NORWEGIAN PETROLEUM DIRECTORATE

Overview of subsea fields on NCS

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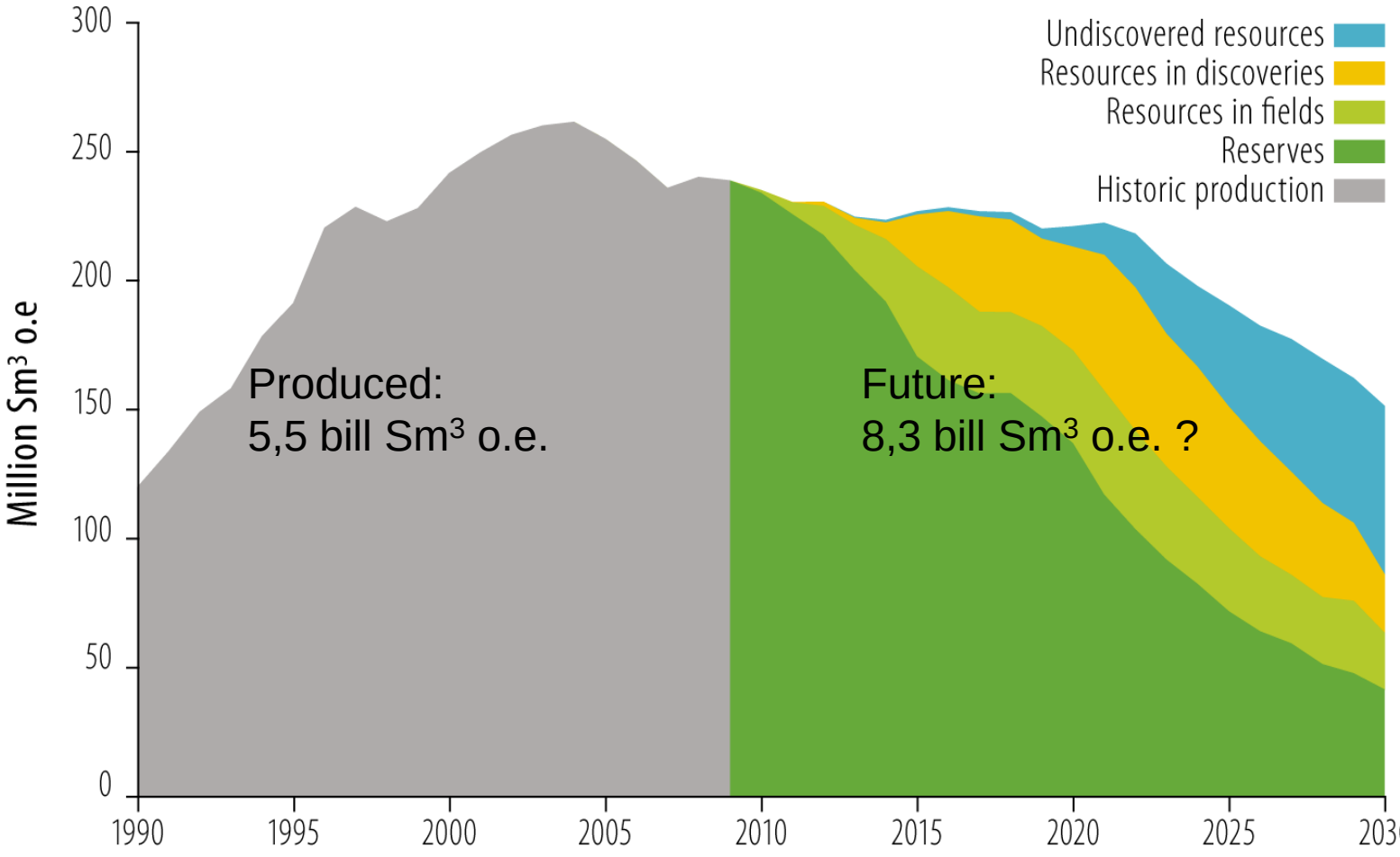
05.07.2011

Historic and prognosed production 1990-2030



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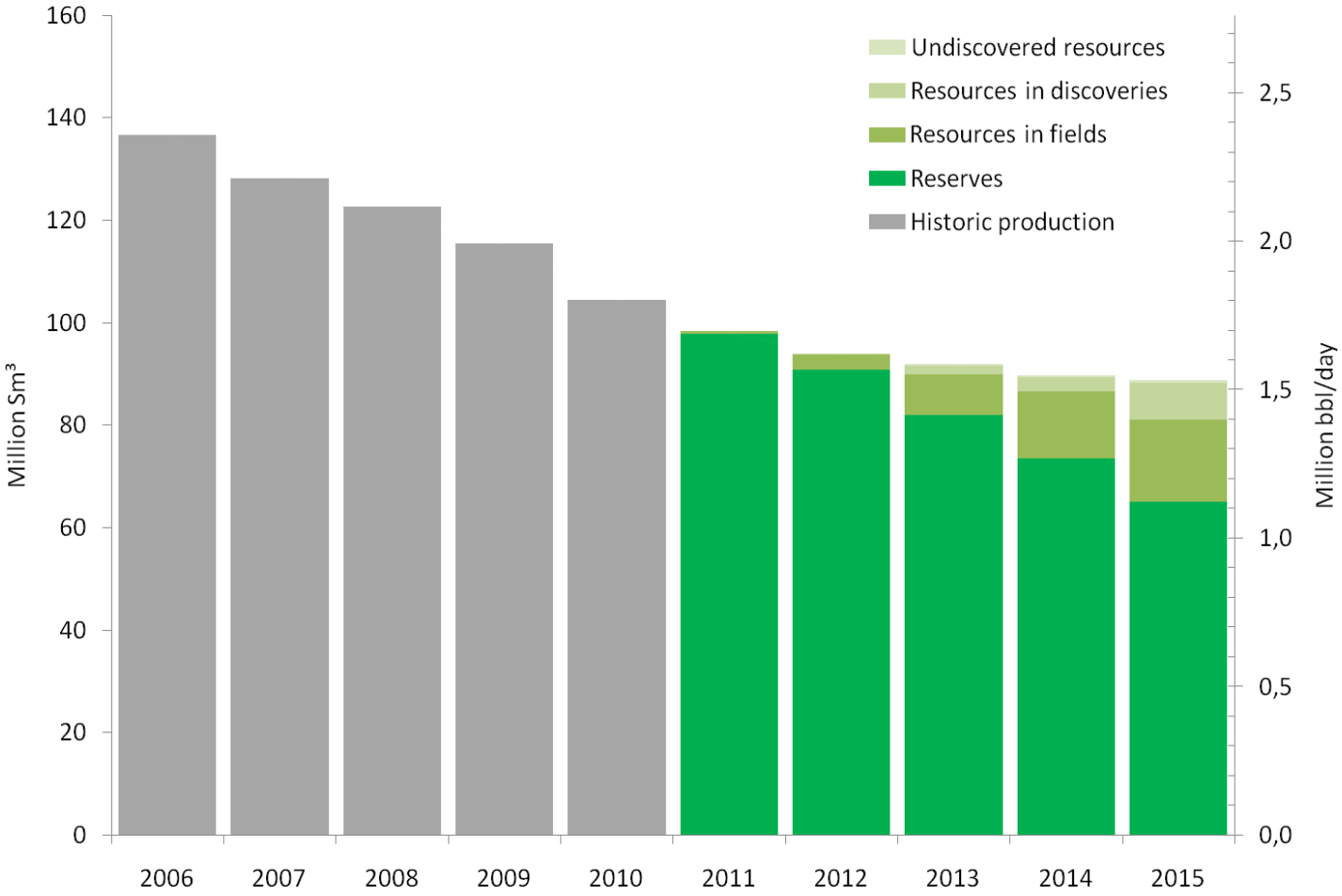
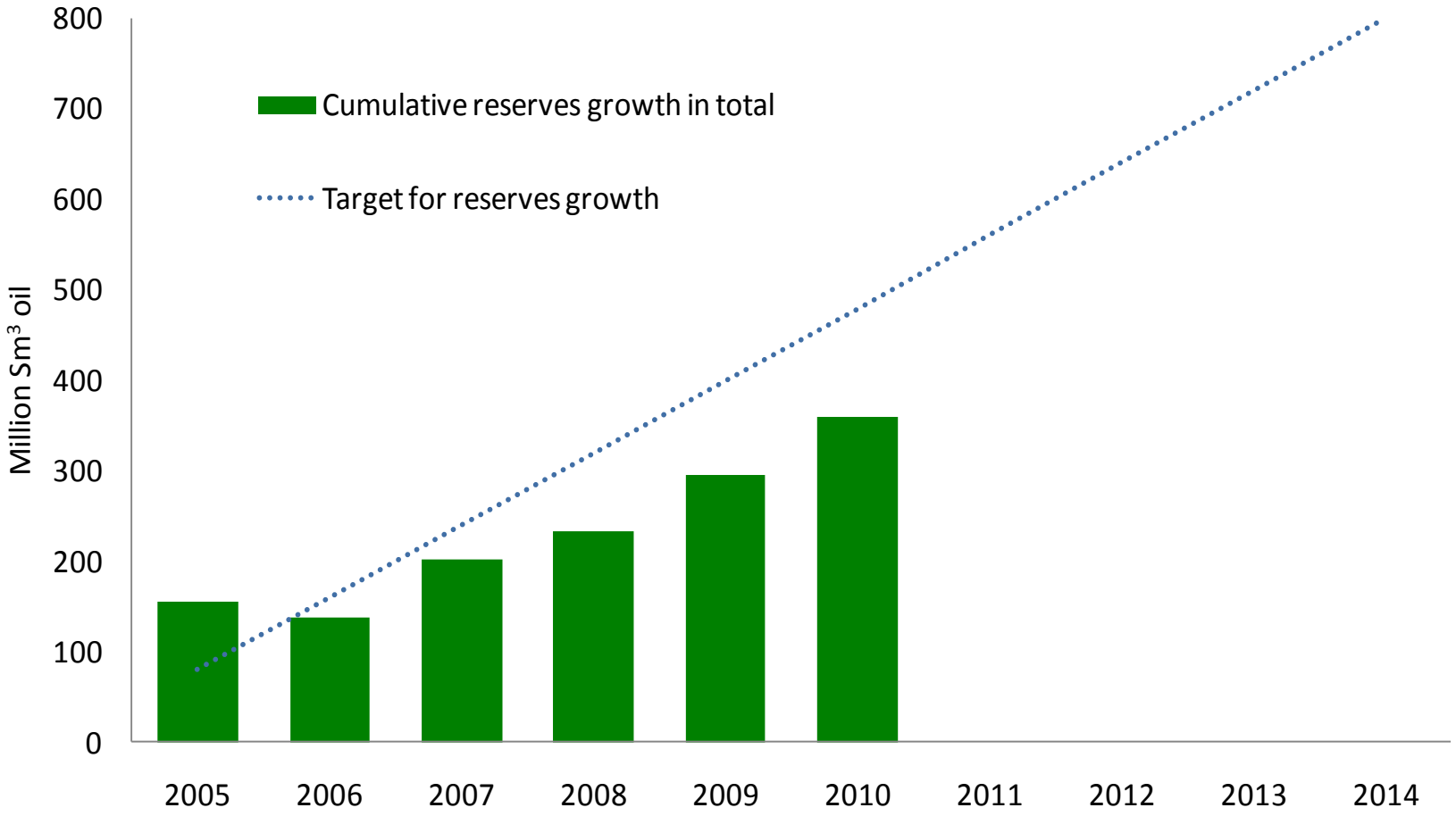
Oil production



