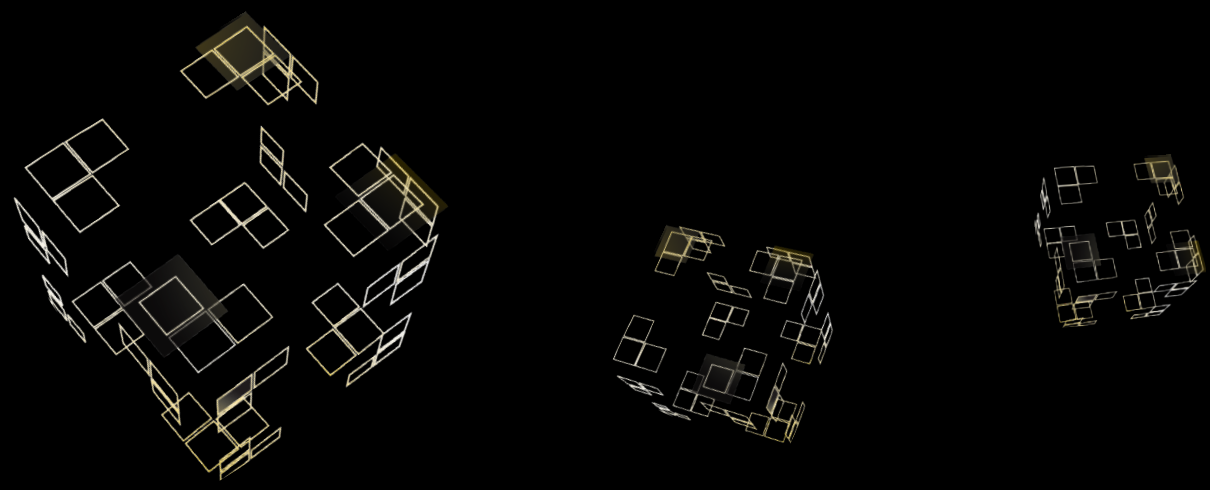


**UNIVERSITY
OF TWENTE.**



**UNIVERSITY
OF TWENTE.**

UNIVERSITY OF TWENTE.

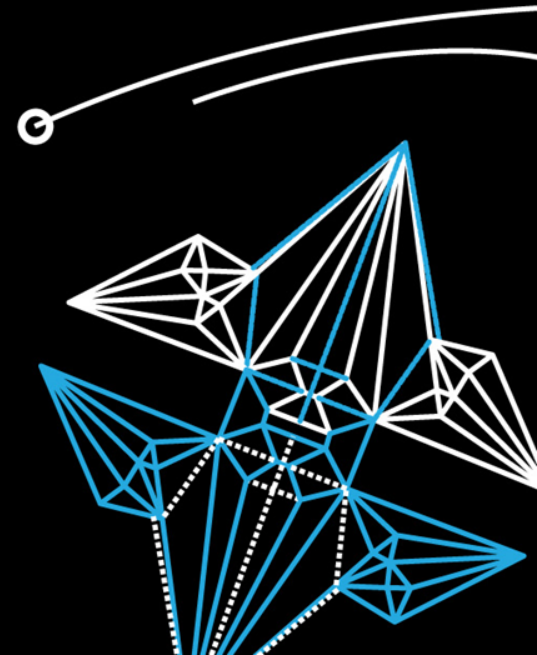


GEOOTHERMIE IN INDONESIA EN OOST AFRIKA

EEN INSPIRATIEREIS



PROF. DR. FREEK VAN DER MEER
HOGLERAAR GEOOTHERMIE
UNIVERSITEIT TWENTE



In COP21, Parijs 'to achieve a legally binding and universal agreement on climate, with the aim of keeping global warming below 2°C.'

