

# Ejby Mølle – energy producing WWTP (WRRF)

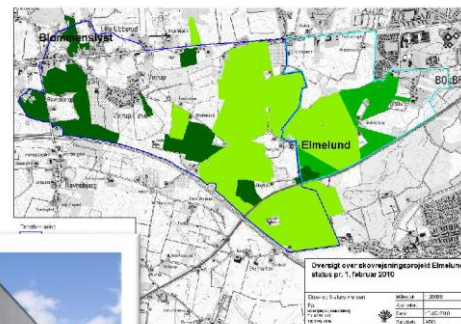
**Anders Bækgaard, VCSDenmark**  
IWAMA 3<sup>rd</sup> International Capacity Development Workshop  
Energy Efficiency in WWT

Szczecin, Poland, June 7.-8. 2017

# Odense & VCS Denmark

- 3rd largest city in Denmark; pop. 200.000
- Birthplace of H.C. Andersen
- VCS Denmark est. 1853 (first in Denmark)
- Staff of 210 provide water supply, “used” water management for a population equivalence of 400.000 and contribute to climate change adaptation
- Operate 6 WTPs; 8 WRRFs (Water Resource Recovery Facilities); 3,400 km of sewerage
- Provide operational services, training and consultancy on domestic and foreign markets





### Means:

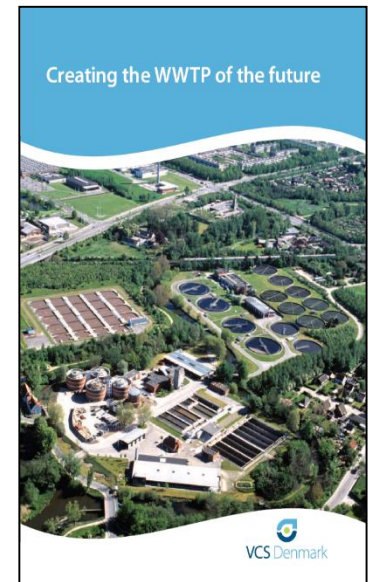
- Save energy by more efficient behaviour and process management
- Production of more electricity and district heating by increased efficiency in the biogas facility
- Utilize energy sources with low potential (i.e. heat pumps and turbines )
- Store CO2 by afforestation
- Sun and wind energy production
- Move energy consumption to times of the day with a low CO2 footprint

