

Tight Gas in the Netherlands

What is the Prize?

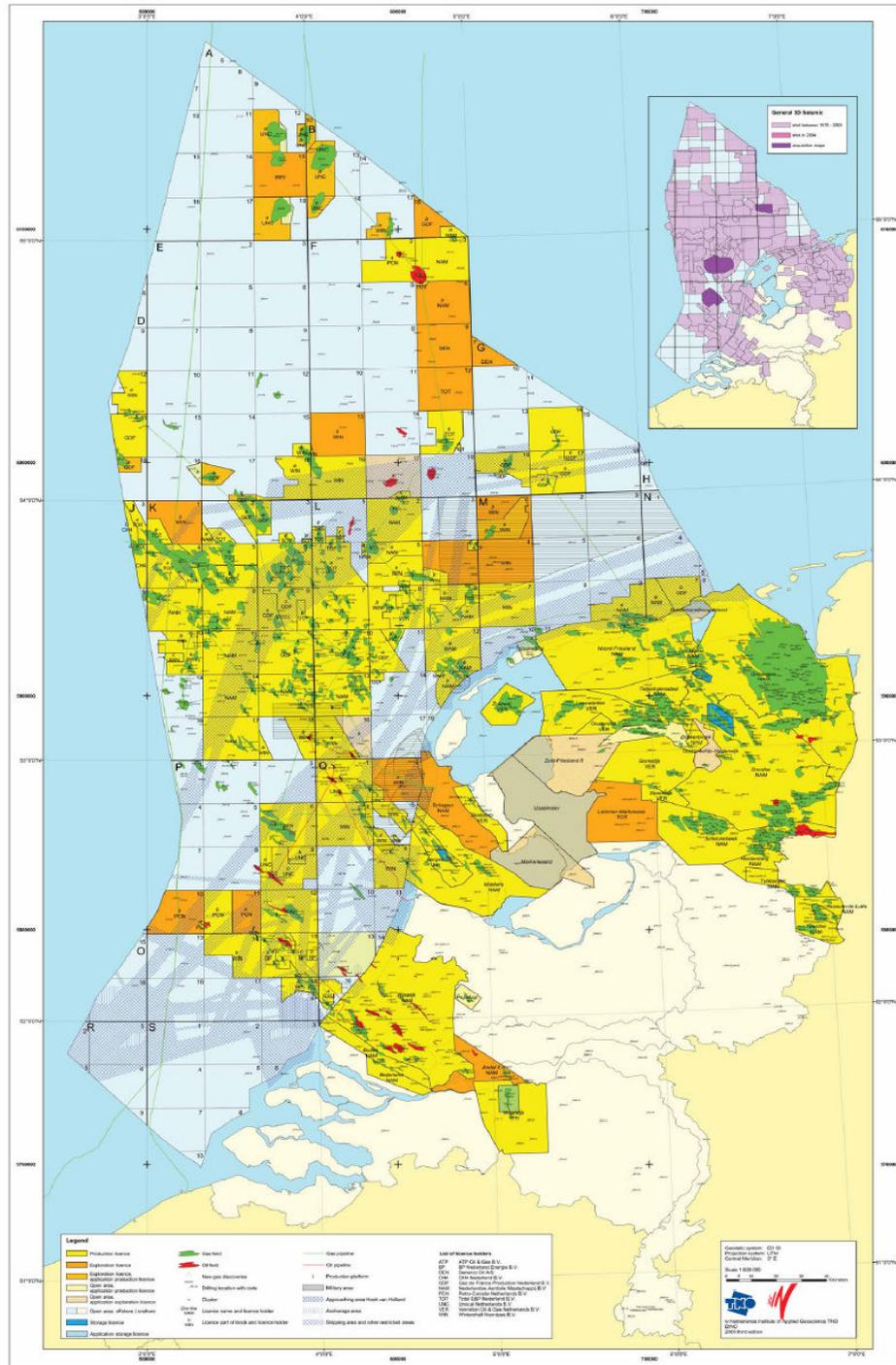
TNO | Kennis voor zaken



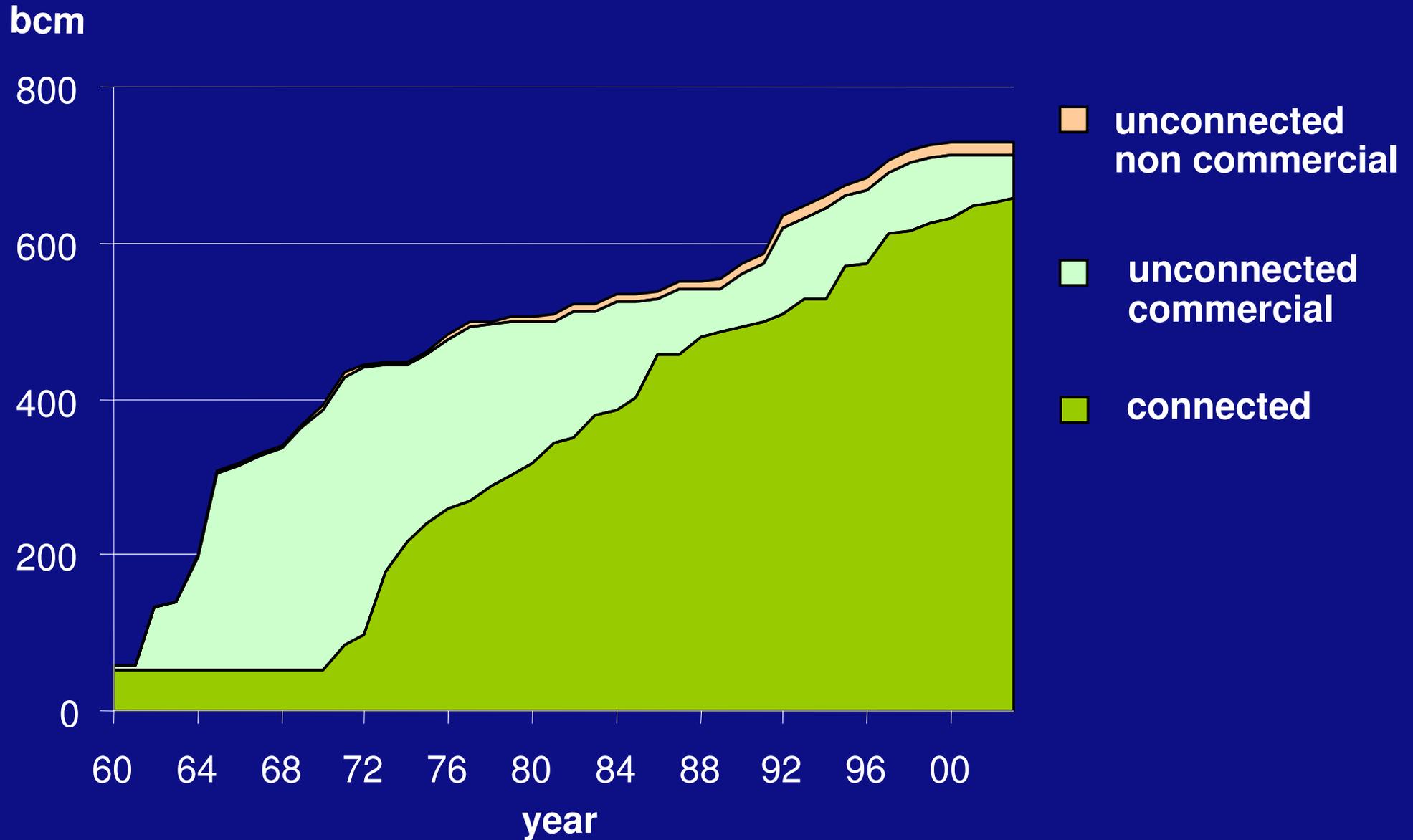
Jaap Breunese



Oil and Gas in the Netherlands

