Seminar: Lokalt drevet energiomstilling i Danmark og EU

9. september 2016, kl. 10 til 16

Christiansborg, København, Danmark

Title in English: Local Driven Energy Transition in Denmark & EU

Oplægsholdere / Panelister:

Margrethe Vestager, Europakommissionens kommissær for konkurrence.

Jens Joel (S), Thomas Danielsen (V), Søren Egge Rasmussen (Enh.).

Gunnar Boye Olesen, INFORSE/VedvarendeEnergi;
Henning Bo Madsen, NOAH;
Preben Maegaard og Leire Gorroño, Nordisk Folkecenter for Vedvarende Energi;
Karl Sperling, ass. prof. Aalborg Universitet;
Morten V. Petersen, Sdr. Vium, Bjergby.

Dirk Hendricks, EREF, Belgien;
José Etcheverry, prof. York University, Canada;
James Buchan, Local Energy Scotland, UK.

[redacted]

Organisatorer: International Network for Sustainable Energy (INOFORSE-Europe), Nordisk Folkecenter for Vedvarende Energi, Miljøorganisationerne VedvarendeEnergi og NOAH, Alliancen for Community Power. Arrangementet er støttet af Europa-Nævnet.
Mere information: INFORSE-Europe: http://www.inforse.org/europe/europa-naevnet.htm

Hvilke samfundsøkonomiske fordele giver folkelige deltagelse i energiomstillingen og hvordan fremmer vi den politisk

WIND POWER, LOCAL OWNERSHIP AND SOCIO-ECONOMIC VALUE

SEMINAR: LOKALT DREVET ENERGIOMSTILLING I DANMARK OG EU

9. SEPTEMBER 2016, COPENHAGEN

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FORSKNINGSGRUPPEN ENERGIPLANLÆGNING

AALBORG UNIVERSITET

Outline

- Challenges in wind power planning
- Socio-economic value of wind power - theory
- Ownership and socio-economy
- Proposal for a Municipality Tender Model

Fundamental challenges in wind power planning

- Local resistance to onshore wind
- Protest typically in rural communities → need for better local development
- More expensive offshore wind power is prioritized
- Rentability of wind power under pressure:
  - Very low electricity prices of around 20 øre/kWh due to the current market construction, which is not optimal
  - Lack of wind power integration into district heating/electric transport, due to inadequate tax structures

Main challenge: *Which types of wind power projects lead to the largest socio-economic benefits? And how to support these kinds of projects politically?*

Hvelplund, F, Möller, B & Sperling, K 2013, 'Local ownership, smart energy systems and better wind power economy' *Energy Strategy Reviews*, vol 1, nr. 3, s. 164-170. DOI: 10.1016/j.esr.2013.02.001

Local economics/socio-economics of wind power – in theory

Energy System
Electricity price...

Investors/shareholders
Project developer
Citizens
Energy company
Municipality
Etc.

Planning and implementation – jobs
Wind turbine manufacturing
Project developer/consultant
Construction/grid connection
Financing/insurance

Environment
Air quality, Noise, Visual impact…

Grøn ordning

Municipality Tax

Income tax
Employment
Company surplusses
Wind turbine shares

Municipality

Corporation Tax

State Tax

(Savings on) public expenses
(unemployment benefits etc.)

State

Sperling, K & Mathiesen, BV 2015, *Landvindmøllernes lokale økonomiske effekter i Billund Kommune*. Aalborg Universitet. ISP-Skriftserie, nr. 2015-1

Economy of a 3 MW V-112 wind turbine

- Elec. price: **33 øre/kWh (!!)**
- Price supplement: 25 øre/kWh

- Ø discounted net income: **11 øre/kWh**
- Annual net income: **921.904 DKK (123.000 €)**

Sperling, K & Mathiesen, BV 2015, *Landvindmøllernes lokale økonomiske effekter i Billund Kommune*. Aalborg Universitet. ISP-Skriftserie, nr. 2015-1

Relative local importance of economic factors

- Based on an analysis of Billund Municipality we can assume that:
- Turbine manufacturing and construction of foundation happen outside municipality and therefore independent of ownership
- Indirect effects of locally coordinated projects:
- Local developers pay corporation tax in the municipality
- Local developers likely to cooperate with local contractors for construction and maintenance

Sperling, K & Mathiesen, BV 2015, *Landvindmøllernes lokale økonomiske effekter i Billund Kommune*. Aalborg Universitet. ISP-Skriftserie, nr. 2015-1

