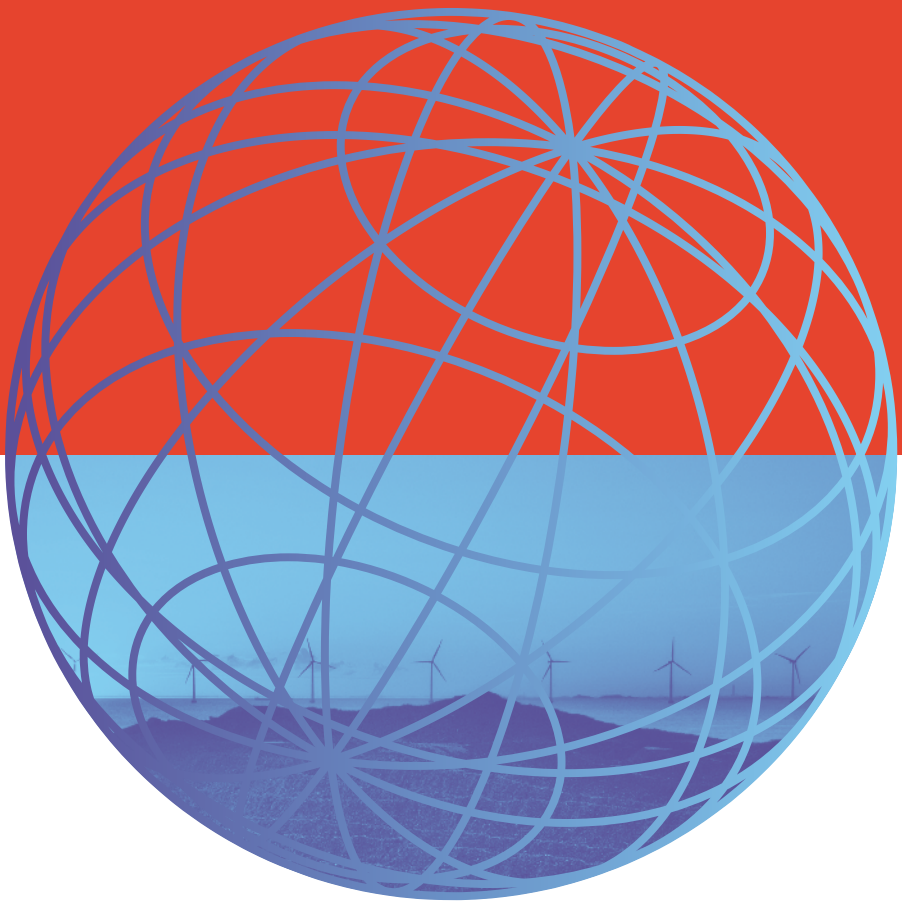
WHAT IS THE FAST TRACK TO FUTURE ENERGY SYSTEMS WITH LOWER CO_2 EMISSIONS?

DTU

Workshop on Future Energy Systems

At the Technical University, Lyngby, Denmark
19 - 20 November 2008

Invitation and preliminary programme



INTRODUCTION

In the coming years, energy systems will be changed to a combination of central units and smaller decentralized units – to a large extent based on renewable energy. At the same time there will be a close coupling between energy production and end user with extensive use of information and communication technology.

THE WORKSHOP RAISES THE PRESSING QUESTION:
How can the future energy systems be developed toward lower CO_2 emissions on the basis of low CO_2 energy technologies?

The workshop will assess the perspectives for a rapid development of energy systems with more renewable energy in order to reduce CO_2 emissions. Furthermore, the workshop will give recommendations for the implementation of such energy systems. The recommendations will be targeted at the research community, industry and public authorities. The recommendations will include opportunities for synergy in order to create greater innovation power and market enterprise.

Risø Energy Report 7 will be presented as introduction to the workshop by some of the authors. The rest of the workshop alternates between presentations and working groups on the global energy situation, the European perspective and conclusions for the consequences for Denmark.

THE WORKSHOP IS FOR

- researchers
- representatives from industry
- representatives from government and government agencies
- representatives from EU
- international and supranational organizations

We invite participants from research institutes at the forefront of technology, companies with a track record of involvement in developing new technology in partnership with others, and both Danish and international governmental consultants.

