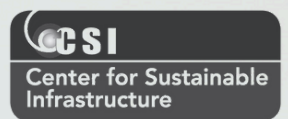


# Delegation program: CSI in Denmark

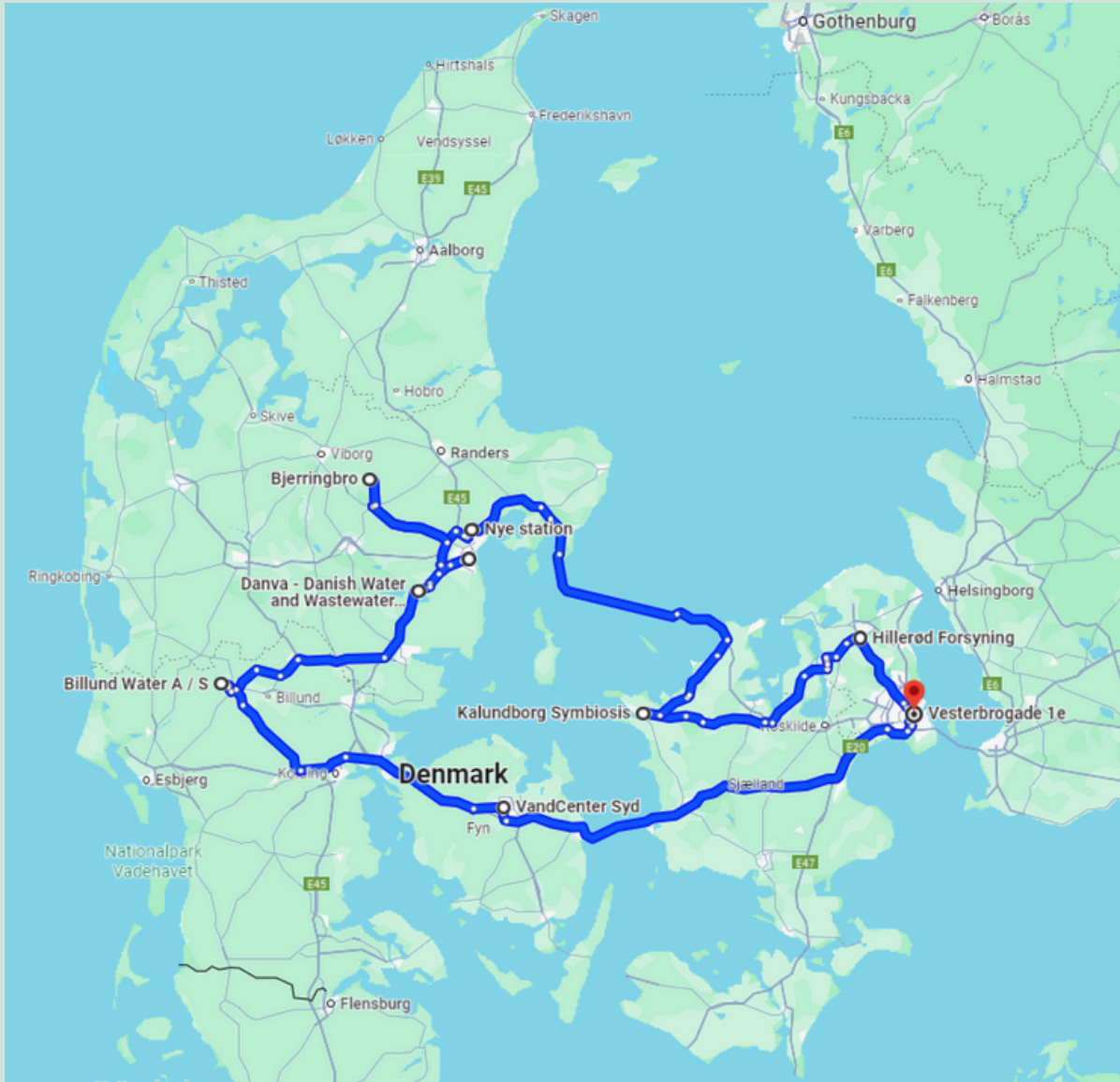
# Wastewater Symbiosis

Exploring the Danish approach  
to wastewater

September 22-28, 2024



# Exploring the Danish approach to wastewater symbiosis



Resource efficiency has been an embedded part of Denmark's green approach for decades. In Denmark, eco-industrial parks have been developed, allowing companies to share energy, water and materials, optimizing resource use, lowering costs and minimizing environmental impact. As industries face increasing pressure from water supply challenges, reducing water consumption and treating industrial wastewater for potential reuse become vital to maintaining competitiveness. Effective wastewater management not only protects people and ecosystems but also unlocks valuable resources embedded in wastewater, contributing to a more sustainable industrial future.

We hope that the Danish experiences you encounter on your trip will inspire and instigate an even greater appetite for resource-efficient measures.



Scan the QR-code to learn more about some of Denmark's resource-efficient industries.

# Program

**Sunday, 22. September**

**12:00-15:00 Arrival in Copenhagen**

**15:00-16:30 Check-in at Hotel Scandic Kødbyen**

Skelbækgade 3A  
1717 Copenhagen V

Walking distance from  
Copenhagen Central Station

Christina will be in the lobby at 15:00.

Contact person:

Christina Østergaard, Event Planner, Østergaard Event  
+ 45 28 69 82 48 | [christina@ostergaardevent.dk](mailto:christina@ostergaardevent.dk)

**17:00-18:30 Welcome orientation and preview of study tour**

Skelbækgade 3A  
1717 Copenhagen V

Hotel Lobby (in the corner)

Remember to collect your entry ticket to the Tivoli Gardens  
for the opening dinner from Christina.

**19:00-20:30 Opening Dinner**

Vesterbrogade 3  
1630 Copenhagen V

Restaurant Brdr. Price Tivoli

