Scenarios for CO_2 content in Vesterled

Content

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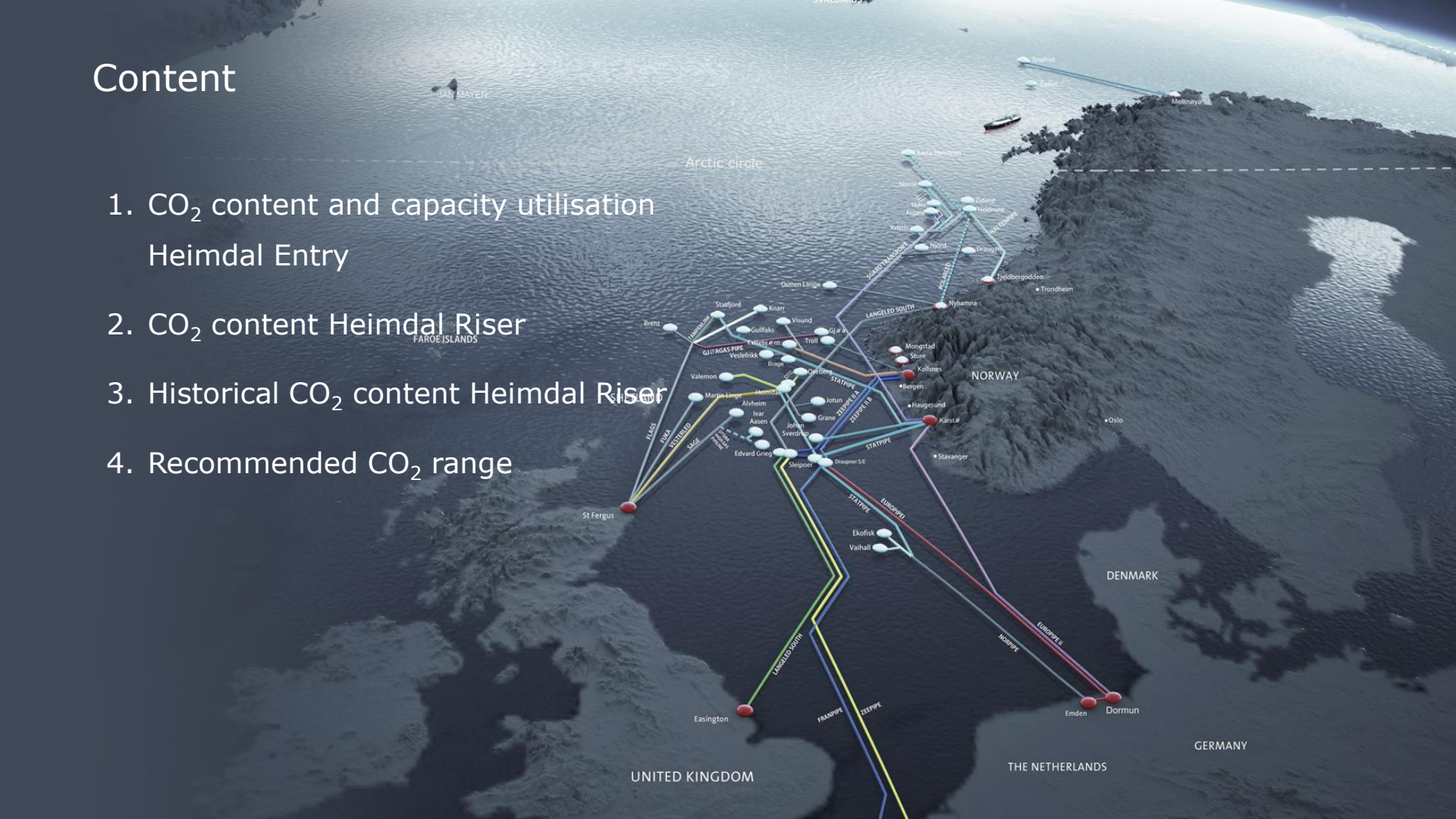
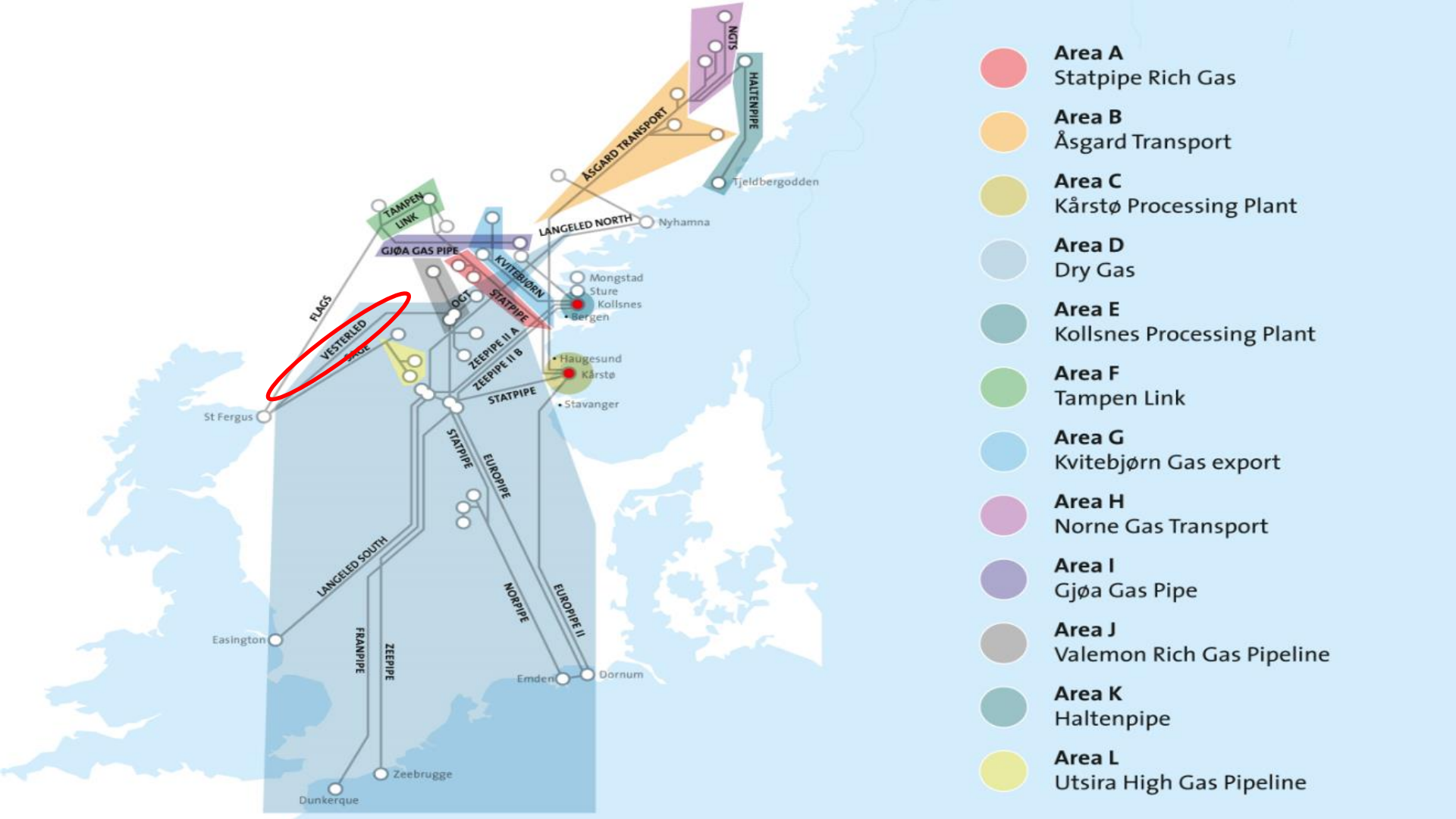
