



O, G & G opportunities in the Netherlands

Annemiek Asschert, Geoscientist at EBN
APPEX 2018, booth 40



EBN helps you explore in the Netherlands



- EBN as your partner



- Your gateway to Dutch data



- The need for exploration



- Size of the price



- Recent Exploration Successes



EBN as your partner

EBN: Dutch State participant

- Industry partner & Co-investor in Oil, Gas & Geothermal
- Non-operating partner (40-50%) for oil & gas companies
- Shares held by the Dutch State

2016 results:



20 bln Nm3
(incl. Groningen)



1,6 mln bbl



€ 1,3 bln
State revenues

Exploration >>

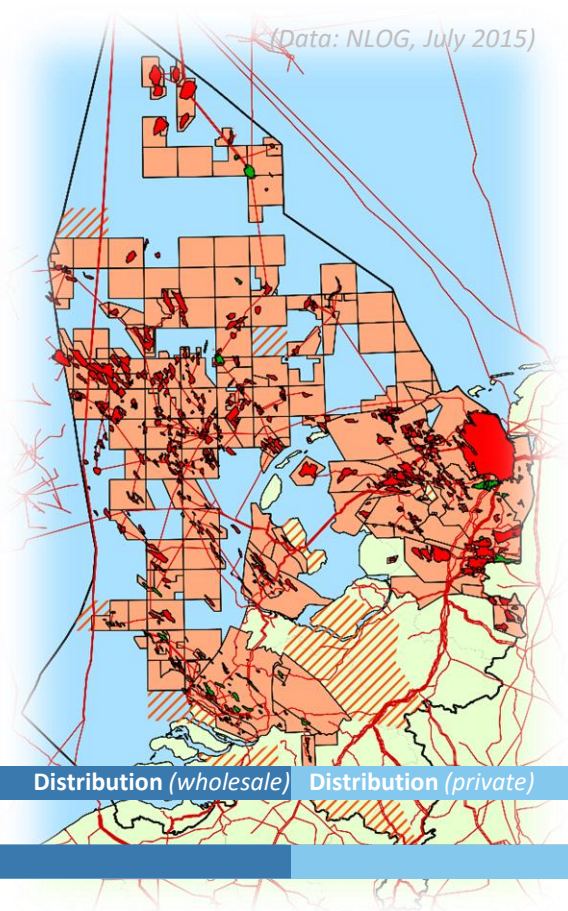
Production >>

Gas storage >>

Distribution (wholesale)

Distribution (private)

