

ENERGY AND ENVIRONMENT FOR THE FUTURE



CONFERENCE AT EIGTVEDS PAKHUS, COPENHAGEN
MONDAY 24 NOVEMBER 9.00 – TUESDAY 25 NOVEMBER 14.00

PROGRAMME – ENERGY AND ENVIRONMENT FOR THE FUTURE

Sustainable energy for a fossil free society and environmentally friendly technologies

A conference presenting state of the art research

Date: 24 November, 9:00 – 25 November, 14:00

Venue: Eigtveds Pakhus
Asiatisk Plads 2G
1448 København K

Programme: The programme can be downloaded from:
<http://innovationsfonden.dk/aktuelt/arrangementer/>

Registration: Electronic registration is now available at:
<https://www.inquisiteasp.dk/cgi-bin/qwebcorporate.dll?idx=UC8PFN>

Organiser: The Programme Commission on Sustainable Energy and Environment,
Innovation Fund Denmark

Catering: Coffee and refreshments at breaks, sandwiches for lunch
and conference dinner 24 November at 18:30

Admission: Free of charge

The conference will be opened by The Minister for Higher Education and Science
Sofie Carsten Nielsen.

Keynote speakers will present the immediate objectives for strategic research set by the
industry and society and give a presentation of Innovation Fund Denmark in 2015 and beyond.

Researchers will present state of the art research with focus on strategic effects within
sustainable energy and environmentally friendly technologies. The presentations will be given
by researchers funded by Innovation Fund Denmark.

Furthermore, there will be a large number of posters with presentation of details of the research
and technology developments.

The presentations will highlight how these research results have contributed to the fulfilment of
both global and Danish goals for Energy and Environment:

- Energy: The 2050 goal for a fossil free society; a society with a high demand for renewable energy, transport of power and efficient use of energy.
- Environment: New environmentally friendly methods and technologies that can secure clean drinking water, a clean environment and recycling in a low waste society.

Abstracts and copies of the posters will be sent to the participants and the poster presenters
will be asked to be available during the hours mentioned in the programme.

Yours sincerely,

Sven G. Sommer
Chairman of the Programme Commission

MONDAY 24 NOVEMBER

TIME	PLENUM	SESSION 1	SESSION 2
9:00-10:00	Registration – hang up of posters		
10:00-11:00	<p>Welcome by Sven G. Sommer, chairman of the Programme Commission</p> <p>Innovation Fund Denmark in 2015 and beyond by Jens Maaløe, vice-chair and future chairman of InnovationsFonden</p> <p>Future strategic research in Sustainable Energy and Environment by the Minister for Higher Education and Science Sofie Carsten Nielsen</p>		
11:00-11:15	Coffee break		
11:15-12:05	<p>Industry presentation of research needs by Claus Crone Fuglsang Vice President and manager of the bioenergy department at Novozymes</p> <p>EIS - Energy Innovation Systems and their dynamics Denmark in global competition by Mads Borup, Senior Researcher Technical University of Denmark</p>		
12:05-13:00	Lunch, poster session and walk to sessions		
13:00-14:15		Fuel cells, batteries and energy storage	Environment, Biomass and Waste
		Ib Chorkendorff: New Alloy Catalyst for the Oxygen Reduction Reaction	Jesper Schramm: Understanding heat transfer phenomena in IC engines. The influence on formation of emissions
		Søren Knudsen Kær: Enabling battery energy storage systems through advanced lifetime predictions	Marie Munster: Optimal treatment of waste in the future

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		Qingfeng Li: Proton Exchange Membrane Fuel Cells in Denmark – Status and Recent Progress	Sven G. Sommer: Clean and environmentally friendly animal waste technologies for fertilizer and energy production
		Jens Oluf Jensen: Danish Korean Collaboration on Fuel Cells	Thomas Højlund Christensen and Thomas Astrup: IRMAR Integrated Resource Management & Recovery
		Torben R. Jensen: The HyFillFast project: Fast, efficient and high capacity hydrogen refuelling and onboard storage	Uffe Jørgensen: How to double agricultural biomass yield and halve environmental impacts by improving photosynthetic efficiency, taking advantage of climate change and by producing both food and energy carriers in biorefineries
14:15-14:30	Coffee break		
14:30-15:45		Material Technology	Environment, Biomass and Waste
		Nini Pryds: Oxide thermoelectric for effective power generation from waste heat (OTE-POWER)	Peter Westh: Designing enzymes for biomass treatment: the RESAB project
		Leon Mishnaevsky: Nanoreinforced, hybrid and hierarchical composites for structural applications: Computational modelling and optimization	Lars Ottosen: Hydrogen dynamics in anaerobic digestion - perspectives from μm to m scale
		Henning Friis Poulsen: CINEMA: 3D imaging of energy materials and devices in operation	Mads H. Clausen: Improved enzymatic technologies for biomass conversion
		Bent F. Sørensen: DCCSM - Danish Centre for Composite Structures and Materials for Wind Turbines - a multiscale, top-down approach	Kim Dam-Johansen: Circulation Fluidized Bed Gasification of Biomass – Collaboration between Denmark and China

