Inflight Magazine

Discover Denmark's resource-efficient industries

STATE OF GREEN

Connect. Inspire. Share. Think Denmark

stateofgreen.com

Inflight Magazine 2023
Discover Denmark's
resource-efficient industries

Editor
State of Green: Gry Klitmose Holm,
gkh@stateofgreen.com

State of Green: Joel Matias Jonsson,
jjo@stateofgreen.com

State of Green: Christian Hehnel,
chh@stateofgreen.com

Cases provided by
Kalundborg Symbiosis
GreenLab
Grundfos
Nordic Harvest
NIRAS

Design
Essensen

Front page photo
Kalundborg Symbiosis

Download this publication
Download this and other publications at
stateofgreen.com/publications

For more information
To order copies of this publication or receive more information about other related publications, please contact State of Green at
info@stateofgreen.com

Funded by
the European Union

Forewords

Welcome to Denmark

In a time where global resources are becoming increasingly scarce and the industrial sectors account for over 20 percent of total greenhouse gas emissions, major industries need to adapt and limit their energy and water consumption.

This is why the European Union and its member states agreed to commit to an ambitious energy efficiency target of at least 32.5 percent by 2030 compared to projections of the expected energy use. Besides being a cornerstone in delivering on the Paris Agreement, resource conservation and energy efficiency reduce costs, lower air pollution, and improve competitiveness. Producing more with less is now more crucial than ever before.

Furthermore, Denmark is committed by law to reducing its greenhouse gas emissions by 70 percent by 2030 compared to 1990 levels. Promoting energy efficiency is an essential part of the plan, and the Danish journey toward a more energy-efficient society traces back to the early 1970s.

Since then, public and private players have worked together to secure Denmark's position at the forefront of renewable energy, energy-efficient solutions, and sector integration within industries, such as the food and beverage industries.

This has taught us valuable lessons and experiences, showing that the pursuit of energy efficiency is a multi-faceted endeavour; and that economic growth and energy consumption not necessarily need to go hand-in-hand.

Standing on the shoulder of more than five decades of dedicated efforts, I hope that Danish lessons as presented in this inflight magazine will inspire and instigate an even greater appetite for energy-efficient measures before your visit to Denmark.

By Finn Mortensen
Executive Director, State of Green

PHOTO: KALUNDBORG SYMBIOSIS

Content

Denmark's road to resource-efficient industries

All over the world, industries across sectors are facing a pressing dilemma: the escalating scarcity of resources. This calls for a decarbonisation of industries using heavy amounts of energy and water, instead shifting to a focus on sustainable resource consumption through resource-efficient solutions.

With global population and income levels going up, so is the use of resources worldwide. This especially accounts for energy, which is used to power our homes and produce various goods and services, as well as water, which is vital for survival, development, and production across sectors. These precious yet limited resources pose a challenge to industries striving to curtail their substantial daily consumption.

70%

The Food and Agriculture Organization of the United Nations, FAO, indicates that by 2050, a 70 percent increase in current food production will be necessary.

This calls for a paradigm shift towards producing more while using less – not only to reduce environmental impact but also to harness the competitive advantages in heightened production efficiency.

Decarbonising energy-intensive industries

Industrial sectors are responsible for over 20 percent of total greenhouse gas emissions, placing a high amount of pressure on energy and water resources. Energy-intensive sectors, such as the food and beverage industry, require significant amounts of energy in the production, process, and transportation of products.

It is estimated that the food and beverage industry accounts for approximately 30 percent of global energy consumption in the industrial sector. Furthermore, the food and beverage processing industry has significant potential for cost reductions, particularly in the area of energy efficiency, where the cost of milk and cheese processing can be reduced by over 30 percent.

As an important tool to address these challenges, the implementation of energy-efficient solutions is essential. By optimising energy usage and reducing waste, especially in energy-heavy industries, companies can achieve significant cost savings and secure sustainable resource consumption, while enhancing their market competitiveness and improving operational efficiency.

