

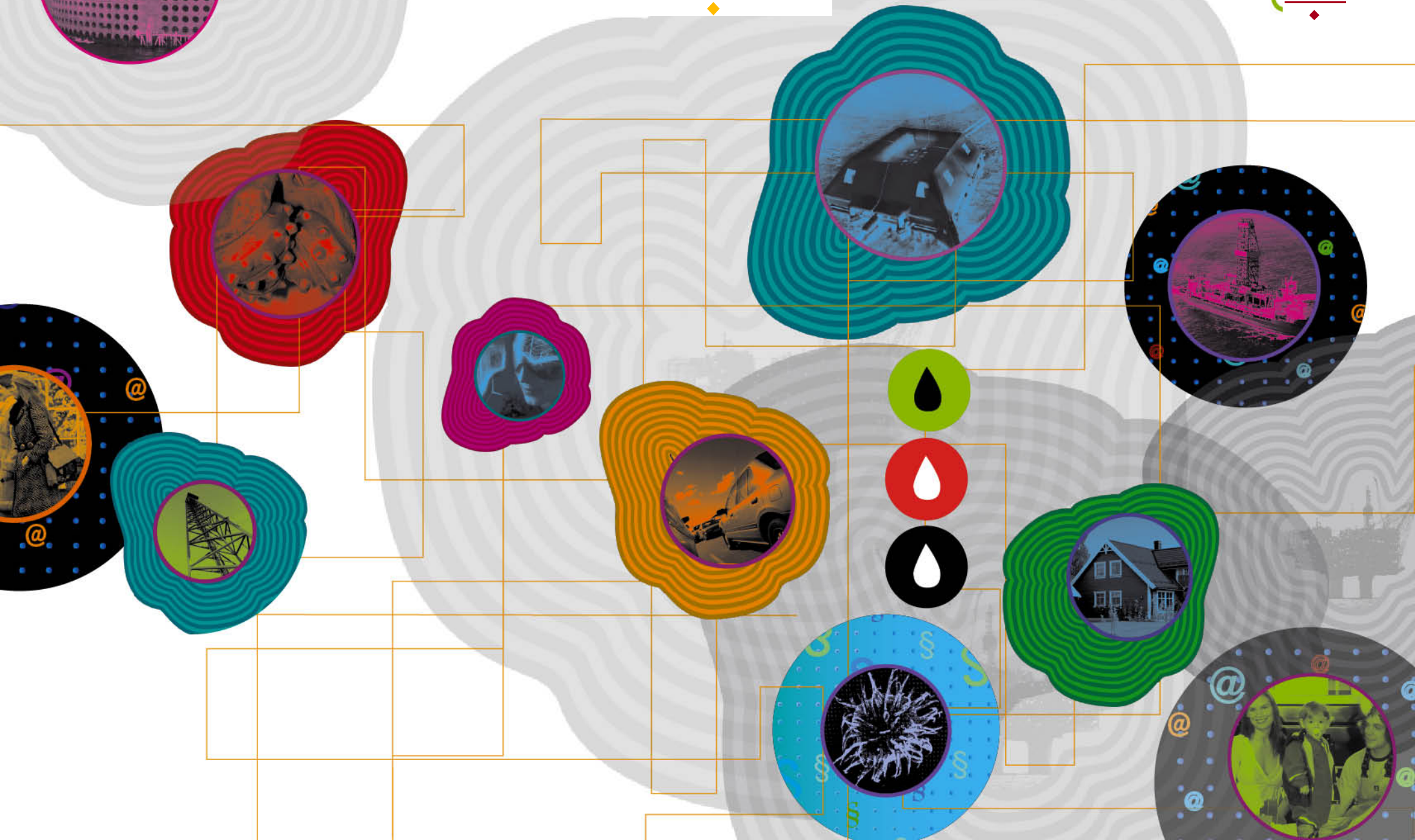


PETROLEUM NORWEGIA



OLJEDIREKTORATET

RESOURCES ON THE CONTINENTAL SHELF

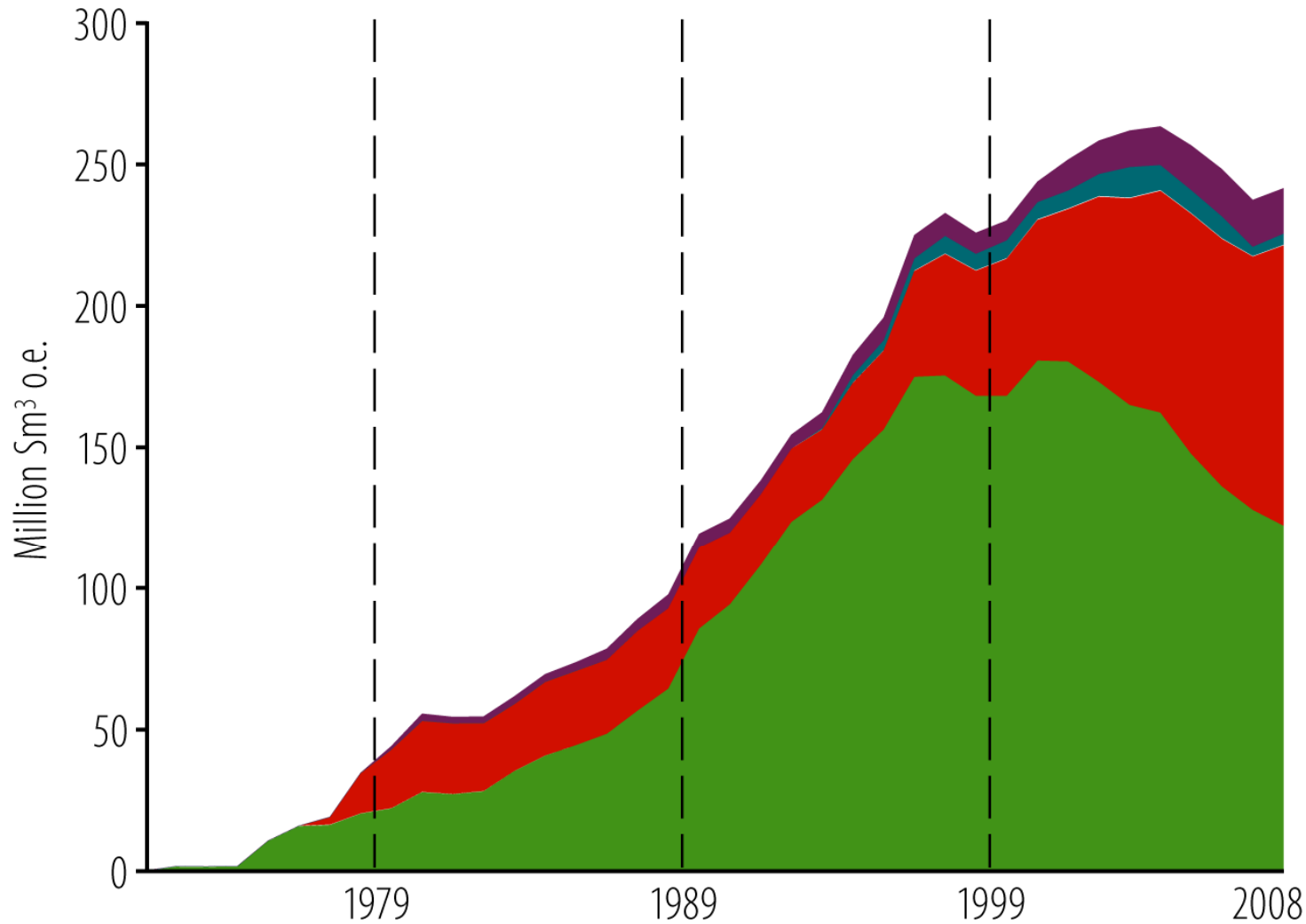


Main features – Resource Report 2009

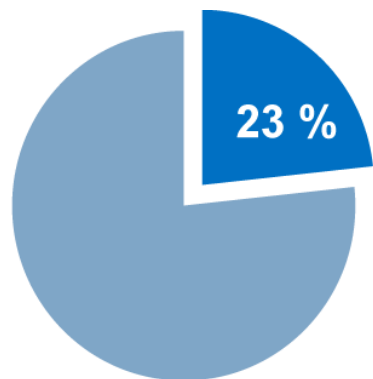


- ◆ Many, but small discoveries. Exploration in acreage opened before 1994
- ◆ Little growth in reserves
- ◆ Significant effect from gas injection to increase oil production
- ◆ New estimates for undiscovered resources in the Barents Sea
- ◆ Mature shelf requires more energy
- ◆ Great need for competence, further research and development of technology

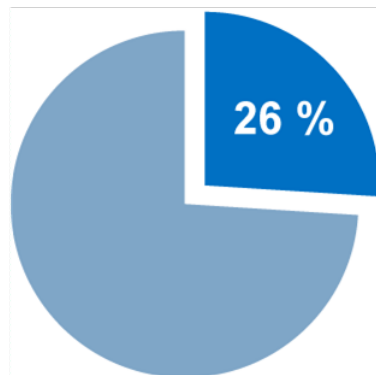
Values worth more than NOK 7000 billion created over 40 years



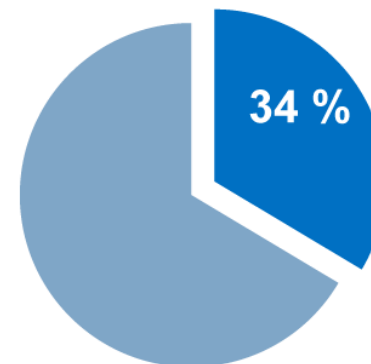
Most important contributors to the Norwegian economy and welfare.



The petroleum sector's share of total investment

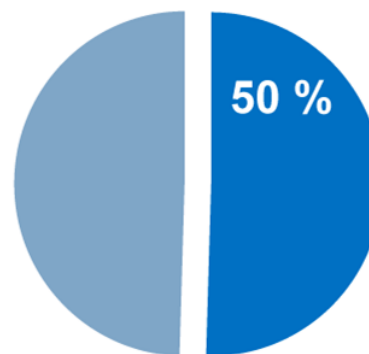
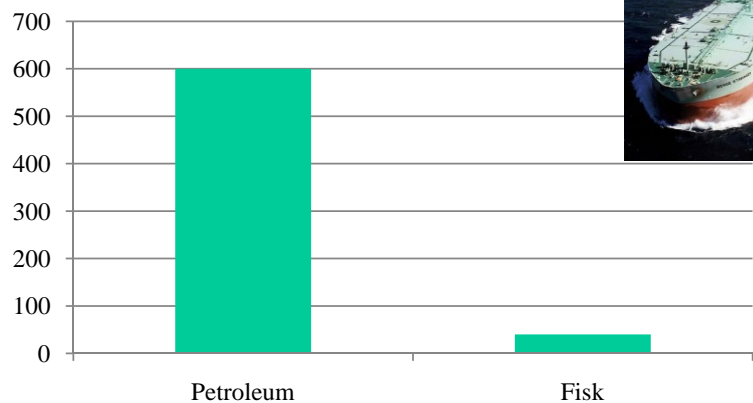


