
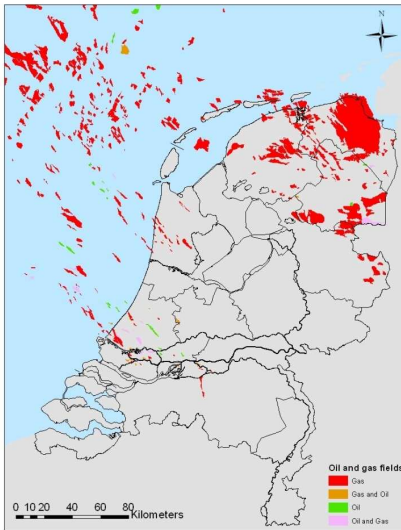


Shale Gas Development in The Netherlands

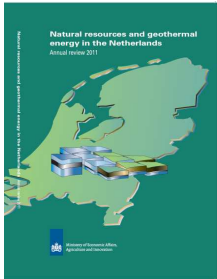
Dr. Rene Peters
 Director Gas Technology
 TNO Energy




The Netherlands: a country rich on gas since 1959




- › 2010: 85,9 Bcm (3 TCF) gas production
- › 2010: 58 new wells (10 exploration)
- › Gas (+ Oil) reserves published annually by TNO
- › Status 1 January 2011:
 - › 1304 Bcm gas (46 TCF)
 - › 75% in Groningen field
 - › 12% small fields onshore
 - › 13% offshore fields





www.nlog.nl




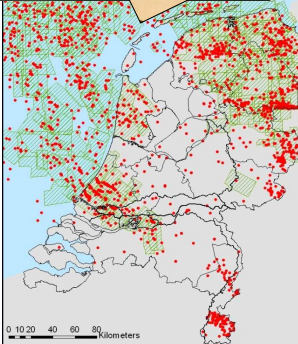


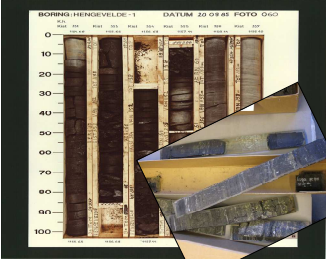
NL is rich on geological data

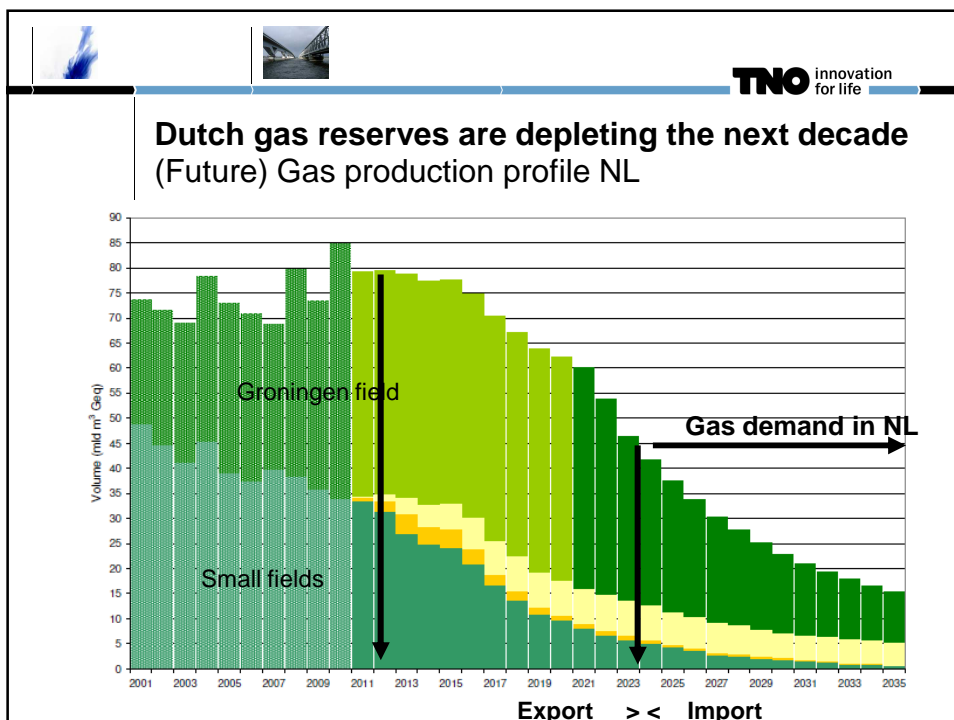
- › Over 5000 boreholes
- › More than 500.000km 2D seismic lines
- › More than 70.000 km² 3D seismic datasets
- › Numerous reports
 - › Reservoir parameters
 - › Gas composition
 - › Pressures
 - › Etc...