55-65%

In 2021, the Danish Parliament passed an agreement, which commits the Danish food & agriculture sector to reduce its greenhouse gas emissions by 55-65 percent by 2030 compared with 1990 levels.

Denmark's journey towards energy efficiency

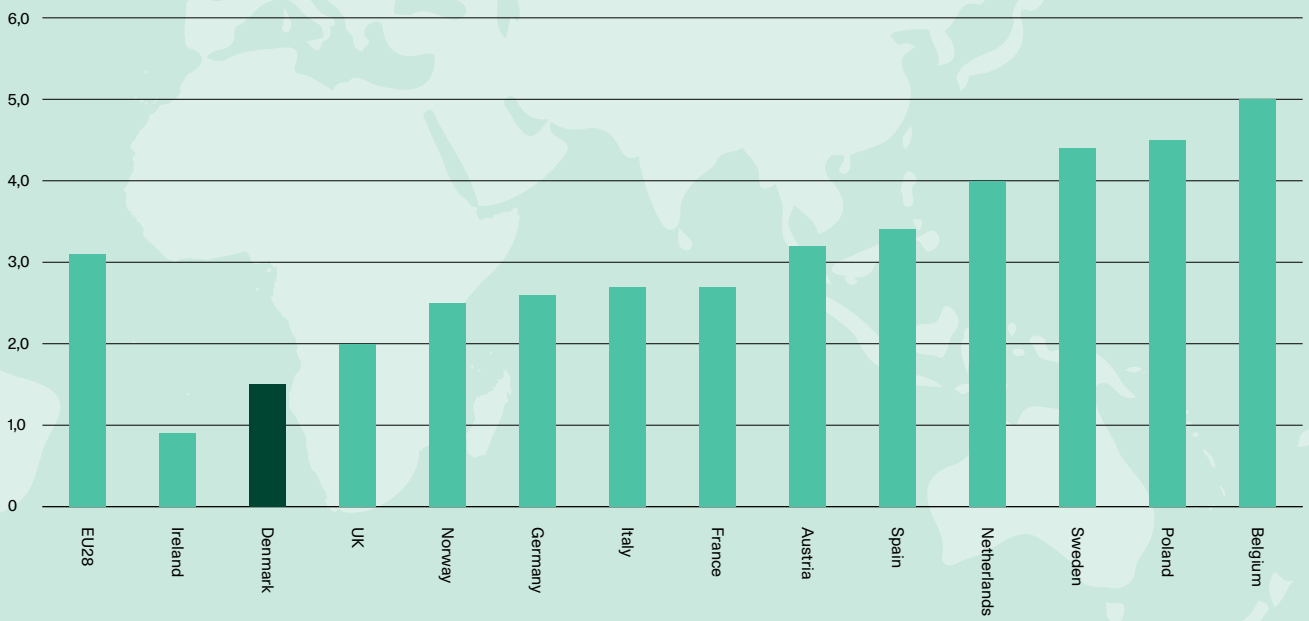
Energy efficiency has been an embedded part of Denmark's mindset for decades, as Denmark has worked with energy efficiency measures since the 70s. With different policies, initiatives, and instruments implemented, spanning from normative, informative, and economic purposes, it has been proved that decoupling economic growth from an increase in energy consumption is possible. Furthermore, there is great potential in harvesting low-hanging fruits from conducting energy efficiency improvements.

Danish food and beverage producers have been refining their methods to produce more with less for a number of years now. The Danish industry as a whole has reduced energy intensity in production by more than 50 percent from 1990 to 2018 and decreased by approximately 40 percent in the EU.

