



OLJE- OG ENERGIDEPARTEMENTET

*Ministry of Petroleum and Energy*

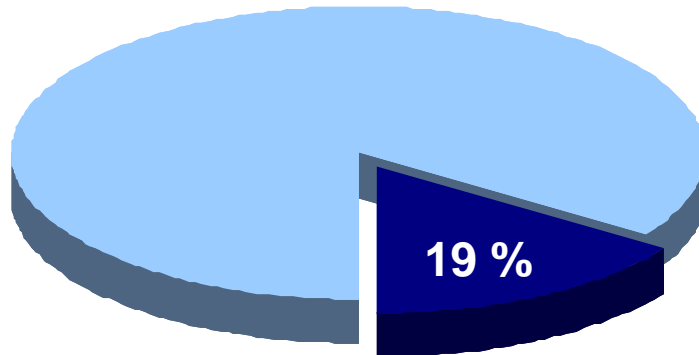
# Norway as an Innovator within Gas Technology and Gas Utilization

Oluf Ulseth

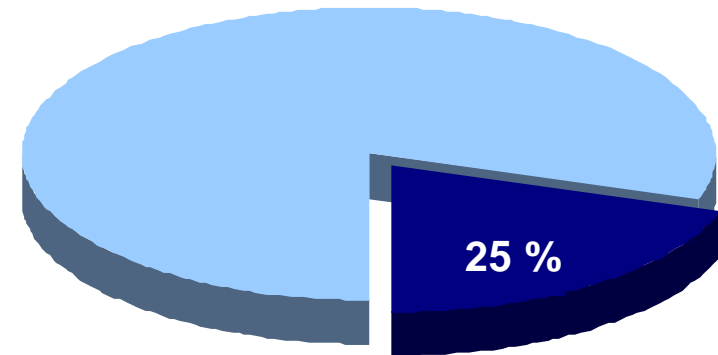
Deputy Minister of Petroleum and Energy

Intsok Seminar, Singapore, October 29 - 2004

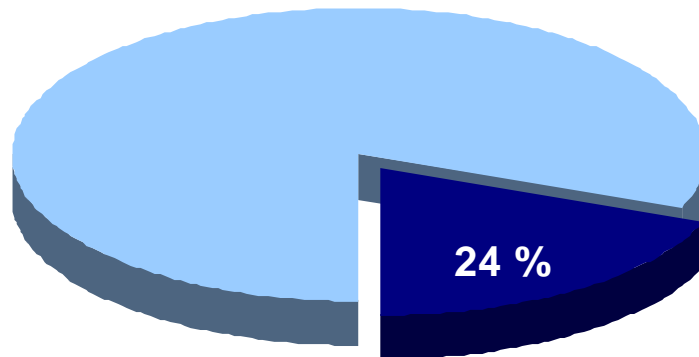
# The Petroleum sector in Norway (2003)



