How geological models can support policy makers

GWF 2023 GEOSPATIAL WORLD FORUM

THEME: GEOSPATIAL CARAVAN EMBRACING ONE AND ALL

2-5 May 2023, Rotterdam, The Netherlands

Keyregistry of the subsurface of the Netherlands (BRO)

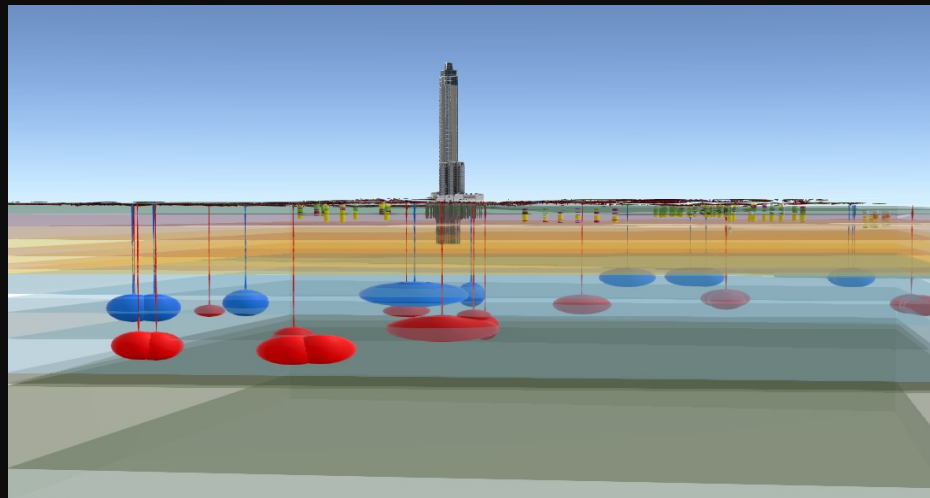
Martin Peersmann -Program manager BRO

Ministry of Housing and Spatial Planning BZK VRO

Program:	Geology and Mining
Session:	Evolution of geological mapping agencies
Venue:	GWF 2023 WTC Rotterdam
Date:	4 May 2023
Time:	0930 -1130 hrs

EuroGeoSurveys European Geoscience for Society

The Geological Surveys of Europe



Drs. T. Klip-Martin
Ambassador of the subsurface and member of the Dutch Senate

Tanja Klip-Martin:

"Soil and the subsurface form the foundation of our existence"

Future use requires:

" A good balance between exploiting and protecting"

through the implementation of sustainable land and resource management practices.

to guide decision-making and policy development, taking into account the social, economic, and environmental factors that affect soil and subsurface management.

The Environment and Planning Act of the Netherlands

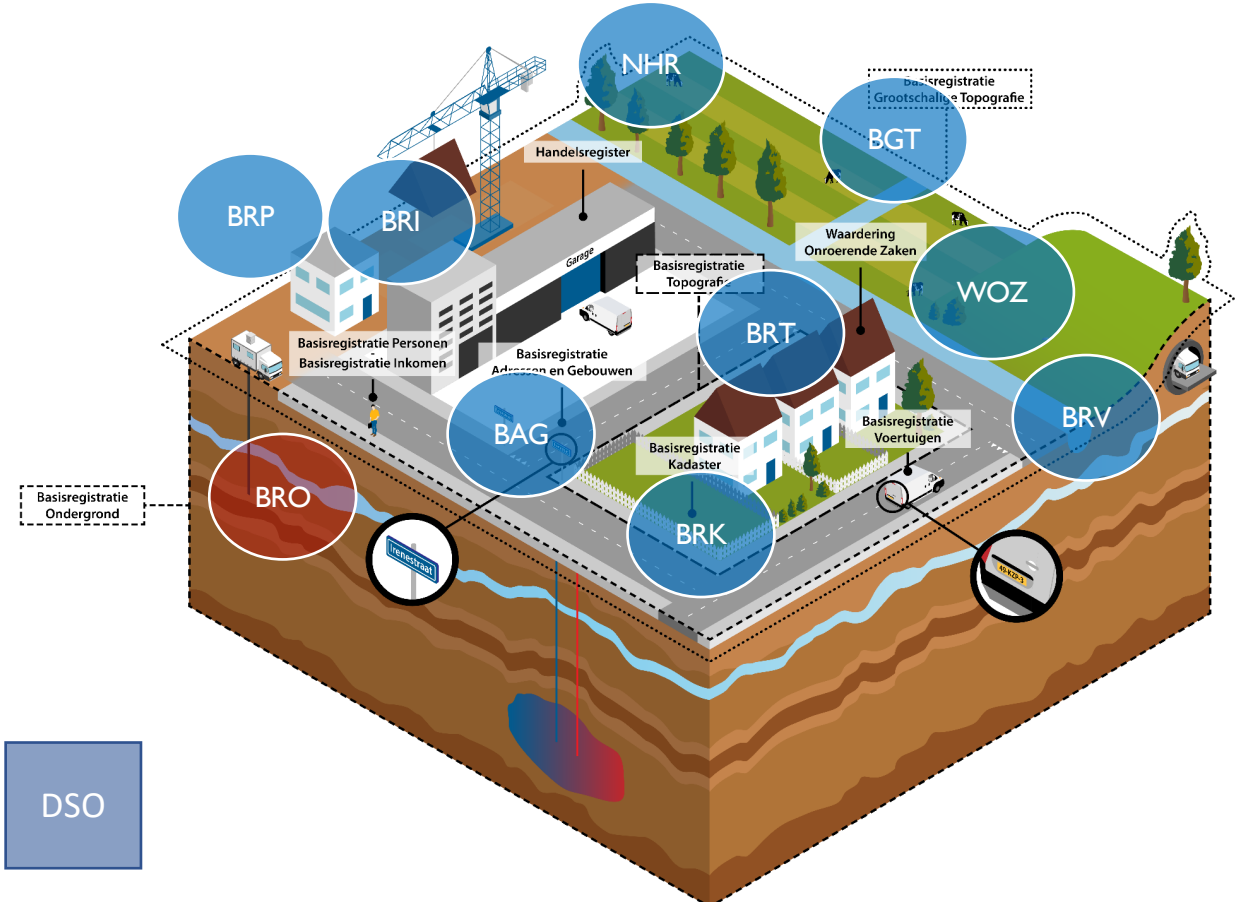
comes into force on January 1, 2024.

DATA DRIVEN POLICY MAKING

WHAT MAKES IT WORK?