Oil reserves growth - prognosis



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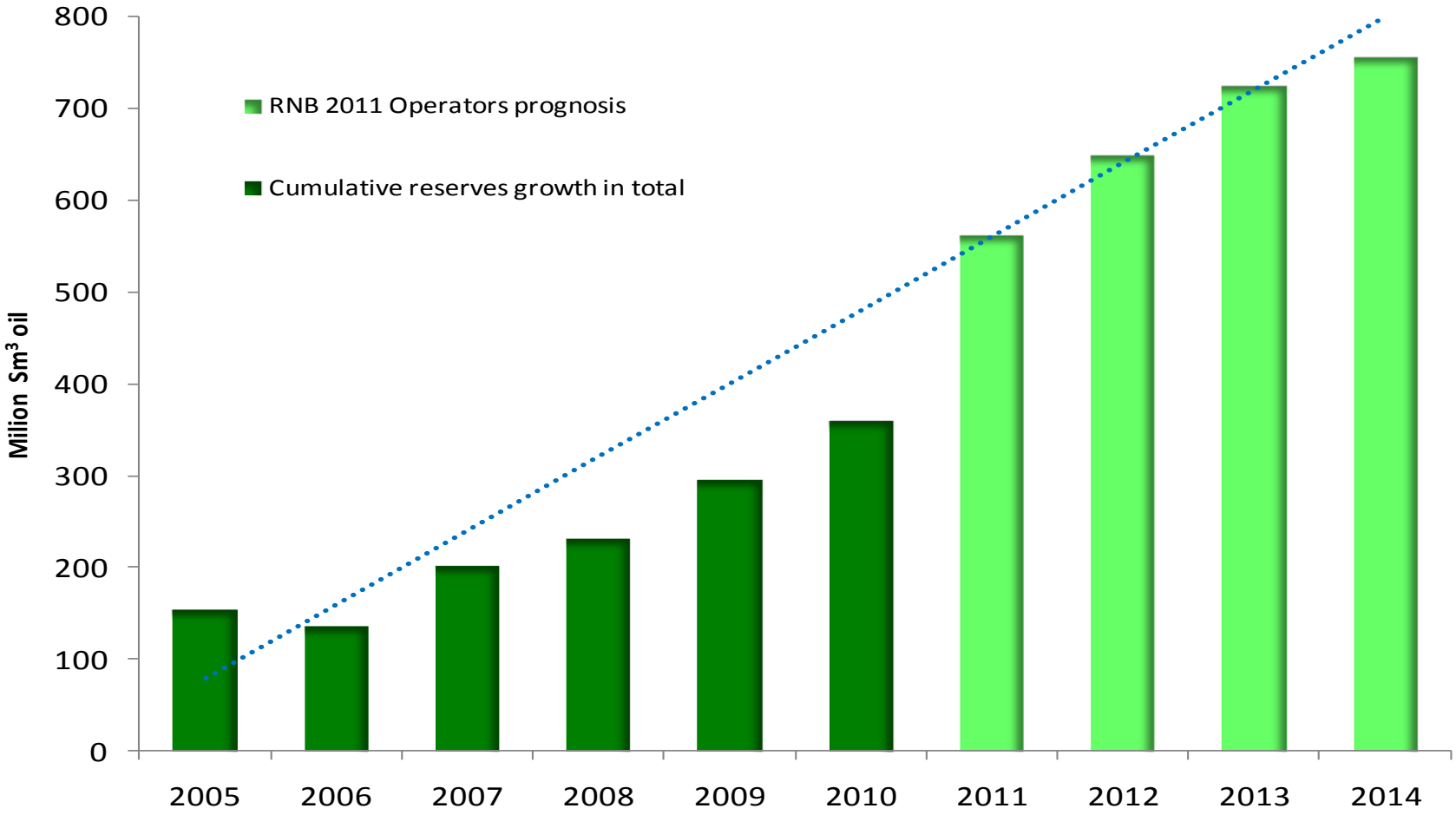
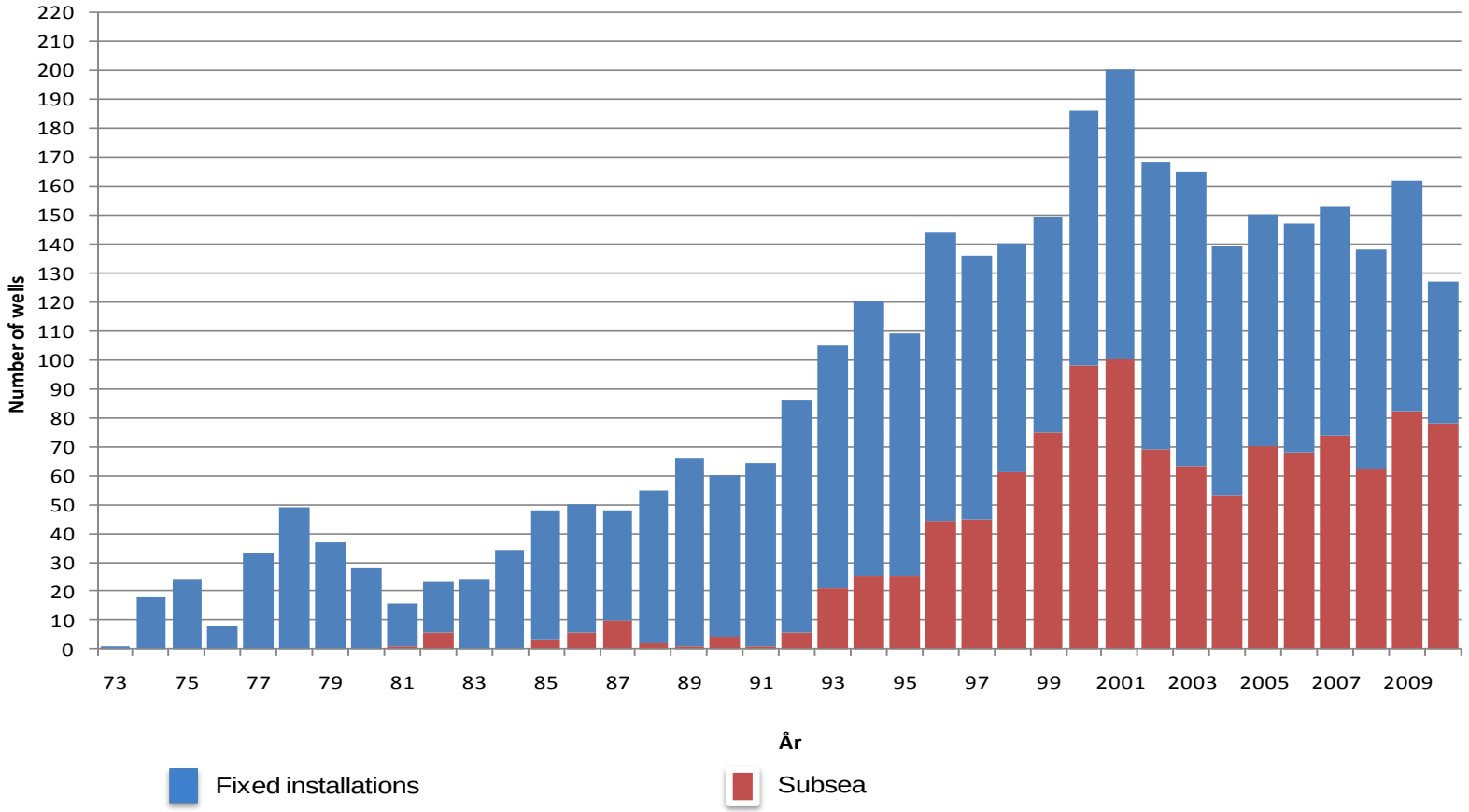
Oil reserves growth - prognosis



