

Deutsche Umwelthilfe: *Energy Storage and Nature Conservation*,
Berlin 21st February 2011

Sustainable Grid Development

a policy oriented research project within CEDREN
headed by SINTEF Energy Research

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Addressing the need to integrate economic, social and environmental concerns



- ▶ Need to reduce European greenhouse gas emissions:
- ▶ Renewable electricity is part of the solution, but ...
- ▶ ...a sustainable improvement in grid capacity is needed
- ▶ Aim: To develop a strategic knowledge-based management regime designed to resolve trade-offs among competing interests.
- ▶ Focusing on Norway, Sweden and the UK

A question of legitimacy

- ▶ Large scale power lines often cause a high level of conflicts

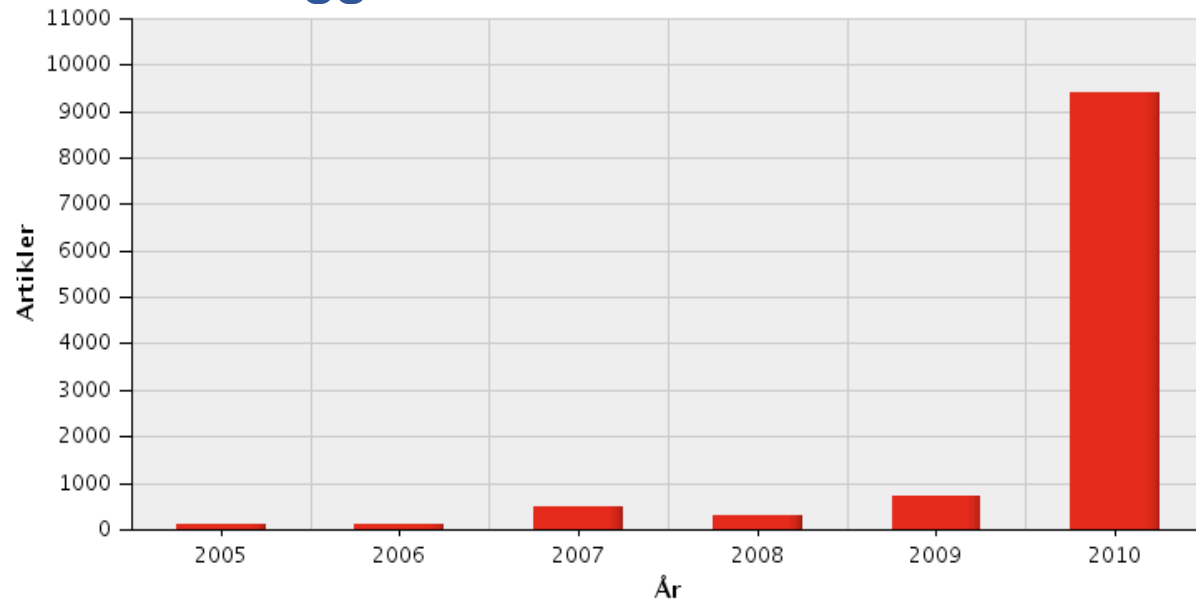
A legitimacy crises

- ▶ Politics: governance challenge
- ▶ Societal legitimacy
- ▶ Economic compensation
- ▶ Different environmental issues; esthetical-, biological and climate concerns and impacts – a conflict?



How to make the governance of grid development more sustainable

The "Case Hardanger" - 4th biggest mediaevent in 2010



Opinion poll August 2010:

- ▶ 56 percent against
- ▶ 19 percent in favour
- ▶ The Government decided to have another consequence analysis of the sea cable alternative to strengthen the legitimacy of the concession process

Opinion poll October 2010:

- ▶ 25 percent against
- ▶ 55 percent in favour

Is the media a more effective way to influence the political decisionmaking than the traditional channels?

How to address the legitimacy complex in order to design a sustainable grid development?