The petroleum sector's share of GDP



The petroleum sector's share of state revenues

Bill kr *Export value 2008*



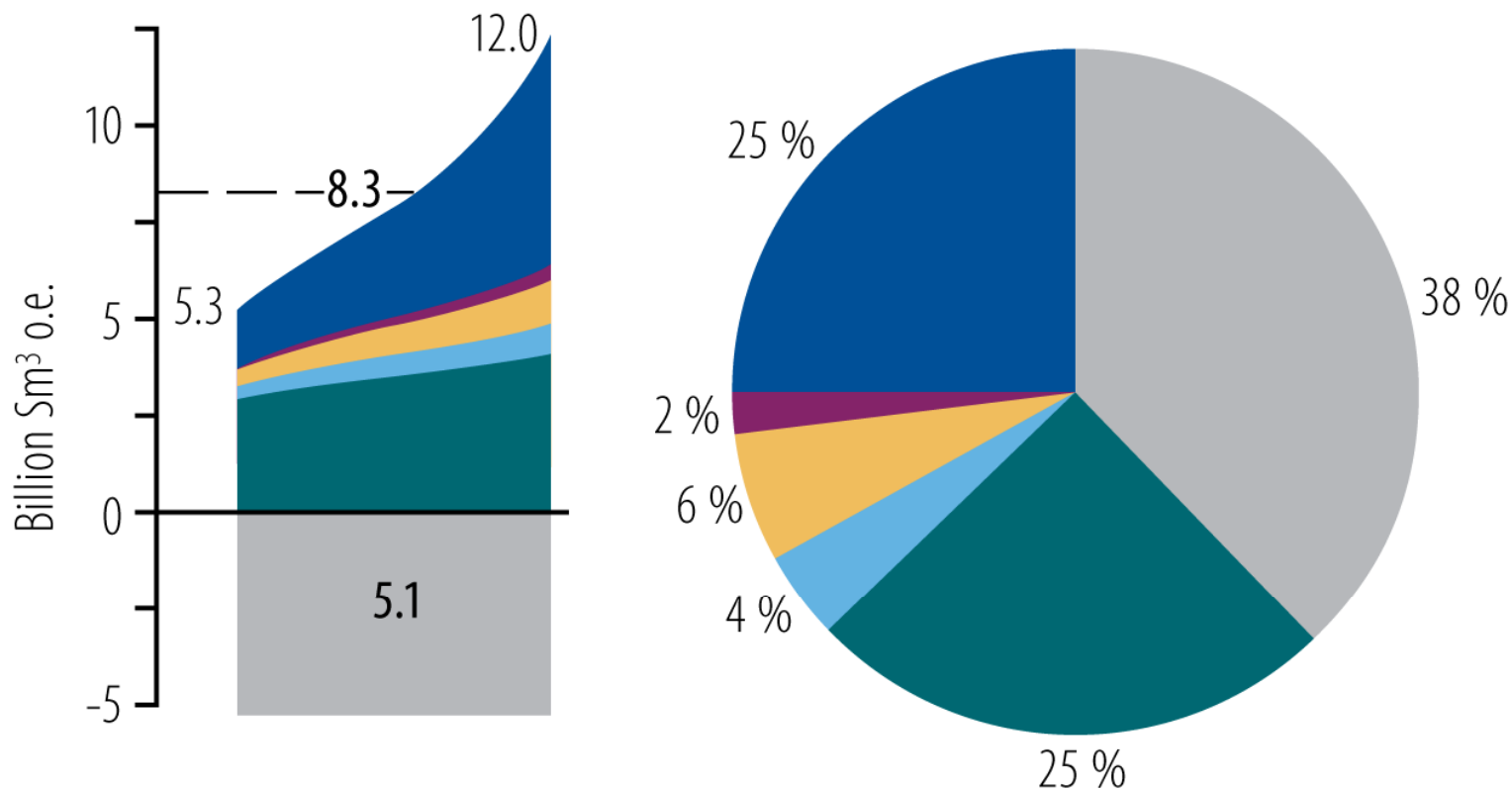
The petroleum sector's share of total exports



Ca 40 000 directly employed (2007)
Ca 220 000 indirectly employed (TBL)

Resource scenario

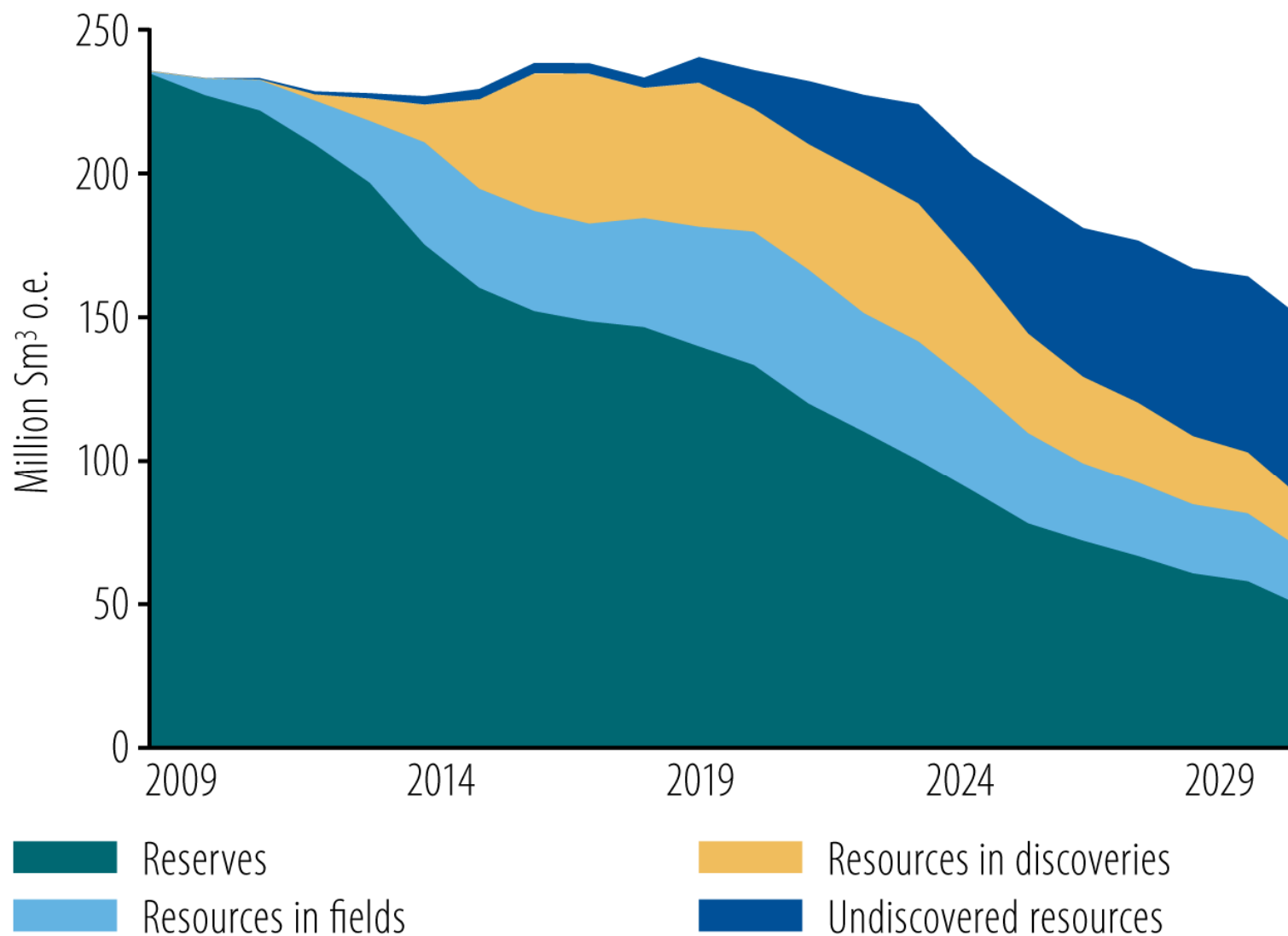
(RNB2009)



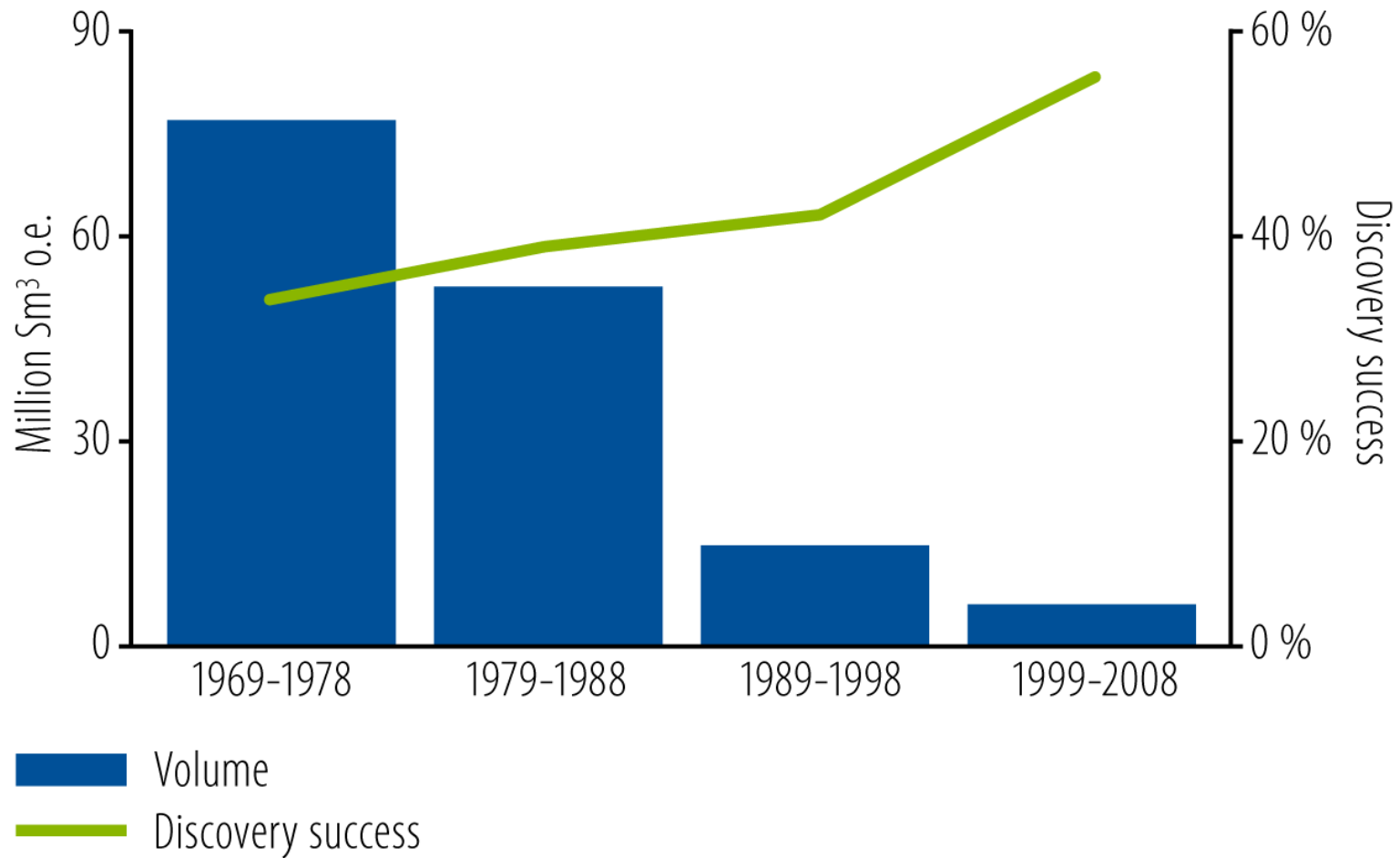
- Undiscovered resources
- Contingent resources in discoveries
- Possible measures for improved recovery
- Contingent resources in fields
- Reserves
- Sold and delivered