The Danish food sector, in particular, has undergone significant development over the years. From the end of the 1960's, the production value of the Danish food industry has gone up by over 80 percent while the energy consumption from food production has reduced with over 20 percent. →

Energy intensity in industry, TJ per million Euro (2019)

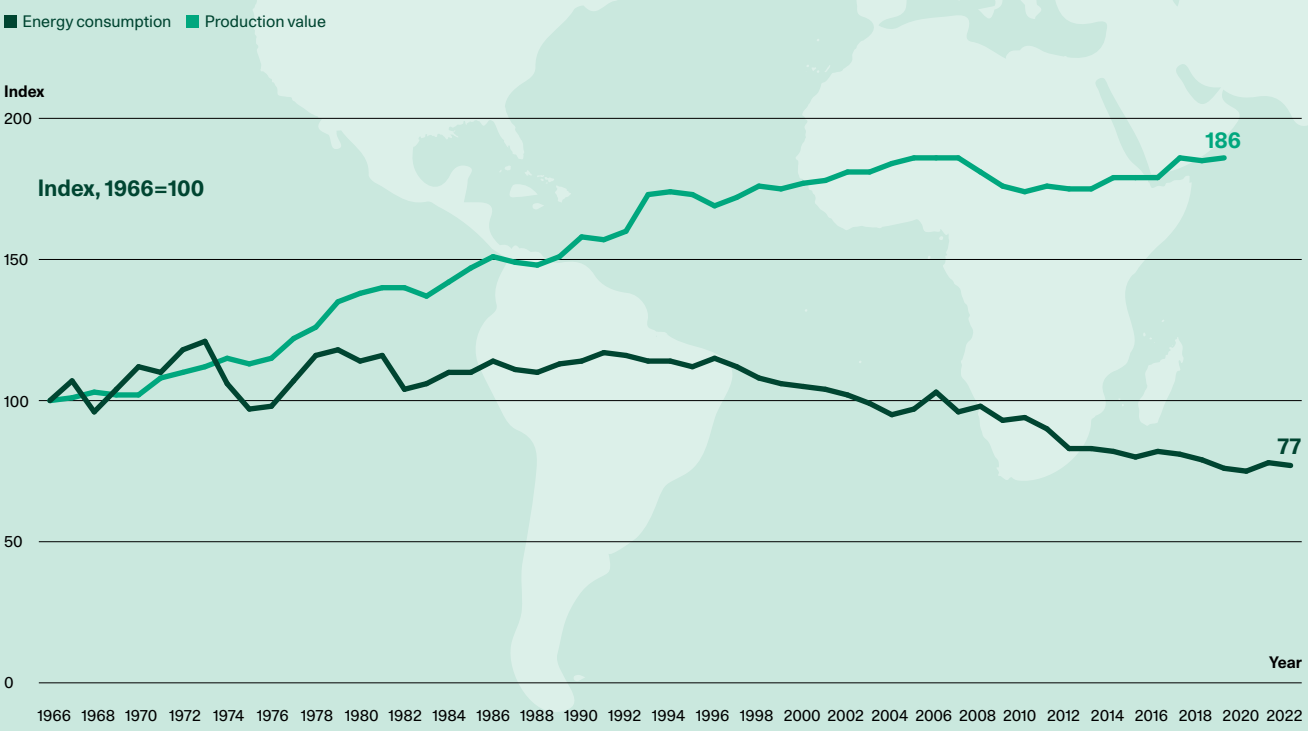
Source: White paper "Sustainable Industries"



Danish industry boasts one of the lowest rates of energy intensity among European countries at approximately half the intensity of the EU28 average. This is partly due to concerted efforts by industry – incentivised through regulation, financing and increased awareness. These efforts have reduced energy intensity in industry by 50 percent since 1990, by 16 percent since 2010, and the quest for improving energy efficiency continues.

Energy efficiency in the Danish food industry

Source: Danish Agriculture and Food Council & Statistic Denmark



Additionally, the industry has managed to reduce its emissions by 16 percent between 1990 – 2016, while simultaneously increasing production rate by 31 percent.[1]

Therefore, industry stands out as a frontrunner in energy efficiency compared to other sectors of the economy. Experience shows that large efficiency improvements can be achieved through optimised production equipment, building and workflow by realising the full potential of digitalisation and behavioral changes. Moreover, a strong focus from management's side is needed.

Further improvements are obtained by switching to a greener energy supply, and by harvesting the potential in surplus energy and water resources that would otherwise have been wasted.