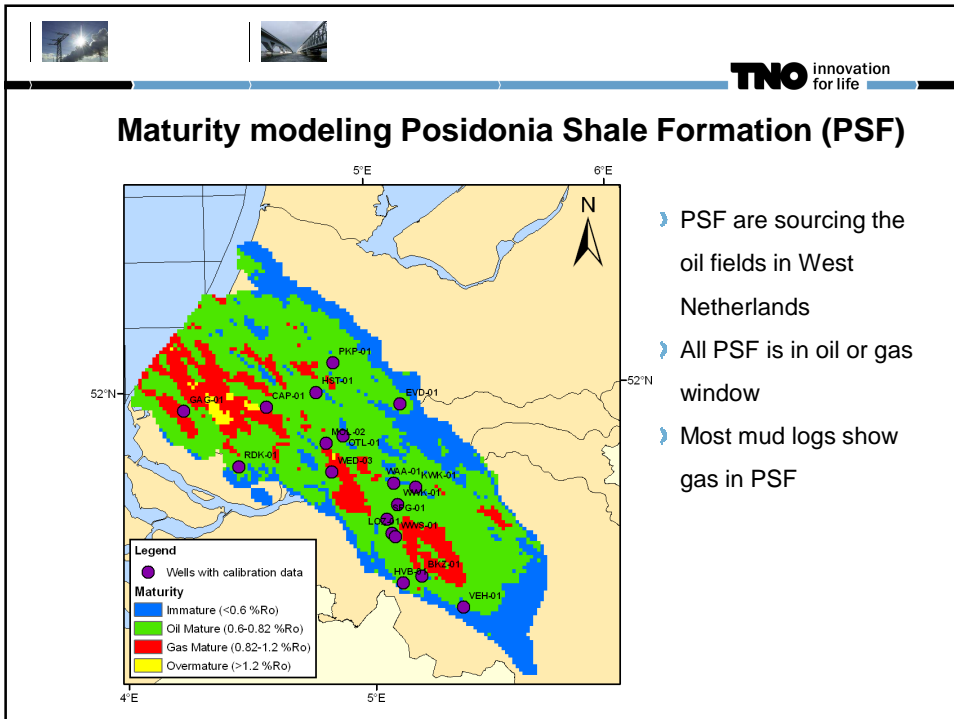
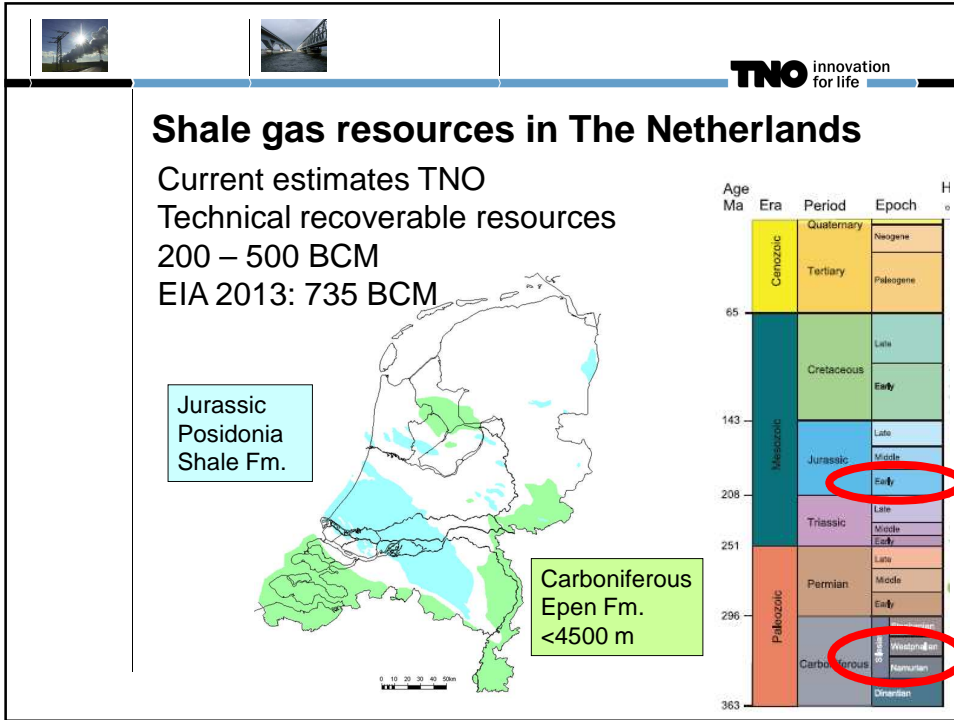