Please use the main entrance on Vesterbrogade 3.  
Please note that the Tivoli Gardens close at 22:00.

Copenhagen



Kødbyen - The Meatpacking District



# Program

**Monday, 23. September - Closed shoes required this day.**

**07:00-09:00 Breakfast at hotel**

**09:00-09:30 Walk to State of Green**

**09:30-10:30 Visit to House of Green**

Vesterbrogade 1E  
1620 Copenhagen V  
Introduction to the Danish green transition and the Danish water sector by State of Green.

Contact person:

Victoria Kristensen, Senior Project Manager, State of Green  
+45 21 59 84 74 | [vkk@stateofgreen.com](mailto:vkk@stateofgreen.com)

**10:30-11:35 Free Time - Green Walk**



Take State of Green's interactive audio walk to explore Copenhagen's energy-efficient buildings and architectural marvels, while listening to insights from Denmark's green transition.

**11:35-13:00 Session with DI Danish Water Industries**

Vesterbrogade 1E,  
1620 Copenhagen V

- Welcome by Mads Helleberg Dorff, Head of DI Danish Water Industries
- The water sector's goal to become energy and climate neutral by 2030 by Ole Fritz Adeler, Vice Chairman of The Climate Partnership for Waste, Water and Circular Economy & CEO of Envidan
- The potential of Danish technology for energy and climate neutral wastewater treatment by Thor Danielsen, Head of Wastewater at DHI
- Addressing global challenges – Getting “More for Less” with innovation and digitalization in water by Jacob Vind, Vice Chairman of Water Valley Denmark & Global Water Industry Expert at Danfoss

Contact person:

Victoria Kristensen, Senior Project Manager, State of Green  
+45 21 59 84 74 | [vkk@stateofgreen.com](mailto:vkk@stateofgreen.com)

**13:00-14:00 Drive to Hillerød Utility, Lunch on the bus.**

**14:00-16:00 Visit to Hillerød Utility**

Solrødgårds Allé 6  
3400 Hillrød

Introductory presentation followed by tour of WWTP.  
Technical track and strategic track available.