Development wells on the Norwegian continentel shelf



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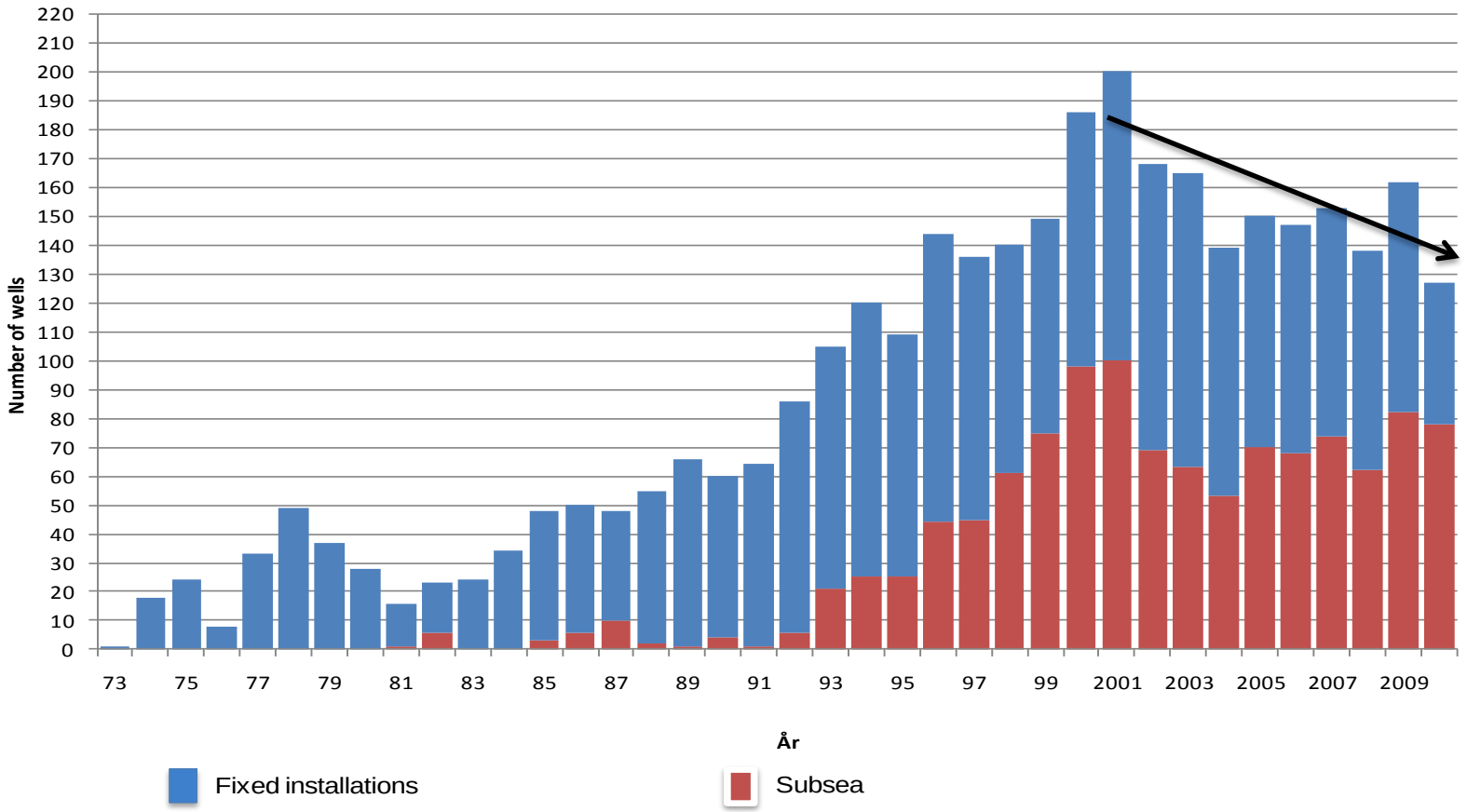
Development wells on the Norwegian continentel shelf



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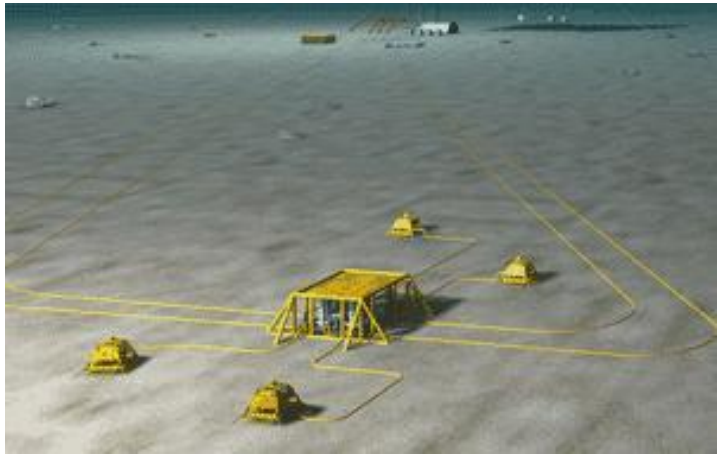
Increasing number of subseawells on NCS

- Deeper waters
- Development and availabily of subsea technology
- Increasing spare capasity in existing infrastructure
- Exploration close to existing infrastructure – a deliberate policy
- Satelittes