TIME	PLENUM	SESSION 1	SESSION 2
			Sven G. Sommer: Optimisation of value chains for biogas production in Denmark (BioChain)
15:45-16:00	Coffee break		
16:00-17:15		Wind Power	Solar Energy
		Thomas Buhl: ABYSS: Optimal design of off-shore wind turbine support structures	Simon Furbo: Decentralized solar heating systems for the future
		Wen Zhong Shen: Design of optimal offshore wind turbine rotors	Peter Balling: Thin-film silicon solar cells: A potential candidate for balancing efficiency, price and stability
		Jens Nørkær Sørensen: Flow Modeling of Wind Turbine Wakes and in Wind Farms	Donghong Yu: Donor-acceptor polymers for roll-to-roll printed solar cells
		Buildings and energy systems	Jørgen Schou: CZTS (CuZ-nSnS) a new promising material for inexpensive and environmentally friendly solar cells
		Christian Bahl: Efficient Novel Magnetocaloric Heat Pumps - ENOVHEAT	
		Per Heiselberg: Energy Flexible Buildings	
17:15-18:15	Closure by Sven G. Sommer, chairman of the Programme Commission followed by poster session and refreshments		
18.30	Conference dinner, Eigtveds Pakhus		

TUESDAY 25 NOVEMBER

TIME	PLENUM	SESSION 1	SESSION 2
8:30-8:45	Light breakfast		
8:45-9:15	Smart Energy Systems - Strategic research results about 100% renewable energy scenarios from 4DH and CEESA by Brian Vad Mathiesen, Professor, Aalborg University		
9:15-10:00		Energy systems analysis at all levels from grid to units - optimisation	Water and Climate
		Hjörtur Jóhannsson: Secure operation of the future sustainable power system	Karsten Mangor: Sustainable coastal planning in a changing climate
		Michael Søgaard Jørgensen: Navigation and governance in transitions to a low carbon society	Jens Christian Refsgaard: From climate change to hydro- logical change – where are the main uncertainties?
		Frede Blaabjerg: Design for reliability in power electronic systems	Henrik Madsen: Risk Based Design in a Changing Climate
10:00-10:45	Poster session		
10:45-11:45		Energy systems integration	Water and Climate
		Josep Guerrero: DC Microgrid Living Labs – a Sino-Danish collaboration research project	Jens Aamand: Introduction of specific pesticide-degrading bacteria into waterworks sandfilters – a technology for remediation of pesticide-polluted drinking water
		Rafael Wisniewski: Towards Integration of Green Energy in Smart Grid	Stiig Markager: Designing Denmark – connecting land and sea: the optimal design of landscape and activities with the use of models and integrated management of nutrient cycling
		Frits Møller Andersen: Analyses of hourly electricity consumption	Henrik Madsen: Hydrological Forecasting and Data Assimilation
		Niamh O'Connel: Energy systems integration in cities	Jens Christian Refsgaard: Nitrate load from Danish agriculture – Towards spatially differentiated regulation

TIME	PLENUM	SESSION 1	SESSION 2
11:45-12:00	Coffee break		
12:15-12:45		Energy systems integration	Water and Climate
		Lars Henrik Nielsen: The geothermal energy potential in Denmark – status and research challenges	C. K. Kjærgaard: Drainage filter technologies targeting nutrient removal in agricultural drainage discharge
		Pierre Pinson: A glimpse of future electricity markets with 50%+ penetration of renewable energy sources	Brian Kronvang: What are the ecosystem services of buffer strips?
		Brian Elmegaard: Advanced thermodynamic cycles utilising low temperature heat sources	Esben Auken: Automatic construction of groundwater models for improved resource management
12:45-13:15	Closure by Sven G. Sommer, chairman of the Programme Commission		
13.15	Lunch and take down of posters		

