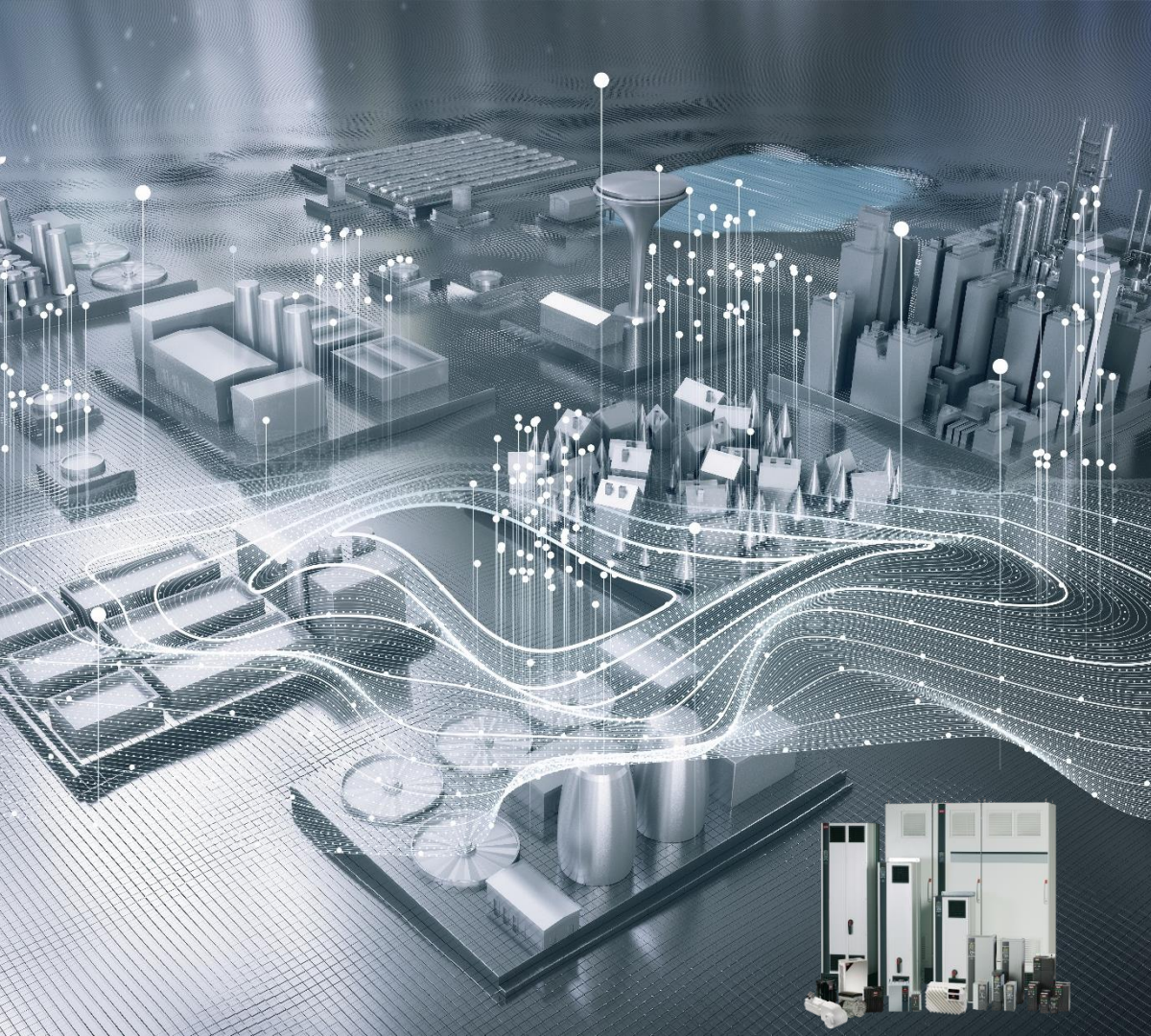


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DMT- netværksmøde om energi- og klimaneutral vandsektor

Global Head Water & Wastewater,
Mads Warming



SDG 6 for water, interlinkages with other SDG e.g. climate and is not “only” about low income countries



More than 60 % of cities
> 100.000 people in
Europa don't have
sustainable groundwater
supply, WBCSD

80 % of wastewater
globally is untreated, SDG
6.3 aim to cut this with 50
% before 2030, UN

Untreated wastewater
generated **3 times** as
much GHG as treated
WW, IWA

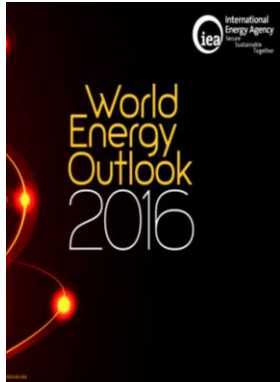
In California Central
Valley it will take at least
50 years for the aquifers
to naturally refill – if no
pumping