Geo-Informatie Policy NL

federated system of keyregistries



DSO

Common European data spaces

European Commission

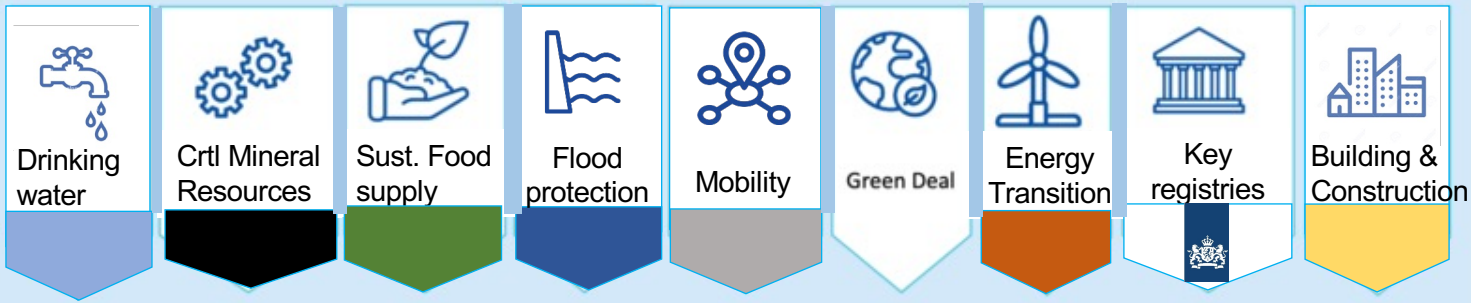
Federated system of data spaces in the Netherlands

Rich pool of data (varying degree of accessibility)

Free flow of data across sectors and countries

Full respect of GDPR

Horizontal framework for data governance and data access

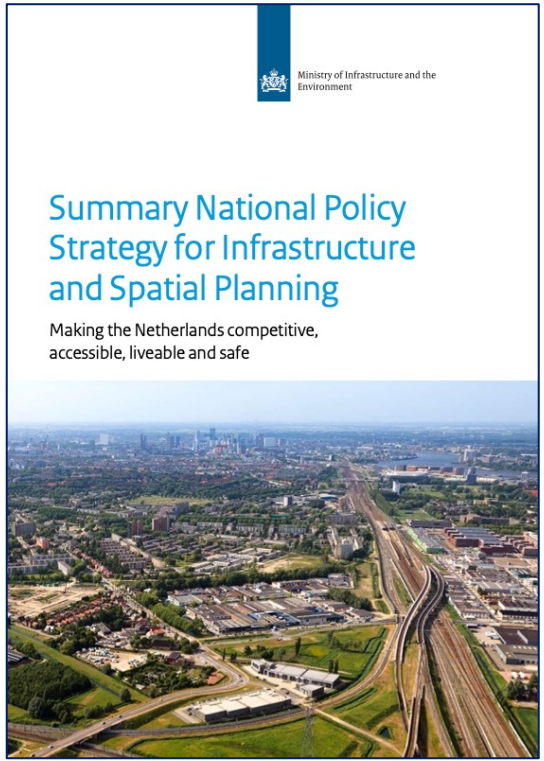


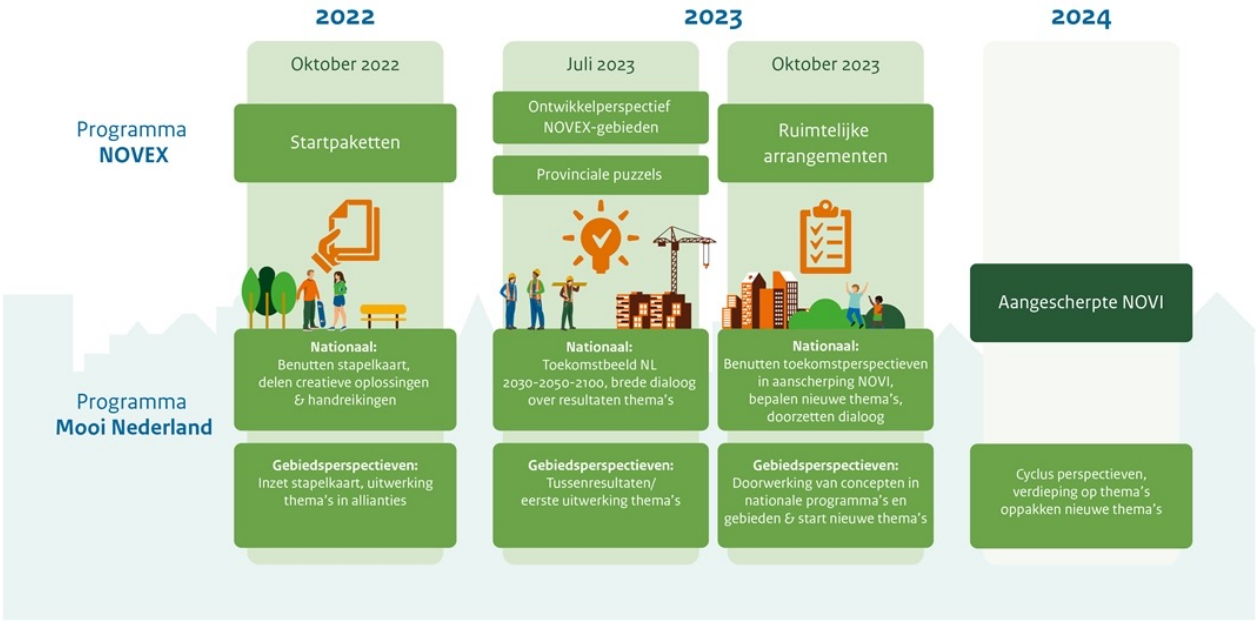
- Technical tools for data pooling and sharing
- Standards & interoperability (technical, semantic)
- Sectoral Data Governance (contracts, licenses, access rights, usage rights)
- IT capacity, including cloud storage, processing and services

Intergovernmental data strategy

National spatial planning policy of the Netherlands (NOVI/NOVEX)

with high regional and local impact





https://www.government.nl/topics/spatial-planning-and-infrastructure/spatial-planning-in-the-netherlands

Overview of 25 National programs for spatial planning

guiding principles:
A balanced use of the physical living environment, both above and below ground.

Programma's ten aanzien van het bodem- en watersysteem (6)

- Programma Water en Bodem als Basis *(Min IenW)*
- Programma Bodem en Ondergrond *(Staatssecretaris IenW)*
- Nationaal Waterprogramma 2022-2027 *(Minister IenW)*
- Kennisprogramma Zeespiegelstijging *(Min IenW)*
- Beleidstafel Wateroverlast en hoogwater *(Min IenW)*
- Programma Integraal Riviermanagement *(Min IenW)*

Programma's ten aanzien van Landbouw en Natuur (2)

- Nationaal Programma Landelijk Gebied *(Min LNV, MV VO en Min IenW)*
- Programma Natuur/Agenda Natuurinclusief *(Min NenS)*

Programma's ordenende netwerken voor energie en een (circulaire) economie (9)

- Programma Energie Hoofdinfrastructuur (PEH) *(Min KenE)*
- Nationaal Programma Infrastructuur Duurzame Energie *(Min KenE)*
- Nationaal Plan Energiesysteem *(Min KenE)*
- Programma Noordzee en Partiële herziening *(Min IenW)*
- Nationaal Programma Regionale Energiestrategieën (RES) *(Min KenE)*
- Beleidsbrief Zon *(Min KenE)*
- Beleidsbrief Datacenters *(Min VRO en Min EZK)*
- Programma Werklocaties, Ruimte voor Economische Activiteit *(Min VRO en Min EZK)*
- Programma Circulaire Economie *(Staatssecretaris IenW)*

