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Governing Quasi-Public Network Services for adaptation to climate change

Examples from the electricity grid sectors in Norway and Sweden

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Helsinki, 31 August 2012

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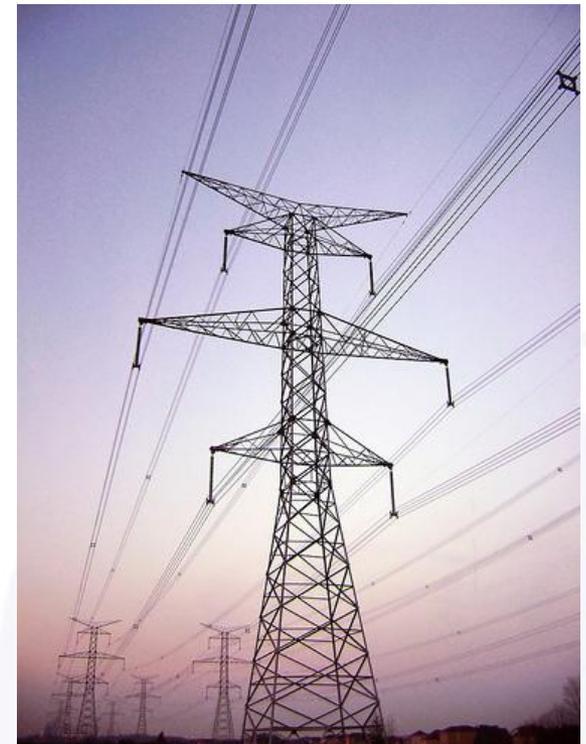
Why choosing QPNS for CCA capacity analysis?

- Organizational CCA are understudied but is a primary arena for adaptation; at the organization-, sector-, and society level
- Providing public goods in the private-public nexus, QPNS are often labelled critical infrastructures (post, railroad, telecom...)
- QPNS operate under strict public regulation and are like other sectors also influenced by own organizational culture
- QPNS in the western world heavily reformed; feasible for diachronic analyses



Norway and Sweden

- Q: How public regulations and organizational culture influence CCA in western QPNSs and how they can be formed to increase CCA capacity
- 1980-2010
- Comparative cases
- Reforms:
 - Norway 1991
 - Sweden 1996
- In-debt interviews (1-3h)



Capacity for Climate Change Adaptation (CCA)

The ability to change by reducing vulnerability or enhance resilience in response to observed or expected changes in climate or associated extreme events

- From neo-institutional organization theory:
 - *Formal laws and regulations*
 - Available resources and clear responsibility structure for adaptation
 - *Organizational culture*
 - Normative rule-following, appropriateness
 - Adaptation, long term focus, security of supply represents legitimate considerations

Norway

- Reform in 1991
- 98 % hydropower
- 300.000 Km grid
- Central, regional and **local grid**
- About 180 grid companies

Sweden

- Reform in 1996
- 45 % hydro-, 45 % nuclear power
- 530.000 Km grid
- Central, Regional and **local grid**
- About 170 grid companies



General changes in Norway and Sweden

Pre reform

- Culturally engineer dominated
- Vertically integrated
- Self (not)-regulated
- Directly controlled

Post reform

- Culturally economist dominated
- Unbundled
- (Re-)regulated
- Incentive regulation



Change in cultural factors

Norway

- “Efficiency crisis” → Energy Act 1991
- From *engineer* to *economist(s)* paradigm
- Short term focus (efficiency)
- Legacy led to efficiency geared regulatory scheme and further lock-in

Sweden

- External pressure (no efficiency crisis)
- Normatively balanced
- Increased efficiency focus...
- But more long-term view
- Legacy led to balance in regulatory schemes



Regulatory changes Norway

Period	Type of Regulation
Pre-reform, -1991	Self-regulatory system. Goal: Function, not efficiency
1991-1997	Price cap regulation ('light handed regulation')
1997-2001	Economic incentive regulation (by DEA). Goal: Economic efficiency
2001-2012	Incentive regulation + KILE + some more direct regulations (Still strong efficiency focus)
2012(?)→	More nuanced incentive parameters. KILE + Increased direct regulations (N-1?)

- 2001: KILE as a formal «patch fix»

Regulatory changes Sweden

Period	Type of regulation
Pre reform, -1996	Self-regulatory system/ no formal regulation
1996-1999	No formal regulation
1999-2003	Price cap regulation, 'light handed regulation'
2003-2007	Norm Model Regulation, <i>ex post</i>
2007-2012	'Intermediate' regulation, 'light handed regulation'
2012-	<i>Ex ante</i> regulatory framework

- 2005: Fines for failures 12h, 24h



Norway CCA capacity

- Radical Organizational culture
 - Radical move from engineer logic to economist logic
 - Undermines *willingness* to invest in adaptations
 - No transforming “extreme weather crisis”
- Formal structure
 - Reduces *ability* to invest in adaptations
 - Strong responsibility gap



Sweden CCA capacity

- Less cultural transformation
 - Coexistence engineer/economist (leaning)
 - Stable long-term scope
 - Storm *Gudrun* strong (cultural) legitimizer for engineer's paradigm
- Formal structure
 - Weak, frequent change → org. culture important
 - Resources available (for investments in infrastructure)
 - Responsibility gap (relatively smaller problem)



Ex: Security of supply against extreme weather

- Norway
 - Low investments levels and huge lag, (but somewhat increasing)
 - Often measures are thought of as too costly (Politics Vs. Economy)
- Sweden
 - Investments increased, more robust grid
 - Large increase in investments since 2005 (Gudrun + expectations about increased real value of infrastructure)
- =Undergrounding in Sweden, not in Norway!



Conclusions

- Mutual influence on organizational CCA capacity between the two dimensions in the long run
- Formal structure can be designed, not culture
 - But culture puts strong influence on legitimate regulations
- Formal regulations need to be flexible and account for cultural impact and CCA
 - Create incentives for investing org. capabilities and capacities
 - Unanticipated consequences is a challenge
 - Need to sacrifice efficiency for CCA capacity
 - Extend time-horizon induced by regulations
 - The sector is locked into an economic paradigm. Need for a new crisis to change?

References

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Thank you