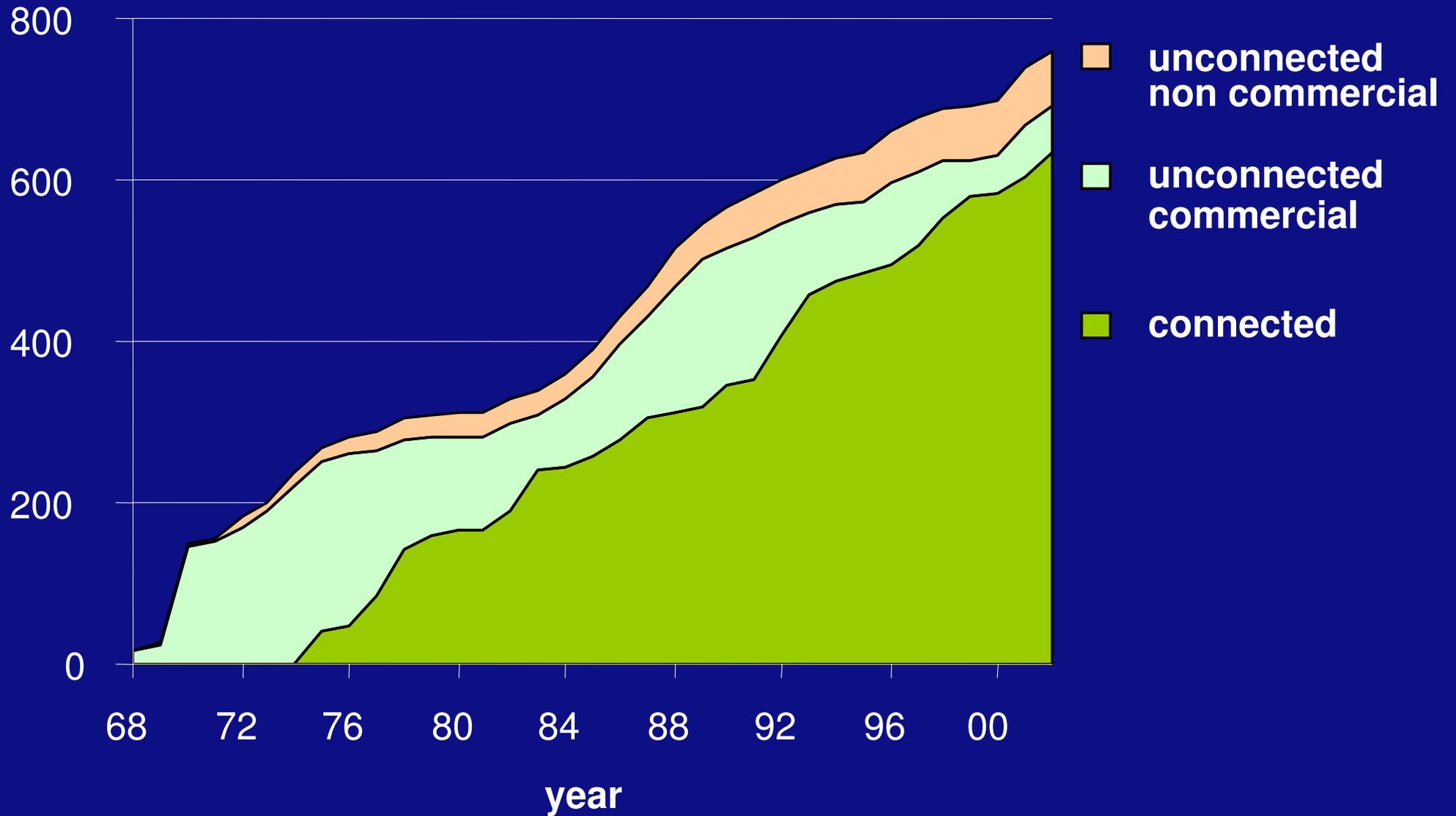


Development rate Netherlands onshore



Development rate Netherlands offshore

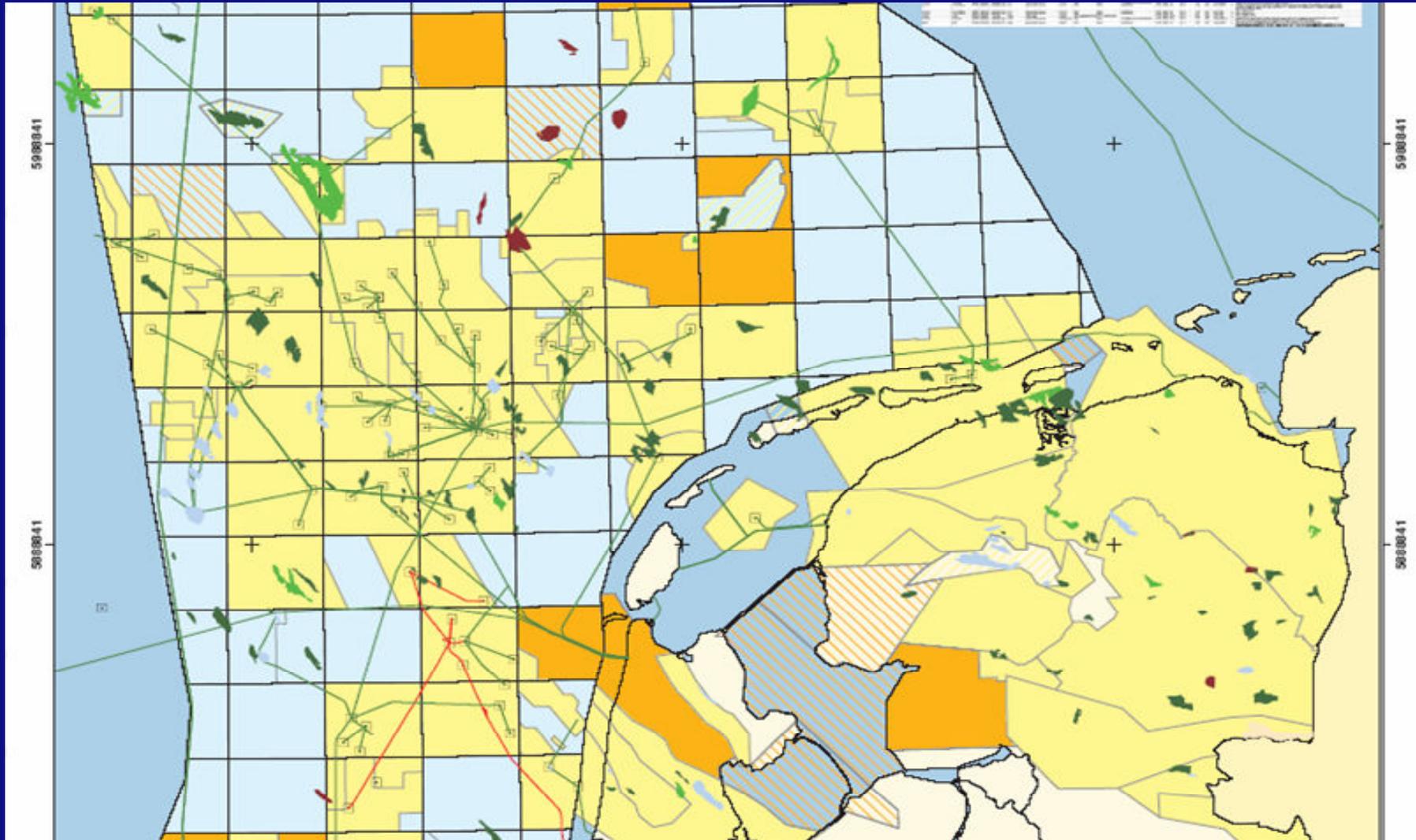
bcm



The Netherlands

- Blessed with a wealth of natural gas
 - able to export about half of domestic production
 - and still keep a lot in store
- Small fields policy very successful:
 - onshore: 98% of technical reserves developed
 - offshore: 90+% of technical reserves developed
 - little (commercial and policy) incentive to go for tight gas
- Yet
 - some 130 'stranded fields' (discov'd > 5 jr ago and no FDP)
 - prospect portfolio of several 100's with only 10 E wells/year
 - aging infrastructure (WOB !)

