Common misconceptions on stakeholder involvement – Reviewing deployment of RES

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A ‘must read’ on the STS of the US grid

- The electricity grid is "a machine, an infrastructure, a cultural artifact, a set of business practices, and an ecology……..

- …..designed for the exact opposite of 21st-century needs.”
‘Smart grid’: “...rescaling and distributed generation” ... “integrated micro-grids that can monitor and heal itself”  
Marris 2008, Nature 454, 570
Power supply system is an STS “Socio-Technical System”

- Instead of current centralized STS, many new elements with socially fully different characteristics
- Renewables, much “Distributed Generation”
  - Micro/decentralized
  - spatially dispersed
  - variable supply (often directly to local demand)
- Infrastructure for “intelligent grid”
  *Charles D 2009 Science 324: 172-175 "Renewables test IQ of the grid"
- Spatial claims renewables’ infrastructure "huge"
## Distributed Generation

Ackermann, Andersson, Söder 2001; with several additions

- **Combined cycle gas T.** 35–400 MW
- **Internal combustion engines** 5 kW–10 MW
- **Combustion turbine** 1–250 MW
- **Micro-Turbines** 35 kW–1 MW
- **Renewable (favourable, but ≠ ‘sustainable’)**
  - Biomass, e.g. gasification 100 kW–20 MW
  - Small hydro 1–100 MW
  - Micro hydro 25 kW–1 MW
  - Wind turbine 200 Watt–3 MW
  - Photovoltaic arrays 20 Watt–100 kW
  - Solar thermal, central receiver 1–10 MW
  - Solar thermal, Lutz system 10–80 MW
  - Fuel cells, phosacid, molten carbonate 200 kW–2 MW
  - Fuel cells, proton exchange 1 kW–250 kW
  - Fuel cells, solid oxide 250 kW–5 MW
  - Geothermal 5–100 MW
  - Ocean deep water cooling 10–200 MW
- **Stirling engine (micro CHP)** 2–10 kW
DG, continued

- Ocean energy
  - Waves, Tidal
  - Saline/Fresh (osmotic) pressure
    \[100 \text{ kW–1 MW},\ 100 \text{ kW-50 MW}\]

- Distributed Storage and Transmission (of Renewable generated energy)
  - Heat storage (electric boilers)
    \[1-10 \text{ kW}\]
  - Heat storage in buildings (solar, electr. heat pumps)
    \[10-500 \text{ kW}\]
  - ‘Cold’ storage (cooling systems)
    \[1-100 \text{ kW}\]
  - Battery storage
    \[500 \text{ kW–5 MW}\]
  - Electric vehicles (batteries)
    \[10-100 \text{ kW}\]
  - V2G (Vehicle-to-grid; uploading)
    \[10-100 \text{ kW}\]
  - MicroGrid (balancing supply-demand within)
    \[1\text{ kW-100MW}\]
  - SuperConducting Transmission lines
    \[100-1000 \text{ kV}\]

- Storage in ‘non-heat’ consumption (of Renewable generated energy)
  - Water Supply systems
    \[10\text{kW–1000 kW}\]
  - Desalinization reservoirs
    \[10\text{kW-500 kW}\]
  - Pumped hydro
    \[1-1000\text{MW}\]
  - Storage in CO\textsubscript{2} based fuels
    \[10\text{kW–1MW} (??)\]

- And many more emerging......
Conceptualization of Social acceptance of energy innovation
adapted from Wüstenhagen et al 2007, p.2386

Community Acceptance end users, local authorities, residents → project decision making on infrastructure, investments and adapted consumption; based on trust, distributional justice, fairness of process

Market Acceptance producers, distributors, consumers, intra-firm, financial actors → investing in RES-E and DG infrastructure, using RES generated power

Socio-Political Acceptance regulators, policy actors, key stakeholders, public → craft institutional changes & effective policies fostering market & community acceptance
Some state-of-the-art fundamentals inconsistent with common sense

- **Social** Acceptance ≠ **Public** Acceptance
- Acceptance **energy source** ≠ Acceptance **projects**
- Barriers to deployment **NOT** primarily local opposition (community acceptance)
- ‘Information deficit model’ (public is ignorant; attitudes can be changed by campaigns; ‘education’ therapy is ‘engangement’) absolutely invalid
- High deployment rates dependant on **institutionalization** (question of socio-political acceptance) of stakeholder and public **participation** (in community acceptance and in market acceptance)
Attempts to avoid engagement:
→ frustration among developers and authorities;
→ accusations: selfishness, NIMBY’s, ignorance

striking example: BWEA’s website (2007)
**Attitude object:** Power Supply with substantial amount of RES (e.g. wind, solar, tidal)