Programma's voor leefbare steden en regio's (6)

- Meerjarenprogramma infrastructuur, ruimte en transport *(Min IenW, Staatssecretaris IenW)*
- Programma Woningbouw *(Min VRO)*
- Verkenning versterken verstedelijkingsopgave zuid, oost en noord NL *(Min VRO)*
- Programma werklocaties, ruimte voor economische activiteit *(Min EZK en Min VRO)*
- Programma erfgoeddeal *(Staatssecretaris OCW)*
- Programma gezonde en groene leefomgeving *(Min VWS en Min LNV)*

- **Overige programma's met impact op meerdere perspectieven (2)**
- Nationaal Milieuprogramma *(Staatssecretaris IenW)*
- Programma concentreren, verduurzamen en vernieuwen defensievastgoed *(Staatssecretaris Defensie)*

Water and Soil are leading

“Environment-inclusive” policy

Main Challenges:

- Housing Policy
- Energy Transition
- Security of supply Drinkingwater
- Circular economy – Critical Raw Materials
- Climate Adaptation
- Sustainable Agriculture

Regional Strategy on Spatial Planning and the Environment

Provinces and Muncipalities

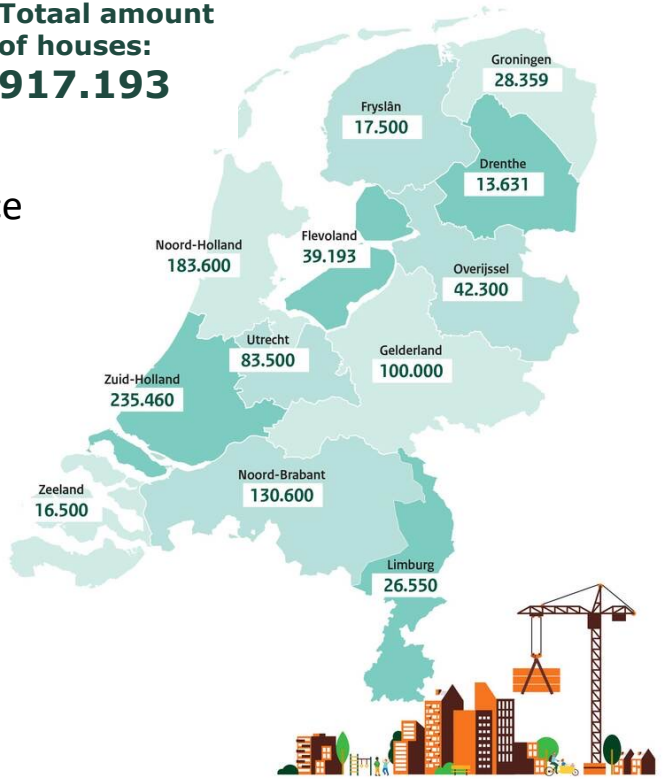
Integrated spatial planning in 3D above and below the surface using Digital Twin of the Fysical Living environment (DTFL) :

