

אלפא  
טאטל



# Process Technology Division

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# Oil & Gas



Drilling



Process and transportation



Refinery



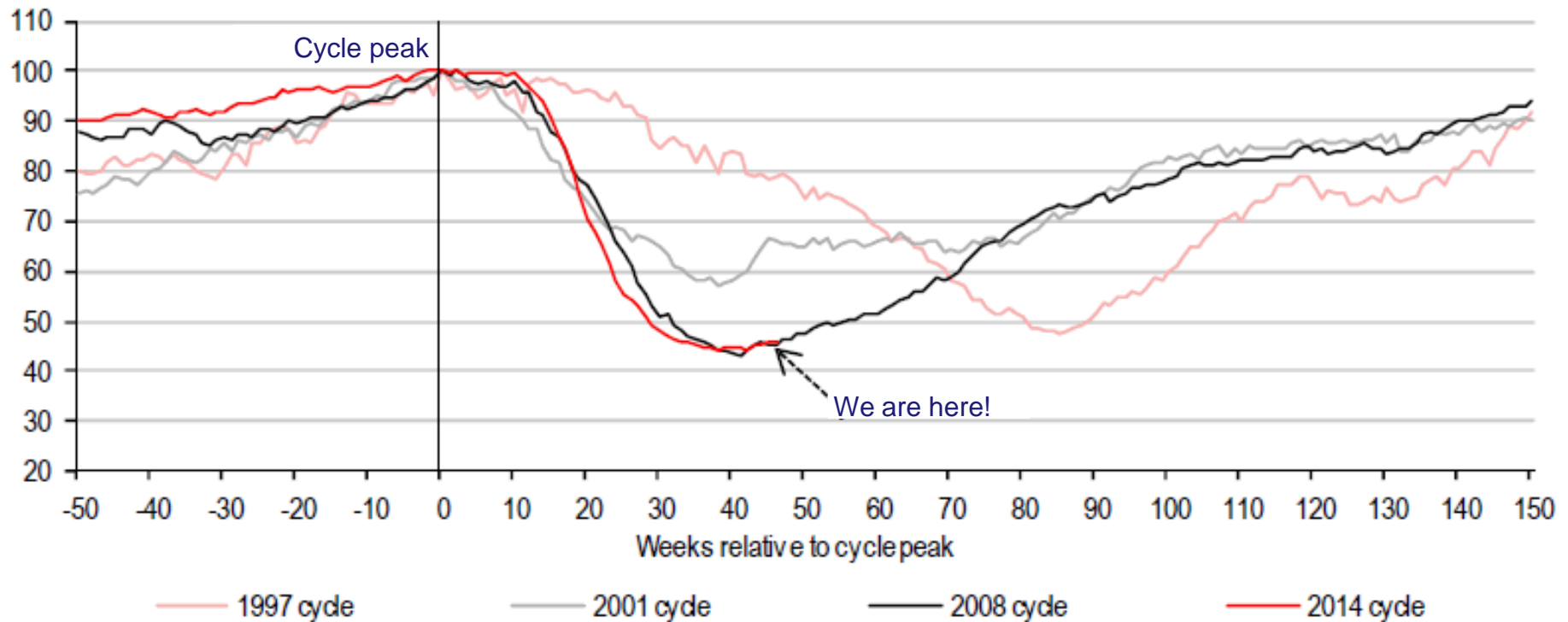
Petrochemicals

# Drilling



# US rig count

- Baker Hughes US total rig count, rebased at cycle peak



Source: Baker Hughes

[www.alfalaval.com](http://www.alfalaval.com)



# Process and transportation



# Process and transportation





# Refinery





# Petrochemical



# Process Technology Division



Industrial Water & Waste

# Increase of water stress (Global)

- Enhanced legislation and water scarcity drive the water industry

- \* Enhanced environmental regulations
- \* Water scarcity in combination with rapid population growth and urbanization – water consumption grows by 2.5% per year faster than worlds population
- \* Ageing water and wastewater infrastructure
- \* Increasing water costs and expenses for water treatment



# The water and waste treatment market

## Municipal W&WW equipment

- \* A mature \$**18.6**<sup>1</sup> billion market with growth in **new** regions
- \* Driven **by legislation** and into new regions by urbanization
- \* Treatment of municipal water and wastewater mainly aims at removing undesirable matter and chemical compounds and to avoid microbial growth

## Industrial W&WW equipment

- \* \$**15.8**<sup>1</sup> billion market with high growth potential in **developed** regions
- \* The water or liquid carried waste from an **industrial process**, activity or operation
- \* Industry accounts for **67%**<sup>2</sup> of all non-agricultural water withdrawals worldwide