Production forecast

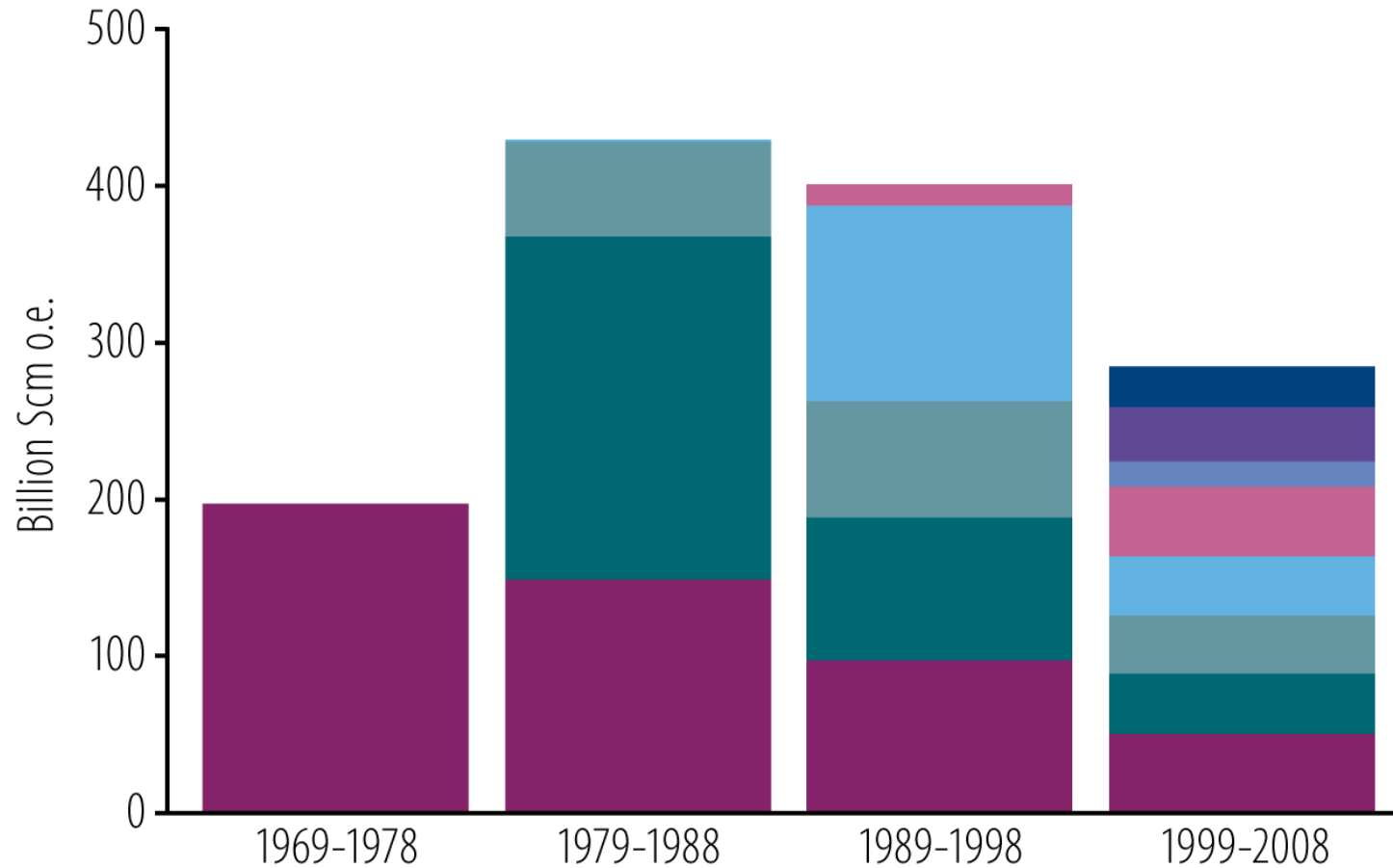
(RNB2009)