PRELIMINARY PROGRAMME

19 NOVEMBER 2008

08:30 – 09:00 REGISTRATION AND COFFEE

09:00 – 09:15 WELCOME AND INTRODUCTION TO THE WORKSHOP
Niels Axel Nielsen, Director, Public Sector Consultancy, Technical University of Denmark

CHAIRMAN: Henrik Bindslev, Director, Risø National Laboratory for Sustainable Energy

09:15 – 09:45 MINISTER FOR CLIMATE AND ENERGY, CONNIE HEDEGAARD (INVITED)

09:45 – 10:15 PRESENTATION OF RISØ ENERGY REPORT 7
Hans Larsen, Head of Division, Risø National Laboratory for Sustainable Energy

10:15 – 10:30 REFRESHMENTS

10:30 – 11:30 PRESENTATION OF SELECTED CHAPTERS FROM RISØ ENERGY REPORT 7
Kim Dam-Johansen, Head of Department, DTU Chemical Engineering
John M. Christensen, Head of Centre, UNEP Risø Centre
Kirsten Halsnæs, Head of DTU Climate Centre

11:30 – 13:00 KEY NOTE SPEECHES
Dieter Wegener, Chief Technology Officer, Industrial Solutions and Services, Siemens
Jørgen M. Clausen, Chairman, Danish Energy Industries Federation
Anders Eldrup, Chief Executive Officer, DONG Energy A/S

13:00 – 14:00 LUNCH

14:00 – 16:00 KEYNOTE PRESENTATIONS
CHAIRMAN: Hans Larsen, Head of Division, Risø National Laboratory for Sustainable Energy

- FUTURE TECHNOLOGIES AND SYSTEMS
  Birte Holst Jørgensen, Managing Director, Nordic Energy Research
- CURRENT TRENDS AND VISIONS FOR THE FUTURE FOR OECD COUNTRIES
  Ulrich Wagner, Professor, Technische Universität München

- CURRENT TRENDS AND VISIONS FOR THE FUTURE FOR BIG DEVELOPING COUNTRIES LIKE INDIA AND CHINA
  Priyadarshi R. Shukla, Professor, Indian Institute of Management
- CURRENT TRENDS AND VISIONS FOR THE FUTURE FOR LEAST DEVELOPED DEVELOPING COUNTRIES IN E.G. AFRICA
  Ogunlade Davidson, University of Sierra Leone, Co-chair of the IPCC Working Group III
- HOW DO WE MAKE DENMARK PEAK BEFORE 2020 WHEN IT COMES TO CO_2?
  Dolf Gielen, Senior Analyst, IEA, Paris

16:00 – 16:30 COFFEE BREAK

16:30 – 18:00 5 PARALLEL WORKING GROUPS

1. FUTURE TECHNOLOGIES AND SYSTEMS
   Chairman: Anders Stouge, Director, Danish Energy Industries Federation
   Referee: Brian Elmegaard, Head of Section, Associate Professor, DTU Mechanical Engineering

2. CURRENT TRENDS AND VISIONS FOR THE FUTURE FOR OECD COUNTRIES
   Chairman: Nicolai Zarganis, Head of Division, Danish Energy Authority
   Referee: Stine Grenaa Jensen, Senior Advisor, Danish Energy Association

3. CURRENT TRENDS AND VISIONS FOR THE FUTURE FOR BIG DEVELOPING COUNTRIES LIKE INDIA AND CHINA
   Chairman: Mark Radka, Energy Programme Officer, UNEP
   Referee: Subash Dhar, Economist, UNEP Risø Centre

4. CURRENT TRENDS AND VISIONS FOR THE FUTURE FOR LEAST DEVELOPED DEVELOPING COUNTRIES IN E.G. AFRICA
   Chairman: Geert Aagaard Andersen, Head of Department, Ministry of Foreign Affairs of Denmark
   Referee: Gordon Mackenzie, Senior Energy Planner , UNEP Risø Centre

5. HOW DO WE MAKE DENMARK PEAK BEFORE 2020 WHEN IT COMES TO CO_2?
   Chairman: Lars Aagaard, Deputy Director, Danish Energy Association
   Referee: Peter Meibom, Senior Scientist, Risø DTU

19:00 – 21:00 DINNER IN FACULTY CLUB, DTU
Dinner speech by Knut Conradsen, Vice-Rector, Professor, DTU

20 NOVEMBER 2008

09:00 – 09:30 WELCOME
Niels Axel Nielsen, Director, Public Sector Consultancy,
Technical University of Denmark
MORNING SPEECH
Lars Skovgaard, Senior Equity Advisor, Danske Bank