Minister for Foreign trade and development cooperation

Clean energy



Klimaat



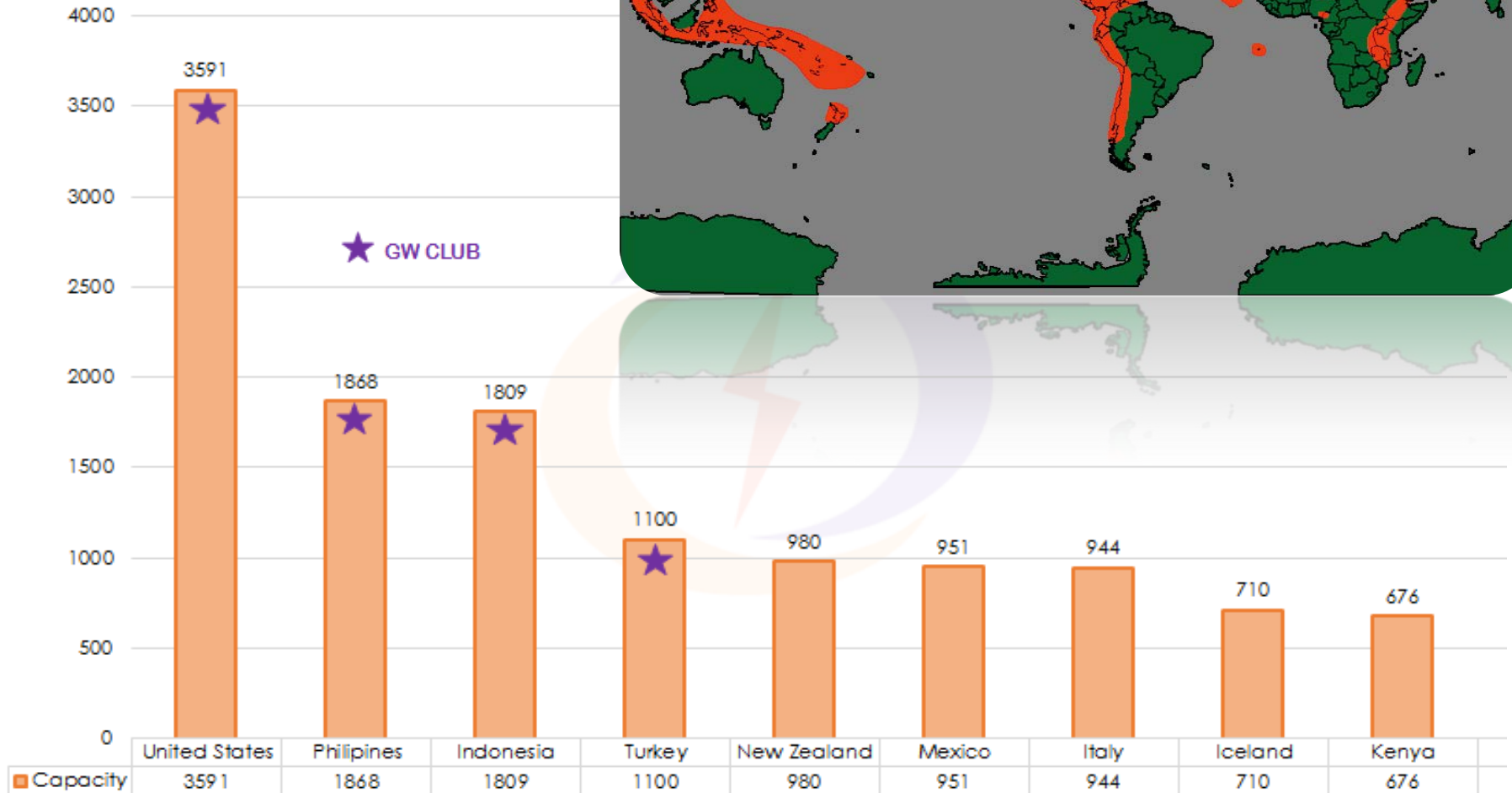
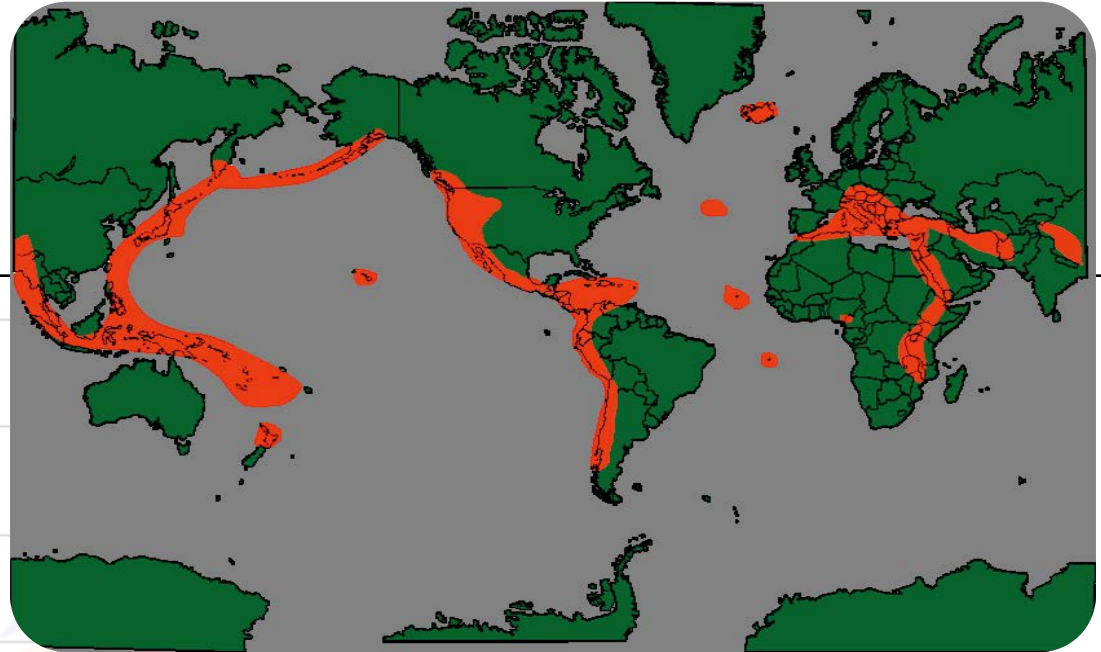
PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

