DANVA

WATER IN FIGURES

2025 DENMARK

BENCHMARKING AND STATISTICS

TEXT: CARL-EMIL LARSEN

New Tasks, Green Transition, and Increasing Prices

Today, Danes pay less for water than the actual cost of the supply because of indebtedness. This situation is unsustainable, as both new and existing infrastructure require significant investments to ensure clean drinking water and protect society from flooding.

New responsibilities are also emerging for water utilities. Security of supply and emergency management have become central elements of the water sector's role in a time marked by war, climate change, and digital threats. Water supply is a critical infrastructure; hence, it is crucial that legislation ensures the delivery of water to citizens, hospitals, and businesses — even in times of crisis.

Water utilities are responsible for drinking water, wastewater, and climate adaptation. Key figures from *Water in Figures 2025* show an average price increase of around 6%, which i.e., is driven by new responsibilities and the delayed effects of high inflation in previous years. Despite increasing prices, many investments continue to be financed through debt that must eventually be repaid. These investments include sewer renovations, improved groundwater protection, and major climate adaptation projects.

DANVA's investment forecast shows that the water sector will need to invest approximately €114 billion by 2070. This calls for a forward-looking economic regulation — a challenge the Water Regulation Committee must address. Protecting drinking water is a pressing issue: more than half of the country's boreholes contain pesticides, nitrates, or chemicals such as PFAS. Thus, DANVA is among others working to establish groundwater parks that will prevent infiltration of environmentally hazardous substances. This is done in relation to the governmental initiative Agreement of Green Denmark.

On the consumption side, *Water in Figures 2025* shows that household water use remains at a record low — 97 litres per person per day. This is due both to modern household appliances and a growing awareness of the value of water. Although the average water price has increased to €11.02/m³, the total annual water expenditure for an average household remains stable at around €818.

A new element in this year's publication is the introduction of the water sector's climate footprint from operations (Paris model 2), which was developed in collaboration with the Danish Environmental Protection Agency. The Paris model quantifies total process emissions from the operation of waterworks, sewers, and treatment plants. The new figures reveal the climate impact of delivering one cubic meter of water from the waterworks to the consumer and subsequently treating it at the wastewater plant. Average greenhouse gas emissions per cubic meter of water sold are: 679 g CO_2e from direct process emissions from operations (Scope 1), 110 g CO_2e from consumption of electricity and district heating (Scope 2), and 311 g CO_2e from the value chain (Scope 3). The model provides a strong foundation for the sector's goal of achieving climate and energy neutrality.

Utilities are increasingly investing in decommissioning of combined sewer overflow structures and consolidating treatment plants — costly but necessary measures to handle increasing amounts of rainfall. DANVA contributes with proposals to both the Ministry of Environment and the Ministry of Resilience and Preparedness.

The green transition requires collaboration. That is why DANVA and Dansk Fjernvarme (Danish District Heating) have jointly established the *Think Tank Brundtland*. Other members — including Grundfos, Danfoss, and Aalborg University — will help accelerate progress through innovation, partnerships, and export.

The conclusion from the water sector's key figures is clear: water utilities currently deliver water at stable prices, but new responsibilities and necessary investments will cause prices to increase. It is a vital investment in our health, environment, and safety. ■

BENCHMARKING AND STATISTICS

DANVA, the Danish Water and Wastewater Association, is an industry and interest organisation for drinking water and wastewater utilities in Denmark. DANVA is a non-profit association, financed by its members and by revenue-generating activities. For over 20 years, DANVA has offered benchmarking services to its members. Benchmarking is a tool for creating an overview of a utility's performance compared to other utilities, as well as identifying areas for efficiency improvements.
Data reporting to *DANVA Benchmarking and Statistics* forms the basis for the preparation of this publication. In total, 78 drinking water utilities and 91 wastewater utilities contributed data to *Water in Figures 2025*, covering the year 2024. The participating drinking water utilities supply water to approximately 60% of the Danish population, while the participating wastewater utilities handle water from more than 90% of the population. ■

PHOTO: THY FORSYNING

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Water Consumption Continues to Decrease

Since the introduction of the Action Plan: Aquatic Environment I in 1987, water consumption has shown a steady decline and has now reached its lowest recorded level. In 2024, the average household water consumption was 97 litres per person per day, equivalent to an annual average of 35.43 m³ per person.

The total annual water consumption covering households, holiday homes, businesses, and institutions amounted to 53.84 m³ per person, with households and holiday homes accounting for approximately 66% of the total.

Trends in Water Consumption

Water consumption has been decreasing continuously since the Action Plan: Aquatic Environment I was implemented in 1987. The requirement to reduce nutrient discharges marked the beginning of extensive upgrading and expansion of Danish wastewater treatment plants, which in turn led to higher water tariffs.

Further initiatives, such as the introduction of a green tax on piped water, mandatory metering of all water consumption, and the subsequent Aquatic Environment Plans II and III, have all contributed to the decline in water use.

Over time, Danes have become increasingly conscious of their water consumption. The environmental concerns of the 1980s raised awareness of the impacts on the aquatic environment, and drinking water began to be regarded as a valuable resource to be conserved—a view reinforced by increasing prices. The requirement to install water meters made monitoring easier, and gradually, most sanitary installations were replaced with water-saving features, such as low-flush toilets, efficient taps and showers, and washing machines and dishwashers designed to minimise water use.

More recently, the economic aftermath of the COVID-19 pandemic, the war in Ukraine, and increasing inflation in 2020–2021 have made Danes even more aware of their consumption habits. Although energy and heating costs were the primary concern, these factors also appear to have influenced water usage. Washing machines are now loaded more efficiently, showers are shorter, and with increased rainfall, gardens may also require less watering. ■

97

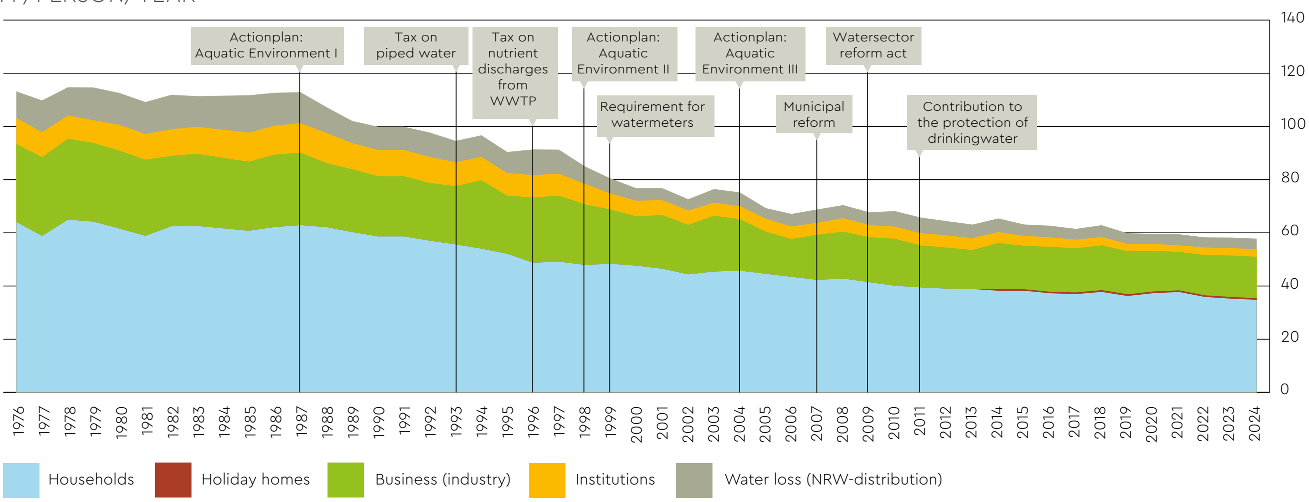
LITRES OF WATER USED PER PERSON PER DAY IN HOUSEHOLDS

Selected Legislation, National Plans, and Reforms Affecting Price and Consumption

1987: Action Plan: Aquatic Environment I – aimed to protect both groundwater and surface water.
1993: Tax on piped water (€0.67/m³) and penalty tax for drinking water utilities with losses exceeding 10% – Act No. 492 of 30/06/1993.
1996: Wastewater tax – Act No. 490 of 12/06/1996.
1996: Requirement for installation of water meters by 1999 – Executive Order No. 525 of 14/06/1996.
1998: Action Plan: Aquatic Environment II– primarily aimed at reducing nitrogen discharges.
2004: Action Plan: Aquatic Environment III – further reduction of nitrogen and phosphorus emissions.
2007: *Local Government Reform* – reduced the number of municipalities from 271 to 98, leading to mergers of many water utilities.
2009: *Water Sector Act* – introduction of price caps and efficiency requirements – Act No. 469 of 12/06/2009.
2011: Introduction of a *drinking water tax* – Act No. 1384 of 28/12/2011.

CONSUMPTION OF DRINKING WATER, 1976 - 2024

M³/PERSON/YEAR



1976–1998: Master's thesis: *Modelling of Water Demand in Denmark* by Nana Sofie Aarøe – data from 14–30 utilities.
From 2014, a new category, *holiday homes*, was introduced.
1999–2023: Data from DANVA's *Water in Figures* – data from 33–116 utilities.
The 2024 report is based on data from 77 drinking water utilities serving a total of 3.83 million residents.

THE DANISH WATER SECTOR

In Denmark, all drinking water is groundwater-based. The water sector is characterised by a decentralised structure, with approximately 2,600 waterworks and 656 wastewater treatment plants.

In 2024, the economic framework covered 112 drinking water utilities, which collectively supplied about 228 million m³ of water. The utilities reported a total turnover of €626 million, operating costs of €213 million, and investment costs of €422 million.

Within wastewater, 108 utilities were subject to economic regulation, treating around 268 million m³ of wastewater in 2024, with a total turnover of €1.47 billion, investments of €993 million, and operating costs of €538 million.

The sector operates with *a break-even principle*, requiring a balance between revenue and expenditure over time. As the water utilities are 100% tariff-financed, customers cover the costs of operations, investments, and other initiatives. To prevent economic waste and simultaneously promote innovation, development, and climate-friendly energy production, water utilities are allowed to sell services, by-products, and energy at a profit to a limited extent —provided such sales are closely linked to the utilities' core activities. ■

The Drinking Water Sector

- Number of waterworks[2]: approx. 2,600
- Total distribution network[4]: approx. 53,400 km
- Billed drinking water from public utilities[4]: approx. 300 million m³
- Water abstraction[2]:
  - Public waterworks: 356 million m³
  - Agricultural irrigation: 321 million m³
  - Industrial abstraction: 44 million m³

The Wastewater Sector

- Total sewer network incl. service connections[3]: approx. 92,000 km
- Wastewater treatment plants[1]: 656
- Treatment plants[4] (10,000–100,000 PE):
  - Based on permitted load: 141
  - Based on actual load: 113
- Treatment plants[4] (over 100,000 PE):
  - Based on permitted load: 32
  - Based on actual load: 13
- Total capacity[1]: 12.4 million PE
- Actual load received[1]: 6.7 million PE
- Share of wastewater treated with tertiary treatment[1]: 95.7%
- Total volume discharged[1]: 766,338 m³
- Total quantity of sludge disposed[3]: 123,849 tonnes dry matter
  A *population equivalent (PE)* defines the daily contribution per person of nitrogen, phosphorus, and organic matter.

Sources:
1: Danish Environmental Protection Agency: *Point Sources 2023 – data 2023*
2: GEUS: *Groundwater Monitoring 1989–2023*
3: Water Sector Regulatory Authority – *Water Data 2022*
4: DANVA Benchmarking

Half a litre of tap water costs about ¢ **0.55**

Water Price for an Average Household

It is difficult to state a single price for water across the country; thus, an average water price is calculated each year for an average household of 2.11 persons with average consumption. In 2024, an average household used 74.76 m³ of water, at a cost of €11.02 per m³ consumed.

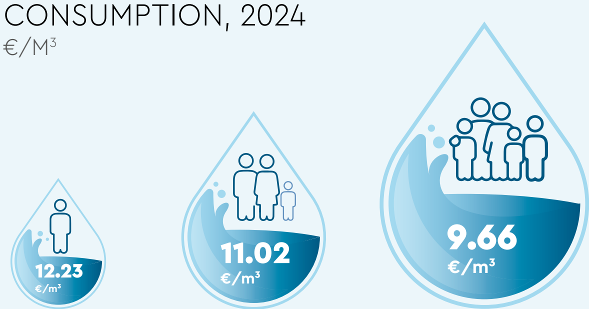
For a household with low consumption—for example, a single-person household—the unit price per cubic metre is slightly higher, at €12.23. Conversely, for a family with three children consuming 170 m³ per year, the unit price is slightly lower, at €9,65 per m³. This difference occurs because the fixed charge accounts for a larger share of the bill when consumption is low than when it is high.

In 2024, the average water price for an average household increased by 6.45% compared to 2023. A preliminary estimate for 2025, based on the same level of consumption as in 2024, places the average price at €11.86 per m³, representing an additional 7.6% increase relative to 2024.

These price increases reflect several factors, including the addition of new sector responsibilities, delayed effects of high inflation in 2021 and 2022, and the fact that an increasing number of utilities are choosing to utilise their revenue cap. ■

AVERAGE PRICE OF WATER BASED ON CONSUMPTION, 2024

€/M³



Single-person household (50 m³/yr)	Avg. household (2.11 persons) (74.76 m³/yr)	Family with 3 children (170 m³/yr)

Figures are based on a simple average of 220 drinking water utilities and 96 wastewater utilities. Prices include VAT and taxes.

Differences in Water Prices Across Denmark

The overall water prices are not the same throughout the country since the utilities - more than 2,000 water utilities and around 100 wastewater utilities - have individual water prices. In addition, the pricing structure plays a major role in what a consumed cubic metre of water costs. Legislation allows utilities to charge a fixed annual administration fee and a variable fee per m³ consumed for drinking water and for the collection and treatment of wastewater, respectively. Some utilities also impose a fixed annual base contribution for water and/or wastewater services, while others charge solely based on consumption. As a result, there are considerable variations between utilities in the calculated unit price per cubic metre. In addition, structural factors—such as geological conditions, the size and composition of the customer base, and differences in investment requirements—also have a significant impact on costs and, consequently, on the final price of water. ■

What Does Your Water Cost?

On DANVA's website, you can explore the interactive map, "Water Prices Map of Denmark", which displays water prices for approximately 200 of the largest water utilities and around 100 associated wastewater utilities regulated under the Water Sector Act. The map provides an overview of both fixed and variable charges for drinking water and wastewater, as well as the annual bill for a household with low consumption (50 m³), average consumption (74,76 m³), and high consumption (170 m³).

Find the map at: www.danva.dk/vandprispaadanmarkskort

Share of Income Spent on Water

The UN Development Programme recommends that households spend no more than 3% of their gross income on safe drinking water, and no more than 5% on the combined cost of drinking water and wastewater. In 2023, according to Statistics Denmark (FY19), the average Danish household's gross income was €100,278, while the average disposable income amounted to €70,387. The average household expenditure on water and wastewater was €718, corresponding to 0.72% of gross income and 1.02% of disposable income. Data from Statistikbanken.dk/FU12 shows that the example refers to an average family with total consumption expenditure of €47,711 in 2022 and €50,167 in 2023. ■

ANNUAL LIVING EXPENSES – SELECTED CATEGORIES

Share of a household's consumption

Avg. per household	2022	2023
Chocolate and coffee	0.69%	0.66%
Waste disposal	0.81%	0.84%
Fastfood, takeaway	1.85%	1.57%
Drinking water and wastewater	**1.38%**	**1.43%**
Telephone and Internet	1.42%	1.55%
Petrol and diesel	2.19%	1.86%
Electricity	3.67%	2.40%
Clothing	3.26%	3.18%
District heating	3.42%	2.54%
Insurance	5.47%	5.49%

Data from Statistikbanken.dk/FU12 – data from 2022 and 2023. The example covers an average household with a consumption of € 47,711 in 2022 and € 50,167 in 2023.

WHY ARE WATER PRICES DIFFERENT ACROSS DENMARK?

Your water price depends on which water utility you are connected to. Denmark has more than 2,000 water utilities and around 100 wastewater utilities, each with its own pricing structure. To find your specific tariffs, visit your local water utility's website.

Composition of the Water Price

The total water price typically consists of the following five elements:

- Drinking water – fixed annual contribution (if any)
- Drinking water – price per cubic meter consumed
- Wastewater – fixed annual contribution (if any)
- Wastewater – price per cubic meter consumed
- VAT and taxes – including piped water tax and wastewater tax

The drinking water price covers costs related to groundwater protection, abstraction and treatment, distribution, and quality control from the waterworks to the customer.

The wastewater price covers operation and maintenance, renovation and expansion of the sewer network, climate adaptation, and operation of treatment plants, including monitoring compliance with discharge requirements.

Local Conditions Determine Your Water Price

There is a considerable difference between the lowest and highest water prices across utilities. These variations arise from several local and structural factors, including:

- Customer base: Supplying large industrial users is often more cost-effective than serving small consumers, such as holiday homes.
- Geological conditions: Local geology affects the cost of abstracting groundwater.
- Geographical layout: Longer distances between customers require longer pipelines and higher infrastructure costs.
- Groundwater quality and availability: Areas facing pollution or scarcity may need to invest in new wellfields.
- Groundwater protection: Some utilities spend more on protection efforts, while others benefit from naturally protected abstraction areas.
- Discharge requirements: Wastewater treatment standards vary depending on the sensitivity of the receiving environment—stricter for freshwater bodies than for marine discharges.
- Plant size: Decentralised treatment at small plants is generally more expensive than centralised treatment at larger facilities.
- Environmental factors: Local environmental conditions may require additional protective measures.
- Investment levels: Some utilities are investing heavily in climate adaptation projects to manage more intense rainfall.
- Facility age: Older infrastructure typically requires more maintenance.
- Service levels: Municipalities and utilities may set different standards for service, such as notice periods for planned interruptions, customer support hours, and access to information via their website. ■

TEXT: MADS VOLQUARTZ, DANVA / PHOTO: MICHAEL VIENØ

Increasing Water Prices in the Future

Flushing the toilet, taking a shower, and watering the garden will become more expensive. The reason lies in the major tasks water utilities are facing, namely climate adaptation, groundwater protection, and upcoming investments in drinking water and wastewater infrastructure. However, the bill will be higher if we do not invest, says Chairperson of DANVA's Board, Ellen Trane Nørby.

The water sector faces major investments towards 2070—both in new construction projects such as treatment plants, waterworks, and climate adaptation, and equally in maintaining and renewing existing facilities and pipeline infrastructure. Overall, DANVA's forecast shows that Danish water utilities will need to invest around €114 billion by 2070. This also includes an estimate for new tasks such as handling shallow groundwater, which is expected to become a significant cost driver.

These major investments in new and existing projects will indeed affect the price of water, says Ellen Trane Nørby, Chairperson of DANVA's Board.

"It is too early to say precisely what this will mean in monetary terms. But there is no doubt that prices will increase," she says.

More Expensive Not to Act

Although water prices will increase, the overall cost will be greater if nothing is done, according to the Chairperson's assessment.

"The price increase will come as a result of climate change and the climate adaptation that must be carried out, because the economic cost of the damages far exceeds the investments in question. If we do nothing and do not adjust tariffs to finance this, it will cost society more to repair the damages afterwards," says Ellen Trane Nørby.

Similarly, she points out that it is also more cost-effective to invest in protecting groundwater, because advanced drinking water treatment is more expensive than protecting wellfields in the first place.

"We need to designate groundwater parks so that we can be confident that our groundwater will deliver clean drinking water in the future," she says. In addition, many areas will need investment in the modernisation of waterworks or entirely new waterworks.

Advanced Treatment Costs

Broadly speaking, the handling of wastewater and rainfall accounts for two-thirds of the total water price paid by customers. Wastewater treatment requires large facilities, and operation is more extensive and energy-intensive than for drinking water. When new treatment standards are set by municipalities or the EU, this also entails further investment, leading to higher tariffs. Ellen Trane Nørby highlights quaternary treatment for removing micropollutants as a requirement that will ultimately make it more expensive for customers, even though the pharmaceutical and cosmetics industries are required to finance at least 80% of the costs of quaternary treatment, according to the EU's recast Urban Wastewater Treatment Directive.

"Prices for wastewater will increase when we introduce quaternary treatment at our wastewater treatment plants. There is, of course, a price tag attached to this—but there is also a price attached to maintaining our marine environment and protecting nature," says the Chair.

More Than One Bottom Line

For DANVA's Chairperson, the discussion is not simply about price. Water prices must be considered within a broader societal context.

"It is a balancing act because expensive water is not an end in itself. Neither is cheap water an end in itself for me if that is the only parameter. If it means we fail to protect wellfields, or we do not treat wastewater sufficiently and end up discharging too many nutrients into our coastal waters, then I do not believe that the discussion will be about whether water is 'cheap'. The bill will simply be paid by consumers in another way," she says.

She emphasises that utilities must do their part to operate as efficiently as possible, and that efficiency should lead to the lowest possible prices, in compliance with societal expectations and regulatory requirements.

"Of course, we must, as water utilities, continually look at how we can work more efficiently, learn from each other, and improve how we handle challenges. That responsibility rests with us as monopolies, which water and wastewater utilities are."

Ellen Trane Nørby, DANVA's Chair, spoke when the Water Regulation Committee presented its sub-recommendations at DANVA's policy conference in September, which was also attended by the Minister for Climate, Energy and Utilities, Lars Aagaard, and several MPs.

Emergency Preparedness Is Becoming More Prominent

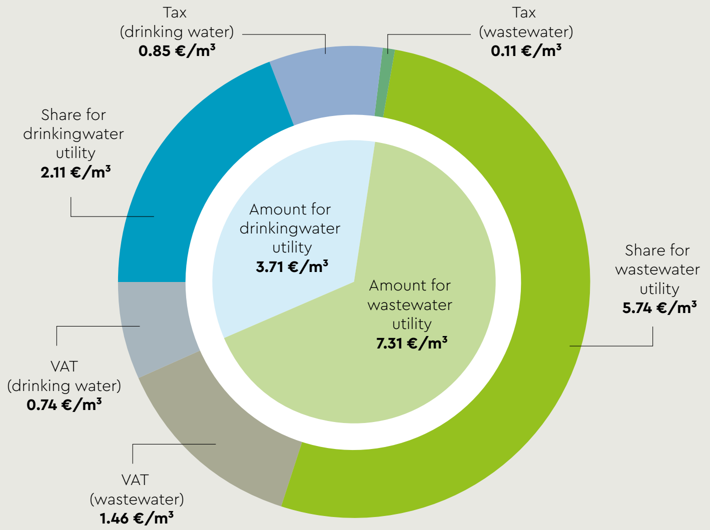
Expenditures on emergency preparedness are also increasing, and the Chair expects it will continue to increase. It is important that utilities make the true scale of security expenditure visible, so it is clear that this is not simply increased administration.

“Cybersecurity already plays a major role, and unfortunately, it will only become more prominent. That is the world we live in. It is also about physical security, as the whole CER Directive and NIS2 Directive, in which we must be fully compliant, and for which there are already costs. I think it is important to discuss transparency about the cost and make it clear which parts relate to emergency preparedness, perhaps even explicitly on the water bill, but at a minimum, itemised in the utilities’ statement,” says Ellen Trane Nørby.

She believes that, in dialogue with consumers, politicians, and businesses, the sector must explain that you “cannot have it both ways”.

“You cannot both implement the NIS2 directive, an urban wastewater directive, protect our wellfields, and act more responsibly with a smaller environmental and energy footprint, and at the same time, only have one primary benchmarking parameter, namely price. That is exactly what the broader ESG agenda has been about - there is more than one bottom line. And that also applies when we talk about water prices.” ■

COMPONENTS OF WATER PRICES, 2024



What Does the Water Price Consist of?

The average water price can be broken down into the share for drinking water utilities and the share for wastewater utilities, along with VAT and taxes, which cover the tax on mains water and the tax on wastewater.

The average price of €11.02 per m³ of water can be split into:

- Drinking water utility's share: €2.11 per m³, equal to 19.2%.
- Wastewater utility's share: €5.74 per m³, equal to 52.1%.
- VAT: €2.21 per m³, equal to 20%.
- Taxes (tax on piped water and the wastewater tax): €0.97 per m³, equal to 8.7%.

The drinking water component, including VAT and taxes, is €3.71 per m³ (33.7%). The wastewater component, including VAT and taxes, is €7.31 per m³ (66.7%).

Both drinking and wastewater utilities derive their revenues from fixed and variable tariffs. For drinking water utilities, fixed tariffs make up 37% of the revenue stream on average, while 63% comes from variable consumption tariffs. For wastewater utilities, a larger share of the revenue comes from variable tariffs, with, on average, 86% of the revenue stream stemming from these tariffs, while fixed tariffs make up 14% of the revenue. Fixed tariffs are more common among drinking water utilities, with 92% of drinking water utilities applying a fixed tariff, while 68% of wastewater utilities do so. ■

Large Consumers Receive a Discount

WASTEWATER:

In 2013, it was decided politically to introduce a discount scheme for large industrial consumers. The scheme, known as the three-step tariffs model (an incremental model), was introduced from 2014–2018 and is based on three tiers:

- Tier 1 is the wastewater utilities' standard tariff for the collection and treatment of wastewater from households and businesses.
- Tier 2 is a 20% discount on the Tier 1 tariff, applying to water consumption between 500 and 20,000 m³.
- Tier 3 is a 60% discount on the Tier 1 tariff, applying to water consumption above 20,000 m³.

