Aarhus Water Ltd
Aarhus Vand Ltd.

The company’s activities comprise rainwater disposal (including climate adaptation projects), production and distribution of drinking water, transport and purification of wastewater, emptying of private holding tanks as well as safeguarding a balanced and healthy water cycle.

Our mission is to offer and develop resource-efficient services throughout the entire water cycle, creating a sound, climate adapted environment, growth and export, all of which will be of benefit to customers and stakeholders.

Our vision is to be Denmark’s leading water company.
Operator of the entire water cycle

Drinking water
1. Ground water protection
2. Groundwater abstraction
3. Waterworks
4. Storage tank
5. Distribution well

Wastewater
6. Wastewater retention tank
7. Pumping station
8. Wastewater treatment plant
9. Energy production
Business strategy

VISION
AARHUS VAND WANTS TO BE DENMARK’S LEADING WATER COMPANY

STRATEGY 2020
Focuses on the development of a value-creating water company which is environmentally sound, resource-efficient, energy-neutral, well-run, innovative and partnership-promoting.

GROWTH
GOALS FOR 2020
Grow by 20%

GOALS FOR 2019
Grow by DKK 51 million

PRODUCTIVITY
GOALS FOR 2020
Grow by 20%

GOALS FOR 2019
Grow by 2%

INGENUITY
GOALS FOR 2020
Measured on the effect of productivity and growth

GOALS FOR 2019
Obtain an ingenuity score of 93%

CROSS-CUTTING PRIORITY AREAS
New products and services, water knowledge, research and development

FOUNDATION
VALUES: ‘We’ feeling, responsibility, innovation and dialogue
MISSION: Offer and develop resource-efficient services throughout the water cycle in an attempt to create a sound, climate-adapted environment, growth and export of benefit to customers and stakeholders
UN’s global goals for sustainable developments

<table>
<thead>
<tr>
<th>Clean drinking water:</th>
<th>Climate adaptation:</th>
<th>Water environment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None-observance of the limit values resulting in a recommendation that water be boiled. Goal: 0</td>
<td>Areas which change their status from shared sewer to separate sewer system. Goal: &gt;80 hectares</td>
<td>Non-observance of the emission requirements for wastewater treatment plants having an impact on the aquatic environment. Goal: 0</td>
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<th>Climate action:</th>
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<td>The energy produced at our wastewater treatment plants should cover 100% of the company’s energy consumption for electricity and heat in 2030. Goal: 55%</td>
<td>Non-observance of the emission requirements for waterworks having an impact on the aquatic environment. Goal: 0</td>
</tr>
</tbody>
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<th>Climate control measures:</th>
<th>Resource utilisation:</th>
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<tr>
<td>The total energy consumption at our wastewater treatment plants. Goal: &lt;23 GWh</td>
<td>Production of PhosphorCare, Goal: &gt;200 tonnes</td>
</tr>
</tbody>
</table>
Water problems

50% of drinking water is wasted before it reaches the consumer

Groundwater discharge could become the most serious threat to agriculture and urban water supply within the next two decades

Globally, 80% of waste water discharge is not purified
- Communication
- GSM
- UTMS
- WebNet

- Data logging
- Values per minute
- Values per second
- Monitoring night-hour-consumption
The energy producing waste water treatment plant

How to get **energy** from wastewater

- WASTEWATER
- SLUDGE
- ANEROBIC DIGESTION
- BIOGAS

**ENERGY**

**HEAT & ELECTRICITY**

**FUEL**

LNG / CNG
Climate adaptation
The Aarhus River and Harbour Project
- Improved water quality in Lake Brabrand and river of Aarhus
- Prevent flooding
- Bathing water quality in the harbor
The Aarhus River Project
- Retention tanks
- From 2006 to 2013
- Capacity of 50,000 m³
The Aarhus River Project

- The lock at Aarhus River mouth
Bathing Water Quality
Real time control of heavy rainfall
Transforming Aarhus Water to a digital enterprise

Strengthening our ability to meet our strategic goals and secure our business foundation
Digitalisation of water the industry

Industry 4.0, Water 4.0

Energy neutrality & reduced water loss

Advanced real time process control/modelling

Real time sensors (level, flow, analytical, pressure etc.)

Real time control mainly via VFD’s

High efficient components
The digital water industry

SCADA systems connected to auto calibrated water demand models and rain water radar based prediction models

Increased realtime “trusted” sensors + “sensor” capability in components and increased plant controllability
... proactive customer engagement

**Customerservice**
- Reducing support calls – handle majority w cognitive services
- 360degree customer view

**Customer**
- Getting to know my utility much better, they do more than deliver water. Their purpose is actually much higher, they take care of the environment, improve liveability, resilience…
- I can get to my utility when ever, where ever and service is good
- Services and support is available when I need it and I can easily configure to suit my needs (also when they change)
- I receive and handle all alarms, notifications, payment, etc on my mobile
Installation af 4 teknologier på 5 sites i Aarhus

Vi vil: installere målere og opsamle data herfra med fire teknologier fem forskellige steder i Aarhus.

Hvilke teknologier?
WM-Bus
Sigfox
LoRaWAN
NB-IoT

Og hvor?
Eksempelvis i NYE,
Viby J, Brabrand, Aarhus C og Riisskov.
Samstyring – badevand: vi producerer energi samtidigt med at vi bruger mindre, reducerer/udskyder anlægsomkostninger og forbedrer vandkvaliteten

- Data struktur og tilgængelighed
- On-Line Sensors - On-Line Data
- Data2Information
- System Integration
- Effektiv ressource udnyttelse
- Optimering af arbejdsprocesser
- Differentierede kunde tilbud
- Øget produktivitets-
  Besparelser
Samstyring – drikkevand: vi sikrer drikkevandskvalitet og sikkerhed, reducerer energiforbrug og vandspild

Data struktur og tilgængelighed
On-Line Sensors - On-Line Data
Data2Information
System Integration
Effektiv ressource udnyttelse
Optimering af arbejdsprocesser
Differentierede kunde tilbud
Øget produktivitet-Besparelser
Water Intelligence and Data Platform

We have a strong focus on creating accessibility, overview and openness of data.

We have embarked on an ambitious project to develop and implement a scalable Water Intelligence and Data Platform. The platform will support and promote Open Data access and integration. The data platform will set the foundation for Aarhus Vand and partners to share data, apply data science and augmented intelligence and use new IoT based sensor platforms to support integrated water management.

The scalable and flexible data platform will encourage the breaking down of data silos, promoting data sharing, innovation and communication.
Network 3D-print
Artificial intelligence
Robotics
Data
Mobile
3D-print
OPPORTUNITY