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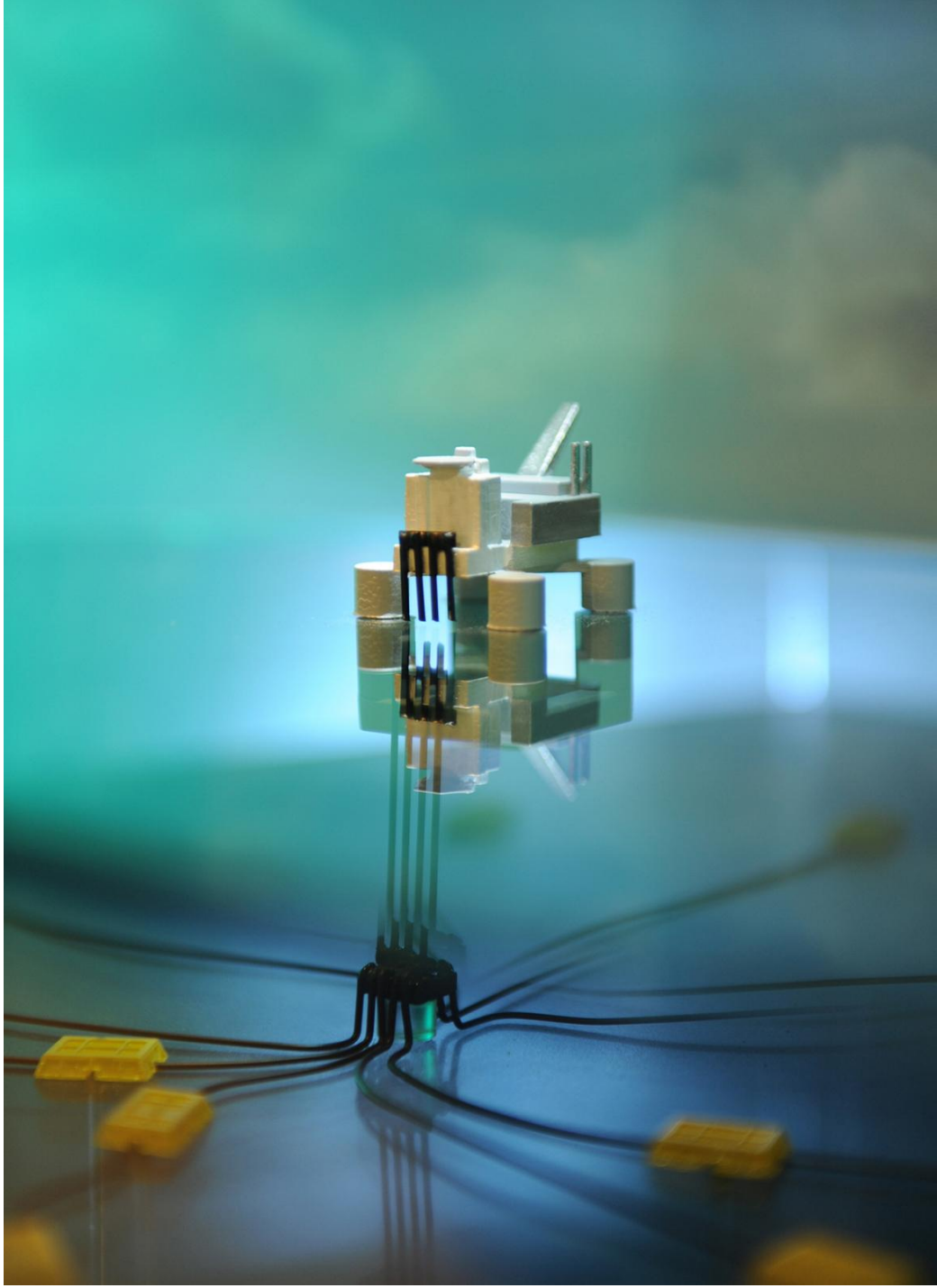
Facts about the NCS

- 70 producing fields on the NCS
  - 35 - subsea fields
  - 31 - platform fields
  - 4 fields producing from both subsea wells and platform wells.
- 35 Subsea
  - 18 gasfields
  - 17 oilfields