The three-step tariffs model has affected wastewater utilities very differently. It has had a major impact on utilities with a high share of large business customers who have received substantial discounts, meaning that Tier 1, paid by ordinary consumers, has increased to fund the discount.

DRINKING WATER:

For drinking water utilities, it is an individual decision whether to offer discounts to large consumers of drinking water, as there is no legislation in this area. It is therefore up to each utility to decide whether to offer differentiated tariffs depending on consumption. Around one in five drinking water utilities, which are subject to the Water Sector Act, offer differentiated tariffs. ■

The Household's Average Water Bill Has Increased Slightly

In 2024, the water bill for an average household of 2.11 persons with an average annual consumption of 74.76 m³ was €824—an increase of 4% compared with the previous year.

The relatively constant level of household expenditure reflects a combination of rising water prices offset by lower consumption. The drop from 2021 to 2022 can be linked to the low post-COVID level and the reduction in consumption associated with high inflation in 2020/21. ■

AVERAGE HOUSEHOLD EXPENSES, 2007 - 2024

€/YEAR (2024 PRICES)

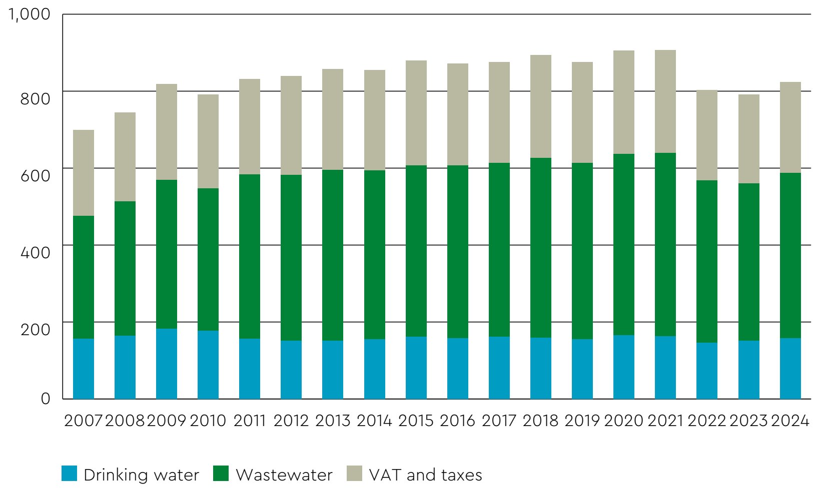


PHOTO: VESTHIMMERLANDS FORSYNING

Increasing Debt is Expected to Continue

The debt of water utilities has increased steadily from 2010 to 2019. Between 2014 and 2019, the debt rose by an average of €188 million per year. In 2020, a political agreement was reached to strengthen the ability of water utilities to invest in climate adaptation projects. Before the agreement, surface-based solutions had to be financed with 25% municipal co-financing. This meant projects were subject to the municipalities' capital expenditure ceiling, which often made implementation difficult.

With the 2020 agreement, water utilities were allowed to finance entire projects themselves, which led to an increase in loans. From 2020 to 2024, debt grew by an average of €362 million annually. In 2024, the total debt amounted to €5.9 billion, of which €3.9 billion were loans from KommuneKredit (Kommunekredit is a Danish public credit institution that provides low-cost financing for public entities, backed by their joint guarantee).

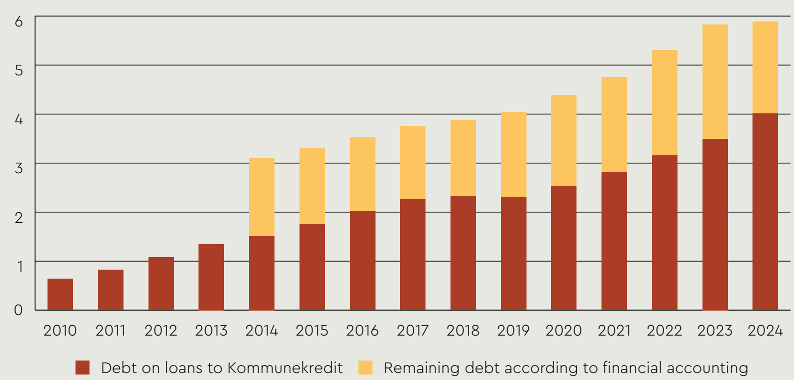
The Debt Is Expected to Keep Increasing

Each year, general and firm-specific efficiency requirements are applied to the revenue caps of water utilities. This means utilities gradually have less income to cover their costs. DANVA has had the consultant company ENVIDAN prepare a long-term forecast, which shows that water utilities face increasing reinvestment needs in the years ahead. The sector is therefore entering a period in which utilities must spend more on renovation, while being allowed to collect less from consumers. The forecast shows that utilities will need to make several new investments. These new investments will largely be loan-financed as water utilities' prices are cost-reflective. This means that there are structural factors indicating that debt financing will continue to rise. ■

Debt is increasing; if one imagines that the debt was to be collected in a single year, an average household would have had to pay €1,483 in 2014. In 2024, this amount would €2,554 to pay off the debt.

TOTAL DEBT IN THE WATER SECTOR

€ BILLIONS



Outstanding debt on loans in the water sector is compiled from the utilities' annual financial statements and covers all municipally owned water utilities, as well as TREFOR Vand A/S, Verdo Vand A/S, Rønne Vand A/S, and Vidbæk Vand A/S. Outstanding debt has been calculated for 176 utilities identified by CVR number.
Most of the sector's debt in 2024 consists of loans from KommuneKredit. This share has grown steadily since 2014. In 2014, the debt to KommuneKredit accounted for about half of the sector's total debt.
In addition to KommuneKredit, several utilities also have debt to mortgage credit institutions and banks.
A smaller share of the total debt is short-term debt, for instance, covering trade payables, amounts due to related businesses, construction credit lines, and other smaller items.

TRENDS IN THE CONSUMER-PERCEIVED WATER PRICE AND WATER CONSUMPTION

The cost of water depends on both the level of consumption and the price of water. It is therefore relevant to compare the Consumer Price Index with how the bill has developed for an average household compared with a household with unchanged consumption.

In Denmark, water consumption has been decreasing for many years. From 2010 to 2024, average consumption decreased by 12.4%. This means a household with constant consumption has seen a greater increase in its water bill compared to a household with average consumption. Considering a family consuming 170 m^3 pr. Year, the bill increased by 47.6% over the period—an average annual rise of 2.6%. By comparison, the bill for an average household of 2.11 increased by 36.5%, or 2.1% annually. For comparison, the consumer price index increased by 26.5% from 2010 to 2024, equivalent to 1.6% per year, and covers goods and services typically purchased by households.

The increase in water expenses exceeding the Consumer Price Index is partly explained by the fact that water utilities are gradually being assigned more responsibilities, which are financed through the water tariff.

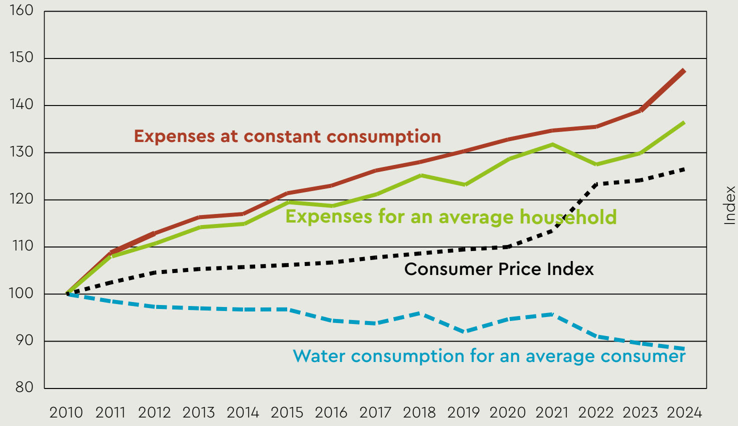


PHOTO: VEJLE SPILDEVAND

TEXT: KARSTEN BJØRNO, DANVA / PHOTO: BRUNDTLAND

Brundtland Advocates a Flexible Framework and Democratic Ownership

The utility sector underpins societal goals and major industries in Denmark. Investment in a green future requires a more flexible framework for utilities, with democratic ownership as the foundation.

Glasses clink, and conversation is lively and upbeat. Expectations are high. Sunlight filters through the opening of a marquee at Folkemødet (the Danish "People's Democracy Festival") where 60 leaders from the national utility sector, green businesses, and trade unions, along with many of the country's environmental organisations, have gathered. They have been invited for a binding dialogue. The outcome should be specific initiatives that the participants can support each other in during discussions with decision-makers. The convener is the Utility cluster's new think tank, Brundtland.

At the time of writing, the agreement is still under consultation among the organisations. But the meeting has already produced clear signals about what the parties could agree on. And it was not a short list.

Ambitions for the green transition should be accelerated. Long-term plans must take account of future generations, and young people should be considered both in the conversation and the decision-making.

This is the first time that multiple environmental organisations are not only making demands or praising the sector when it phases out coal or reduces wastewater discharges to fjords. It is the first time we see a broader

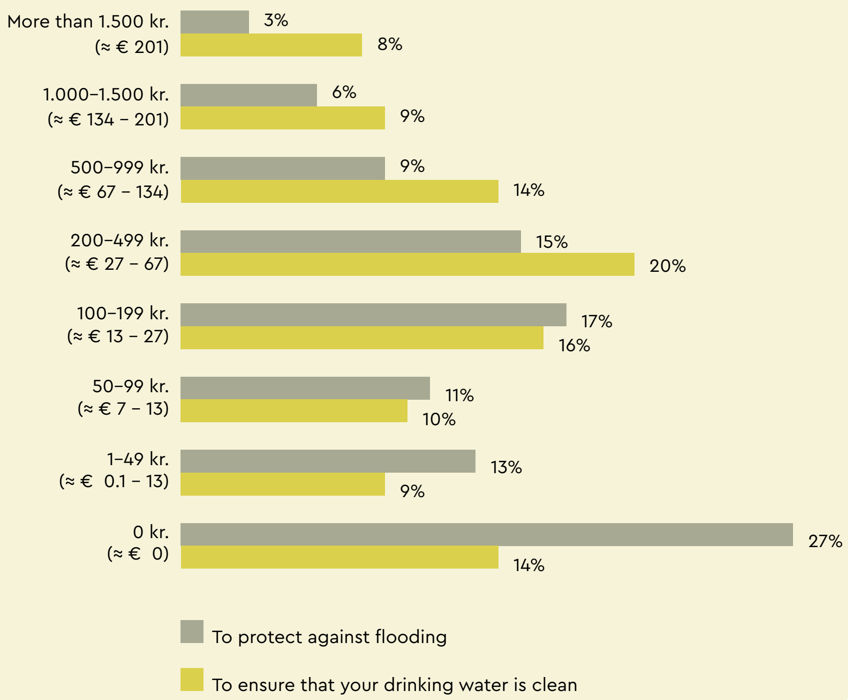
ABOUT THE THINK TANK BRUNDTLAND

A knowledge-based think tank whose purpose is to strengthen the utility cluster's capacity to deliver value to society. Based on independent analysis, cross-disciplinary research and strategic dialogue, we aim to develop solutions that promote both climate and nature objectives as well as social cohesion, increase society's security of supply and support a robust and sustainable economy.
The organisation was founded in August 2024 and brings together the utility sector and key stakeholders, including researchers, the union movement and sector suppliers.
All members of DANVA and Danish District Heating have access to the think tank's membership activities and outputs.

coalition supporting the idea of granting the sector a more flexible regulatory framework to deliver on large, long-term investments that a green future requires. And it is the first time the sector has committed to uphold and promote the democratic ownership, which is the precondition for considering the long-term perspective and setting societal goals first.

But why do we need these new alliances? The Think Tank Brundtland sees several reasons.

THE DANES ARE WILLING TO PAY FOR INVESTMENTS RELATED TO WATER



Wind of Change Sweeps through the Water Sector

Winds of change are sweeping the utility sector. In recent years, major changes to its regulatory framework have been introduced alongside a set of new tasks. For the water sector, there is a growing requirement to safeguard groundwater and to implement additional treatment stages. At the same time, emergency preparedness and cybersecurity will require major investments, and climate resilience is an ever-expanding task. Most of which will have to be carried by the water sector.

"For years, tasks have been piled onto the sector without providing the necessary frameworks. The water sector, and much of the wider utility sector, has been seen merely as providers of services to citizens. It is therefore unsurprising that regulation has focused only on lowering costs. But that view is too narrow. First, because the sector must deliver much more in the future. Second, because it underpins major industries in Denmark. We would not have Grundfos or Kamstrup without the utility sector's ability to invest in the long-term with societal goals in mind," says Magnus Skovrind Pedersen, Director of the Think Tank Brundtland.

Danes are willing to pay more for water if it ensures clean drinking water or climate adaptation, according to the latest survey of the Think Tank Brundtland.

"But changing politicians' minds from regarding the utility sector as a place of introducing savings, to a place to make investments requires new alliance partners," the Director notes.

"For instance, there is a need for greater flexibility to invest in climate resilience. If that call comes from environmental organisations, and not only from the water sector, your position in dialogue with politicians is much stronger - and helps to shape the public opinion on the matter," says Magnus Skovrind Pedersen.

Ownership Under Debate

Criticism of ownership structures in the utilities sector has meanwhile grown increasingly vocal. In the wake of several problematic cases, particularly in district heating, several organisations have called for changes to regulation, ownership, and governance. For example, the Danish Chamber of Commerce has proposed that no municipal councillors should sit on the boards of municipally owned district heating utilities.

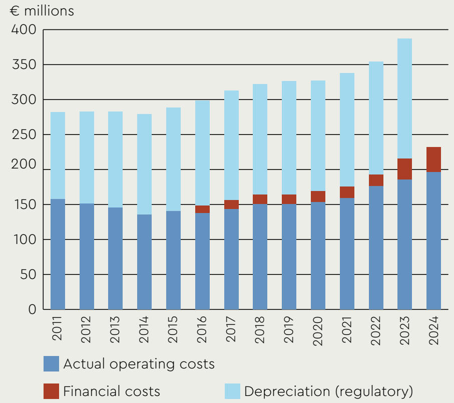
Against this backdrop, the Think Tank Brundtland has launched an analysis of board composition and competencies in municipally owned utilities. The report is being prepared in collaboration with Professor Thomas Poulsen of Copenhagen Business School and will be published on the 5th of December in Copenhagen.

Legislation affecting one branch of utilities often spills over into others. The latest legal change in district heating requires two independent board members in municipally owned utilities. A similar stance on municipal politicians serving on boards appears in the Water Regulation Committee's sub-recommendations, which recommends that the chair should not be held by a municipal councillor.

"It is crucial to maintain a strong focus on governance in utilities, and it is welcome that Brundtland is highlighting this. DANVA has led the development and implementation of a code of good corporate governance for municipal utilities. We also believe requirements should be set for board members' competencies, potentially through board development programmes," says Ellen Trane Nørby, Chair of DANVA.

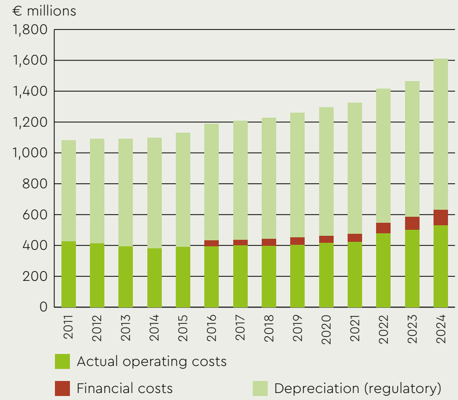
The Water Regulation Committee plans to map competencies across the sector, and in this context, the think tank will make its material and analyses available to the committee. ■

Affected costs drinking water

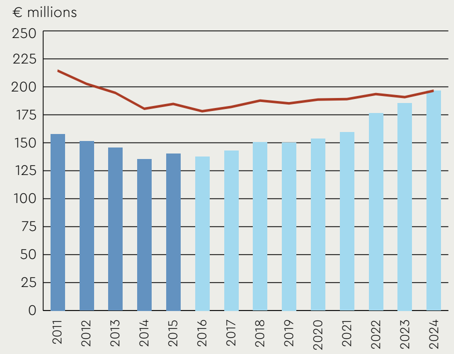


The total actual costs are the costs on which utilities are benchmarked in the Danish Water Regulatory Authority's TOTEX (Total expenditures) benchmarking. Regulatory depreciation for drinking water in 2024 will not be known until autumn 2026, in connection with TOTEX benchmarking.

Affected costs wastewater

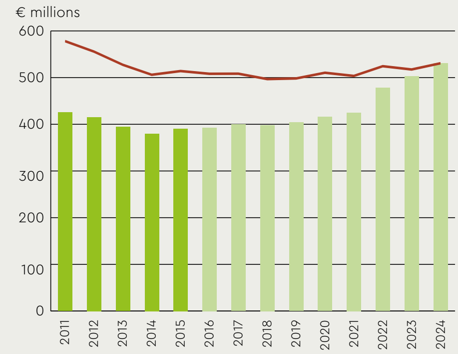


Actual operating costs drinking water

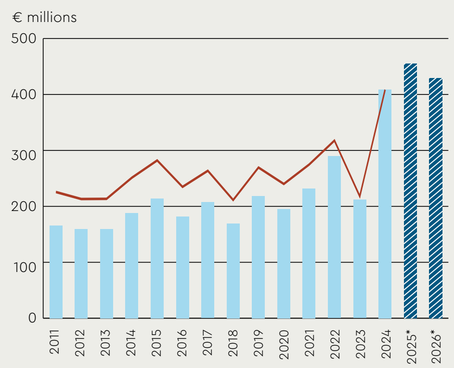


The actual operating costs are a part of the operating costs which are used in TOTEX benchmarking by the Danish Water Regulatory Authority's TOTEX benchmarking.
Actual operating costs are calculated as operating costs from the audited accounts, excluding depreciation and deducted loss on receivables, non-controllable costs, adjustments or provisions included in operating costs, as well as operating costs from associated activities, the emptying scheme and wastewater-based infection surveillance included in the general accounts. The definition of actual operating costs was revised in 2016 and is therefore not fully comparable with previous years.

Actual operating costs wastewater

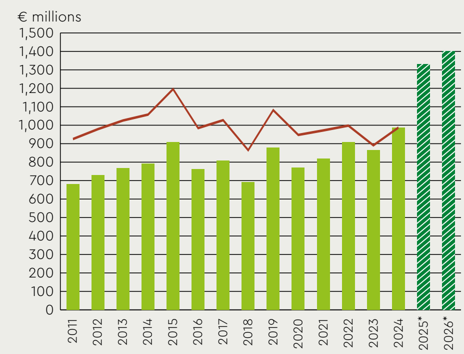


Investments drinking water

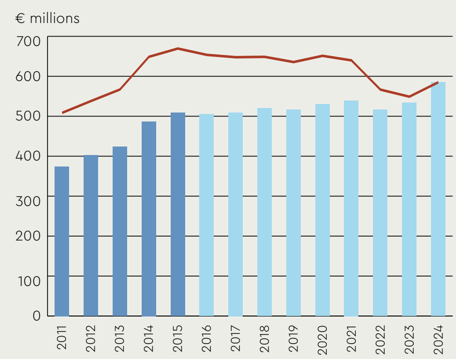


Investments reflect the expenditure incurred by utilities in the year. This explains the relatively large fluctuations in the annual figures, whereas depreciation fluctuates far less, as investments are depreciated for up to 75 years.
** The investments for 2025 and 2026 are budgeted investments reported to DANVA.*

Investments wastewater



Income* drinking water

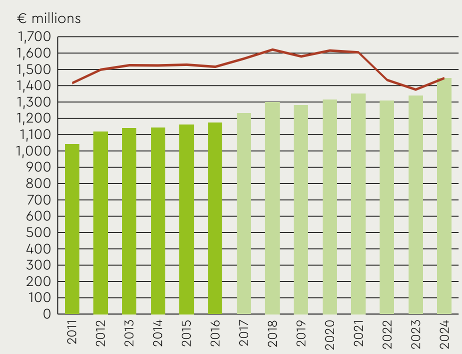


Income shown in the charts consists of:

- Income from core activities relating to abstraction, processing, treatment, transport and supply of water.
- Transport, treatment and discharge of wastewater.
- Other income from core activities.
- Financial income.
- Profit from associated activities.
- Profit from activities with a statutory requirement for independent accounting within the core activities.

Total income for drinking water includes tax on piped water.
**New definition of income in 2017.*

Income* wastewater



The data for the above tables cover all water and wastewater utilities with a billed water volume above 800,000 m³. Therefore, it includes only utilities subject to the Water Sector Regulatory Authority's TOTEX benchmarking: 74 drinking water utilities and 91 wastewater utilities. The bars in the charts are shown in current prices, while the lines are in fixed prices.

Economic Regulation

Water utilities are natural monopolies, since consumers cannot choose which utility supplies their drinking water or which wastewater utility receives their discharges. To create market conditions resembling those in competitive markets—and to limit monopolistic behaviour—water utilities are subject to economic regulation.

Each year, the Water Sector Regulatory Authority sets a cost-based revenue cap for all municipally owned water and wastewater utilities, as well as consumer-owned water utilities that supply over 800,000 m^3 annually. It also sets a regulatory accounting framework for utilities supplying between 200,000 and 800,000 m^3 per year. The revenue cap imposes an upper limit on the firms' total revenue and thereby limits fluctuations in the water tariff. If a utility must perform new tasks imposed or approved by a public authority, it may apply for supplements to the revenue cap. If approved, the supplement is added to the revenue cap, and the water tariff may be raised to cover the extra costs.

To promote efficient operations, annual efficiency requirements are imposed. These consist of a general index-based requirement, reflecting expected productivity changes in the economy, and an individual requirement based on benchmarking, intended to capture an identified efficiency potential. These requirements are implemented as reductions in the revenue cap year by year, meaning utilities must gradually reduce their costs. The aim is to incentivise both efficient operations and prudent investment.

In May 2024, the Government appointed a Water Regulation Committee to provide specific expert recommendations on the design of future economic regulation of the water sector. The committee presented its first interim recommendations on the 26th of June 2025. The committee assesses that corporatisation and revenue-cap regulation have contributed positively to the sector's development, but that revenue-cap regulation no longer aligns with the economic realities facing utilities — particularly the rising investment needs for infrastructure maintenance and the handling of new tasks. Therefore, there is a need to rethink the current revenue-cap regime, to provide water utilities with better conditions to deliver the tasks desired politically. ■

PHOTO: ARWOS

Economic Trends in the Danish Water Sector

Danish water and wastewater utilities are natural monopolies regulated to emulate competitive conditions. All utilities with a billed water volume above 200,000 m^3 annually, as well as all municipally owned utilities, are regulated on income through economic frameworks. If expenditure exceeds income for a period, borrowing is permitted for capital projects, and, specifically for municipally owned utilities, borrowing is to a very limited scope allowed for operational costs. This is because municipally owned firms are subject to the "cash credit rule", which means debt (overdraft) must not exceed €23,33 per inhabitant in the municipality. The Danish water sector, therefore, needs significantly higher savings capital than sectors which are not subject to this rule.

The economic trend charts on page 13 cover all drinking water and wastewater utilities subject to the Water Sector Act with a billed water volume above 800,000 m^3 per year. These utilities are additionally subject to TOTEX benchmarking. Here, utilities' cost efficiency is compared, which can result in an individual efficiency requirement if a utility's revenue cap is higher than its efficient cost level. The benchmarking compares utilities' actual operating, capital and financial costs with their TOTEX net-output measure. TOTEX net-output is the sum of two output measures: OPEX (operations) and CAPEX (capital). These express the average costs of operating a drinking water utility and a wastewater utility, respectively. ■

TEXT: REGNER HANSEN / PHOTO: COLOURBOX

Water Emergency Preparedness:

How Responsibilities Are Allocated

Emergency preparedness in the water sector has been progressively strengthened. Both physical and digital security receive significant attention because of the NIS2 and CER directives. Incidents involving cyberattacks and now also unidentified drones near critical infrastructure have underlined the need for clear allocation of responsibilities so that action can be taken when incidents arise.

GENERAL MAJOR ACCIDENTS AND DISASTERS

Government ministers

Each minister is responsible, within their remit, for planning how to maintain and continue society's functions in the event of major accidents and disasters, including the preparation of emergency plans. Ministers must also, within their remit, set guidelines for emergency planning, considering regions and municipalities.

DRINKING WATER SUPPLY / DRINKING WATER CONTAMINATION

Municipality

The municipality is responsible for ensuring a stable drinking water supply, including handling incidents of drinking water contamination.

The Danish Emergency Management Agency

The Danish Emergency Management Agency may be included by the municipality to assist the municipal emergency services.

Utility

Water and wastewater utilities continually work to improve the security of supply through risk analyses and actions to minimise disruptive incidents.

POWER OUTAGE

Utility

The electricity utility has the primary responsibility for remedying a power outage in the area concerned. Each municipality must prepare an overall emergency plan, which includes situations involving power cuts.

CLOUDBURSTS / EXTREME RAINFALL

Danish Meteorological Institute
The Danish Meteorological Institute is responsible for issuing severe weather warnings.

Municipality
The municipal fire and rescue service has the primary responsibility in cases of flooding affecting urban areas, infrastructure, etc. The municipality also undertakes climate adaptation to minimise the consequences of cloudbursts and extreme rainfall, and may incorporate climate adaptation in its wastewater plan, which describes how wastewater and stormwater are to be managed. Each municipality must prepare an overall emergency plan that includes situations involving cloudbursts/extreme rainfall.