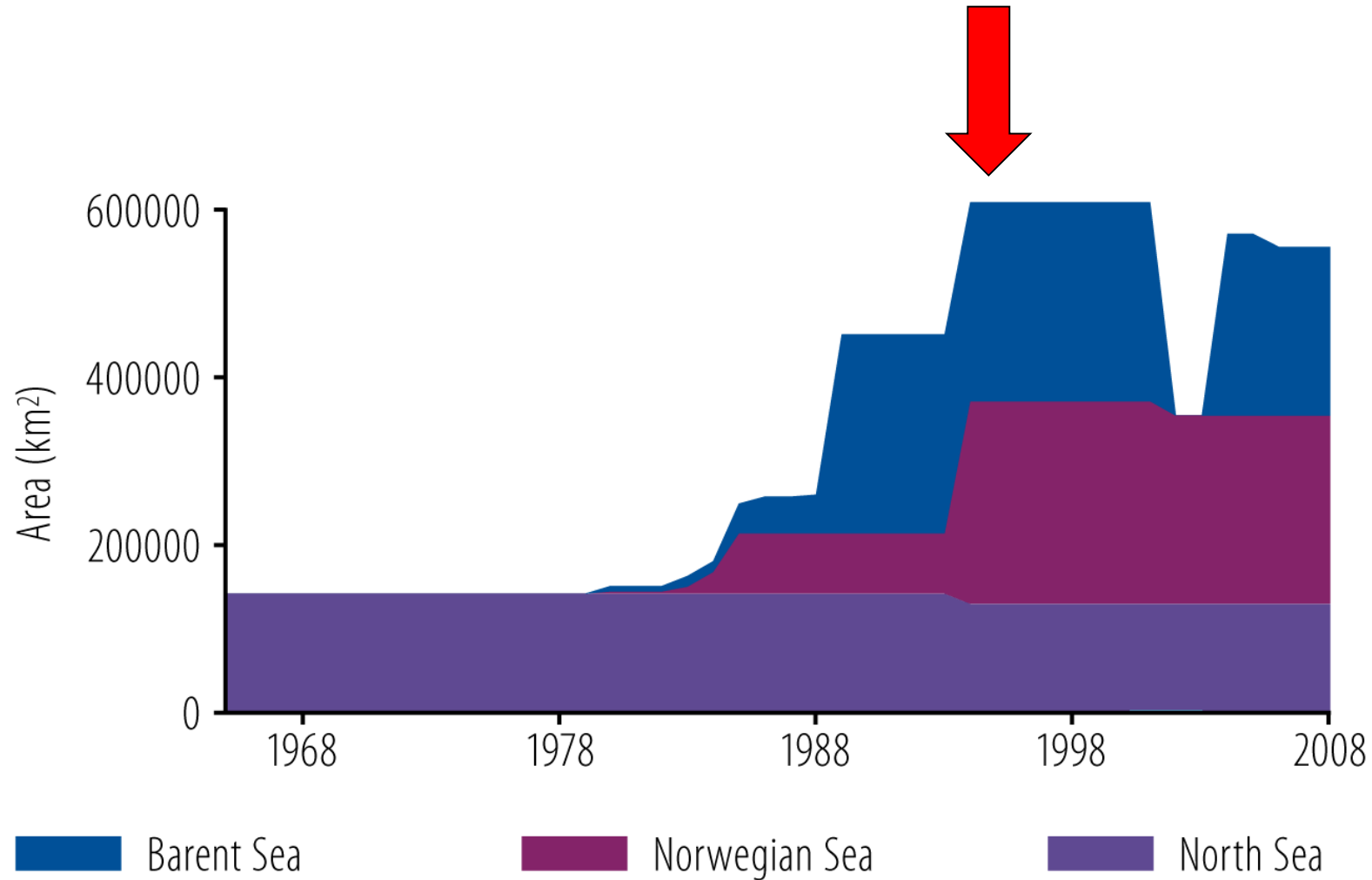
Smaller discoveries



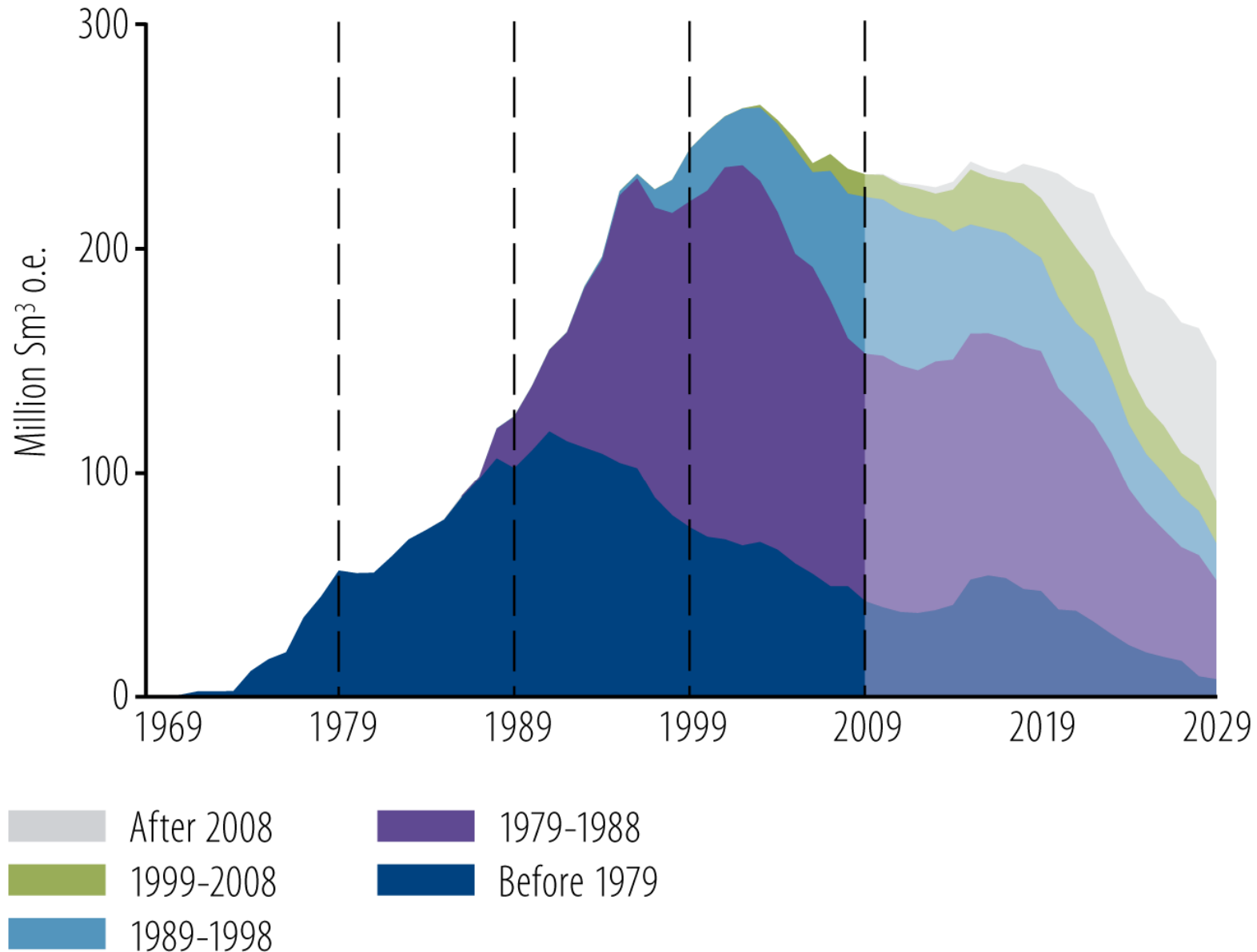
We are still living off old acreage



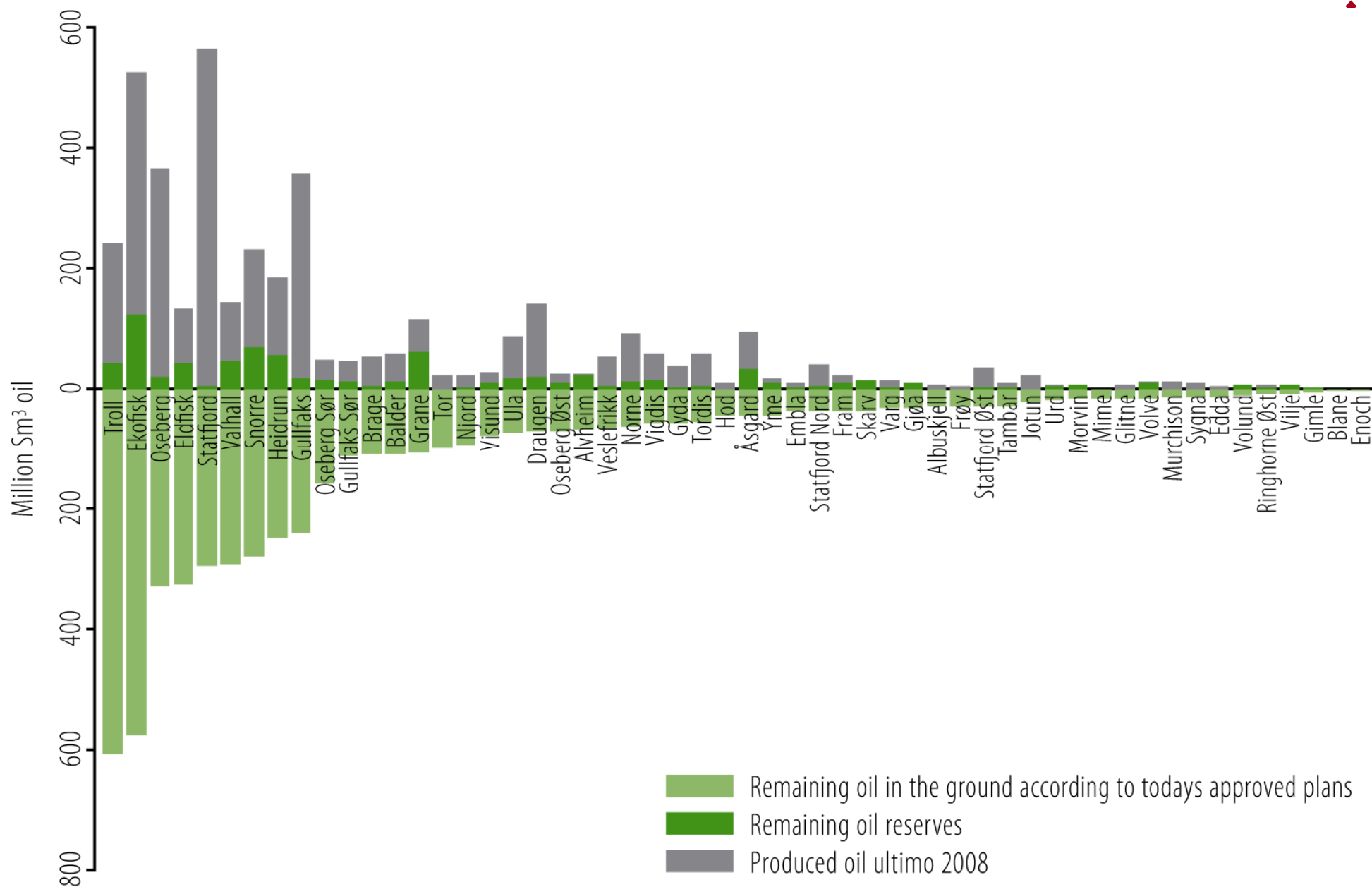
No growth in acreage since 1994



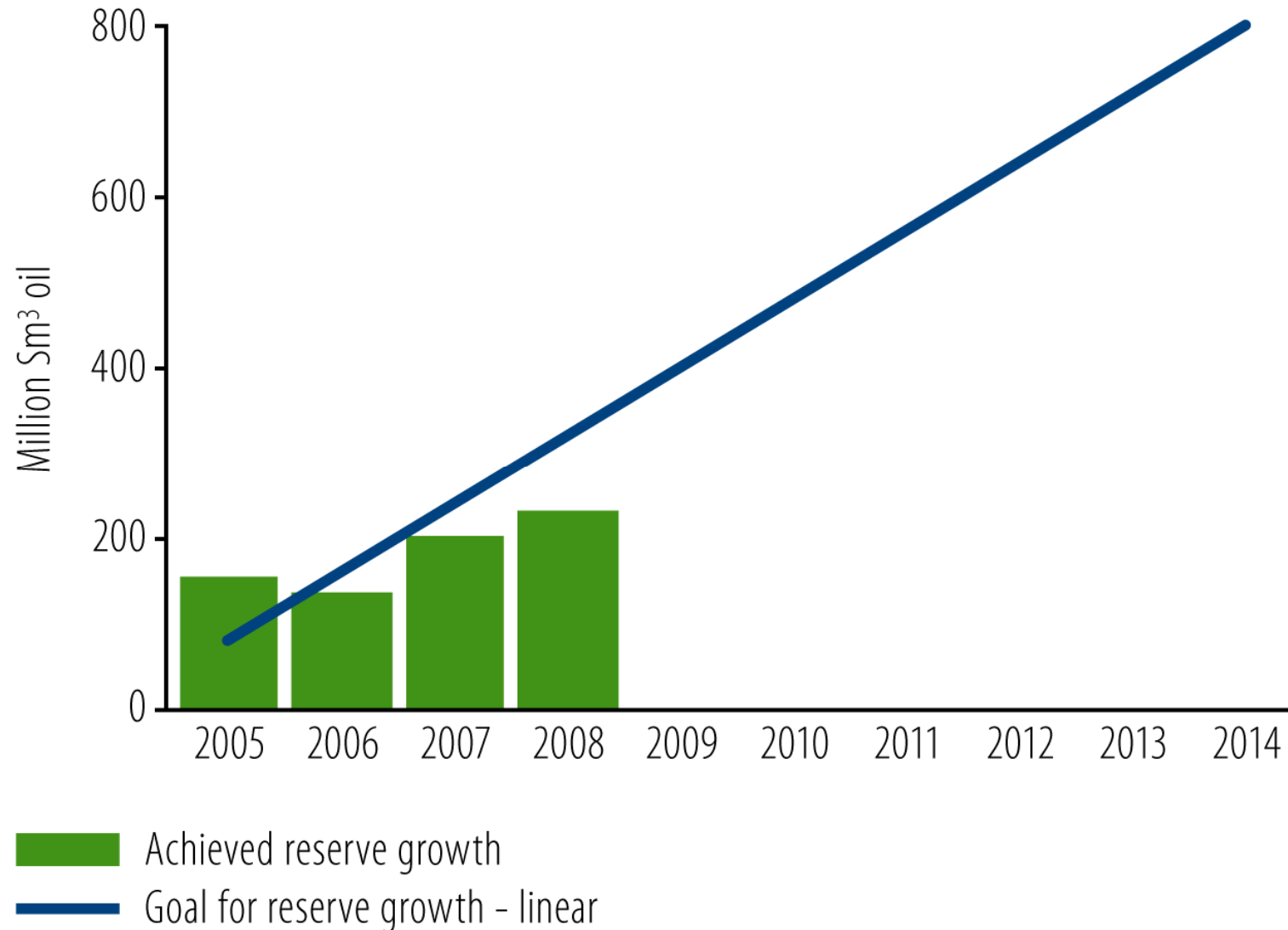
Exploration in the past decade provides little contribution to future production



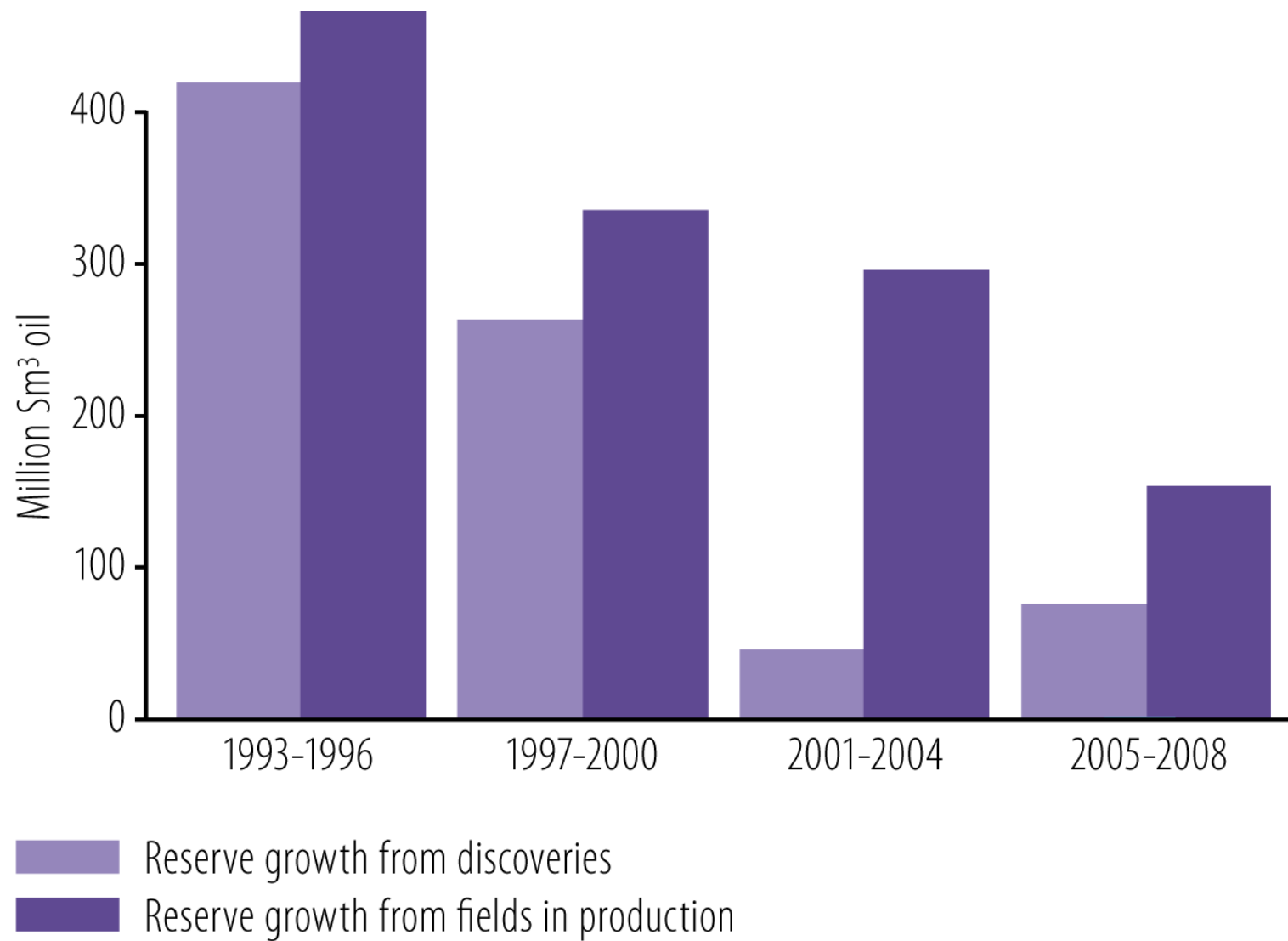
The proven possibilities



5 billion barrels additional oil reserves 2005-2015



Both, please !