14 of India's 20 largest
thermal **power plants**
had min. one shutdown
due to water shortages
between 2013-2016

1.8 billion people use
a source of drinking
water **contaminated**
with faeces, UN

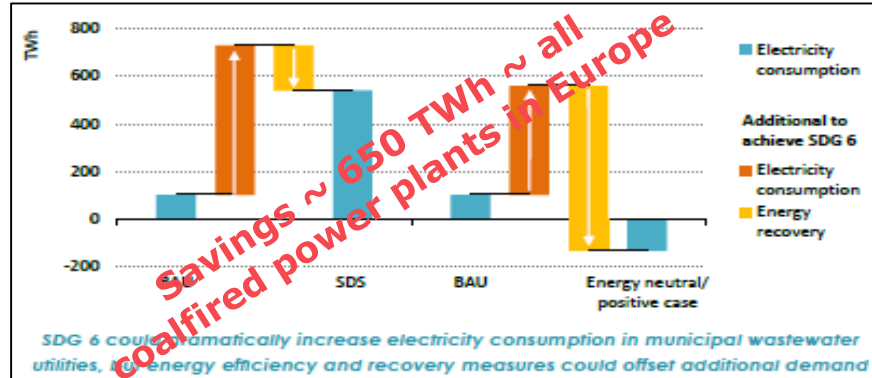
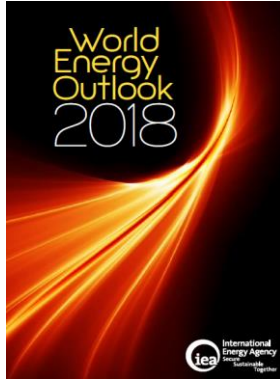
Improving international
management of leakage – **the**
hidden water resource
Allan Lambert, Cranfield University

Implementing SDG 6 will create large increase in energy consumption - digitalization technologies can counter this..



Energy consumption:

- W&WW counts for **4 %** of global electricity consumption
- Electricity consumption **expected to double ++**
- W&WW ~ **30 – 50 %** of municipal electricity bills
- Aarhus WWTP **produce 100 % more energy** than is consumed



The World Wide **first energy-neutral water** catchment area – Marselisborg, Aarhus Water, Denmark

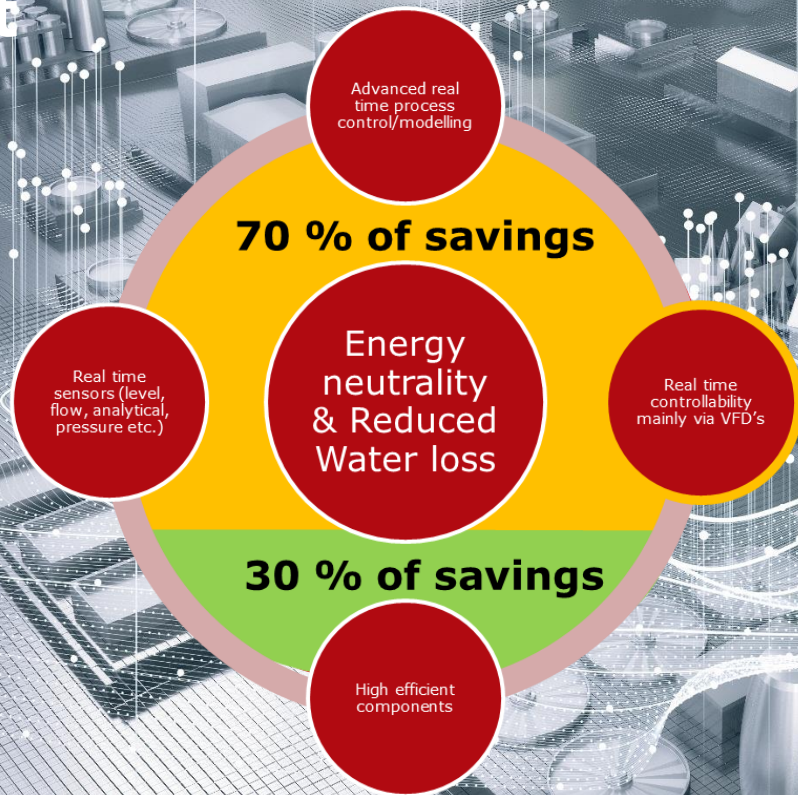
Fact box

- Energy neutrality for the whole water cycle (*water production & supply, wastewater pumping & treatment*)
- Catchment area for 200,000 people. No wind, solar, heat pump or sludge burning energy is produced
- Based on energy savings & household wastewater energy production (*no external sludge, FOG or carbon added*)