The Danish Emergency Management Agency
The Danish Emergency Management Agency may be included by the municipality to assist the municipal emergency services.

Property owners
Individual property owners are responsible for minimising the consequences of perched groundwater on their own premises.

Utility
Wastewater utilities are, as a rule, responsible for removing wastewater and stormwater in towns and cities. They are also responsible for implementing climate-adaptation initiatives adopted in the municipal wastewater plan.

STORM SURGE

Municipality
The municipal fire and rescue service has the primary responsibility in cases of flooding affecting urban areas, infrastructure, etc. The municipality also undertakes storm-surge protection to minimise the consequences of coastal flooding. Each municipality must prepare an overall emergency plan that includes situations involving storm surge.

The Danish Emergency Management Agency
The Danish Emergency Management Agency may be included by the municipality to assist the municipal emergency services. The agency also has responsibility for two special storm-surge preparedness units on the west coast of Jutland, which were recently transferred from the Coastal Authority.

Property owners
Individual property owners are responsible for minimising the consequences of perched groundwater on their own premises.

CYBER ATTACK

Government ministers
Ministers responsible for essential services must organise security work within their own areas and prepare an information security strategy to strengthen preparedness. They must comply with new requirements for organising security work around the essential service, including requirements to establish cyber and information security in the water sector and to prepare a dedicated strategy for the essential service.

State authorities
State authorities responsible for critical IT systems must each prepare an emergency plan to strengthen preparedness in their area.

Utility
Water and wastewater utilities can join SektorCERT, the cybersecurity centre for critical sectors, which provides sensor monitoring and support for preventing attacks.

Sources: Kristian Anker-Møller, special consultant at the Danish Emergency Management Agency, the Danish Environmental Protection Agency, and Carsten Vejergang, senior consultant at DANVA.

TEXT: JESPER WITH, JOURNALIST / **PHOTO:** ASSENS FORSYNING

Before the Water Comes, Assens Utility Helps Homeowners to Prepare

What will you do as a homeowner when new floodwaters (yet again) reach your house and there is no emergency number to call for help? That is the reality facing homeowners across Denmark, including those living in Assens. Because of this, Assens Utility has launched an initiative to make homeowners as informed and prepared as possible when the floodwater comes.

Assens Utility wants to show that homeowners' concerns and challenges are being taken seriously. In the spring, the utility invited homeowners across the municipality to an evening meeting on the utility's premises called Klimaklar ("Climate ready"). Relevant actors, including emergency services, the municipality, the utility and the local business community, were brought together to explain their contributions to keep water away from public and private property. The event also aimed to clarify the homeowner's responsibility. Several businesses offering solutions to help residents protect their homes were present, for instance, vendors of backwater valves, sewer manholes, contractors, insurance representatives and advisers from the Danish information and advisory platform for coastal and flood protection, stormflodssikring.dk.

Does it help the individual resident?

"The atmosphere was serious but good. I'm sure several people left a little wiser. Some who turned up had already experienced their homes flooding, so they may have gone home disappointed, as we could not provide an emergency phone number. But participants were able to ask questions to professionals and to businesses offering practical solutions that can, at the very least, help," says Christian Malling, Senior Consultant at Assens Utility.

The idea was to make homeowners more aware of their options, rights and personal responsibilities if their home is at risk from storm surge, extreme rainfall or rising groundwater levels.

"One message was that homeowners have more responsibility for securing their own homes than many initially think. That includes timely planning and securing the property well before the water reaches it. It can feel discouraging because it can also be costly. But, for example, investment in backwater valves may save homeowners many problems in future, which could cost far more," says Christian Malling.

In the spring, Assens Utility prepared a new emergency plan, based on recommendations from DANVA and the Danish Emergency Management Agency. The utility is solely responsible for protecting critical infrastructure. Many measures in its toolkit will undoubtedly help residents and their homes, but in principle, that is a side effect, since the utility, for instance, cannot be called to pump water away from individual homes. Nor can the municipal emergency services be called by private homeowners. Nonetheless, both the emergency services and the utility work intensely during flooding to protect the town and to pump water away from their own installations or installations critical for society.

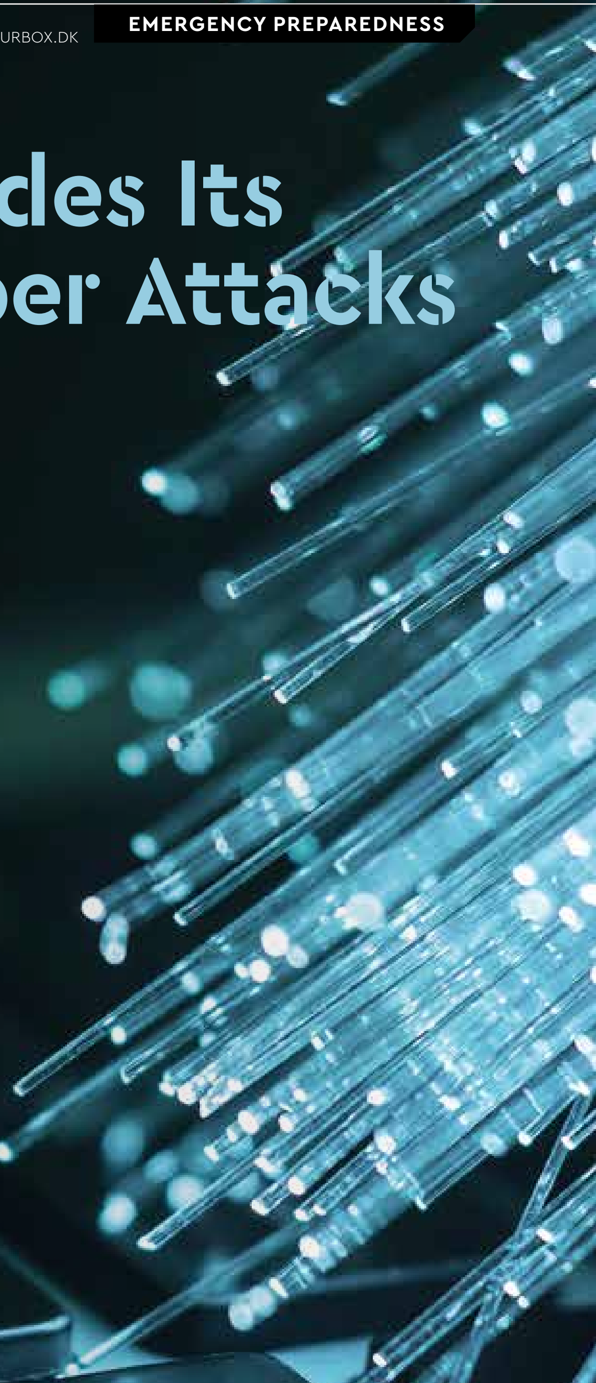
Further Dialogue Initiatives

In June, Assens Utility hosted a Citizen Preparedness course, *Klimaklar – Så du kan tage ansvar* ("Climate-ready – So you can take responsibility"). The course neatly follows on from the utility's prior event, as it also prepares homeowners for rising groundwater levels, storm surge and extreme precipitation.

"We will also expand our information and dialogue with residents, so they know what to expect from us. Among other things, they should know that we do everything possible to avoid pump failures, because then we cannot pump water away in a crisis. So, we do everything we can to protect and secure IT systems and the power supply. For example, we participate in Samaqua, a collaboration on cyber security," says Christian Malling. ■

TEXT: JESPER WITH, JOURNALIST / **PHOTO:** COLOURBOX.DK

SektorCERT Upgrades Its Efforts Against Cyber Attacks



SektorCERT, the cybersecurity centre for critical infrastructure, is upgrading its support with 24/7 staffing. The aim is to react even faster when cyber threats are detected against utilities in electricity, gas, heat and water. At the same time, NIS2 has entered into force with new security requirements.

There are ever more cyberattacks on critical infrastructure. Several thousand per day, ranging from simple attempts where someone has spotted an IT endpoint to target, to sophisticated, targeted attacks. Fortunately, very few succeed. This is due to both utilities' and businesses' own upgrades to cybersecurity and participation in the SektorCERT collaboration. Danish District Heating, Green Power Denmark, Energinet and DANVA jointly own SektorCERT and are represented on its board. The collaboration provides utilities with a confidential network in which to share experiences of cyber incidents and receive ongoing updates on the threat level, as well as assistance during cyberattacks.

"We are now upscaling to 24/7 staffing because there is a need to monitor IT systems even better and to react even faster if something suspicious is observed at utilities. We have established a sensor network at utilities in such numbers that we now have a solid basis for spotting what is attacking the sector," says Jørgen Christensen, Chair of SektorCERT, and CTO of Green Power Denmark.

SektorCERT has frequently warned individual utilities under attack, and it now judges that an upgrade is needed. Jørgen Christensen points out that utilities' own IT departments remain responsible for monitoring. But SektorCERT's 24/7 staffing will strengthen advice and support and make response times even shorter, which can be crucial.

Implementing NIS2

SektorCERT's upgrade is not directly linked to the implementation of NIS2 (as of the 1st of July 2025), but it supports the directive's purpose of improving and strengthening the security of network and information systems across the EU, ensuring a high, uniform level of cyber and information security. For utilities, NIS2 entails a changed way of working, for example, placing greater responsibility on management and boards to ensure compliance. Ultimately, fines may be imposed.

Jørgen Christensen notes that the sector has worked constructively with the authorities on implementing NIS2, because the benefits are clear. If you are hacked, the consequences for the utility are severe, and it becomes difficult to fulfil obligations as critical infrastructure. ■

SECURITY THROUGH SEKTORCERT

As members of DANVA, water utilities are eligible for SektorCERT membership. Access simply requires each utility to register on SektorCERT's website. The more utilities that participate, the stronger cybersecurity becomes across the utilities sector.

Drinking Water Utilities in DANVA Benchmarking and Statistics

In 2025, 78 drinking water utilities reported 2024 data to *DANVA Benchmarking and Statistics*. Together, the utilities operate more than 1,832 abstraction wells, 143 wellfields, 259 waterworks and 33,465 km of distribution mains. The participating utilities abstracted approximately 227 million m³ of drinking water and supplied just over 3.82 million people. Total completed investments amounted to around €406 million, and actual operating costs totalled €192 million (see participating utilities master data and overall key figures at the back of the publication).

Large increase in investments

The summary of completed investments by drinking water utilities in 2024 shows a total investment of €1.73 per billed m³. This is a very substantial increase compared to last year, where the decrease in investments could be attributed to several large utilities not investing the expected level in 2023. Those major investments have instead been capitalised in 2024, producing an exceptionally high investment level driven by a few large utilities' projects.

It is usual that the utilities expect to invest more over the next two years, but when the year has passed, investments are typically lower than the planned level. Perhaps 2024 will be the exception.

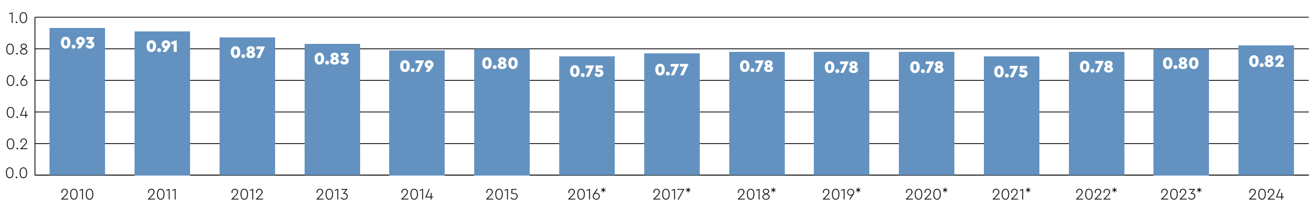
Investments in 2024 are distributed as follows (32 utilities): 61% in the distribution network, 35% in abstraction wells and waterworks, and the remaining 4% in the category other. The percentages are slightly misleading this year because some of the large utilities that invested in new waterworks are not included in this statement.

OPEX, CAPEX and TOTEX

When the price cap was implemented in 2010, only actual operating costs were subject to efficiency requirements, so utilities aimed continually to minimise operating expenditure. In 2016, the TOTEX regulation was introduced, and the definition of actual operating costs changed. From there, it included operating expenditure for environmental and service targets, a portion of previously *one-to-one pass*-through costs, and any selected related activities. Under TOTEX benchmarking, the efficiency requirement was extended to cover both operating and capital costs. This means there is always a trade-off between maintaining equipment and investing in new assets. ■

OPERATING COSTS, 2010 - 2024

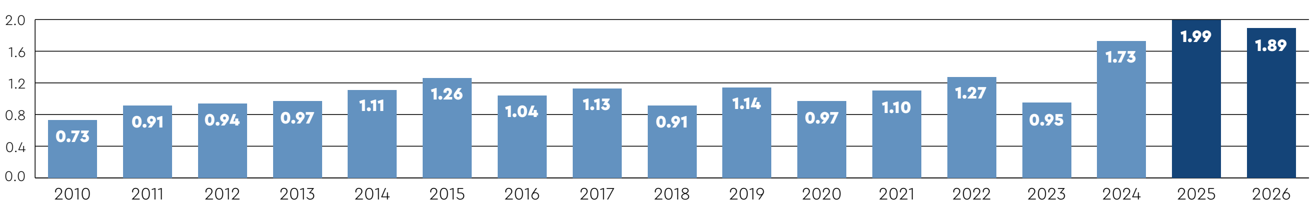
€/M³ OF BILLED WATER (2024 PRICES)



2010–2024 Actual operating costs (57–78 utilities)
* New calcultation of actual operating costs

INVESTMENTS, 2010 - 2026

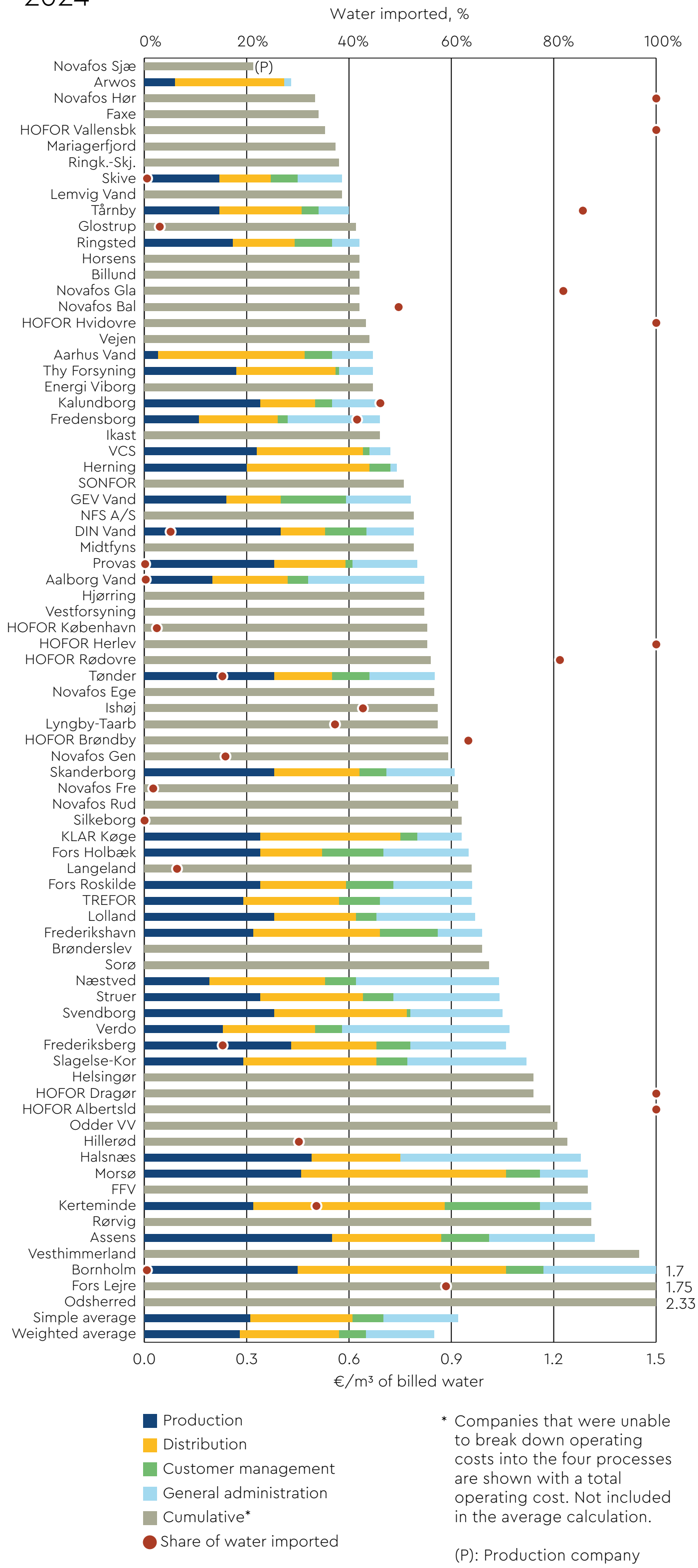
€/M³ OF BILLED WATER (2024 PRICES)



2010–2024: Completed investments and renovations (54–78 utilities)
2025–2026: Planned investments and renovations (78 utilities)

PHOTO: SAMN FORSYNING

ACTUAL OPERATING COSTS DRINKING WATER, 2024



Stable Level of Operating Expenditure

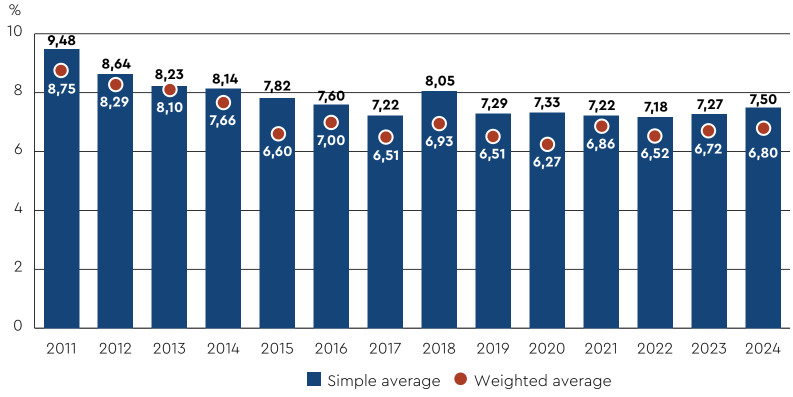
Drinking water utilities' actual operating costs are subject to efficiency requirements under the Water Sector Act and are included in comparisons of utilities' efficiency. Actual operating costs excluding VAT, taxes, non-controllable costs and any related activities were €0.82 per m³ of drinking water sold in 2024, a slight 1% increase compared to 2023.

There is a wide variation across utilities between the lowest and highest operating costs. The explanation lies in the different operating conditions. Influencing factors on production costs include geological conditions, access to and quality of groundwater, the extent of groundwater protection, and the necessary treatment steps before water is pumped into the network. Influencing factors regarding distribution costs include population density, size of the network, customer density, and the condition and age of the network.

The actual operating costs were distributed as follows for 33 drinking water utilities: 33% for production of clean water (boreholes, wellfields and waterworks), 34% for distribution, 10% for customer service, and 23% for general administration. This is almost the same level as in 2022. ■

PHOTO: THY FORSYNING

NON-REVENUE WATER (DISTRIBUTION SYSTEM)



Non-revenue Water has Increased Slightly

In Denmark, non-revenue water (NRW) is well managed and drinking water utilities are characterised by generally low levels, also compared with most other European countries. DANVA defines NRW as the difference between the amount of water introduced to the distribution system and the amount of billed water. When looking at the 50–52 drinking water utilities that have participated in DANVA Benchmarking over the past 13 years, NRW in the distributing network have decreased since 2011 and has stabilised around 7.3%. In 2024, there was, however, a small increase in NRW in the distribution system, with an average of 7.50%. This is caused by a few utilities experiencing higher NRW than usual, which increased the simple average. In 2018, NRW were somewhat higher, which is attributable to an unusual hot summer drying up the soil and "stressing" the network, leading to many additional bursts.

Two measures, in particular, have mattered for Denmark's low losses: the strong focus on installing water meters in the 1980s, followed by a general requirement in 1993 to install meters at all consumers. This provided a solid data basis for leakage detection. At the same time, a penalty fee was introduced for utilities with NRW above 10% when comparing the amount of water billed and distributed to the system. The penalty fee should create an incentive to maintain the network.

Reducing non-revenue water

The water utilities' initiatives to reduce NRW are driven by an ongoing assessment of when it is cost-effective to reduce losses relative to the cost of the lost water. The general point of view is that NRW of around 8% is desirable. Here, the utility remains comfortably below the penalty threshold and effectively has "savings" on costs compared to achieving a lower level of NRW. This is because the cost per percentage point of reduction increases significantly as NRW decreases. A leakage strategy should always balance resource availability against the costs of network renewal. In some cases, it may be more economically favourable to pump, treat, and allow a small amount to return to the ground, recharging the aquifer, than to pursue the smallest, most expensive leaks.

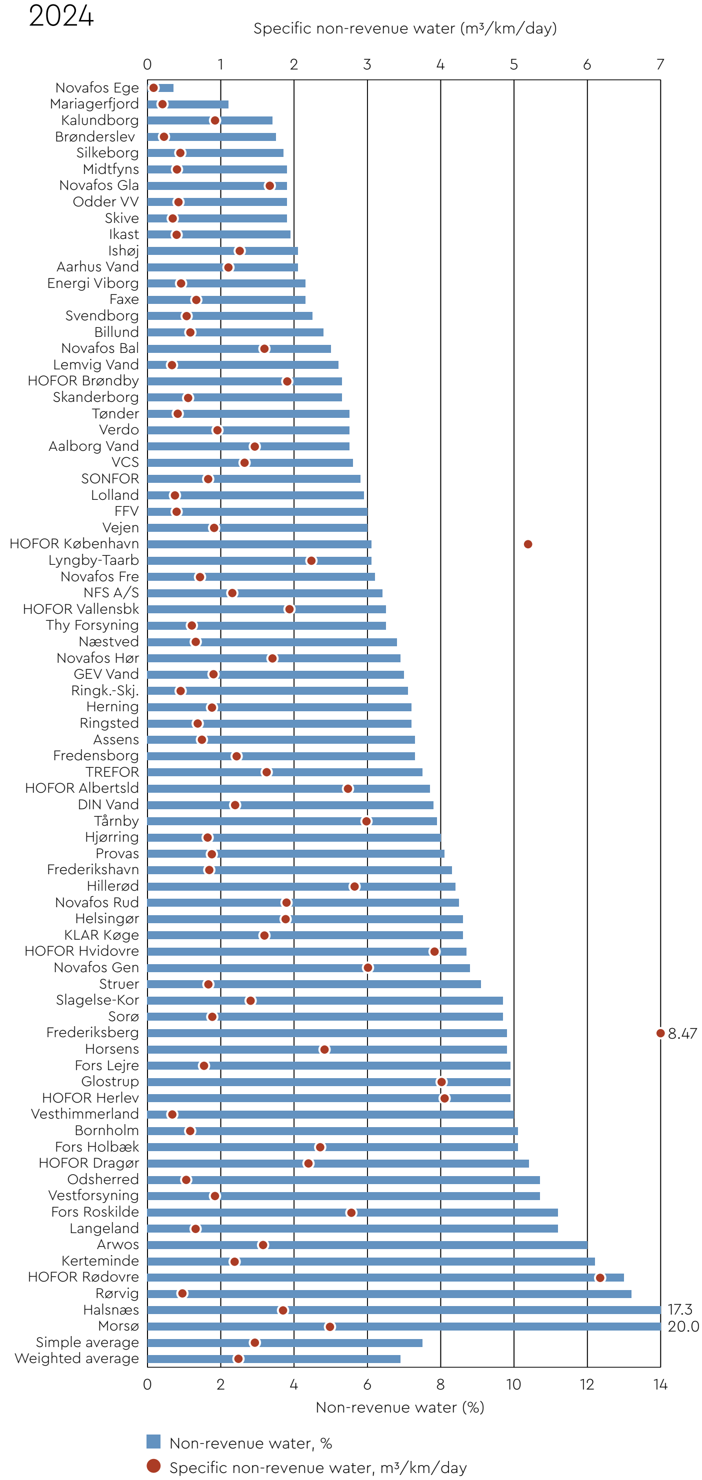
Leakage detection

There are many methods which can help identify leaks in the distribution network and thus reduce losses. Examples include district metered areas where flow measurement installed in the district areas provides better data for leak detection by, e.g. analysing night flows. Replacing manually read meters with remotely read online meters can also be a source to detect NRW by providing highly detailed data and acting as an alarm in cases of unexpected consumption. Various acoustic technologies can also indicate leaks. In addition, utilities can improve monitoring, speed up repairs and embed asset management in renewal planning.

Different ways to illustrate non-revenue water

NRW in the distribution system can be illustrated in several ways, including a percentage or volume per km of mains per day. Both figures are based on the difference between the amount of water entering the distribution system from the waterworks and the amount of billed water in the utility's own supply area. The calculation of NRW also includes volumes used for main flushing during renewals, firefighting, etc., which are not strictly losses. Alternatively, the International Infrastructure Leakage Index can be used to report water losses. This method is more in-depth and compares real water losses into the ground to the unavoidable losses, which are calculated based on the distribution network configuration and operating pressure. ■

NON-REVENUE WATER (DISTRIBUTION SYSTEM), 2024



No subsequent water loss corrections have been taken into account, e.g., water volumes used to flush pipes in connection with contaminants. An exemption is required to be able to subtract these volumes of water from the water loss calculation.