Stranded Fields in the Netherlands



Legend

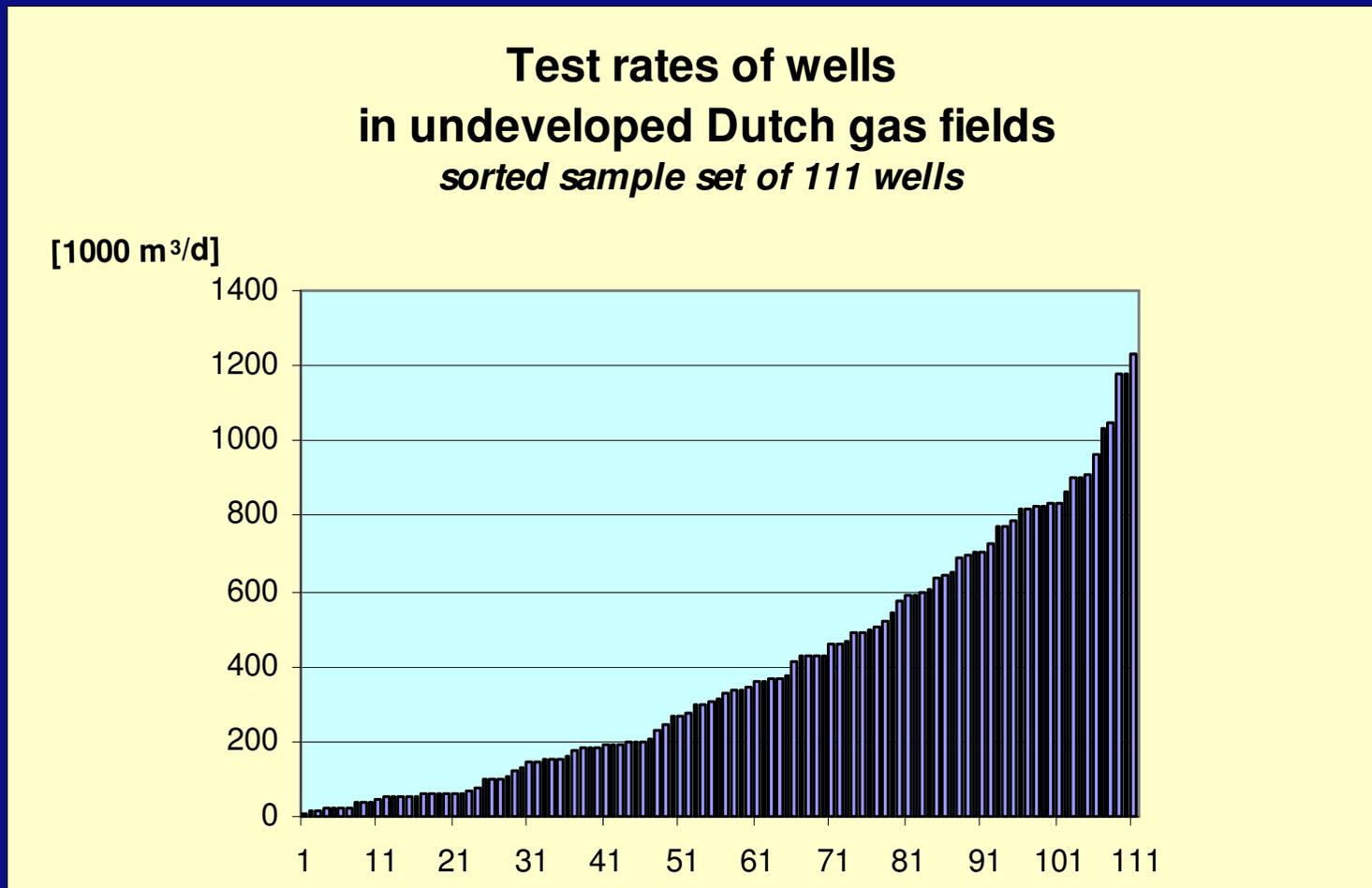
 abandoned, Gas	 not producing other, Gas	 production start in 5 years, Gas
 abandoned, Oil	 not producing other, Oil	 production start in 5 years, Oil

