

The future of non-conventional gas in Poland

Maciej Woźniak

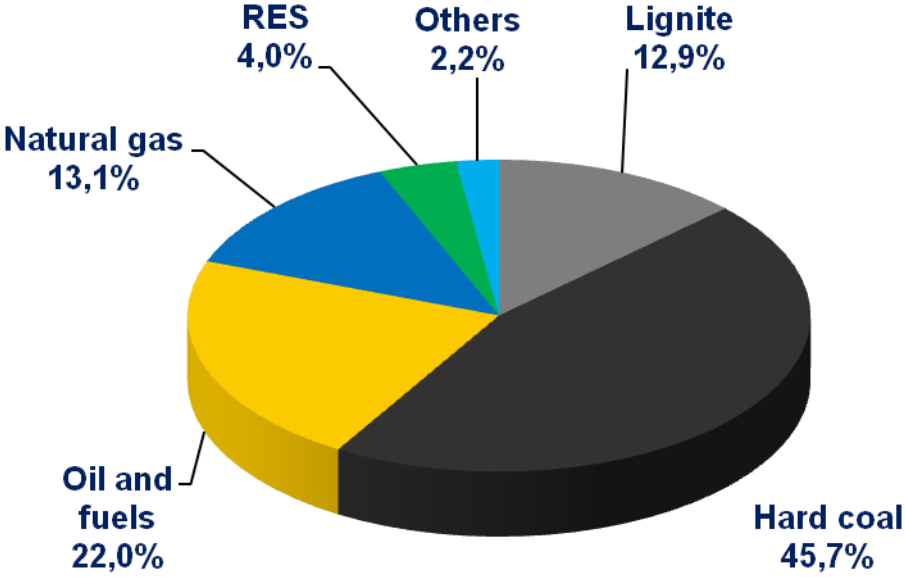
***ENERGY in Poland:
Current situation and prospects***

CGEMP

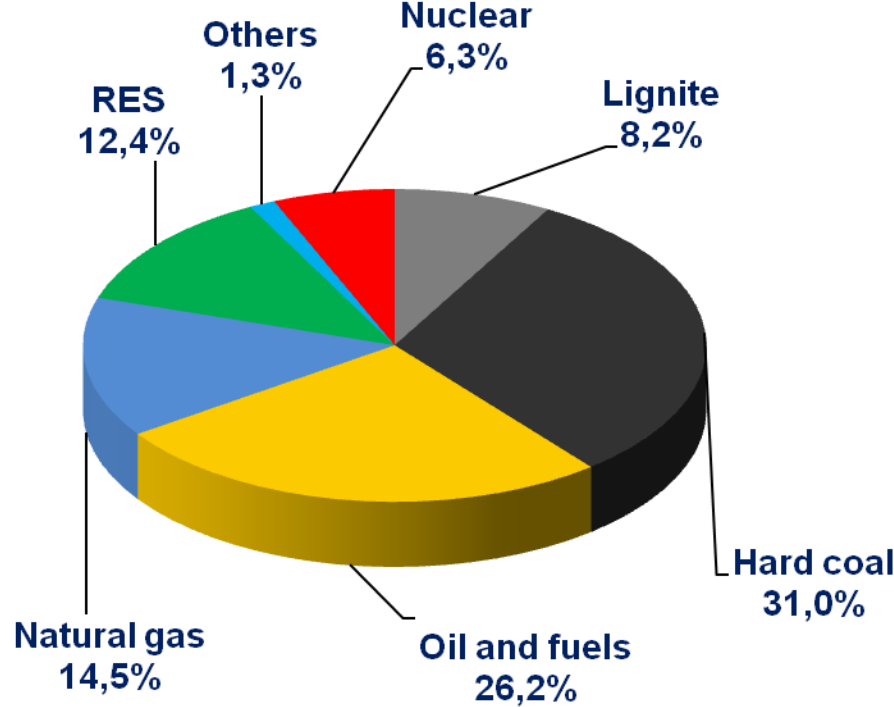
Paris, 10th June 2011

Poland's primary energy mix

2009



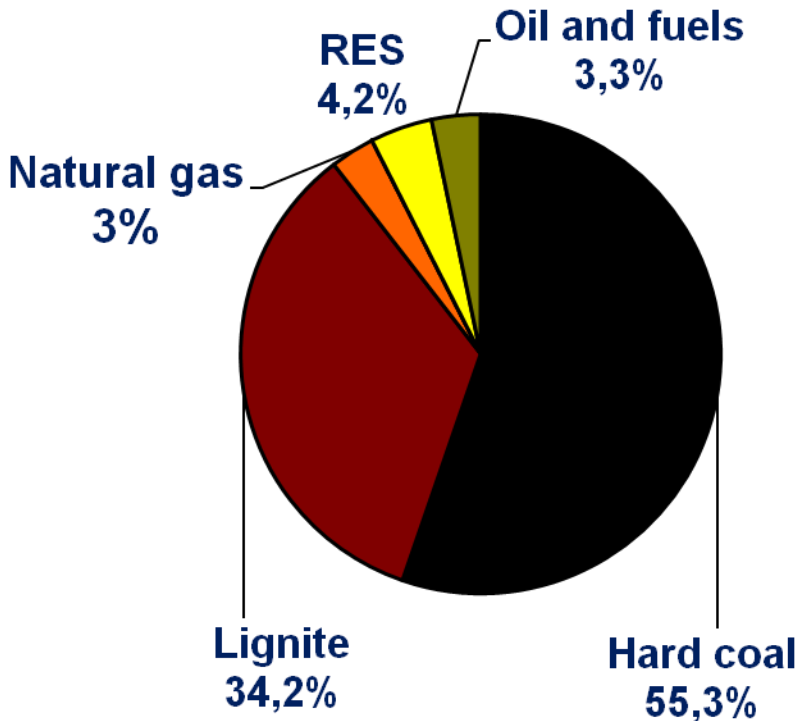
2030



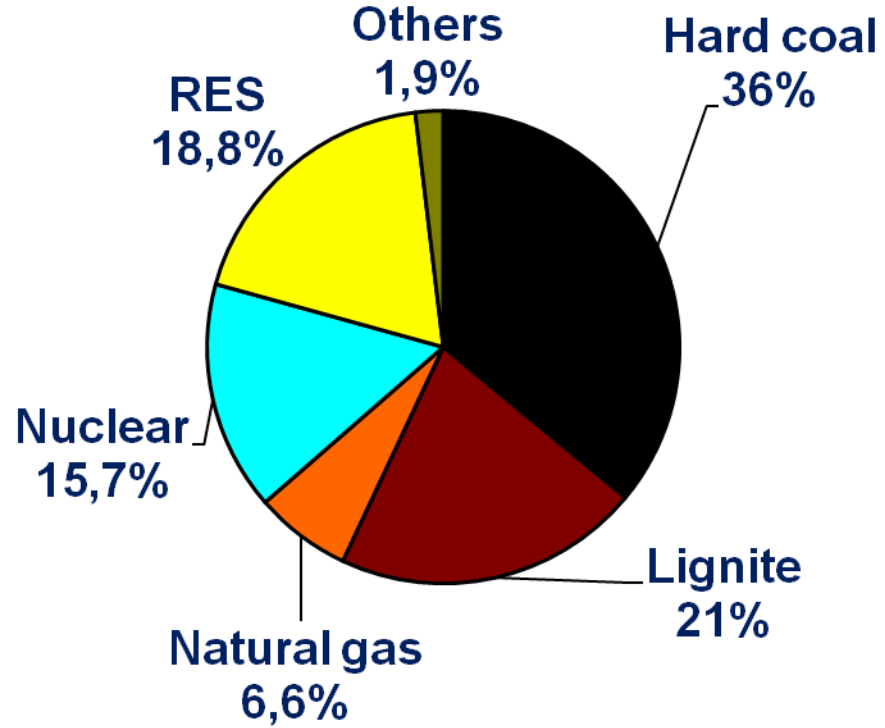
Source: Zał. 2 Prognoza zapotrzebowania na paliwa i energię
Dane wstępne. Bilanse paliw i energii, ARE