Drinking Water Utilities' Non-revenue water

NRW in the mains system is defined as the water volume distributed in the network, for which no revenue is billed. Losses vary by utility and are often reported in two ways—either as a percentage or as the specific loss (m^3 lost per km per day). This year's summary for 77 utilities shows a simple average of 7.5% or 1.47 m^3/km/day. Thirteen utilities have NRW above 10% and must therefore pay the penalty fee.

Any given utility may see small year-to-year fluctuations without a clear explanation. Replacement of customer meters or bulk meters at waterworks can, however, result in fluctuations compared with prior years. Some utilities experience major pipe bursts that markedly increase losses, as water continues to spill until the burst is located and repaired. The age and materials of the network also have a major influence on burst, and the risk of loss due to accidental damage is higher in cities with high underground utility density.

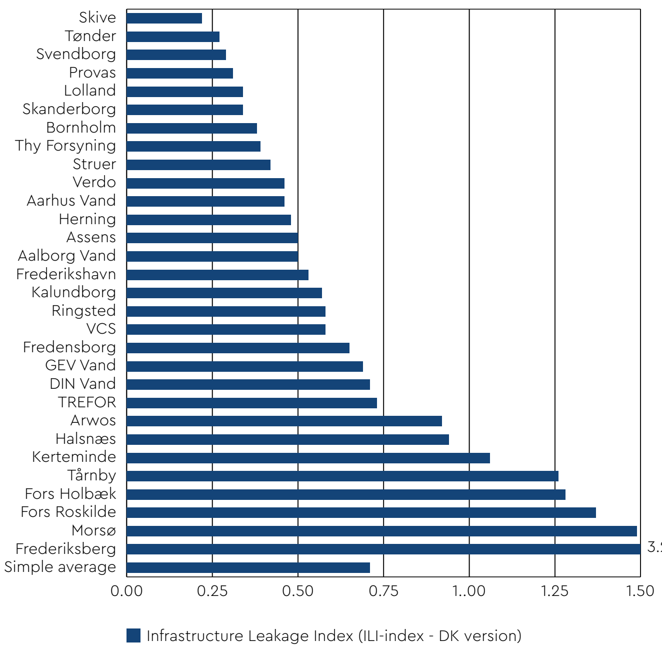
Note: no ex-post corrections are made here for volumes used for network flushing during contamination events, etc. A dispensation is required to deduct such volumes from reported losses. ■

Infrastructure Leakage Index

DANVA calculates water losses using the Infrastructure Leakage Index (ILI). The index is an international measure indicating the ratio between physical (real) losses—water seeping into the ground—and a theoretical loss called the unavoidable loss. If ILI < 1, it indicates that real losses are less than the theoretical minimum. ILI enables comparison across utilities with different framework conditions and across countries.

Real physical losses are calculated as the difference between the amount of water into the distribution system and the billed water volume. Furthermore, authorised unbilled consumption, such as water for firefighting and main flushing after repairs, is subtracted, as well as unauthorised consumption and metering uncertainty. Unavoidable loss is based on network size, density and pressure and applies to a well-managed network of relatively recent vintage. The Danish ILI calculation is based on the 1999 method and partly on assumptions (e.g., length of private service pipes and average network pressure). Metering uncertainty is not included in the Danish calculations, and for this reason, we refer to it as "ILI Index – DK version" ■

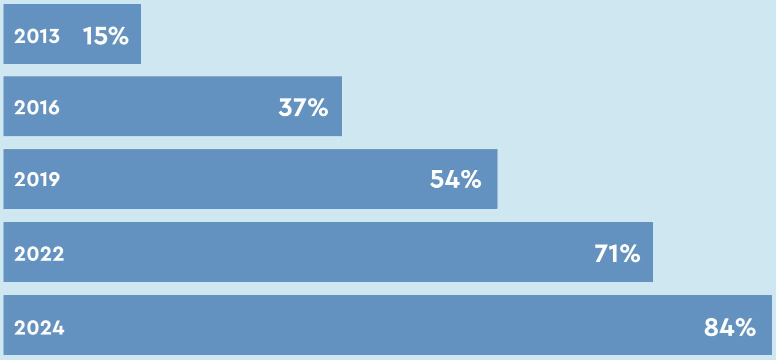
INFRASTRUCTURE LEAKAGE INDEX (ILI), 2024



More than 80% of Water Meters are Remotely Read

Each year, the share of remotely read meters increases. In 2024, 78 utilities reported that remotely read meters accounted for 84% of their 998,785 meters. Remotely read meters range from early models that require annual drive-by readings to the latest smart meters, which can transmit consumption data to utilities at sub-minute intervals. The share increases gradually because meters are only replaced at the end of life, typically after 8–12 years.

SHARE OF REMOTELY READ METERS



Switching from manually read to remotely read meters offers many benefits:

- Significant administrative savings in reading and billing.
- Access to a rich, detailed dataset that supports leakage detection and renewal planning.
- Improved customer service. For instance, residents can monitor their consumption online or receive alerts in case of unusual usage, such as a pipe burst at their holiday home. However, these advantages must be considered against the fact that operating costs often rise slightly when remotely read meters are introduced. ■

Monitoring Drinking Water Quality

The most important task for a drinking water utility is perhaps to ensure that the quality of the supplied water is satisfactory. This is achieved through continuous monitoring, improvements to the network and extensive preventative controls based on the requirement for Documented Drinking Water Safety (DDS). Control involves analyses of selected chemical parameters such as iron, manganese and pesticide residues, as well as microbiological parameters such as *E. coli* and total viable counts.

Control programme

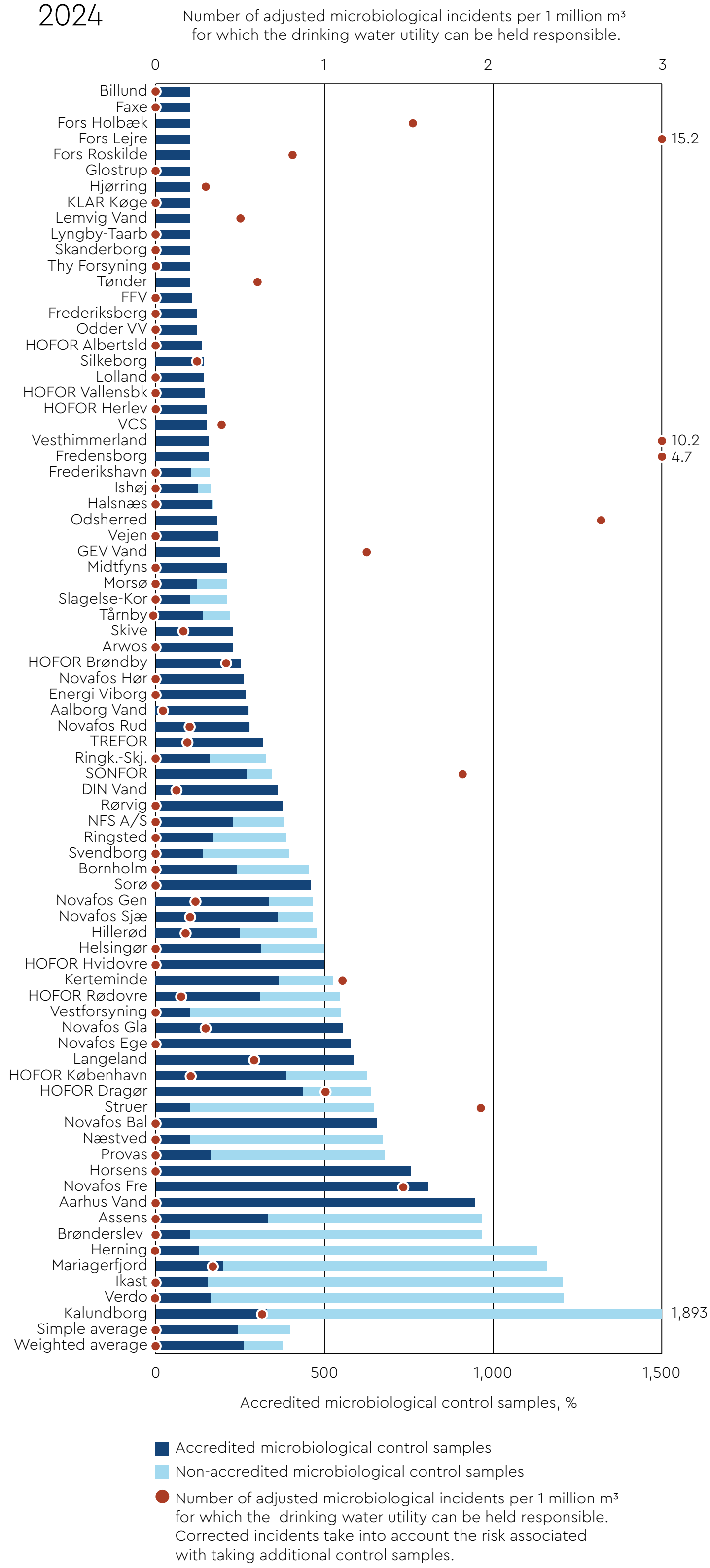
Based on the size of the drinking water utility, the supervising authority agrees on a number of mandatory samples to be analysed by an accredited laboratory and carried out throughout the year. In addition, each utility may schedule additional samples if it wishes a higher sampling frequency than the authority requires. The additional samples may be accredited or non-accredited samples that the utility can perform itself, using, e.g. various quick tests.

Microbiological contamination

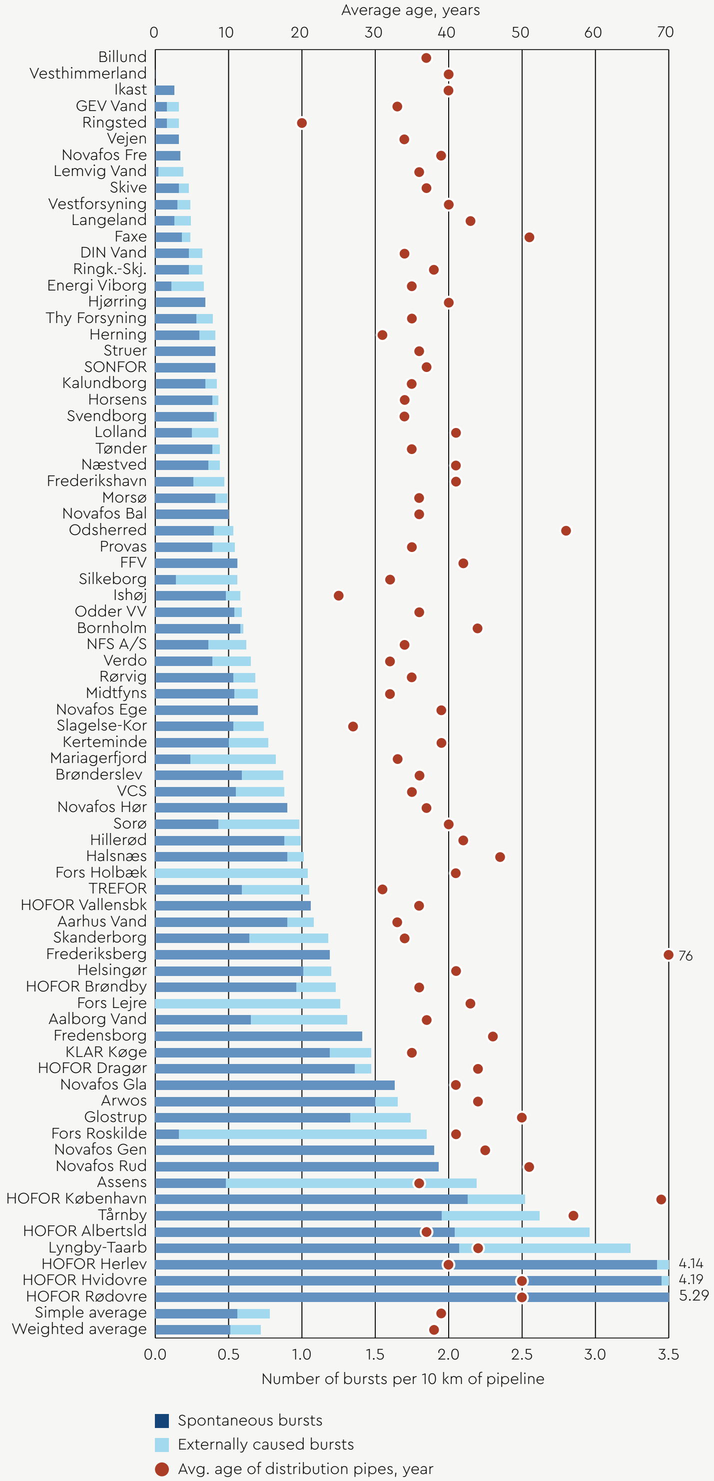
There is particular focus on microbiological contaminants such as E. coli, as these can indicate the presence of pathogens. Across all 78 utilities, 16,484 accredited microbiological analyses were performed in 2024. This is an increase of 15% compared to 2023. Of these, 6,311 were mandatory samples, and the remaining were additional control samples. 99.0% of accredited samples met all requirements. If any parameter in a sample exceeds the quality requirements, it is recorded as an incident. An incident does not necessarily mean the water is harmful to health, but it does mean further investigation is required. In 2024, the drinking water utilities had a total of 240 samples with microbiological exceedances, causing incidents. Of these, 168 incidents were attributed to the utility's responsibility, while the rest were attributed to issues on private installations upstream of the tap.

In 2024, 10 utilities experienced an incident requiring the issue of a boil-water advisory due to exceedances of microbiological parameters. In total, these incidents affected 24,177 addresses and lasted between 1 and 10 days before the advisory was lifted. ■

MICROBIOLOGICAL WATER QUALITY ANALYSES, 2024



PIPE BURST FREQUENCY IN THE DISTRIBUTION SYSTEM, 2024



Pipe Bursts in the Distribution Network

The network from the waterworks to the property boundary is owned by the water utility and comprises mains and service connection pipes. The last few metres from the property boundary into the water meter are the private service pipes, which are owned by the property owner.

Most utilities have a network with an average age of 30–45 years, with an overall average of 39 years.

Registration of pipe bursts is an important figure since the number of breaks indicates the network condition. Breaks can occur anywhere between the waterworks and the customer's meter and are categorised as either spontaneous or caused by external events.

- Spontaneous bursts on mains or service connection pipes, where factors such as asset age, pipe material, geology, and the quality of workmanship are typical causes.
- Externally caused bursts are often due to excavation damage by contractors.

The 78 utilities participating in *DANVA Benchmarking and Statistics* recorded 2,656 bursts in 2024. This is an average of 34 per utility, one more than in 2023. Externally caused breaks account for 28%, and nearly half of the bursts occurred on service connection pipes.

Benchmarking shows that 18 utilities registered 773 breaks in their own pipe system. They were also aware of 48 bursts on private service pipes, of which two out of three were classified as spontaneous. The true number of breaks on private land is probably much higher, as utilities typically only learn about private bursts if the owner cannot locate the shut-off valve during repair or if he or she hopes the water utility will fix and pay for the damage. ■

PHOTO: STEEN WENGEL, VERDO VAND

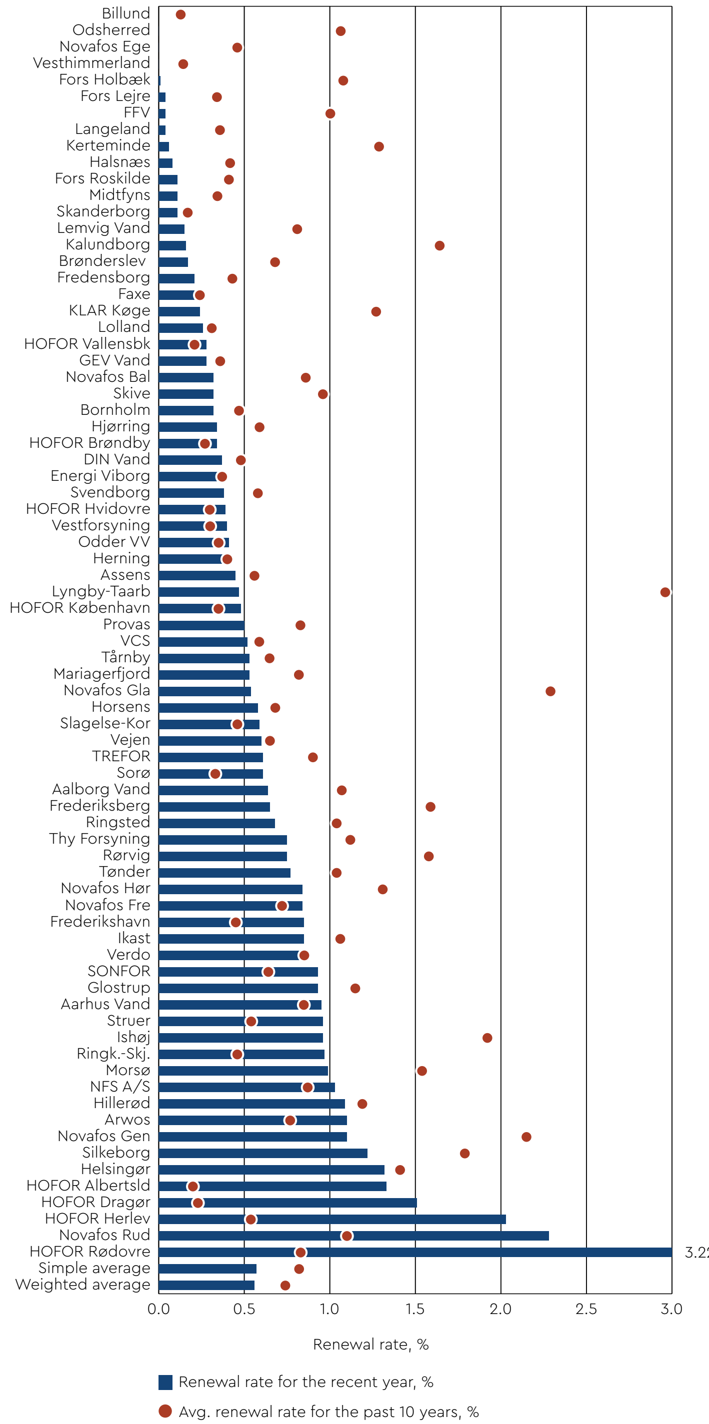
Renewal of the Distribution System

Drinking water pipes are renewed to maintain good drinking water quality. Many factors influence when the network should be renewed. This includes, for example, materials, geological conditions, and age. Drinking water mains may also be renewed alongside the renovation of sewers or district heating pipes to take advantage of joint trenching.

This means that sometimes, to avoid having to dig up the road again later, a drinking water main is renewed even though it might have lasted a little longer. In some cases, mains are also renewed with other infrastructure and construction projects, which can require water utilities to relocate or extend their mains even if they are not at the end of life.

The distribution network's renewal rate shows the percentage of the network that has been replaced or renovated either in the last year or the ten-year average per annum. The statement does not include new mains. The 76 utilities that reported an annual renewal rate had a weighted average of 0.54%, with very wide variation between utilities. Some did not renew any of the network last year, while four utilities renewed more than 2% of their networks. The expected service life of pipes is 75 years, and 28 utilities reported the average age of mains excavated. It shows that the weighted average age of the 180 km of mains they excavated was 56 years. According to a DANVA survey, water utilities rerouted mains worth more than €33 million in 2020. ■

RENEWAL RATE OF DISTRIBUTION PIPES, 2024



Energy Accounts: Drinking Water

Most of the energy consumption for drinking water utilities stems from electricity used to pump water from abstraction wells to waterworks and then, with distribution pumps, further out to customers. There are limited opportunities to generate energy from normal water operations, although utilities can produce limited electricity from solar power or possibly from pressure-reducing turbines in the water mains. In addition, larger water mains can produce heat via heat pumps. This can either be used by the utilities themselves or for district heating or larger private heat consumers.

Energy in 2024

There is considerable variation in the electricity and energy used by Danish drinking water utilities to deliver one m³ of clean drinking water to customers. Roughly 80% of energy is used at wellfields and waterworks, and about 20% in the distribution network.

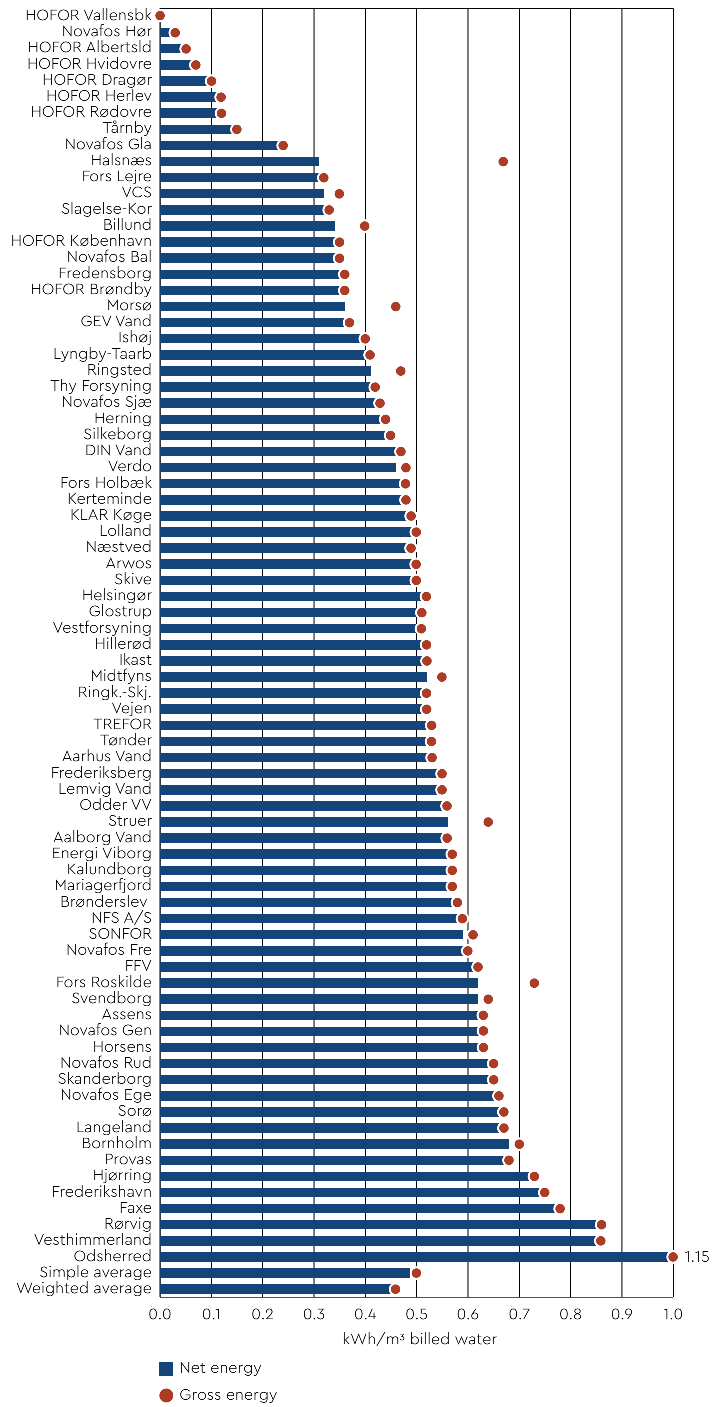
The average weighted gross energy consumption from electricity and heat was 0.46 kWh per m³ billed water for drinking water utilities. The weighted net energy consumption was 0.45 kWh per m³ sold. For most utilities, gross and net consumption are identical because only a minority have any on-site energy generation.

Most energy use is electricity, with a net electricity consumption of 0.44 kWh per m³ billed water once self-generated power is deducted. ■

Drinking water	Electricity	Heat	Total
Purchased energy MWh	102,999	3,504	106,503
Self-produced energy consumption MWh	1,435	65	1,500
Self-produced sold energy MWh	461	13	474
Net self-sufficiency, %	0.45	0.37	0.45
Total self-sufficiency, %	1.82	2.18	1.83

Based on 78 drinking water utilities. See more about definitions, key figures, and self-sufficiency rates on page 36.

NET AND GROSS ENERGY CONSUMPTION OF DRINKING WATER UTILITIES, 2024



The Water Sector's Climate Accounting Model for Operations

The Danish Water Sector has a climate accounting model for operations, which in Danish is called the "Parismodel". The purpose of the Water Sectors' Paris Model is to create a common Danish account of the most significant emissions associated with operating water and wastewater utilities. It was developed in 2024 in a collaboration between the Danish Environmental Protection Agency and DANVA, building on a 2021 version. The aim is to quantify the climate footprint of operations, so utilities become more aware of where the largest emissions and greatest opportunities for reduction are located. It also provides a common Danish baseline for the sector's footprint, enabling informed discussion and dialogue.

The climate accounting model focuses on the most relevant process-related operational emissions. It records the climate footprint in kilograms CO_2e, and the goal is for the model to be practical and to include the key items while remaining relatively simple and manageable, so that as many utilities as possible will apply it.