EBN's influence and responsibilities

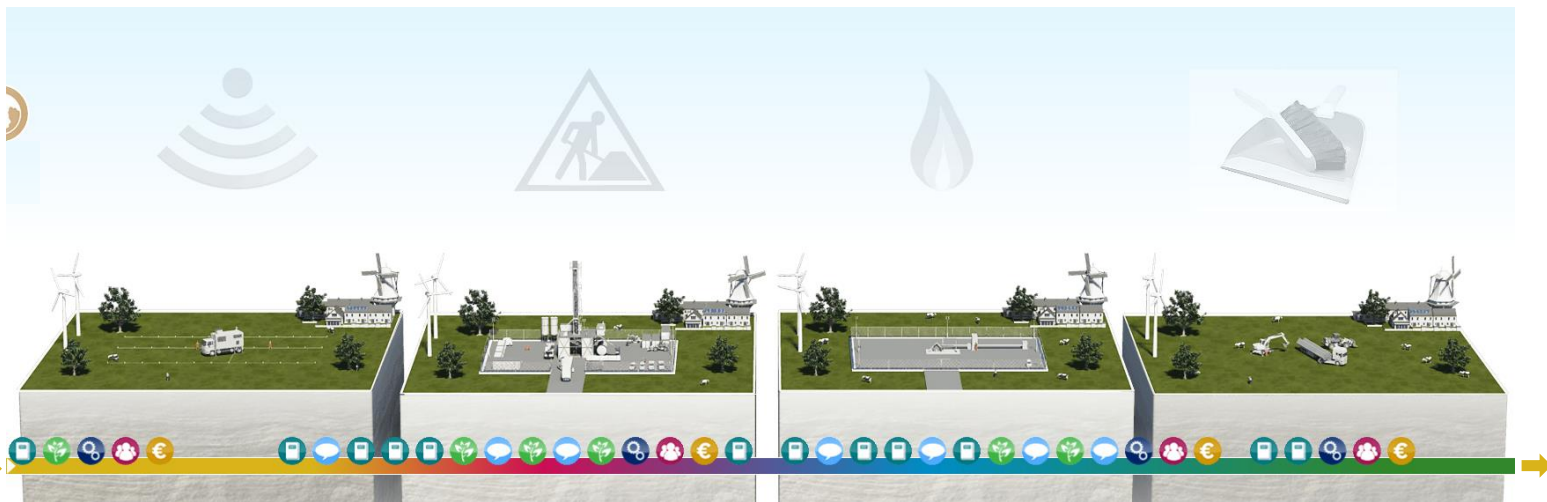


EBN as your partner

Invests, facilitates and shares knowledge & risk



- EBN is your **investment** partner
- The **Dutch state participates** via EBN with 40%/50% in both exploration and production
- EBN facilitates the **transfer of knowledge** of the subsurface, facilities and economics

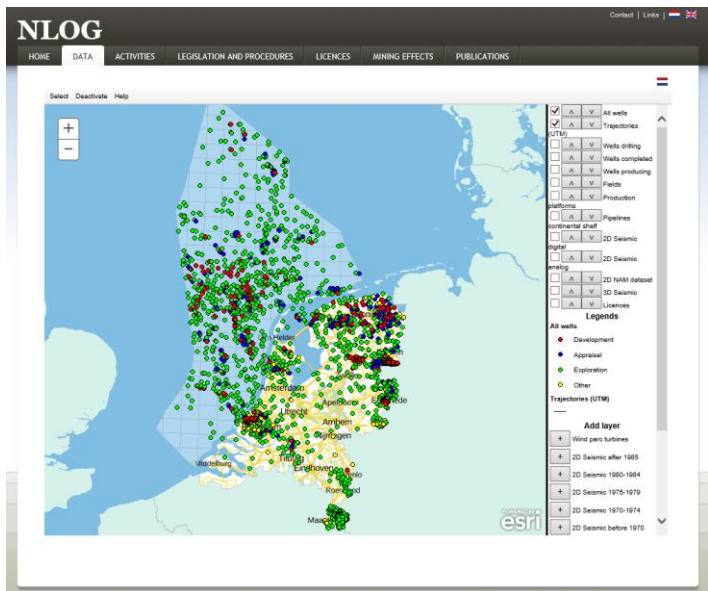


Your
partner in
all stages

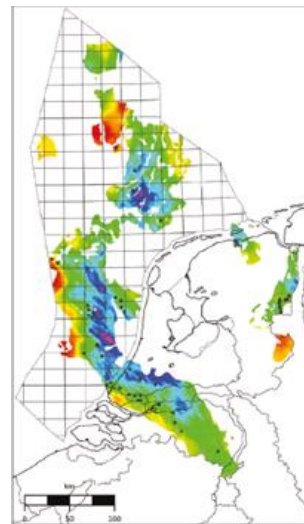
Your gateway to Dutch data



Subsurface data available free of charge on NLOG.nl (TNO)



- Well data (older than 5 years)
- Seismic data (3D & 2D data older than 5 years)
- Production data
- Production plans
- Gas/oil fields and geothermal data
- Regional porosity & permeability maps
- Interpretations, reports
- Background references
- Legislative procedures