What happens to the 921.000 DKK in different ownership models? (From the municipality's perspective)

- **Foreign businesses:** corporation tax distributed across all offices → **close to 0 DKK** for municipality
- **Private Danish enterprise:** (best case: head office in municipality): Municipality's share of corporation tax (ca. 3%) = **27.630 DKK** for municipality
- **Municipal energy company:** 40%-60% deduction in block grant => **552.600 – 368.400 DKK** for municipality
- **Local citizen cooperative:** if 100% local ownership: **921.000 DKK** stay in municipality (minus/plus any taxes)
- **Charity Trusts ("almennyttige fonde"):** if 100% focus on local projects: **921.000 DKK** stay in municipality

Sperling, K & Mathiesen, BV 2015, *Landvindmøllernes lokale økonomiske effekter i Billund Kommune*. Aalborg Universitet. ISP-Skriftserie, nr. 2015-1

“Yes, but as long as the money stays in Denmark, that’s fine…or??”

- **No, because**:
- Of rural development problems (“Udkantsdanmark”) → **drainage of local resources**
- Wind resources are typically best in rural municipalities
- A flow of resources (wind power profits) out of rural areas can be perceived as unfair → **protests**
- Local decision power is jeopardized: by turning wind power into an **externality** for the local population
- Local actors (wind turbine owners, energy companies, municipality) need to start working with **local wind power integration** now

Hvelplund, F, Möller, B & Sperling, K 2013, 'Local ownership, smart energy systems and better wind power economy' *Energy Strategy Reviews*, vol 1, nr. 3, s. 164-170. DOI: 10.1016/j.esr.2013.02.001

Wind power support scheme: some general requirements

- Ensure that **cheapest projects** (onshore) are built first
- Ensure that the **least sensitive areas** are exploited first
- Ensure **broad and fair competition** for actual wind power projects, not sites – e.g. no prior land rent agreements
- Possibility to compete on **"local value creation"** – not only on price
- Ensure optimal value creation of wind power in the energy system – e.g. **better integration** into district heating (heat pumps) and transport (EVs, electrofuels)
- = Wind power demand up → higher elec. prices → **lower PSO**/"post-PSO"
- Emphasis on Danish expertise and job creation
    - *Developed with input from Lea Vangstrup, Wind People*

Rodriguez, VAM, Sperling, K & Hvelplund, FK 2015, 'Electricity cost effects of expanding wind power and integrating energy sectors' *International Journal of Sustainable Energy Planning and Management*, vol 6, s. 31-48. DOI: 10.5278/ijsepm.2015.6.4

Policy suggestions - *Developed in cooperation with Lea Vangstrup, Wind People*

- Design a **Municipality Tender Model** for wind power
  - (National) prioritization of wind power sites (according to ”sensitivity”)
  - Municipality can expropriate sites at **fixed rates**
  - Municipality Council sets criteria for wind power projects based on **”for the common good” principle**
  - Energy Agency approves Council criteria
  - Muncipality receives bids from developers
  - Council chooses winning bids
  - Examples of **common good criteria**: (broad) local support/ownership, local revenues (either individual or for common investments), local use of wind power (district heating etc.)…
  - Model should be introduced through the EU bidding scheme

Objectives of Municipality Tender Model

- Municipality can better represent the local decision power on wind power
- Municipality can achieve projects that contribute to the specific goals of the municipality
- Greater probability for projects with a broad societal support and local ownership → because of better communication and planning processes
- Greater probability for local cooperation and learning (e.g. Hvide Sande and Large Heat Pump)

How far can a municipality go with setting criteria for a tender model?

- Which criteria can be set?
- E.g. **Can wind turbines be understood as ”for the common good investments”?**
- E.g. Municipality wants 1 mio. DKK (from a trust) for local activities per year.
- E.g. 50% of wind turbines should pay into a trust
- *This is in a situation where we assume that e.g. 50% local ownership prevents protests and cancellation of projects*

Literature

Hvelplund, F, Möller, B & Sperling, K 2013, 'Local ownership, smart energy systems and better wind power economy' *Energy Strategy Reviews*, vol 1, nr. 3, s. 164-170. DOI: 10.1016/j.esr.2013.02.001

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Pictures on front page: http://dagbladetringskjern.dk/ringkoebing/ringkoebing-fjernvarme-indgaar-aftale-med-solid-energy; http://www.dw.com/en/citizen-wind-power-for-a-global-energy-transition/a-19035923