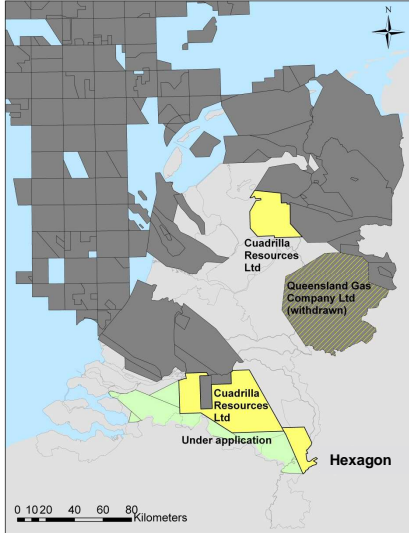



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Status shale gas in NL – exploration licences

- › Cuadrilla has exploration licences for Noord Brabant and Noordoost Polder
- › Queensland Gas has not pursued its licence in Gelderland
- › Hexagon has a licence in Limburg area
- › BNK has applied for a licence in the Utrecht province.
- › A new concession round for Southern Brabant and Utrecht
- › Study initiated on the risks and environmental impact of shale gas in the Netherlands







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Political situation in NL

- › Minister of Economic Affairs ordered a study to the risks of shale gas development in the Netherlands (final report July 1, 2013)
- › All activities on hold awaiting the final report and decision by minister
- › Government consisting of two parties has not decided yet (VVD/PvdA)
- › Liberal party in favour (VVD)
- › Social Democrats in doubt (PvdA, no, unless or yes, but only if....)
- › Green party against (GL)
- › General feeling is that drilling a few exploration wells are valuable to clarify the presence of shale gas and quantify some of the risks.
- › Exploration drilling will be accompanied with an independent scientific R&D program

RESEARCH & ANALYSIS
ENERGY
ERIC WESOFF: ...

Public opinion to shale gas is negative, mainly because of Hydraulic Fracturing

Test drilling for shale gas is about to commence in Brabant, a province in the Southern Netherlands and a large majority of the provincial council is skeptical about the project.

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Report Future of fossil fuels 9 February 2011

Dutch Energy Council embraces unconventional gas

Poland targets shale gas: 'Fracking' Comes

Haaren vreest boringen schaliegas

Inwoners bezorgd over schade aan landschap en grondwater door nieuwe vorm van gaswinning

Associated Press

Het is vijf voor twaalf

derland

GroenFront Actie Picknick
Zondag 24 juni van 12:00u tot 16:00u
Omdat de gemeenteraad in Bostel niet wil toestaan om te zoeken naar nieuwe voorraden in Bostel ligt er een gevaar te zien, en om die uit te kunnen bussen wordt alle zorgvuldigheid, veiligheid en verstandigheid overboord gegooid. Inspiraie vanuit de buurt is niet mogelijk, de lokale politiek wordt in de hoek gezet, het zal kosten wat kost doorgaan. Het voor Actie deel GroenFront zal zondag 26 juni een picknick organiseren vanuit de Bostelse Markt. We zullen het hebben over activiteiten en strategieën, en we zullen gezamenlijk een kopje koffie en een soep nuttigen! Er zullen sprekers zijn van SchaliegasVrij Haaren en van SchaliegasVrij Bostel.