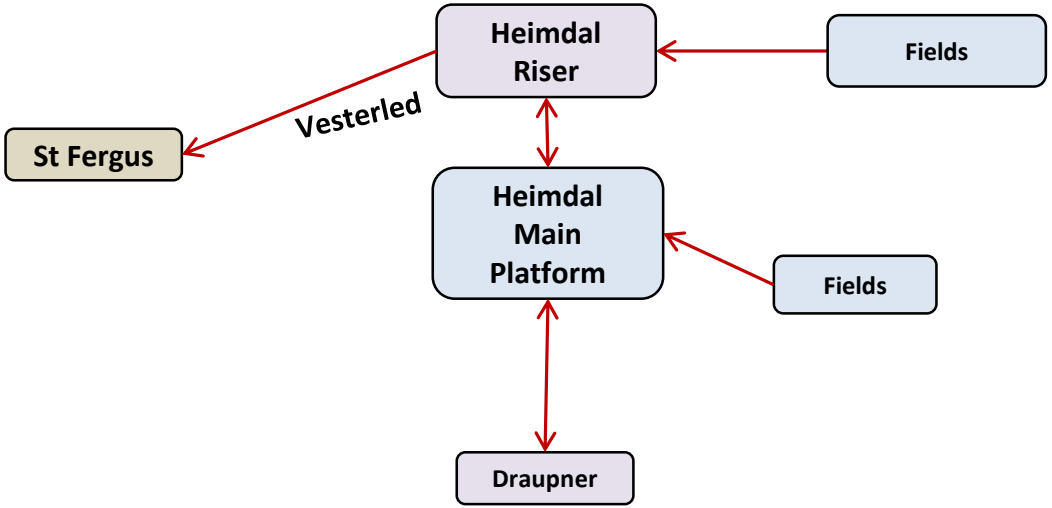
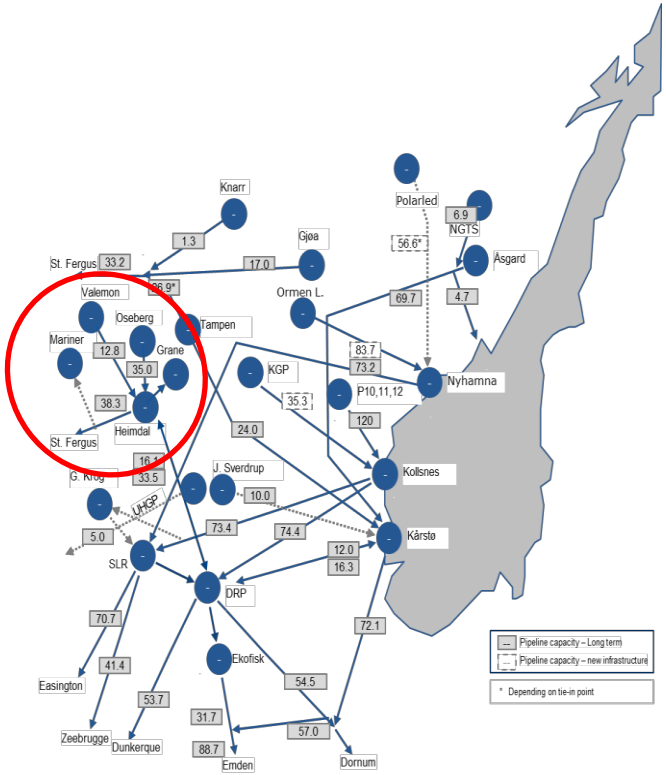