Big data analyses by EBN

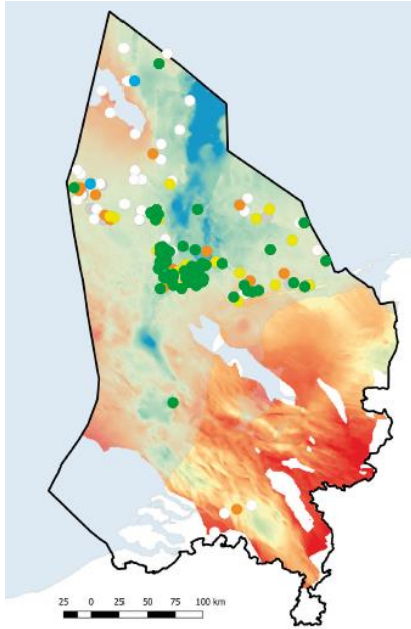
Geo-Drilling Events database



This database provides information on drilling events from existing wells.

- Improving well safety and reducing NPT & well costs
- A better understanding of geological drilling hazards in NL
- Learning from past geological incidents by analyzing public data

Hydrocarbon shows database



This database provides a systematic overview of Hydrocarbon shows encountered in the Dutch subsurface

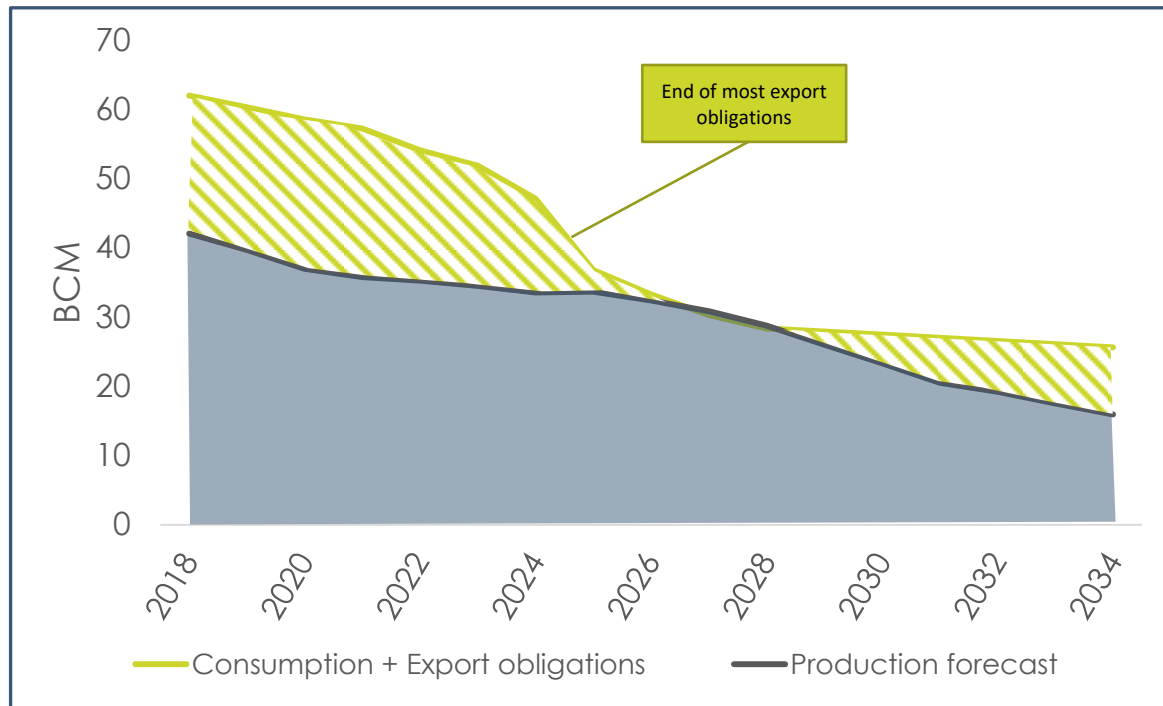
- Per stratigraphic level
- Well-defined classification scheme
- Analysis of public data of more than 700 wells