The solutions needed for a green transition of global industries are in many cases already available and the potential for saving energy is tremendous. Improved efficiency of energy, water, and other resource consumption will allow industry to realise substantial economic gains now, while contributing to the realisation of the Paris Agreement and the Sustainable Development Goals. Especially in regards to the goals focusing on clean energy, clean water, industry, sustainable cities, and climate action.

[1] https://agricultureandfood.dk/climate-neutral-2050/climate-neutral-2050

White paper: Sustainable industries

Interested in learning more about how Denmark has worked on securing resource and energy efficiency throughout industrial sectors?

Presenting a deep dive into the Danish industrial landscape, State of Green's white paper on "Sustainable Industries" offers insights and examples of innovative solutions contributing to the nation's 24 percent decrease in energy consumption over the last two decades.

Discover the impact of resource efficiency in industries and learn how innovative Danish companies are reshaping production models, optimizing supply chains, and reducing waste. Explore the regulatory framework driving energy efficiency and understand how policies are propelling industries towards greener operations, fostering economic growth and environmental preservation in the process.

We hope that the white paper can act as a source of inspiration, fostering more sustainable industries and resource efficiency benefiting both businesses and society in the future.

DISCOVER

White paper: Sustainable Industries

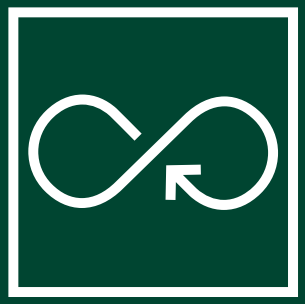
This whitepaper provides insight into the sustainable journeys of multiple industrial sectors in Denmark. Get to know the solutions of the food and beverage sector, the lifescience and pharmaceutical sector, and the manufacturing sector, while learning about the innovative concept of industrial symbiosis.

Discover the white paper at https://stateofgreen.com

Cases

Danish solutions – nationally and globally

PHOTO: FOOD NATION / NIELS HOUGAARD



Industrial Symbiosis

CASE 1 • KALUNDBORG SYMBIOSIS
THE WORLD'S FIRST INDUSTRIAL SYMBIOSIS: FROM WASTE STREAM TO RESOURCE CURRENT

CASE 2 • GREENLAB
THE GREEN AND CIRCULAR INDUSTRIAL PARK OF THE FUTURE

Food Production

CASE 3 • GRUNDFOS
REDUCING ARLA'S ENERGY CONSUMPTION ACROSS ITS GLOBAL PRODUCTION FACILITIES

CASE 4 • NORDIC HARVEST
VERTICAL FARMING PROVIDES SUSTAINABLE VEGETABLES, ALL YEAR ROUND

Beverage Production

CASE 5 • NIRAS
HALVING THE ENERGY CONSUMPTION IN CARLSBERG'S BREWERY

CASE 6 • GRUNDFOS
SMART TECHNOLOGY SUPPLIES CRAFT BREWERY WITH QUALITY WATER

PHOTO: KALUNDBORG SYMBIOSIS

CASE 1 KALUNDBORG SYMBIOSIS
TAG INDUSTRIAL SYMBIOSIS
LOCATION KALUNDBORG, DENMARK

The world's first industrial symbiosis: from waste stream to resource current

Challenge

It takes about 1.5 years to replace what we use and consume in one year. This requires a new way of thinking and a new economic model – one which encourages the use of circular business models and reuse of resources.

This is exactly what the symbiosis model strives to do. With a main aim to reuse resources in a mutually beneficial way, reducing consumption and saving money, an industrial symbiosis is a partnership between different industries and business to share resources, such as materials, energy, water, and expertise.

FACTS

Every year, the symbiosis saves partners and the environment:

- 62.000 tonnes of residual materials which are recycled.
- 4 million m^3 of groundwater by using surface water instead.
- 586.000 tonnes of CO_2 emissions.
- 80 percent of the CO_2 emissions in the Symbiosis have been reduced since 2015.
- The local energy supply is now CO_2-neutral.