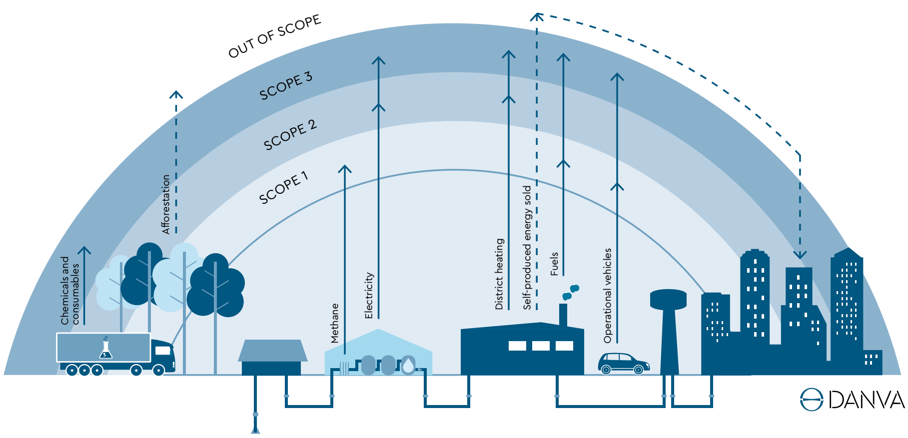
The figures show the emission items included in the Water Sector's climate accounting model for operations and the scope to which they belong. Scopes 1, 2 and 3 are used to compile the greenhouse gas emissions from the sources and to calculate the climate footprint. In addition to in-scope emissions, the model contains a statement of measures undertaken by water utilities that counteract or reduce their climate impact. Out of scope items are not used to calculate the footprint but allow the utilities to highlight measures that benefit the climate. The model does not allow the inclusion of carbon credits, and it accounts only for the most significant operational greenhouse gas emissions. ■

Facts

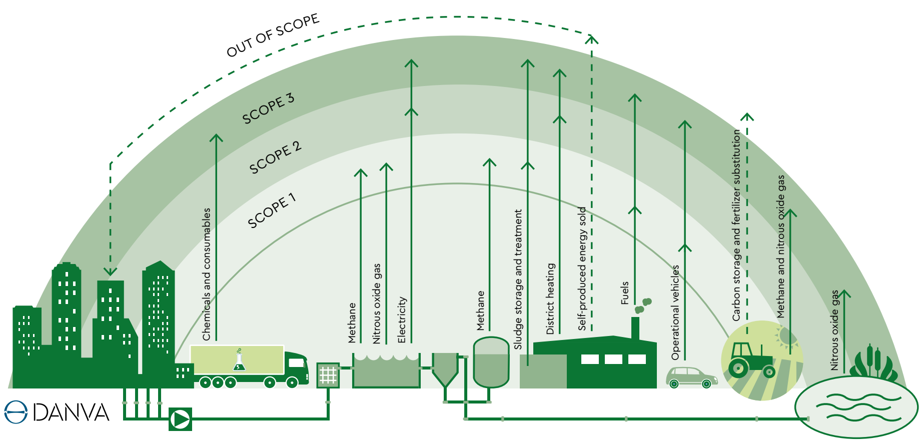
Scope 1 covers direct emissions under the utility's control.
Scope 2 covers indirect emissions from the generation of electricity, district heating and district cooling.
Scope 3 (operations) covers other indirect upstream and downstream emissions in the value chain related to operations.
Out of scope covers removed and avoided emissions in the value chain.

Want to know more about the model? Contact Line Møller Ringgaard, lmr@danva.dk.

DRINKING WATER – EMISSIONS FROM OPERATION



WASTEWATER – EMISSIONS FROM OPERATION



TEXT: LINE MØLLER RINGGAARD, DANVA / **PHOTO:** MILJØSTYRELSEN

The Water Sector Raises Its Climate Ambition with the Paris Model 2.0

Another round of submissions to the Environmental Protection Agency using the Water Sector's Paris Model for an energy- and climate-neutral water sector has been completed, and once again, the level of participation is high. The participating utilities cover approximately 80% of the billed water volume for both wastewater and drinking water. This points to a sector united in its climate and energy work.

The purpose of the Paris Model is to create a common Danish account of the most significant process-related emissions associated with operating water and wastewater utilities. In this way, the sector becomes more aware of its climate and energy performance.

This round of surveys uses an updated and expanded model—the Paris Model 2.0—developed in close collaboration between the Environmental Protection Agency and DANVA. The model reflects the growing focus on sustainability and meets demand for a more comprehensive method aligned with international standards.

"It is very positive that the Paris Model 2.0 now provides an even more nuanced picture of the sector's climate footprint—also in an international context. We welcome the strong collaboration with DANVA, which will also continue the model in their annual survey and help ensure utilities have a practical tool to strengthen their climate action," says Lykke Feld Andersen, Head of Drinking Water at the Environmental Protection Agency.

Climate Climbs the Agenda

Results from the national survey using Paris Model 2.0 show that utilities are increasingly putting climate and energy on the agenda.

Lykke Feld Andersen, Head of the Water Resources at the Danish Environmental Protection Agency.

TARGETS FOR AN ENERGY- AND CLIMATE-NEUTRAL WATER SECTOR

Denmark has a target of a 70% CO_2 reduction by 2030. All sectors must help deliver this ambition, and the target for the water sector is to be energy- and climate-neutral by 2030. This was decided based on the first survey using the "Paris Model for the Water Sector", carried out by the Ministry of the Environment in 2021. The objective applies to utility operations and is a goal for the sector, not for individual utilities, since conditions vary greatly from one utility to another.

Results from the Danish Environmental Agency's report on the water sector's climate and energy performance

	DRINKING WATER		WASTEWATER	
	Ton CO_2e	g CO_2e/m^3	Ton CO_2e	g CO_2e/m^3
Scope 1	4,049	20	148,173	649
Scope 2	6,769	34	24,111	106
Scope 3 (operation)	11,237	56	67,516	296
Total in scope	**22,055**	**110**	**239,800**	**1050**
Removed emissions	-21,168	-	-21,628	-
Avoided emissions	-13,111	-	-75,383	-

Industry figures for the climate footprint are drawn from the Environmental Protection Agency's report on the Water Sector's Paris Model 2.0: Energy and climate accounting for operational (process) emissions from Danish drinking water and wastewater utilities, 2025. The industry figures are based on 2023 data for 78 drinking water utilities (80% of billed water volume) and 71 wastewater utilities (84% of billed water volume).

68% of utilities now have a goal for energy neutrality or are in the process of establishing one, up from 51% in 2021. For climate neutrality, the figure has increased to 77%, from 54% in 2021.

"It is very encouraging to see more utilities working purposefully with both climate and energy goals. It shows a sector with strong commitment and a willingness to lead the green transition," notes Lykke Feld Andersen.

Tap Water Far Ahead of Bottled Water

If you want to make the best climate choice when you are thirsty, tap water is the winner. Results from the national survey with Paris Model 2.0 show that the footprint of tap water is more than 1,700 times lower than that of bottled mineral water in glass when the entire operations-related value chain (Scopes 1, 2 and 3) is included.

"This is a clear example of how everyday choices can make a difference," says Lykke Feld Andersen.

"By choosing tap water over bottled water, you help both the climate and your wallet—so it is a very good idea to remember your reusable bottle."

The Road to Climate Neutrality

Denmark has a national objective for the water sector to become energy- and climate-neutral by 2030. The Paris Model 2.0, which was developed at the request of the utilities, makes climate neutrality harder to achieve because the updated model includes more significant emission sources than the first version. This raises the level of ambition and increases the calculated footprint, because more is now included. The result is, however, a more reliable picture of emissions and better aligned with international standards.

The new ambition level means the sector does not expect to reach climate neutrality in 2030 or 2035. Nevertheless, Lykke Feld Andersen stresses that the picture is positive: the survey shows the sector will continue to improve its climate and energy performance and expects to reduce net emissions by 86% by 2035.

"I am very pleased to see how ambitiously the utilities are working on this agenda. The new model and the latest round of submissions show a sector that has systematically reduced emissions and wants to do even more. Green energy and technological solutions play a key role here." ■

VOLUNTARY NATIONAL SURVEY OF ENERGY AND CLIMATE PERFORMANCE

In the winter of 2024/2025, the Danish Environmental Protection Agency conducted a voluntary national survey of the water sector's energy and climate performance based on the Paris Model 2.0. The first Paris Model from 2021 stemmed from the national objective of an energy- and climate-neutral water sector, while the updated version was created in response to utilities' wish for a broader and more comprehensive accounting. In the survey, the Agency focuses on utilities under the Water Sector Act and reports the sector's overall energy performance, climate footprint, and avoided and removed emissions for 2023, along with expectations towards 2035.

Water Utilities' Climate Footprint from Operations

DANVA is proceeding with the Water Sector's climate accounting model for operations, the Paris Model 2.0. DANVA is using it to quantify operational climate footprints in tonnes CO_2e and grams CO_2e/m^3 for producing and distributing drinking water and for transporting and treating wastewater. In addition, the model records the climate benefits of measures undertaken by utilities in the form of either removed or avoided emissions.

The table shows the sum of utilities' climate footprints across Scopes 1, 2 and 3, as well as removed and avoided emissions related to operations.

The table indicates that, for drinking water, most greenhouse gas emissions arise in Scope 3, mainly due to chemical consumption and upstream emissions associated with purchased electricity. For wastewater, most emissions arise in Scope 1, where emissions from nitrous oxide formation and methane leakage constitute 60% of a wastewater utility's total footprint. The footprint for producing drinking water is generally lower than that for treating wastewater, because wastewater treatment generates potent greenhouse gases and typically uses more energy and chemicals.

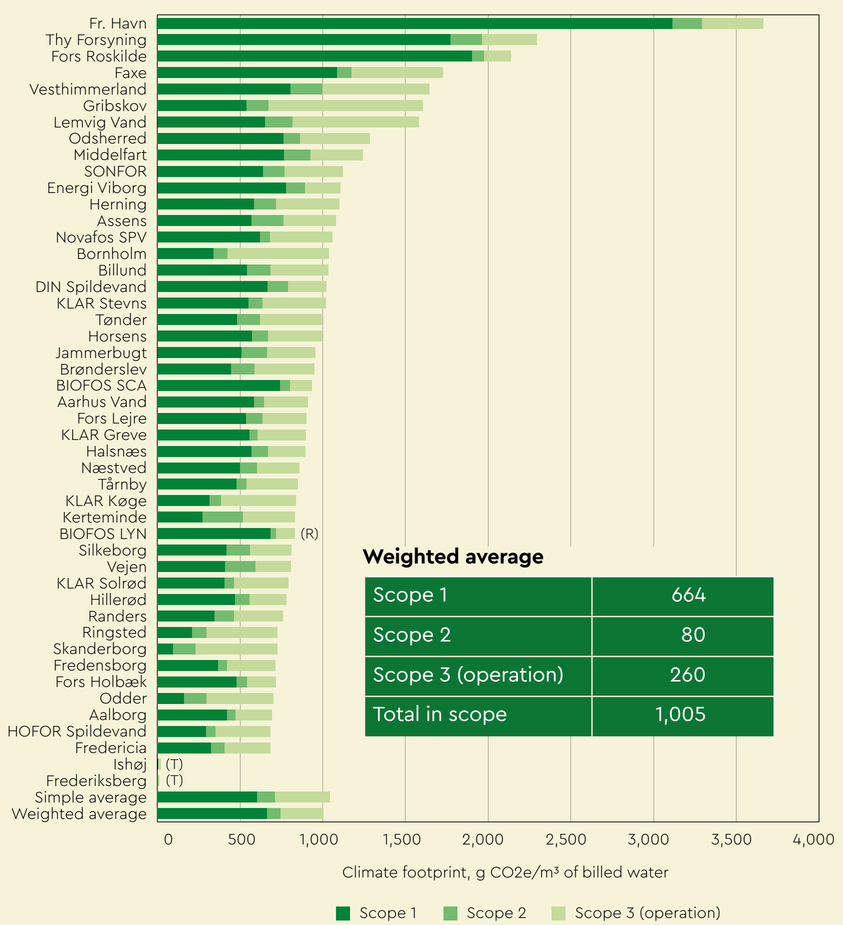
Beyond the climate footprint itself, the table also shows that utilities have many climate-positive initiatives that benefit society by removing emissions from the atmosphere through carbon storage or by reducing emissions in their value chain via avoided emissions. Carbon storage can be achieved through, for example, afforestation or the application of sewage sludge to agricultural land; afforestation in particular helps reduce atmospheric CO_2. Avoided emissions can come from, for example, energy sales that substitute fossil energy, or from water softening, which reduces consumption of items such as soap and extends the lifetime of consumers' appliances. Avoided emissions are especially significant for wastewater utilities and often arise from the substitution of mineral fertiliser with sewage sludge.

The figures show climate footprints in g CO_2e/m^3 by Scopes 1, 2 and 3 for individual utilities. Emission magnitudes within and across scopes can vary between utilities due to water composition, processes and consumption. For example, emissions related to sludge treatment may appear in Scope 1 or Scope 3 depending on whether the utility

tons CO_2e	DRINKING WATER	WASTEWATER
Scope 1	2,614	130,169
Scope 2	5,099	16,157
Scope 3 (operation)	8,502	51,685
Removed emissions	-17,772	-14,066
Avoided emissions	-17,395	-53,970

DANVA calculation with 2024 data, based on 55 drinking water and 64 wastewater utilities. Removed emissions: afforestation, carbon storage from sludge management. Avoided emissions: softening, energy sold, and fertiliser substitution.

CLIMATE FOOTPRINT BY SCOPE, WASTEWATER, 2024

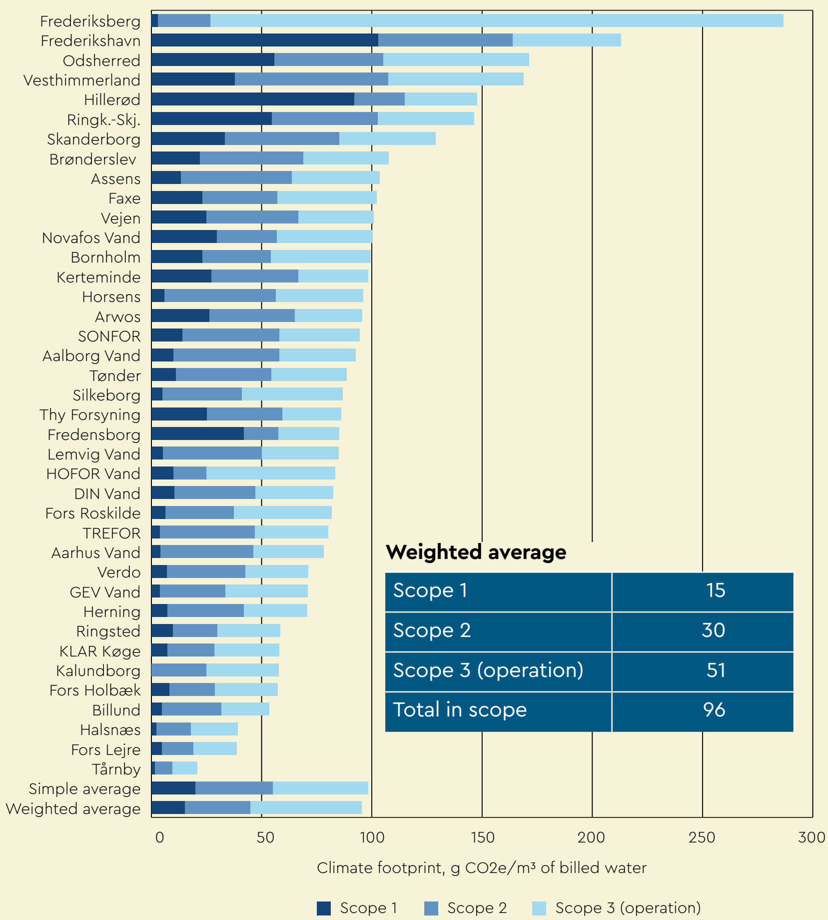


treats sludge in-house or it is handled externally. In wastewater, Scope 1 emissions are particularly influenced by nitrous oxide production linked to the nitrogen content in influent to the treatment plant and by any locally defined emission factors. A few drinking water utilities have introduced central softening, which increases the footprint at the waterworks. The societal benefits lie out of scope and are not shown in the figure, but life-cycle assessment (LCA) of softening indicates that CO_2 savings to society exceed the additional CO_2 emitted at the plant across large parts of Denmark*.

The results from the *climate accounting model for operation* are an estimate of greenhouse gas emissions based on assumptions and general emission factors. The results provide the best estimate of process-related emissions in operations, highlight possible reduction potentials, and establish a common foundation for dialogue. The method cannot be equated with company climate accounts, but can be used as a starting point. This is the first reporting to the model, and over time, the companies are expected to become more confident in their reporting and data basis. ■

> " Frederiksberg Forsyning's climate footprint appears high compared to other utilities. This is because we are the only ones who soften all drinking water. This process leads to increased electricity and chemical consumption, and thus a higher climate footprint. But that's only part of the story, as water softening also provides societal benefits – including reduced soap consumption, lower energy use in household appliances, and longer appliance lifetimes – which is exactly why our customers demand it. Overall, the expectation is that the CO_2 savings achieved in society will outweigh the additional emissions from the chemicals," says Henrik Sønderup, Head of Planning and Projects, Water and Wastewater, Frederiksberg Forsyning.

CLIMATE FOOTPRINT BY SCOPE, DRINKING WATER, 2024



Weighted average

Scope 1	15
Scope 2	30
Scope 3 (operation)	51
Total in scope	96

* Godskesen et al. (2012). *Life cycle assessment of central softening of very hard drinking water. Journal of Environmental Management* 105, 83–89.

PHOTO: ASSENS FORSYNING

The Water Sector's Energy Consumption

The water sector has long worked on energy savings and optimising energy production, with the goal of becoming energy-neutral or, even better, to become energy-positive. Energy-positive means producing more energy than is purchased and using self-produced energy for own needs. Some large treatment plants have achieved this, but the goal is being challenged as new requirements, such as quaternary treatment and increased rainfall, will consume additional energy.

The Danish Environmental Protection Agency has an energy model in the mandatory performance benchmarking reporting for water utilities. Here, energy is divided into three main streams: energy in (purchased), self-generated energy used internally, and energy out (sold). Energy includes electricity, heat, fuels and other energy forms such as biogas. All energy forms are converted to kWh. The method enables a comparable key figure for energy streams at the utility level for both drinking water and wastewater. Drinking water utilities state energy per m³ of billed water used to deliver water. Wastewater utilities state energy per m³ of billed water in the catchment used to transport it in the sewer system and treat it at the treatment plants. The Environmental Protection Agency reports:

- Net energy consumption: purchased energy minus energy sold, kWh/m³ of billed water.
- Gross energy consumption: purchased energy plus self-produced energy used internally, kWh/m³ of billed water.

Two self-sufficiency ratios are calculated:

- Self-sufficiency ratio: share of self-produced energy (sold and used internally) relative to purchased energy plus self-produced energy used internally, %.
- Net self-sufficiency ratio: share of energy sold relative to energy purchased ("inside and outside the fence"), %.

Wastewater treatment plants have the greatest potential for high self-sufficiency, as they have the most scope for energy generation.

Energy consumption in 2024

	Drinking-water	Transport	Treatment	Total
Purchased energy, Mwh	106,503	131,978	278,143	516,624
Self-produced energy consumption, MWh	1,500	278	95,956	97,734
Self-produced sold energy, MWh	474	100	198,039	198,613
Net self-sufficiency, %	0.4	0.1	71.2	38.4
Total self-sufficiency, %	1.8	0.3	78.6	48.2

Electricity used for 1 m³ of water

When a consumer buys 1 m³ of water, a total of 1.88 kWh of electricity is used to abstract water from the ground, treat it at the waterworks and pump it to consumers, and subsequently to pump it through the sewer and treat it at the wastewater works before discharge to the receiving water. Drinking water utilities on average use 0.44 kWh/m³ of electricity per m³ of billed water in the supply area. Wastewater utilities, on average, use 1.44 kWh/m³ in the catchment. 0.48 kWh for transport to the treatment plant and 0.96 kWh for treatment. After deducting the utilities' self-produced, sold electricity, the average net electricity consumption is 1.24 kWh/m³ of billed water.

Energy Mix

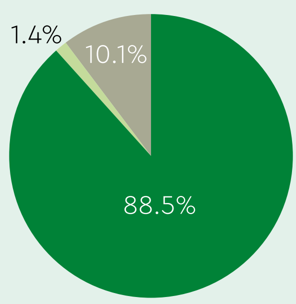
The green transition is essential to achieving the climate targets. The EU Green Deal sets an objective of reducing CO_2 emissions by 55% by 2030 compared to 1990 levels. DANVA compiles data on the energy mix to increase focus on the green transition.

According to the EU Energy Efficiency Directive (2023), businesses with an annual energy consumption exceeding 10 TJ are required to either implement energy management systems or carry out an energy audit every four years. The audit must include a mapping of the business's energy consumption and an identification of opportunities to reduce CO_2 emissions.

A large share of the utilities' energy consumption comes from electricity. Both electricity and district heating produced in Denmark are already largely based on non-fossil energy sources, which is reflected in the utilities' overall energy mix. In 2024, approximately 90% of the total energy consumed was non-fossil.

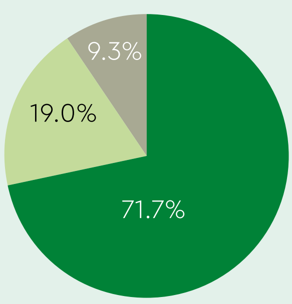
The energy mix refers to the share of fossil and non-fossil energy consumed by the water utilities. When utilities use electricity, district heating, or natural gas, part of that energy is produced from both fossil and non-fossil fuels. Examples of non-fossil energy sources include solar, wind, hydro, biomass, and nuclear power. In 2024, the share of non-fossil energy in district heating was 76%, while the share in electricity was 93% east and 88% west of the Great Belt. ■

ENERGY MIX DRINKING WATER, 2024



- Non-fossil based: purchased energy
- Non-fossil: based self-produced energy
- Fossil-based

ENERGY MIX WASTEWATER, 2024



Energy mix covers both transport and treatment

- Non-fossil based: purchased energy
- Non-fossil: based self-produced energy
- Fossil-based

Heat pumps in drinking water and wastewater

Water utilities have good opportunities to contribute to the green transition by extracting heat from treated wastewater or from drinking water and using it in the district heating network or for individual large heat users. Heat pumps may be owned and operated by the water utility itself, by a sister district heating/energy utility within the same corporate, or by an external utility. If the water utility owns the heat pump, it can be included in the utility's energy accounts; otherwise, only heat production out of the heat pump is recorded, not its electricity consumption.

In 2024, 10 utilities with commissioned heat pumps produced:

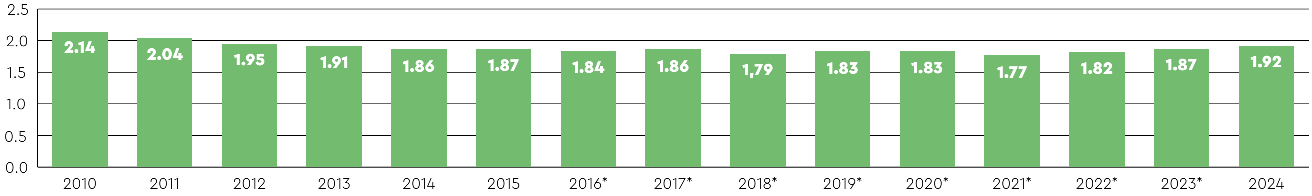
- Owned by the water utility – 2 plants: total production 13,454 MWh.
- Owned within the group – 5 plants: total production 35,688 MWh.
- Owned by an external company – 3 plants: total production 54,250 MWh.

Total production across all heat pumps was about 104,000 MWh, 86% of which came from wastewater.

If group-owned and externally owned heat pumps are included, energy production increases by 90,000 MWh (+34%). It is an increase of 23% compared to 2023. ■

WASTEWATER OPERATING COSTS, 2010 - 2024

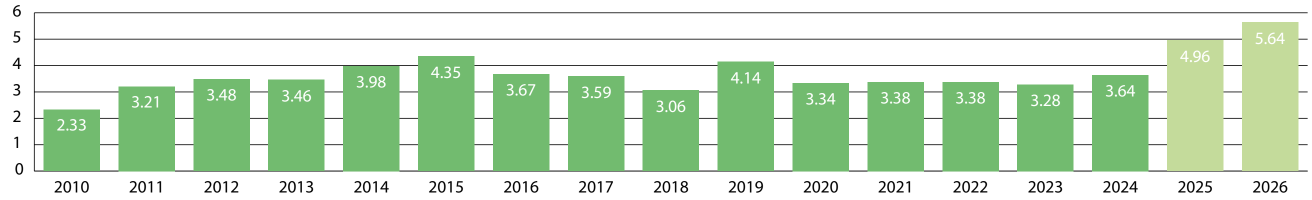
€/M³ OF BILLED WATER (2024 PRICES)



2010–2024: Actual operating costs (62–91 utilities)
*: New calculation for actual operating costs

WASTEWATER OPERATING COSTS, 2010 - 2026

€/M³ OF BILLED WATER (2024 PRICES)



2010–2024: Completed investments (66–91 utilities – investments and renovations)
2025–2026: Planned investments (90 utilities – investments and renovations)

Wastewater Utilities in DANVA Benchmarking and Statistics

In 2024, 91 wastewater utilities submitted data to DANVA Benchmarking and Statistics (for the year 2024). Together, they serve over 5.28 million people and operate 418 treatment plants, treating more than 792 million m³ of wastewater with a load of 6.7 million PE. Collectively, they operate more than 88,500 km of sewers with 2.52 million service connections. In total, the sewered area is about 320,000 hectares. Total investments and renewals amounted to approximately €968 million, and actual operating costs were just over €511 million (see participating utilities' overall key figures at the back of the publication).

