A comparative perspective of renewable energy policy in Norway

by
Audun Ruud
Research Manager
SINTEF Energy Research, Norway
Content of this lecture:

- The Centre for Environmental Design of Renewable Energy - CEDREN
- A few words on the Nordic electricity system and where EU is moving?
- About the SUSTEN project on the implementation of the RES-E Directive
- Some RES-E findings in Norway
- The importance of handling institutional inertia → lock-ins – also in Norway!
- The urgent need for better and more coordinated policy and governance
- About the GOVREP project
- The challenges of communication and public acceptance
- Sustainable Grid Development – the "monster" debate in Hardanger!
- How to reconcile energy- and environmental policy concerns
Centre for environmental design of renewable energy – CEDREN
a direct consequence of the Norwegian climate accord in 2008
CEDREN: Renewable energy respecting nature

- 9 large research projects
- 7 Norwegian research partners
- 13 Industry partners and 2 management partners
- Budget: 280 MNOK (37 mill Euros)
- 16 PhD and 4 Post-doc positions
Current programme activities:

- Environmental impacts of hydropneaking
- Technical hydropower development
- Governance for Renewable Electricity Production - GOVREP
- Environmental impacts of power transmission
- Sustainable grid development - SusGrid
- Laboratories, field sites, numerical and graphical lab, dissemination, management
- EcoManage
- HydroBalance

STYRIAN ACADEMY for Sustainable Energies
The Nordic electricity system:

<table>
<thead>
<tr>
<th>NORDIC COUNTRIES 2009</th>
<th>Denmark</th>
<th>Finland</th>
<th>Norway</th>
<th>Sweden</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhabitants (mill.)</td>
<td>5.5</td>
<td>5.3</td>
<td>4.7</td>
<td>9.2</td>
<td>24.7</td>
</tr>
<tr>
<td>Electricity Consumption (GWh/yr)</td>
<td>36446</td>
<td>90434</td>
<td>127352</td>
<td>146402</td>
<td>400634</td>
</tr>
<tr>
<td>Hydro (GWh/yr)</td>
<td>30</td>
<td>13971</td>
<td>135043 (106% of el. consumption)</td>
<td>65529</td>
<td>214573 (54 %)</td>
</tr>
<tr>
<td>Nuclear (GWh/yr)</td>
<td>0</td>
<td>22496</td>
<td>0</td>
<td>64278</td>
<td>86774 (22 %)</td>
</tr>
<tr>
<td>Other thermal (GWh/yr)</td>
<td>29824</td>
<td>41111</td>
<td>1443 (1,1%)</td>
<td>13849</td>
<td>86227 (22 %)</td>
</tr>
<tr>
<td>Wind (GWh/yr)</td>
<td>7171</td>
<td>191</td>
<td>901 (0,7%)</td>
<td>1431</td>
<td>9694 (2 %)</td>
</tr>
<tr>
<td>Total generation(GWh/yr)</td>
<td>37025</td>
<td>77769</td>
<td>137387 (107,9%)</td>
<td>145087</td>
<td>397268 (99,2%)</td>
</tr>
</tbody>
</table>
Where is the EU moving?

- EU on track towards its common Kyoto commitment
- The RES Directive is fully implemented realizing the 2020 objectives
- Despite financial crisis!
  - The adopted EU Treaty (‘Lisbon’) has provided a formal basis for more common energy legislation, but no changes in the Member States’ control over the policy field.
  - The EU will still be characterized by substantial differences of interests between Member States and geographical areas.
  - Climate-change still to be considered in relation to security of supply and competitiveness. Unclear which concern(s) will prevail, and whether there will be further synergies.

The final impact from the EU energy policy depends ultimately on Member States’ follow-up.
The SUSTEN Project

- Initiated by Programme for Research and Documentation for a Sustainable Society (ProSus), University of Oslo – currently part of SINTEF Energy Research
- Financed primarily by the Research Council of Norway (RCN)
- In cooperation with seven major research institutions in Europe:
  - FI: Finnish Environment Institute (SYKE)
  - SE: Stockholm Environment Institute (SEI)
  - DK: Copenhagen Business School (CBS)
  - NL: Centre for Clean Technology and Environmental Policy (CSTM), Utwente
  - IE: Cleaner Production Promotion Unit (CPPU), Ucork
  - AU: Technical University Graz (TUG)
  - ES: Department of Political Science, (UAM), Madrid
• Some Norwegian SUSTEN findings:

- Only limited business interest in promoting renewable electricity (RES-E) – rather a cash cow for owners – in particular municipalities

- Norway has the resources, but lacks the political will!

- Consequently, only limited wind power! Norwegian investors are rather pursuing ventures abroad!

- Given, the climate policy commitment, the energy policy focus is rather on CCS!

- WHY?
Standard model of a “virtuous cycle for a supportive policy environment”:

- **Technology cycle**: Improvements result in cost reductions, efficiency increase and enhanced applicability. Technology progresses through innovation, feedback and R&D investment.
- **Market cycle**: Greater sales mean higher demand - greater use gives more feedback. Cheaper, better and new products enlarge markets and open new segments.

