

CEEH Kick-off Meeting

Rødvig 23/1-25/1 2007

RISØ

On-going activities: Risø National Laboratory / DTU

- Risø og Afdelinger på Risø
- Risø strategi 2004: **Bæredygtig Energi**,
Konkurrenceevne som højteknologisk samfund
Sundhedsrelateret teknologi
- Systemanalyseafdelingen (SYS) / **Energisystemanalyse (ESY)**
Forskningsområder / projekter.
- Andre centre mm. relevante for **CEEH**
Coherent Energy and Environmental System Analysis (CEESA)
Internt Risø/SYS, UCC/ initiativ: Globale energi-modeller

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Risø National Laboratory

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Risø was a national laboratory under the Ministry of Science, Technology and Innovation until 1 January 2007, where it merged with the Technical University of Denmark (DTU)

Risø was officially inaugurated in 1958

Risø has today about 700 employees, including 63 PhD students



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Risø part of the Technical University of Denmark



From 1 January 2007,

- Risø National Laboratory,
 - the Danish Institute for Food and Veterinary Research,
 - the Danish Institute for Fisheries Research,
 - the Danish National Space Center and
 - the Danish Transport Research Institute
- have merged with the Technical University of Denmark (DTU) with DTU as the continuing unit

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Consequence of the Fusion



- **Risø will be part of DTU as a national laboratory.**
This means that Risø continuously will work towards national goals as a strategic project organization that will profit by the external and internal dialogue laid out in our present strategy

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Risø's research departments

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- Wind Energy
- **Systems Analysis**
- Materials Research
- Fuel Cells and Solid State Chemistry
- Polymers
- Optics and Plasma Research
- Biosystems Research
- Radiation Research



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Risø National Laboratory

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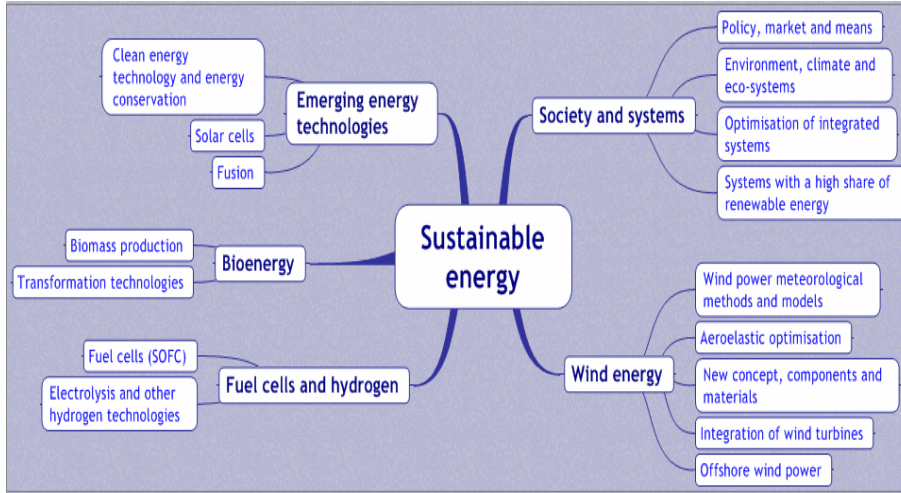
- Performance contract with Ministry of Science, Technology and Innovation 2006 -2009
- **New strategy developed in 2004 with increased focus on Sustainable Energy**
- International evaluation carried out in June 2005



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Risø's research areas 2005 -



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Systems Analysis Department



The department has:

- Cross-disciplinary scientific staff of about 65
- Collaboration with industry, universities, government institutions and international organisations

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Systems Analysis Department

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Research programmes:

- Energy Systems Analysis
- Energy, Environment and Development Planning
(UNEP Risoe Centre on Energy, Climate and Sustainable Development)
- Safety, Reliability and Human Factors
- Technology Scenarios

The department hosts the secretariat for Global Network on Energy for Sustainable Development

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Systems Analysis Department

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● Energy Systems Analysis



The programme develops:

Methods for analysing energy, environment and economic issues and their inter-relations,



Methods for assessment of new energy technologies and their adaptation to complex energy systems

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Forskningsområder: ESY

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- Teknisk-økonomisk analyse og (modellering) af energiteknologier /incl. externaliteter
 - Markedsmodeller, adfærd og instrumenter
 - Samspil mellem energi, miljø og økonomi på nationalt og europæisk plan
- /
- **Langsigtede scenarieanalyser**
 - **Energisystem modellering** /simulering, optimering
 - **Policy analyser**