Productivity of wells in undeveloped gas fields

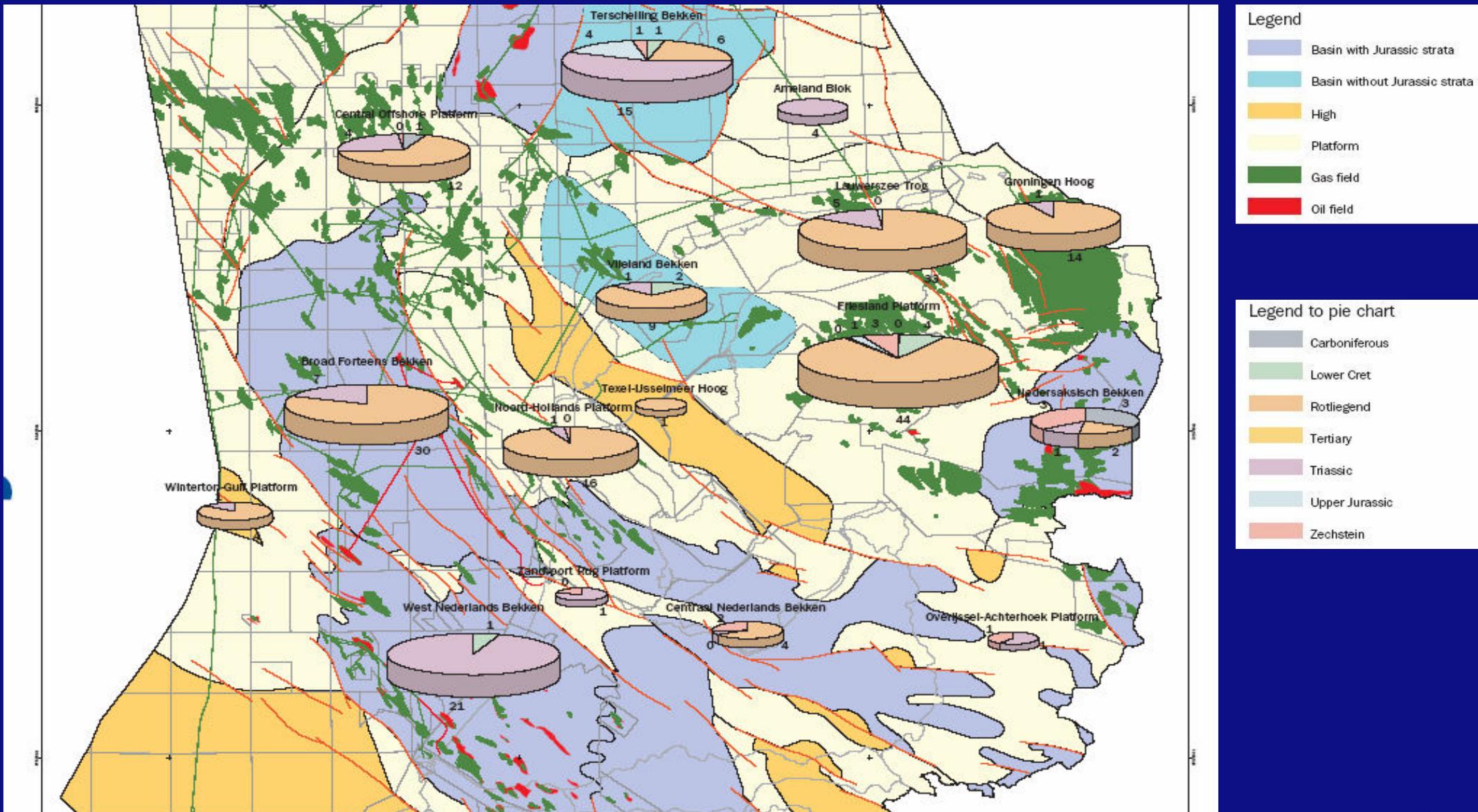
- Initial well productivity (mln.m³/d)
 - 2,0 excellent
 - 1,2 good
 - 0,6 moderate
 - 0,4 poor