<table>
<thead>
<tr>
<th>Essential characteristics</th>
<th>Associated Attributes</th>
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<tbody>
<tr>
<td>• 'Environmentally benign, renewable</td>
<td>Alternative to fossil</td>
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<tr>
<td>• Supply Characteristics</td>
<td>Alternative to nuclear</td>
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<tr>
<td>• Visibility</td>
<td>Source can't run out</td>
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<tr>
<td>• Economics</td>
<td>Variability; Reliability;</td>
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<td>• Structure energy sector</td>
<td>Capacity credit;</td>
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<td>Domestic source</td>
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<td>Landscape impact turbines</td>
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<td>Nature/wildlife; birds</td>
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<td>Price (↔ alternatives)</td>
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<td>Related to supply charact.</td>
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<td>Impact industry, employment</td>
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<td>Distributed; Decentralised</td>
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<td>Small scale; Entrance new</td>
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<td>parties</td>
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**Attitude object:** RES project (wind, solar etc.)

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<tr>
<td>• Location and site</td>
<td>Landscape identity; Annoyance; Nature/wildlife; Design; Competing spatial functions</td>
</tr>
<tr>
<td>• ‘Project Owner’: Initiator – Investor – Manager</td>
<td>Community in/outsider initiative Part of microgrid; Benefits local economy; Shareholders; Community identity; Demand;</td>
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<td>• Wind/solar/tidal ... power</td>
<td>Visibility; Clean – renewable; Supply characteristics</td>
</tr>
<tr>
<td>• Decision making process</td>
<td>Open / closed; Community involvement; Public/stakeholder participation; Justice/Fairness: Distributive – Recognition - Procedure</td>
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Involvement communities (examples) 
more participation → higher likelihood of success, 
distance & closed tends to generate distrust 

adapted, from Walker, Devine-Wright 2008 Energy Policy 36, 497
Centralized ‘utility-solar’
Les Mées, Alpes-Haute Provence (F)
Centrale Villageoise Rosans Hautes-Alpes (F)

Individual co-operative investors, municipality, Parque Regional des Baronnies-Provençale, Rosans (+8 other communities)

392.4 m² solar panels rooftops on 9 buildings
`Afsluitdijk` near-shore Wind Power development

IPWA 2003

- 278 MW
- 2 provinces
- 4 municipalities
- Nuon (E-company; currently part of Vattenfall)
- National government: ministries of
  * Economic Affairs
  * Housing, Spatial Planning & Environment
  * Agriculture and Nature
- **No further societal stakeholders,**
  only an external advisory committee
  typical example of ‘placation’
Foundation **Wadden Union** as opposition against infrastructure; Occasion: diking project in 1964
Acceptability locations: as perceived by members ‘Wadden Union’

Wolsink 2010, *Land Use Policy* 27 (2) 195

% rejecting siting in landscape

- mounds: 60%
- Dikes WS: 62%
- Lauwersmeer: 62%
- island polders: 63%
- Recr area: 71%
- in WaddenS: 86%
- NorthS dunes: 89%
- Nature ar: 89%
- Island dunes: 94%
Acceptability locations: as perceived by members ‘Wadden Union’

% rejecting siting in landscape

- Ind & harb: 2%
- Military ar: 16%
- Along Afsluitdijk: 19%
- Along tracks: 19%
- Agricul area: 22%
- NorthSea: 26%
- NorthS dikes: 33%
- Marine clay p: 41%
- IJsselmeer: 43%
- Towns/vill: 59%
'Decision’ by Government and project developer
Main trend: stakeholder participation cannot be uncommitted: there is no free lunch.

- Any decision on energy infrastructure is **always** about a choice between alternatives.
  → any project’s ‘public good’ is always challenged.

- It is more about socio-economical variables than technology.

- Distribution of costs-benefits:
  - economic (financial, employment)
  - and social (whose infrastructure; landscape change on sites with high ‘place attachment’)

- Fairness of process (‘procedural’ justice)
Stakeholder perceptions on fairness of process

- It must be clear who will bear the cost / perceived risk
  → most important: open for negotiation

- Participation means: process openness, open-ended
  ● for all actors: ‘gate keeping’ (selection of stakeholders) is felt as manipulation
  ● for all arguments
  ● outcome must be open for change
  → ‘success’ could mean: other project, other site

- No openness/open end: prepare for distrust and uncooperativeness (also in later projects)
Ladder of participation
Engagement cannot be non-committal

→ inclination towards tokenism and ‘therapy’

Most systems: Current reliance on ‘tokenism’, sometimes

Steps down the ladder:
• commodification RES projects (e.g. tenders)
• ‘streamlining’ planning

Cowell Owens 2006
Thank you.

References.