**The VCS road to energy- and CO2 neutrality**



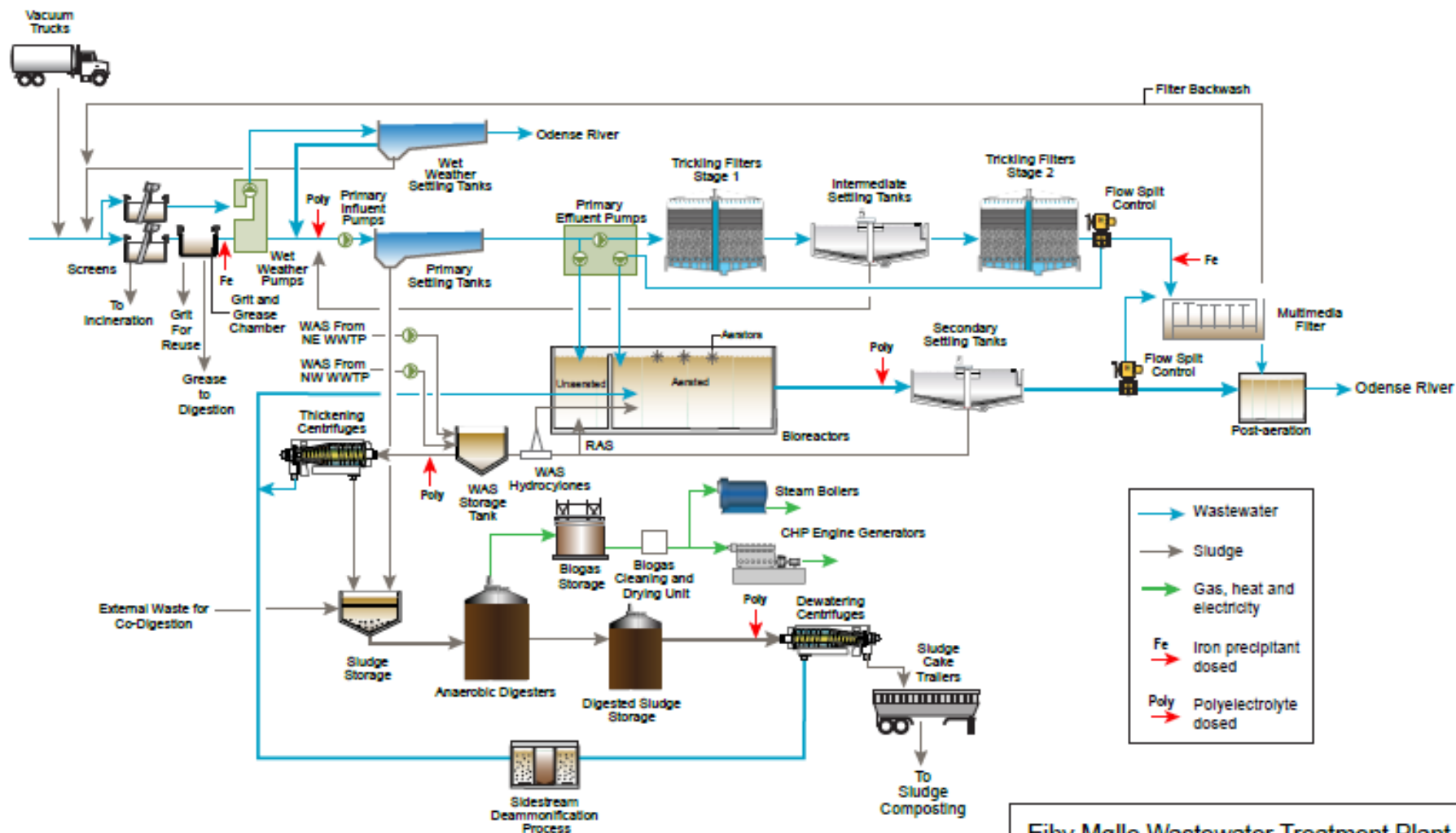
# Ejby Mølle case - Odense

- Ejby Moelle WWTP, 385.000 PE – situated in Odense owned and operated by VCS Denmark.
- In 2011 a project aiming at changing Ejby Mølle from energy consumer to energy supplier was initiated with a changed focus on the use of the resources.
- Energy optimization through energy reduction and energy **production**.
- The project identified energy optimization opportunities; concentrate on short-term, readily implementable scenarios to reduce consumption and/or increase generation, decreasing GHG emissions.
- Collaborative approach identified “operational” path to energy self-sufficiency without major capital investments.
- The current challenges will be to target reduction of emissions from all processes including byproducts like N2O and Methane





