# SJTU-NTNU Research Centre

# Energy systems and policy group

CenSES
Centre for Sustainable Energy Studies

SINTEF NTNU Det skapende universitet IFE Institutt for energiteknikk NHH 75 år HØGSKULEN i SOGN OG FJORDANE VESTLANDSFORSKING UiO : Universitetet i Oslo SNF Et selskap i NHH-miljøet

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# Energy systems and policy group –Sep2011 output


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|---|---|---|
| 1.Development of offshore wind industry | Twin PhD project | Output: 10 articles in international journals (two joint), policy advice & tools |
| 2. Energy consumption and behavioural aspects | Comparative data analysis: households | Output: 2 peer reviewed articles in international journals, policy advice & tools |
| 3. Energy system model | Integrate findings from 2. | Output: a techno-economic-social energy system model |

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# Status today: Offshore wind strategies and industry development in Norway and China

- PhD student, Marius Korsnes, employed from May 2012

- Technological development is a product of interaction and dynamics between a heterogeneous set of actors, technologies and objects
- Studying innovation and commercialization processes in the offshore wind industry in China and Norway
- Addressing creation of knowledge, and (lack of) integration between research driven and experience driven modes of learning
- Qualitative and quantitative methods
  - Mapping stakeholders, incentives, barriers

# Same sea, different ponds: the development of offshore wind technology and industry in Norway and China

- Systemic perspective on technological learning and innovation in and between China and Norway
  - Which actors are involved? National drivers? Particular challenges? The role and presence of MNCs, domestic entrepreneurs and investors?
  - How and where is knowledge sourced, produced, assimilated and transferred? The integration between research driven and experience driven modes of learning?
  - Where is the power - the role of economist, engineers and other actors in decision making processes regarding energy systems and technological learning?

- Case study: Norwegian OW activity in China
  - Drivers and barriers on both sides
  - Insider outsider interaction, dual learning process
  - Identify opportunities for mutually beneficial industrial cooperation, means of facilitating

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# Plans for carrying out the project

1-6 months

- Write up a concrete research proposal,  courses
- State of the art paper
- Plan collection of data
- Finalize paper comparing Chinese and Norwegian technology strategies in offshore wind

7-14: data collection and cooperation in China

15-20:  Writing up papers

21- 27:Data collection , 2nd period

27-36 Write up thesis, general dissemination

# Plans for involving industrial partners

- Map out relevant industries
- Contact (Shanghai Electric, Statoil, CNOOC, Sway etc)
- Recruitment of Master and PhDstudent who have been involved in these relevant to the company

# Household Energy Behavior

How to guide a low-carbon, low energy consumption living behavior?

Combine  data from China and Norway

Use the benefit of the strong energy model

# Plans for development of larger cooperation project on agent based energy policy model

Develop agent based model with input from new data: company behaviour, how they react with market and policies

Company, suppliers behaviour in the wind industry , governments behaviour/interest and what will happen, how will they react given prices and policies

- how they react with the market (price)
- Used for evaluating policies
- What is the effect after 5-10 years

# Further plan

How to use the model for:

- Develop policy for offshore wind
- For clean development mechanism etc
- Exchange of professors both ways
- Possible sources for further funding and cooperation:
  - International Energy research Centre
  - MOST (Ministry of Science and technology)
  - Chinese Social and Natural Science foundation
  - Norwegian Research Council

# Energy and society course

- Successfull course at NTNU for engineering students
  - Energy policy and framework conditions, Innovation and public engagement
- Develop similar course at Jiaotong
- Strengthen NTNU course with lectures from Jiaotong professors (international cases)