The need for exploration



The need for exploration

Dutch gas balance



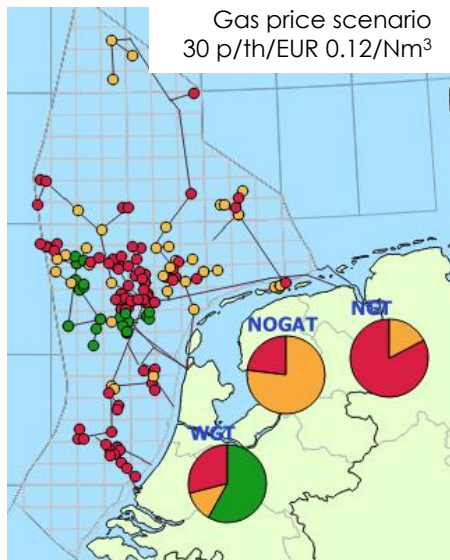
- Natural gas is needed for the transition to sustainable energy sources
- CO2 footprint domestic gas is lower than from imported gas

20 BCM = 66 windfarms
(à 700MW)

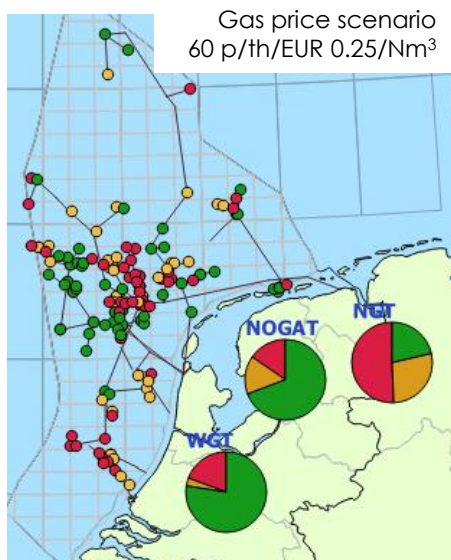


The need for exploration

COP infrastructure



COP based on reserves



COP based on reserves & resources

Gas evacuation systems trunklines:

- WGT
- NOGAT
- NGT

- 2016 – 2020
- 2021 – 2025
- > 2025

EBN publication Focus on www.ebn.nl

The exploration potential of the Netherlands



The exploration potential of the Netherlands

Size of the price

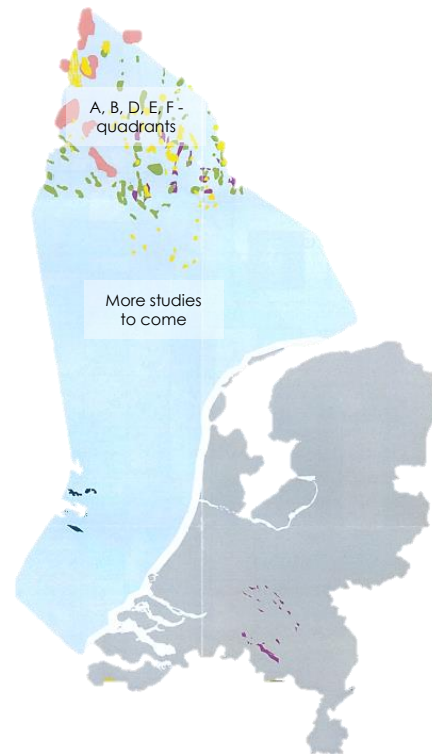


Results of EBN studies on the largest open area

Preliminary inventory:

- **Chalk:** > 55 untested closures
sizes varying between **10 and 300 MMbbls**
- **Triassic:** > 50 closures, 29 leads, **2.8 tcf** (80 bcm) *unrisked*
- **Zechstein:** 7 leads
- **Carboniferous:** 20 leads/structures, **2.6 tcf** (75 bcm) *unrisked*

For more details: booth 40





The exploration potential of the Netherlands

Studies performed:

Plays, reservoirs:

