



Distributed Sovereign AI Infrastructure Nodes Technology

— Securing Germany's Digital Future Through Distributed Sovereign AI Infrastructure —

DEMONSTRATOR NODE 01 MASTERPLAN



BUILDING THE SOVEREIGN AI INFRASTRUCTURE
FOUNDATION FOR EUROPE'S DIGITAL FUTURE




SOVEREIGN
INFRASTRUCTURE


HIGH
PERFORMANCE


SUSTAINABLE
BY DESIGN


SECURE
BY ARCHITECTURE


DISTRIBUTED
BY STRATEGY


BUILT FOR
THE FUTURE


TARGET PUE
≤ 1.20


LOCATION
BEDBURG-HAU,
GERMANY


INITIAL CAPACITY
2 MW IT LOAD


EXPANSION CAPACITY
UP TO 6 MW IT LOAD


TIER CLASSIFICATION
TIER III EQUIVALENT


COOLING SYSTEM
DIRECT-TO-CHIP
LIQUID COOLING



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A DISTRIBUTED NETWORK.
A SOVEREIGN FUTURE.
A STRONGER EUROPE.

DSAINTEMONSTRATOR NODE 01 MASTERPLAN

Distributed Sovereign AI Infrastructure Nodes Technology

Concept Development Document

Executive Summary

The DSAINT Demonstrator Node 01 represents the foundational infrastructure project of the Distributed Sovereign AI Infrastructure Nodes Technology (DSAINTE) initiative.

Located in Bedburg-Hau, Germany, the Demonstrator Node serves as the first operational implementation of a distributed sovereign AI infrastructure network designed to strengthen Germany's and Europe's technological sovereignty, digital resilience, and AI infrastructure independence.

The facility is designed as a scalable, energy-efficient, and highly secure sovereign AI infrastructure node capable of supporting future expansion throughout Germany and Europe.

Project Overview

Project Name

DSAINTE Demonstrator Node 01

Location

Bedburg-Hau, North Rhine-Westphalia, Germany

Project Type

Tier III Sovereign AI Infrastructure Node

Development Model

Infrastructure Ownership and Operations

Initial Capacity

2 MW IT Load

Expansion Capacity

Up to 6 MW IT Load

Target Operational Life

30+ Years

Strategic Objectives

The Demonstrator Node is designed to:

- Strengthen German digital sovereignty
- Support European AI infrastructure independence
- Provide resilient distributed infrastructure
- Support public and private AI workloads
- Create local economic value
- Demonstrate sustainable infrastructure design
- Enable future national and European expansion

Site Masterplan Overview



The approved site concept includes:

1. AI Infrastructure Core

Primary data center facility.

Functions:

- AI compute hosting
 - High-density server infrastructure
 - Sovereign cloud services
 - Digital twin applications
 - Secure AI workloads
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2. Administration & Operations Building

Functions:

- Executive offices
- Operations center
- Security operations
- Training facilities
- Meeting rooms
- Employee amenities

Structure:

Three floors

3. Maintenance & Storage Building

Functions:

- Spare parts storage
- Technical workshops
- Equipment maintenance
- Logistics support

Structure:

Two floors

4. Dedicated Substation

Configuration:

20 kV / 110 kV

Purpose:

- Independent power supply
 - Grid resilience
 - Future expansion readiness
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5. Technical Cooling Plant

Cooling System:

Direct-to-Chip Liquid Cooling

Objectives:

- High efficiency
- Low energy consumption
- Future AI workload compatibility

Target PUE:

≤ 1.20

6. Parking Area

Features:

- Employee parking
- Visitor parking
- EV charging readiness

Subsurface System:

BTES geothermal field beneath parking area

7. Security Airlock Access Points

Functions:

- Controlled entry
- Multi-factor authentication

- Security screening
 - Access segregation
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8. Main Entrance

Public and employee access point.

9. Service Vehicle Entrance

Dedicated logistics and maintenance access route.

10. Employee Housing

Purpose:

- On-site accommodation
- Operational resilience
- Emergency staffing support

Structure:

Five floors

11. Community Playground

Purpose:

- Family-friendly environment
 - Community integration
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12. Guest Center

Functions:

- Visitor reception
 - Investor presentations
 - Educational visits
 - Public engagement
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Technical Specifications

Tier Classification

Tier III

Redundancy

N+1

Power Feed

20 kV / 110 kV

Cooling Technology

Direct-to-Chip Liquid Cooling

Power Usage Effectiveness (PUE)

Target ≤ 1.20

Security Architecture

Dual-perimeter security model

- Outer security perimeter
 - Inner secure operations perimeter
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Sustainability Strategy

Geothermal BTES System

Borehole Thermal Energy Storage

Configuration:

- 12–20 boreholes
- Depth: 120–180 meters
- Closed-loop vertical system

Benefits:

- Thermal balancing
- Reduced cooling energy
- Long-term operational efficiency

Waste Heat Recovery

Planned applications:

Community Heating

Support for local district heating systems.

Agricultural Applications

Support for greenhouse heating projects.

Renewable Energy Integration

Future-ready design supporting:

- Solar energy
 - Battery storage
 - Smart grid integration
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Economic Impact

Expected benefits include:

- Direct employment creation
 - Regional technology development
 - Increased tax revenues
 - Local contractor engagement
 - Infrastructure modernization
 - AI ecosystem development
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Financial Overview

Estimated Total Investment

Approximately €43 Million

Major Cost Categories

Land & Site Preparation

€4.5 Million

Data Center Core Building

€11.5 Million

Cooling Systems

€6.5 Million

Electrical Infrastructure

€7.0 Million

Administration Facilities

€2.5 Million

Employee Housing

€1.8 Million

Security Infrastructure

€1.8 Million

Geothermal BTES System

€1.8 Million

Engineering & Permitting

€3.3 Million

Contingency Reserve

€2.0 Million

Project Timeline

Phase 1

Concept Development

Completed

Phase 2

Feasibility & Stakeholder Engagement

2026

Phase 3

Engineering & Permitting

2026

Phase 4

Construction

24–36 Months

Phase 5

Commissioning

Q4 2026 – Q1 2027 (Target)

Long-Term Vision

The Demonstrator Node serves as the foundation for a future distributed network of sovereign AI infrastructure nodes across Germany and Europe.

Roadmap:

2026 — Demonstrator Node 01

2028 — 3 German Nodes

2032 — 6 German Nodes

2036 — 12 German Core Nodes

2040 — European Expansion Network

Disclaimer

Concept Development Document

This document is intended solely for conceptual planning, discussion, and strategic development purposes and does not constitute an offer of securities, investment solicitation, or legally binding commitment.

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