Solution

Developed back in 1972, Kalundborg Symbiosis was the first industrial symbiosis in the world. With its circular approach to production, Kalundborg Symbiosis remains as one of the world's leading industrial symbioses and is today a partnership between sixteen public and private companies in the municipality of Kalundborg in Denmark. The project facilitates an opportunity for the companies to synergistically leverage each other's residual and byproducts, sharing and reusing resources, thus making savings and minimizing waste. The collaborative approach bolsters production without imposing additional strains on energy, water, or natural resources.

For example, biotech companies such as Novozymes and Novo Nordisk contribute with their residual biomass to Kalundborg Bioenergy, a biogas plant owned and operated by Bigadan. Here, biogas is produced and upgraded to natural gas quality through a refining process where carbon dioxide and hydrogen sulphide are removed from the product. Biomethane is send to local companies, Gyproc, Unibio and Kalundborg Refinery, and to end consumers via the national gas grid. Sulphur from the hydrogen sulphide fraction is collected and reused in fertilizer products together with the gasified biomass residual. In conclusion, the symbiosis turns one company's waste into a steady resource flow for another, benefiting both the environment and the economy.

Result

Kalundborg Symbiosis is a perfect demonstration of circular economy: residue is used for energy production in a local set-up, saving transportation costs on both biomass (supply) and fertiliser (output) over long distances. The cooperation ensures local companies obtain a green energy supply at the same time as resources are being used, shared, and saved in a sustainable way.

The Kalundborg Symbiosis is a great example of a circular business model, creating growth in the local community, while supporting the green transition.

PHOTO: KALUNDBORG SYMBIOSIS

Kalundborg SYMBIOSIS

About

Kalundborg Symbiosis is a partnership between sixteen public and private companies in Kalundborg. The main principle is that a waste stream in one company becomes a resource in another, benefiting both the environment and the economy.

Discover Kalundborg Symbiosis at stateofgreen.com

PHOTO: GREENLAB

CASE 2 GREENLAB
TAG INDUSTRIAL SYMBIOSIS
LOCATION SKIVE, DENMARK

GreenLab: the green industrial park of the future

Challenge

The green transition requires investment in emerging technologies, the facilitation of new collaborations, and the willingness to lean into uncertainty and complexity with no guarantee of a big return. However, it is essential for driving change in the green transition of industries and hard-to-abate sectors.

So, how can you succeed in transforming a green field into a unique, green, and circular industrial park that facilitates complex projects, accelerates emerging technologies, and simultaneously focuses on minimising industrial waste in just four years?

Solution

GreenLab – a unique, green and circular industrial park was established in 2019 and is a public-private partnership between Skive Municipality, Norlys, Spar Vest Fonden and Klimafonden. In 2021, the Danish government designated GreenLab as an official regulatory test zone granting GreenLab the opportunity to try new circular business models and direct connections between renewable energy and industry, including the companies at GreenLab and its power-to-X test site.

GreenLab will be the first site in Denmark to connect renewable energy to industry and power-to-X through a direct connection, and is internationally acknowledged as a frontrunner and a best-practice example of an industrial symbiosis.

The test zone permit is one of a kind in Europe, providing valuable insights for all of Europe's green transition – including clean energy storage, green fuels, agriculture, and industry.

GreenLab acts as a facilitator for complex and risky projects, taking responsibility for collaboration agreements with several stakeholders, contact with state-owned companies, as well as steering committee meetings and support off-take arrangements.

GreenLab brings together energy producers and industrial energy consumers, and the co-location and integration of production and consumption increases the likelihood of reaching parity and reduces the need for transportation of energy, which is often very expensive.

Result

GreenLab will be the first site in Denmark to connect renewable energy to industry and power-to-X through a direct connection, and is internationally acknowledged as a frontrunner and a best-practice example of an industrial symbiosis. The six active companies located in the industrial park focus on zero waste in their work with technologies like pyrolysis, electrolysis etc., to create marine protein, biochar, biogas, naphtha, green hydrogen, and other green products. GreenLab and its site partners have created local green growth, generated more than 100 jobs and attracted over 3 billion in investments, including an 80 MW renewable energy site located near the green industrial park.