Contact person:

Abhilasha (Abhi) Mishra, Chemical Engineer, Hillerød Utility  
+45 40 90 94 55 | [abmi@hfors.dk](mailto:abmi@hfors.dk)

**16:00-17:15 Drive to Copenhagen**

**17:15-19:00 Free time**

**19:00-21:15 Group dinner**

Vesterbrogade 62  
1620 Copenhagen V  
Restaurant Madklubben Vesterbro

**Overnight stay in Copenhagen**

House of Green



The Green Walk



DI Danish Water Industries



Hillerød Utility



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CSI  
Center for Sustainable  
Infrastructure

# Program

Tuesday, 24. September

**07:00-08:00** Breakfast at hotel and check out

**08:00-09:30** Transport from Copenhagen to Kalundborg

**09:30-11:15** Visit to Kalundborg Symbiosis

Campus Kalundborg 3  
4400 Kalundborg 09:30-09:45 Welcome to Kalundborg Symbiosis with introduction of delegation members

09:45-10:45 Presentation on industrial symbiosis and Kalundborg Symbiosis as a show case by Lisbeth Randers and Mette Wendel from Kalundborg Symbiosis

10:45-11:15 Q&A and reflections from CSI delegation

Contact person:

Mette Wendel, Senior Project Manager, Kalundborg Symbiosis  
+45 21 60 07 72 | [merc@kalundborg.dk](mailto:merc@kalundborg.dk)

**11:15-12:30** Session with Kalundborg Utility

Campus Kalundborg 3  
4400 Kalundborg 11:15-12:15 Future needs based on high growth demand forecasts, cooperation on water within Kalundborg Symbiosis by Hasse Milter and Lars Sørensen from Kalundborg Utility

12:15-12:30 Q&A and reflections

**12:30-13:00** Lunch at the symbiosis

**13:00-15:00** Visit to Kalundborg Utility

Dokhavnsvej 15  
4400 Kalundborg With focus on wastewater

**15:00-16:00** Tech Talk on Carbon Capture

Campus Kalundborg 3  
4400 Kalundborg Double lecture by Philip Fosbøl from the Danish Technological University and Kathrine Høeg from Ørsted

**16:00-17:45** Happy Hour for Danish and US water specialists

**17:45-21:00** Transportation to Aarhus (Denmark's 2nd largest city)

**21:30** Check in at Hotel Scandic The Mayor  
Overnight stay in Aarhus

Banegårdspladsen 14  
8000 Aarhus

Kalundborg Symbiosis



Kalundborg Utility



Helix Lab



# Program

Wednesday, 25. September

**07:00-08:00 Breakfast at hotel**

**08:00-08:30 Drive to Nye**

**08:30-09:15 Visit to Nye treatment facility**

Kørvælrækkerne 20  
8200 Aarhus N

With presentation of the unmanned treatment facility by Kristian Brunmark from Aarhus Vand Utility.

Contact person:

Kristian Brunmark, Dissemination Director, Aarhus Vand Utility  
+45 29 20 91 51 | [kristian.brunmark@aarhusvand.dk](mailto:kristian.brunmark@aarhusvand.dk)

**09:15-10:15 Drive to Bjerringbro**

**10:15-13:00 Visit to Grundfos**

Poul Due Jensens  
Vej 23  
8850 Bjerringbro

10:15-10:20 Welcome to Grundfos by Jack Canfield, Water Utilities, Grundfos US

10:20-11:00 Industrial wastewater: potentials, solutions and circularity by Michael Skovgaard Jensen, Industrial Water Treatment, Grundfos US

11:00-11:40 Wastewater solutions by Mikael Nedergaard, Water Utilities Wastewater, Grundfos

