

RENEWABLE ENERGY FUTURE

The Green Road from Denmark to the World

Nordic Folkecenter for Renewable Energy

18-21 June 2017



World leader in renewable energy

Ambitious energy policies, high investments in innovation and a strong grass-root movement have put Denmark at the top of the world ranking for renewable energy penetration. The energy transition started back in the 70s and has resulted in the highest integration of wind power in the world, high shares of combined heat and power (CHP) plants, reduction in energy consumption, creation of thousands of jobs, decreased CO2 emissions and many social benefits. The national target is now transforming the whole energy system into 100% renewable energy by 2050.

Population

5.6 million

Wind power

42% of the electricity consumption in 2015

5,242 MW (2017)

approx. 900 W/person

District heating

63% of all households

95% of all consumers in the city of Copenhagen

58% supplied by renewable energy

Highly decentralized electricity system

High citizen participation and ownership

What you cannot find in the books...

This study tour is designed so that you can make the most of your renewable energy visit to Denmark. Meet the energy experts, researchers, companies and communities that are making the energy transition happen. Get to know the history as well as the main topical issues. Participate in discussions and debates that will path the future. Find out and experience what you cannot find in books and articles.



Malmö Central Station – Folkecenter: 5.5 hours by train
Copenhagen Central Station – Folkecenter: 5 hours by train
Aalborg Airport – Folkecenter: 3 hours by public transportation

FOLKECENTER VISIT AND EXCHANGE

SAT 17 JUN 2017

18:00 – 19:00 Welcome session

19:00 – 20:30 Dinner at Folkecenter

SUN 18 JUN 2017

10:00 – 11:30 Wind Energy, the Danish Way

“Danish Wind History, the role of Folkecenter & SME, and the organisation of wind turbine cooperatives”, by Jane Kruse and Tonny Brink, Folkecenter

11:30 – 12:00 Coffee break

12:00 – 13:30 On the way to 100% renewable energy

“Community power. The key for the full transition to renewable energies”, by Leire Gorroño, Folkecenter

“Education and innovation for 100% renewable energy”, Aalborg University

“A critical analysis on the decisions of the Danish Government and its impacts for the transition to 100% renewable energy”, Anders M. Kristensen, Radikale Venstre

13:30 – 14:30 Lunch

14:30 – 16:00 A continuous open debate, which direction should the Danish energy system follow?

“Energy Vision 2030”, Gunnar B. Olesen, SustainableEnergy

”IDA’s Energy Vision 2050”, Aalborg University

“The future Danish Energy System”, Energinet.dk (TBC*)

16:00 – 16:15 Coffee break

16:15 – 17:45 Guided tour at Folkecenter’s Village for Green Research, including:

125 years of wind energy history

Hybrid systems and integrated systems

The test field for small wind turbines

18:00 – 19:30 Dinner & Networking





IMPLEMENTING INNOVATION, THE FULL-SCALE LIVING-LAB FOR 100% RENEWABLE ENERGY IN THY

MON 19 JUN 2017

- 9:00 Departure from Folkecenter's parking place.
- 09:30 – 10:00 Snedsted solar district heating plant.
- 10:30 – 11:30 Nr. Vorupør district heating plant. Biomass-fired combined heat and power (CHP) (1.5 MWel), biomass-fired boiler (1 MW) and large electric boilers (1 MW) for power-to-heat.
- 11:30 – 13:00 Cultural stop & Fish lunch break by the North Sea
- 13:30 – 14:30 The first commercial 525 kW wind turbine, a Folkecenter design. Those who would like to do it will have the opportunity to climb to the top of the wind turbine (40 m).
- 14:35 – 15:15 Cultural stop. A walk by the Second World War Museum and the bunkers at Hanstholm.
- 15:45 – 17:15 National Test Centre for Large Wind Turbines, where the largest wind turbines in the world are tested (currently up to 9 MW).
- 18:00 – 19:30 Dinner in Thisted.
- 20:15 Arrival at Folkecenter's parking place.