Bron: F. van der Vleuten RVO-BuZA

UNIVERSITY OF TWENTE.



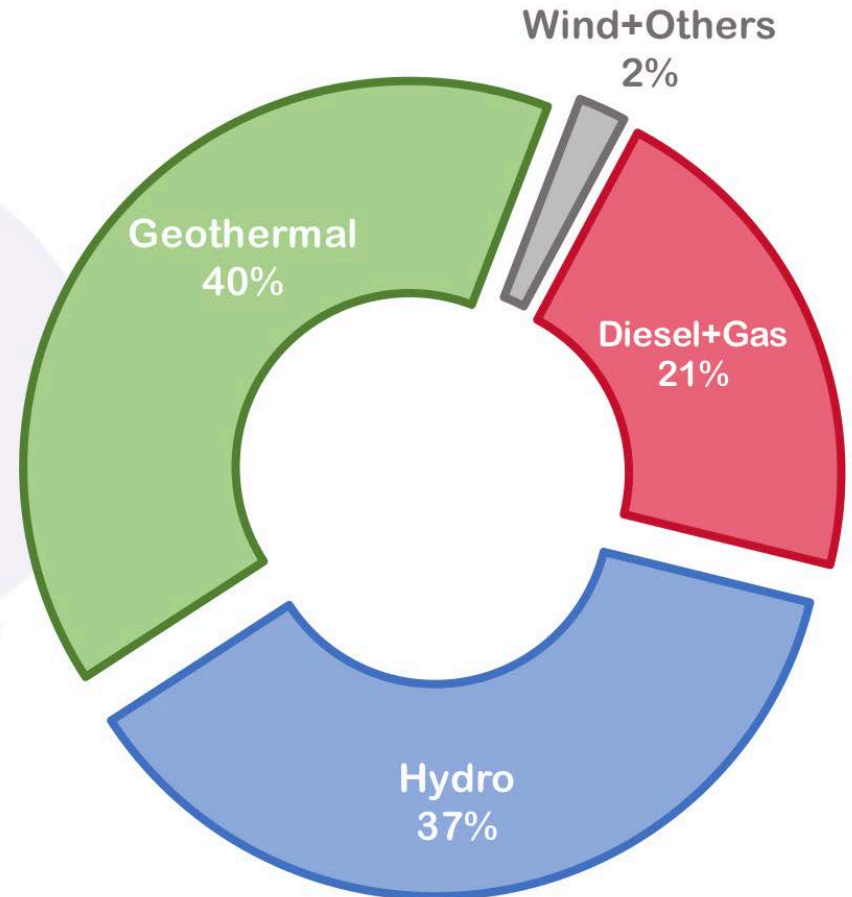
UT en geothermie
Indonesië sinds 2011
Kenya >15 jaar
Tanzania sinds 2014