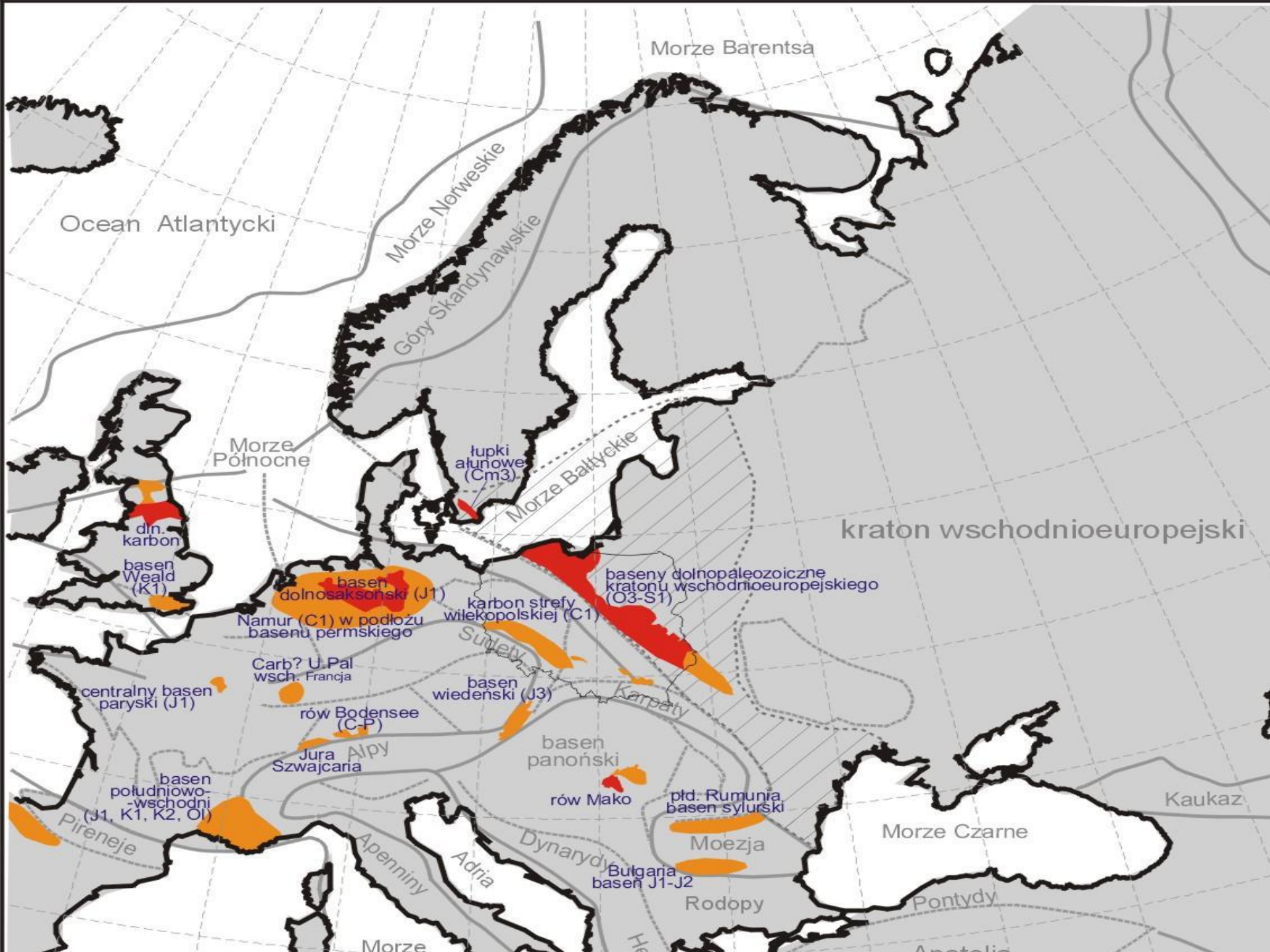
Electricity production sources

2008



2030





Ocean Atlantycki

Morze Barentsa

Morze Norweskie
Góry Skandynawskie

Morze Północne

łupki alunowe (Cm3)

Morze Bałtyckie

kraton wschodnioeuropejski

din. karbon
basen Weald (K1)

basen dolnosaksoński (J1)
Namur (C1) w podłożu basenu permiego

karbon strefy wilekopolskiej (C1)

baseny dolnopaleozoiczne kratonu wschodnioeuropejskiego (O3-S1)

centralny basen paryski (J1)

Carb? U. Pal wsch. Francja

basen wiedeński (J3)

rów Bodensee (C-P)

Jura Alpy Szwajcaria

basen południowo-wschodni (J1, K1, K2, O1)