COMMUNITIES MAKING IT HAPPEN

TUE 20 JUN 2017

- 08:30 Departure from Folkecenter's parking place.
- 09:15 Ferry from Agger to Thyborøn.
- 09:30 – 10:30 Harbøre district heating plant. Gasification from wood-chips.
- 11:00 – 12:30 Lemvig Biogas Plant and upgrading of biogas. Owned by the farmers who run it, the biogas plant has been the largest in Denmark. It produces biogas from slurry, residual products from industry, urban and human waste. The biogas is delivered to the town of Lemvig.
- 13:15 – 14:45 Lunch at Tvind and visit to Tvindkraft, the oldest 2 MW wind turbine in the world (1976). A symbol of community driven green transition. Those that would like to do it will have the chance to go up in the wind turbine (there is an elevator).
- 15:30 – 17:00 Hvide Sande. Best practice example of a community driven energy transition for local development and social benefits.
- 17:30 – 18:30 Solid Wind Power, a small wind turbine manufacturer.
- 18:45 – 19:45 Dinner in Ringkøbing.
- 20:00 – 20:45 NEL (former H2Logic), producer of hydrogen filling stations.
- 21:30 Arrival at Folkecenter's parking place.



DIALOGUE WITH DANISH GREEN ENERGY COMPANIES

WED 21 JUN 2017

10:00 – 10:30 “Maintenance of wind turbines and safety of operators”, by a wind turbine manufacturer (TBC)

10:30 – 13:00 Presentations by Danish green energy companies and their solutions; Time for networking and establishment of new business relationships.

13:00 – 14:30 Lunch & goodbye

There will be the chance to go shopping in the local area for those that would like to do it.

FEE

Early registration (up to 4 June 2017): 800 EUR/person

Standard registration (5-14 June 2017): 900 EUR/person

The fee includes:

- Participation in the entire programme;
- Transportation for the excursions;
- Accommodation and breakfast on 17-21 June (4 nights in a shared twin room);
- All meals mentioned in the programme;
- Shuttle service from and to Ydby Station or Struer Station;
- VAT (25%);

The fee excludes:

- Transportation to and from Ydby Station or Struer Station;

REGISTRATION

Registration must be done following the instructions given in this [link](#).

ARRIVING AT FOLKECENTER

Address: Kammersgaardsvej 16, Sdr. Ydby, 7760 Hurup Thy, Denmark

Detailed indications to get to the centre using different means of transport can be found [here](#).

NORDIC FOLKECENTER FOR RENEWABLE ENERGY

Working for a world running on 100% renewables since 1983

Folkecenter is a non-profit, independent, organisation that provides research, development and testing of technology, training and information to promote the implementation of renewable energy technologies and energy savings in Denmark and internationally.

Folkecenter intends to achieve measurable increases in the utilisation of renewable energy technologies and thereby significant reductions in environmental pollution in Denmark and elsewhere. The ultimate long term goal is a complete replacement of fossil fuels and atomic power with renewable energies while promoting the sustainability, resilience and development of local communities around the world.

With this objective, the centre works on 3 major fronts:

(1) Development and implementation of renewable energy systems and energy policy recommendations.

Folkecenter carries out research and development projects in collaboration with Danish and international universities, research centres, SME, Mali Folkecenter and Uganda Folkecenter. New energy

solutions, tools for local authorities or energy policy recommendations are some of the outcomes of these projects.

The testing facilities of Folkecenter play an important role in technology and system development projects. Testing possibilities include small wind turbines, wave energy technology, solar photovoltaic panels, solar thermal collectors, sustainable transportation (fuelled by hydrogen, biofuels and electricity) and off-grid solutions, among others. Furthermore, Folkecenter is an accredited certification centre for small wind turbines.

Technology and best practice transfer have acquired high reputation for Folkecenter, both in the Global North and the Global South.

(2) Support and consultancy to manufacturers, local citizen/consumer groups, and relevant initiators within renewable energy.