Investments rise slightly

The statement of completed investments by wastewater utilities in 2024 shows a 10% increase, with even higher expectations for the next two years. The expected rise is due to investment in solutions for new tasks, such as climate adaptation, shallow groundwater, and the requirement for the fourth treatment stage in the Urban Wastewater Treatment Directive.

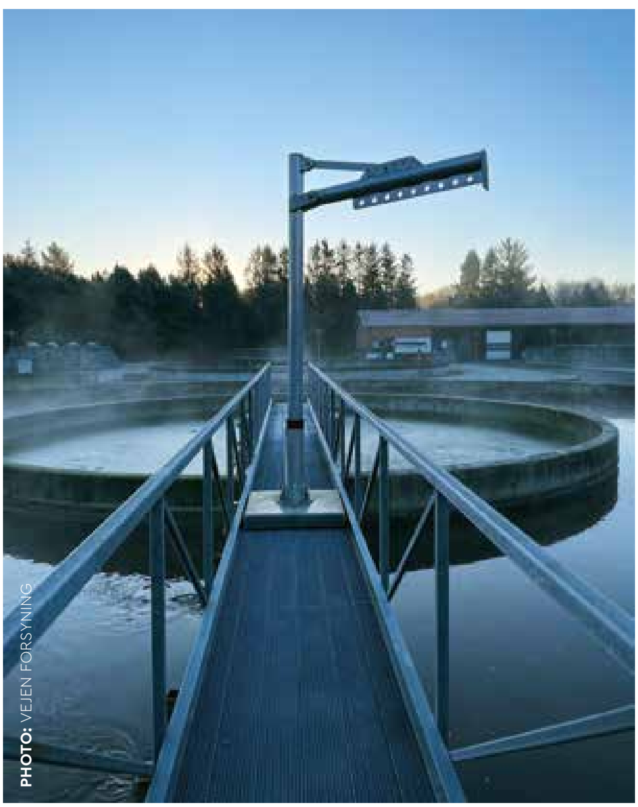
In 2024, utilities invested €3.64 per m³ sold. On average, utilities used 82% of completed investments and renewals for improvements and expansions of the conveyance network, while 14% was used at treatment plants. The remaining 4% went to other investments. The distribution is based on 40 utilities. ■

Operating Costs Continue to Increase

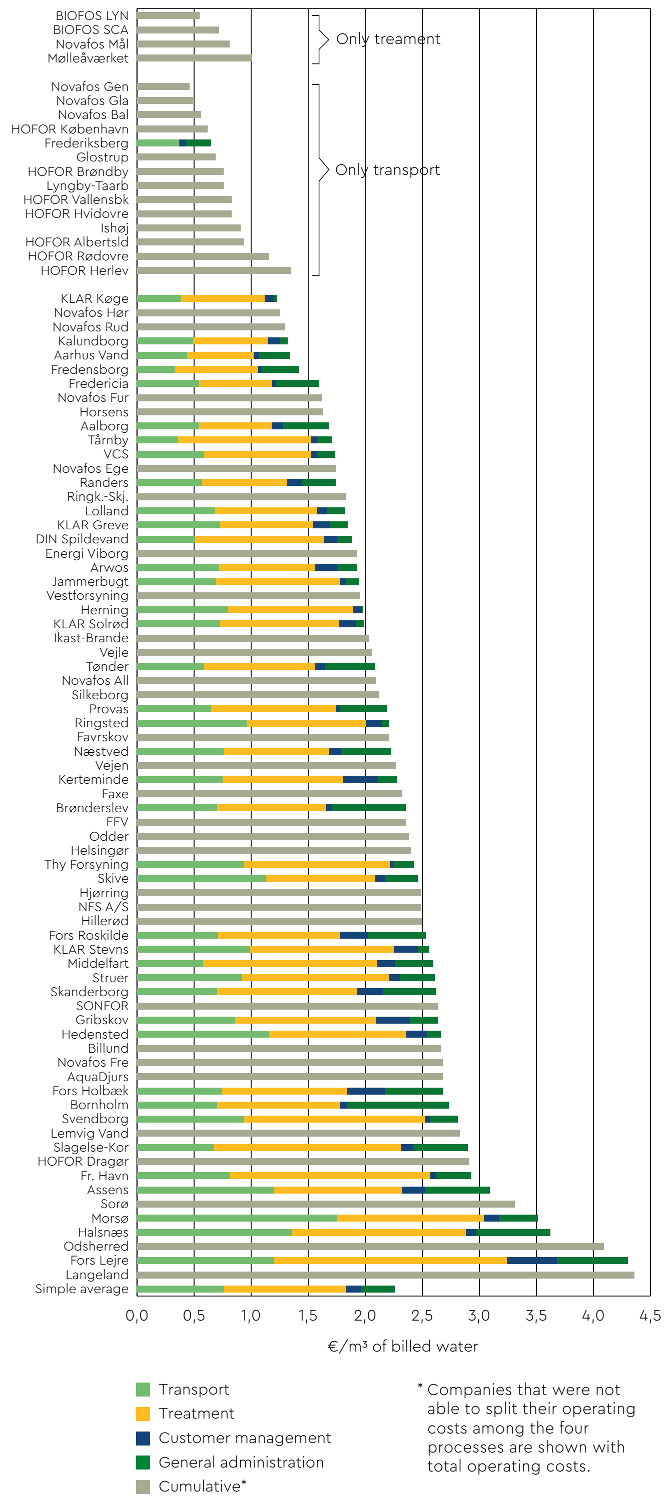
Actual operating costs are subject to efficiency requirements under the Water Sector Act and underpin the comparison of utilities' efficiency in OPEX calculations. Actual operating costs exclude VAT and taxes, non-controllable costs, and any selected ancillary activities, which are kept outside the operating accounts.

On average, it costs €1.92 to convey and treat one m³ of water sold. This is an increase of 2.3% compared to last year. The variation between utilities' operating costs per m³ is relatively large, reflecting very different operating conditions, such as topography, population density, the balance between residential areas and large industries, and the need for climate adaptation. Sludge treatment and disposal also influence operating costs.

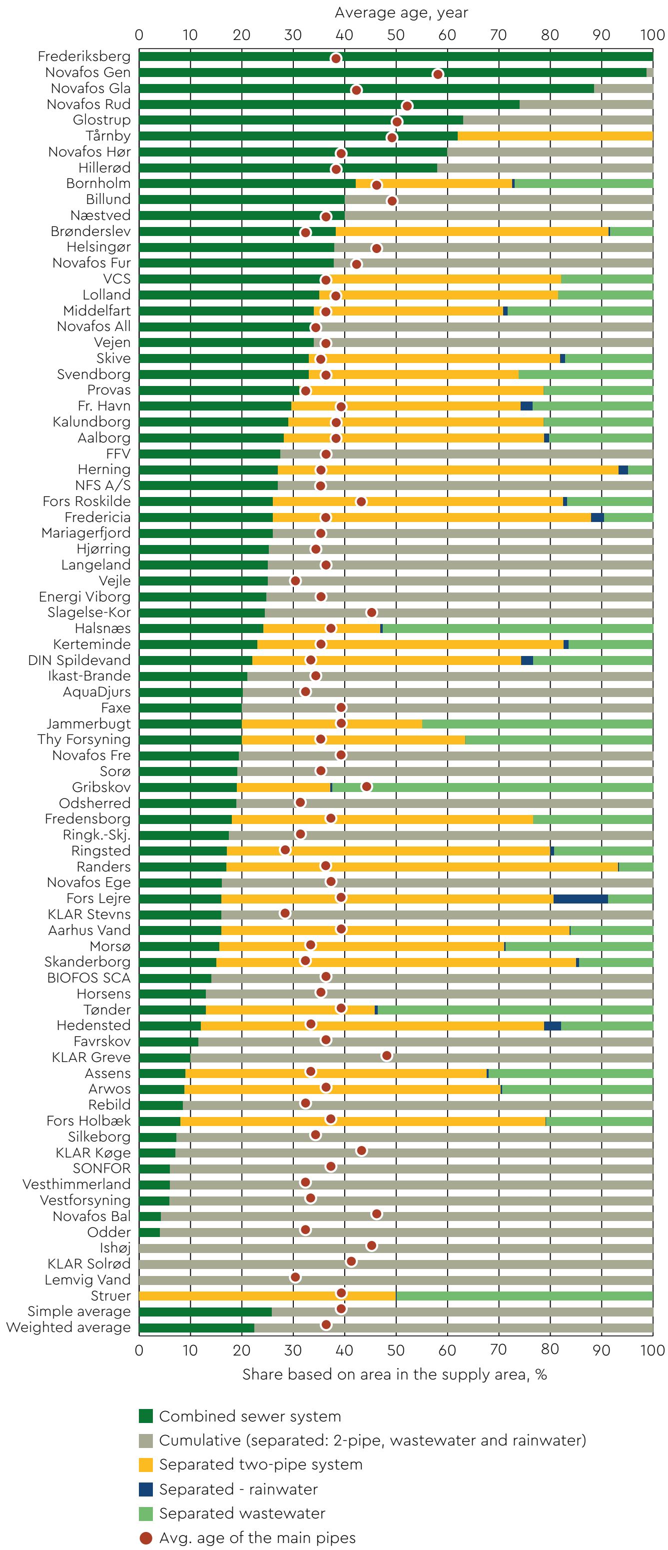
Wastewater utilities spend, on average, 33% of actual operating costs on the sewage network, 48% on wastewater treatment, 5% on customer service, and 14% on general administration. The distribution is based on 41 utilities. ■



ACTUAL OPERATING COSTS WASTEWATER, 2024



COMBINED AND SEPARATE SEWER SYSTEM, 2024



The Utilities' Sewer Systems

The sewer network transports wastewater from households and industry to treatment plants. Historically, sewers were built with a single pipeline, carrying both wastewater and stormwater in the same sewage pipe. As cities grew, with more roofs and paved surfaces sending rain directly to the sewer, combined sewers created challenges when there was insufficient capacity.

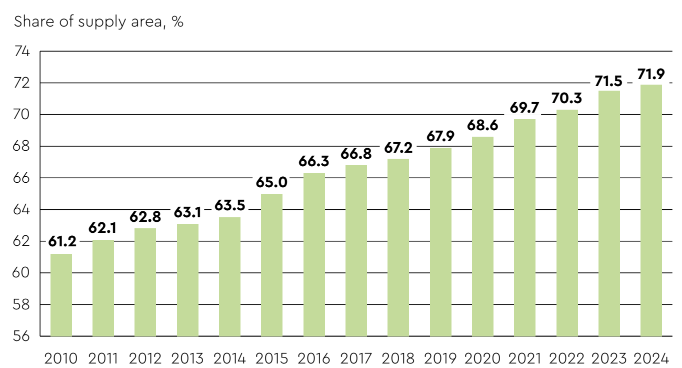
For more than 30 years, the principle for all new developments and renovations has been separating sewage systems, when possible. Here, wastewater and rainwater are separated, so more capacity is created for wastewater in the sewers and at the treatment plant. Rainwater is transported in a dedicated pipe to the water environment or managed locally through drainage or storage of rainwater. This avoids undesirable overflows of wastewater-contaminated water during heavy rainfalls.

Most wastewater utilities choose separate sewerage when renovating older networks. However, it is a major undertaking involving trenching across roadways and requires residents to separate wastewater and stormwater on their own properties, which is a significant additional cost. In older, dense urban areas and town centres, it can be very difficult and costly to introduce separate sewerage. The solution here is often to upgrade existing sewers and construct large stormwater/wastewater storage basins to retain mixed flows until there is capacity at the treatment plant. ■

From Combined to Separate Sewerage

The degree of separation varies greatly. Some utilities have networks that are almost entirely combined, while others have separated their entire network, with wastewater and stormwater into distinct systems. The trend has been for most utilities to increase separation where possible, but it is a slow and very expensive process. At the same time, residents must adapt their private drainage and live with roadworks for extended periods. Utilities have also begun to consider other methods than full separation, such as relining of the combined system, and if possible, combined with local handling of rainwater. ■

SHARE OF SEPARATE SEWER SYSTEM



Development of area with seperate sewage systems basen on simple average for 41 companies from 2010 to 2024.

Renewal Rate of the Sewer Network

Each year, parts of the sewer network are replaced. Factors such as materials, pipe diameters, leaks and collapses, geology, surface loading, and age determine when renewal is due. The network's renewal rate shows the percentage replaced last year and the ten-year average per annum. The 82 utilities that reported an annual renewal rate had a weighted average of 0.73%. There is a wide variation, from utilities that renewed nothing last year to others that renewed more than 2%. The expected service life of sewage pipes is 75 years, but the 35 utilities reported an average age of 55 years for the 230 km of pipes they excavated.

A major factor is that large infrastructure and construction projects often require wastewater utilities to relocate sewers even when they are not at the end of life. In 2020, water utilities rerouted mains worth more than €33 million, according to a DANVA survey. ■

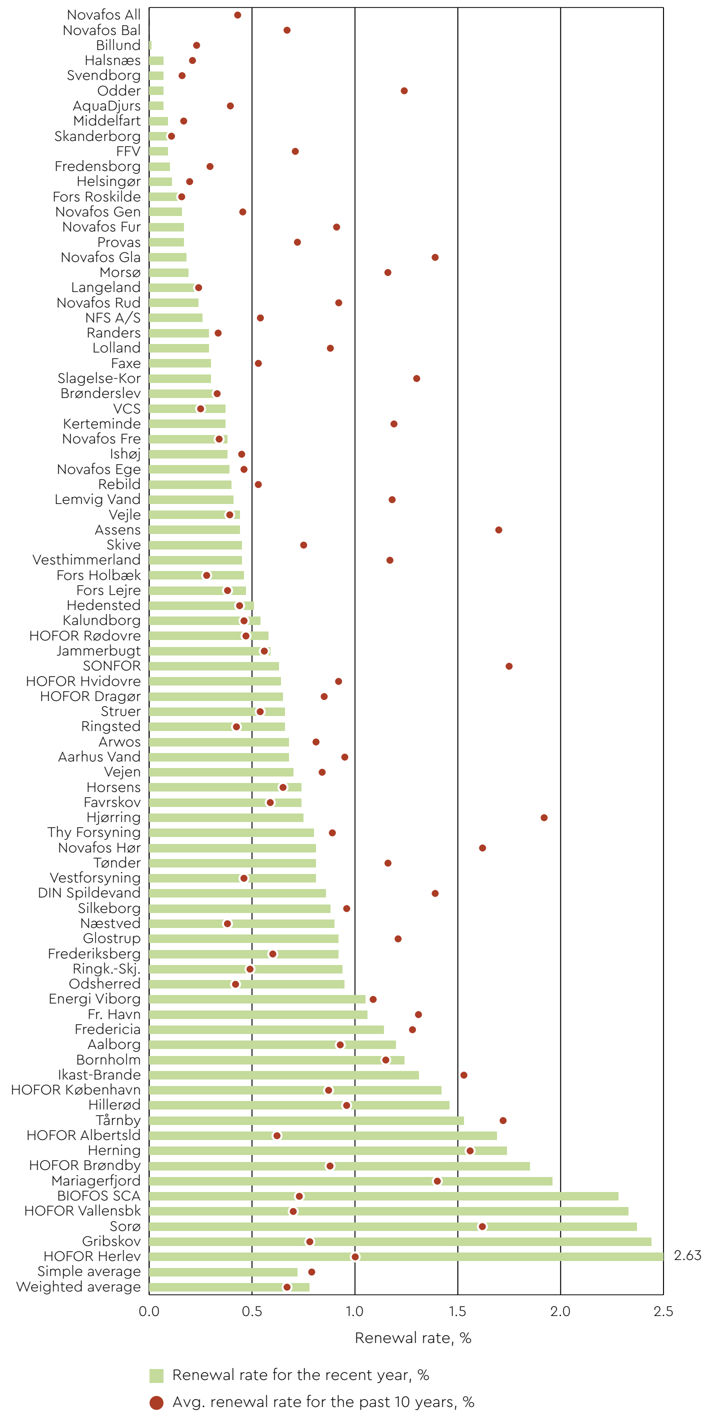
Unintended Water

The sewer network is primarily designed for wastewater and, to some extent, stormwater. However, unintended water can enter the network, causing undesired and unnecessary costs. Utilities therefore, continuously work to minimise such inflows. Infiltration is influenced by factors such as the age/origin of the network, groundwater level, soil conditions, precipitation, and the condition of the sewers. Utilities spend heavily on public-side renovation to reduce unintended inflows. However, a large share enters through leaky private pipes. This means that increasing the condition of private drains is essential to address the problem.

Unintended water includes:

- Infiltrating groundwater in areas where sewers lie below or close to the groundwater table.
- Misconnections of roof drains and road drainage to sewers.
- Field drains connected to sewers.
- Former field drains and culverted watercourses that have, over time, become part of the sewer system without being disconnected.

RATE OF RENEWAL OF SEWER PIPES, 2024



TEXT: MIRIAM FEILBERG, DANVA / **PHOTO:** COLOURBOX.DK

NEW POSSIBILITIES – Water Utilities Can Now Help Residents with Shallow Groundwater

Shallow groundwater is a major problem in many parts of Denmark, and climate change is making it worse. With a new Act that entered into force on the 1st of July 2025, municipalities and water utilities have the option to help address problems that affect buildings, infrastructure and drainage systems.

Shallow groundwater is a significant challenge. Over the past 30 years, the groundwater table has risen by up to one metre. Today, at least 450,000 homes have less than one metre to the groundwater table for more than 80% of the year. Of these, around 360,000 are within sewered areas and will be covered by the new law. There are several reasons for the rising groundwater level. Sealing wastewater pipes in an area means they no longer function as unintended drains. It can also be due to the cessation of drinking water abstraction in an area.

These problems are exacerbated by climate change, which brings increased precipitation, especially in winter. Rising sea levels also worsen the situation, but if the problems are directly caused by seawater, those cases are not covered by the Act.

Homes, roads and wastewater assets

For homes and other buildings, shallow groundwater can lead to flooded basements, damaged walls, mould and rot. It also challenges shared infrastructure and can damage, for example, roads and railway lines. At the same time, it creates problems in water utilities' systems, explains Benny Nielsen, Head of Department at Herning Vand.

"Shallow groundwater also challenges water utilities' infrastructure, as large volumes of unintended water enter the drainage systems, including from private properties. This makes it very difficult, if not impossible, to meet the required service level. Unintended water in sewer systems increases operating costs at treatment plants, and in combined sewer systems, it can raise the risk of overflows," says Benny Nielsen.

He welcomes the new law, as it will now be possible to avoid unintended water entering combined sewers through homeowners' perimeter drains.

"Before the law took effect, residents' option was often to install perimeter drains and connect to the sewage network. That worsened utilities' challenges with unintended water," says Benny Nielsen.

The same message comes from HOFOR: "Climate change means more flooding. It's not only cloudbursts that bring unwanted water. High groundwater also creates challenges in many places. We look forward to the new law enabling us, together with municipalities, to deploy collective solutions in areas where it makes socio-economic sense," says Anja Collin Højen, Area Manager for Wastewater Planning at HOFOR.

Opportunities under the new Act

DANVA and Local Government Denmark (KL) have shown that collective solutions are the most socio-economically efficient, and the new law is based on this.

Municipalities will be the local authority and must designate hazard areas in relation to shallow groundwater. Water utilities must then assess whether solutions in those areas are socio-economically beneficial. The Ministry proposes simpler calculation methods for roof and surface water.

The wastewater plan, or an addendum to it, will set the framework for action. It is also where residents can see whether they live within a hazard area and whether they are covered by the solutions. Wastewater plans must therefore be consulted on the municipality's website.

Wastewater utilities will then implement the practical solutions.

Solutions need to be developed now

The first municipal designation of hazard areas must be ready by the 1st of January 2027, at the latest. This initial deadline may be based on "local knowledge of areas that frequently flood", allowing rapid progress and early learning.

In some places, piped solutions and a third pipeline will be appropriate, but these projects also come with significant CO_2 emissions.

DANVA and KL requested technology neutrality in choosing solutions; this has been met in the new legislation, which permits collective perimeter drains, while also allowing entirely different approaches, such as:

- Using the water as a resource, for example, in Power-to-X plants, or as process water for district heating, cooling and irrigation.
- Using the water for urban development and to improve biodiversity in towns.
- Routing water to lakes and wetlands to stabilise the groundwater.

We will learn much more as solutions are implemented. A good starting point is the Inspiration Catalogue for handling shallow groundwater, developed jointly by DANVA and KL. ■

Wastewater Utilities' Energy Accounts

Wastewater utilities use a significant amount of electricity to run pumping stations that convey water through the sewers to treatment plants. At the treatment plants, the largest power consumer is the aeration tanks, though internal pumping and sludge treatment also use a lot of electricity. On the other hand, treatment plants have good opportunities to generate energy, e.g. biogas.

Energy consumption is split into gross and net consumption for the sewer system and for the utility's total number of treatment plants. This enables a meaningful, comparable key figure both for the sewer catchment and for the treatment works' catchment, kWh per m³ of billed water. The key figures express how much energy is used after a customer has bought one cubic metre of water and then discharged it to the sewer.

Energy use in the sewer network

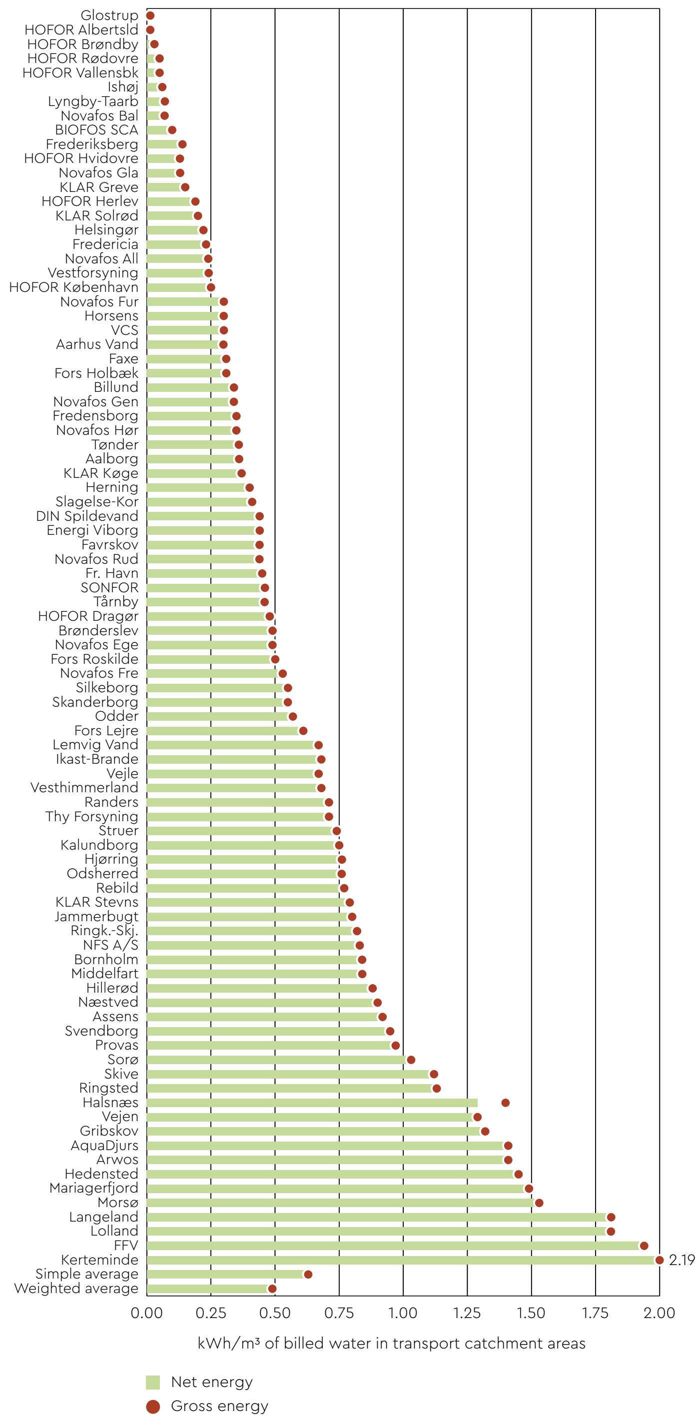
For the second year in a row, a record was set for the energy consumption for pumping wastewater through the sewers. In 2024, rainfall reached another record with 927 mm. This resulted in an energy consumption of 0.48 kWh per m³ of billed water

In 2023 and 2024, more than 30% of electricity was used for pumping compared with the average of the previous three years. ■

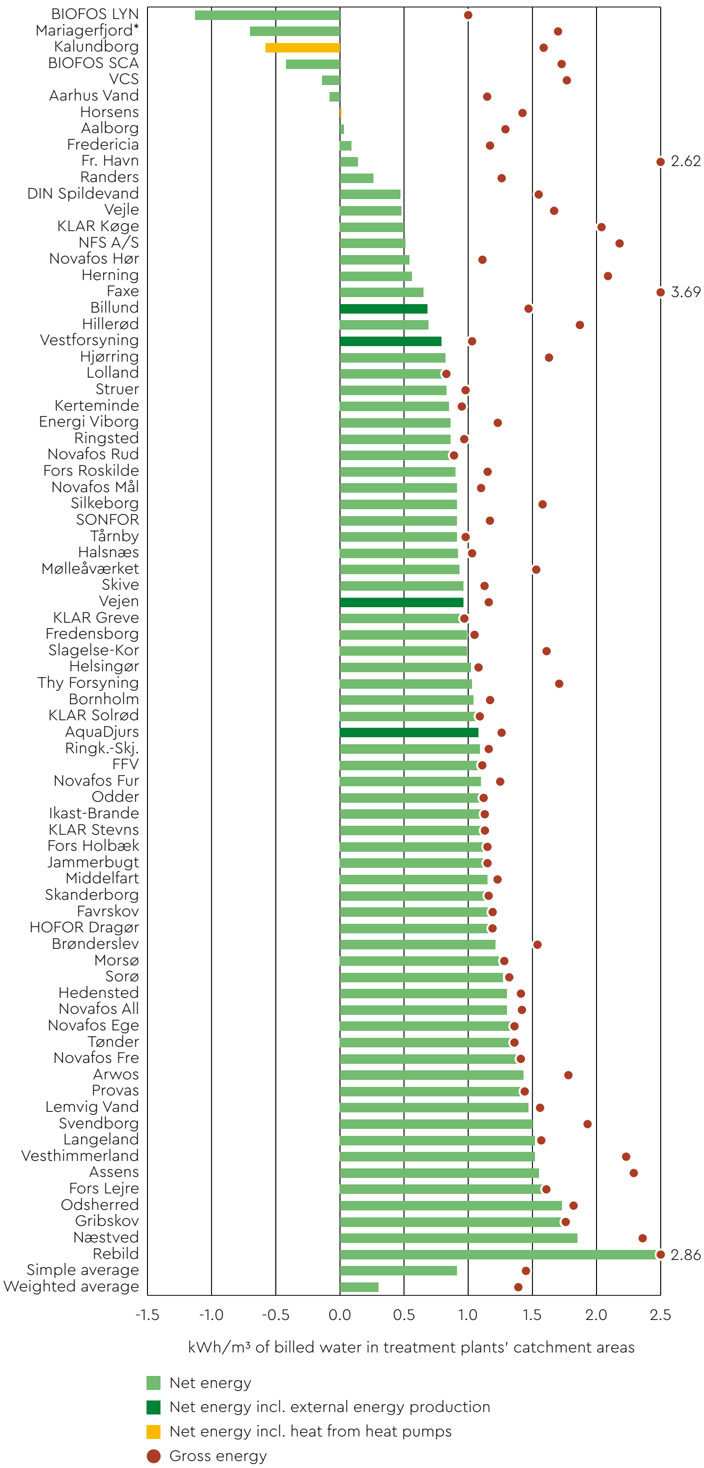
Transport	Electricity	Heat	Total
Purchased energy MWh	129,039	2,940	131,978
Self-produced energy consumption MWh	244	34	278
Self-produced sold energy MWh	100	-	100
Net self-sufficiency, %	0.1	0.0	0.1
Total self-sufficiency, %	0.3	0.0	0.3

Based on 88 wastewater companies. See more about definitions of key figures and self-sufficiency rates on page 36

NET AND GROSS ENERGY CONSUMPTION FOR TRANSPORT, 2024



NET AND GROSS ENERGY CONSUMPTION FOR TREATMENT, 2024



*The treatment plant is jointly owned by Ren Forsyning Mariagerfjord, Rebild Forsyning, and Vesthimmerland Forsyning.