Kenya



GENERATION MIX (%)



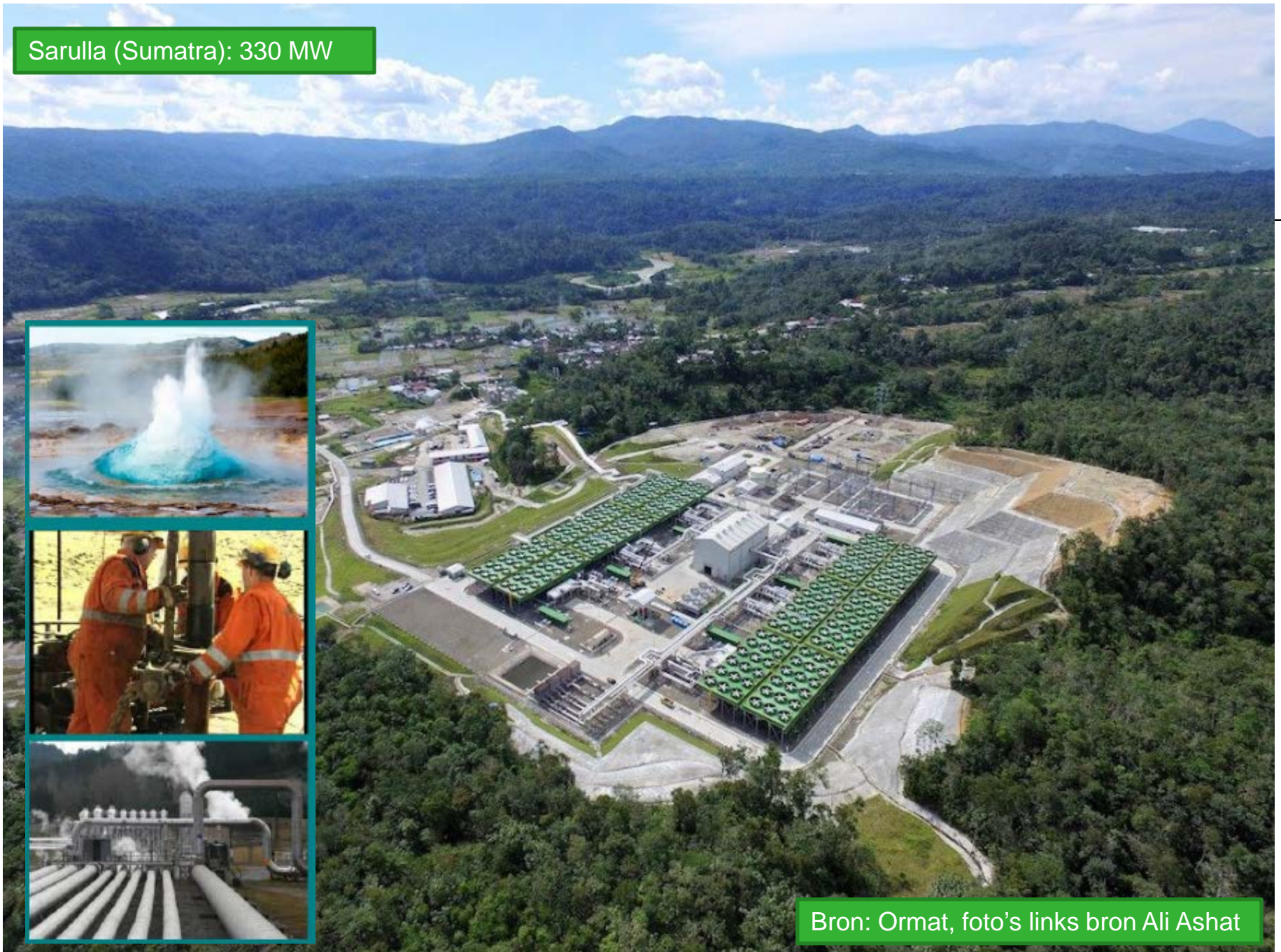
79% IS FROM GREEN SOURCES

KAMODJANG 1926

NU 200MW

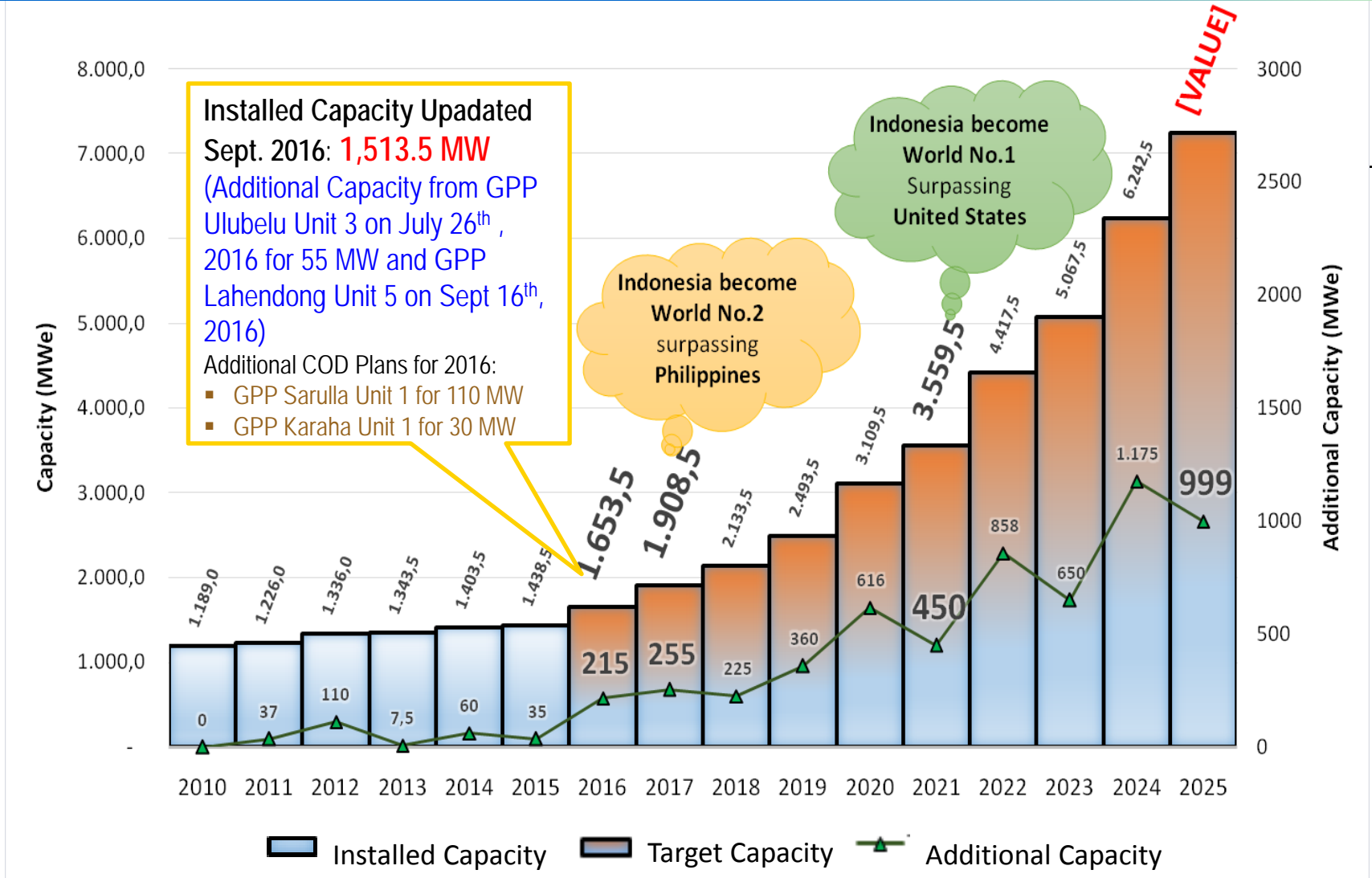


Sarulla (Sumatra): 330 MW



Bron: Ormat, foto's links bron Ali Ashat

GEOthermie Indonesie de ambitie



*Assumption: Philippines (1.870 MW) and US (3.450 MW) no capacity increase

100% duurzaam

Sumba (650k inwoners): biogas, zon, water en wind; HIVOS project

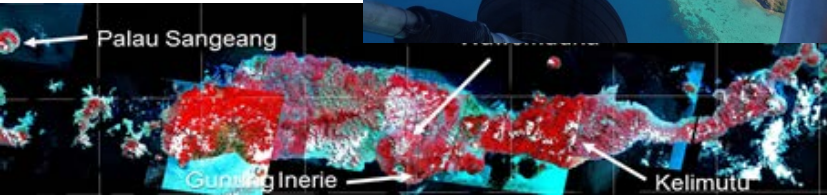
Flores : (1.8m inwoners): 100% geothermie

Sumba: een wereldvoorbeeld van duurzame energie

Sumba is hard op weg een 100 procent duurzaam eiland te worden. Duurzame energiebronnen voorzien steeds meer de inwoners van elektriciteit.