NGTS
HALTENPIPE
ÅSGARD TRANSPORT
Tjeldbergodden
TAMPEN LINK
LANGELED NORTH
Nyhamna
GJØA GAS PIPE
KVITEBJØRN
Mongstad
Sture
Kollsnes
Bergen
FLAGS
VESTERLED
OCT
STATPIPE
ZEEPIPE II A
ZEEPIPE II B
Haugesund
Kårstø
STATPIPE
Stavanger
St Fergus
STATPIPE
EUROPIPE
LANGELED SOUTH
NORPIPE
EUROPIPE II
Easington
FRANPIPE
ZEEPIPE
Emden
Dornum
Zeebrugge
Dunkerque
Area A
Statpipe Rich Gas
Area B
Åsgard Transport
Area C
Kårstø Processing Plant
Area D
Dry Gas
Area E
Kollsnes Processing Plant
Area F
Tampen Link
Area G
Kvitebjørn Gas export
Area H
Norne Gas Transport
Area I
Gjøa Gas Pipe
Area J
Valemon Rich Gas Pipeline
Area K
Haltenpipe
Area L
Utsira High Gas Pipeline

Simplified sketch of Heimdal Entry, Heimdal Riser and Vesterled

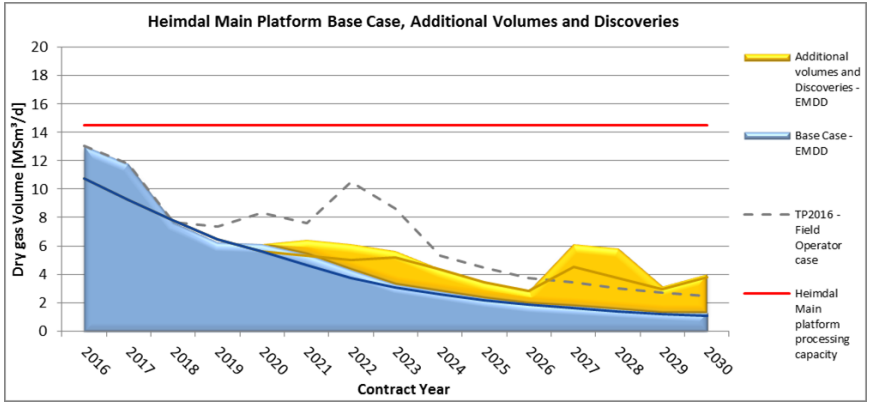


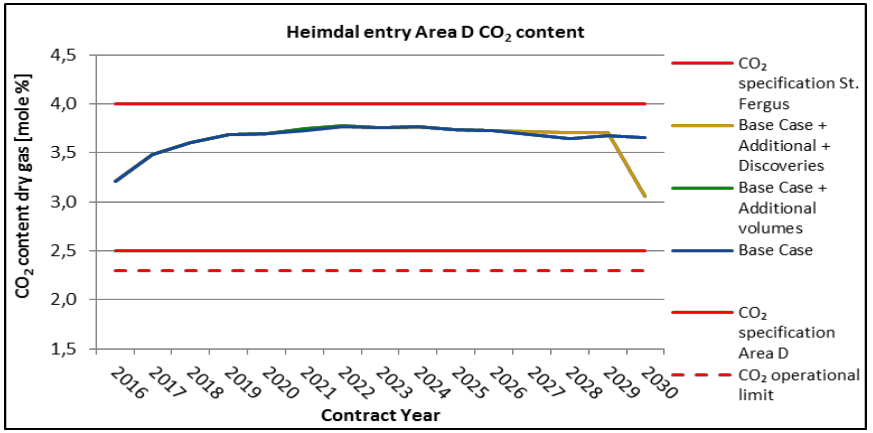


Source: Gassco Transport Plan 2016

CO_2 content and capacity utilisation Heimdal Main

Heimdal Main: Volume utilisation	• The utilisation of Heimdal Main Platform (HMP) is expected to fall rapidly during the next years.
Heimdal Main: CO_2 content	• The CO_2 content in the dry gas from Heimdal Entry is high and the figure shows that the volumes from Heimdal Entry point are above the CO_2 specification in Area D. • However, the CO_2 specification in St. Fergus is 4.0 mole%, which is beneficial for the CO_2 rich gas entering the Heimdal area. • Blending services with other gas entering Heimdal Riser would be required if the gas from Heimdal Entry is transported towards Draupner S (i.e. periods with low nominations in St. Fergus).