basen panoński

rów Mako

pld. Rumunia
basen sylurski

Moezja

Bulgaria
basen J1-J2

Kaukaz

Morze Czarne

Pireneje

Apenniny

Adria

Dynarydy

Rodopy

Pontydy

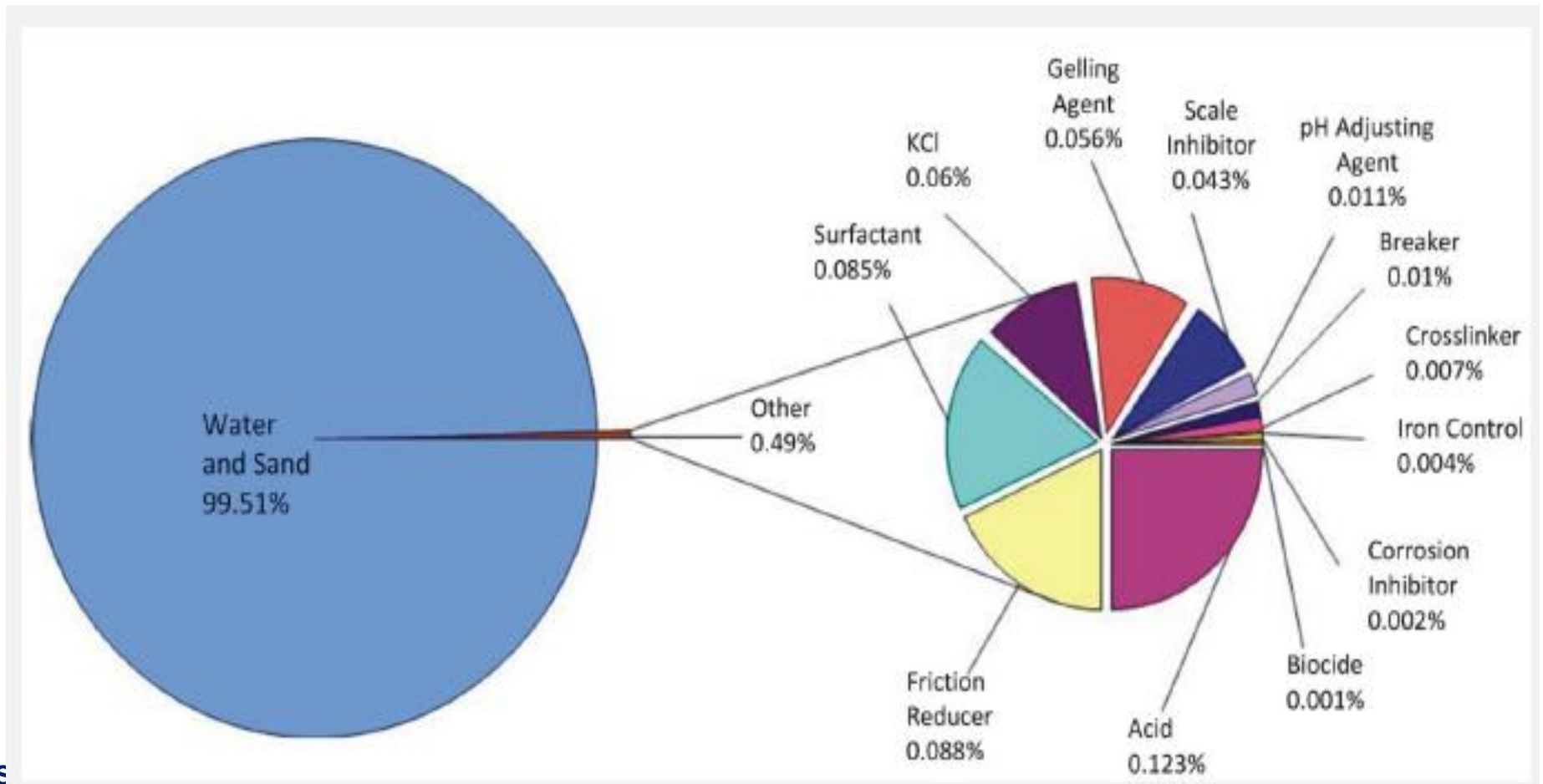
Morze

He

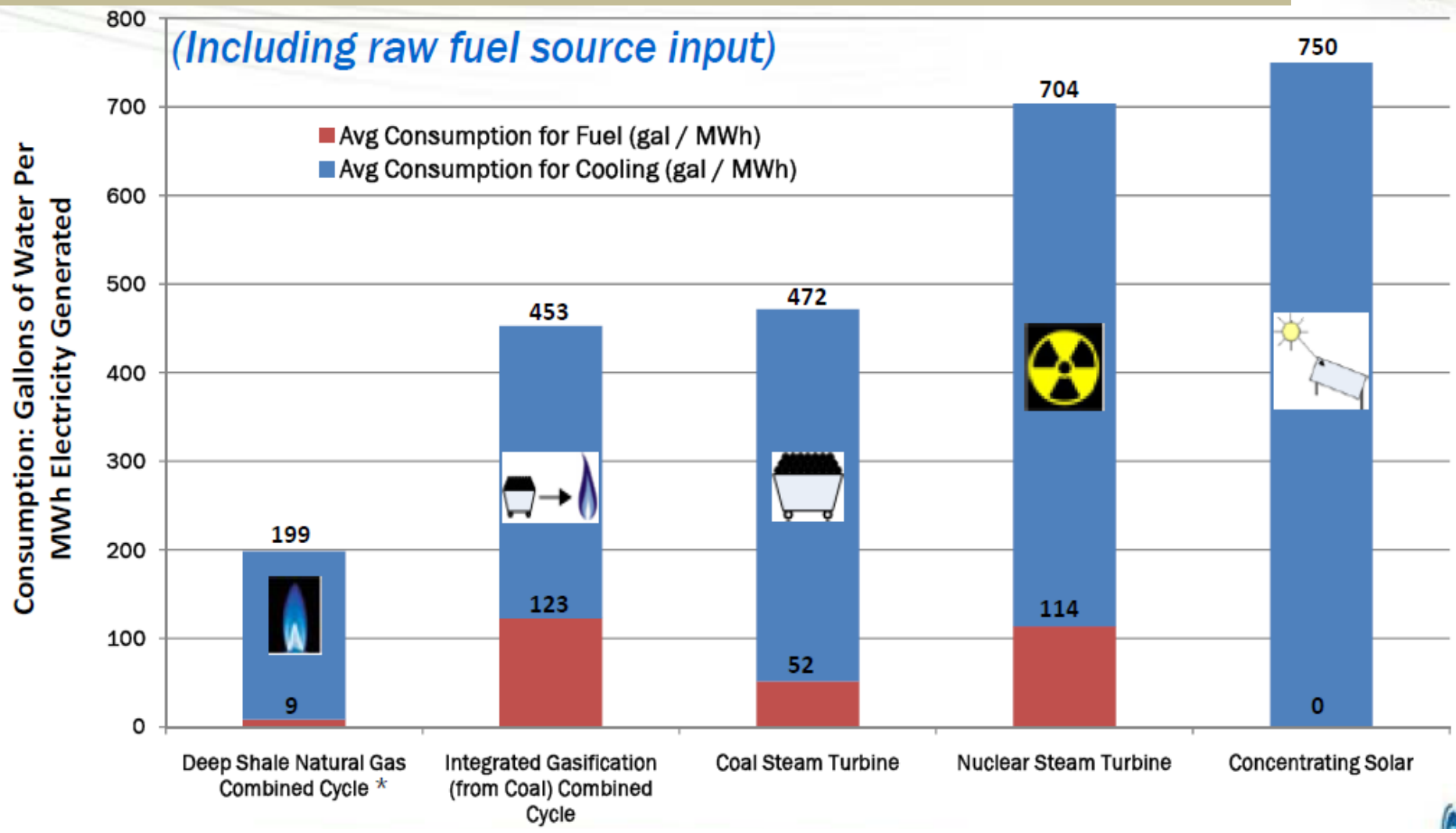
Anadolii

Water use for fracturing

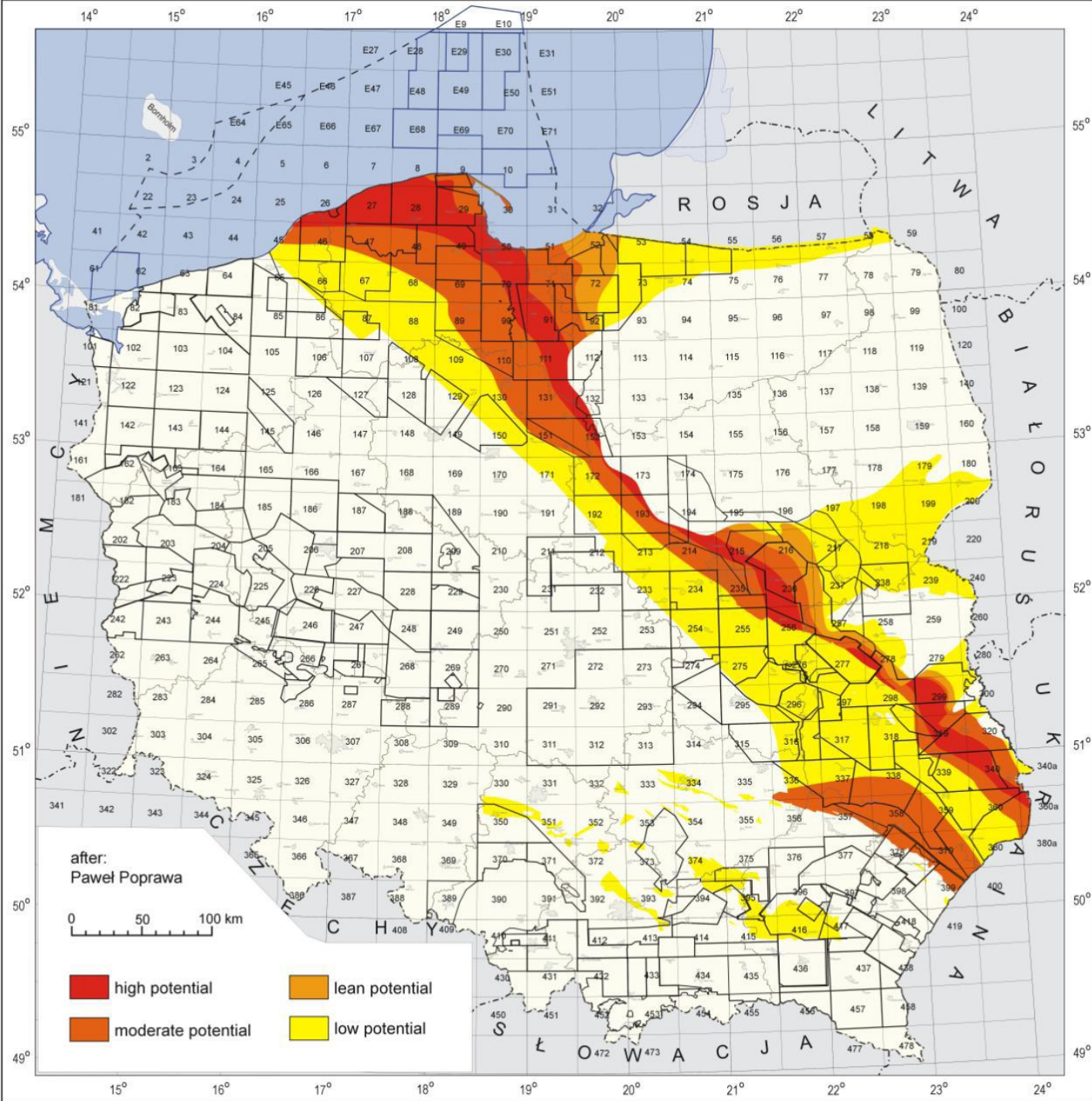
99.5 % water & sand - 0.5 % chemical additives