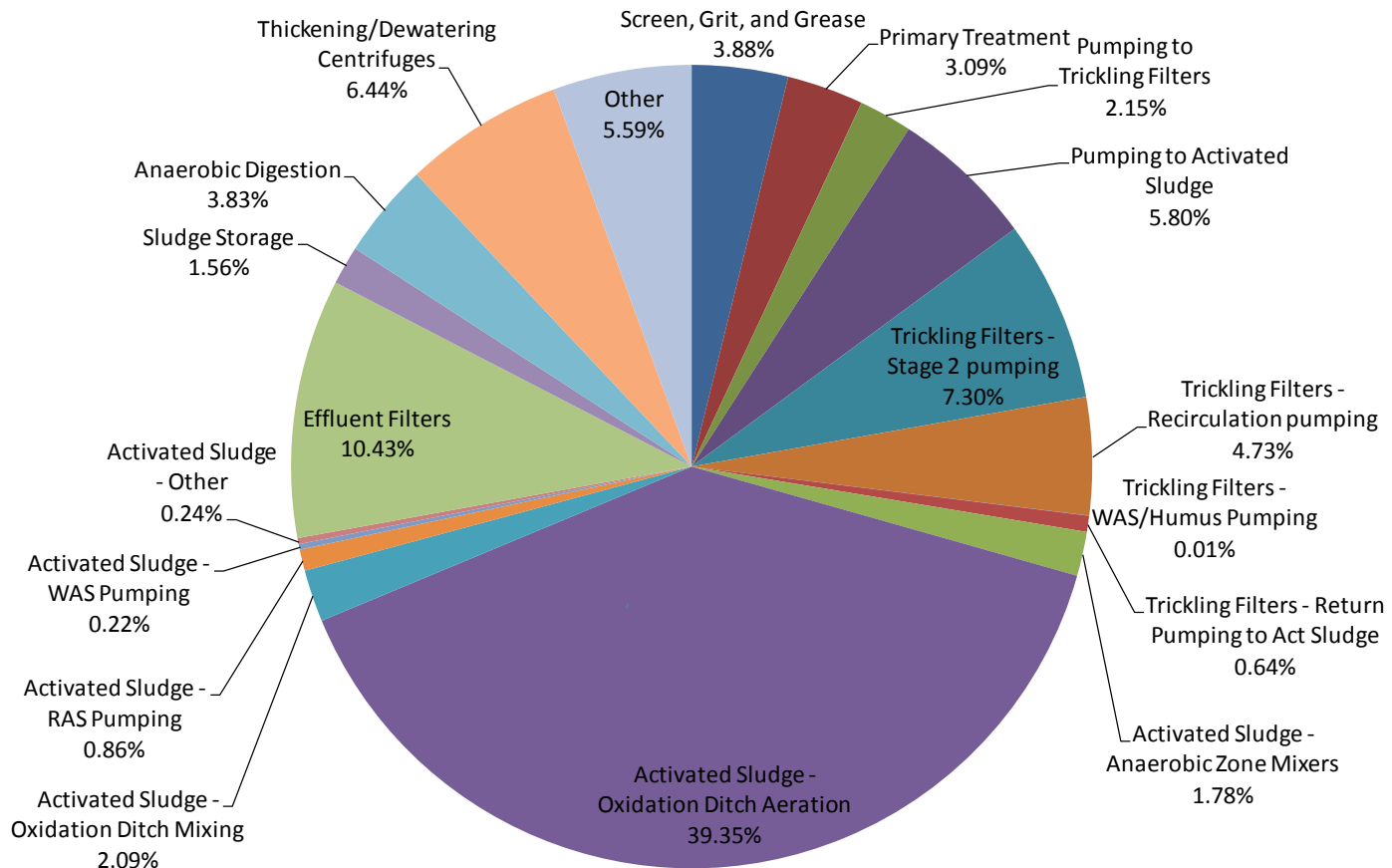




Ejby Mølle Wastewater Treatment Plant



## Ejby Mølle WWTP 2011 Annual Average Electricity Consumption





# 2013 WEX Global Innovation Award in Water and Energy!

Our ambition is to make **Ejby Mølle** a net energy  
producing WWTP as one of the first plants of its kind  
in the World



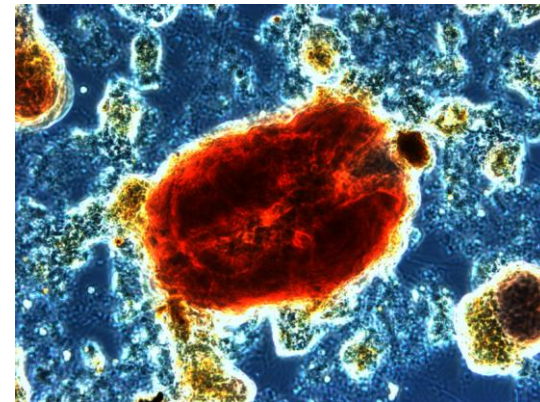
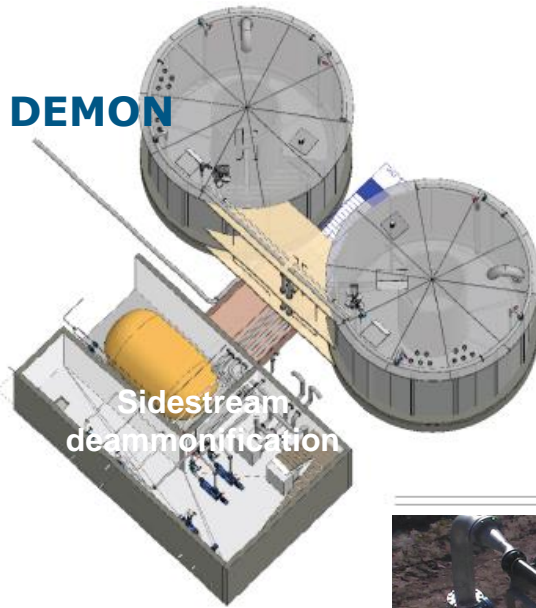
## ACHIEVING ENERGY INDEPENDENCE AT AN ADVANCED WASTEWATER NUTRIENT REMOVAL FACILITY