- ▶ Multi-disciplinary approach
- ▶ Comparative assessment: Norway, Sweden and the UK
 - Existing market interaction between Norway and Sweden Nord Pool
 - Project interactions between Norway and the UK; e.g. plans to establish power connection between Norway and the UK
- ▶ Multilevel analysis
 - central, regional and local references



The research tasks in SusGrid – a four year project, 2011-2014:

- ▶ Governance: The Grid Development Regime:
 - the political and regulatory framework
- ▶ Economic regulation models and innovation
 - innovative approaches to network regulation, concerns for Smartgrid
- ▶ Local impacts and local responses to grid development projects
 - What are the actual and presumed effect of grid development
- ▶ Public engagement in grid development
 - how grid development processes can be made more sustainable through increased dialogues among stakeholders.
- ▶ Converting trade-off conflicts to coherent policies for a sustainable grid
 - Policy recommendation: how to model a Sustainable Grid Regime
- ▶ A PhD, to be developed with various of the research tasks listed above
- ▶ Stakeholder dialogues

Governance: The Grid Development Regime

7

- ▶ A review of regulatory practices related to planning, design, licensing and installation of electricity grid project
- ▶ In a multi-level context (central, regional and local levels of governance)
- ▶ Focus:
 - *National policy and planning processes, including the follow-up of international commitments*
 - *Instruments and procedures for the phase-in of grid*
 - *Participation and legitimacy*
- ▶ Overall question: *Where is the societal legitimacy for the development of sustainable grids when reviewing the political and regulatory frameworks?*



Economic regulation models and innovation



- ▶ Addressing the need to explore new innovative approaches to network regulation
- ▶ With reference to the Grid Development Regime (GDR) the following issues will be considered:
 - ▶ Lessons learnt from economic literature on industrial organisation on regulation and innovation
 - ▶ Estimate measures of investments in individual utilities
 - ▶ Assess network models, particularly regarding how to “downstream” concerns that are influencing the GDR
- ▶ Comparable studies of the concerns for smartgrid will be reflected
- ▶ Overall question: How to improve economic and technical approaches for developing a sustainable grid?

Local impacts and local responses to grid development

- ▶ As a follow-up of the review of the political, regulatory and economic conditions:
- ▶ Analyses in areas where large scale grids have been realised and in areas where there are plans to develop grids: comparing expected and realised impacts
- ▶ Address impacts for different stakeholder groups (municipality, tourism, recreation)
- ▶ Overall question: What are the presumed and actual effects of sustainable grid development? What are effective mitigating and compensatory measures in grid development processes?



Public engagement in grid development projects



- ▶ Focus on the involvement of stakeholders in grid development projects: the role of dialogue, communication of knowledge, addressing questions of sense of place in relation to introductions of new technologies.
- ▶ Aim: to get beyond a NIMBY-understandings of public attitudes towards installation of large scale grids
- ▶ Case studies and analysis of media coverage of grid development.
- ▶ Overall question: How are people's attitudes towards development of new grid development projects affected by peoples sense of place and degree of involvement in the actual processes?

Converting trade-off conflicts to coherent policies for a sustainable grid

Drawing on lessons learnt from the research tasks performed we aim to provide relevant knowledge that enables:

- ▶ To improve planning tools enabling better and more effective governance structure
- ▶ To suggest new economic mechanisms promoting both 'smart' and sustainable grid development
- ▶ To provide new policy instruments based on engagement strategies involving active dialogues between relevant stakeholders (companies, citizens, NGOs)

Research partners

- ▶ SINTEF Energy Research

Partners:

- ▶ Norway:
 - ▶ NINA (The Norwegian Institute for Nature Research)
 - ▶ Uni Research, Stein Rokkan Centre for Social Studies
 - ▶ Department of Sociology and Political Science, NTNU (Norwegian University of Science and Technology)
- ▶ Sweden:
 - ▶ Stockholm Environment Institute
- ▶ United Kingdom:
 - ▶ University of Exeter
 - ▶ Heriot-Watt University
- ▶ Associated partners:
 - ▶ KTH Royal Institute of Technology, Sweden
 - ▶ Others...



International comparisons, and exchange of ideas are vital...

- ▶ ...therefore please do not hesitate to contact us if you want to share your ideas, discuss possible for cooperation, or if you have any questions:

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