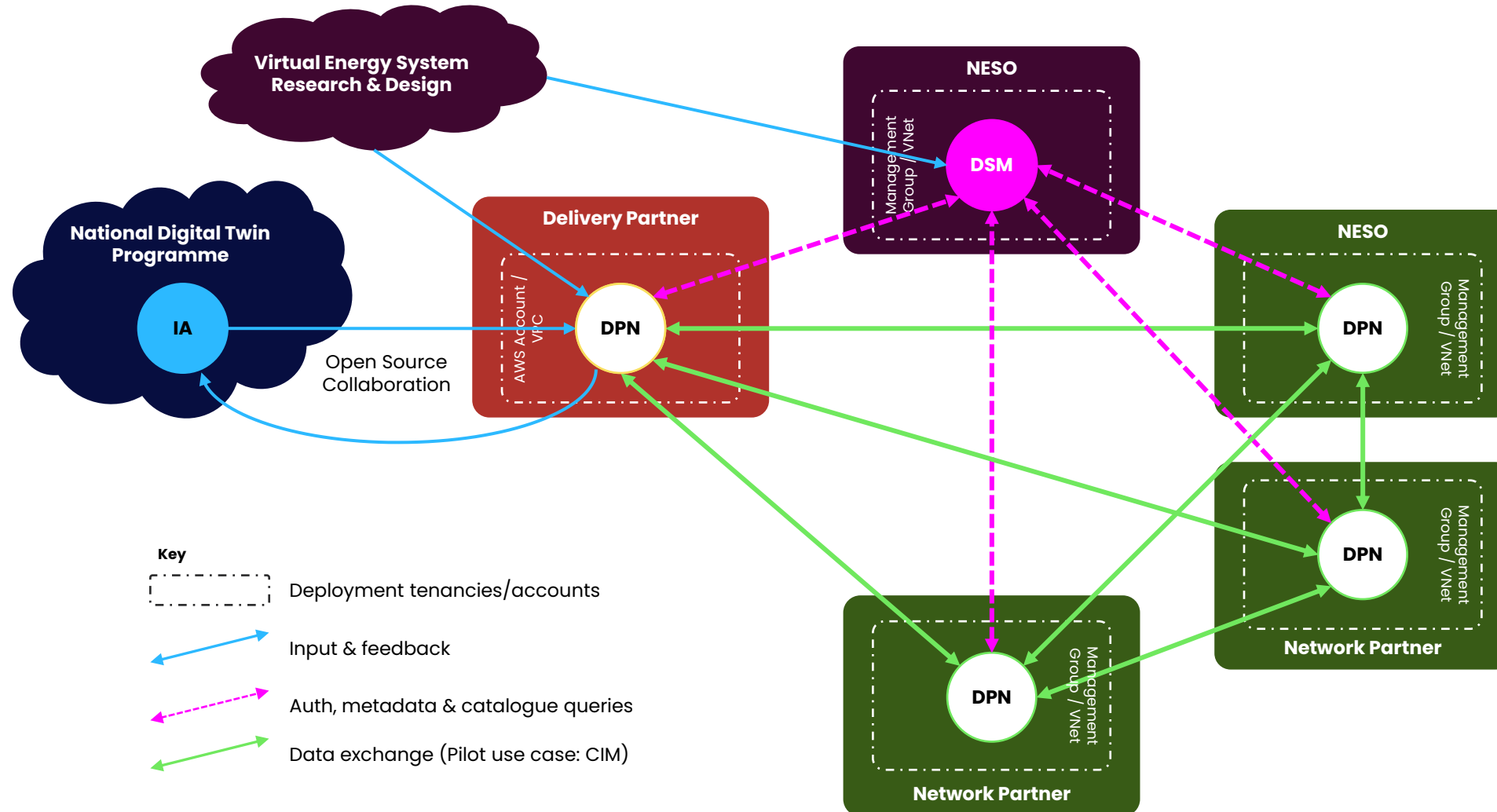- Data catalogue for discovery and definition of data available
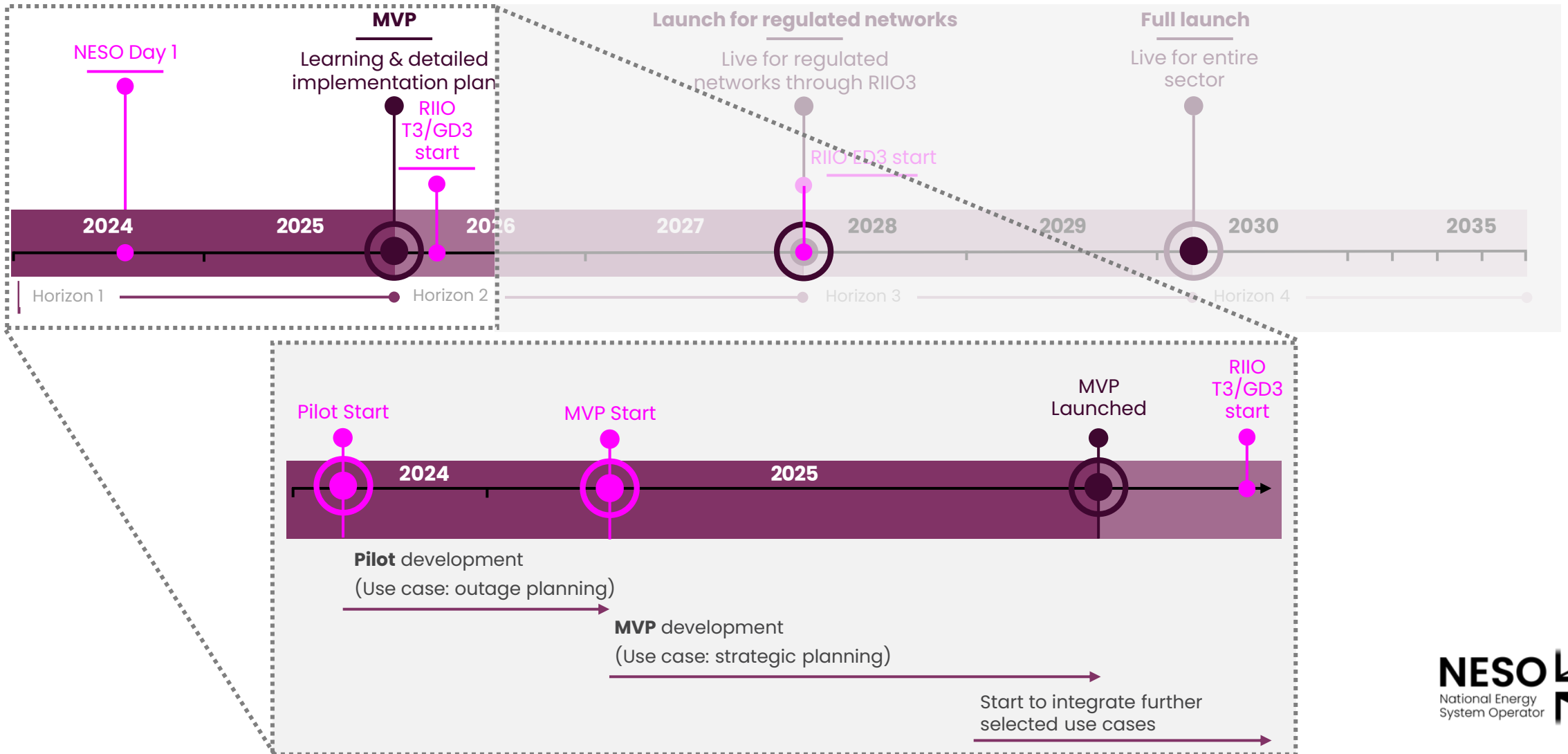
- Node management to support deployment and registration

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Data Sharing Interactions

Pilot Implementation

High Level Roadmap

MVP

NESO Day 1

Learning & detailed implementation plan

RIIO T3/GD3 start

| 2024 | 2025 | 2026 |

Horizon 1 — Horizon 2

Launch for regulated networks

Live for regulated networks through RIIO3

RIIO ED3 start

Full launch

Live for entire sector

| 2027 | 2028 | 2029 | 2030 | 2035 |

Horizon 3 — Horizon 4

Pilot Start

MVP Start

MVP Launched

RIIO T3/GD3 start

| 2024 | 2025 |

Pilot development
(Use case: outage planning)

MVP development
(Use case: strategic planning)

Start to integrate further selected use cases

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