

# Oil & Gas

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## Oil production investments are rapidly growing

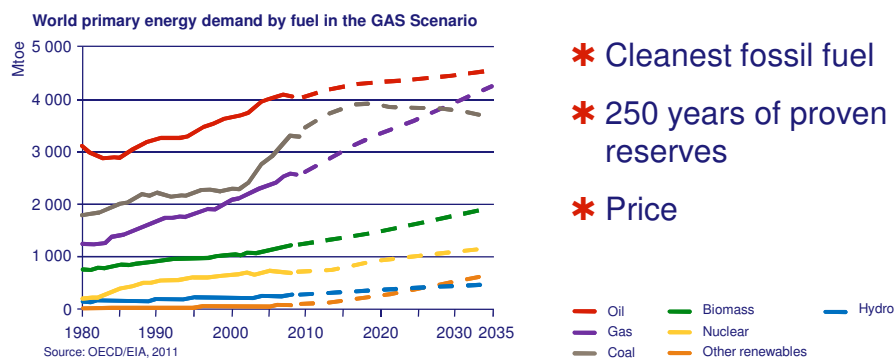
Year	Crude oil - currently producing fields (mb/d)	Crude oil - fields yet to be developed or found (mb/d)	Unconventional oil (mb/d)	NGLs (mb/d)	Total (mb/d)
2000	65	5	2	2	74
2008	70	10	5	5	90
2020	35	35	10	10	90
2030	25	55	10	15	105

Source: EIA - Oil Production

- \* Moderate demand increase
- \* High depletion rate

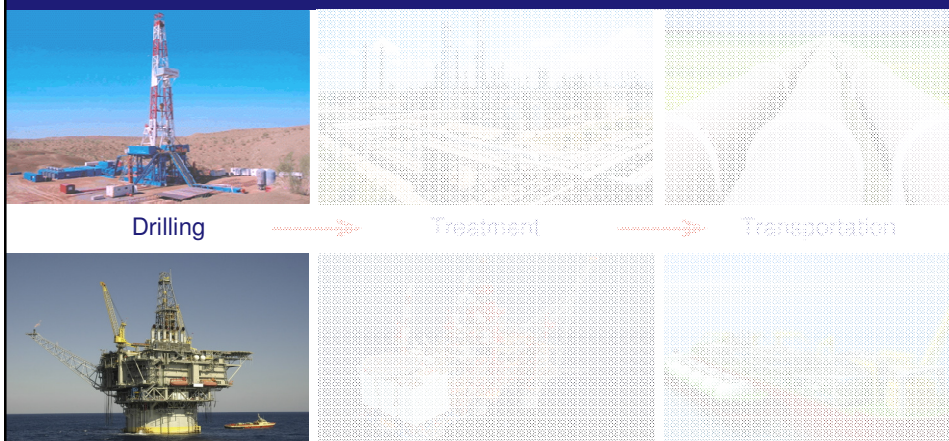
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## Gas production investments are growing even faster



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## Our opportunity in oil & gas



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## Oil & Gas drilling



- \* Drilling mud treatment: cleaning and cooling
- \* Process & potable water production
- \* Environment: wastewater and oily water treatment

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## Oil & Gas drilling

### Mud treatment



Drilling mud decanters



Drilling mud coolers

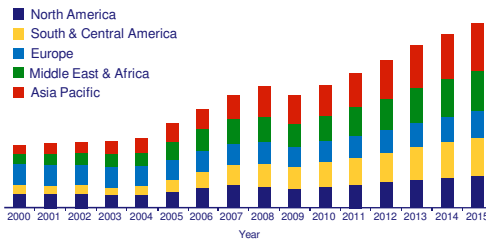
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# Drilling trends

Increase in offshore drilling

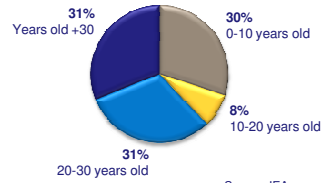
- \* Offshore drilling expenditure grows with 6.6% per annum (2009-2015)
- \* More deep-sea drilling