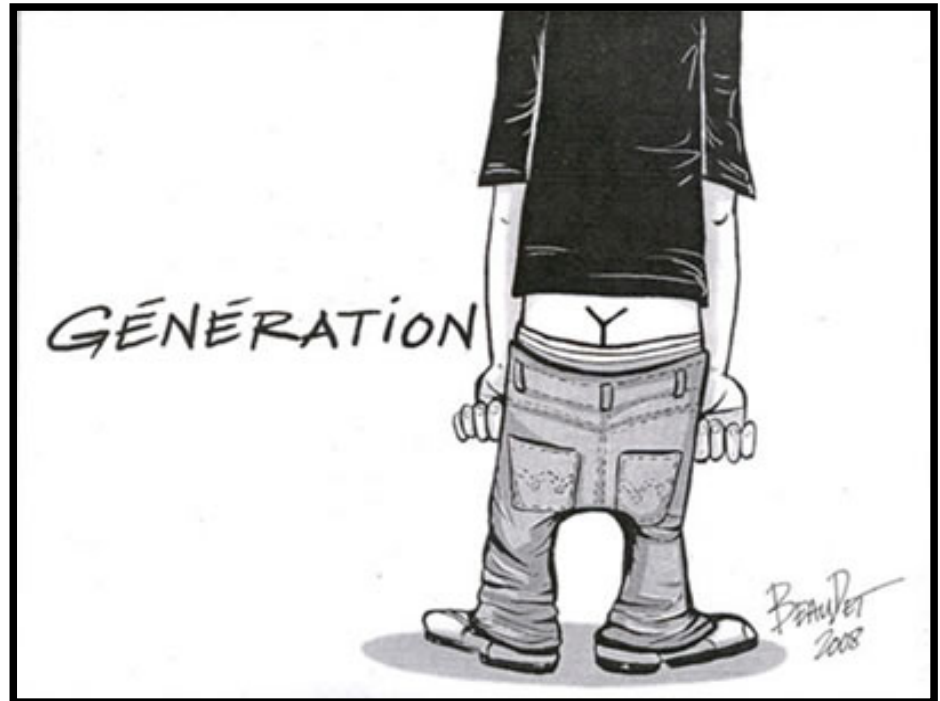
Effective gas injection



Gas injection gives 320-360 million Sm³ extra oil from the Norwegian shelf.

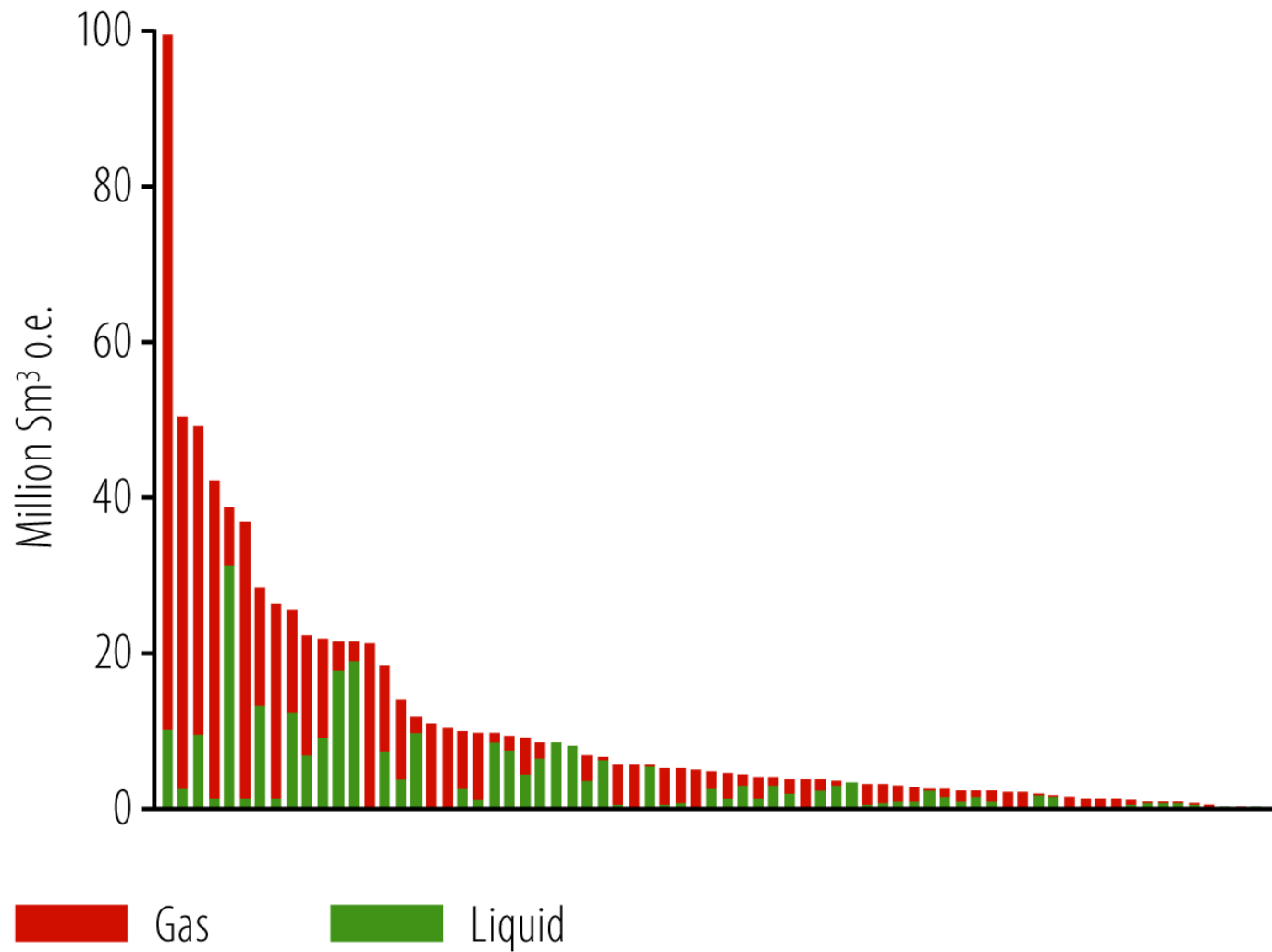
This is equivalent to the oil production from the Gullfaks field from 1986 to the present.

The old heroes are weary – We need new heroes



Including *Generation Y* !

Discovery portfolio



Things take time!