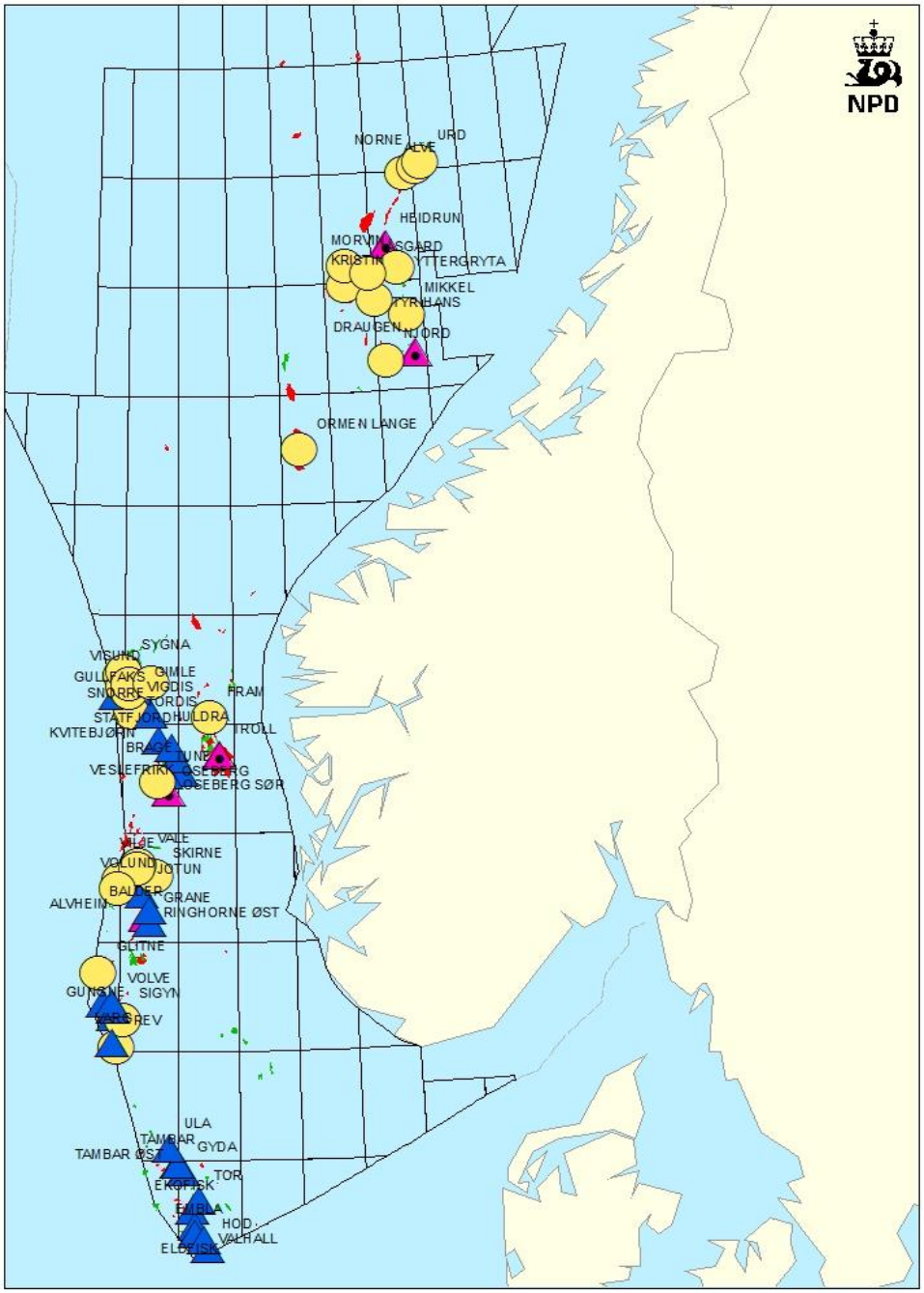


Subsea and platform fields on the NCS

Subsea

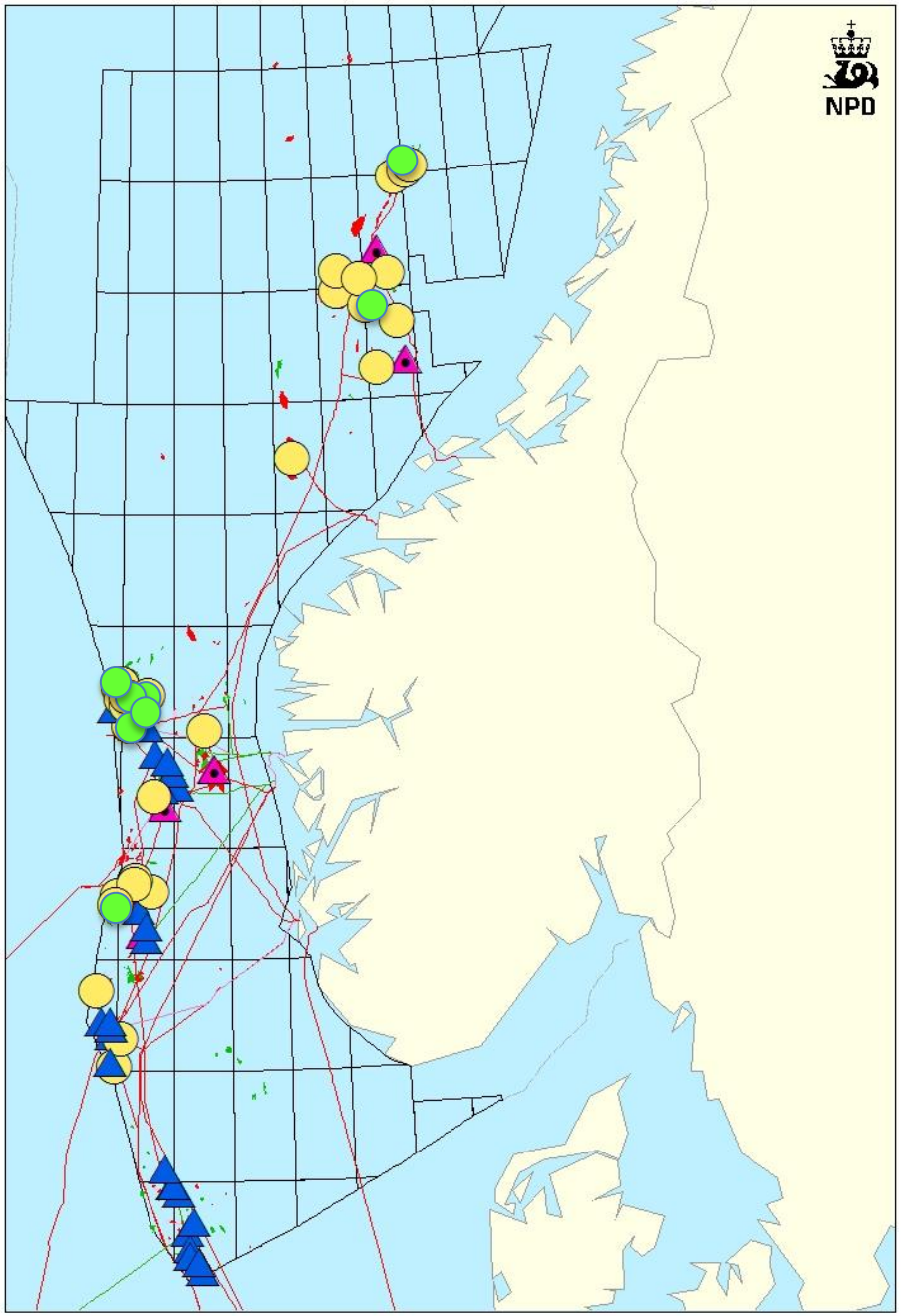
Combined subsea-platform

Platform

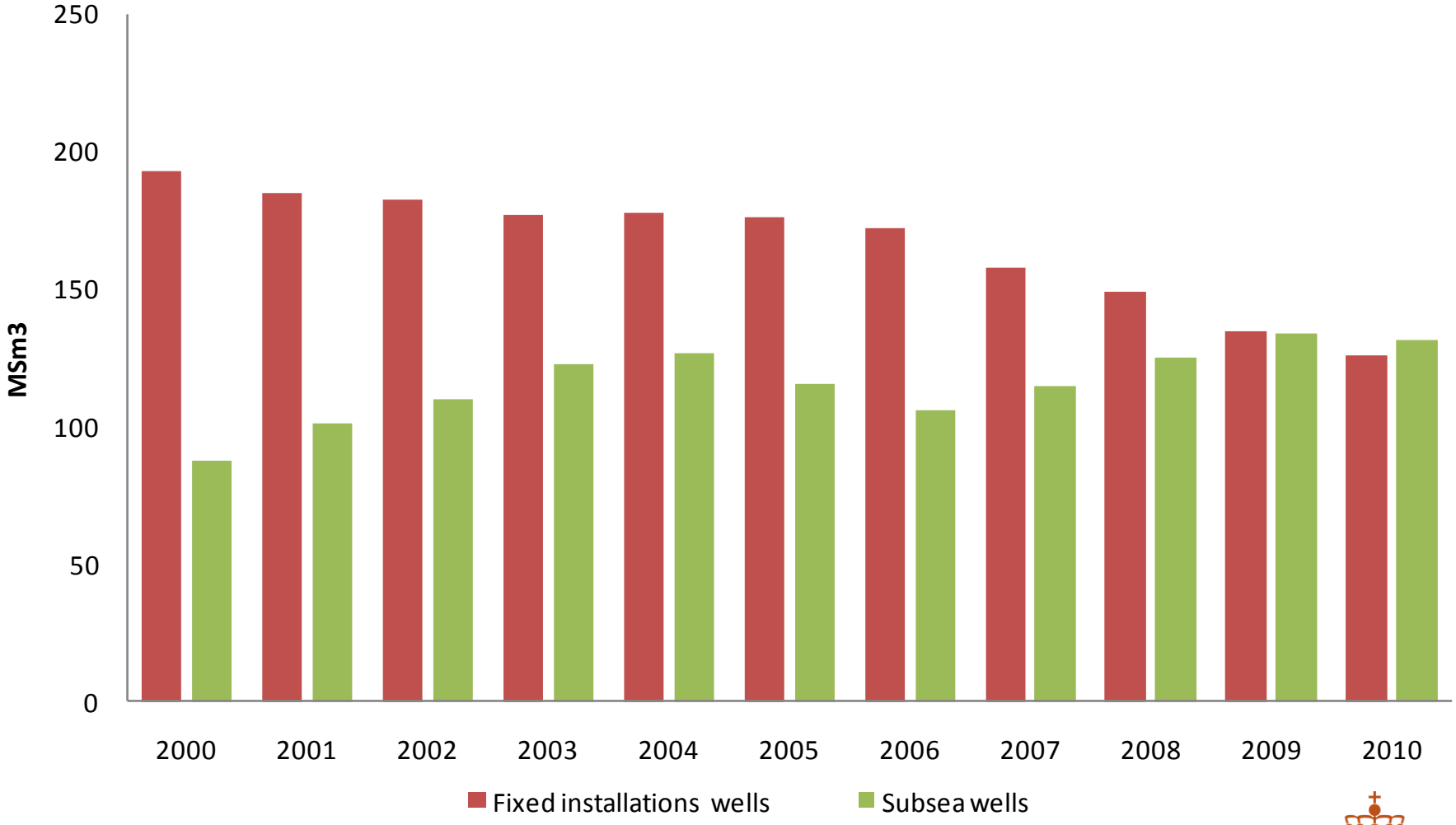


Subsea fields with water injection ➡ ●

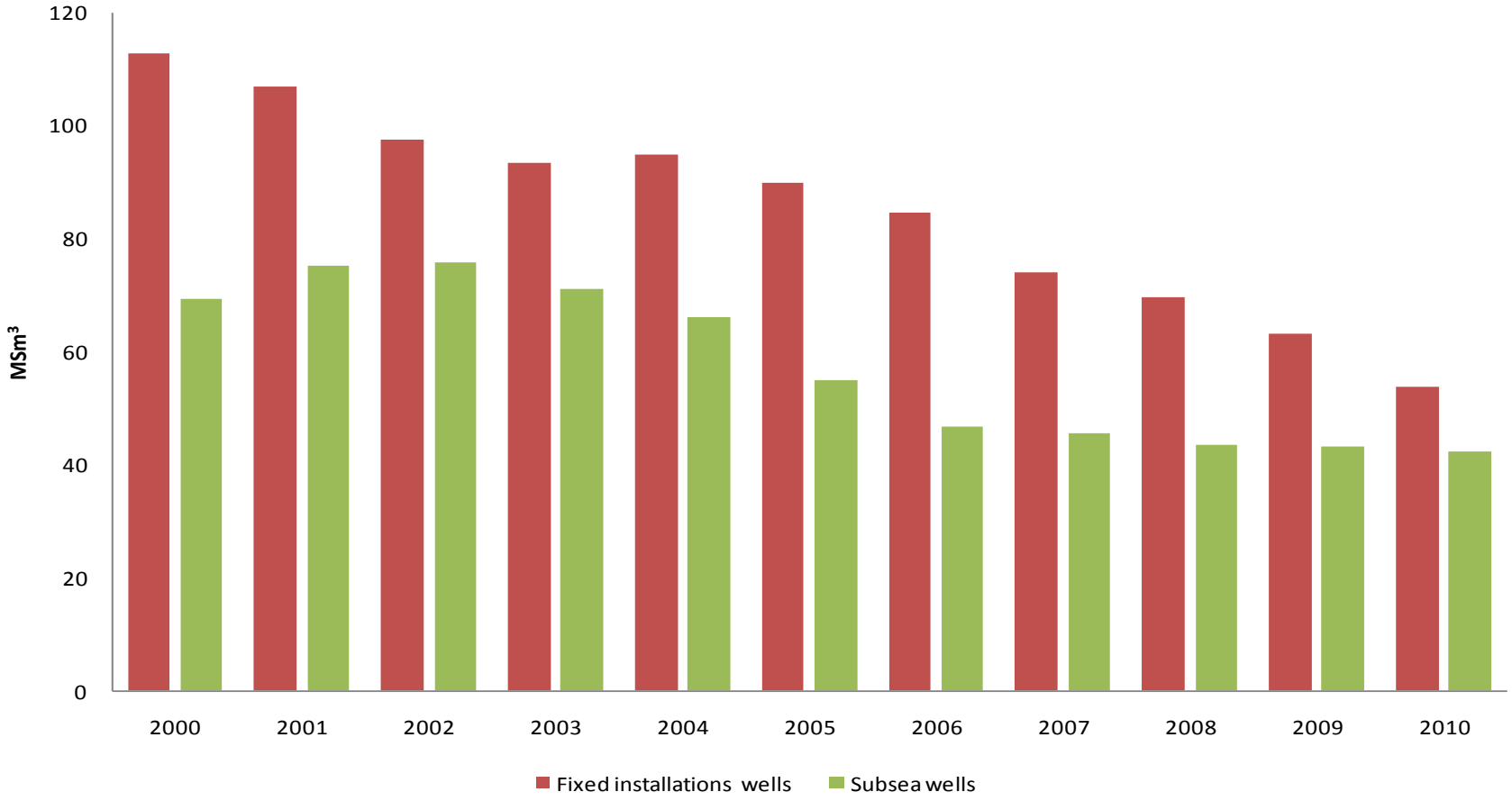
- Urd
- Tyrihans
- Statfjord Nord
- Statfjord Øst