Global Offshore Drilling Expenditure, 2000-2015



Source: GBI Research

Age profile of the semi-submersible fleet (mid-2011)



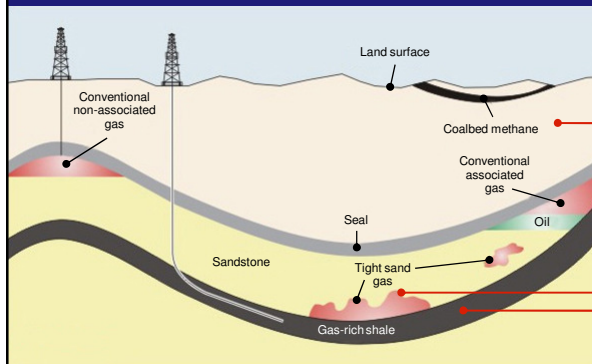
Source: IEA

Source: ODS Petrodata

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# Drilling trends

Drilling for unconventional gas



Source: EIA, U.S. Energy Information Administration

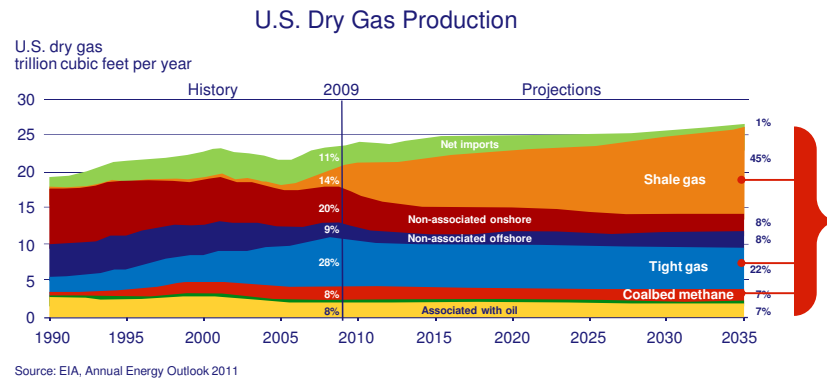
## Unconventional gas

- \* shale gas
- \* tight gas
- \* coalbed methane

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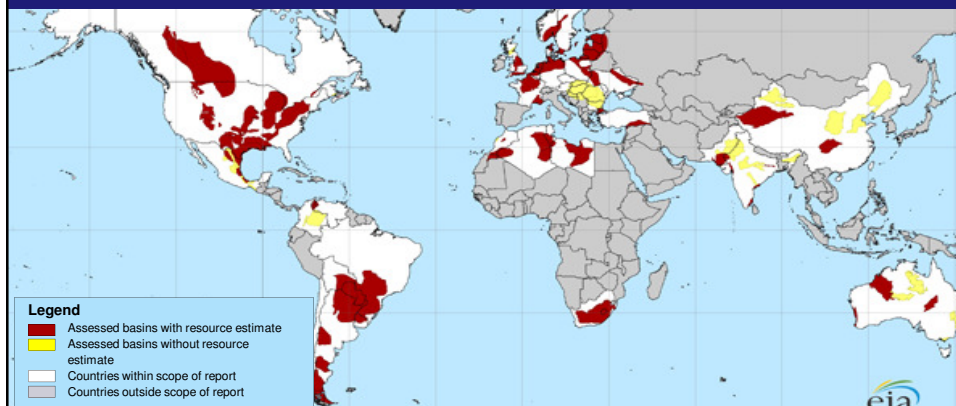
# Unconventional gas

U.S. example



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## Where could it happen in the future ?