- Rule of thumb: $IWP = 1,4 * Q50$

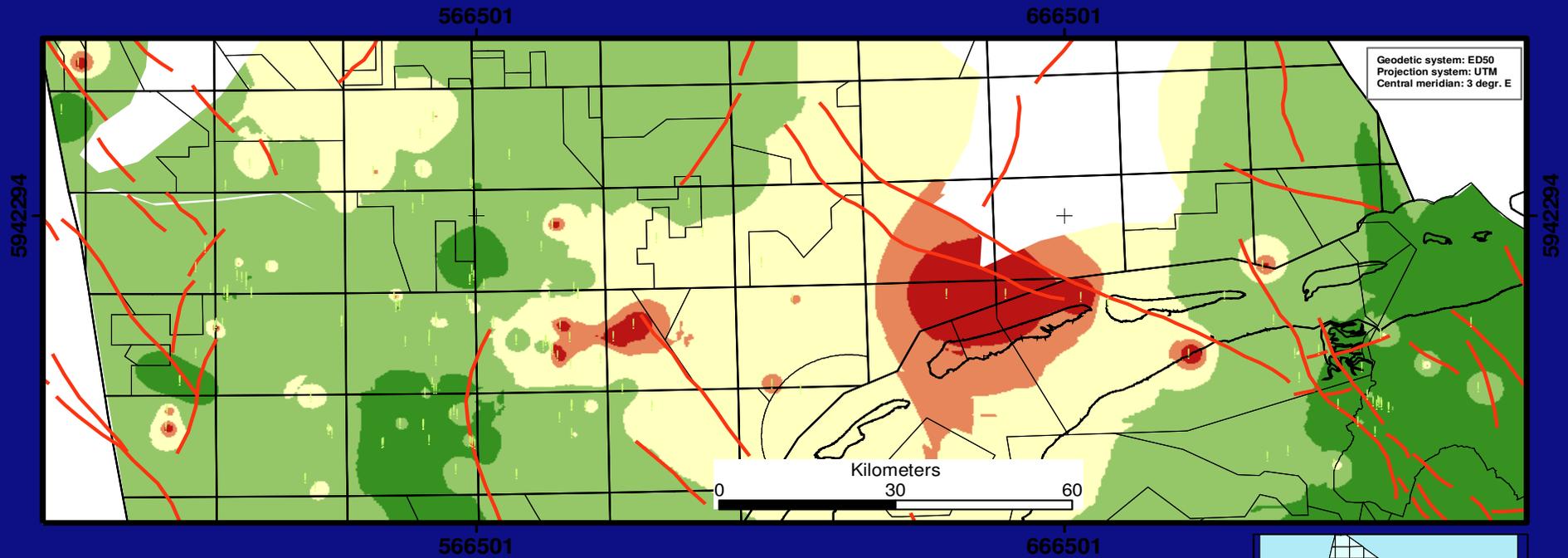
Productivity of wells in undeveloped Dutch gas fields