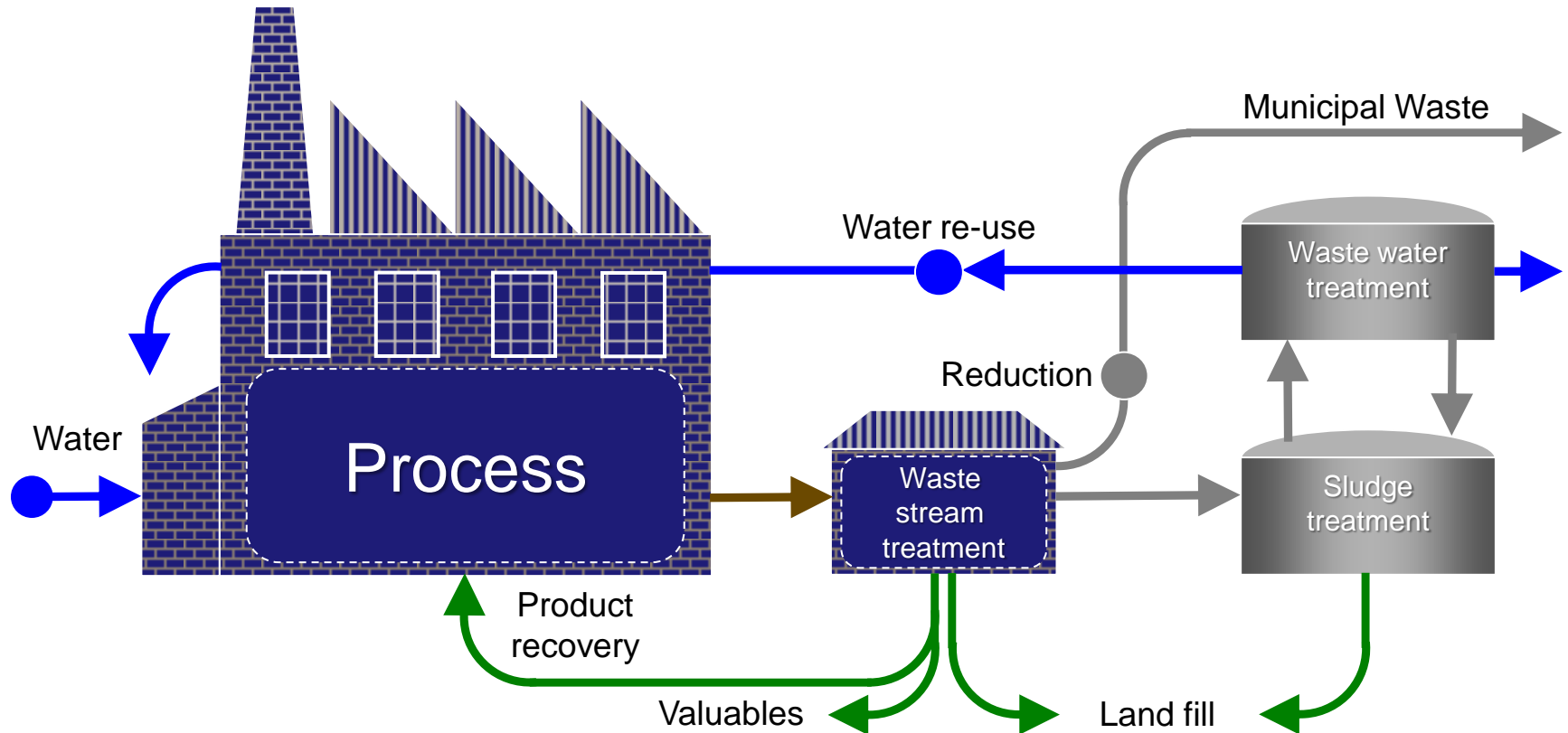
1) Frost and Sullivan (2012) Sustainable Water Treatment Technologies in the 2020 Global Water Market

2) Global Water Intelligence (2015) The Global Water Market 2015



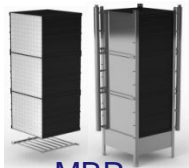
# The Process

- Example of plant lay-out



# Alfa Laval - products

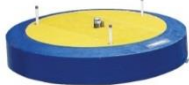
## Wastewater process



MBR



Iso Disc



SBR



Gates

## Thickening



Drum filter



Belt thickener



Decanter

## Dewatering



Belt filter press



Decanter



Plate press



Screw press

## Digestion



Tube in tube HE



Spiral HE

Waste stream treatment:

# Ethanol

- Glenfarclas Distillery, Speyside, Scotland

- \* Need to increase waste treatment capacity in order to be able to increase production. Forced to work on 50% capacity
- \* Spent wash a by-product from malt whisky production is concentrated into a syrup used for animal feed
- \* Alfa Laval replaced Shell and Tube heat exchangers with plate evaporators due to fouling and scaling problems in previous S&T evaporation system



Waste stream treatment:

# Palm oil mill

- West Malaysia

- \* Environmental problems related to ponding systems (lagoons). Need to be dewatered.
- \* To Replace conventional waste treatment chain (pond, MBR polishing, methane capture etc) with an Alfa Laval ***process solution***.





# In conclusion...

- Process Technology Division



- \* Investments in the upstream oil and gas market will stay on a low level with a continued low oil price.
- \* Increased demand of downstream petrochemical products will create opportunities.
- \* Water scarcity and increased environmental demands combined with increased capabilities within Alfa Laval creates opportunities in the industrial water and waste water market.
- \* We expect a continued good development in the Food and Pharma market

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