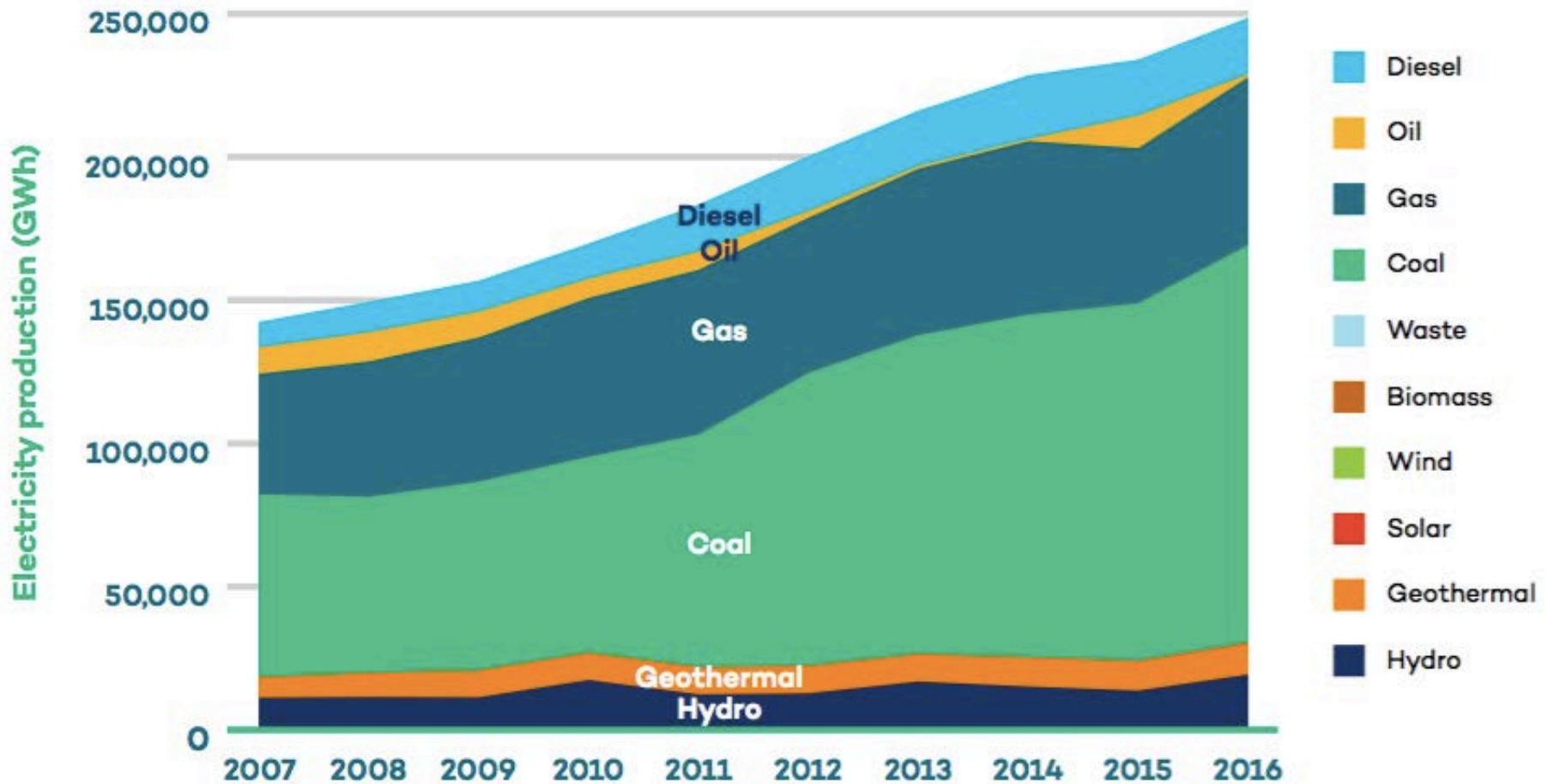
Dutch-Indonesian collaboration on airborne geothermal survey on Flores Island, Indonesia