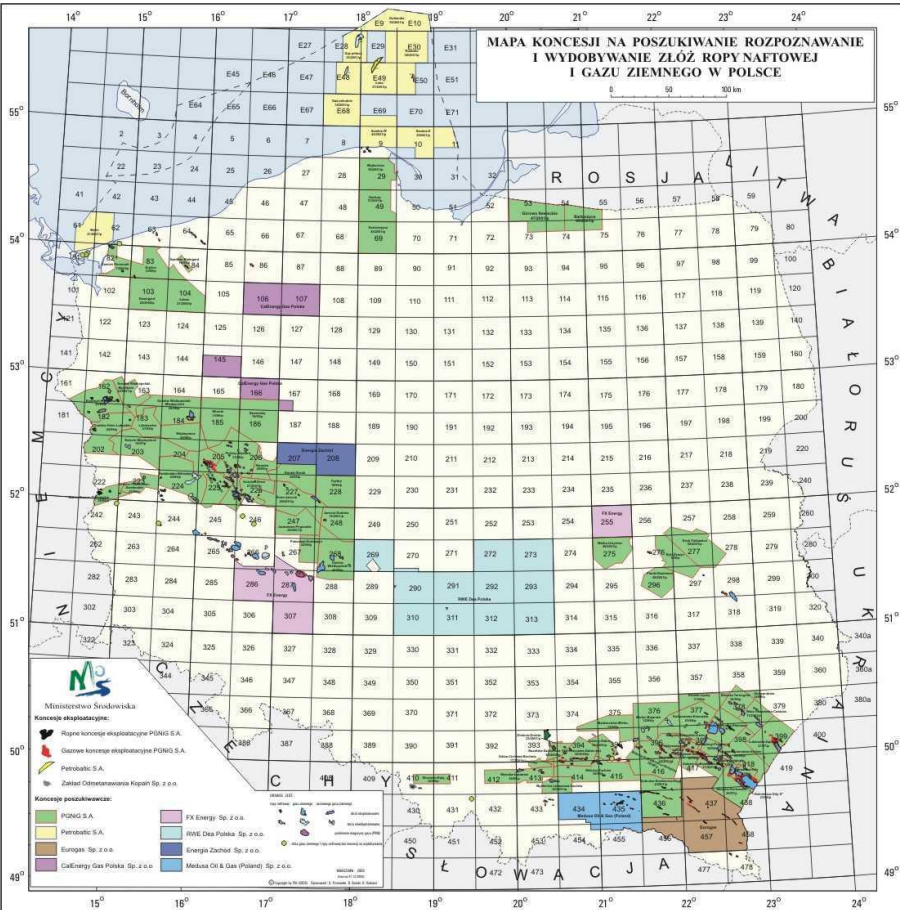
Cumulative water use for energy production



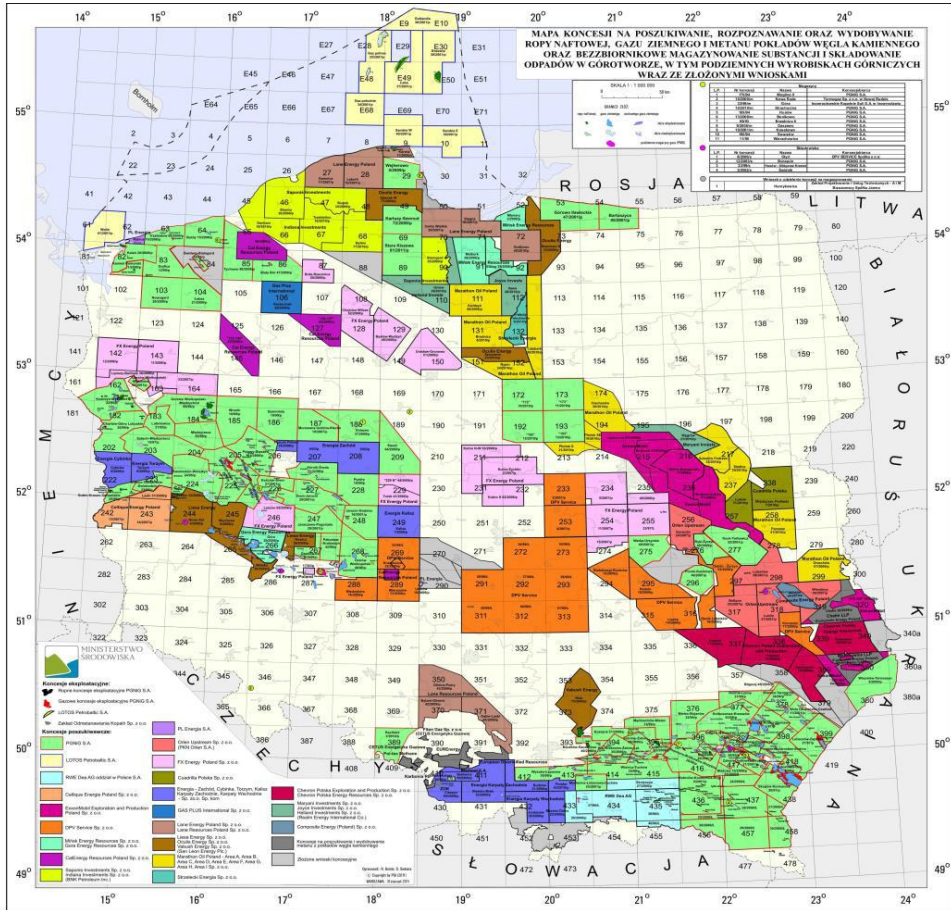
Source: Chesapeake Energy 2010



Oil&Gas research and exploration development

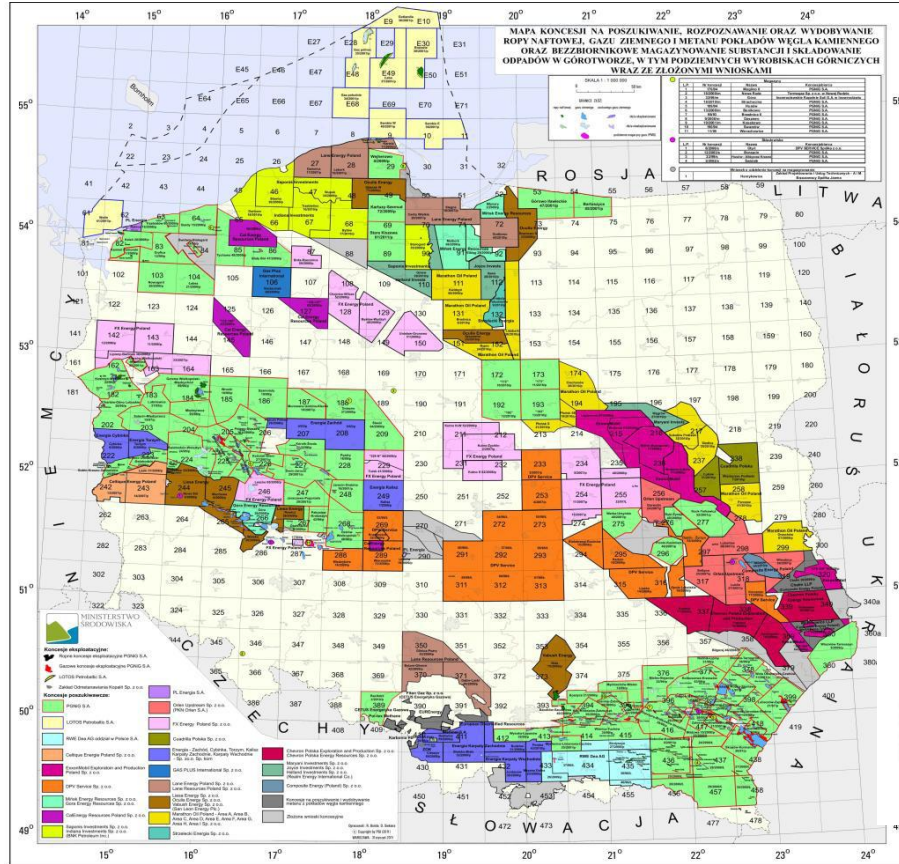


2004



2011

ExxonMobil



First shale gas drilling pad in Poland (Łebień LE-1 well)