- Sygna
- Tordis
- Vigdis
- Volund



Total production o.e – Subsea vs. Fixed Installations



Oil production – Subsea vs. Fixed Installations



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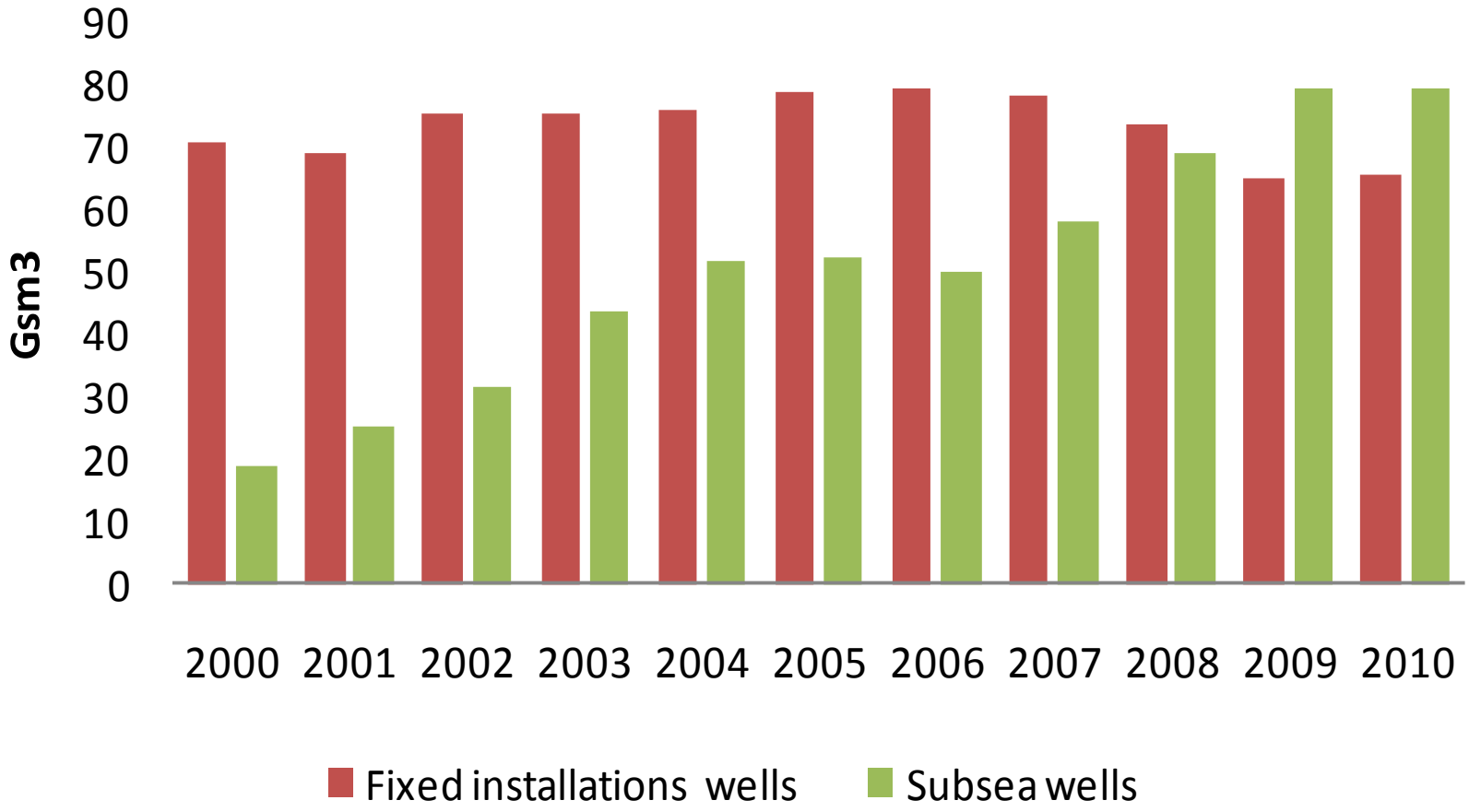
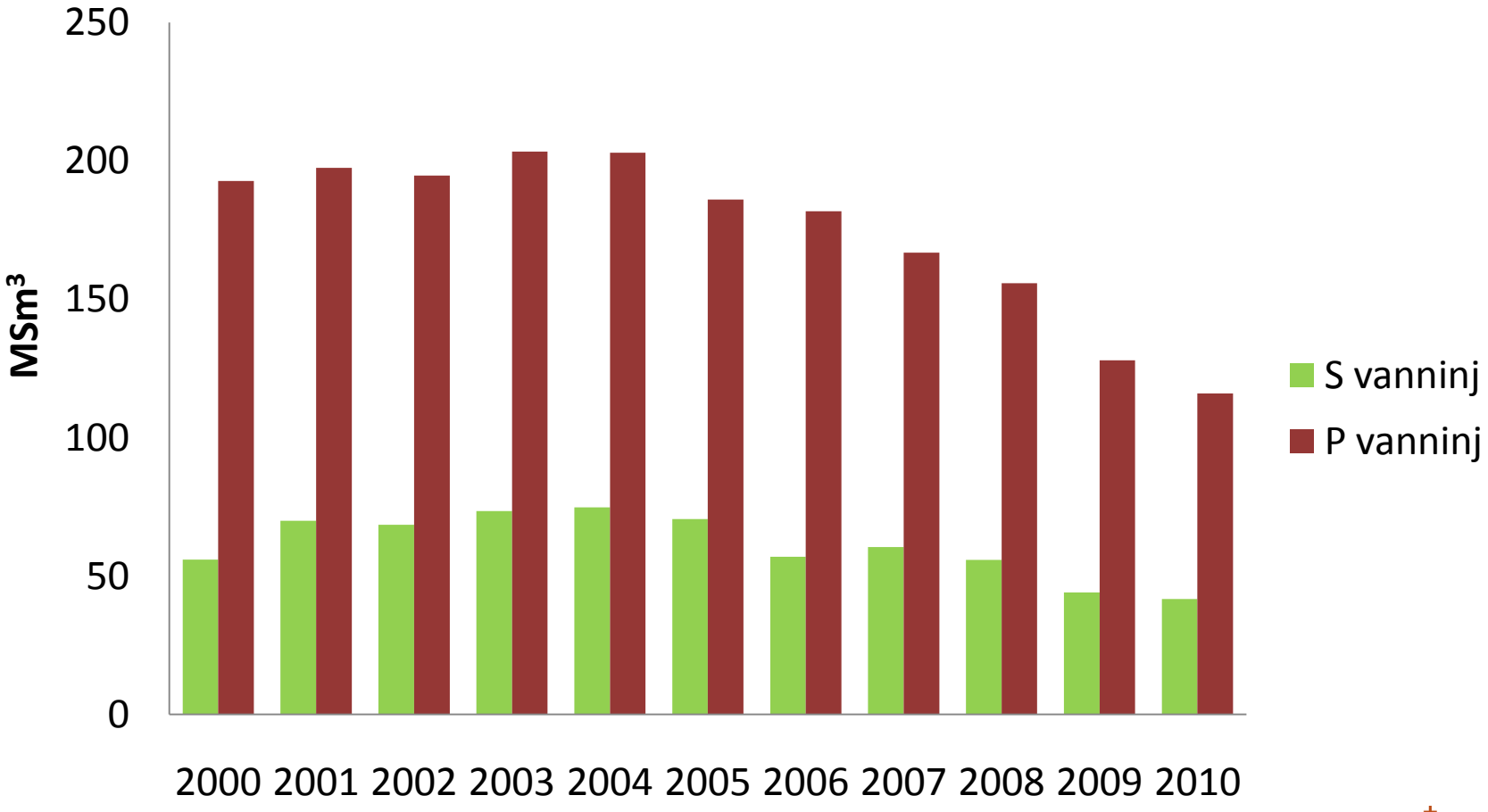
Gas production – Subsea vs. Fixed Installations