STOP SCHALIEGAS
tegen kraken onder de Brabantse grond

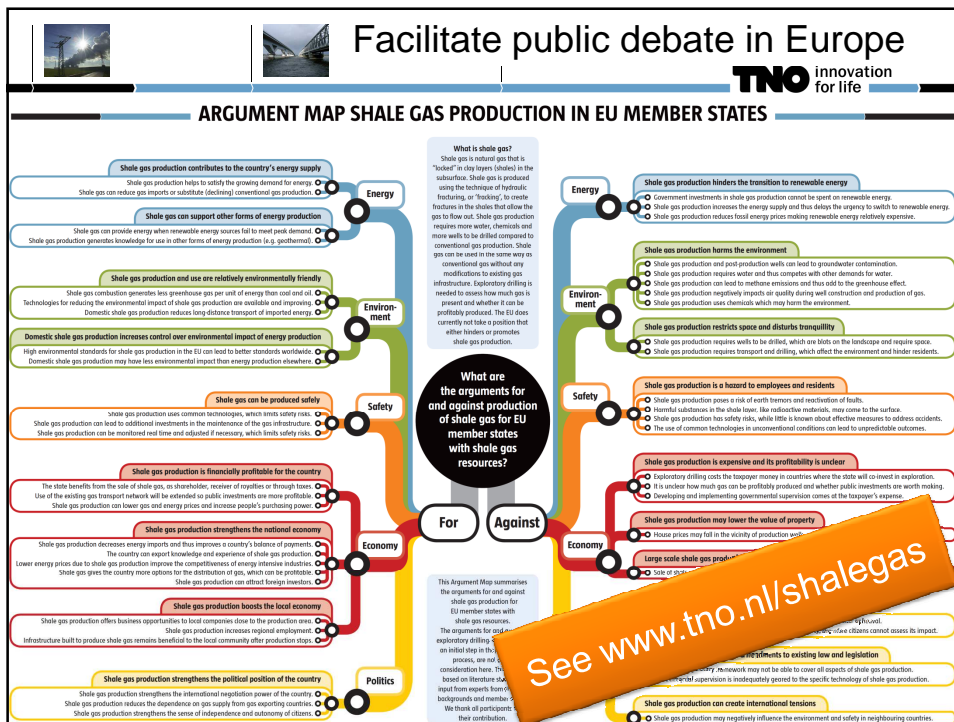
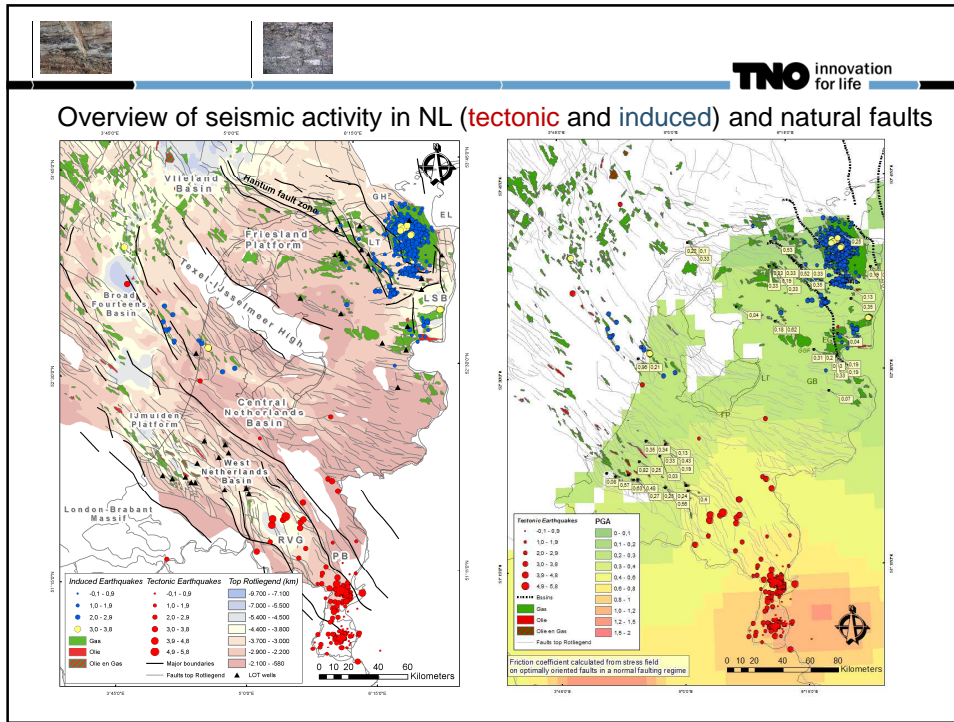
which communities get their drinking water.

Published: Monday, May 09, 2011, 4:44 PM Updated: Monday, May 09, 2011, 4:56 PM

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Hurdles for shale gas development in NL

- › **Densely populated areas – concerns for the public**
 - › Noise production
 - › From drilling and fracking activities
 - › Induced seismicity
 - › From fracking operations
- › **Environmentally protected areas – concerns for the environment**
 - › Risk of chemical pollution
 - › Productions of radioactive materials (NORMs)
 - › Leakage into the water bearing layers
 - › Spills from storage tanks and trucks
- › **In General: Public Acceptance is lacking**



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European Research Program on Shale Gas

Leading Institutes

- › TNO – The Netherlands
- › ECN – The Netherlands
- › IFPEN – France
- › GEUS - Denmark
- › Sintef - Norway
- › UKERC - UK
- › LNEG – Portugal

› In total 24 institutes from 15 European countries involved.

TNO is program manager

Sub R&D programs identified



- › Assessment of shale gas potential
- › Technology for safe exploitation
- › Environmental impact & footprint
- › Energy and carbon efficiencies
- › Regulations, market and policy issues
- › Public perception

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EERA joint R&D program on shale gas

EERA program:
In total 24 institutes and geological surveys

From 15 EU member states



Thank you for your time and attention

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