Source: Lane Energy Poland

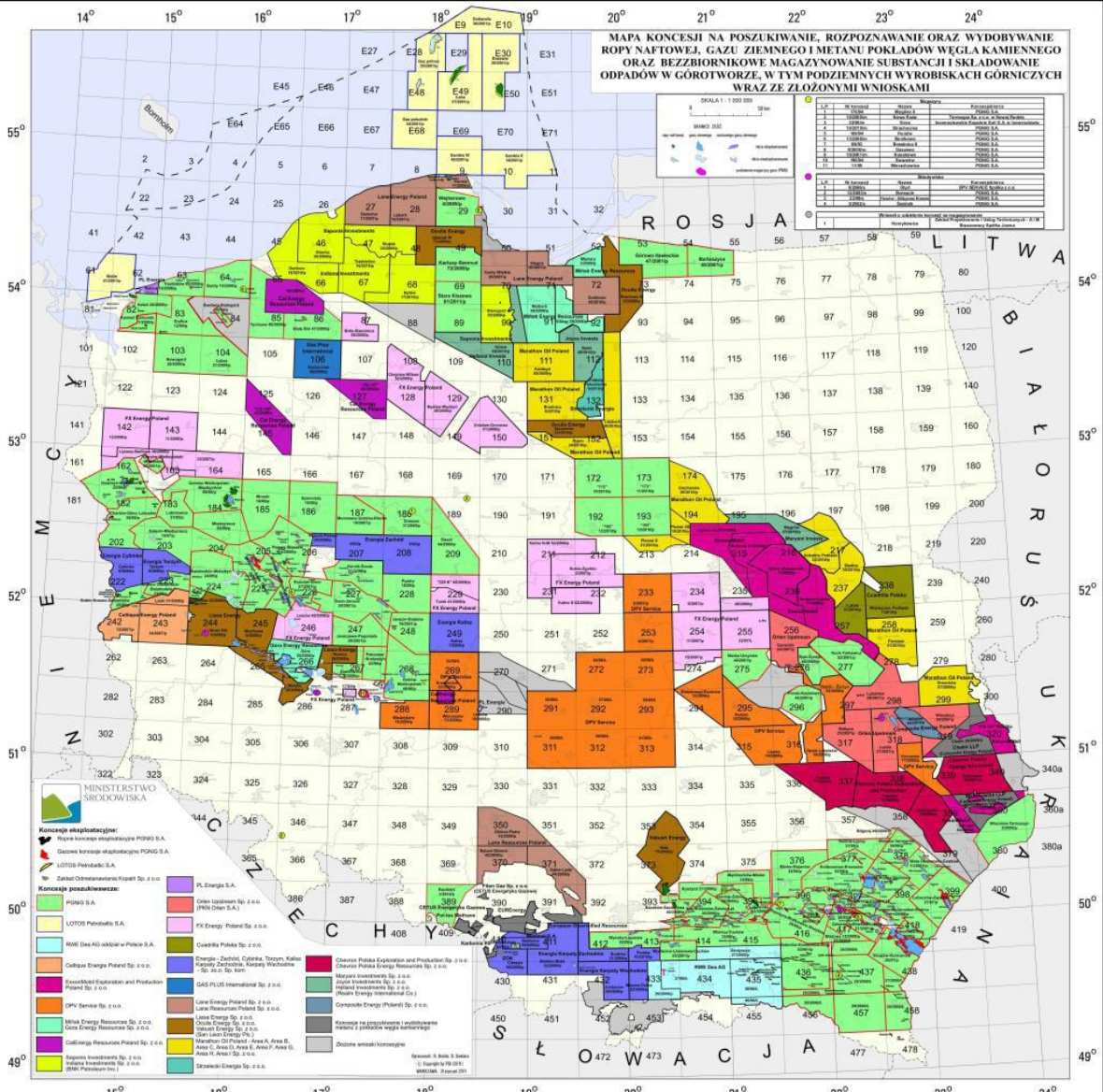
Water use in shale gas production

- 1.000-5.000 m³ per one stage used once in well history
- up to 10.000-70.000 m³ per well x several thousand wells

Warsaw City alone consumes ~4-10 times
more water per year

than shale gas exploration possibly could in
whole Poland

Oil&Gas research and exploration development



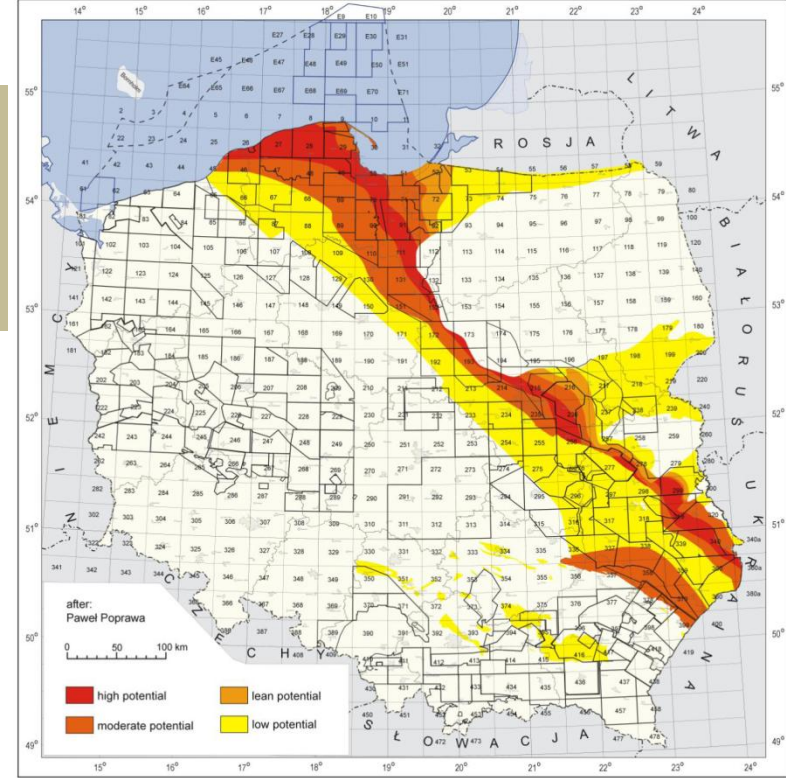
-85 research drilling licences

-8 wells (15 till the end of 2011)