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## Oil & Gas treatment

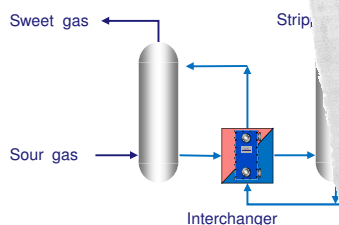


\* Removal of water and impurities

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## What does it mean for Alfa Laval?

### Many heat exchanger positions



### Alfa Laval wins SEK 90 million natural gas order in the Middle East

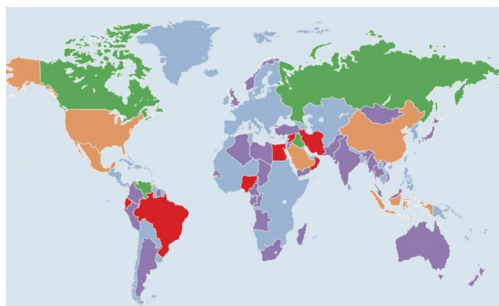
Alfa Laval - a world leader in heat transfer, centrifugal separation and fluid handling - has received an order from a Japanese engineering company to supply heat exchangers for a new major natural gas project in Qatar. The order value is approximately SEK 90 million and delivery is scheduled for 2012.

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## Treatment trends

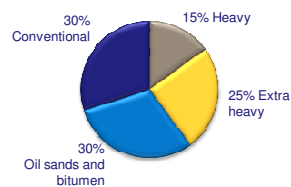
### Heavy crude oil

\* Vast majority of remaining oil reserves is heavy crude oil



Source: Schlumberger

Total World Oil Resources: 9-13 Trillion bbl



Source: IEA

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## Treatment trends

From insight to actions

### Market input

- \* Canadian oil sands
- \* Heavy oil worldwide
- \* Offshore demands



### Versus conventional separators

- \* less heat
- \* less chemicals
- \* less space and weight

### Versus Direct Competitors

- \* less cost
- \* meet industry requirements



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## Treatment trends

Environmental legislation



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## Environmental legislation

### Tar sands

- \* Ban on increasing the pollution by 2014
  - 50% reduction of the pollution in 2011
  - No increase of fine tails in the ponds by 2014
- \* Cleanup the legacy: 170 km<sup>2</sup> MTF of polluted area
  - It requires about 100 large decanters to run for 10 years to deal with the legacy



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## Cleanup technology

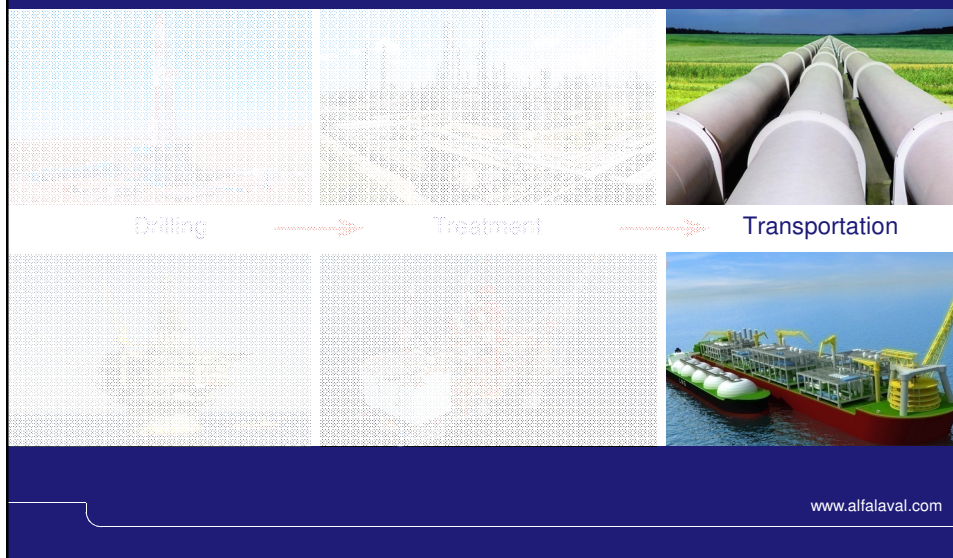
### Tar sand pond

### Alfa Laval wins SEK 60 million water treatment order in Canada

Alfa Laval - a world leader in heat transfer, centrifugal separation and fluid handling - has won an order to supply newly developed equipment for cleaning of industrial wastewater in Canada. The order value is approximately SEK 60 million and delivery is scheduled for 2012.