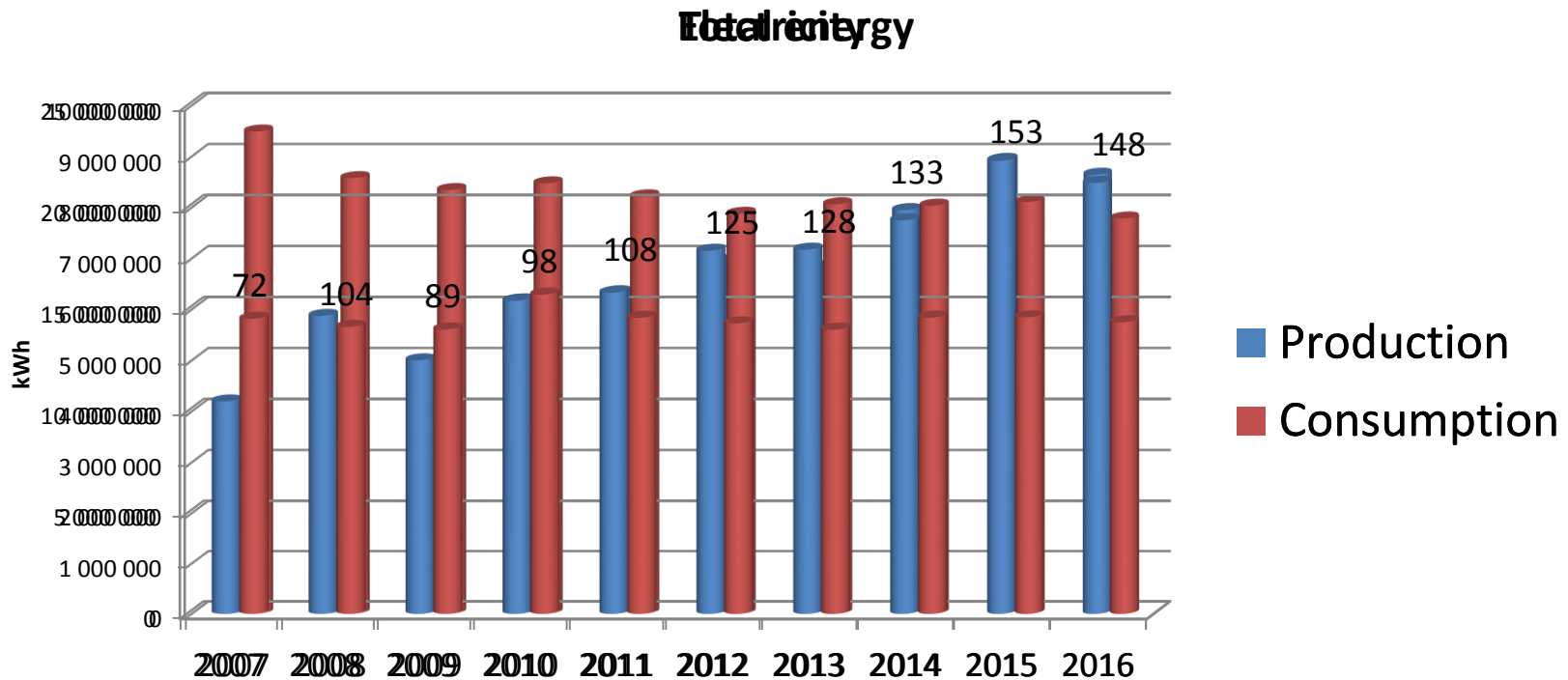
Ejby Mølle WWTP  
Odense Denmark



# Deammonification



# Energy Balance



# WATER'S WORTH IT.®



CREATIVITY IS THINKING UP NEW THINGS.  
INNOVATION IS DOING NEW THINGS.



