



Dutch Authority for Digital Infrastructure
Ministry of Economic Affairs and Climate Policy

Towards Spatial intelligence

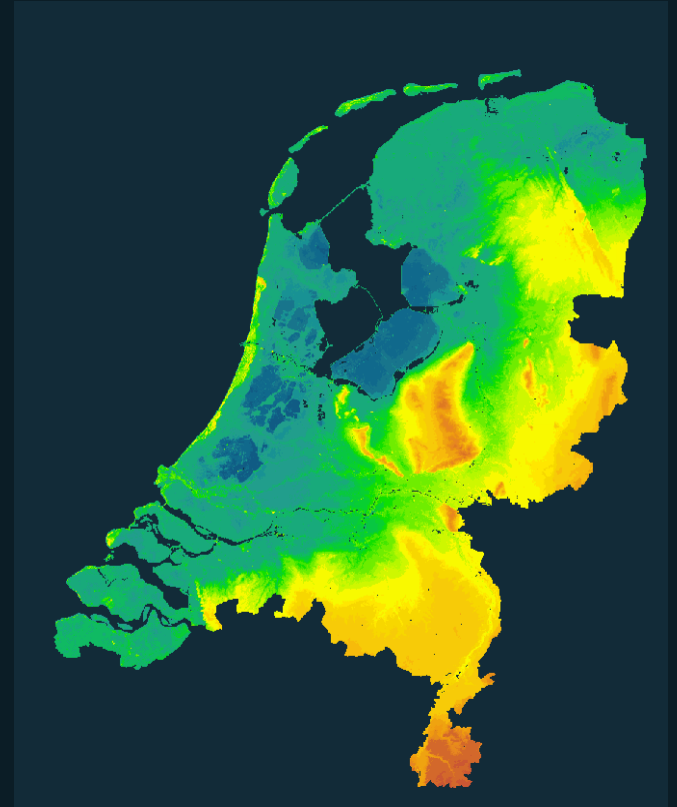
Geo Spatial World Forum,
Amsterdam 2026

Ties Dammers
RDI, Manager public networks
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THE HIDDEN WORLD BENEATH THE NETHERLANDS

Sea level management,
underground infrastructure,
and the energy transition:
Spatial intelligence is critical!

Source: [Het Waterschapshuis \(AHN\)](#)



THE NETHERLANDS BELOW WATER

A quarter of the country lies below sea level

26%

of the Netherlands lies below sea level (NAP)

59%

is vulnerable to flooding

24 cm

sea level rise since 1890



Source: [PBL, Compendium for the Living Environment](#)

Dikes, pumping stations and water boards keep the Netherlands dry

21 water boards

Manage dikes, pumping stations and polders. Levies: EUR 4.3 bn in 2025.

3,200 km primary defenses

Dikes, dunes and dams protect the hinterland.

Delta Works

World-renowned flood defense system. Protects Zeeland and South Holland.

1.9 mm/yr sea level rise

Along the Dutch coast. Plus 0.45 mm/yr land subsidence.

Source: [CBS, Waterschapspeil 2024](#)

THE OVERCROWDED SUBSURFACE

2.0M KM

cables and pipelines in the Dutch subsurface

800K excavations

47.383 damaged

1:20 damage/excavation ratio

€48 million direct

€250 million indirect



Source: [Sogelink](#), [Stantec](#), [KWINKgroep](#)

ENERGY TRANSITION

The electricity grid can barely keep up with the energy transition

100,000 km

New underground cables to be laid by 2050

300 BN

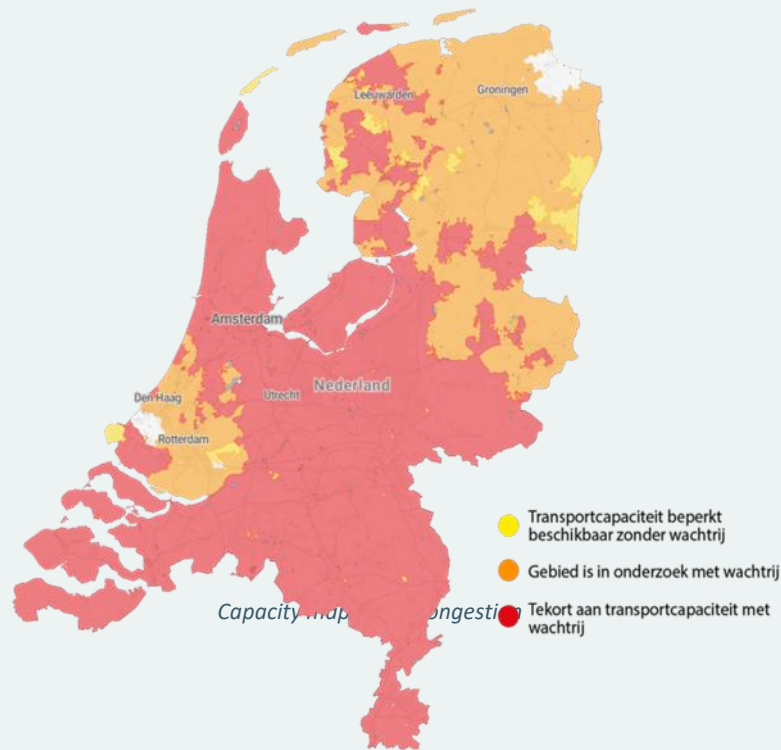
To be invested in grid by 2050

30,000

Additional technicians needed by 2030

9,000+

Grid connections on the waiting list (2025)



Source: [Kennis van Energie](#), [RVO](#), [Sogelink](#)

UNDERGROUND ENERGY STORAGE

Hydrogen, green gas and heat: the subsurface as a battery

Hydrogen

3 - 30 TWh

Expected storage demand 2030–2050. Salt caverns and depleted gas fields as sites.

Green gas

10 - 100 TWh

Natural gas and biogas storage. Existing gas infrastructure can partly be repurposed.

Heat

Growing

District heating in cities. Geothermal and residual heat as alternatives to gas.

Spatial Intelligence as a solution

- GIS-based Digital Twin integrates databases and sensor data in one spatial model
- AI detects subsurface spatial conflicts
- Supports pro-active orchestration

Benefits

- Proactive planning: conflicts avoidable before licencing
- Less excavation damage, less failure costs, faster realisation energy transition
- Supports NOVI-principles: optimal blending of subsurface functionality

CORE: Spatial Intelligence makes the hidden underground manageable — from national vision to programme to plan to successful realisation of relevant goals above and under the surface

CONCLUSION

- The Netherlands is uniquely vulnerable: 26% below sea level, 59% at flood risk. Water management is a critical, existential necessity.
- The subsurface is overcrowded: 2.0 million km of cables and pipelines
- The energy transition demands massive expansion: 100,000 km of new cables, 50,000 substations and EUR 300 bn investment by 2050.
- Innovation is crucial: smart grids, spatial intelligence
- Integration of various (sensor) databases in an AI and GIS based Digital Twin improves vision based planning of up and sub surface activities



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For a **safely connected** Netherlands

Any questions?

Thank you!

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