- Flevoland
- Zuid Holland
- Utrecht
- Gelderland

Regional
housing agreements

2022-2030

Totaal amount of houses:
917.193

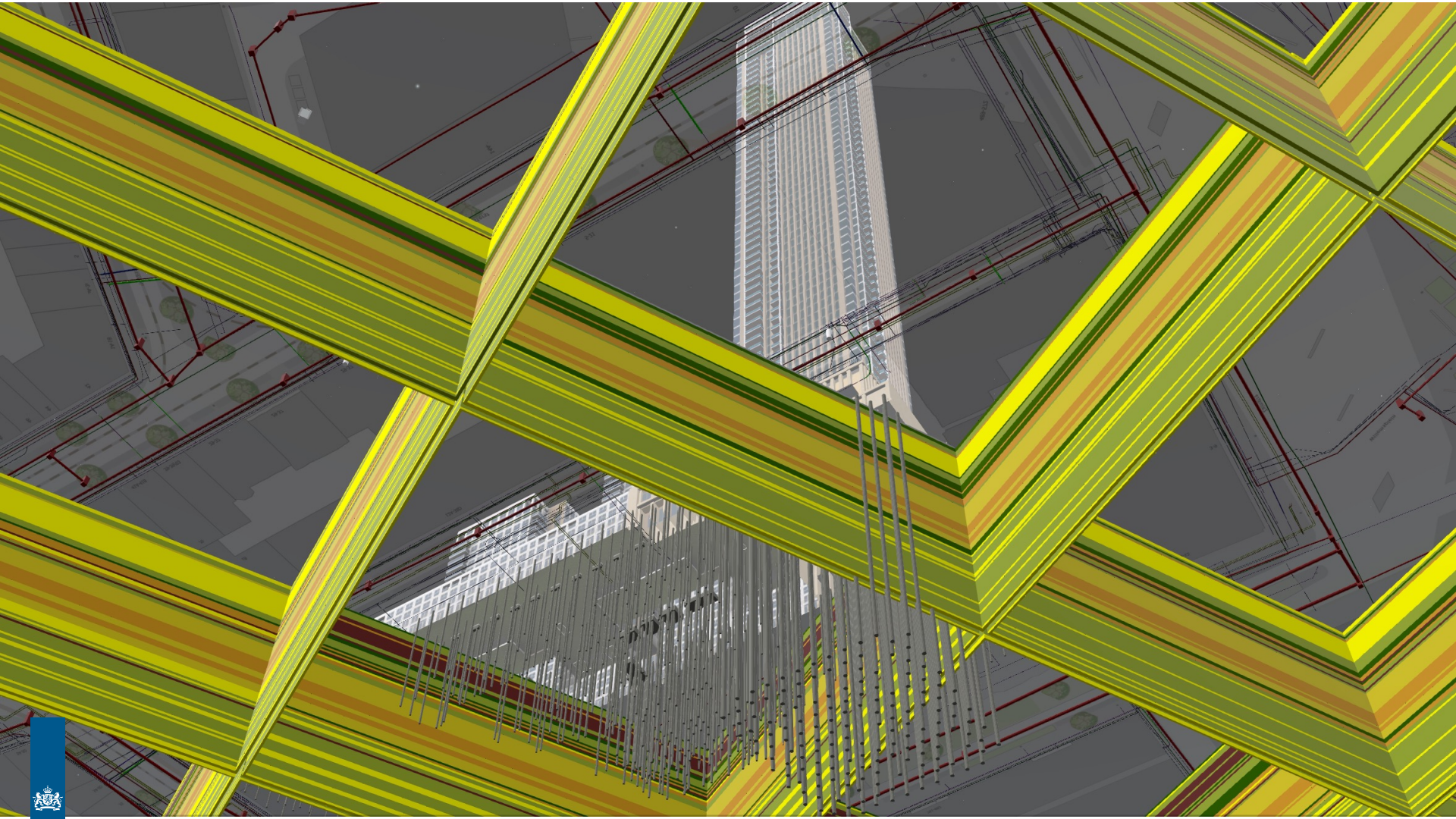


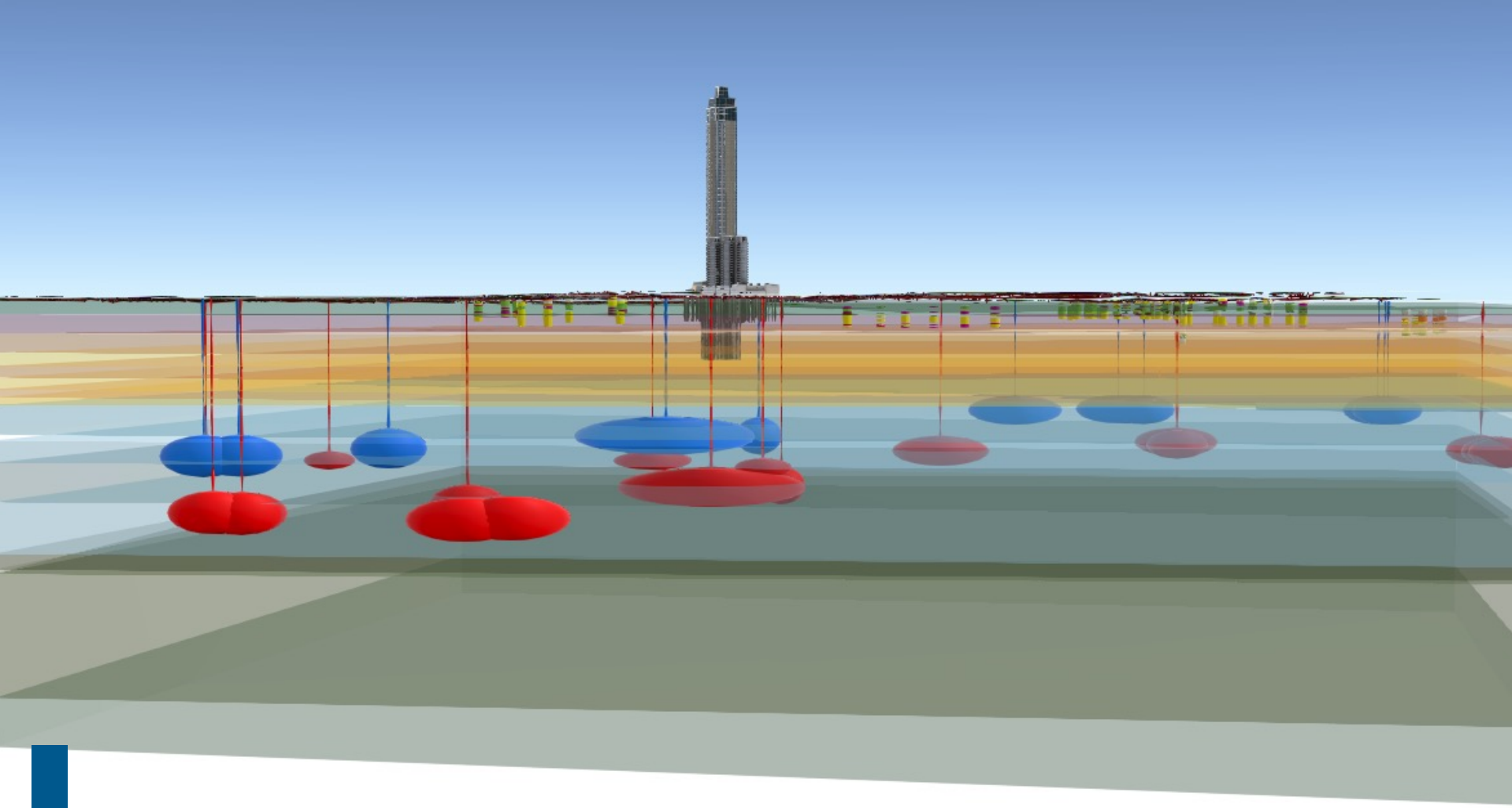
To be discussed:

- Can you provide some examples of how geological models have been used to inform policy making in the Netherlands?

- How can policy makers in other countries use geological models to make more informed decisions?

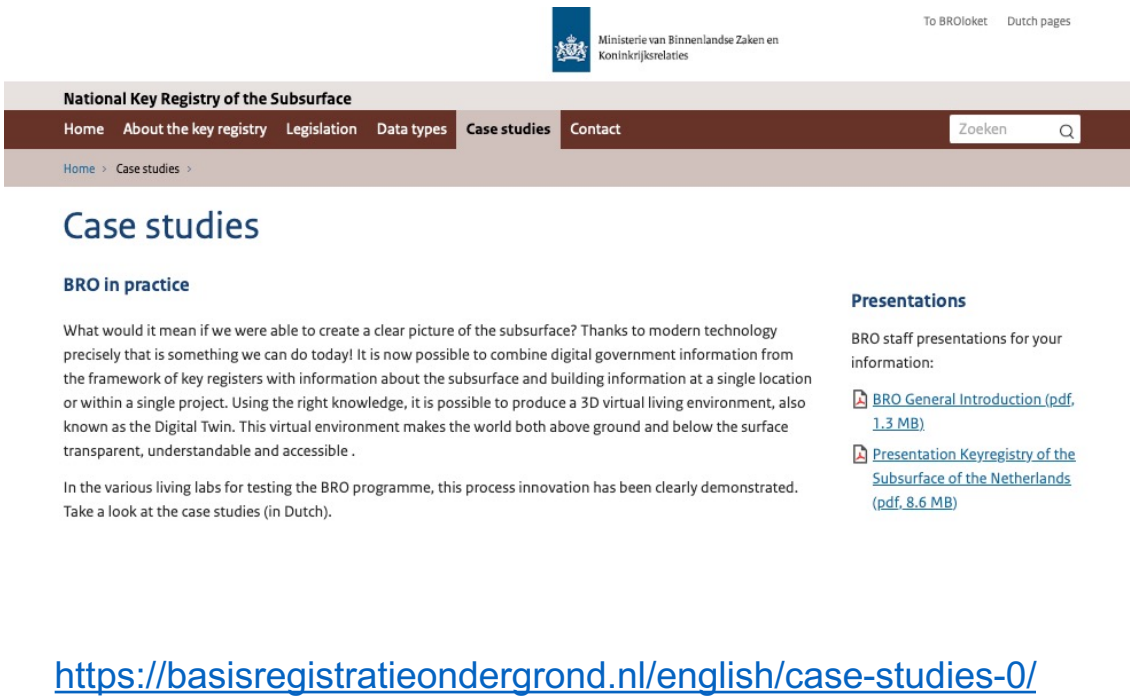
- What are some of the limitations or challenges to using geological models to inform policy making, and how can these be addressed?