Snøhvit discovery



Production

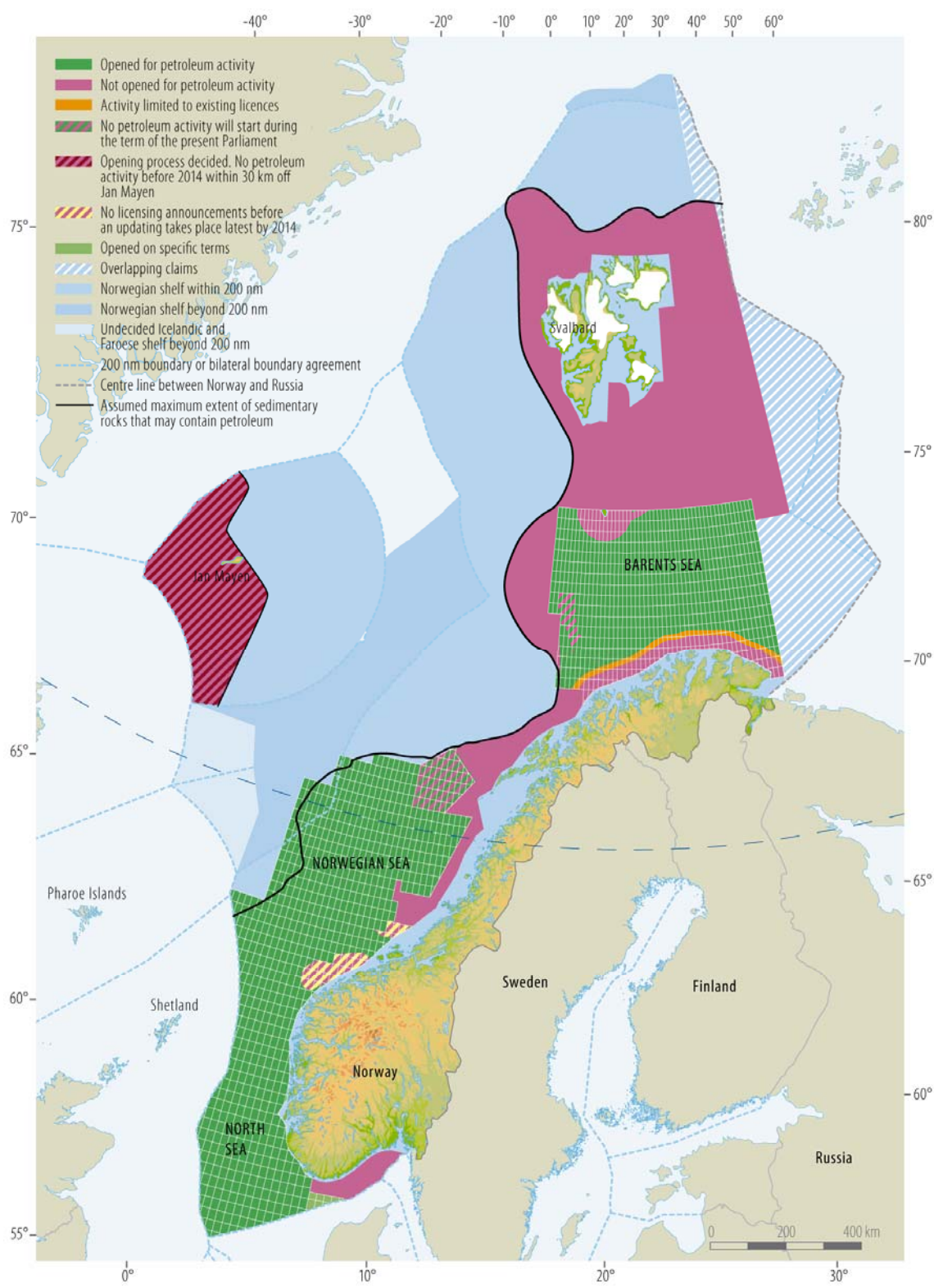


1984

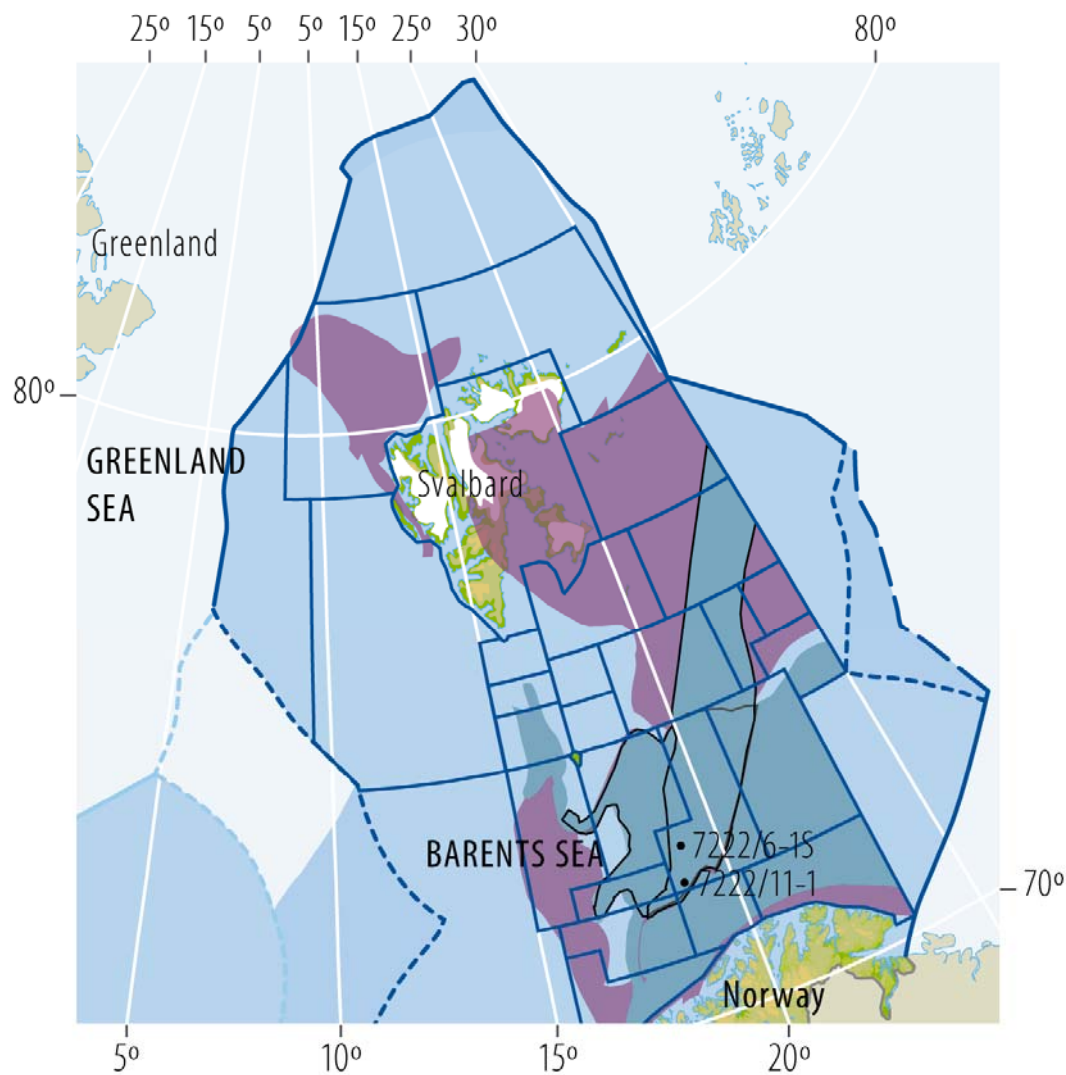
2007



Norwegian continental shelf

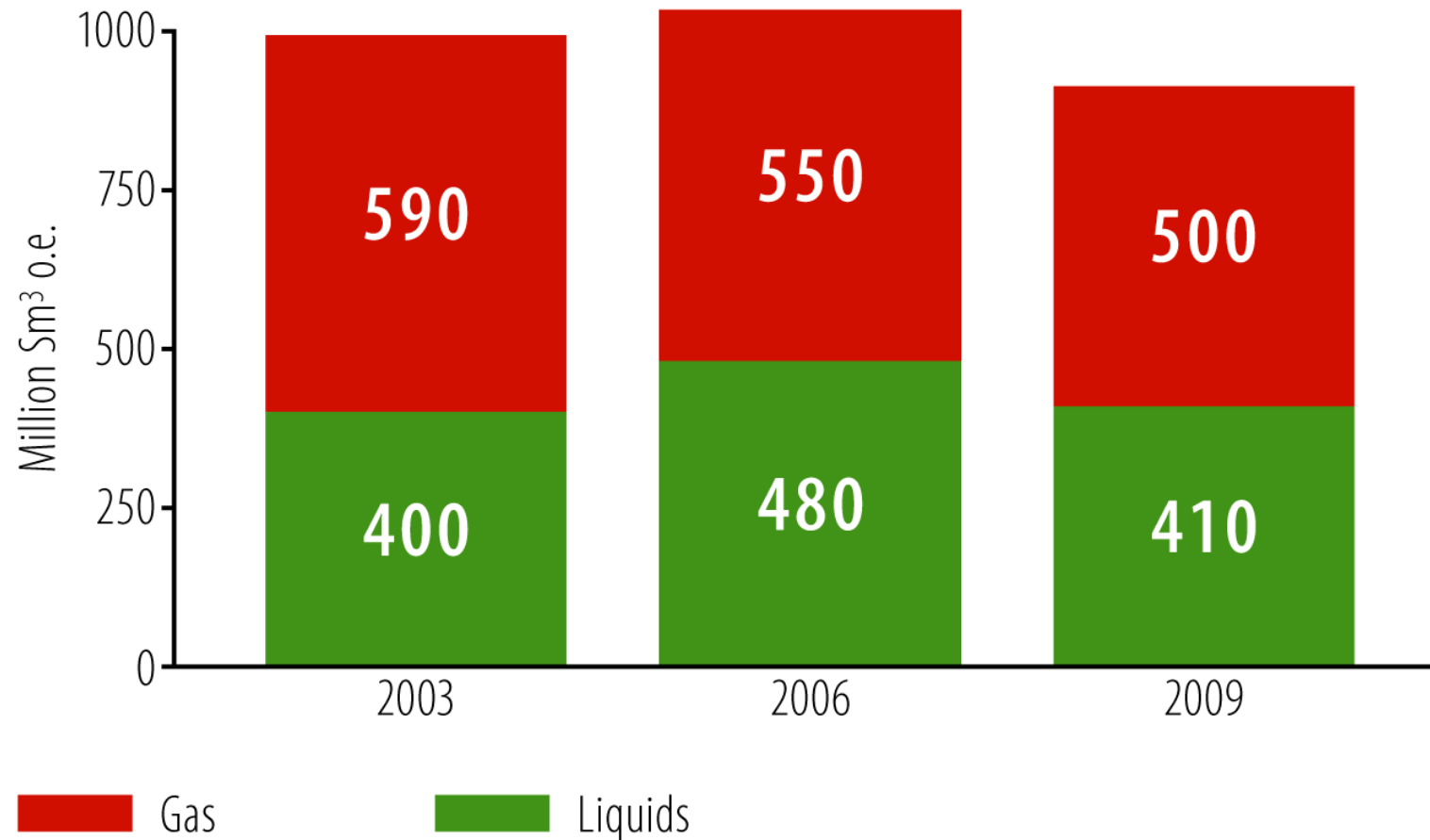


The Barents Sea – hidden treasure?



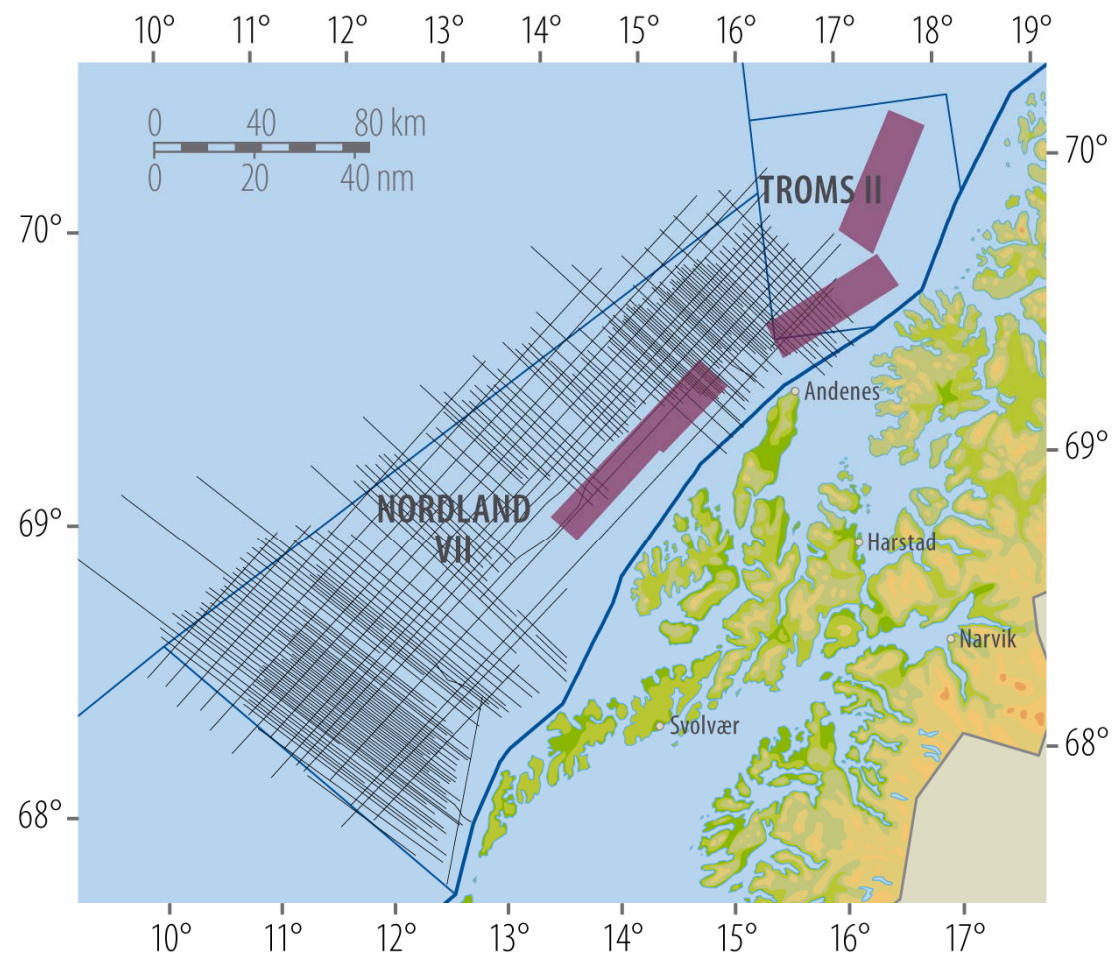
- Plays confirmed confirmed before 2006
- Plays confirmed confirmed since 2006
- Unconfirmed plays

The Northern areas – geological conditions are present → knowledge and patience are necessary