11:40-11:45 Transfer to Nord 1

11:45-12:15 Tour of wastewater facility incl. water recycling by Michael Skovgaard Jensen, Industrial Water Treatment, Grundfos US

12:15-12:30 Transfer to Grundfos Center

12:30-13:00 Lunch

Contact person:

Michael Skovgaard Jensen, Business Development Director, Grundfos US  
+45 20 33 57 87 | [mskovgaard@grundfos.com](mailto:mskovgaard@grundfos.com)

**Session with Water Valley Denmark**

Introduction to Water Valley Denmark and their approach to ecosystem collaboration. Topics covered:

- Open innovation
- Partnerships
- Living labs

Contact person:

Pia Jacobsen, Head of Global Innovation, Water Valley Denmark  
+45 29 20 91 69 | [pja@watervalleydenmark.com](mailto:pja@watervalleydenmark.com)

**14:00-15:00 Drive to hotel in Aarhus: Scandic The Mayor**

**15:00-**

**Free time, dinner on your own  
Overnight stay in Aarhus**

Nye Treatment Facility



Grundfos



Water Valley Denmark



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# Program

Thursday, 26. September

**07:00-07:50** Breakfast at hotel and check out

**07:50-08:50** Drive to Skanderborg

**08:50-12:30** Visit to Danish Water and Wastewater Association (DANVA)

Godthåbsvej 83  
8660 Skanderborg

08:50-09:00 Welcome, coffee and croissants

09:00-09:20 Introduction to DANVA by Miriam Feilberg, Head of Climate Adaptation

09:20-10:05 Benchmarking and Water in Figures by Thomas Sørensen, Head of Benchmarking and Data

10:05-10:35 Drivers for development of WWTPs by Anders Hansen, Wastewater Advisor

10:35-10:50 Coffee break

10:50-11:05 Sustainability in the Danish water sector by Miriam Feilberg

11:05-11:25 Climate targets and utilities' reporting by Line Møller Ringgaard, Benchmarking and Data Advisor

11:25-11:45 Climate adaptation by Miriam Feilberg, Head of Climate Adaptation

11:45-12:00 Q&A and wrap-up

12:00-12:30 Lunch at DANVA

Contact person:

Miriam Feilberg, Head of Climate Adaptation, DANVA

+45 22 44 14 52 | [mfe@danva.dk](mailto:mfe@danva.dk)

**12:30-13:30** Drive to Billund

**13:30-16:00** Visit to Billund BioRefinery

Efterskolen Play  
Vestre Boulevard 27A  
7200 Grindsted

13:30-13:45 Welcome

13:45-14:45 Presentation of the biorefinery incl. Q&A

and

14:45-15:00 Transfer to the treatment facility

Grinsted Landevej 40  
7200 Grinsted

15:00-16:00 Tour of Billund BioRefinery treatment facility

Contact Person:

Marlene, Efterskolen PLAY + 45 60 40 04 60

Chitra Raju, Process Manager, Billund BioRefinery

+45 76 50 27 10 | [csr@billundvand.dk](mailto:csr@billundvand.dk)

**16:00-17:30** Drive to Odense (Denmark's 3rd largest city)

Claus Bergs Gade 7  
5000 Odense

**Check in at Hotel Comwell H. C. Andersen**  
**Dinner on your own. Overnight stay in Odense**



# Program

## Friday, 27. September

**07:00-08:30** Breakfast at hotel and check out

**08:30-09:00** Drive to Søndersø

**09:00-10:00** Tour of Søndersø WWTP (VCS Denmark)

Gørtlervej 5  
5471 Søndersø

Topics covered:

- Biosolids pyrolysis with AquaGreen
- MABR installation and test

Contact Person:

Per Henrik Nielsen, Project Director, VCS Denmark  
+45 29 69 24 23 | phn@vandcenter.dk

**10:00-10:30** Transport to Ejby Mølle

**10:30-11:15** Meeting with VCS Denmark

Ejby Møllevvej 20  
5000 Odense C

Introduction to VCS Denmark, WWTP operations and projects.