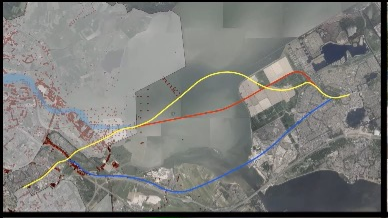
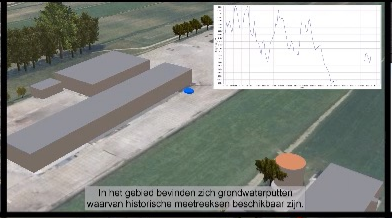
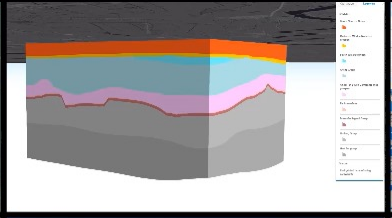
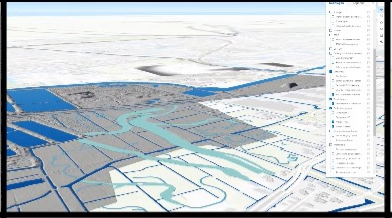
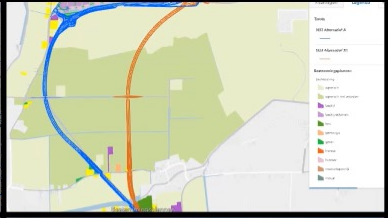


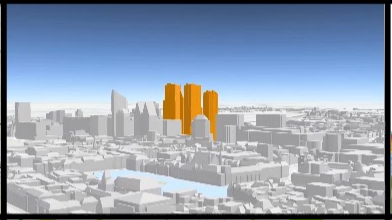
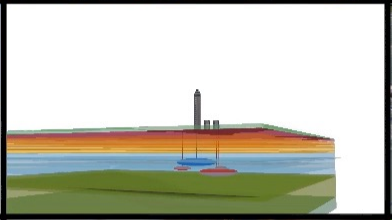
Key registry of the Subsurface (BRO) – Case studies

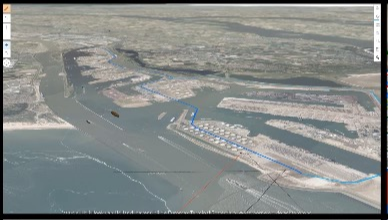
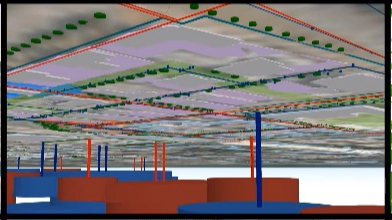
Using 3D Digital Twin (DTFL) and Storymaps technology for Policy Making in the Netherlands

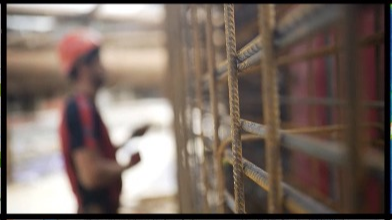
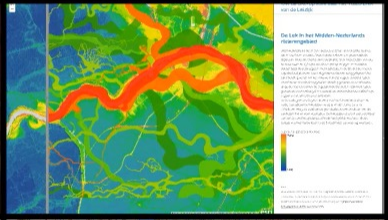
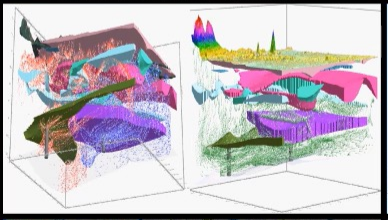
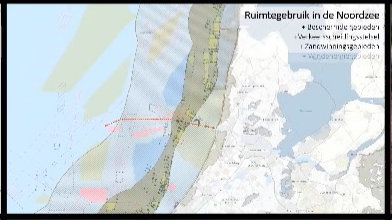


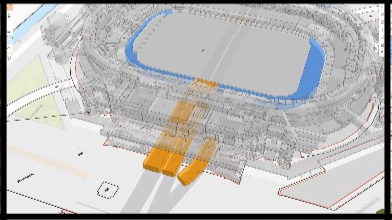
https://basisregistratieondergrond.nl/english/case-studies-0/

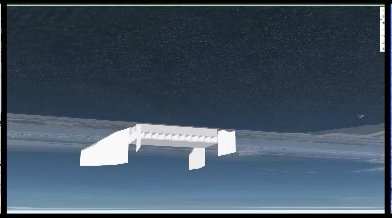
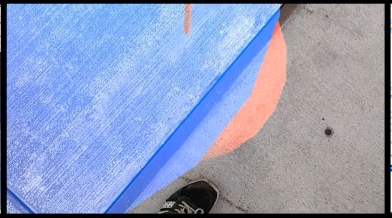


In het gebied bevinden zich grondwaterputten
waarvan historische meetreeksen beschikbaar zijn.




Mogelijkheden Windenergie langs de A12







Ruimtegebruik in de Noordzee



“From identifying problems to finding solutions”

- From Coal mining sinkhole to Minewaterenergy – South Limburg (Heerlen/Kerkrade)
https://guidetodistrictheating.eu/heerlen/ https://mijnwater.com/en/

- From Chalk mining → Einstein telescope an advanced gravitational-wave observatory at the border of he Netherlands, Belgium and Germany
https://www.einsteintelescope.nl/en/?set_lang=en

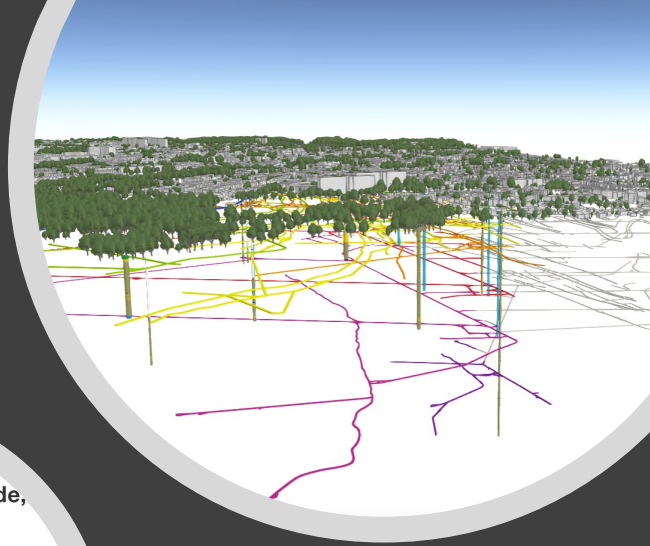
- From gasproduction induced earthquakes to acceleration of the reconstruction of houses earthquake and transition to sustainable energy – Groningen
https://basisregistratieondergrond.nl/doe-mee/bro-events/begin-dag-bro-tje/bro-tjes-2022/8-september/data-helpen-hersteloperatie-groningen/

- From decomissioning offshore oil and gas infrastructure to reuse for production and storage of Hydrogen by excess offshore windenergy
https://storymaps.arcgis.com/stories/6db801b71e0747b5861205db6b51c0c3

- From shortage in aggregrate resources to circular flow of buiding materials
https://www.rijkswaterstaat.nl/en/environment/circular-economy#more-information-about-circular-economy