The NPD's geological surveys – 2007-2010

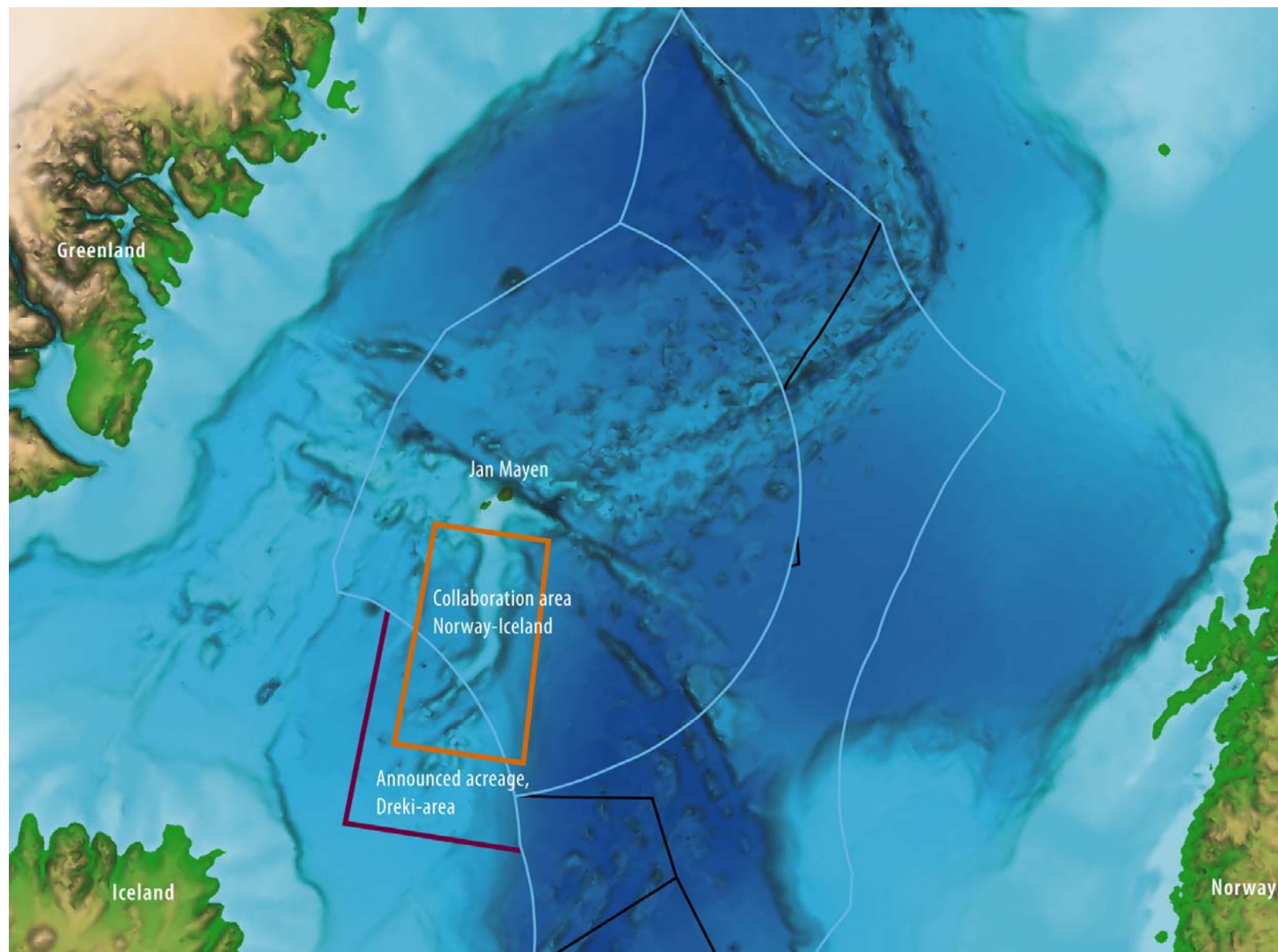
Part of the knowledge base



- ◆ The NPD has acquired sufficient data to carry out the Storting's assignment – to estimate the petroleum resources in the area – the results will be ready in the spring of 2010
- ◆ This summer's data acquisition went very well – good dialogue with the fishery interests
- ◆ 124 fishing vessels had buy-out agreements with the NPD
- ◆ The Institute of Marine Research has implemented the world's most extensive research project on the effects of seismic acquisition activity on fish outside Vesterålen – the results will be ready in the spring of 2010

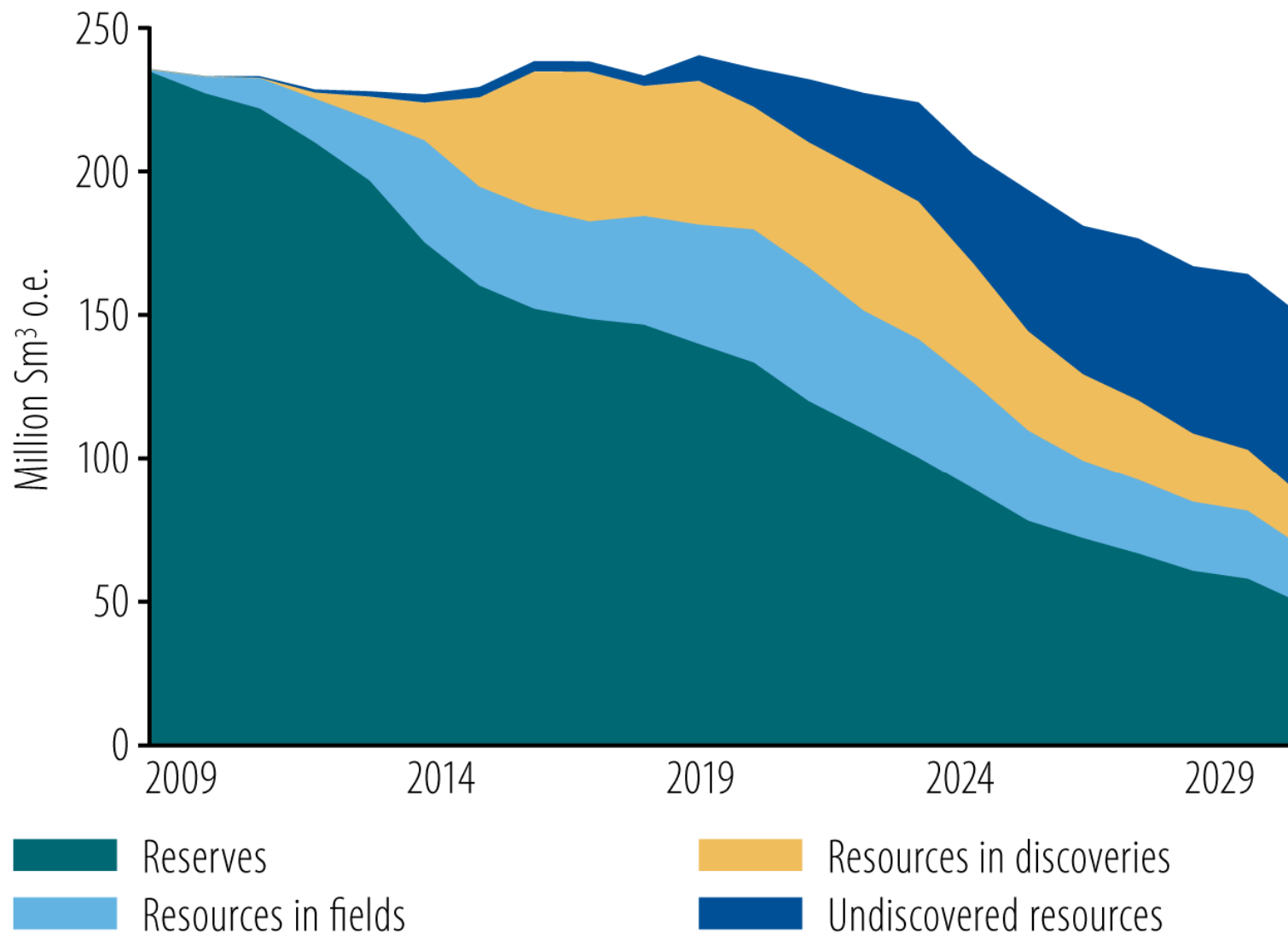
— 2D seismic 2007 and 2008
■ 3D seismic 2008 and 2009
— Baseline

Common interests?



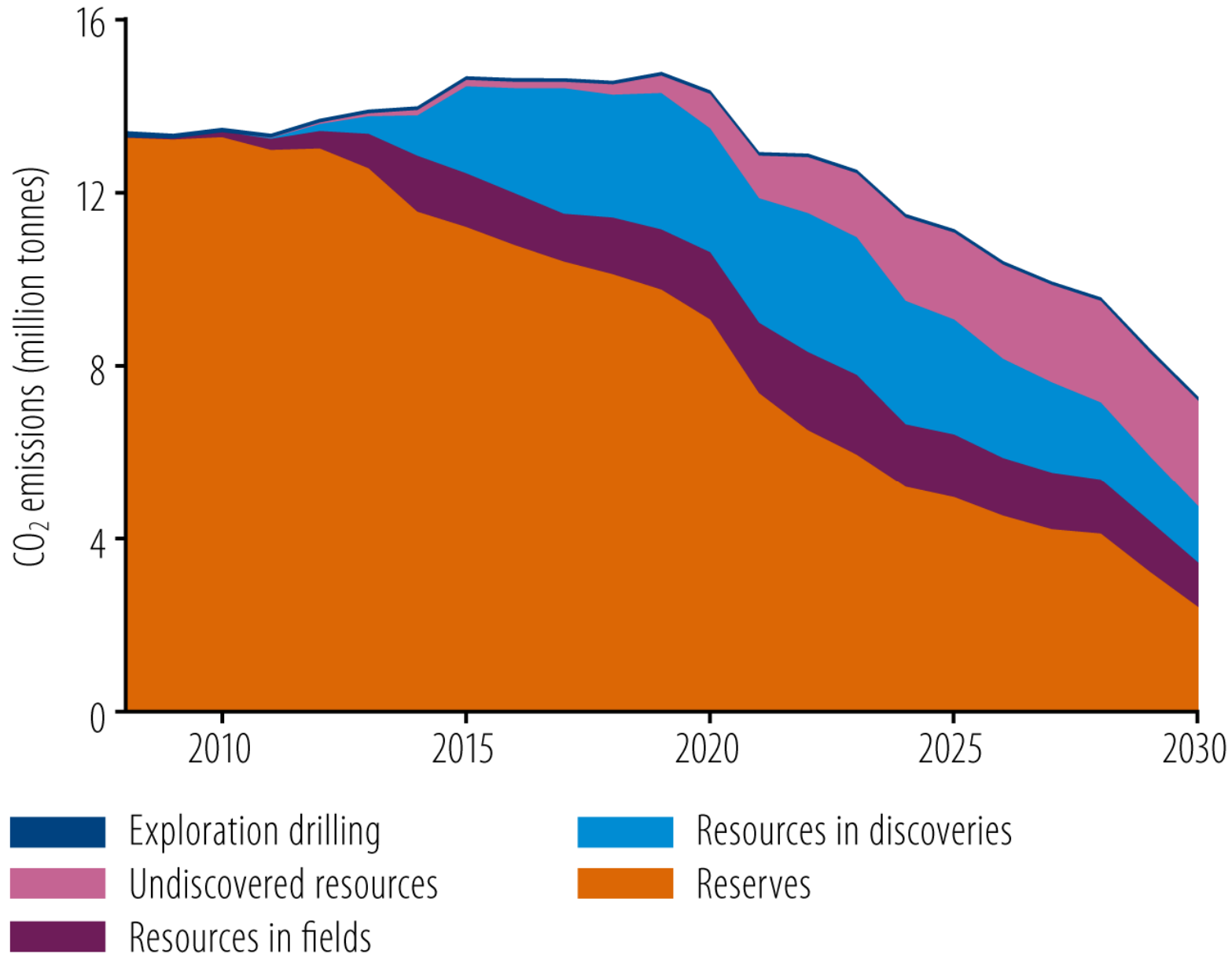
Production forecast

(RNB2009)