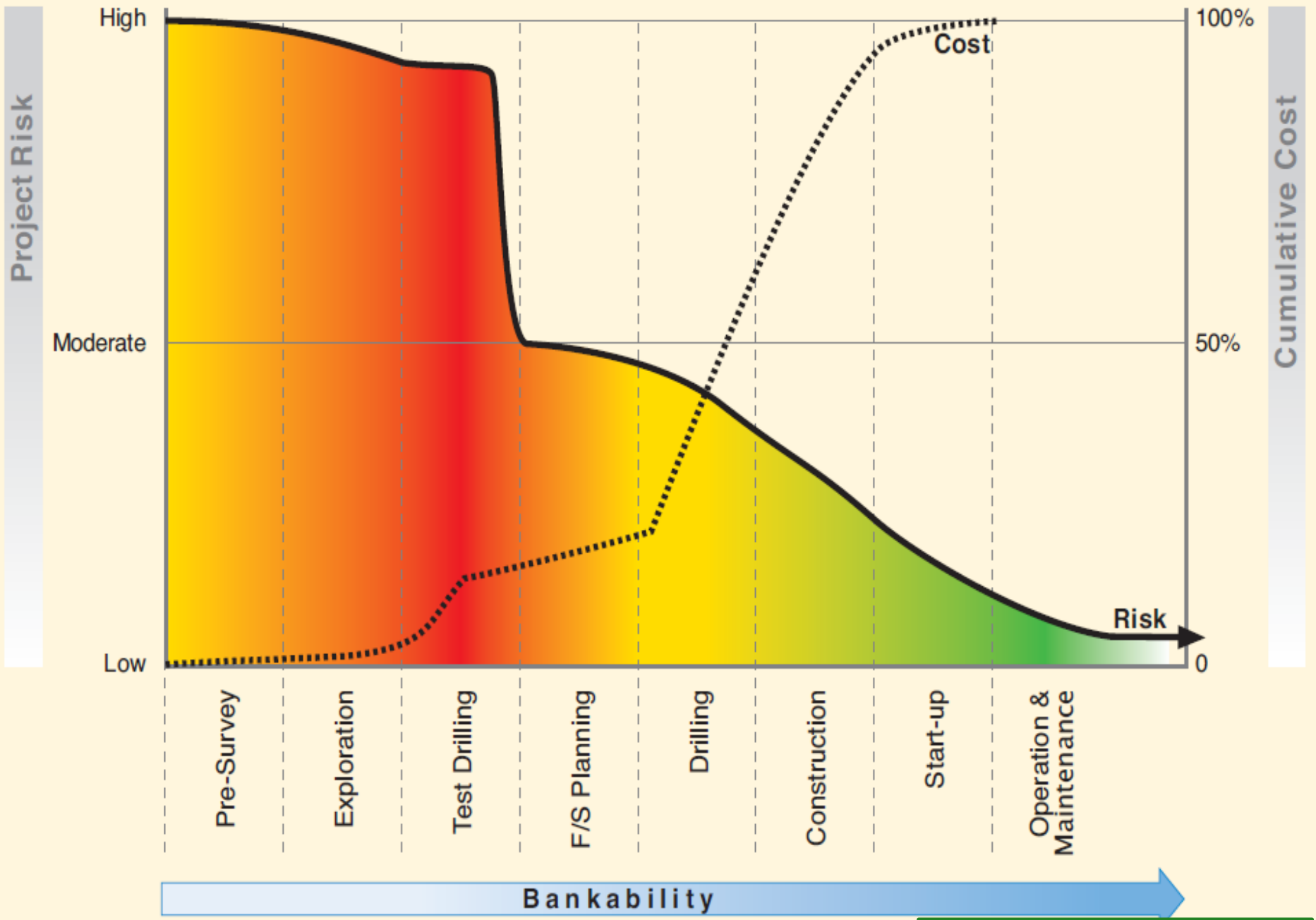


UNIVERSITY OF TWENTE.

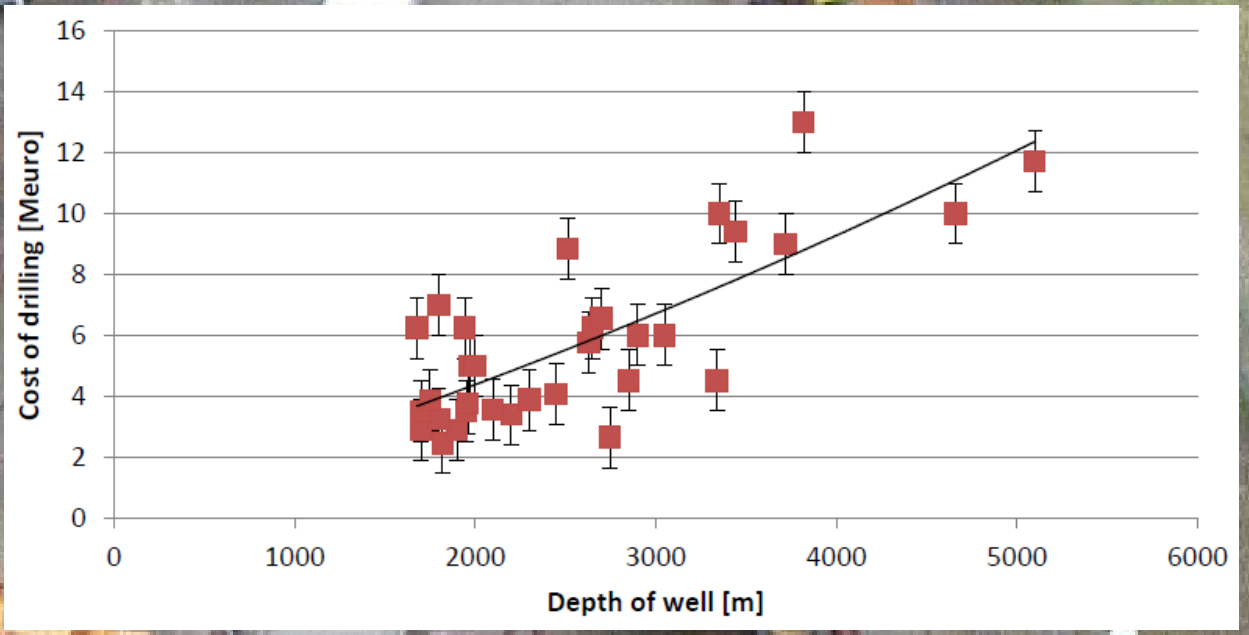
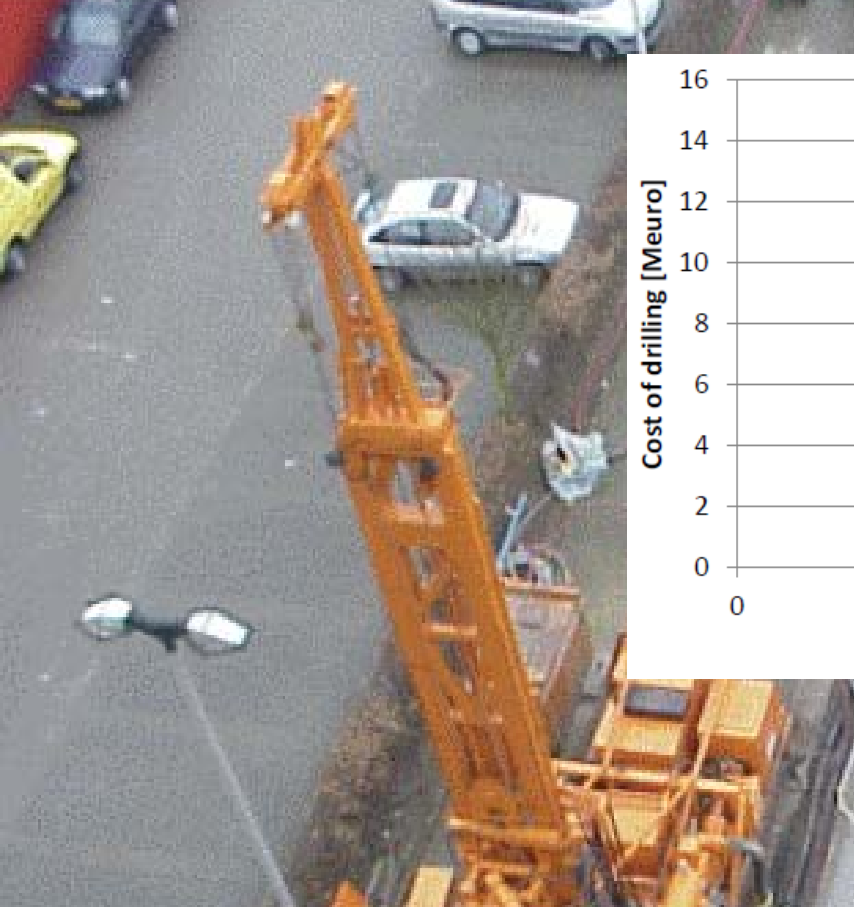
Bron: <http://www.thinkgeoenergy.com>, geocap.nl