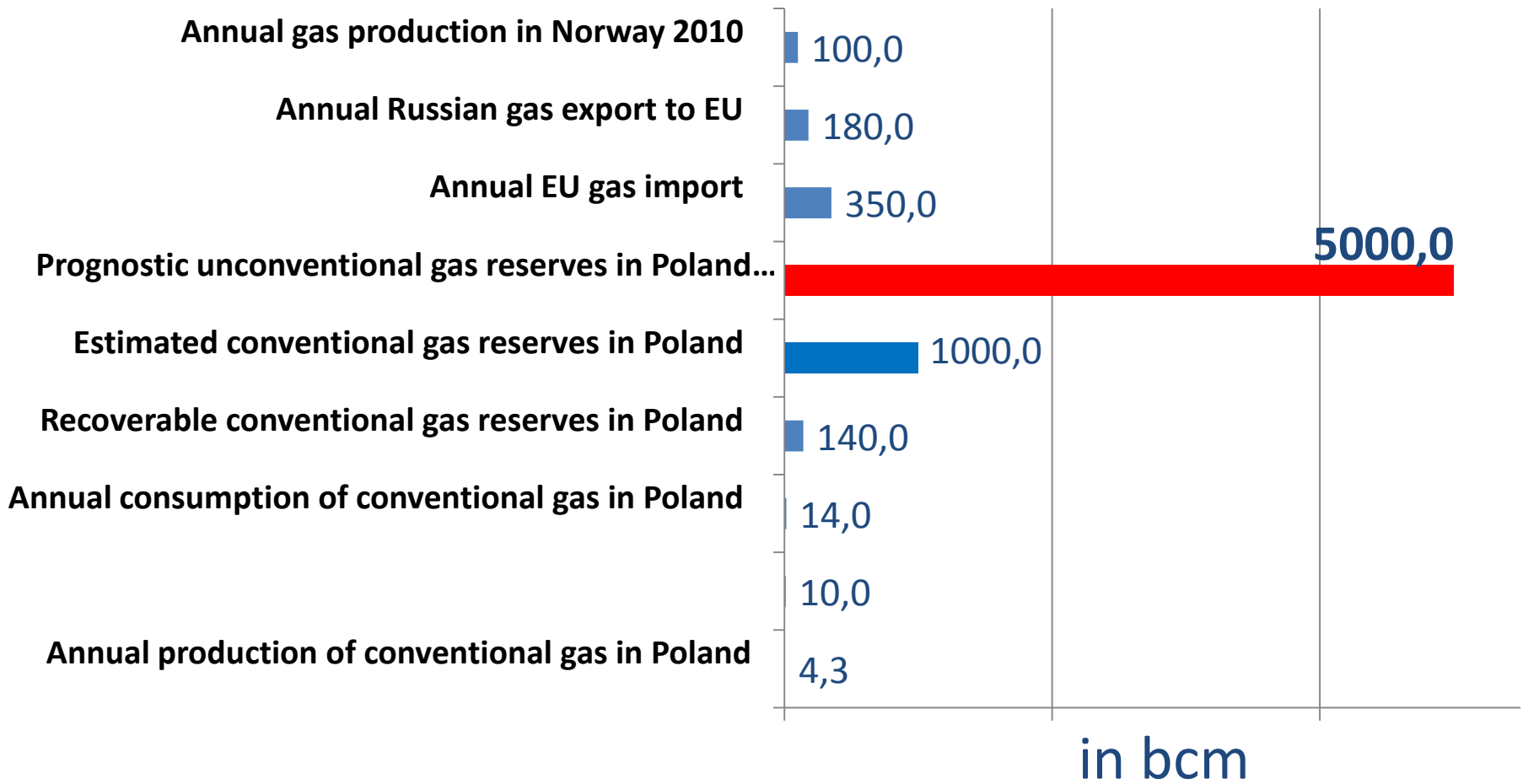
Shale gas revolution

- what do we need in Poland?

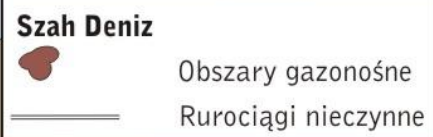
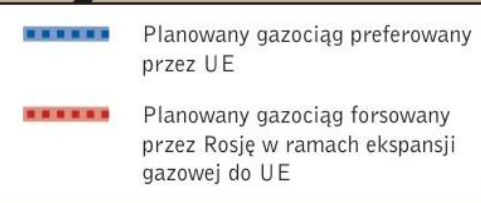
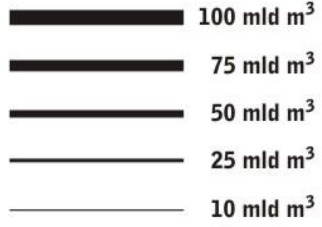
- new modern geological law and new taxation scheme (Best practice? – Canada nad Norway)
- developing exploration & production facilities and equipment industry
- a sovereign fund for next generations based on shale incomes and taxes