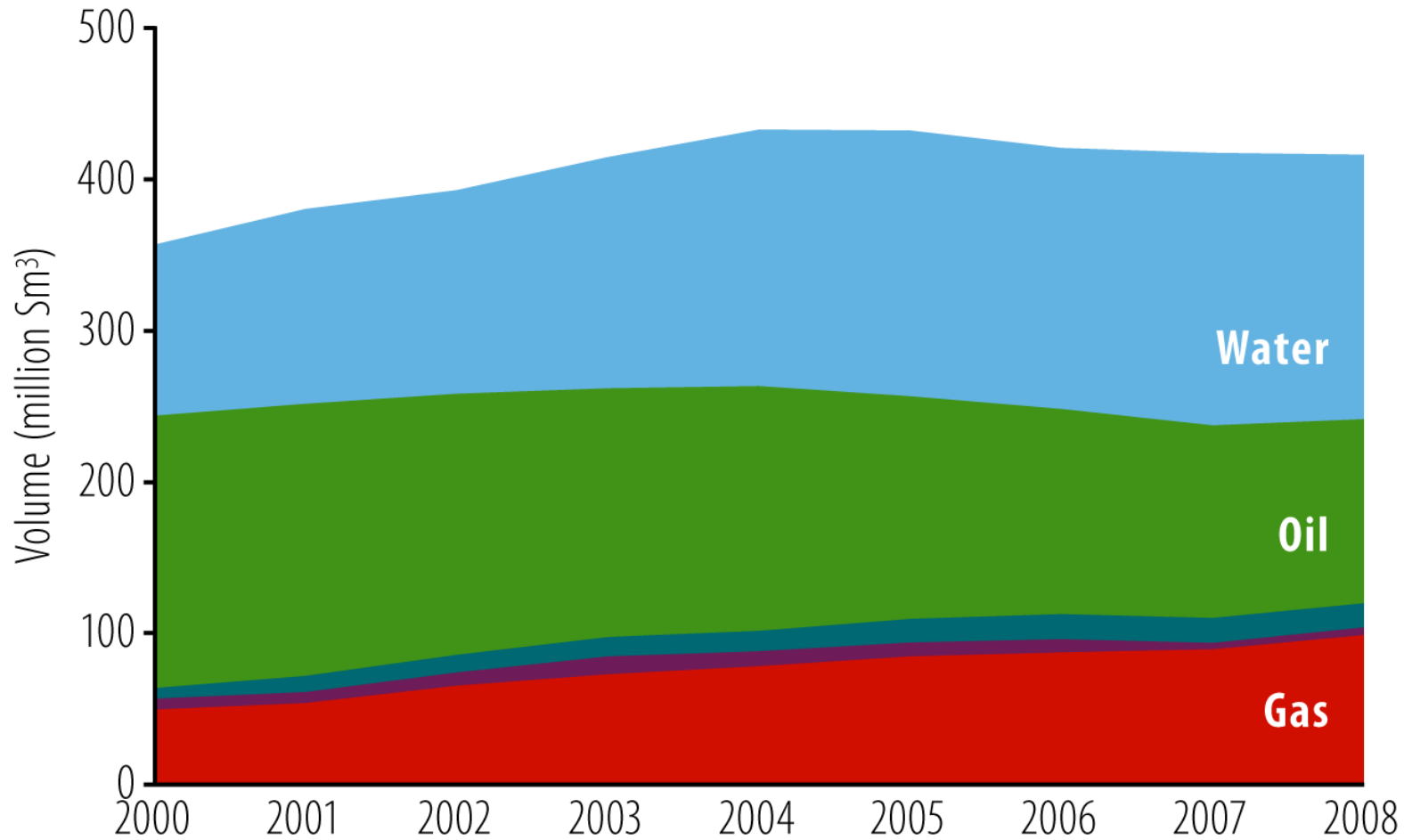


CO₂ emission forecasts

(RNB2009)

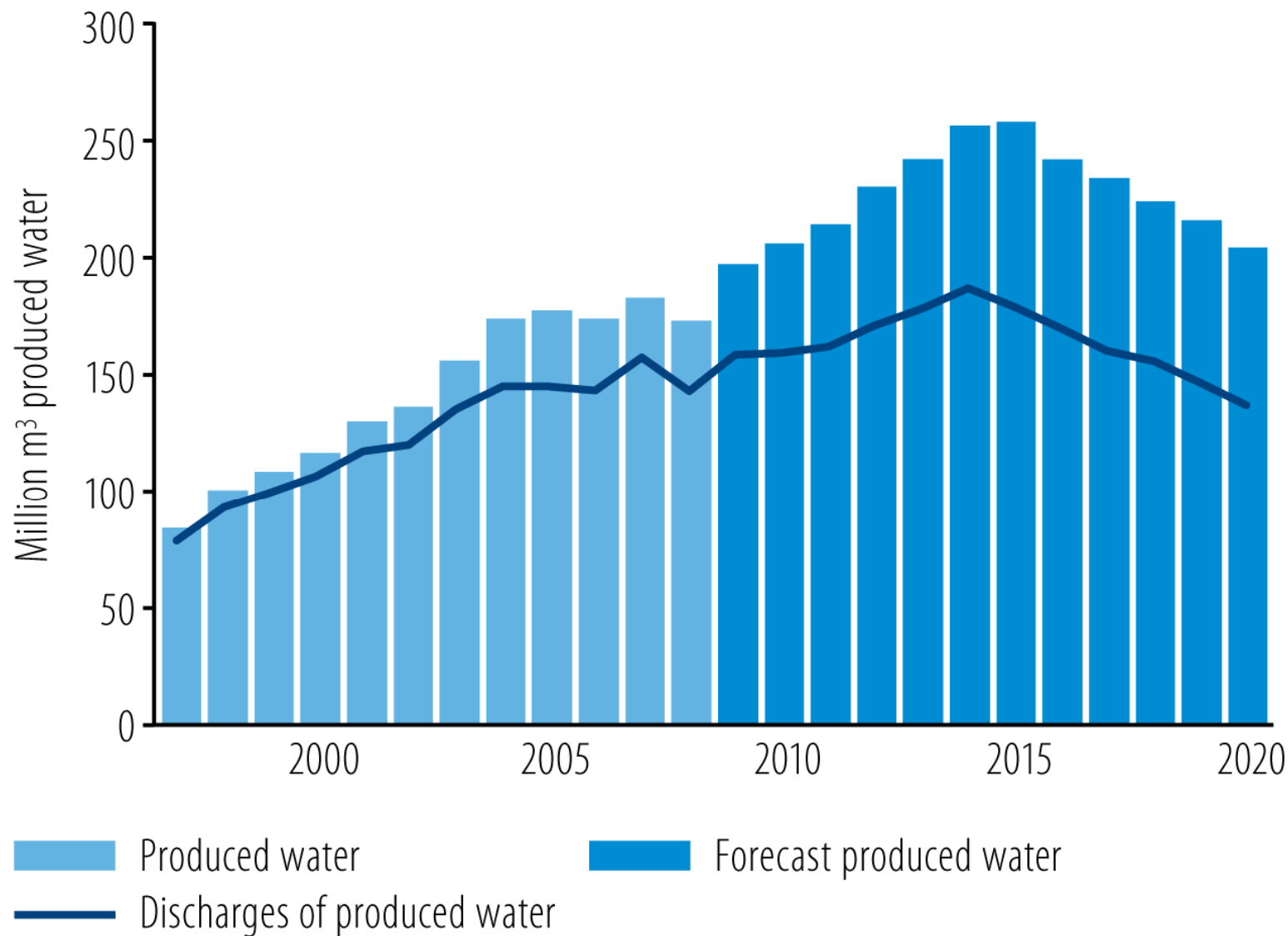


More water than oil!



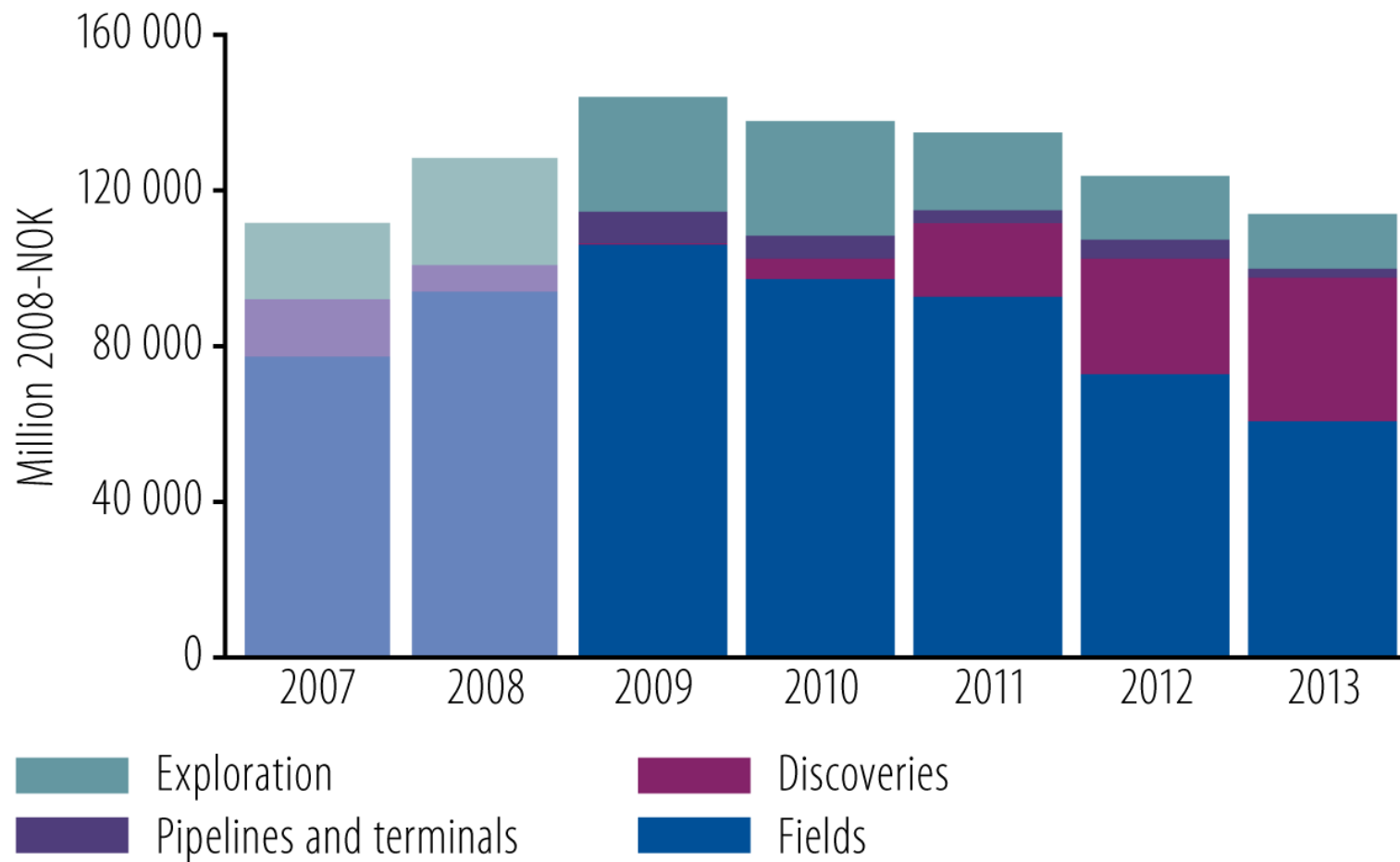
Produced water

(RNB2009)



Investment forecast

(RNB2009)



Summary



- ◆ Substantial remaining volumes in existing fields
 - ◆ require investments, technology and competence

- ◆ Large parts of the opened shelf are mature
 - ◆ More energy-intensive production
 - ◆ More exploration, many discoveries, but less volume

- ◆ 40 years have yielded knowledge, competence, experience and technological development