The expanded “virtuous cycle” applied in SUSTEN:

Structural variables conditioning the degree of inertia in dominant energy systems

Technology-related variables conditioning the development and systemic integration of RES technologies

Market-related variables conditioning the competitive advantage and “learning” potential of RES in EL markets

Contextual variables conditioning integration of RES-E in specific regional-local settings

Path dependence

Dominant techno-market model for RES-E promotion

The “techno-market bias”

Contextual variables from national studies

Improved governing strategies for promoting RES-E
Sustainable Energy System Innovation: the challenge of increasing lock-ins

Institutionalisation of the product and its mode of consumption

Increasing Lock-in

Low

Time

High

Potential for change in the product and its mode of consumption

The importance of public policy coordination both horizontally and vertically

STYRIAN ACADEMY for Sustainable Energies
The major drivers influencing the energy system:
The challenge of identifying and reconciling critical ‘trade-offs” in the interaction of policy-steering and public-acceptance

Structuring the interaction between policy goals and affected interests at the horizontal level of governance

Ministerial responsibility for sectoral policy integration

Environment

Energy

Finance

A specific energy project

The character of public engagement is uncertain
The GOVREP project: GOVernance for Renewable Electricity Production

How to reconcile environmental- and energy policy concerns?

Enabling a more effective realization of both energy- and environmental objectives as agreed upon by the Parliaments in Norway and Sweden
More environmentally sound electricity production will be promoted due to:

- The certificate market with Sweden from 2012 with the objective of promoting 26,4 TWh by 2020

- Implementation of the EU directive on renewables (RES):
  - The RES Directive aims at achieving 20% RES of total net energy consumption in the EU by 2020, as well as 10% for the transport sector.
  - Binding national targets. Sweden has 49% - the highest until Norway get 67,5%
  - National action plans was published in 2010. Norway intends to present its NREAP by Summer 2012.
and the environment must be protected

• Electricity from renewable sources will be promoted to combat climate change, but other environmental policy challenges are still prevailing like

• The Biodiversity convention and eco-system services

• The EU Water Framework Directive:
  • Requires a more coherent management of watercourses
  • Including new environmental quality standards that will influence revisions of hydro power concessions.
The need to combine approaches while maintaining the dialogue with all interested parties: **The challenge of communication!**
I am fully convinced that Sima-Samnanger is the best solution.

Cabinet Minister Terje Riis-Johansen cited in a Press release from MoEP, July 2nd, 2010

You should not have read many newspapers or seen a lot on TV during this summer to understand that there have are different opinions concerning the knowledge base...

To strengthen the legitimacy of the decision we find it rational to conduct an independent assessment - an assessment that has been asked for..

Terje Riis-Johansen at the Press conference, August 10, 2010
The current central grid connections in Western Norway:
The Sima-Samnanger project in media: 2005-2010

Source: Retriever
The fourth largest Norwegian newsitem in 2010
- Measured in number of hits

Source: Retriever, PR-operatørene
What happened in Hardanger?
Some central findings in our study of the "monsterdebate" during the summer 2010:

- Opponents in clear majority
- A strong focus against the overhead line, threats on civil obedience, protest marches, the retreat of the government, etc.
- Local population communicate that they had no real influence on the process
- The MoEP accused for not conducting an independent quality assurance
- The "monsterdebate" had little reference to the knowledge base for the permission approved on July 2nd, a decision considered as illegitimate by many opponents
But what happened in the formal decision making process?
Central stakeholders participation and position in the Sima-Samnanger project

<table>
<thead>
<tr>
<th></th>
<th>Announcement</th>
<th>Application</th>
<th>Additional assessments</th>
<th>Additional application</th>
<th>Handling of complaints</th>
<th>Media debate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eidfjord kommune</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ulvik herad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Granvin herad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kvam herad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samnanger kommune</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statkraft</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BKK Nett</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Den Norske Turistforening</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NHO Reiseliv</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Folkeaksjonen i Hardanger</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norges Naturvernforbund</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norges Miljøvernforbund</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bellona</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZERO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WWF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Framtiden i våre hender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natur og Ungdom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bevar Hardanger</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bergen kommune</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Have informal processes replaced the formal procedures?

- The study disclosed that several of the central stakeholders did not participate in the formal hearing processes and rather used media as the arena for influence.
- The knowledge base for the formal decision had hardly been referred to in the media.
- The expert committees concluded very much in line with previous impact assessments.
There were several alternative routes for the project:

But did these options represent the preferred alternative among the opponents?

Source: Statnett 2006
Promoting more sustainable “outcomes”: The critical issue of trade-offs and priorities

- Economic concerns
- Welfare concerns
- Ecology concerns

- Economy-ecology trade-offs
- Economy-welfare trade-offs
- Social-welfare concerns

- Policies and outcomes

- Welfare-ecology trade-offs
How can energy- and environmental policy goals better be reconciled? Central areas of concern:

1. The decision-making system and practice – including the planning and concession procedures
2. International commitments - particularly EU Directives
3. The question
4. The knowledge base and technological change
5. Actor interests and exercise of power
6. Institutional procedures and path dependency

Specific decisions
Conclusion:

• EU is managing to reconcile different interests

• Even Norway is on its way

• …but do we know where we are going?

• What is actually the question?

Contact: +47 99233969/audun.ruud@sintef.no