GEOOTHERMIE Indonesie de realiteit





Bron: ESMAP geothermal handbook



Bron: MSc thesis Derk Straathof, UU, 2012



- Boreholes
- Seismic surveys
- Fields
- Production
- Infrastructure
- Licences

- Publications and Data sets
- Legislation
- Administrative procedures
- Fees, taxes and state participation
- Seismicity and subsidence
- Contacts

- ▶ Links
- ▶ Home
- ▶ Disclaimer
- ▶ Contact
- ▶ (in het Nederlands)

KOSTEN BORINGEN SUCCES RATIO

Resource mapping
Information system

Welcome to the NL Oil and Gas Portal

This site provides information about oil and gas exploration and production in the Netherlands and the Dutch sector of the North Sea continental shelf.

It aims to help users access information furnished by the Dutch government in an easy, comprehensible fashion.

This site was produced at the request of the Dutch Ministry of Economic Affairs, Agriculture and Innovation and is being managed by TNO, Geological Survey of the Netherlands.

Recent changes

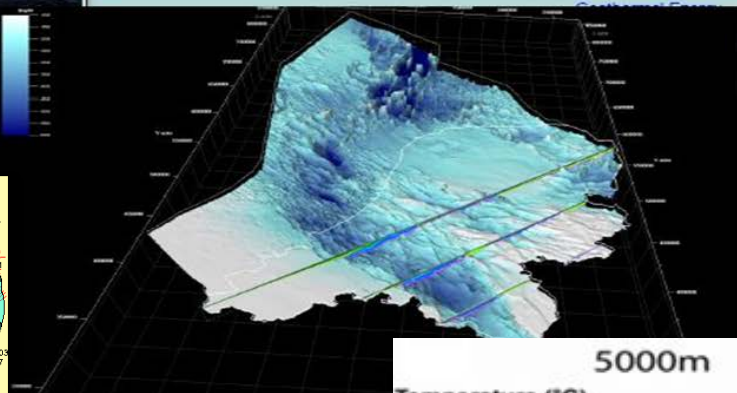
We keep this site continually up-to-date. Click [here](#) for an overview of recent changes.

Other topics

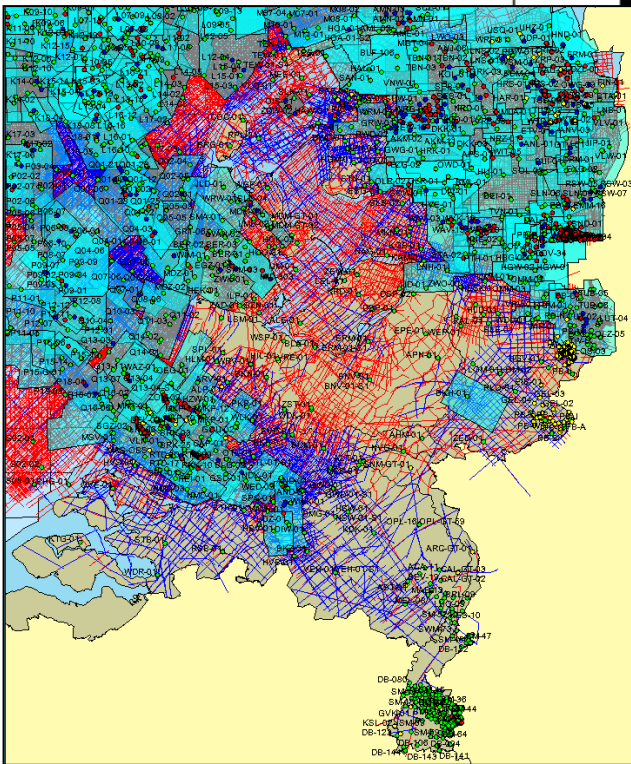
[Salt production](#)

[Underground gas storage](#)

NL one of few countries
With public data access
to almost all E&P data

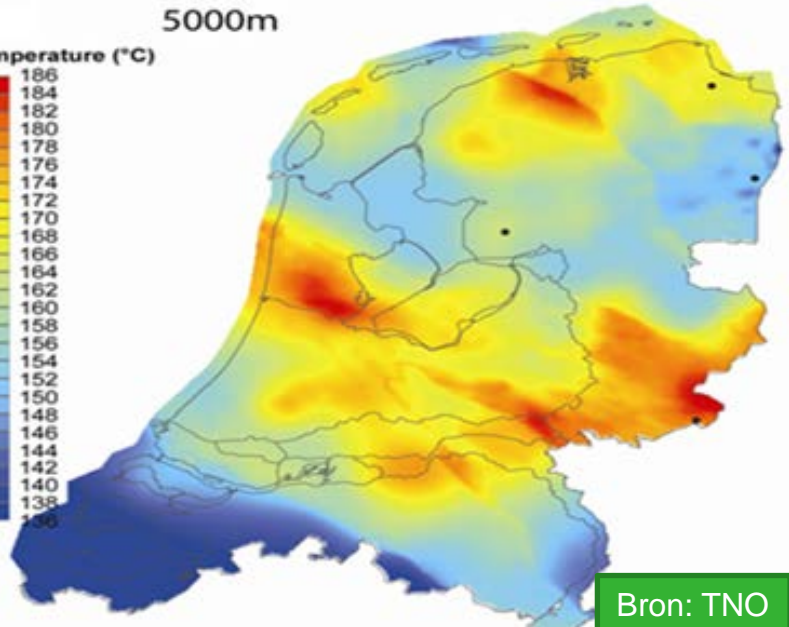
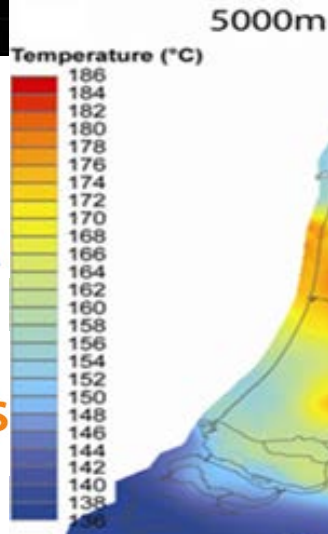


