Process Technology Division
Oil & Gas

Drilling

Process and transportation

Refinery

Petrochemicals
Drilling
US rig count
- Baker Hughes US total rig count, rebased at cycle peak
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 world’s 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 \$18.6^1\ 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**
- \$15.8^1\ 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%^2 of all non-agricultural water withdrawals worldwide

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The Process
- Example of plant lay-out

Water stream treatment

Water re-use

Reduction

Municipal Waste

Waste water treatment

Sludge treatment

Product recovery

Valuables

Land fill

Process

Water

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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

Wastewater process

Thickening

Dewatering

Digestion
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.
**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.