In August 2023, the United Nations Industrial Development Organisation published a report on guidelines for developing green industrial hydrogen clusters. GreenLab is a contributor and is highlighted by the UN as a best-practice example.

GreenLab

About

GreenLab is a unique, green and circular industrial park that generates sustainable energy, supplies it to local businesses, and transforms it into heat, electrofuels, and other green products.

Discover GreenLab at stateofgreen.com

PHOTO: GRUNDFOS

CASE 3 GRUNDFOS
TAG RESOURCE EFFICIENT PRODUCTION OF FOOD
LOCATION WESTBURY, UNITED KINGDOM

Reducing Arla's energy consumption across its global production facilities

Challenge

Arla Foods, one of the biggest dairy companies in the world, has set an ambitious target of becoming carbon neutral by 2050, and a goal of deriving 100 percent of the used energy from renewable sources by 2025. With a focus on efficiency targets based on quantifiable data, Arla has set a target of reaching a 63 percent reduction in carbon emissions across its 60 global facilities.

One of these facilities is the Westbury site, located in the UK. Built back in 2002, the plant has served as a balancing plant for long-shelf-life products based on milk and cream surpluses. However, as the plant had effectively been working for 20 years, the original pumps have seen better day and requires frequent service and maintenance.

Reports stated that optimization and downsizing of the existing system would generate energy savings and process improvements through better control and operational nodes.

Solution

For Arla Foods, their global network of dairies provides an opportunity to significantly reduce their energy consumption and thereby improve efficiency, and to realise this, they joined a partnership with Grundfos to provide insights and services.

Grundfos was appointed to identify, report and achieve energy reductions across Arla Foods' 60 global dairy sites, helping to enhance core systems by replacing pumping systems with high efficiency systems with state-of-the-art motors, pumps and controls.

This included the Westbury site, where Grundfos have installed new intelligent pumps and controls, and delivered a turnkey end-to-end system for chilled and ice water, including installation, piping, commissioning, and validation of savings.

Results

With the help of Grundfos, Arla Foods' pursuit of reaching its 2050 goal of net zero carbon emissions has commenced at its Westbury facility. The new intelligent pumps have achieved energy savings of 481.800 kWh energy as well as reducing carbon emissions by 194 tonnes every year. Since the pumps' installation, Arla Foods has achieved a return on investment in less than two years.

The new intelligent pumps have achieved energy savings of 481.800 kWh energy as well as reducing carbon emissions by 194 tonnes every year.

Arla Foods now has pressure to control behind them as well as the monitoring capability to view the power consumption of the pumps locally. An additional benefit to the solution comes in the form of not having water spillages as well as a plant room, that is easier to maintain.

Grundfos also helped update the boiler feed pumps at the Westbury site. The steam boilers are a part of many processes in the dairy production and are critical for running the evaporators, where steam is the main part of this process. The update resulted in annual savings on the boiler feed with new pumps was 4096 kilowatt hours per year and 33.81 tonnes of CO_2 equivalent.

GRUNDFOS

About

Grundfos is a global water technology company committed to pioneering solutions to the world's water and climate challenges and improving the quality of life for people. An annual production of more than 17 million pump units makes Grundfos one of the world's leading pump manufacturers.

Discover Grundfos at stateofgreen.com

PHOTO: NORDIC HARVEST

CASE 4 NORDIC HARVEST
TAG RESOURCE EFFICIENT PRODUCTION OF FOOD
LOCATION TAASTRUP, DENMARK

Vertical farming provides sustainable vegetables, all year round

Challenge

Projections estimate that the global population will reach 10 billion individuals by 2050. As of today, we are steadily approaching the 8 billion mark. However, half of Earth's land surface is already cleared for food production - and this proportion only seems to increase.

Wetlands are drained, forests are cleared, and aquatic ecosystems are depleting relative to Earth's growing population. Furthermore, significant quantities of fresh produce are being imported from foreign countries due

to lower production costs, which in return contributes to detrimental carbon emissions through transportation. While this approach helps fulfil the world's nutritional needs, it regrettably results in global environmental deterioration and declining animal and insect populations.