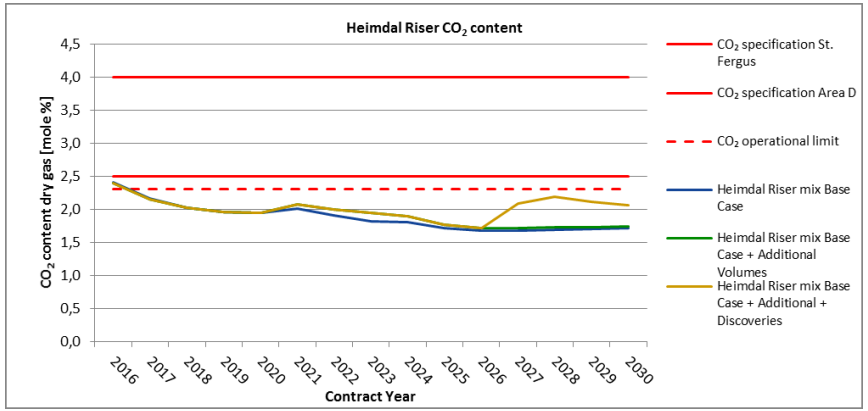


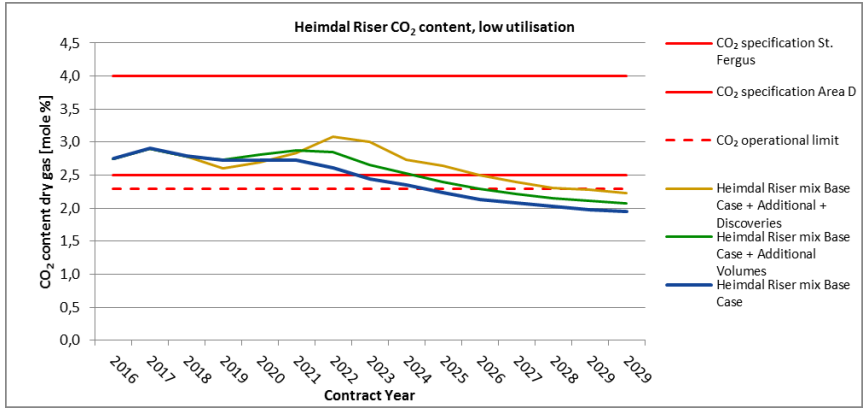


Source: Gassco Transport Plan 2016

CO_2 content Heimdal Riser

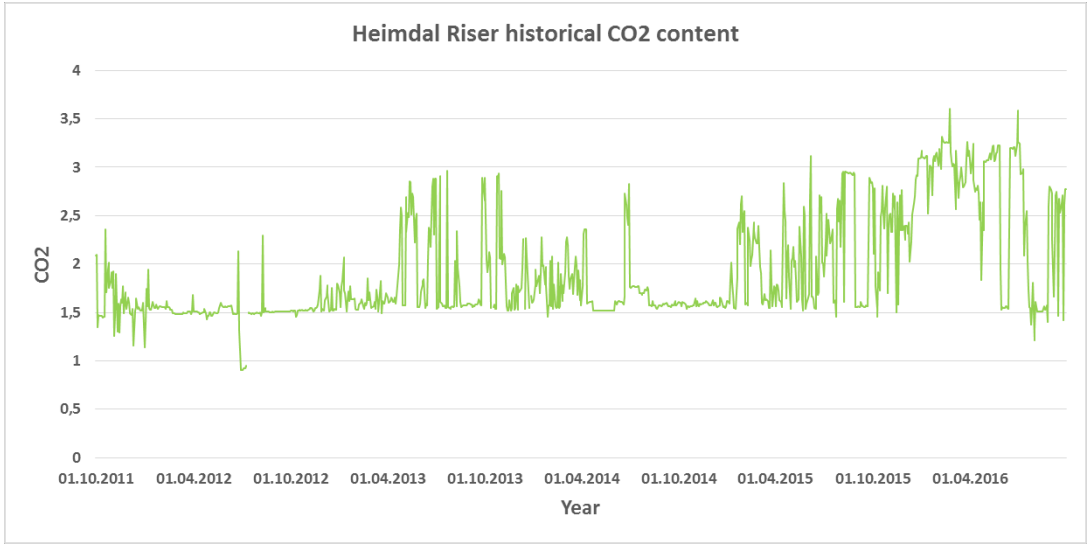
Heimdal Riser: CO_2 content high utilisation	• The CO_2 content in the dry gas from Heimdal Riser is below the CO_2 specification in Area D based on-scenarios with high nominations from all fields.
Heimdal Riser: CO_2 content low utilisation	• The CO_2 content based on low utilisation (i.e. due to outage of fields with low CO_2 content), exceeds the Area D specification of 2.5mole% most years.





Historical CO_2 content Heimdal Riser

•Historical data for Heimdal Riser and the corresponding gas towards Vesterled shows a range of 1.5-3.5 mole % CO_2
• The CO_2 content is showing an increasing trend during the last year



Observation on CO_2 range

- The CO_2 content in Vesterled could vary significantly depending on shipper nominations, future volumes and operational scenarios.
- The possibility for the shippers to route gas with higher CO_2 to Vesterled gives an opportunity for increased production from fields.
- It is therefore recommended to use a range of 1.5- 4 mole % CO_2 in the gas coming from Vesterled.