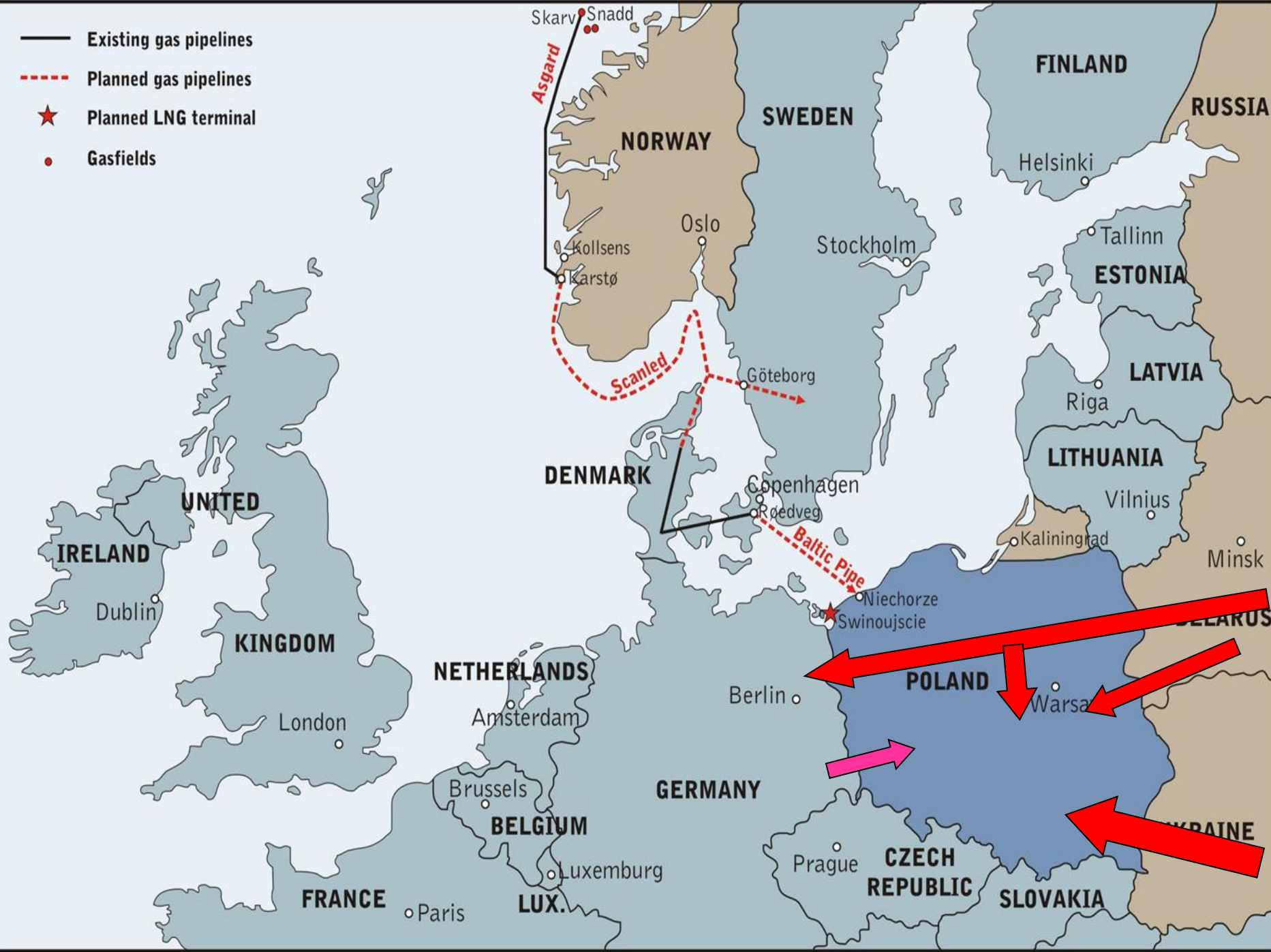
Let's look at some numbers



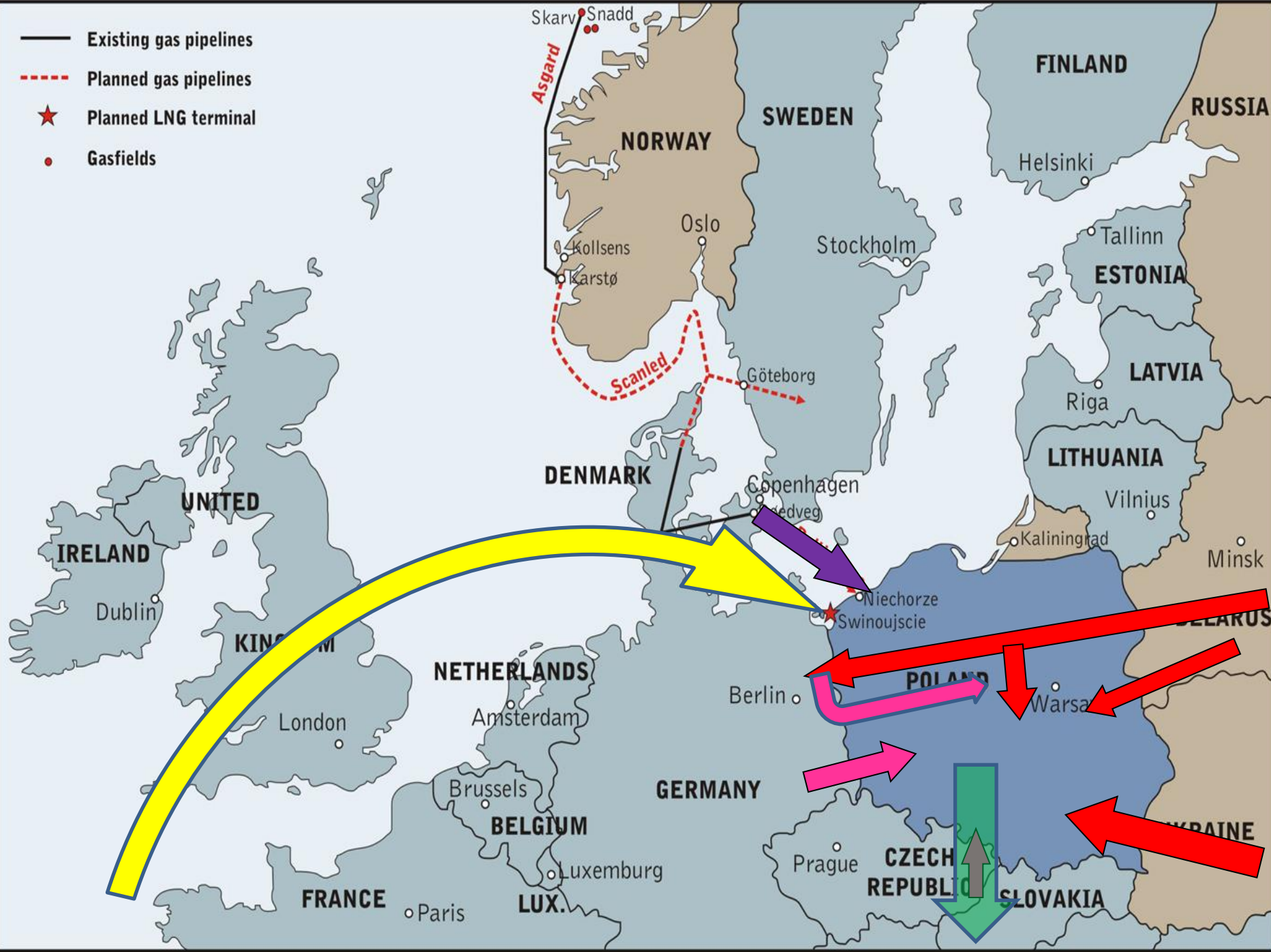
Przepustowość rurociągów



- Existing gas pipelines
- - - Planned gas pipelines
- ★ Planned LNG terminal
- Gasfields



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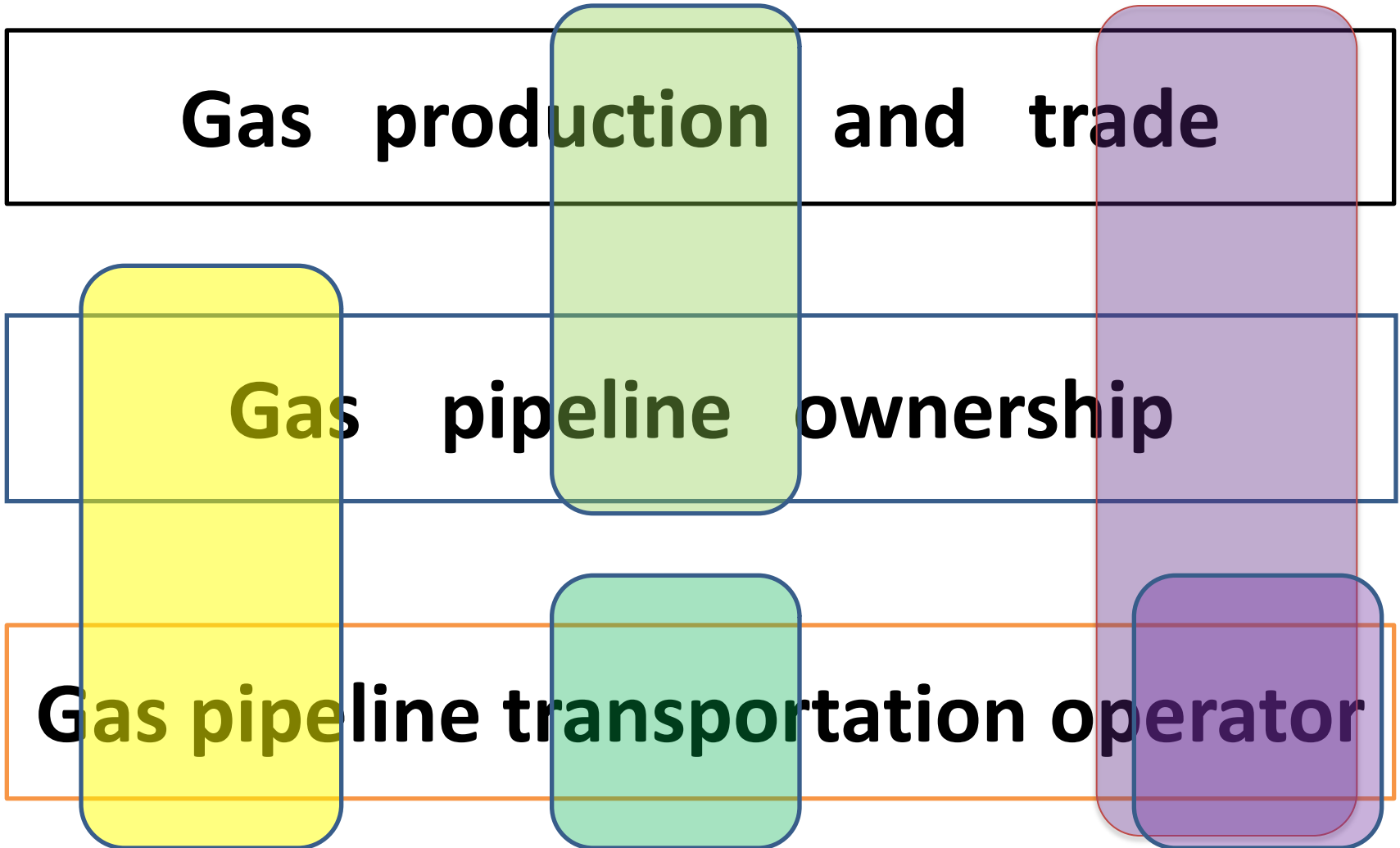