Solution

In one of the world's largest vertical farms, Nordic Harvest successfully cultivates 250 tons of fresh greens annually using a 14-story vertical farming approach in their Taastrup-facility.

The plants are growing free from soil in nutrient-enriched water while being completely soil-free. Their need for photosynthesis is catered to by LED lighting, and to enhance their growth further, controlled amounts of CO_2 are released into the air.

This facility grants Nordic Harvest the capability to regulate factors like air moisture and temperature, irrespectively of changing seasons, wind, and weather. Operating within this controlled and closely monitored environment, the plants experience optimal growth conditions, shielded from external threats such as pests, fungal spores, bacteria, and unwanted particles.

Result

As a result, Nordic Harvest' plants thrive in a pesticide-free and hazardless environment enabling them to grow from seedling to sprout in only 2 to 3 weeks. This atmosphere allows them to develop from seedlings to sprout within a short span.

Throughout this growth journey, the production process utilises 90-95 percent less water and 60-65 percent less fertilizer compared to traditional cultivated land methods. Adding to these benefits, locally sourced production significantly lowers carbon emissions, avoiding the need to import vegetables from abroad.

By only using wind energy for cultivating and embracing a hydroponic growth method within their 14-story vertical farm facility, Nordic Harvest holds the potential to make Denmark self-sufficient in lettuce, cabbage, and herbs using an area equivalent to just 20 football fields.

90-95%

Nordic Harvest's production process utilises 90-95 percent less water and 60-65 percent less fertilizer compared to traditional cultivated land methods.

PHOTO: NORDIC HARVEST

NORDIC HARVEST

About

Nordic Harvest is dedicated to establishing a genuinely sustainable food production model. Operating from one of the world's largest vertical farms located in Taastrup, Nordic Harvest provides locally grown and environmentally friendly greens.

Discover Nordic Harvest at stateofgreen.com

PHOTO: FOOD NATION / NIELS HOUGAARD

CASE 5 NIRAS
TAG WATER EFFICIENCY IN INDUSTRIES
LOCATION FREDERICIA, DENMARK

Halving the water use in Carlsberg's brewery

Challenge

A typical criticism of one's least favourite brand of beer is that it tastes too watery. While taste is subjective, water is integral to the brewing process, which requires large amounts of energy and water for heating, cooling, cleaning, and sterilisation.

This is also the case for one of the world's biggest beer brands, Carlsberg, that were facing challenges in achieving greater water efficiency, while maintaining high production levels at its brewery located in Fredericia, Denmark.

FACTS

The recycling plant at Fredericia brewery:

- Carlsberg opened Fredericia Brewery on September 25, 1979. NIRAS was involved in the construction of the brewery through the company DanBrew that since has become a part of NIRAS.
- The recycling plant was finished in the spring of 2021.
- The plant reduces the water usage from 2,9 hectoliters to 1,4 hectoliters pr. Hectoliter of beverage produced at the brewery.
- On a global level, Carlsberg's aim is to halve its water usage from 3,4 hectoliters to 1,7 hectoliters pr. hectoliter of beverage produced.

In alignment with its "Together Towards ZERO Programme", Carlsberg set an ambitious goal to halve its overall water usage and eliminate water waste. To achieve this, the brewery needed a groundbreaking solution that could recycle a significant portion of its processed water and substantially reduce its water consumption.

Solution

The Carlsberg brewery in Fredericia, Denmark, was selected as a test site for the Carlsberg Group's first total water recycling plant. In a strong partnership with NIRAS, Carlsberg constructed a state-of-the-art water recycling plant at the brewery, which enables the recycling of an impressive 90 percent of process water, making it one of the most water-efficient large breweries globally. The new recycling plant also makes it Carlsberg's first brewery to virtually eliminate water waste.

With the assistance of NIRAS' experts, Carlsberg has taken an important step towards fulfilling its ambition to secure zero water waste at its breweries, including a target to halve the overall water usage. The new plant reduces average water consumption at the brewery from 2.9 hectoliters of water per hl of beer to 1.4 hectoliters of water per hectoliter of beer.