Folkecenter supports SME in product development and testing, idea-to-market processes, funding applications, market analysis, business strategy, internationalisation, training of staff and teams, networking and event organisation.

Local citizen/consumer groups are advised by Folkecenter about local energy projects, local energy planning and suitable technology choices.

(3) Information and training in renewable energy in Denmark and elsewhere to trainees, concerned citizen groups, SME and political decision-makers.

Thousands of visitors come to Folkecenter every year to see the demonstration facilities at the Village for Green Research, for which guided tours may be booked. Often visitors arrange meetings and interviews with the energy experts of Folkecenter.

The centre organises and hosts conferences, seminars and workshops, where speakers, trainers and audience from Denmark and abroad attend. These events are often part of or combined with study tours to renewable energy installations, companies and local administrations in the Green Circle of 100% Renewable Energies.

THE SPEAKERS



Jane Kruse, Nordic Folkecenter for Renewable Energy

Director of Folkecenter. 23 years of experience in renewable energy.



Tonny Brink, Nordic Folkecenter for Renewable Energy

Educated as Marine Engineer, he is Folkecenter's Specialist in Wind Power and the daily leader of the centre's test site for small wind turbines. He has got 35 years of experience in the international wind industry, working for Vestas Wind Systems A/S and Folkecenter. This has provided him with broad knowledge in service and maintenance site management and construction and operational project management. Hold positions and responsibilities: Travel Technician, Site Manager, Logistics Coordination, Area Service Manager, Technical Support Dept., People Manager, Technical After Sales/Customer Reporting, WTG Performance and Diagnostic analysis, Communication, Planning, Controlling, Technology Transfer, Project Management and Execution Leader.



Leire Gorroño Albizu, Nordic Folkecenter for Renewable Energy

She holds a B.Eng. in Industrial Organization from Mondragon University, Spain, and a MSc. in Sustainable Energy Planning and Management from Aalborg University, Denmark. Socio-economics of renewable energy is her main field of interest. As Specialist in Community Power, Local Development and Local Acceptance at Nordic Folkecenter for Renewable Energy, she develops policy recommendations, information strategies and topic related projects. She currently works as a research assistant for the Department of Development and Planning of Aalborg University.



Anders M. Kristensen, Radikale Venstre

Member of the Danish party Radikale Venstre, he has got knowledge about market and financing within renewable energy. He has got especial interest in green mobility.



Gunnar B. Olesen, SustainableEnergy

He has more than 25 years of experience on the field of renewable energy. He is educated as Mechanical Engineer from DTU, Denmark. Political coordinator of SustainableEnergy and Coordinator of INFORSE-Europe. Since 2002, he has conducted researcher within the design of 100% renewable energy scenarios for the EU and European countries, including Denmark. Since 2010, he has developed positions to the EU EcoDesign Consultation Forum together with other NGOs within the “Cool Products” Campaign. Since 2005, he has participated in the UNCSD and the UNFCCC conferences representing INFORSE and the Danish 92-group, and he is working on projects where NGOs are promoting low-carbon development in South Asia and Africa.

Aalborg University, Department of Development and Planning

Aalborg University is one of the leader universities in renewable energy in the international context. The Department of Development and Planning has for decades closely collaborated with Folkecenter.

Energinet.dk (To be confirmed)

Energinet.dk is a non-profit enterprise owned by the Danish Ministry of Energy, Utilities and Climate. The company owns the Danish electricity and gas transmission system. Tasks: maintain the overall short-term and long-term security of electricity and gas supply; develop the main Danish electricity and gas transmission infrastructure; create objective and transparent conditions for competition on the energy markets and monitor that competition works; carry out coherent and holistic planning, taking account of future transmission capacity requirements and long-term security of supply; support eco-friendly power generation and the development and demonstration of green energy production technologies; and calculate the environmental impact of the energy system as a whole. The consumers contribute to the activities of Energinet.dk via their electricity and gas bills.



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www.folkecenter.net

www.folkecenterevents.net

 Nordisk Folkecenter