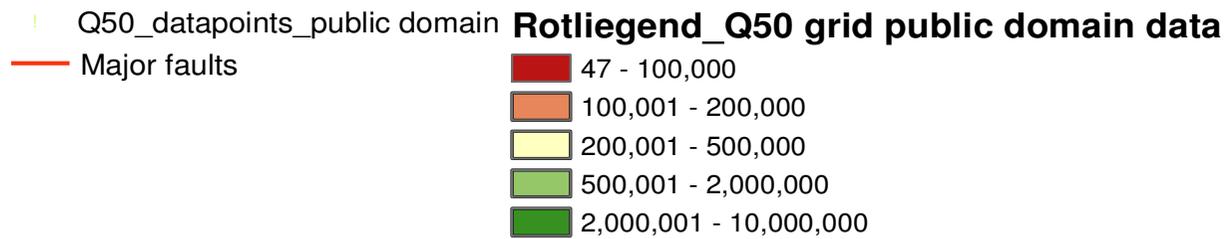
Prospectivity in the Netherlands



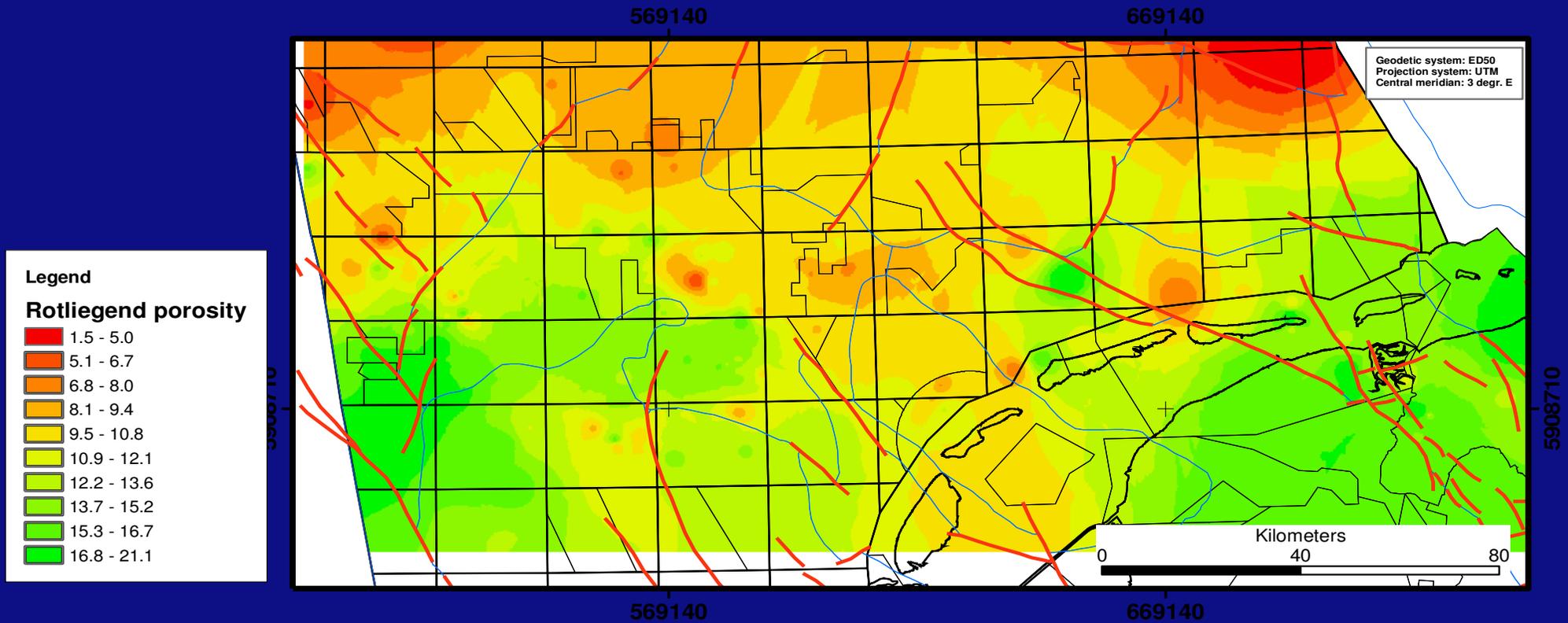
Rotliegendes Q50 distribution



Legend



Rotliegendes porosity distribution



The size of the prize?

- Ref.

Reservoir quality distribution as tool for better exploration prospect evaluation and estimation of the Resource base of the Netherlands

F.F.N. van Hulst (EBN), this workshop

The tight gas size ?

- Western Europe 10.000 bcm Rogner 1996
- Europe 'potential' 5.500 bcm in: BGR 1998
- Germany 'potential' 50–100 bcm UN-ECE 1998
- The Netherlands EBN & TNO 2006
 - discovered
 - developed 50 bcm
 - undeveloped 50-100 bcm
 - undiscovered 50+ bcm

The size of the prize?

- The numbers strongly depend on:
- Geological scale: basin, play, prospect/field
- The implied constraints
 - In Place no technology, no economics
 - Resource no economics
 - Reserves
- Time window
 - Proven technology, present day economics OR ?
- Statistical significance / reliability of assessment
 - Proven, expected, upside, potential
- Risked / unrisked for presence, feasibility, accessibility, ...