Results

Working together, Carlsberg and NIRAS achieved a significant reduction in water use at the brewery making it the most water-efficient production plant in the Carlsberg Group, and one of the most water-efficient larger breweries globally.

This project demonstrates how collaboration and innovative solutions can lead to more efficient water usage and environmental sustainability.

NIRAS

About

NIRAS is an international consulting group (HQ in Denmark) specialising in engineering, planning and project management, with a mission to secure sustainable progress for clients and societies by delivering next generation consultancy.

Discover NIRAS at stateofgreen.com

PHOTO: FOOD NATION / NIELS HOUGAARD

CASE 6 GRUNDFOS
TAG WATER EFFICIENCY IN INDUSTRIES
LOCATION CINCINNATI, OHIO, US

Smart technology supplies craft brewery with quality water

Challenge

Consistency is paramount in brewing operations. Careful attention directed towards the quality control of water ensures a consistent flavour for every batch of beer, regardless of where it is distributed. This is especially true for the American brewery MadTree Brewing, Ohio's first canned craft brewer, that uses reverse osmosis (RO) for all its process water.

Reverse osmosis can customise the water source, a critical process in producing MadTree's critically acclaimed portfolio of beers. From a German Kölsch to a French Saison, each beer maintains a consistent mineral profile and an accurate brewing water profile.

Due to high customer demand and hitting a maximum of 25.000 barrels of beer, MadTree decided to migrate and relocate its operations.

By relocating the capacity for future growth was increased by a potential output of additional 180.000 barrels, compared to 25. In addition, MadTree had to raise their RO production rates by adopting a larger system while switching to a new city water source.

The Grundfos pumps require minimal maintenance and boast exceptional reliability, along with a simple interface easing the process of adjusting the flow rate.

The transition to utilising the City of Cincinnati's water introduced a new set of requirements for pretreatment. A process that entails chemical infusions within the pre filter section of the RO unit to eliminate undesired chloramines used in the city water.

Solution

In the pursuit of a more efficient and growth prepared facility, MadTree collaborated with Veoila Water Technologies on implementing a RO skid system aligned with the brewer's requirements.

Implemented in the new system were two Grundfos SMART digital dosing pumps and a Grundfos CRN vertical multistage centrifugal pump which were specified for the 100 gpm RO packed system. These dosing pumps were selected for their accuracy across a broad range for chemical injection at two key points in the process.

Beyond the RO System, MadTree leverages the prowess of two Grundfos CRN pumps for the system's water supply and recirculation framework, as well as two Grundfos CR pumps for its steam generator feedwater system.

Results

Since the Grundfos pumps went into service, they have consistently operated without any issues. The Grundfos pumps require minimal maintenance and boast exceptional reliability, along with a simple interface easing the process of adjusting the flow rate.

During the early stages of the RO systems' operation, adjustments were necessary to eliminate chloramines from the incoming water supply for the brewing process.

Rather than relying on a Veolia technician for making these adjustments, MadTree's in-house team fine-tuned the pump's settings over the 3.000:1 turndown range of the pump to meet the system demands themselves.

PHOTO: GRUNDFOS

GRUNDFOS

About

Grundfos is a global water technology company committed to pioneering solutions to the world's water and climate challenges and improving the quality of life for people. An annual production of more than 17 million pump units makes Grundfos one of the world's leading pump manufacturers.

Discover Grundfos at stateofgreen.com

About State of Green

State of Green is a not-for-profit, public-private partnership between the Danish government and the country's three leading business associations (Confederation of Danish Industry, Green Power Denmark, and the Danish Agriculture and Food Council). State of Green is your one-stop-shop to more than 600 Danish businesses, agencies, academic institutions, experts and researchers. State of Green connects you with leading Danish players working to drive the global transition to a sustainable, low-carbon, resource-efficient society.

Learn more about sustainable industries, find more cases on efficient use of energy, water and resources, and connect with Danish expertise at:

Stateofgreen.com

STATE OF GREEN

Funded by
the European Union