Energy transition
Coal mining Limburg

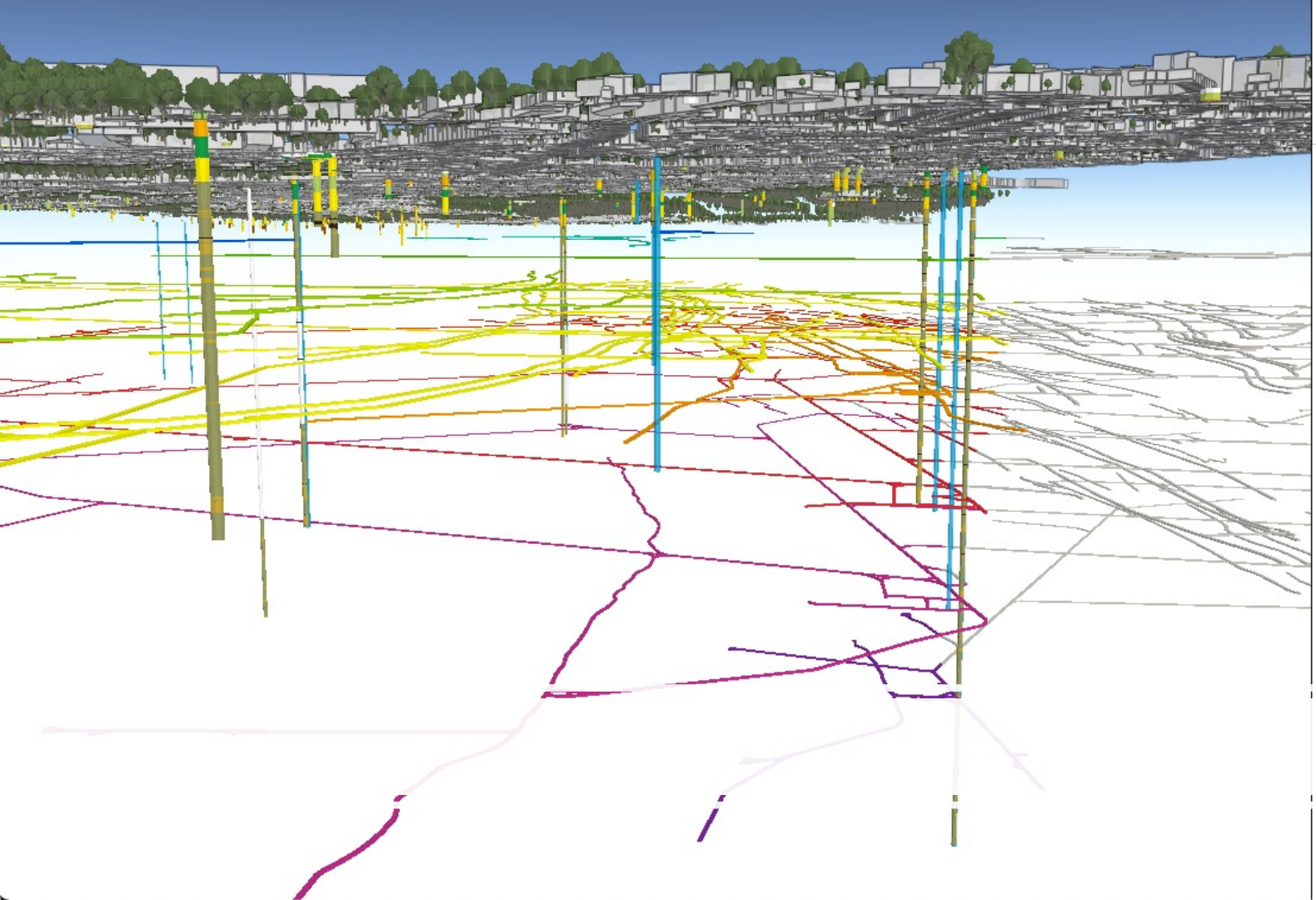
- Insight into risks and opportunities of the subsurface
- Management of Uncertainties
- Knowledge platform for expertise center for subsidence effects of coal mining in South Limburg.
- Database information center Aftercare Coal extraction for South Limburg