09:30 – 12:00 YESTERDAY'S WORKING GROUPS CONTINUE

12:00 – 13:30 LUNCH
EXPOSITION ARRANGED BY Energy Crossroads

13:30 – 16:00 PRESENTATION OF MAIN CONCLUSIONS AND PANEL DISCUSSION
Chairman: Hans Larsen, Head of Division, Risø National Laboratory
for Sustainable Energy

IN THE PANEL:
Anders Stouge, Director, Danish Energy Industries Federation
Nicolai Zarganis, Head of Division, Danish Energy Authority
Mark Radka, Energy Programme Officer, UNEP
Geert Aagaard Andersen, Head of Department, Ministry of Foreign Affairs of Denmark
Lars Aagaard, Deputy Director, Danish Energy Association
Jens Rostrup Nielsen, Director, Special Projects, Haldor Topsoe A/S
Katherine Richardson, Chairman, the Danish Climate Commission

INFORMATION

REPORTING FROM THE WORKSHOP

A report from the workshop will be prepared and used as input for the final high-level conference on 17 Sep. 2009, where DTU will present a summary of climate change technology solutions and viewpoints.

LOCATION

The workshop takes place at DTU Campus, Auditorium 13, building 308, Richard Petersens Plads, 2800 Lyngby, Denmark.

WORKING LANGUAGE

The working language is English and no translation will be provided.

REGISTRATION

The workshop is free of charge inclusive workshop lunch and dinner as well as transport to and from the recommended hotels. Please register at risoe.dtu.dk/Conferences/Future_energy_systems.aspx no later than 10 November 2008. At registration please indicate your preferences with regard to the five parallel working groups.

CHAIR OF ORGANISING COMMITTEE

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ACCOMODATION

Our suggestions for hotel accommodation can be found on www.risoe.dtu.dk/Conferences/Future_energy_systems.aspx. Booking and payment is your own responsibility. We will arrange bus service from central points near the recommended hotels.

BACKGROUND

THE WORKSHOP IS A PART OF DTU CLIMATE CHANGE TECHNOLOGIES

As part of the DTU Climate Change Technologies programme, DTU has arranged a series of workshops and conferences on climate change technology focusing on assessment of and adaptation to climate changes as well as on mitigation of green house gasses (GHG).

Each workshop targets a specific technology problem area. The workshop on Future Energy Systems develops and discusses recommendations for future climate change technologies. The recommendations will be presented at a high-level conference in September 2009, where industrial, governmental and scientific perspectives on climate change issues will be addressed.

RISØ ENERGY REPORT SERIES

Risø Energy Report 7 will be released as introduction to the workshop. The series deals with global, regional and national perspectives on current and future energy issues.

Risø Energy Report 7 "Future low carbon energy systems" takes its point of reference in the recommendations from the IPCC's fourth assessment report published in 2007. IPCC states that if anticipated climate change is to remain in the order of 2 to 3 degrees over the next century then the world's CO_2 emissions must peak within the next 10 - 15 years and ultimately by the middle of the century be reduced to app. 50% of present level.

The report presents status and trends for the energy systems in a Danish, European and OECD perspective. Status and perspectives for the large rapidly growing developing country economies like India and China are also presented, as well as for typical least developed countries e.g. in Africa. A special focus is put on how future energy development and systems might be put together in these country groupings, and to which extent the different technologies might contribute.

The report further identifies system options and technology mixes that can lead to emissions peak in 2020 and 50% reduction in the long run at the Danish and global level.

More on Risø Energy Report series at www.risoe.dtu.dk/Knowledge_base/publications/Risoe_Energy_Report_series.aspx

The DTU Climate Change Technologies programme is run by the Technical University of Denmark (DTU). It provides a firm platform for development and deployment of new technologies to climate change issues. DTU will focus on technologies which reduce CO_2 emissions and can support growth and welfare while concurrently adapting to climate changes. DTU promotes co-operation between universities, industry and governments in order to accelerate the implementation of technologies and energy systems.

Read more on *DTU Climate Change Technologies* at www.dtu.dk/climate

ORGANISERS

Risø DTU
National Laboratory for Sustainable Energy

DTU Electrical Engineering
Department of Electrical Engineering

DTU Mechanical Engineering
Department of Mechanical Engineering

DTU CLIMATE CHANGE TECHNOLOGIES

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