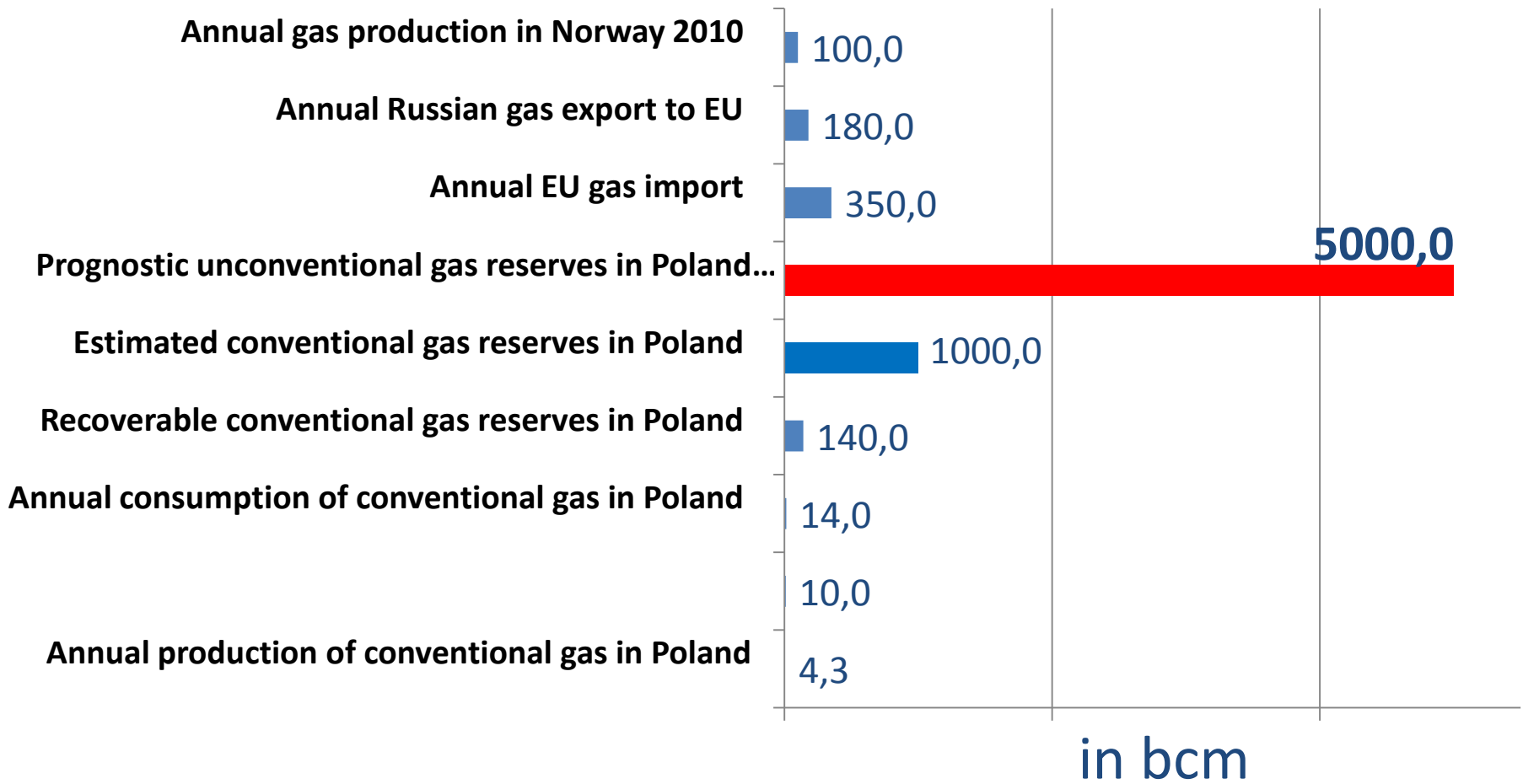
TSO -OU

TSO - ISO

TSO - ITO

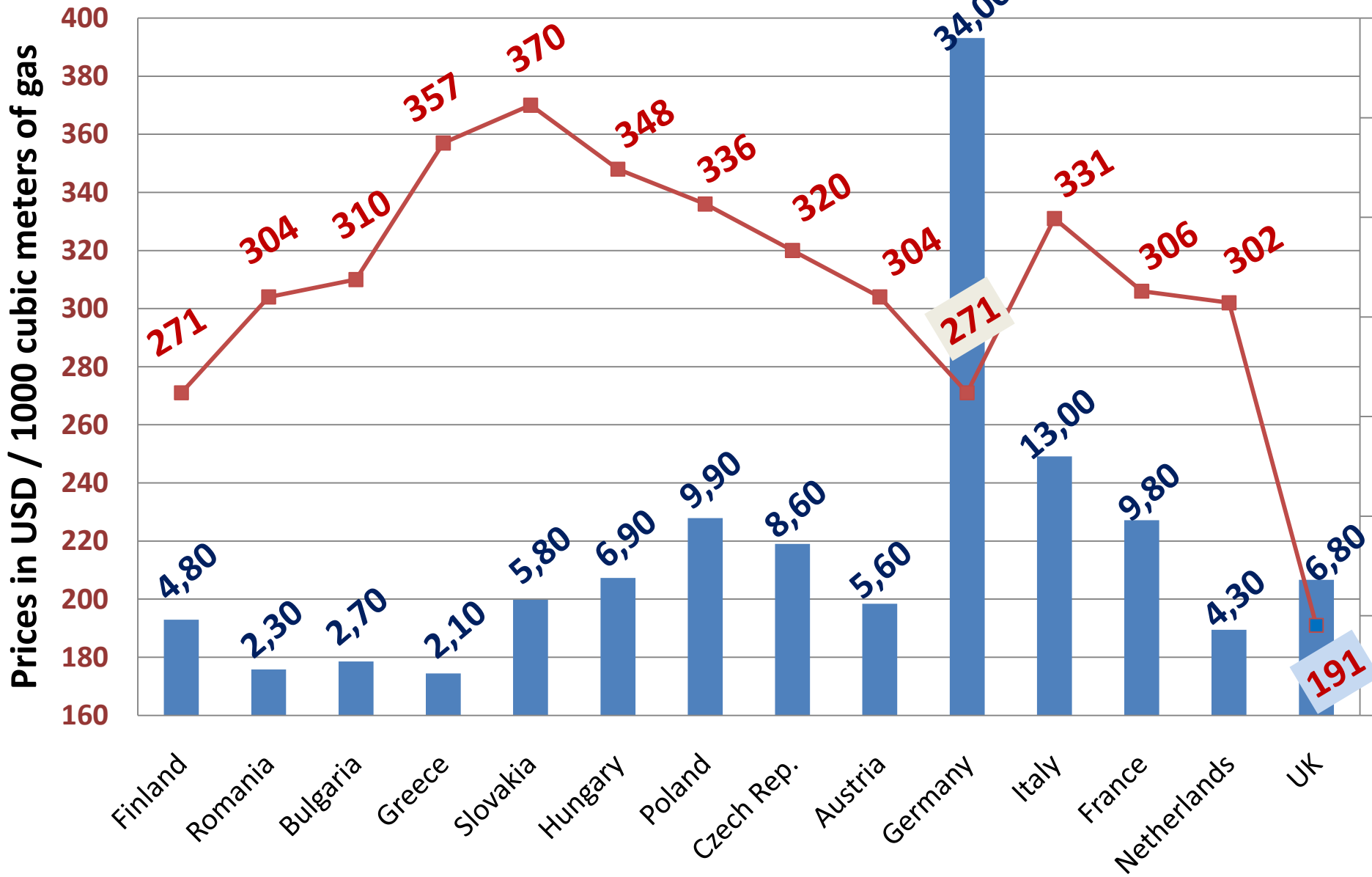


Numbers ance again...



Gazprom gas prices for EU – 2010

Source: www.vedomosti.ru – 25th February 2011



Thank you,

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Source: Chesapeak Energy 2010