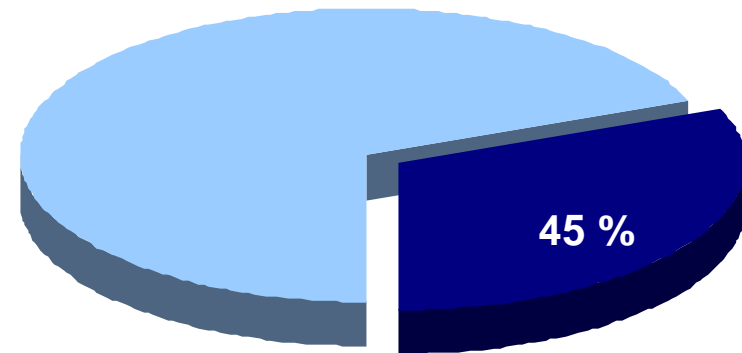
The petroleum sector's share of GDP



The petroleum sector's share of State revenues



The petroleum sector's share of total investment



The petroleum sector's share of total exports

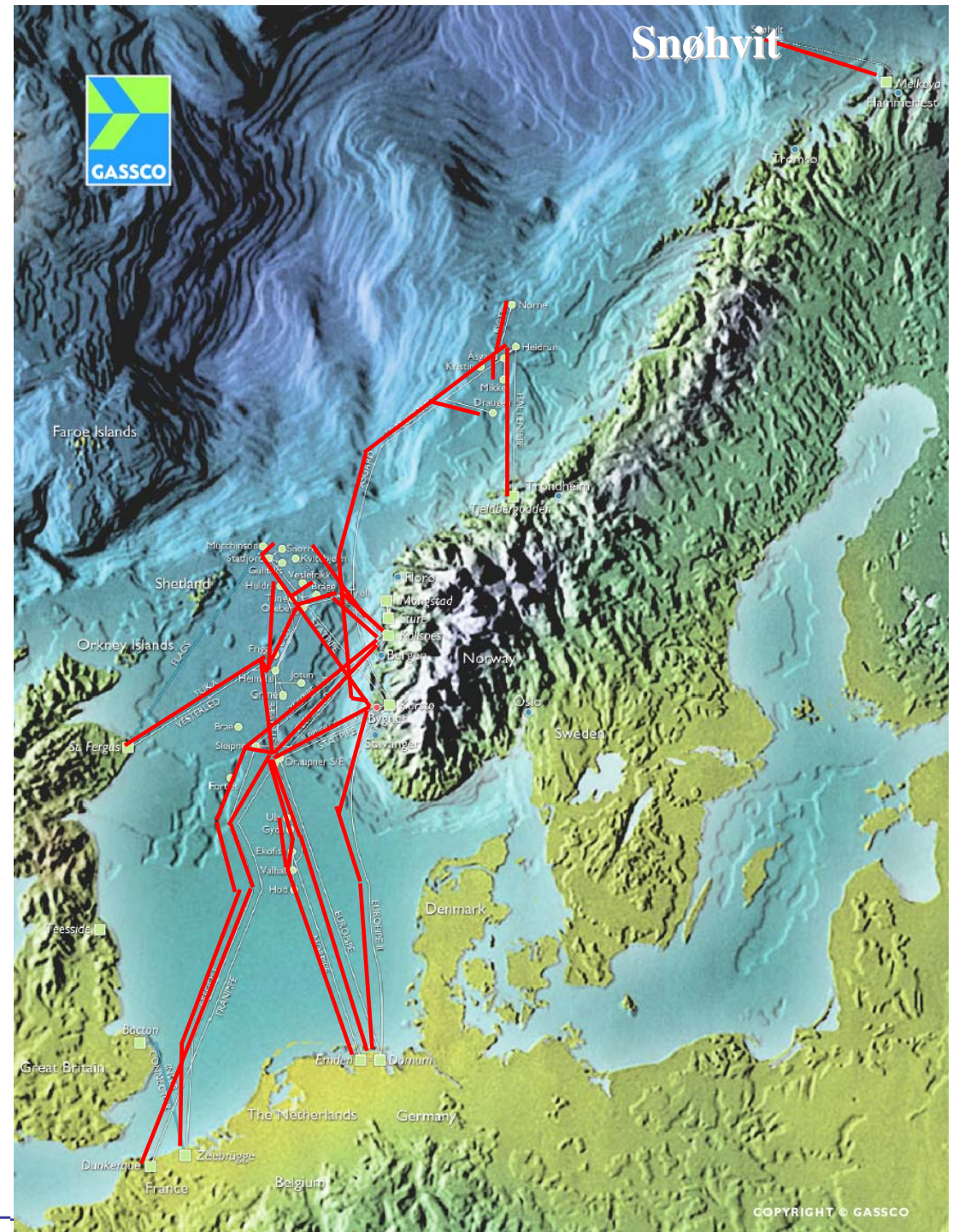
# Gas investment requirements 2001-2030

- Cumulative investment in the natural gas supply chain over the projection period will be **\$ 3.1 trillion**.
- North America alone will account for over **a quarter** of total investment in natural gas.
- By 2030, **half** of inter-regional gas trade is projected to be in the form of LNG.