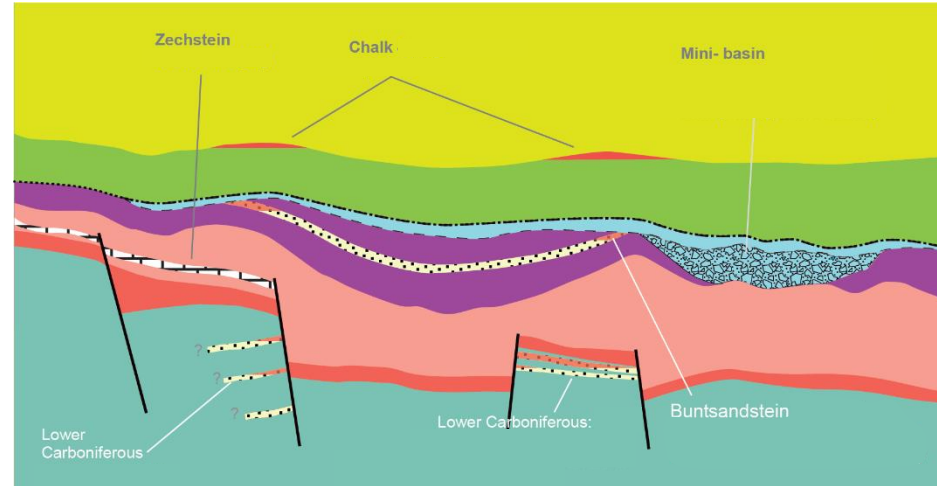
- Tertiary - Shallow gas
- Chalk
- Upper Jurassic – Lower Cretaceous
- Triassic
- Carboniferous – Lower Carboniferous & Dinantian

And more..:

- Structural Development
- Source rock
- Onshore geothermal plays/opportunities
- Dual play

For 2018:

- Plans to shoot seismic (app. 3700 km²)
- Reprocess old surveys



Schematic example of plays in the Netherlands

Exploration succes



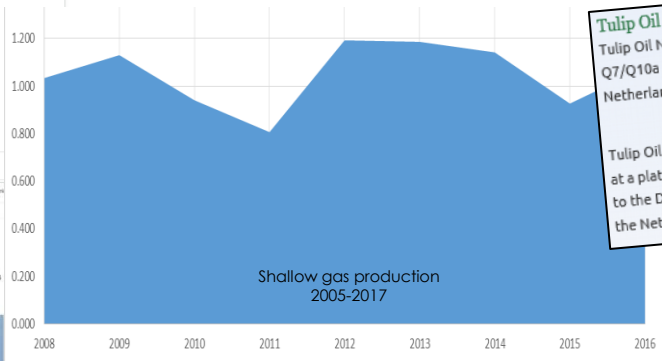
Basal Rotliegend sands

Shallow gas

Multi-target exploration

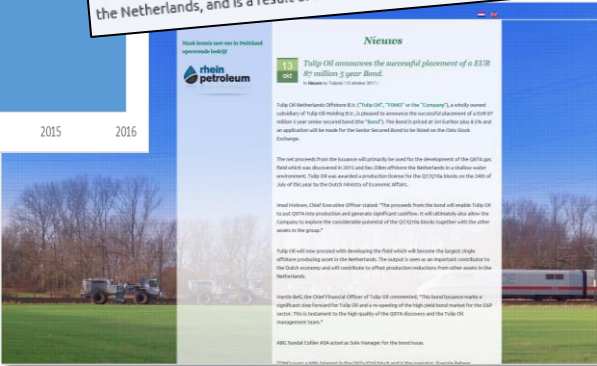


Hansa, ONE open Rotliegend gas play in the Dutch North Sea



Tulip Oil awarded Production License for the Q7/Q10a blocks.
Tulip Oil Netherlands Offshore BV (TONO) has been awarded a production license for the Q7/Q10a blocks, the site of what is considered to be the largest gas discovery offshore the Netherlands in fifteen years.

Tulip Oil will now proceed with the development plan for the field, which is expected to produce at a plateau rate of 3 million cubic metres a day. The output is seen as an important contributor to the Dutch economy and will contribute to offset production reductions from other assets in the Netherlands, and is a result of the successful Dutch Small Fields Policy.



The Netherlands

- Revitalizing exploration -

Booth 40

For posters, presentations and
demo's

Thank you for your
attention
EBN,
the Netherlands

