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Energy planning in Danish municipalities: Towards an understanding of barriers

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Outline

1. Context of the research
2. Conceptualization of terms
3. Preliminary findings
4. Buildings and housing
5. Outlook

1. Context of the research

- ❖ Implementation of 100% Renewable Energy Systems in DK
- ❖ Share of renewable energy in energy consumption:
 - ❖ 2007: 17% (DEA 2008)
 - ❖ 2015: 34% (IDA 2009, draft)
 - ❖ 2030: 52% (IDA 2009, draft)
 - ❖ 2050: 100% (IDA 2009, draft)
- ❖ Reduction of energy consumption:
 - ❖ 2007 consumption: 863 PJ (DEA 2008)
 - ❖ 2015: approx. -22% (IDA 2009, draft)
 - ❖ 2030: approx. -40% (IDA 2009, draft)
 - ❖ 2050: approx. -50% (IDA 2009, draft)

1. Context of the research

- ❖ Renewable energy: increasingly decentralized solutions (e.g. wind power, PV, biomass, mobility etc.)
- ❖ Local planning and involvement of local actors (e.g. energy savings in industry and households)
- ❖ No “one size fits all solution”
- ❖ Larger responsibility to municipalities

1. Context of the research



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- ❖ 100% Renewable Energy Municipality
- ❖ CO2 Neutral Municipality
- ❖ Energy Saving Municipality
- ❖ Several objectives combined...
- ❖ Etc.

1. Context of the research

- ❖ *What kind of challenges and barriers do municipalities experience when planning for future energy systems?*

2. Conceptualization of terms *“Municipal Energy Planning”*

- ❖ Visions and strategies
- ❖ Energy production, energy consumption, transport
- ❖ Public vs. private infrastructure
- ❖ Existing institutional framework vs. new concepts

2. Conceptualization of terms “Barriers”

- ❖ A number of different understandings
- ❖ External vs. Internal barriers
 - ❖ External: Legislation, Tax system, Credit system
 - ❖ Internal: Org. framework, budget, behaviour
- ❖ Barriers \leftrightarrow Instruments and Opportunities (“Two sides of the same coin”); e.g. change of a certain law
- ❖ Importance of frontrunners and concrete (technological) projects

Grontmij|CarlBro 2009; Rittel and Webber 1973

3. Preliminary findings

- ❖ Barriers are dynamic and interrelated → resolution of external barriers dependent on political will
- ❖ Municipalities ask for information and best practice guidelines
- ❖ Barriers within one sector (e.g. energy savings in buildings involve several authorities/ministries)
- ❖ “Adaptation strategies” of municipalities → e.g. Public-Private Partnerships (ESCOs etc.)

4. Buildings and housing

- ❖ Low-energy/0-energy buildings and energy savings/efficiency
- ❖ Municipal investment stop and the annual budget
- ❖ Existing building standards too unambitious → district plan
- ❖ Limited funding for Social Housing
- ❖ Conflict with collective supply of heat (e.g. district heating)

5. Outlook

- ❖ Continue sector-wise investigation (energy production and transport)
- ❖ Development of a map relating barriers to actors and technologies
- ❖ Focus on barriers related to “major” future technologies



**Thanks for
Your Attention!**