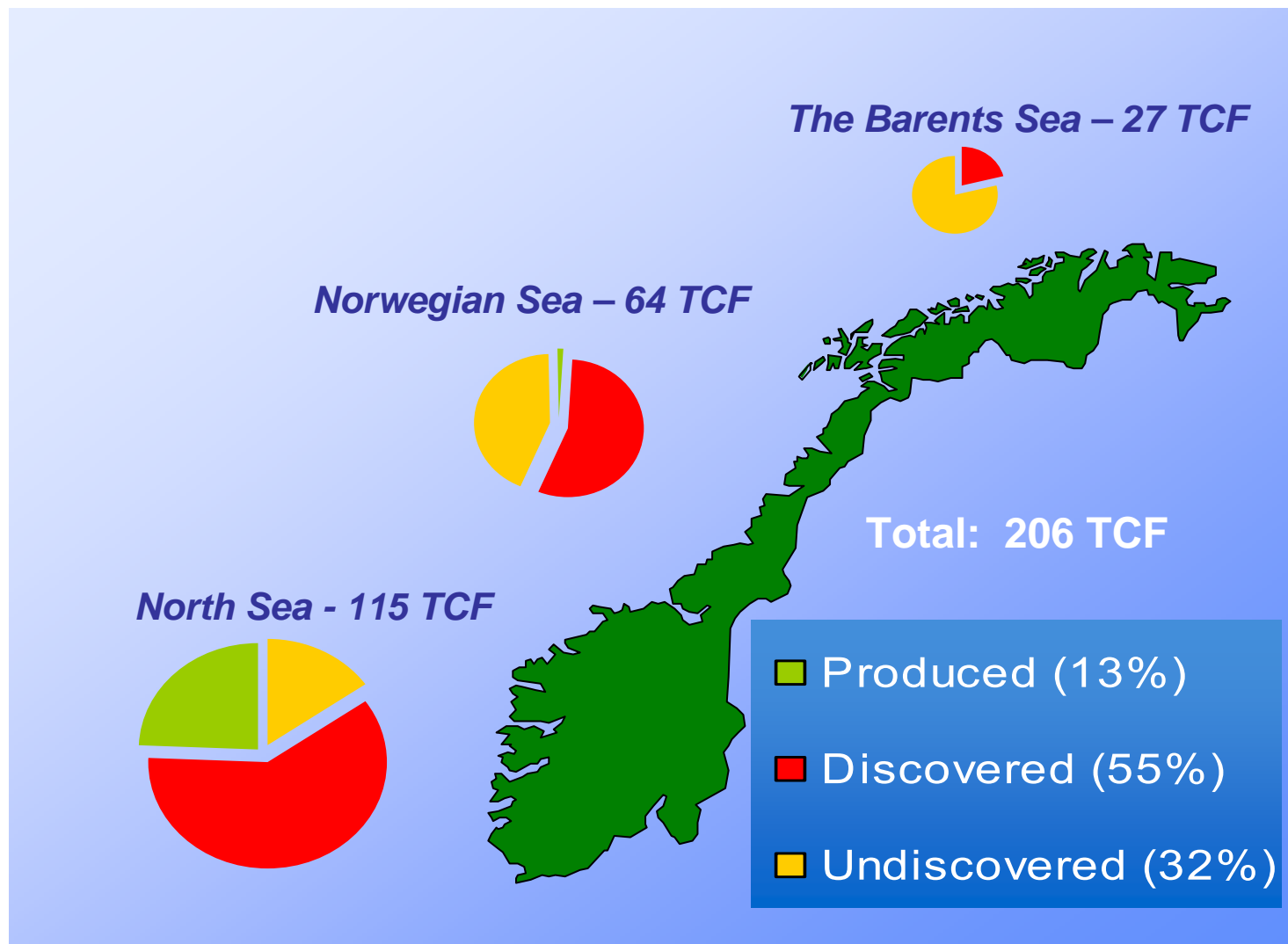


# The Norwegian Gas Sector

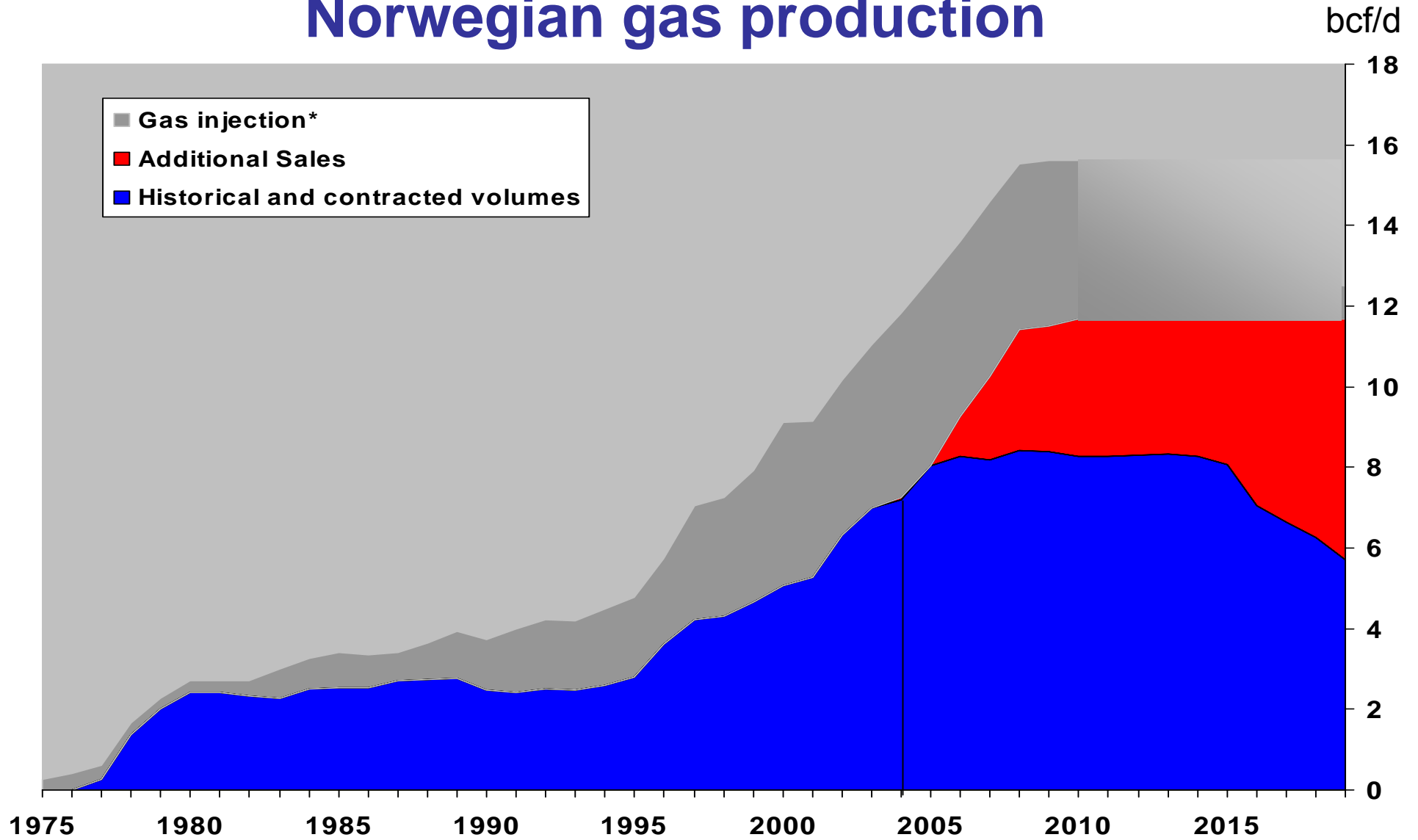
- 50 fields producing gas
- More than 6000 km of large offshore pipelines
- Two of the larger gas processing plants in the world
- Supplies about 14% of European gas consumption



# Norwegian Gas Resources



# Norwegian gas production



\*Including fuel and flaring

# Snøhvit LNG

- Recoverable reserves:
  - 6,7 TCF gas
  - 133 MMbbls condensate
- Production start: 2006
- Investment costs: 6 bill. USD
- Gas production 0,55 bcf/d
  - Destinations: USA and Europe
- Import capacity acquired at Cove Point
- Statoil – main gas marketer



