

# Societal acceptance of balancing power and pumped storage hydropower in Norway

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# Introduction

- The idea of a using Norwegian HP as a 'green battery' poses not only technical and environmental challenges, but also societal challenges
  - The study highlights environmental, social and economic aspects
- Study conducted by Helene Egeland (SINTEF Energy Research), Oddgeir Andersen (NINA), Audun Ruud (SINTEF Energy Research) and Øystein Aas (NINA) (Autumn of 2011)
- Point of departure: stakeholder interests and concerns
  - Based on the stakeholders knowledge, interests and concerns

# Research questions

- Does the idea of using Norwegian hydropower as a 'green battery' for Europe have legitimacy among key stakeholders in Norway?
  - How it is perceived in general, and not related to a specific project
- What are the drivers supporting the idea of Norway as a 'green battery', and what are the barriers?
- What changes (politically and regulatory) are necessary to meet the challenges posed by an increased use of balancing power and pumped storage?

# Method

- Interviews: 22 informants (representing energy companies, a national grid company (TSO), environmental and recreational NGOs, host municipalities, as well as the public authorities concerned)
- Interview guide: focusing on how the idea of Norway as a 'green battery' was considered in terms of drivers/barriers, compensating measures and involvement

# Results (1/3)

- All stakeholder supported the idea that Norway could play a role in **reducing climate change** by offering balancing services from hydropower
- At the same time there is widespread doubt that this is realistic due to perceived **political and regulatory challenges**
  - Lack of political support
  - Needed changes in the legal framework
  - How to share costs and benefits
- Among some of the energy companies, there exist uncertainty about the **commercial potential**
  - Due to technological and economical uncertainties
- The grid policy:
  - Insufficient regarding the **distribution of benefits and costs (interconnectors)**
  - Statnett's mandate (National security of supply)
  - The time aspect (planning, concession, construction etc.)

# Results (2/3)

- The Norwegian **contribution** is regarded as being **limited** due to limitations set by environmental concerns
- Concerns regarding consequences on: **rivers or smaller downstream reservoirs are affected.**
- **The balancing of different environmental concerns:** a perceived risk that climate concerns are seen as more important than other environmental concerns
  - A question of how international commitments (such as the RES Directive, the Act on biodiversity, the Water Framework Directive) are balanced in energy issues in general, and also posed by the idea of a green battery.

# Results (3/3)

- There is general agreement that **host communities must get their share of benefits** from production of balancing services, and that the current legislation must be changed to take this into account
  - The natural resource tax and the property tax are based on production. Since pumping storage in reality reduces the total production, income opportunities may be reduced for the host municipalities.
- Better **involvement** of stakeholders (NGOs, industry etc.) and local communities is seen as crucial in further planning of balancing services, but there are different views on how and who should be responsible for improved involvement

# Main challenges

- Grid issues: policy, capacity, rate of development, distribution of costs and benefits
  - Economic issues: the market, distribution of costs and benefits (both concerning grid connections and the balancing services)
  - Environmental issues: the dual environmental concerns
  - Involvement issues: how, when, whom
- 
- ...challenges the current national energy policy as well as the regulation regime



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