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
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
Transforming Aarhus Water to a digital enterprise

Strengthening our ability to meet our strategic goals and secure our business foundation
### UN’s global goals for sustainable developments

<table>
<thead>
<tr>
<th>Clean drinking water:</th>
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<tbody>
<tr>
<td>None-observance of the limit values resulting in a recommendation that water be boiled. Goal: 0</td>
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<tr>
<th>Climate adaptation:</th>
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<tbody>
<tr>
<td>Areas which change their status from shared sewer to separate sewer system. Goal: &gt;80 hectares</td>
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<tr>
<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>
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<th>Climate control measures:</th>
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<tbody>
<tr>
<td>The total energy consumption at our wastewater treatment plants. Goal: &lt;25 GWh</td>
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<tr>
<th>Resource utilisation:</th>
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<tbody>
<tr>
<td>Production of PhosphorCare. Goal: &gt;200 tonnes</td>
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<th>Water environment:</th>
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<tr>
<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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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.
Non-revenue water

Water loss
10 – 15 %

Water loss
5 – 7 %
• Communication
  • GSM
  • UTMS
  • WebNet

• Data logging
  • Values per minute
  • Values per second
  • Monitoring night-hour-consumption
The energy producing waste water treatment plant
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
Climate adaptation
Real time control of heavy rainfall
Holistic and coherent data-driven overview of the urban water cycle

To improve:
- Design and dimensioning
- Analysis of existing and future systems
- Real time control
- Real time modelling
- Documentation

Adopting new technologies:

Precipitation
Automated high quality precipitation estimates based on weather radars, disdrometers and rain gauges.

DONUT
Runoff
Distributed runoff estimates utilizing smart energy-efficient sensors, IoT, big-data and ICT to obtain cost-efficient monitoring infrastructure.

High quality and coherent data is essential for moving the water sector into the big-data era, and enable utilities to go from single measurement points to a broader knowledge and information generation in real time.
VeVa collaboration – High-resolution precipitation data

VeVa vision:

To create an organization that ensures a continuous evolving framework for transparent application of rainfall data in the Danish water sector.

To make VeVa a national collaboration between the Danish water utilities (non-profit)

To use the VeVa collaboration as a platform for continuous and coherent development and research focusing on high-resolution and high-quality rainfall data for the application of the water sector.
DONUT project – Distributed ONline monitoring of the Urban waTer cycle

Technologies provide opportunities. However, practical conditions often limit scaling possibilities. In the DONUT project we focus on adopting new technologies and tackle the practical challenges.
Dryp – Bridging new technologies and practical challenges

Turning drops of data into information flows

**DATA INFRASTRUCTURE TODAY**
Expensive measurement points results in few measurement points.

**NEW DATA INFRASTRUCTURE**
Cost-efficient measurement points allows for many distributed measurement points.

**WHY:**
Increase the investment efficiency in water infrastructure and increase the environment benefits of these investments.

**HOW:**
Enable proactive and holistic decision-making for the whole water cycle on a dense observation basis for operation and planning.

**WHAT:**
Provide plug’n’play wireless water monitoring in an end-to-end solution with automated management and analytics enabling cost-efficient distributed monitoring and information generation.

**The founding partners:**

- **MONTEM** – hardware experts and user interaction
- **InforMetics** – data science, data integration and cloud platform
- **Aarhus Vand** – Practical experience and use cases.

- **Dryp**

- **InforMetics**

- **MONTEM**

- **Aarhus Vand**
Digitalisation of water the industry

Industry 4.0, Water 4.0

- Advanced real time process control/modelling
- Real time sensors (level, flow, analytical, pressure etc.)
- Energy neutrality & reduced water loss
- Real time control mainly via VFD’s
- High efficient components
... 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
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.
Global projects