**11:15-12:30** Tour of Ejby Mølle WWTP (VCS Denmark)

Ejby Møllevvej 20  
5000 Odense C

Topics covered:

- Energy production
- Emission reduction
- Carbon Capture

Contact Person:

Per Henrik Nielsen, Project Director, VCS Denmark  
+45 29 69 24 23 | phn@vandcenter.dk

**12:30-14:30** Drive to Copenhagen, Lunch on the bus.

**15:00-18:15** Check-in at Hotel Scandic Kødbyen & Free time in Copenhagen!

Skelbækgade 3A,  
1717 Copenhagen V

**18.15-20:30** Closing dinner  
Restaurant Bistro Royal

Kongens Nytorv 26  
1050 København K

**Overnight stay in Copenhagen**

Søndersø WWTP



Ejby Mølle WWTP





# Learn more about the sites

## 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 (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.

## Danish Industry

Climate partnership on waste, water, and circular economy. The partnership is one of 14 public private climate partnerships uniting public and private stakeholders to achieve the Danish goal of reducing GHG emission by 70% by 2030. It demonstrates the Danish collaborative approach to solving challenges.

## Hillerød Utility: Solrødgård Climate and Environmental Park

Tour and presentation of Solrødgård Climate and Environmental Park; a part of Hillerød Symbiosis. The facility includes a highly modern and high-tech WWTP, a recycling station, and a nature park with recreation facilities and a focus on biodiversity. The covered WWTP was commissioned in 2018 and built on the following principles:

- Positive net energy + CO2 neutrality
- Optimal use of resources
- Public/Private symbiosis partnerships
- Integration of the facility into natural surroundings with public access
- Piloting techniques for pharmaceutical removal

## Kalundborg Symbiosis: Multi-Utility

This unique multi-utility is now central to the Kalundborg Symbiosis, the world's oldest and most advanced industrial symbiosis. The utility supplies local industry and it's 50,000 customers with: Drinking water; Process water; Cooling water; Wastewater treatment; District heating.

## Grundfos

Visit Grundfos to learn about a global industry leader's intelligent pump systems, controls and monitoring solutions that ensure world-renowned energy efficiency and reliability for wastewater transport, flood control and wastewater treatment plants. Grundfos has 50+ years presence in the US.



## Water Valley Denmark

Meet with Water Valley Denmark (WVD) to hear how the Danish water sector collaborates across NGOs, academia and the private sector to create an epicenter for developing groundbreaking, resource efficient, cost effective, and quality water technology to benefit the larger community and environment. WVD focuses on:

- Research & Development
- Startup & Incubation
- Innovation & Large-scale Projects
- Global exposure and Collaboration

## DANVA: The Danish Water and Wastewater Association

In depth dialogue with DANVA, the Danish Water and Wastewater Association. Discuss the Danish wastewater sector's role in industrial symbiosis, current and coming regulations impacting wastewater operators, strategies for PFAS and other CECs. PNW wastewater leaders share their challenges and innovation opportunities. Explore opportunities for fruitful ongoing collaboration.

## Billund BioRefinery

Visit to Billund BioRefinery's full-scale lighthouse demonstration project where household and industrial wastewater, in combination with organic waste from agriculture, is recycled and treated to serve multiple purposes.

## VCS Denmark

Visit to VCS Denmark's WWTP, Søndersø, where biosolids from wastewater is transformed into biochar via pyrolysis. The gas produced in the pyrolysis stage is then recirculated to energize prior stages of the process. Discuss end-use markets and applications for biochar production

## Ejby Mølle

The Ejby Mølle WRRF achieved energy neutrality in 2013, primarily by leveraging carbon redirection to reduce process energy consumption while increasing energy generation from a biogas-driven combined heat power system.