Marselisborg catchment area	Status 2014	Status 2016
Energy consumption		
Water treatment, distribution [kWh] (avg. 0.51 kW/m ³ , high)	3,1 mill	3,2 mill
Wastewater transport [kWh]	0,7 mill	0,8 mill
Marselisborg WWTP [kWh] (BOD ₅ = 2,4/TN= 6,0/TP = 0.2)	3,4 mill	3,2 mill
Total energy consumption [kWh]	7,2 mill	7,2 mill
Energy production		
Electricity production [kWh]	4,4 mill	4,8 mill
Heat production [kWh]	2,1 mill	2,6 mill
Total energy production [kWh]	6,5 mill	7,4 mill
Own energy supply degree		
Wastewater treatment process, electricity and heat [%]	192 %	234 %
Wastewater treatment process, electricity [%]	142 %	150 %
Total Marselisborg catchment area [%]	94 %	103 %



Energy Neutrality and Reduced water loss in the water cycle – reducing water scarcity and GHG effect



70 % of improvement coming from Digitalization

Water & Wastewater will be an integrated part of sustainable city's energy network/grid

W&WW facilities will in the future act as energy:

1. Consumer
2. Provider
3. Stabilizer



Bio-bus - showing where the fuel comes from
Source: Wessex Water/Julian James Photography.



Rambøll

DMT's kampagne for vedtagelse af national målsætning:

- Lanceret i artikel i Altinget i 9. oktober 2018 (Jørn og Jonas)
 - Mads Warming synspunkt i DMT oktober-bladet
 - Deltagelse i workshop i Bruxelles/høringssvar om by-spildevandsdirektivet (efterår 2018)
 - Artikel i Ingeniørens Water-Tech 17. januar (Jørn)
 - Artikel i Teknik og Miljø - Januar-nummeret (Jonas)
 - DMT-formandskabsmøde med Jakob Ellemann-Jensen 15. januar
 - Beslutning i vandvision om at sende brev til minister – brev afsendt den 5. april – afventer ministerens svar!
 - ??
- (Set det hele på DMT's hjemmeside).

Status, Dansk målsætning om energi- og klimaneutral vand sektor – IWA 2020 – første land i verden ?

Politisk positive meldinger:

- Jakob Ellemann
- Ida Auken
- "Lars Løkke"
- Lars Lilleholt
- Kirsten B.

Men, fortæl os hvorledes

Miljøministeriet – grundlæggende positiv – men

DANVA – positiv – men

Vandselskaberne – Ja – og dog, er det muligt på mit anlæg ? + finansierings rammen ?

Status, Dansk målsætning om energi- og klimaneutral vand sektor – IWA 2020 – første land i verden ?

Er det reelt muligt kun baseret på kemisk/biologisk energi:

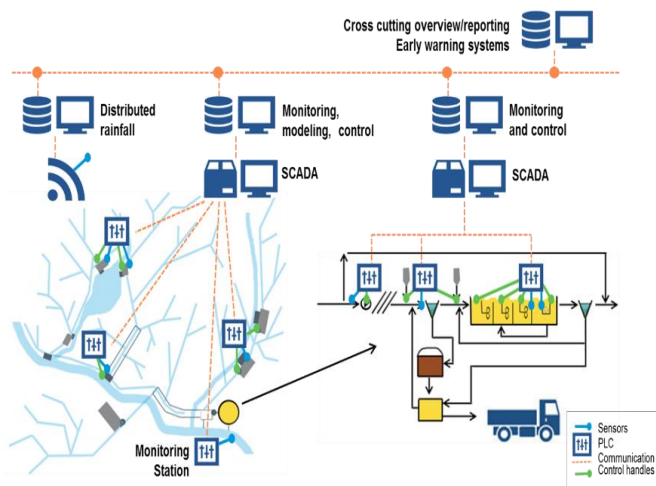
- Hvilke størrelse anlæg kan nå > 200 % (BIOFOS, VCS, Marselisborg), 100 %, 50 %
- Giver det mening at samle slam fra mindre anlæg
- Husk energi besparelse – drikkevand, spildevands pumpning, spildevandsrensning

Installation af varme pumper der udnytter fx vindenergi:

- Potential større end kemisk/biologisk energi
- Koncept **"ikke så" salgbart i udlandet**
- Behov for ændring af afgifts struktur /energi forlig

The two fold benefit of a more digital water industry - company point of view...

Increasing the market for Danish components and knowhow – utilizing holistic digital control concepts



Becoming more competitive by embedding digital technologies in existing components, creating higher value products



The Danfoss logo, featuring the word "Danfoss" in a white, elegant script font, is centered within a solid red rectangular box.

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