Waterinjection – Subsea vs. Fixed Installations



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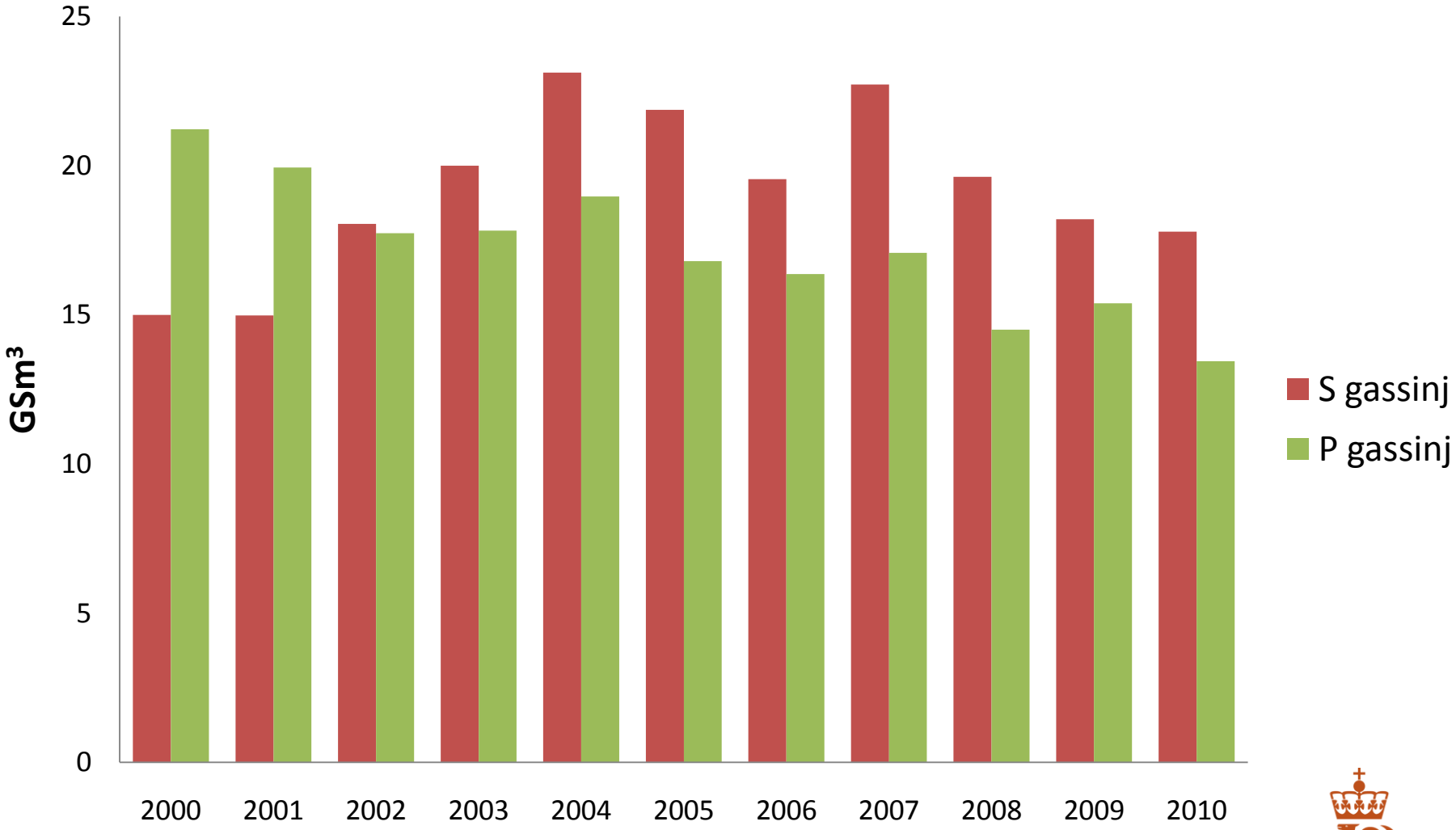
Gas injection – Subsea vs. Fixed Installations



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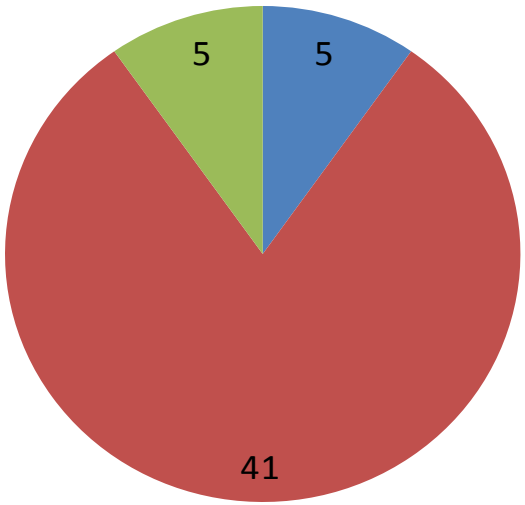
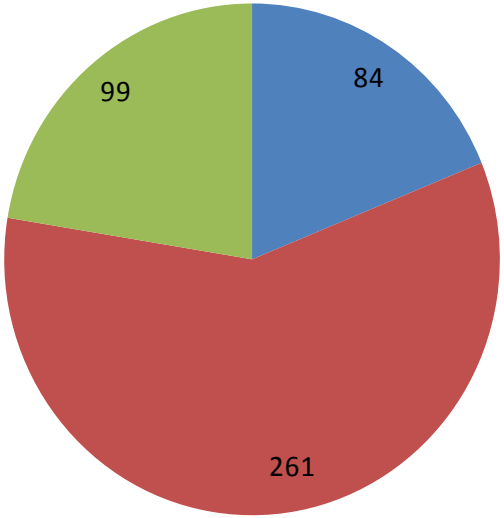
Future developments