>20 years experience
State of the art 3D
subsurface mapping



OPEN DATA

OPEN ACCESS

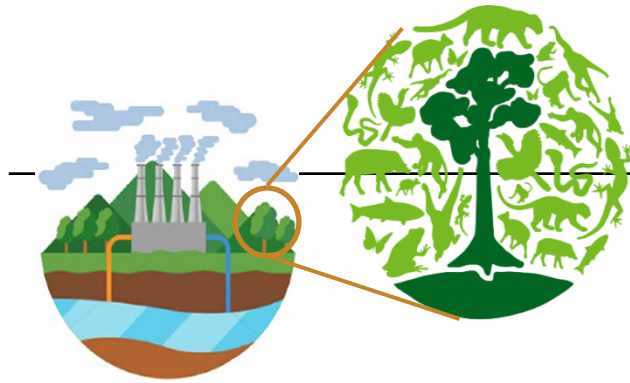


Bron: TNO

TECHNISCHE UITDAGINGEN: CORROSIE DOORLATENDHEID



Uitdagingen: niet technisch wel maatschappelijk



Energie versus Bos



Maatschappelijk draagvlak



Prijs



Financiering

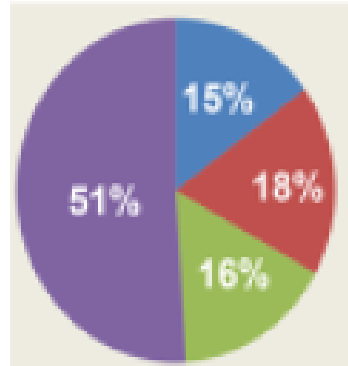


Licenties



Personneel

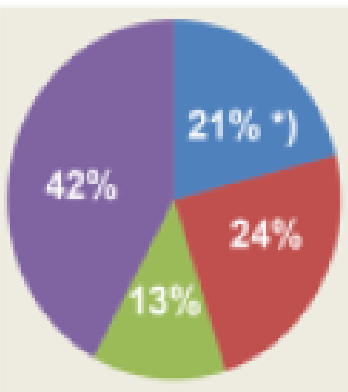
Distribution of potential Geothermal site in forestry area



- Conservation Forest
- Protected Forest
- Production Forest

Number of potential geothermal site: 330

Geothermal potential in forestry area



- Conservation Forest
- Protected Forest
- Production Forest

Geothermal potential: 29GW

Minister van Energie



Minister van Bosbouw en Milieu



Stakeholder workshops

LAPINDO: MODDER VULKAAN



Oorzaak:
gas boring door Lapindo Brantas?
Of aardbeving?
180,000 m³ of modder/dag
Sinds 2006, schatting nog 20 jr actief



NEDERLAND, HELDERE DOELEN, GROTE AMBITIES

CO2 reductie tot 50% van niveau 1990 in 2030

18 MT CO2 opslag per jaar in 2030

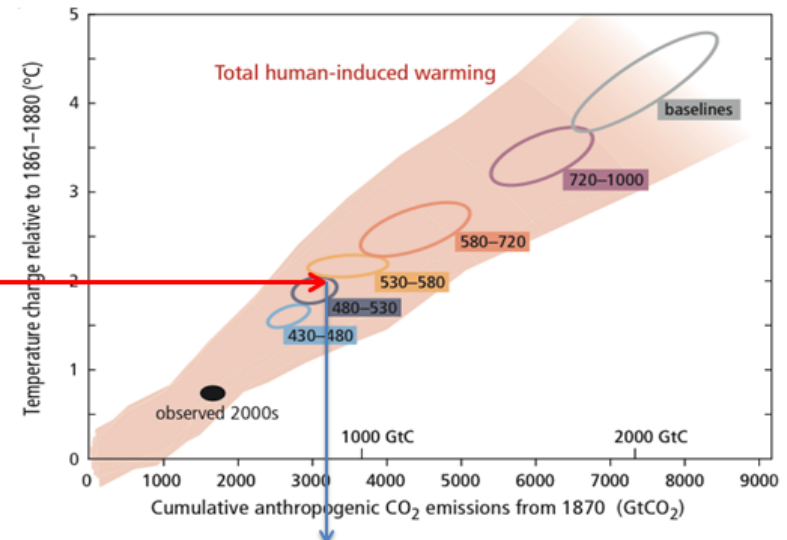
Na 2021 geen nieuwe huizen aansluiten op het gas netwerk

Kolencentrales dicht

Auto's emissie vrij

1. Assume:

$$\Delta T_{global} = 2 \text{ }^{\circ}\text{C}$$



2. Maximum CO₂ emissions: 3200 GtCO₂
3. Emitted until now: 2000 GtCO₂ } 1200 GtCO₂ left
4. With 40 GtCO₂/yr: we have (1200/40 =) **30 years** → **2050**

UNIVERSITY OF TWENTE.

UNIVERSITY
OF **SCIENTIFIC**
ENTREPRENEURS.

The University of Twente is Europe's most entrepreneurial university whose core business is to cross boundaries.

UNIVERSITY
OF TWENTE.