Ministerie van Economische Zaken en Klimaat

provincie limburg

Gemeente Kerkrade



De Basisregistratie Ondergron

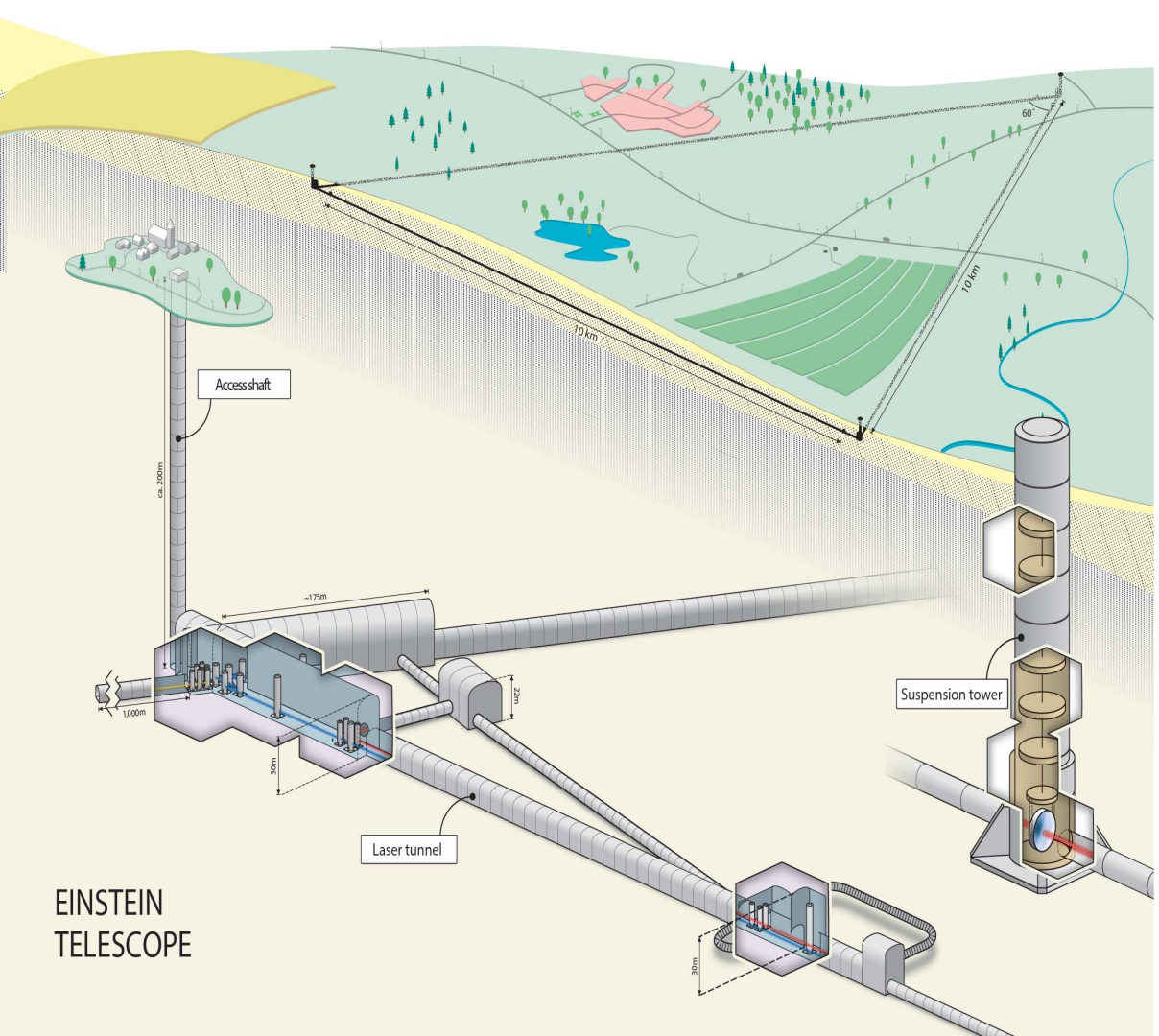
Met de BRO naar d Kerkrade

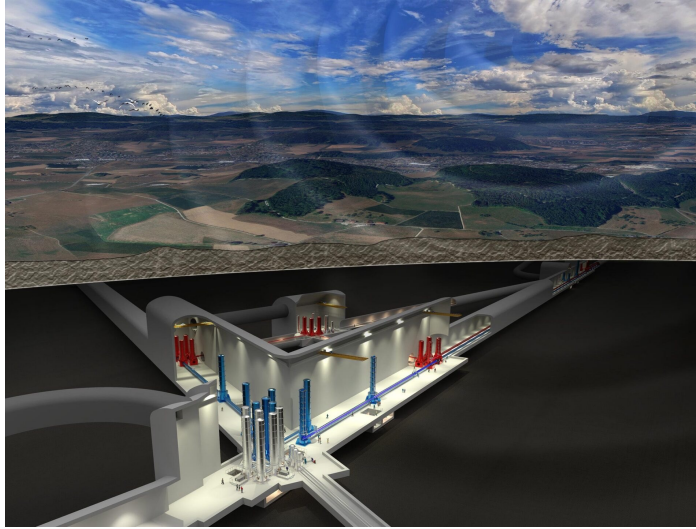
Zo beschikken we over steed gedetailleerdere gegevens v ondergrond en zal die kenni meegenomen bij besluitvor ondersteunt een samenhan van de fysieke leefomgeving onder de grond.

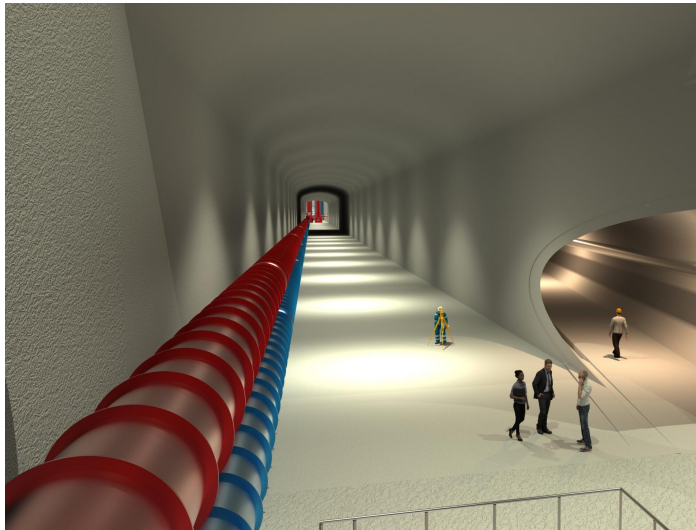
Gemeente Kerkrade

Ministerie van Binnenlandse Zaken en

Geodan

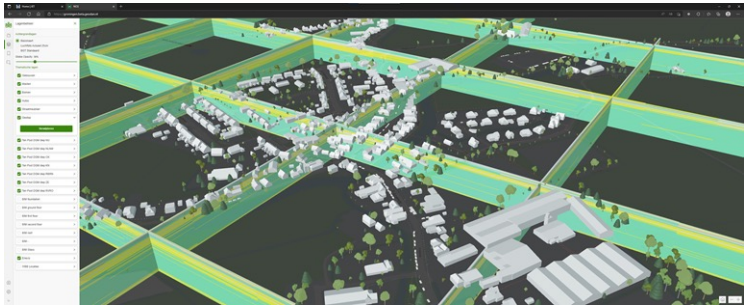

Access shaft
ca. 200m
10 km
10 km
60°
~175m
1,000m
22m
30m
Suspension tower
Laser tunnel
30m
EINSTEIN
TELESCOPE





Digital Twin: De “versterkingsversneller”