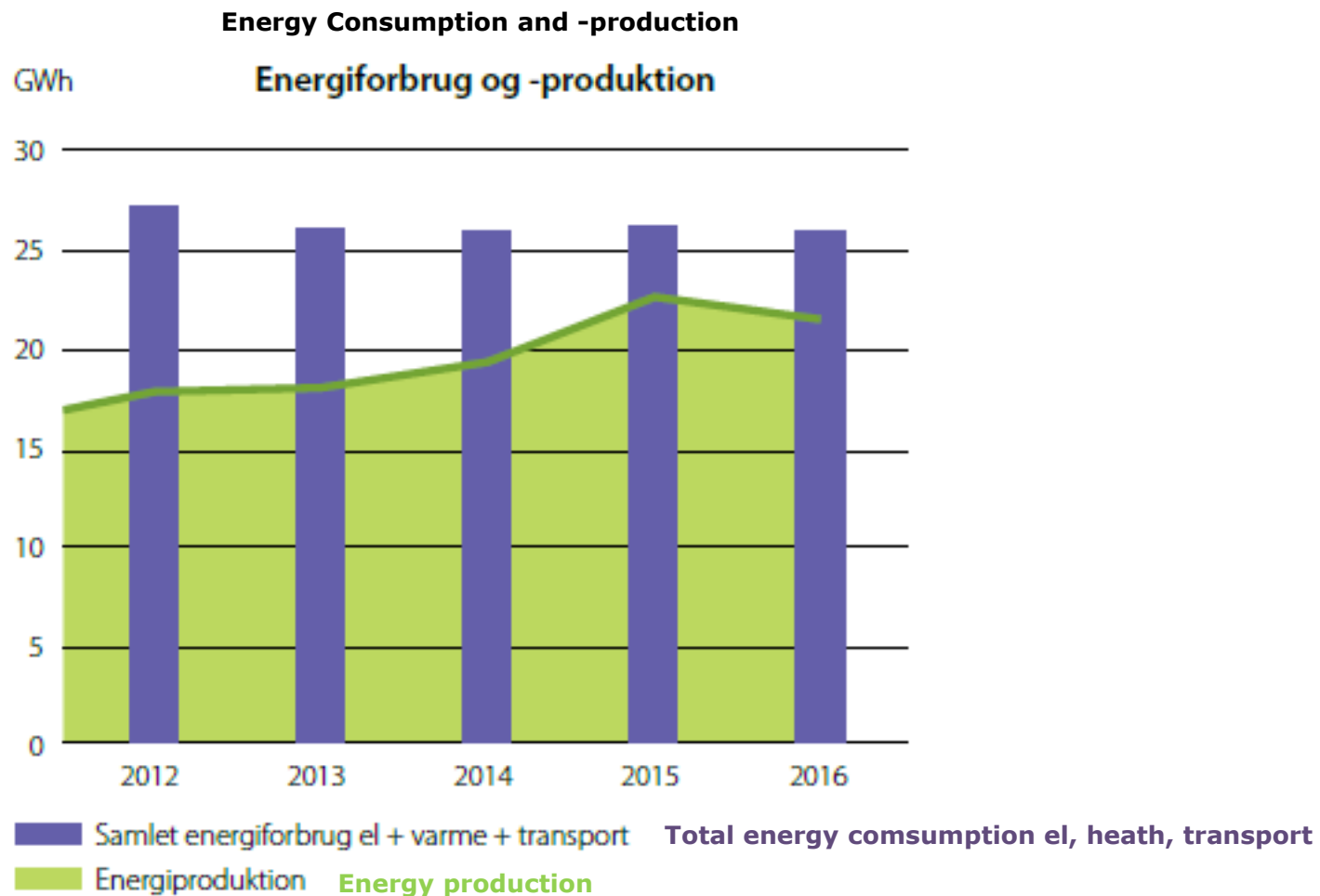


**2016**



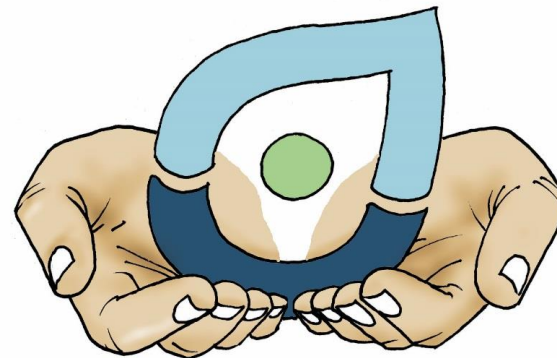


# VCSDenmark – total energy balance





Thank you  
for your time





Water for smart liveable cities

Welcome!

[www.iwa2020copenhagen.dk](http://www.iwa2020copenhagen.dk)

**IWA World Water Congress & Exhibition  
Copenhagen, 18 – 23 October 2020**

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