Energy Consumption at Treatment Plants

In contrast to the sewer system, treatment plants have good opportunities for energy generation. Since treatment plants above a certain size can produce energy from biogas (electricity and heat), sludge incineration, or heat pumps that extract large amounts of heat from the treated effluent. Some utilities choose not to produce energy on site but instead partner with a nearby biogas plant (external energy production). Others have no opportunity to produce biogas, often because their sludge volumes are insufficient. These utilities often have identical net and gross energy consumption, as net is purchased minus sold.

The average weighted net energy consumption was 0.30 kWh per m³ of water sold in the treatment catchment, and the average weighted gross energy consumption was 1.39 kWh per m³.

Treatment plants self-produce energy equivalent to 78.6% of gross consumption (self-sufficiency ratio). ■

Treatment	Electricity	Heat	Total
Purchased energy MWh	258,110	20,033	278,143
Self-produced energy consumption MWh	17,800	78,156	95,956
Self-produced sold energy MWh	51,626	146,414	198,039
Net self-sufficiency, %	20.0	730.9	71.2
Total self-sufficiency, %	25.2	228.7	78.6

Based on 77 wastewater companies. See more about definitions of key figures and self-sufficiency rates on page 36.

PHOTO: VESTHIMMERLANDS FORSYNING

Wastewater Utilities' Nutrient Discharges

The overall task of wastewater utilities is to take wastewater away from consumers through the sewer network to the treatment plants. Here it is treated before discharge to rivers, lakes or the sea. In this process, there are five main categories of discharge where nutrients can be introduced into the water environment.

Discharge of treated effluent from treatment plants

Each year, around 600–800 million cubic metres of wastewater are treated at nearly 700 treatment plants across the country. At these facilities, more than 90% of nitrogen and phosphorus is removed before the water is discharged into the receiving environment.

Driven by their own ambitions to minimise environmental impact, as well as by taxation, Danish treatment plants generally perform significantly better than the emission limits set by the authorities. Overall, the plants discharge less than half the permitted amount of phosphorus and under 70% of the allowed nitrogen according to their operating permits.

Relief/bypass upstream of the treatment plants

Wastewater treatment plants are designed to handle a maximum hydraulic load. This capacity must not be exceeded, as it can cause activated sludge to escape the final settlement tanks and enter the environment. To prevent this, treatment plants may include an overflow structure immediately upstream of the plant. There can also be a bypass within the plant before the aeration stage, typically after the mechanical screening and grit and grease removal. The discharged flow is often referred to as relief of non-biologically treated wastewater.

Nutrient concentrations in this water are lower than in ordinary wastewater because it is diluted by large volumes of stormwater.

Overflows of wastewater-contaminated water from combined systems

Historically, sewer systems were constructed as combined systems, carrying both wastewater and stormwater. During periods of heavy rainfall, the flow in these systems can increase dramatically. To prevent wastewater from backing up into basements and toilets, the systems are equipped with overflow structures acting as safety valves that discharge diluted wastewater directly to the environment. At the onset of a storm, the first flushes, the most polluted portion of the runoff, is directed to the treatment plant. As rainfall continues, stormwater becomes the dominant component of the flow, and once the system's capacity is exceeded, overflow discharges are activated. All overflow outlets are fitted with at least a screen to retain paper and larger solids. The discharged water is therefore often described as mechanically treated, diluted wastewater.

Emergency overflows from pumping stations

Many pumping stations include an emergency overflow allowing water to be diverted if the pump fails. Such situations, however, occur only rarely.

Stormwater outfalls

In separate sewer systems, stormwater from roofs, paved areas and roads is conveyed in a dedicated storm sewer and discharged to the water environment. Typically, a stormwater basin must be provided beforehand to regulate flow and retain solids, nutrients and oil. Such basins often serve as amenity features. Stricter treatment requirements for stormwater are expected in future. ■

Nutrient Discharges and Rainfall are Linked

The Environmental Protection Agency compiles wastewater utilities' nutrient discharges to the water environment via discharges of treated effluent, stormwater, and combined sewer overflows. Each year, the Agency publishes a "Point Sources" report, which sets out nutrient discharges from, among others, wastewater utilities. The report is available on the Agency's website and is based on the PULS database.

Discharges from treatment plants

Recent years have brought more and heavier rain. This has a major effect on the amount of nutrients discharged from treatment plants. In years with high rainfall, more water passes through the works and "drags" nutrients out at roughly the same concentration as in treated effluent. The upper table shows a declining number of plants because of the centralisation of smaller plants into larger facilities. There is also a clear link between discharged volumes and discharged nutrient loads.

Discharges from rain-related outfalls

Discharges from combined sewer overflows and separate stormwater outfalls are termed rainfall-related outfalls. Combined systems are sized for both wastewater and stormwater and designed with overflow structures that, during heavy rain, discharge diluted wastewater to the environment rather than forcing it back into properties. In recent years, intense rainfalls have often exceeded the design basis of much of the historic system, so overflows occur more frequently. In 2023, 4,298 overflow structures were registered. The figure should be decreasing since many structures are removed due to separation projects. The slight increase in numbers reflects the addition of assets not previously in the database.

In 2023, there were 17,656 registered stormwater outfalls, of which wastewater utilities owned 12,146 (69%). ■

Year	Discharged treated wastewater from treatment plants					Precipitation
	Treatment plants	Nitrogen	Phosphorus	Organic. matter, BOD5	Water amount	Avg. DK
	Number	ton	ton	ton	1,000 m³	mm
2017	773	3,482	348	2,712	714,169	848
2019	725	3,655	372	2,328	721,052	905
2021	675	3,327	306	2,299	646,059	744
2022	666	2,865	281	2,010	604,564	694
2023	656	3,830	337	2,488	766,338	977

Year	Combined sewer overflows (wastewater-containing water)					Precipitation
	Discharge points	Nitrogen	Phosphorus	Organic matter, BOD5	Water amount	Avg. DK
	Number	ton	ton	ton	1,000 m³	mm
2017	4,601	833	190	2,591	110,479	848
2019	4,364	551	99	1,535	41,850	905
2021	4,257	458	79	1,531	34,444	744
2022	4,183	385	64	1,143	27,374	694
2023	4,298	657	104	1,966	50,035	977

Year	Separate sewer system (discharged rainwater)					Precipitation
	Discharge-points	Nitrogen	Phosphorus	Organic matter, BOD5	Water amount	Avg. DK
	Number	ton	ton	ton	1,000 m³	mm
2017	15,052	527	124	1,860	275,623	848
2019	15,647	582	83	1,932	311,392	905
2021	16,016	513	69	1,510	279,152	744
2022	16,122	425	64	1,394	259,514	694
2023	17,656	717	98	2,141	384,699	977
Wastewater utilities' share						
2023	12,146	585	81	1,729	318,517	977

In the past two years, 977 mm (2023) and 927 mm (2024) of rain fell, respectively. The two wettest years since measurements began in 1874. There is a clear link between heavy rainfall and higher nutrient discharges.

Yet Another Wet Year

Several factors influence how treatment plants are loaded and how much wastewater they receive. In addition to rainfall intensity, the size of the catchment area, the proportion of industrial wastewater, the degree of separate sewer systems, and the amount of extraneous water all have a major impact on the volume and concentration of the wastewater entering the plant.

In 2023, Denmark on average had 977 mm of precipitation, making it the wettest year since records began in 1874. In 2024, precipitation was 927 mm, ranking as the second wettest year on record.

Inflow factor

The inflow factor describes how much water enters the treatment plant compared to the amount of water sold to customers within the catchment area. For example, an inflow factor of 3 means that for every 1 m³ of billed water, 3 m³ enters the treatment plant. The "extra" water consists of a mixture of stormwater and extraneous water, such as drainage water and groundwater infiltration.

A high inflow factor results in a more variable flow and leads to additional costs for infrastructure sizing, pumping, and increased wastewater discharge fees due to higher nutrient loads.

The figure shows that the inflow factor to treatment plants varies widely. In 2024, the inflow factor among the participating plants ranged from 1.81 to 5.52. Rainfall has a significant influence on the inflow factor, and in both 2023 and 2024, rainfall was above average. Consequently, the weighted average inflow factors were 2.8 and 2.9 for 2023 and 2024, respectively. In 2022, rainfall was below average, resulting in a lower inflow factor of 2.2.

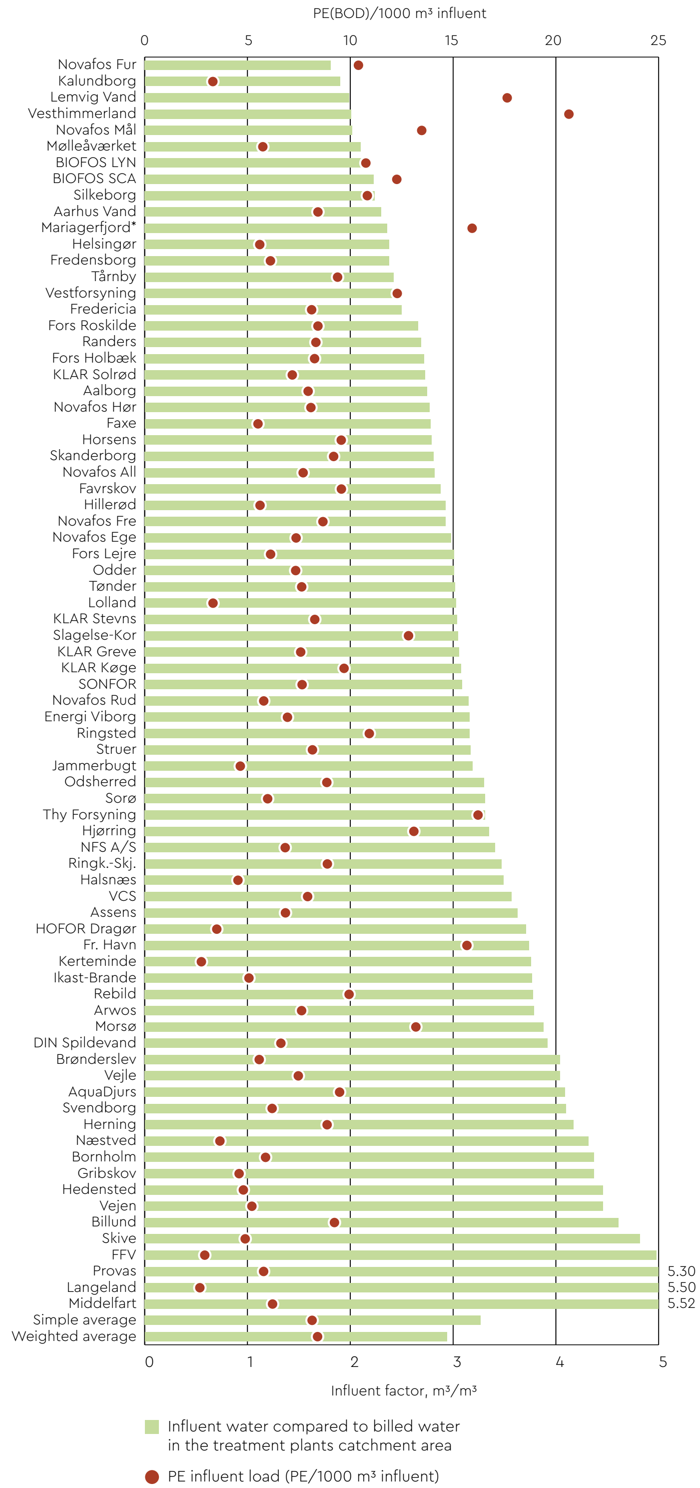
The participating treatment plants received approximately 792 million m³ of wastewater in 2023, compared to 587 million m³ in 2022.

Load to the Treatment Plant

The content of organic matter and nutrients in the incoming wastewater varies greatly between treatment plants, just as the inflow factor does. Industries such as slaughterhouses and breweries discharge large amounts of organic matter. This is commonly referred to as "strong" wastewater. In contrast, plants that mainly receive domestic wastewater handle what is known as "weak" wastewater.

The load on the treatment plants is expressed in population equivalents (PE) and depends not on the water volume but on the nutrient content. One PE represents the daily load contributed by an average adult in terms of biodegradable organic matter (BOD_5), nitrogen, and phosphorus.1 PE corresponds to: 60 g BOD_5/day, 12 g N/day, and 2.7 g P/day ■

INFLUENT FACTOR AND INFLUENT LOAD TO TREATMENT PLANTS, 2024



*The treatment plant is jointly owned by Ren Forsyning Mariagerfjord, Rebild Forsyning, and Vesthimmerland Forsyning.

Sludge Treatment

Once wastewater has been treated, biosolids (sewage sludge) remain. This is a by-product that can be managed and used in several ways.

Sludge treatment and disposal

In 2025, 71% of wastewater utilities participated in the Environmental Protection Agency's survey of the sector's energy and climate performance (Paris Model 2.0). This involved a detailed reporting of how their sludge is treated and disposed of. ret.

A total of 130,000 tonnes of surplus sludge (dry solids) was reported:

- **47%** is used to produce biogas through anaerobic digestion (sometimes followed by composting).
- **25%** is "normally treated"—i.e., dewatered before final handling.
- **6%** is mineralised or composted, concentrating dry solids and nutrients.
- **25%** is incinerated, either as mono-incineration or co-incinerated with other materials, producing recoverable energy.
- **<1%** is turned into biochar via pyrolysis.

The same survey showed that the vast majority of treated sludge is applied for agricultural use, and a smaller share is landfilled.

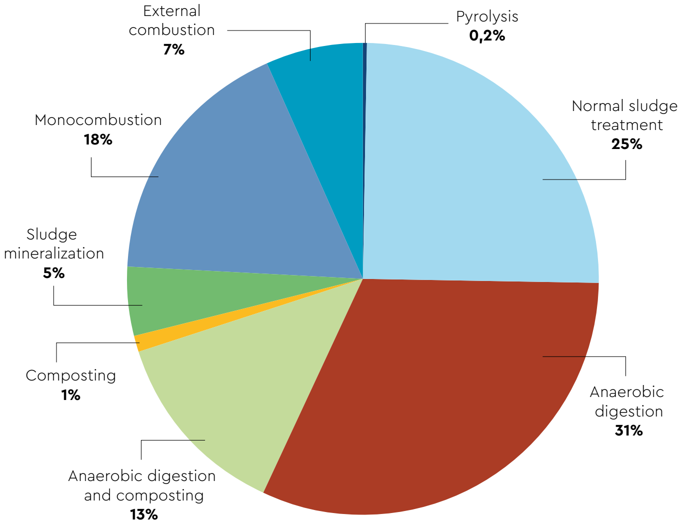
- 93% of treated sludge is used for agricultural purposes (e.g., as fertiliser), thereby reducing the need for mineral fertiliser. This can derive from ash, digested sludge, composted sludge, etc.
- 7% ends up in landfill, originating from sludge incinerated externally.

Wastewater utilities also report sludge treatment and disposal to the Water Sector Regulator Agency, but those categories are simpler and compiled differently than in Paris Model 2.0, so the figures are not directly comparable. In 2024, all wastewater utilities reported around 185,000 tonnes of surplus sludge (dry solids). Of this, 70% went to biogas production, 26% was normally treated, and 4% underwent sludge mineralisation. Approximately 61% of treated sludge was subsequently used in agriculture (A-sludge), 6% was composted (B-sludge), and 32% was incinerated or landfilled (C-sludge)—often where sludge contains elevated levels of undesirable substances, such as heavy metals.

Future challenges

Future sludge management depends heavily on the presence of hazardous substances, including, for example, PFAS. As knowledge increases, the issue is better understood, but sludge quality can be improved effectively by removing substances at the source before they enter the sewer and treatment works—for example, through product regulation. ■

DISTRIBUTION OF SLUDGE TREATMENT TYPES



Note: 2023 data from the survey for the Danish climate accounting method (Parismodel 2.0) conducted by the Environmental Protection Agency in winter 2024/2025. n = 71 wastewater utilities.

DRINKING WATER UTILITIES THAT PARTICIPATED IN BENCHMARKING AND STATISTICS 2025 (DATA FOR 2024)	BASIC DATA					
	Residents in the utility district	Amount of billed water (Water Regulation Authority definition)	Boreholes (Water abstraction)	Waterworks	Hardness in water supplied	Supply-pipes
Utility	persons	m^3/year	number	number	dH	km
Arwos Vand A/S	18,671	1,216,526	12	2	11.5	273
Assens Vandværk A/S	8,400	508,576	11	2	15.0	146
Billund Drikkevand A/S	8,109	711,315	9	1	8.5	167
Bornholms Vand A/S	20,150	1,196,994	31	4	15.0	617
Brønderslev Vand A/S	15,880	840,397	8	2	11.2	354
DIN Forsyning Vand A/S	120,294	7,893,437	82	10	7.4	1,517
Energi Viborg Vand A/S	73,638	2,393,135	12	4	9.0	635
Faxe Vandforsyning A/S	12,488	1,825,448	4	3	17.0	332
FFV Vand A/S	9,000	533,667	5	2	18.0	215
Fors Vand Holbæk A/S	43,116	1,764,170	14	2	16.7	231
Fors Vand Lejre A/S	6,518	237,715	3	1	24.6	88
Fors Vand Roskilde A/S	91,867	3,358,103	14	3	21.3	368
Forsyning Helsingør Vand A/S	57,552	2,671,418	26	2	14.2	367
Fredensborg Vand A/S	41,465	1,752,953	11	2	14.0	312
Frederiksberg Vand A/S	105,840	4,779,554	5	1	13.5	168
Frederikshavn Vand A/S	58,826	4,340,381	105	5	8.9	1,264
GEV vand A/S	11,972	1,161,381	11	2	6.5	262
Glostrup Vand A/S	24,764	1,298,957	15	2	24.0	98
Halsnæs Vand A/S	14,416	610,490	11	2	19.0	188
Herning Vand A/S	45,158	2,993,978	22	3	8.0	741
Hillerød Vand A/S	27,968	2,084,455	12	3	17.5	182
Hjørring Vandselskab A/S	40,000	3,070,501	42	4	15.0	879
HOFOR Vand Albertslund A/S	27,677	1,171,951	0	1	15.0	98
HOFOR Vand Brøndby A/S	39,067	1,805,500	10	1	12.0	146
HOFOR Vand Dragør A/S	14,569	615,053	0	2	19.0	88
HOFOR Vand Herlev A/S	29,786	1,471,522	0	0	15.0	111
HOFOR Vand Hvidovre A/S	53,760	3,057,948	1	1	21.0	203
HOFOR Vand København A/S	659,350	51,736,849	360	7	17.0	1,087
HOFOR Vand Rødovre A/S	44,328	1,810,951	3	1	22.0	121
HOFOR Vand Vallensbæk A/S	12,269	476,741	0	0	18.0	47
Ikast Vandforsyning A.m.b.A	17,000	834,767	9	2	8.0	236
Ishøj Vand A/S	23,250	1,114,620	8	1	12.0	104
Kalundborg Vandforsyning A/S	17,000	3,703,745	31	5	15.0	383
Kerteminde Forsyning – Vand A/S	17,476	878,096	10	2	12.0	261
KLAR Forsyning Køge Vand A/S	35,000	1,557,966	12	2	21.0	251
Langeland Vand ApS	8,830	733,126	19	3	21.0	379
Lemvig Vand A/S	16,000	1,851,875	12	2	7.0	805
Lolland Vand A/S	25,443	1,714,129	33	4	19.0	766
Lyngby-Taarbæk Vand A/S	58,600	2,661,341	7	1	17.0	213

PROCESS BENCHMARKING (OVERALL KEY FIGURES)						TARIFFS 2025 (Level 1)		
Actual operating costs for production, distribution, customer management and general administration relative to billed water volume	Operating costs related to production relative to the volume of self-produced water pumped from own facilities	Operating costs related to distribution relative to the billed water volume in the utility's own supply area	Operating costs related to customer management relative to the number of meters	Operating costs related to general administration relative to billed water volume	Completed investments and renovations	Fixed annual charge, including VAT	Variable water charge, including VAT and fees	Cost for a consumption of 100 m³/year
€/billed m³	€/produced m³	€/billed m³	€/water meter	€/billed m³	€/billed m³	€	€/m³	€/year
0.44	0.08	0.34	0.29	0.02	1.29	154.16	1.57	311
1.32	0.51	0.32	18.16	0.31	0.72	166.89	2.26	393
0.63					1.26	123.16	1.85	308
1.70	0.41	0.62	11.34	0.53	1.11	167.39	2.21	388
0.99					0.48	150.64	2.51	401
0.79	0.39	0.13	24.93	0.14	0.65	152.48	2.43	396
0.67					0.50	134.05	1.90	325
0.51					0.22	23.29	3.02	325
1.30					0.74	117.29	2.44	361
0.96	0.31	0.18	36.78	0.25	0.25	83.78	2.49	333
1.75					0.59	83.78	3.11	395
0.97	0.32	0.28	34.63	0.23	0.68	83.78	3.95	479
1.14					1.13	103.72	3.06	410
0.69	0.25	0.23	4.39	0.27	0.35	34.05	2.68	302
1.06	0.46	0.25	98.08	0.28	0.55	49.60	4.21	471
0.99	0.29	0.37	26.22	0.13	0.82	175.94	2.49	425
0.78	0.22	0.16	46.08	0.19	0.42	117.61	2.00	317
0.62					0.43	37.90	3.22	360
1.59	0.41	0.26	0.22	0.53	0.85	160.21	2.78	438
0.73	0.27	0.35	8.51	0.02	0.40	131.22	1.80	311
1.24					0.37	116.84	2.54	371
0.82					0.98	215.48	2.06	421
1.19					1.39	13.40	3.89	402
0.89					1.30	16.76	3.75	392
1.14					5.02	59.14	4.24	483
0.83					3.00	0.00	3.37	337
0.65					1.93	0.00	2.85	285
0.83					3.77	64.34	2.61	325
0.84					3.54	0.00	3.32	332
0.53					0.36	16.76	3.15	332
0.69					0.55	96.35	2.37	333
0.86					2.08	38.20	3.31	369
0.68	0.61	0.16	28.82	0.13	0.87	0.00	3.03	303
1.31	0.42	0.59	29.45	0.15	0.54	110.99	3.15	426
0.94	0.31	0.41	9.73	0.13	0.98	69.20	2.88	357
0.96					0.20	176.62	1.98	374
0.58					0.39	142.64	2.41	383
0.98	0.35	0.24	7.07	0.29	2.31	109.25	3.11	420
0.86					0.83	0.00	4.93	493