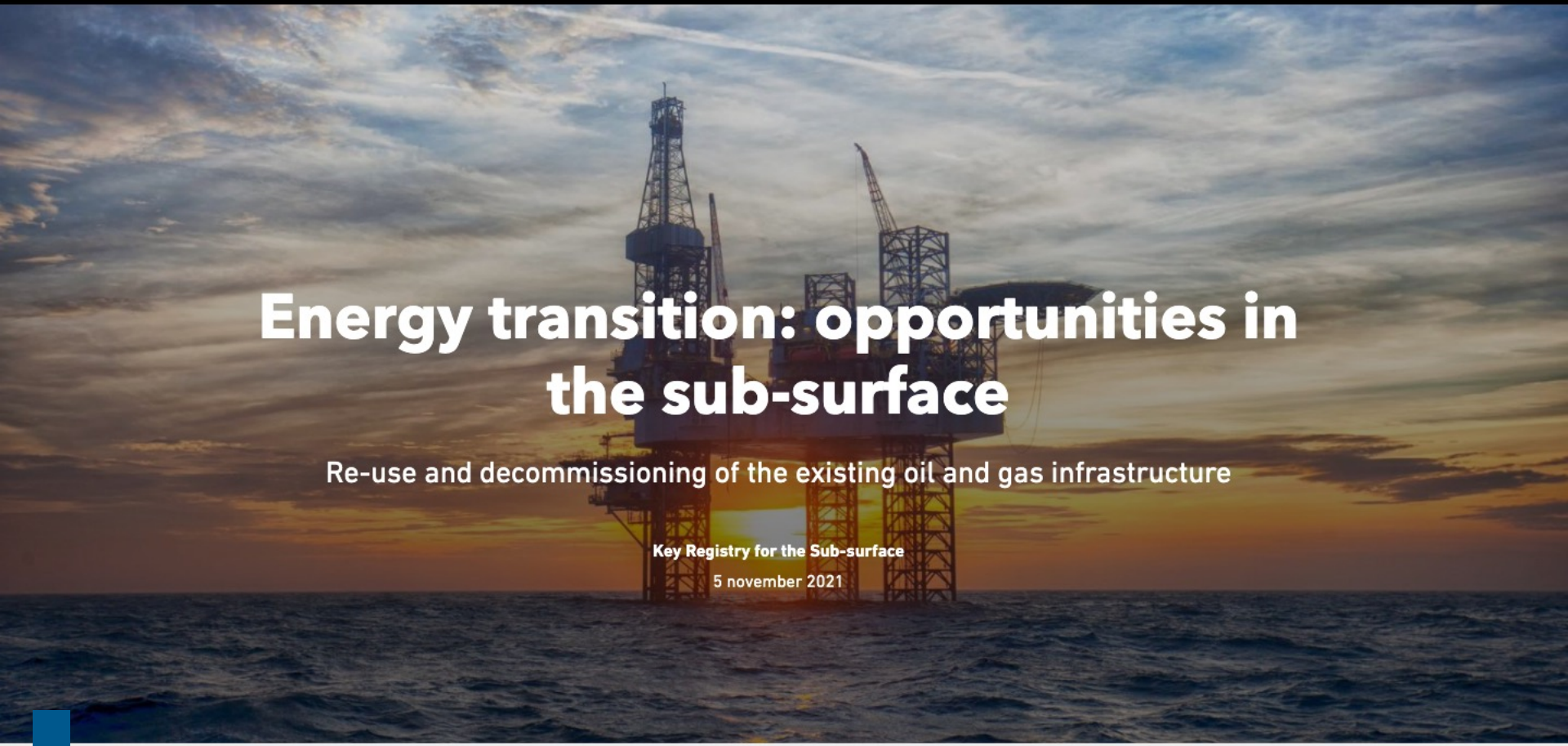
Versnelling van de versterkingsoperatie



2D en 3D inzicht in versterkingsgebied

Ondersteuning van het primaire proces NCG

Ondersteuning van diverse stakeholders
IMS
Gemeenten
Provincies
Aannemers / Constructeurs
Netbeheerders
Bewoners



Energy transition: opportunities in the sub-surface

Re-use and decommissioning of the existing oil and gas infrastructure

Key Registry for the Sub-surface

5 november 2021

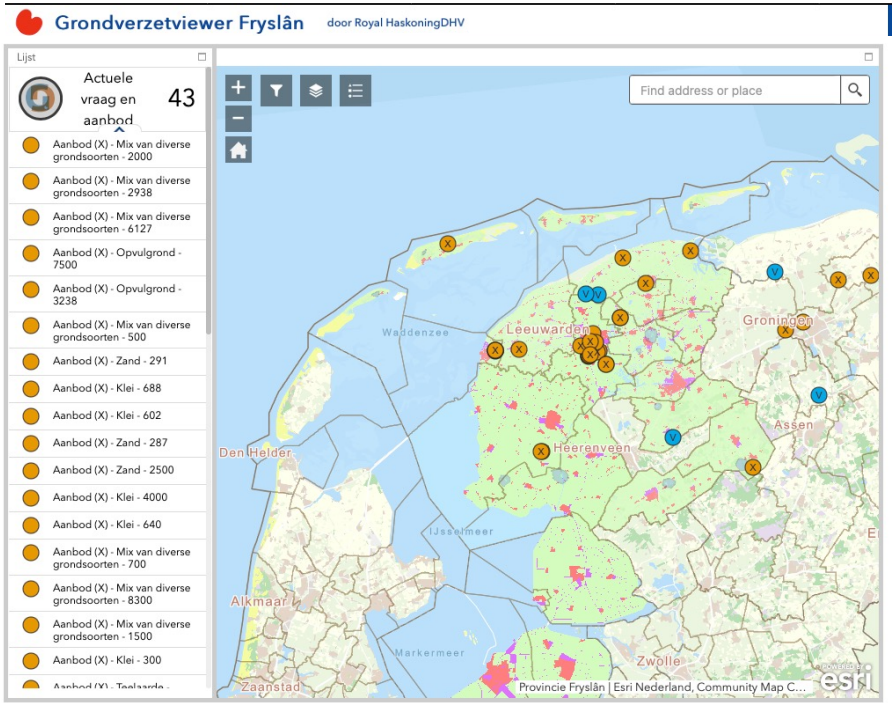
EU announces Critical Minerals Act

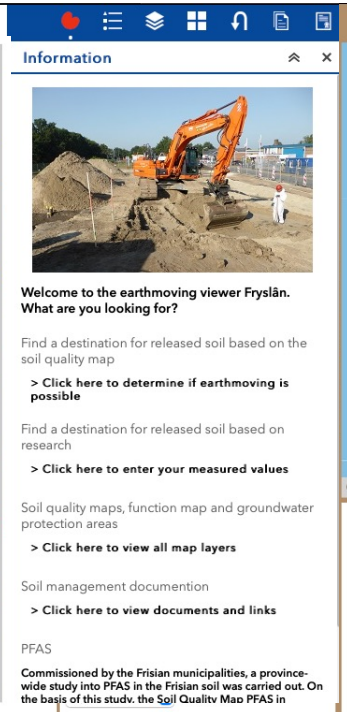
The European Union plans to launch a Critical Minerals Act to help it develop a supply chain for minerals used in electric vehicle batteries.

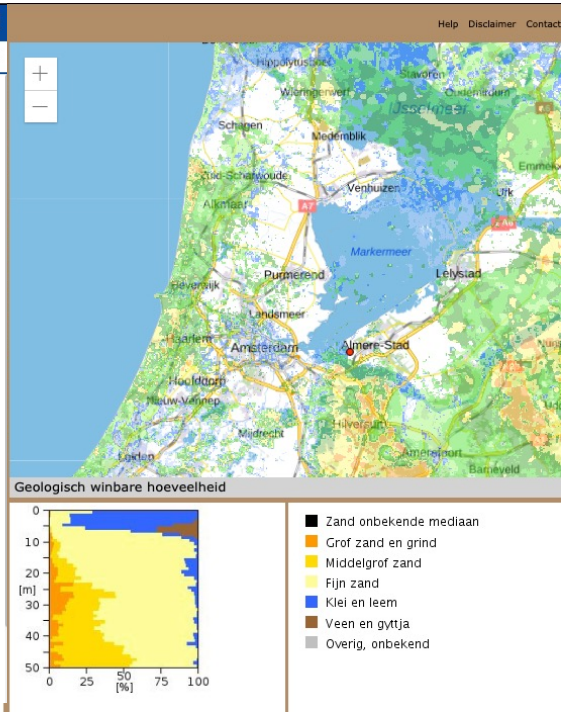
SUSTAINABLE DEVELOPMENT GOALS

Circular economy - Circular flow of building materials

National online Trading Platform Aggregate resources

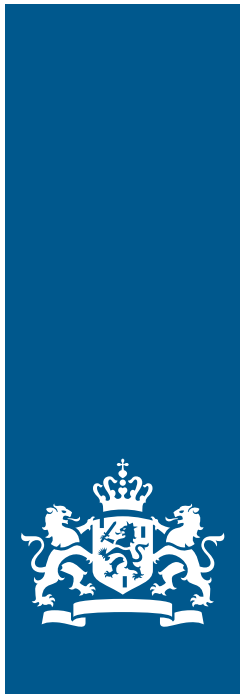






https://www.fryslan.frl/gripopgrond

https://www.delfstoffenonline.nl



Thanks for your attention

Questions?