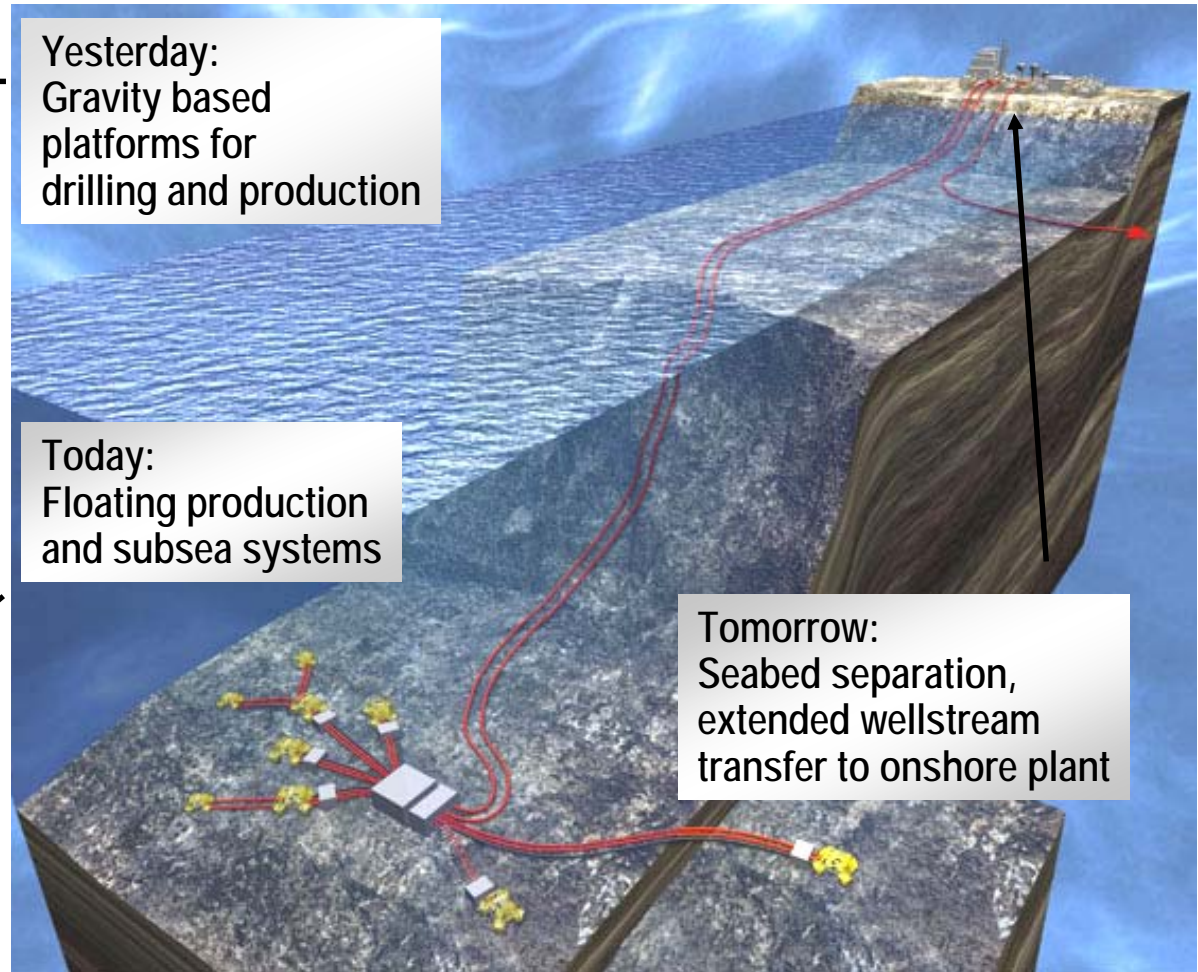
# Technology – Past, Present and Future



Yesterday:  
Gravity based  
platforms for  
drilling and production



Today:  
Floating production  
and subsea systems



Tomorrow:  
Seabed separation,  
extended wellstream  
transfer to onshore plant



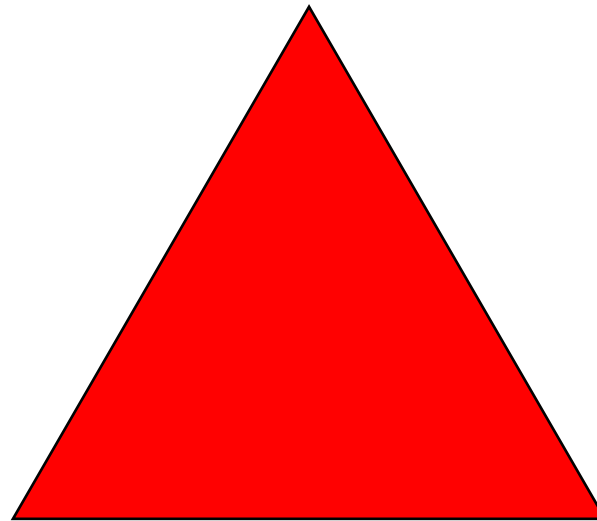
# Government Principles for R&D

- Forging links
- Developing networks
- Creating synergies
- Co-funding

Research Institutions

Oil Companies

Supply Industry



# Norwegian LNG Technology

Aker Kværner Offshore LNG terminals

→ Northern Baja California.

**ChevronTexaco**

→ North Adriatic Sea.

**ExxonMobil**



The Kværner group developed LNG carriers with spherical tanks in the early 1970s.

This design now dominates the market, accounting for about 50 percent of the world fleet.

*Source: Statoil/AkerKværner*

# Norwegian LNG Technology

GraviFloat LNG – LNG receiving and regasification terminal



Nortechs Pte. Ltd  
LMG Marin

# Conclusion

## Why partner with Norway?

- The NCS is a stable long-term source of supply for both oil and gas.
- LNG receives increasing focus.
- Strong R&D clusters - a key to unlock further values in the LNG chain.
- Co-operation with international partners is paramount.

# Internet address



[www.oed.dep.no](http://www.oed.dep.no)



[www.mpe.dep.no](http://www.mpe.dep.no)