DRINKING WATER UTILITIES THAT PARTICIPATED IN BENCHMARKING AND STATISTICS 2025 (DATA FOR 2024)

	BASIC DATA					
	Residents in the utility district	Amount of billed water (Water Regulation Authority definition)	Boreholes (Water abstraction)	Waterworks	Hardness in water supplied	Supply-pipes
Utility	persons	m^3/year	number	number	dH	km
Midtfyns Vandforsyning A.m.b.a.	17,100	1,676,219	16	5	15.0	445
Morsø Vand A/S	9,134	444,191	9	2	12.5	121
NFS A/S	19,243	1,211,129	23	3	18.0	195
NK-Vand A/S	46,000	2,086,293	16	2	16.0	636
Novafos Vand Ballerup A/S	65,409	3,127,182	10	4	20.0	282
Novafos Vand Egedal A/S	17,622	637,765	9	1	23.0	158
Novafos Vand Frederikssund A/S	31,843	1,376,196	20	5	20.0	343
Novafos Vand Gentofte A/S	75,076	3,425,710	23	1	20.0	300
Novafos Vand Gladsaxe A/S	70,958	3,386,868	9	2	20.0	222
Novafos Vand Hørsholm A/S	25,168	1,210,409				144
Novafos Vand Rudersdal A/S	35,647	1,515,717	13	3	20.0	202
Novafos Vand Sjælsø A/S	0	6,706,502	44	1	19.0	32
Odder Vandværk a.m.b.a.	14,223	887,971	9	2	15.0	203
Odsherred Vand A/S	5,853	364,886	14	4	17.0	225
Provas-Haderslev Vand A/S	27,263	1,488,326	14	3	11.0	410
Ren Forsyning Mariagerfjord	15,000	1,425,964	11	5	9.0	378
Ringkøbing – Skjern Vand A/S	36,000	3,310,404	28	5	7.6	1,268
Ringsted Vand A/S	29,041	1,663,250	18	6	17.0	513
Rørvig Vandværk I/S	1,052	154,614	5	1	17.0	133
Samn Forsyning – Horsens Vand A/S	62,676	4,202,298	25	4	14.0	515
Silkeborg Vand A/S	59,449	2,752,880	15	3	4.5	639
SK Vand A/S	70,000	3,569,772	46	5	18.0	748
Skanderborg Forsyning A/S	22,904	1,094,263	11	5	13.0	299
Skive Vand A/S	32,334	2,440,744	25	7	10.0	747
SONFOR Vand A/S	37,054	1,953,976	23	7	16.0	434
Sorø Vand A/S	10,446	493,138	8	1	19.0	164
Struer Energi Vand A/S	15,663	941,626	13	4	6.3	314
Svendborg Vand A/S	27,946	1,751,893	21	5	20.0	420
Thy Forsyning A/S	33,170	3,037,836	34	8	13.0	934
TREFOR Vand A/S	147,000	10,848,645	78	10	14.0	1,484
Tønder Vand A/S	23,847	1,549,034	12	4	10.9	569
TÅRNBYFORSYNING Vand A/S	43,915	2,960,530	10	1	19.0	180
Vandcenter Syd A/S.	179,781	9,313,775	43	5	17.0	1,095
Vejen Forsyning A/S	10,361	959,664	6	2	8.9	184
Verdo Vand A/S	50,000	2,302,538	16	4	13.0	381
Vestforsyning Vand A/S	51,518	3,289,490	26	5	11.0	1,162
Vesthimmerlands Vand A/S	672	56,517	7	5	7.0	51
Aalborg Vand A/S	137,699	6,684,750	56	12	13.0	724
Aarhus Vand A/S	314,144	14,399,356	86	9	15.0	1,511

PROCESS BENCHMARKING (OVERALL KEY FIGURES)						TARIFFS 2025 (Level 1)		
Actual operating costs for production, distribution, customer management and general administration relative to billed water volume	Operating costs related to production relative to the volume of self-produced water pumped from own facilities	Operating costs related to distribution relative to the billed water volume in the utility's own supply area	Operating costs related to customer management relative to the number of meters	Operating costs related to general administration relative to billed water volume	Completed investments and renovations	Fixed annual charge, including VAT	Variable water charge, including VAT and fees	Cost for a consumption of 100 m³/year
€/billed m³	€/produced m³	€/billed m³	€/water meter	€/billed m³	€/billed m³	€	€/m³	€/year
0.79					0.41	117.29	1.99	316
1.19	0.37	0.60	9.85	0.14	0.92	135.05	2.11	346
0.79					0.60	100.54	2.28	329
1.04	0.17	0.34	12.56	0.42	1.77	150.80	2.74	425
0.63					1.09	0.00	3.49	349
0.85					0.87	0.00	4.14	414
0.92					3.22	113.94	3.15	429
0.89					2.26	0.00	3.32	332
0.63					1.05	0.00	3.28	328
0.50					1.30	0.00	3.51	351
0.92					3.26	0.00	3.40	340
0.32					0.52			
1.21					0.83	150.80	2.41	392
2.33					0.34	201.07	1.87	388
0.80	0.35	0.21	2.65	0.19	1.77	147.86	3.42	490
0.56					0.50	109.80	1.85	295
0.57					0.86	246.98	2.26	473
0.62	0.24	0.18	20.73	0.08	1.67	24.87	3.25	350
1.31					1.56	243.80	2.07	451
0.63					1.29	146.78	2.19	366
0.93					2.16	109.42	2.32	342
1.12	0.26	0.39	14.18	0.35	1.06	201.07	2.53	454
0.90	0.36	0.25	11.44	0.20	1.33	117.29	2.74	392
0.57	0.22	0.15	13.39	0.13	1.40	127.35	2.32	359
0.76					4.14	106.90	2.27	334
1.01					2.57	96.29	2.84	381
1.04	0.31	0.30	11.40	0.31	0.74	140.08	1.82	322
1.06	0.36	0.39	1.30	0.27	1.32	140.75	2.74	415
0.67	0.25	0.29	1.83	0.10	0.62	184.99	2.39	424
0.97	0.27	0.28	23.79	0.27	1.68	167.56	3.14	482
0.85	0.42	0.17	18.57	0.19	0.43	182.91	2.66	448
0.60	0.99	0.31	15.02	0.09	0.51	44.14	2.64	308
0.73	0.32	0.32	3.62	0.06	1.73	80.43	2.56	336
0.66					0.52	117.29	2.53	371
1.06	0.21	0.27	12.23	0.49	0.49	108.91	2.49	358
0.82					0.67	134.55	2.10	345
1.45					0.41	131.75	2.20	352
0.81	0.19	0.22	15.66	0.34	1.90	180.13	2.24	404
0.68	0.04	0.43	15.51	0.12	0.62	108.91	2.93	402

WASTEWATER UTILITIES THAT PARTICIPATED IN BENCHMARKING AND STATISTICS 2025 (DATA FOR 2024)	BASIC DATA					
	Residents in the utility district	Sewer pipes (wastewater and rainwater)	Amount of billed water (Water Regulation Authority definition)	Wastewater treatment plants above 30 PE	Influent water volume to treatment plants	Total organic load
Utility	persons	km	m^3/year	number	m^3/year	PE, person equivalents
AquaDjurs A/S (Spildevand)	73,497	2,205	3,214,862	10	11,687,594	111,047
Arwos Spildevand A/S	52,848	1,600	2,402,168	7	9,093,227	69,393
Assens Spildevand A/S	35,639	1,414	1,662,466	6	6,040,727	41,402
Billund Spildevand A/S	22,966	490	1,756,565	4	8,101,482	74,785
BIOFOS Lynettefællesskabet A/S		3	45,880,123	2	99,832,465	1,074,812
BIOFOS Spildevandscenter Avedøre A/S	270,000	58	12,985,425	1	28,943,644	355,488
Bornholms Spildevand A/S	30,000	836	1,674,527	7	7,322,273	42,917
Brønderslev Spildevand A/S	29,588	641	1,191,906	4	4,821,025	26,806
DIN Forsyning Spildevand A/S	162,220	2,826	8,457,902	14	33,763,688	223,412
Energi Viborg Spildevand A/S	81,833	2,140	3,908,111	12	12,358,318	85,760
Favrskov Forsyning A/S	43,935	1,221	1,814,901	6	4,911,192	46,905
Faxe Spildevand A/S	37,753	700	2,186,101	5	6,078,449	33,464
FFV Spildevand A/S	52,284	1,359	2,288,071	7	11,383,158	33,444
Fors Spildevand Holbæk A/S	69,876	1,288	3,052,121	9	8,303,925	68,563
Fors Spildevand Lejre A/S	28,361	626	1,057,858	7	3,189,402	19,523
Fors Spildevand Roskilde A/S	90,207	1,122	3,958,819	4	10,518,829	88,917
Forsyning Helsingør Spildevand A/S	62,000	696	2,821,971	3	7,110,984	39,919
Fredensborg Spildevand A/S	42,194	647	1,768,242	3	3,334,317	20,399
Fredericia Spildevand og Energi A/S	52,446	1,101	4,774,598	1	11,937,112	96,963
Frederiksberg Spildevand A/S	105,840	190	4,712,594			
Frederikshavn Spildevand A/S	57,726	1,164	3,425,884	7	12,820,323	200,950
Glostrup Spildevand A/S	24,869	236	1,402,920			
Gribskov Spildevand A/S	26,739	1,085	1,830,678	3	7,997,906	36,713
Halsnæs Spildevand A/S	29,833	626	1,328,381	2	4,632,114	20,981
Hedensted Spildevand A/S	38,116	1,221	1,879,247	4	8,380,952	40,265
Herning Vand A/S	80,257	1,653	3,937,605	11	16,201,377	143,937
Hillerød Spildevand A/S	54,855	659	2,931,791	4	8,578,314	48,001
Hjørring Vandselskab A/S	52,000	1,518	3,065,074	7	10,299,529	134,831
HOFOR Spildevand Albertslund A/S	28,133	364	1,147,681			
HOFOR Spildevand Brøndby A/S	40,435	262	1,789,714			
HOFOR Spildevand Dragør A/S	14,468		596,833	1	2,186,120	7,664
HOFOR Spildevand Herlev A/S	30,573	233	1,312,617			
HOFOR Spildevand Hvidovre A/S	53,805	387	3,046,811			
HOFOR Spildevand København A/S	668,906	1,448	30,902,548			
HOFOR Spildevand Rødovre A/S	44,690	217	1,769,262			
HOFOR Spildevand Vallensbæk A/S	18,244		647,566			
Ikast-Brande Spildevand A/S	36,000	897	1,873,031	3	7,055,723	35,720
Ishøj Spildevand A/S	24,365	202	1,048,424			
Jammerbugt Forsyning A/S	46,300	1,092	1,817,975	4	5,880,317	27,371
Kalundborg Rens og Spildevand	48,130	1,139	6,226,858	9	11,839,261	39,438

PROCESS BENCHMARKING (OVERALL KEY FIGURES)						TARIFFS 2025 (Level 1)		
Actual operating costs for transport, treatment, and customer management relative to billed water volume	Operating costs related to transport relative to billed water volume in the sewer system's catchment area	Operating costs related to treatment relative to billed water volume in the treatment plants' catchment area	Operating costs related to customer management relative to the number of meters	Operating costs related to general administration relative to billed water volume	Completed investments and renovations	Fixed annual charge, including VAT	Variable water charge, including VAT and fees	Cost for a consumption of 100 m³/year
€/billed m³	€/billed m³	€/m³	€/meter	€/billed m³	€/billed m³	€	€/m³	€/year
2.68					0.61	131.22	4.36	567
1.93	0.72	0.84	20.02	0.18	7.11	125.67	9.35	1,061
3.08	1.24	1.12	18.70	0.57	4.99	125.67	9.31	1,056
2.66					2.30	131.20	6.70	801
0.55					2.00			
0.72					1.20			
2.73	0.70	1.08	5.78	0.89	3.52	106.40	6.14	721
2.30	0.70	0.96	4.34	0.65	4.25	93.00	7.37	830
1.89	0.51	1.11	17.16	0.13	4.70	131.03	5.65	696
1.93					5.51	0.00	7.83	783
2.21					3.07	100.54	6.70	771
2.32					2.34	101.64	7.92	894
2.36					2.00	87.13	7.94	881
2.69	0.74	1.10	40.77	0.51	2.44	105.06	7.16	821
4.30	1.20	2.04	41.01	0.62	3.95	105.06	8.45	950
2.53	0.71	1.07	39.50	0.51	1.37	105.06	5.94	699
2.40					5.58	131.22	5.64	695
1.42	0.34	0.92	4.38	0.33	1.68	0.00	6.03	603
1.59	0.54	0.64	9.69	0.37	3.29	83.78	5.91	674
0.65	0.37		58.03	0.22	1.63	0.00	4.09	409
2.93	0.81	1.76	6.75	0.31	7.98	131.22	7.54	885
0.69					1.16	0.00	5.66	566
2.64	0.86	1.23	18.75	0.25	9.52	131.22	7.84	915
3.62	1.36	1.52	8.39	0.65	3.07	131.22	8.09	940
2.66	1.16	1.20	18.66	0.12	6.52	131.20	7.71	902
1.97	0.81	1.11	7.82	0.01	4.34	131.22	6.70	801
2.50					3.85	0.00	9.13	913
2.49					3.36	130.70	7.18	849
0.94					0.49	0.00	5.67	567
0.76					0.89	0.00	4.93	493
2.91					1.23	0.00	5.63	563
1.35					1.19	0.00	5.62	562
0.83					0.97	0.00	5.23	523
0.62					0.77	0.00	3.28	328
1.16					2.46	0.00	3.99	399
0.83					0.53	0.00	6.65	665
2.03					3.31	131.22	6.26	758
0.91					0.63	0.00	5.16	516
1.95	0.69	1.08	4.27	0.11	2.05	131.23	4.79	610
1.32	1.72	0.66	18.00	0.07	2.22	0.00	9.62	962

WASTEWATER UTILITIES THAT PARTICIPATED IN BENCHMARKING AND STATISTICS 2025 (DATA FOR 2024)	BASIC DATA					
	Residents in the utility district	Sewer pipes (wastewater and rainwater)	Amount of billed water (Water Regulation Authority definition)	Wastewater treatment plants above 30 PE	Influent water volume to treatment plants	Total organic load
Utility	persons	km	m^3/year	number	m^3/year	PE, person equivalents
Kerteminde Forsyning – Spildevand A/S	23,800	619	1,034,042	1	3,784,931	10,410
KLAR Forsyning Greve Spildevand A/S	51,110	739	2,127,474	1	6,515,411	49,471
KLAR Forsyning Køge Afløb A/S	59,893	929	3,904,514	3	8,107,248	78,538
KLAR Forsyning Solrød Spildevand A/S	24,579	361	901,912	1	2,459,569	17,697
KLAR Forsyning Stevns Spildevand A/S	21,101	556	850,454	4	2,585,022	21,367
Langeland Spildevand ApS	9,395	563	541,445	8	2,979,219	8,021
Lemvig Vand A/S	19,000	696	1,074,268	3	2,300,586	40,578
Lolland Spildevand A/S	19,040	1,154	3,024,871	24	9,138,370	30,357
Lyngby-Taarbæk Spildevand A/S	58,600	484	2,669,642			
Middelfart Spildevand A/S	40,157	991	1,618,186	6	8,935,631	55,537
Morsø Spildevand A/S	15,883	717	755,584	3	2,931,656	38,658
Mølleåværket A/S		11	4,859,061	1	10,226,110	58,952
NFS A/S	37,075	702	1,535,104	3	6,064,524	41,467
NK-Spildevand A/S	84,953	1,569	3,001,343	9	12,959,760	47,459
Novafos Måløv Rens A/S		3	2,132,899	1	4,312,941	58,153
Novafos Spildevand Allerød A/S	25,563	372	1,071,755	3	3,012,693	23,260
Novafos Spildevand Ballerup A/S	52,850	458	2,529,660			
Novafos Spildevand Egedal A/S	44,090	682	1,565,395	3	3,356,512	24,715
Novafos Spildevand Frederikssund A/S	44,521	799	1,939,842	6	5,691,295	49,591
Novafos Spildevand Furesø A/S	42,246	434	1,815,763	1	1,662,046	17,279
Novafos Spildevand Gentofte A/S	75,028	485	3,433,431			
Novafos Spildevand Gladsaxe A/S	70,956	372	3,288,683			
Novafos Spildevand Hørsholm A/S	24,977	232	1,668,249	1	4,517,538	36,533
Novafos Spildevand Rudersdal A/S	56,845	549	2,463,649	3	4,746,064	27,455
Odsherred Spildevand A/S	28,200	993	1,129,246	9	4,054,216	35,876
Provas-Haderslev Spildevand A/S	50,585	1,276	2,285,294	9	12,111,488	70,020
Rebild Vand & Spildevand A/S	24,567	804	1,140,281	10	634,357	6,313
Ren Forsyning Mariagerfjord	36,000	1,272	2,196,183	1*	6,701,359	106,873
Ringkøbing – Skjern Spildevand A/S	41,150	1,620	2,957,221	9	9,067,274	80,508
Ringsted Spildevand A/S	35,005	788	1,873,102	3	6,003,619	65,606
Samn Forsyning – Horsens Vand A/S	90,738	1,781	5,161,271	3	14,386,381	137,523
Samn Forsyning – Odder Spildevand A/S	20,943	572	924,454	2	2,539,151	18,635
Silkeborg Spildevand A/S	101,574	1,920	3,944,044	8	8,834,335	95,677
SK Spildevand A/S	79,116	1,359	3,230,613	22	9,863,414	126,582
Skanderborg Forsyning A/S	60,351	1,291	2,645,559	5	7,347,033	67,675
Skive Vand A/S	32,632	1,112	1,759,224	5	8,484,527	41,468
SONFOR Spildevand A/S	74,233	1,697	3,074,363	5	9,507,551	72,775
Sorø Spildevand A/S	21,500	499	1,010,008	5	3,339,666	19,972
Struer Energi Spildevand A/S	20,229	509	823,033	3	2,564,364	20,930
Svendborg Spildevand A/S	43,970	1,055	2,541,765	6	10,424,803	64,639

* The treatment plant is jointly owned by Ren Forsyning Mariagerfjord, Rebild Forsyning, and Vesthimmerland Forsyning.

PROCESS BENCHMARKING (OVERALL KEY FIGURES)						TARIFFS 2025 (Level 1)		
Actual operating costs for transport, treatment, and customer management relative to billed water volume	Operating costs related to transport relative to billed water volume in the sewer system's catchment area	Operating costs related to treatment relative to billed water volume in the treatment plants' catchment area	Operating costs related to customer management relative to the number of meters	Operating costs related to general administration relative to billed water volume	Completed investments and renovations	Fixed annual charge, including VAT	Variable water charge, including VAT and fees	Cost for a consumption of 100 m³/year
€/billed m³	€/billed m³	€/m³	€/meter	€/billed m³	€/billed m³	€	€/m³	€/year
2.28	0.75	1.07	28.86	0.17	1.17	131.23	5.86	718
1.86	0.73	0.81	20.29	0.16	1.03	0.00	5.16	516
1.23	0.57	1.10	16.01	0.03	2.53	0.00	7.38	738
1.98	0.73	1.04	16.68	0.07	1.53	0.00	6.23	623
2.55	0.99	1.26	16.27	0.10	5.53	101.04	7.56	857
4.36					3.00	131.22	8.24	955
2.83					3.20	131.35	6.78	809
1.83	1.23	0.90	12.95	0.16	2.96	131.22	9.54	1,085
0.76					1.31	0.00	8.14	814
2.60	0.58	1.52	13.90	0.33	3.13	131.20	7.57	889
3.51	1.75	1.29	11.53	0.34	3.06	131.22	11.06	1,237
1.01					0.47			
2.49					2.79	100.54	6.47	747
2.23	0.76	0.92	13.95	0.43	5.17	131.22	8.98	1,029
0.81					0.36			
2.09					6.24	0.00	7.83	783
0.56					0.69	0.00	6.68	668
1.74					2.80	0.00	8.31	831
2.68					4.11	99.87	7.56	856
1.62					3.38	0.00	7.09	709
0.46					2.11	0.00	6.55	655
0.49					0.75	0.00	5.44	544
1.25					4.81	0.00	6.51	651
1.30					2.44	0.00	6.29	629
4.09					14.54	131.22	8.13	944
2.18	0.65	1.09	3.60	0.41	2.51	131.23	8.93	1,024
					11.77	130.70	7.88	918
					5.07	109.94	7.49	859
1.83					3.81	131.23	7.43	874
2.21	1.19	1.04	23.79	0.06	9.84	0.00	10.13	1,013
1.63					3.92	117.76	5.17	634
2.38					5.34	117.76	5.45	663
2.12					3.93	111.60	5.70	681
2.91	0.67	1.64	11.25	0.48	2.69	131.22	7.83	915
2.62	0.70	1.25	24.87	0.47	3.26	125.67	7.62	888
2.47	1.13	0.96	8.52	0.29	4.24	134.05	6.93	827
2.64					4.16	78.08	8.24	902
3.31					11.00	131.22	7.81	912
2.61	0.94	1.31	9.45	0.31	2.81	131.22	5.95	726
2.81	0.94	1.58	5.65	0.24	2.70	65.68	6.30	696

WASTEWATER UTILITIES THAT PARTICIPATED IN BENCHMARKING AND STATISTICS 2025 (DATA FOR 2024)	BASIC DATA					
	Residents in the utility district	Sewer pipes (wastewater and rainwater)	Amount of billed water (Water Regulation Authority definition)	Wastewater treatment plants above 30 PE	Influent water volume to treatment plants	Total organic load
Utility	persons	km	m^3/year	number	m^3/year	PE, person equivalents
Thy Forsyning A/S	61,765	1,036	2,256,531	3	7,466,010	121,079
Tønder Spildevand A/S	29,096	920	2,444,898	18	8,102,233	61,791
TÅRNBYFORSYNING Spildevand A/S	42,723	268	2,246,398	1	5,467,687	51,361
Vandcenter Syd A/S,	242,157	3,071	11,102,947	8	39,688,490	314,514
Vandmiljø Randers A/S	94,716	1,965	4,410,167	4	11,906,570	99,263
Vejen Forsyning A/S	33,413	968	2,027,997	5	9,046,263	47,266
Vejle Spildevand A/S	109,433	2,419	5,369,944	7	21,711,526	162,005
Vestforsyning Spildevand A/S	47,918	1,399	3,738,459	6	9,176,981	112,898
Vesthimmerlands Vand A/S	30,162	1,099	2,060,123	3	3,031,453	62,558
Aalborg Kloak A/S	215,124	2,723	10,337,875	2	30,794,189	245,390
Aarhus Vand A/S		4,137	15,829,206	4	38,378,848	323,153

PHOTO: THY FORSYNING

PROCESS BENCHMARKING (OVERALL KEY FIGURES)						TARIFFS 2025 (Level 1)		
Actual operating costs for transport, treatment, and customer management relative to billed water volume	Operating costs related to transport relative to billed water volume in the sewer system's catchment area	Operating costs related to treatment relative to billed water volume in the treatment plants' catchment area	Operating costs related to customer management relative to the number of meters	Operating costs related to general administration relative to billed water volume	Completed investments and renovations	Fixed annual charge, including VAT	Variable water charge, including VAT and fees	Cost for a consumption of 100 m³/year
€/billed m³	€/billed m³	€/m³	€/meter	€/billed m³	€/billed m³	€	€/m³	€/year
2.43	0.94	1.28	2.11	0.19	3.20	131.22	8.05	937
2.08	0.53	0.89	10.36	0.43	2.25	131.22	7.81	912
1.70	0.36	1.15	12.87	0.13	1.53	0.00	5.20	520
1.71	0.58	0.93	7.92	0.15	4.59	100.54	5.95	695
1.74	0.63	0.74	18.27	0.29	7.38	107.24	6.12	719
2.27					5.99	102.21	7.00	802
2.06					3.61	133.53	6.03	737
1.95					2.86	131.75	5.67	699
					4.52	104.22	6.66	770
1.68	0.54	0.59	17.97	0.40	4.31	131.20	4.73	604
1.40	0.44	0.55	9.13	0.27	2.02	100.54	4.92	592

PHOTO: VEJEN FORSYNING

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Key Figures, 2024

Based on participants in DANVA Benchmarking and Statistics:

- ½ litre of drinking water costs ¢0.55 when drawn from the tap.
- Household water consumption in Denmark averages 97 litres per person per day.
- Electricity used for 1,000 litres of water abstracted from the ground, delivered to the consumer and drawn from the tap averages 0.44 kWh. Transport, treatment and discharge to the recipient use on average 1.44 kWh. In total, this gives purchased electricity of 1.88 kWh. Deducting self-produced electricity by utilities gives a net electricity consumption of 1.68 kWh per 1,000 litres.
- The climate impact of delivering 1 m^3 of water sold and subsequently treating it again, measured as actual operational emissions from waterworks and treatment works, is: Drinking water: 45 g CO_2e/m^3 for Scopes 1+2 and 51 g CO_2e/m^3 for Scope 3 (operations). Wastewater: 744 g CO_2e/m^3 for Scopes 1+2 and 260 g CO_2e/m^3 for Scope 3 (operations).

See sector averages for the water sector on page 35.

PHOTO: FLEMMING BRANDSTRUP, DANVA