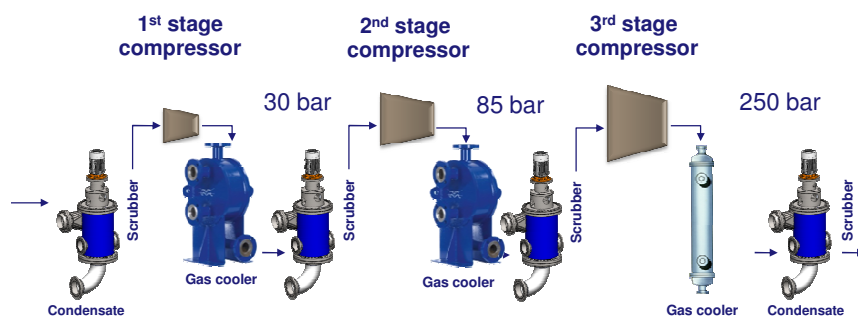
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## Our opportunity in oil & gas



## Pipe line transportation

Gas transportation by compression



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# Transportation

Gas pipeline protection

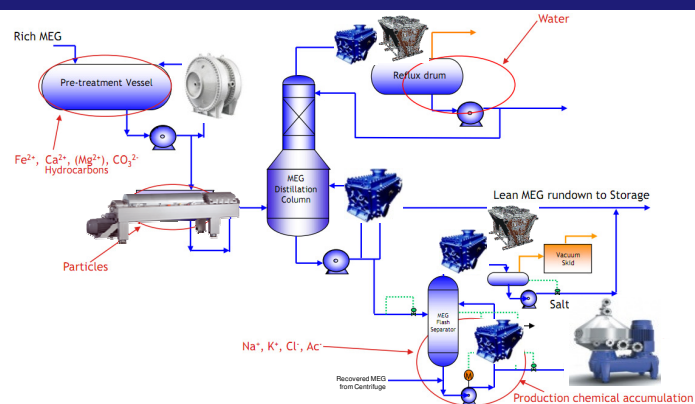
\* MEG – Mono ethylene glycol treatment



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## Pipeline protection

Typical MEG regeneration process



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## Transportation

Oil



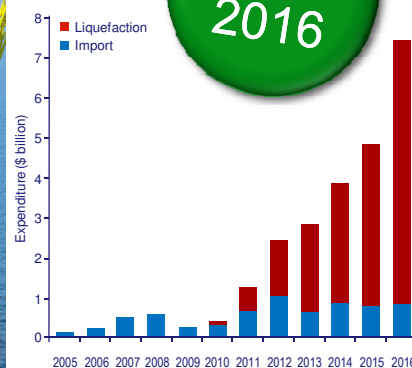
\* Alfa Laval's traditional product portfolio

\* Inert gas systems added through the acquisition of Aalborg Industries

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## Transportation trends

FLNG – Floating LNG



7B\$  
2016

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## Typical oil & gas requirements

- \* Safety
- \* Explosion proof
- \* High pressure
- \* Compact
- \* Reliable
- \* Global service structure with offshore compliance

**EXCELLENT FIT BETWEEN ALFA LAVAL'S  
OFFERING AND OIL & GAS REQUIREMENT**

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## Conclusions

- \* Need for continued investments to maintain the balance between demand and supply
- \* High oil price gives opportunity to invest
- \* Alfa Laval has the products, the presence and the know-how

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