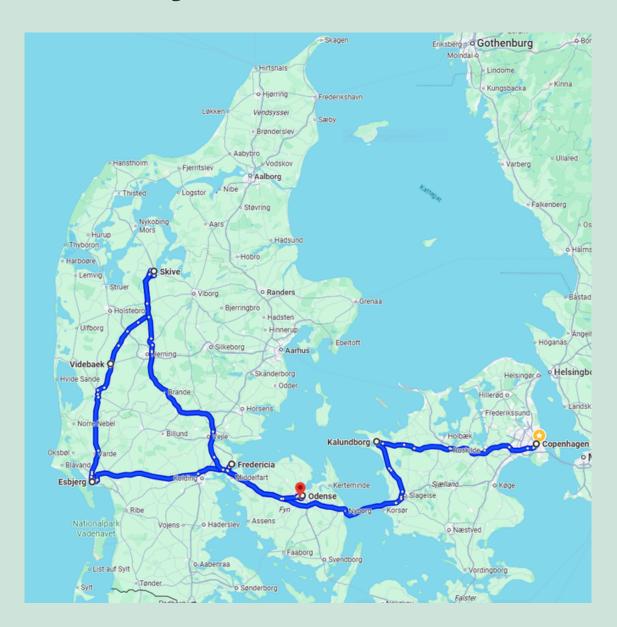


# Exploring the Danish approach to industrial symbiosis



Resource efficiency has long been embedded in Denmark's green transition. Since the 1970s public and private companies have engaged in local industrial symbioses, exchanging residual and surplus products such as water, energy, and natural resources. Many Danish ports serve as industrial hubs, supporting offshore energy activities and resource exchange. This circular mindset and business model has been named the best available technology for achieving European climate goals of cleaner industrial production by 2030. All over Denmark, these local partnerships show how companies can obtain a green energy supply while using, sharing, and conserving resources sustainably.

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 ressource-efficient industries.

Sunday, 7. September

15:00

**Check-in at Hotel** 

Comwell Copenhagen Portside Alexandriagade 1, 2150 Nordhavn Christina will be in the lobby at 15:00

17:00

Welcome orientation and preview of

study tour

Location will be shared on Whatsapp

18:30

Walk to welcome dinner

Christina will lead the way

19.00-21.00

Dinner

**Evening** 

**Overnight stay in Copenhagen** 

Comwell Copenhagen Portside Alexandriagade 1, 2150 Nordhavn

#### **Additional resources**



Read the latest State of Green publication on sustainable industry



Listen to Sound of Green to hear stories from Denmark's green transition



Vitsit stateofgreen.com to see more solutions from Danish solution providers



Monday, 8. September

08:00 Be in the hotel lobby ready to leave

08:15-09:00 Transport to State of Green, Denmark

09:00-12:30 Session at State of Green

House of Green Vesterbrogade 1E, 1620 CPH V Together with partners from the Danish Energy Agency, Biogas Denmark, DHI Group and Danish Industry (TBC) State of Green will facilitate an introduction to Denmark's green transition. From the 70s oil crisis to the flourishing industrial symbioses of today, we'll tell the story of how Denmark has transitioned it's energy system while maintianing security of supply and a competitive economy,

Contact person:

Maria Lind Arlaud, Project Manager, State of Green +45 40 47 80 04 l mla@stateofgreen.com

12:30-13:30 Lunch at House of Green

13:30 Exploring Copenhagen from the sea front

Ole Larsen from DHI group will take you on a trip from the Sourth Habor to the North habor with the iconic harborbusses and tell the story of

Copengagen Harbor.

Contact person:

Ole Larsen, Director of Strategic Partnerships, DHI

+45 31 62 15 00 l ola@dhigroup.com

Evening Dinner on your own and overnight stay in Comwell Copenhagen

oopeililageii

Copenhagen Portside Alexandriagade 1,

2150 Nordhavn

For dinner recommendations, you're welcome to ask Maria Lind Arlaud.







Tuesday, 9. September

07:30 Be in the hotel lobby ready to leave

07:45-09:20 **Transport from Copenhagen to Kalundborg** 

Welcome and presentation of Kalundborg 09:30-11:15

**Symbiosis and Kalundborg Port** Campus Kalundborg 3

> In Kalundborg Symbiosis, the city's biggest industrial public and private companies work together across sectors to share excess energy, water, and materials. In other words, one company's surplus of resources adds value to another. More than 20 different streams of excess resources flow between the companies, creating a symbiosis of resource exchange, adding more resilience and profit to the partners.

Contact person (throughout the visit): Lisbeth Randers Head of Administration, Kalundborg Symbiosis +45 5953 4500 l irs@kalundborg.dk

11.15-12:00 **Guided Symbiosis Tour by bus** 

Lunch 12.00-12:30

Workshop: The Meliora Bio case

Meliora Bio is a modern state of the art biorefinery upcycling

straw for bioethanol, prebiotics, and lignin.

14:15-15:00 **Introduction and transport to Kalundborg Utility** 

**Kalundborg Utility visit** 15:00-16:00

Dokhavnsvej 15 Kalundborg Utility supplies approx. 6,150 households with 4400 Kalundborg

drinking water and distributes district heating to approx. 5,050 households in Kalundborg city, and cleans waste water from the entire Kalundborg Municipality. In addition, they supply surface water to several large companies in the symbioses.

