New public management and adaptability to climate change in the energy sector

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Objectives

- Examine whether and how NPM-reforms have affected the capacity to adapt to climate change
  - The Norwegian and Swedish energy systems as cases
- Examine opportunities for learning across national energy systems
Research questions

- How vulnerable are the Norwegian and Swedish energy systems to climate change effects?
- What are the current status of adaptive capacity in the two national energy systems?
- What can explain anomalies in adaptive capacity?
- How have NPM-reforms affected adaptive capacity in the two national energy sectors?
- Have major weather events already affected adaptive capacity?
- Can adaptive capacity be improved, and how?
Adaptive capacity

- Ability of institutions, systems and individuals to:
  - Adjust to potential damage
  - Take the advantage of opportunities
  - Cope with the consequences
Adaptive capacity

- Capacity to collect and handle relevant information about expected weather-induced effects of climate change
- Capacity to co-ordinate and bring in existing knowledge on energy system vulnerabilities and opportunities
- Capacity to mobilise resources needed for action on reducing vulnerabilities/taking advantage of opportunities
- Capacity to act
Constraints on adaptive capacity

- Constraints on flow of scientific knowledge
- Constraints on interpreting scientific knowledge for national/local conditions (identification of national/local vulnerabilities and opportunities)
- Constraints on acting to reduce vulnerabilities/use opportunities
  - 'bounded rationality'
    - 'routines not adapted to new environmental conditions’
    - cultural norms (national and local)
    - technical constraints (national and local)
Adaptation in the energy sector

- Options for reducing vulnerability/utilising opportunities:
  - National level:
    - Increase national system flexibility (diversification of energy supply and demand technology options)
    - Reduce national system vulnerability (grid solutions, dams, other facilities)
  - Local level:
    - Increase sub-system flexibility (reduce impacts of transmission grid blackouts)
      - Off-grid (distributed energy solutions)
      - Reduce local system vulnerability (local grid and energy facility solutions)
NPM and adaptive capacity

- NPM-reforms in Norwegian and Swedish energy sectors:
  - Traditional NPM-hypotesis: NPM-reform of public sectors will increase cost-efficiency of public spending without causing negative side-effects on other objectives/considerations

- NPM-foci:
  - Cost-cutting
  - Rationalisation/outsourcing/privatisation
  - Disaggregation/fragmentation of financial and operational control – ‘result units’ – ‘unbundling of functions’

- NPM-reforms heralded as a success by the energy industry:
  - Have reduced expensive investments in ’security of supply’
  - Have rationalised the industrial structure (larger units)
  - Removed the principle of cost-inefficient local ’self-support’
NPM and adaptive capacity

- Examine the effect of NPM reforms on climate adaptability, through the effects on:
  - Formulation and priority of goals for the energy sector
    - security of supply vs. shareholder rentability
  - Granting and allocation of financial and human resources to energy sector solutions
    - Grid solutions
    - Local energy supply solutions
    - Demand-side solutions
  - Changes in co-ordination between energy suppliers
  - Changes in co-ordination between energy supply and energy use systems
  - Public legitimacy of energy sector agents pre- and post-reform
Methodology

- Comparative case study (national and local)
  - Similar but not identical NPM-reforms
  - Different technical systems with similar elements
  - Similar political and cultural traditions

- Collection and analysis of data (preliminary)
  - Data needed to identify goal priorities, perception of vulnerabilities and opportunities, modes of co-ordination, resource allocation, etc.
  - National level:
    - governmental policy papers, plans and regulatory measures
    - interviews with key system agents (national regulatory authorities, crisis management authority, national grid companies, national electricity industry associations, government-owned national electricity producers, electricity supply company owner association)
  - Local level:
    - municipal plans and policy papers as well as interviews with key system agents (energy suppliers and their municipal owners, grid owners and operators, key consumers)