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Systems Analysis Department

Energy Systems Analysis/ On-going projects 2006

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1. Brint større forskergrupper
2. DGrid
3. EFP Brint/Bent Sørensen
4. EFP ETSAP samarbejde
5. EFP gas Hans Ravn/PF
6. EFP solceller
7. Eltra/Elkraft: elprognoser
8. EMMA-opdatering
9. EU Greenet 27
10. EU-affald
11. EU-biogas
12. EU-Needs
13. EU-Optres
14. EU-Sustel
15. Flexibel elforbrug
16. Malaysia Henrik
17. Nordisk Energiforskningsprogram
18. PSO Styling og regulering vindkraftanlæg
19. VE forskningsråd-AKF, Means to promote renewable
20. VE-forskningsråd større forskergrupper vind
21. EFP05 bioethanol
22. Subwind
23. SOLID-DER
24. Forsyningsikkerhed EFP06 ea-analyse
25. EFP06 bioethanol
26. Venzin/internt projekt
27. ENSUWE-affald input i energisektor
28. anemosPlus
29. IEA-annex
30. Transport DTF Markedspotentialer for renewable fuel passenger cars
31. Hyscene
32. Respond
33. CEEH
34. AUC, scenarier på energi
35. Wilmar/Irland
36. Teknologiscenarier EA-Energianalyse
37. RES2020
38. Trade wind
39. Renewable energy in the transport sector. DMU/Forskningsråd
40. EU- Futures
41. EFDA-fusionsprogram

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Systems Analysis Department

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Systems Analysis Department

- UNEP Risoe Centre



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Development of methods for analysis of global, regional and national energy, environment and development issues and support to building national planning capacity



- Promoting the integration of sustainable development concerns in energy policy and planning, especially in development countries
- Supporting the UNEP programme implementation in the areas of energy, economics and climate change



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Systems Analysis Department

- UNEP Risoe Centre

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Organisational framework and setting:

Established in 1990

Collaborative undertaking between UNEP, Risø and Danida (Danish International Development Assistance)

Governed by a Management and Policy Committee

Assisted by a Scientific Advisory Committee with high-level experts from all development regions and selected international institutions

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Systems Analysis Department

- The Global Network on Energy for Sustainable Development

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- Established in 2003 with Risø as host institution for the GNESD Secretariat.
- Focus on networking between developing world centres
- Goal is to enhance the capacity to develop policies and undertake planning and research efforts that integrate solutions to energy, environment and development challenges.
- Activities include capacity strengthening of participating centres, joint activities on information exchange, thematic analytical studies and policy support to national and international institutions.

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Det Strategiske Forskningsråd for energi og miljø, nov 2006:

Coherent Energy and Environmental System Analysis (CEESA)

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List of applicants:

AAU, Aalborg University / **Professor Henrik Lund**

Risø, Risø National Laboratory

DTU, Technical University of Denmark

KVL, The Royal Veterinary and Agricultural University

CBS, Copenhagen Business School

AKF, Institute of Local Government Studies – Denmark

DONG Energy

Start: 1 January 2007

End: 31 December 2010

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Coherent Energy and Environmental System Analysis (CEESA)

15. Brief project description, suitable for publication (max. 1,500 characters)

Gennem internationale aftaler har Danmark forpligtet sig til at reducere CO₂-udledningerne samt til at øge anvendelsen af vedvarende energikilder. Regeringens Energi Strategi 2025 identificerer tre store udfordringer for energisektoren:

- 1) Reduktion i CO₂-udledningerne,
- 2) forsyningsikkerhed og mindsket afhængighed af olie fra politisk ustabile regioner, samt
- 3) øget konkurrencekraft for danske virksomheder på et globaliseret energimarked.

Dette projekt fokuserer på alle ovennævnte udfordringer. Vedvarende energiresourcer som vind og biomasse er anses for at være CO₂ neutrale, men vedvarende energi er ikke "grøn" pr. automatik. Det er afgørende vigtigt at kende og forstå de fundamentale mekanismer, der styrer energimarkedet, samt produktionen og distributionen af energi.

Med det formål at skabe bedre beslutningsgrundlag for politikere og energisektoren, samt at sikre og udbygge forskningsfaglige kompetencer i energiforskningen vil vi med dette projekt:

- Udvikle nye metoder til sammenhængende energi og miljøanalyse.
- Analysere og optimere brugen af vedvarende energi i transportsektoren.
- Effektivisere produktion og distribution af elektricitet.
- Identificere de mest effektive reguleringsmekanismer for energimarkedet.
- Dokumentere og optimere fremtidige energisystemers miljøpåvirkninger.

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Risø initiativ: UCC (UNEP Collaboration Center) & ESY



Projekt vedrørende: **Globale energi-modeller**

Start: 2007

- Fokus: Energi, miljø & bæredygtig udvikling
I udviklingslande.
- Modelværktøj:
AIM model-kompleks / NIES (Japan)
- 2 phd studier igangsættes
- ESY-fokus:
Global trade and technology transfer
/ Energy, environment and sustainable development /



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Research areas:

Competitive European market for electricity and gas

International commitments to reductions of greenhouse gases:

- Joint Implementation
- Tradable CO₂ permits
- Regional burden sharing

Interactions between structural changes in society, technological development and energy consumption.