Number of discoveries



Total Sm3 o.e. in discoveries



Floating units

Subsea development connected to fixed installations

New stand-alone fixed installation

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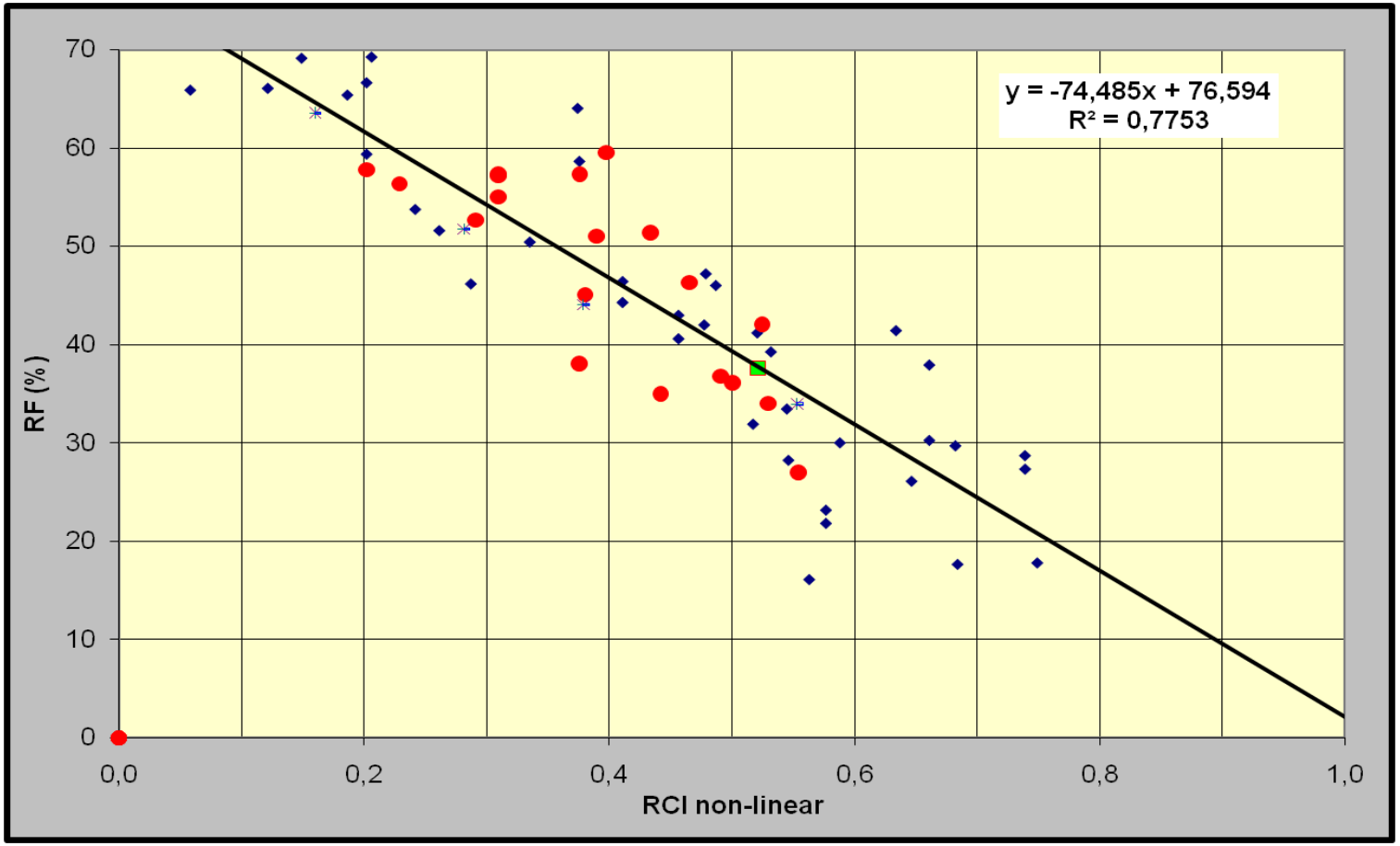
RCI for Subsea and fixed installations



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summary

- Production from subsea wells increased since 1990
- Today - production from subsea wells higher than from platform wells
- The trend will continue
- Decreasing number of development wells on NSC (platform drilling)
- A lot of future reserve growth from plans including subsea wells
- Oilreservoirs with subsea wells have relatively low complexity
- Expected RF from subseafields comparable with RF from platformfields?
  - Too optimistic?
  - Well maintenance as for platform wells?
- Costlevel - future challenges
  - drilling
  - well maintenance

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Thank you for your attention

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Noen av parametrene RCI er basert på

Average permeability	Describes the pore volume weighted average permeability in the main flow direction of the defined reservoir. mD
Permeability contrast	Describes the permeability contrast between geological layers/facies types, and is calculated as log10[Kmax/Kmin]
Structural complexity	Describes how fluid flow between wells is affected by fault density, fault throw, fault transmissibility, ….
Lateral stratigraphic continuity	Describes the stratigraphic continuity of the flow units in the main flow direction within the defined reservoir
STOOIP density	Describes the areal concentration of STOOIP and is defined as STOOIP/area (mill. Sm3/km2)
Coning tendency	Describes the coning problems associated with a gas cap or aquifer support. Large complexity only in cases where the oil band is thin.

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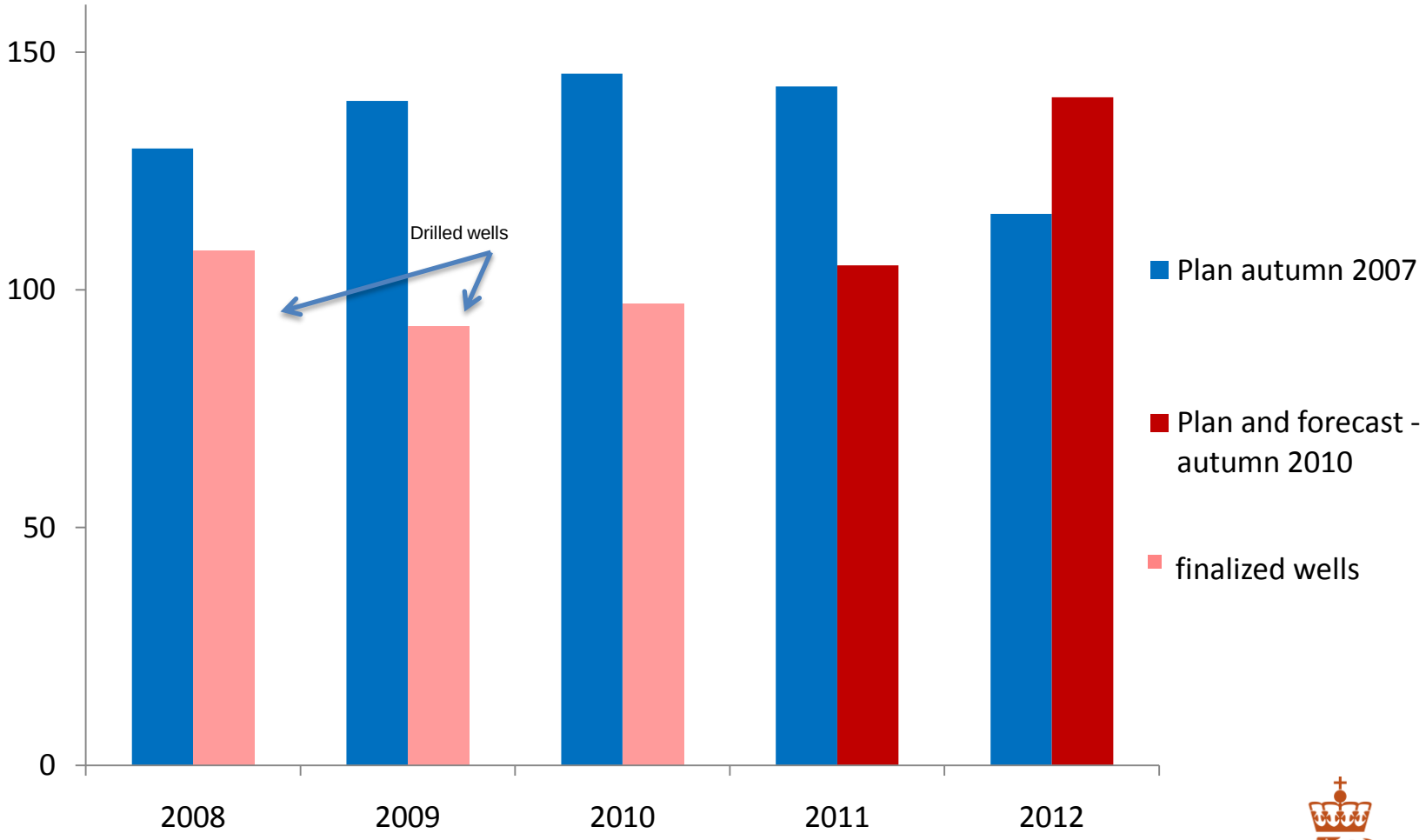
Difference in forecasted and finalized development wells between 2007 og 2010



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