**Transport to Fredericia** 

Dinner together and overnight stay in Fredericia





4400 Kalundborg

12:30-14:15

16:00-18:30

**Evening** 

Hotel Fredericia, Vestre Ringvej 96, 7000 Fredericia

Wednesday, 10. September

08:30 Be in the hotel lobby ready to leave

08:45-09:00 Transport to Fredericia

09:15-11:30

Købmagergade 86 7000 Fredericia Meeting with Fredericia College of Marine and Technical Engineering, Associated Danish Ports and Triangle Energy Alliance

Fredericia is part of the so-called Triangle Region in the heart of Denmark, which is an area defined by industry and growth. Furthermore, the Port of Fredericia is a dynamic shipping hub with a large container terminal. ADP A/S owns and operates the ports of Fredericia. Fredericia College of Marine and Technical Engineering offer education in power-to-x.

Contact person:

Lars J. Ankersen, Special Consultant +45 31 48 39 45 l lja@triangleenergyalliance.dk

11:30-13:00 Transport to Esbjerg

Lunch on the bus

13:00-15:00

Hulvejen 1 DK-6700 Esbjerg, Denmark **Port of Esbjerg** 

The Port of Esbjerg is the world's largest base port for offshore wind and a frontrunner in Europe's offshore sector. Once a fishing harbour, it has transformed into an energy hub with activities like Power-to-X production and a science centre, driving job creation, investment, and population growth in the city.

Contact person:

Jesper Bank, CCO, Port of Esbjerg +45 51 96 18 40 l jba@portesbjerg.dk

**Evening** 

Esbjerg Scandic Olympia, Strandbygade 3, 6700 Esbjerg Free time, dinner together and overnight stay in Esbjerg







Thursday, 11. September

08:30 Be in the hotel lobby ready to leave

08:45-09:00 Transport to Esbjerg Municipality

09:00-12:00 Workshop with Esbjerg Municipality

Torvegade 74 6700 Esbjerg

Esbjerg is known as the Green Energy Metropolis of Denmark. As home to Europe's largest offshore wind service port and a growing cluster of renewable energy companies, the city also pioneers innovative district energy systems and sector coupling solutions that integrate renewable power, heating, and industry. Together, these strengths make Esbjerg a key driver of Denmark's green transition and a gateway for global energy collaboration

Contact person:

Peter Raben Nebeling, Chief Consultant, Esbjerg Municipality +45 27 24 13 56 l pne@esbjerg.dk

12:00-13.15 Transport to Videbæk

Lunch on the bus

13:30-15:30 Site visit to Denmark Protein (Arla Foods)

Sønderupvej 26, 6920 Videbæk Danmark Protein is the worlds largest whey protein and lactose factory, producing protein from the leftovers of cheese production.

Contact person:

Nicolaj Schmidt Damgaard, Water and Sustainability Specialist +45 9131 8223 l nidam@arlafoods.com

15:30-16:45 Transport to Hotel Skivehus

Hotel Skivehus, Søndre Blvd. 1, 7800 Skive







Friday, 12. September

08:30 Be in the hotel lobby ready to leave

08:40-09:00 Transport to GreenLab Skive

09:00 - 12:00 Sitevisit at GreenLab Skive

Næstildvej 10A, 7860 Spøttrup GreenLab is a circular energy park for businesses contributing to the green transition. Companies are supplied with sustainable energy from multiple sources, tailored to their production needs, and connected through the SymbiosisNet $^{TM}$  – a smart grid that enables the sharing of surplus energy and resources.

Contact person:

Mathias Damgaard Mørch, Education Manager +45 +45 9299 5351 l madm@greenlab.dk

12:00-15:00 Transport to Odense - Late Lunch

15:00-16:30 Visit Ejby Mølle WWTP (VCS Denmark)

Ejby Møllevej 22, 5000 Odense C

Ejby Mølle in is a state-of-the-art water resource recovery facility, with very high standards for wastewater treatment. The facility now produces more energy than it consumes. In 2018, the facility reached energy self-sufficiency of 180% – and VCS continue to push the limits for what is currently considered possible.

Contact person:

Martin Westerboe Sørensen, Special Consultant +45 40 80 84 54 l mws@vandcenter.dk

16:30-16:45 Transport to Comwell H.C. Andersen

Comwell H.C. Andersen, Claus Bergs Gade 7, 5000 Odense

**Evening** 

Celebratory closing dinner and overnight stay in Odense







## Meet the team in Denmark



#### Maria Lind Arlaud

Project Manager, State of Green





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#### Silas Castellanos Friberg

Project Assistant, State of Green



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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.



#### Christina Østergaard

Event planner, Østergaard Event



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christina@ostergaardevent.dk

østergaard event

Christina Østergaard runs a professional event planning team and is responsible for planning the logistics around the delegation's trip to Denmark.



## Meet the team from CSI



#### Rhys Roth

Excecutive Director, Center for Sustainable Infrastructure



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#### **Emma Titaley**

Knowledge Exchange Coordinator, Center for Sustainable Infrastructure



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CSI is the trusted Pacific Northwest-based non-profit with a mission to catalyze state-of-the-art sustainable infrastructure solutions that help communities of every kind thrive economically, socially and environmentally.