

Social acceptance of renewables' innovation – A further elaboration

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***Wind Power and Environmental Impact
Conference 5-7 February 2013
Stockholm University
Sweden***



Social Acceptance is framed as an issue of Local Public Acceptance

- Assumed 'gap' between support for Wind Energy and attitudes about constructing Wind Farms. 'Explanations':
Bell, Gray & Haggett (2005) The 'social gap' in wind farm siting decisions: Explanations and policy. Environmental Politics 14: 460-477
 - * democratic deficit: "why are opponents of wind power able to dominate the permitting process?" (p.462)
 - * qualified support "public opinion surveys merely ask if people support wind power in general ..(without giving)..respondents the opportunity to enter qualifications" (p.463)
 - * self-interest: attitude change from favouring wind power to opposing wind scheme, because of norm-free "utility maximization" (individual cost – benefit)
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1984 study on acceptance: Durgerdam (5 km from Amsterdam):
debunking of commons sense 'knowledge' repeated reinforced
in international literature (mostly case studies)



The 'gap' is biased framing.

Some state-of-the-art fundamentals

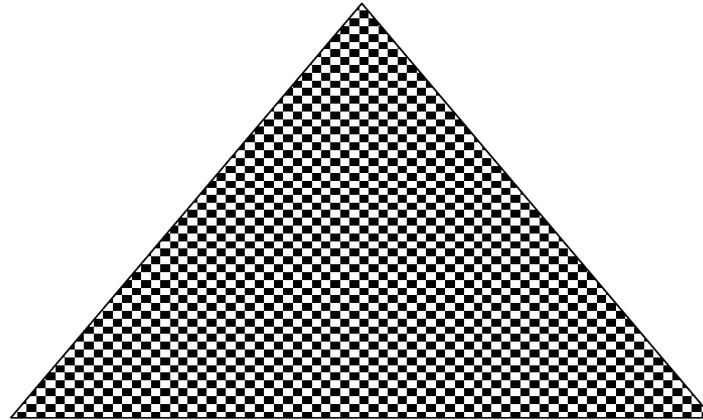
- Social Acceptance \neq Public Acceptance
 - Acceptance wind energy \neq Acceptance Wind projects
 - **Barriers** to deployment **NOT** primarily local opposition
(community acceptance)
 - Social Acceptance is essentially about institutions
(\rightarrow accepting institutional changes)
-

Social Acceptance ≠ Public Acceptance

Social Acceptance Energy Innovation is acceptance (1) **in all layers and sectors of society** of (2) **all institutional changes needed for implementation** (=investment/siting decisions)

Socio-political acceptance

- Of technologies and policies
- By the public
- By key stakeholders
- By policy makers



Community acceptance

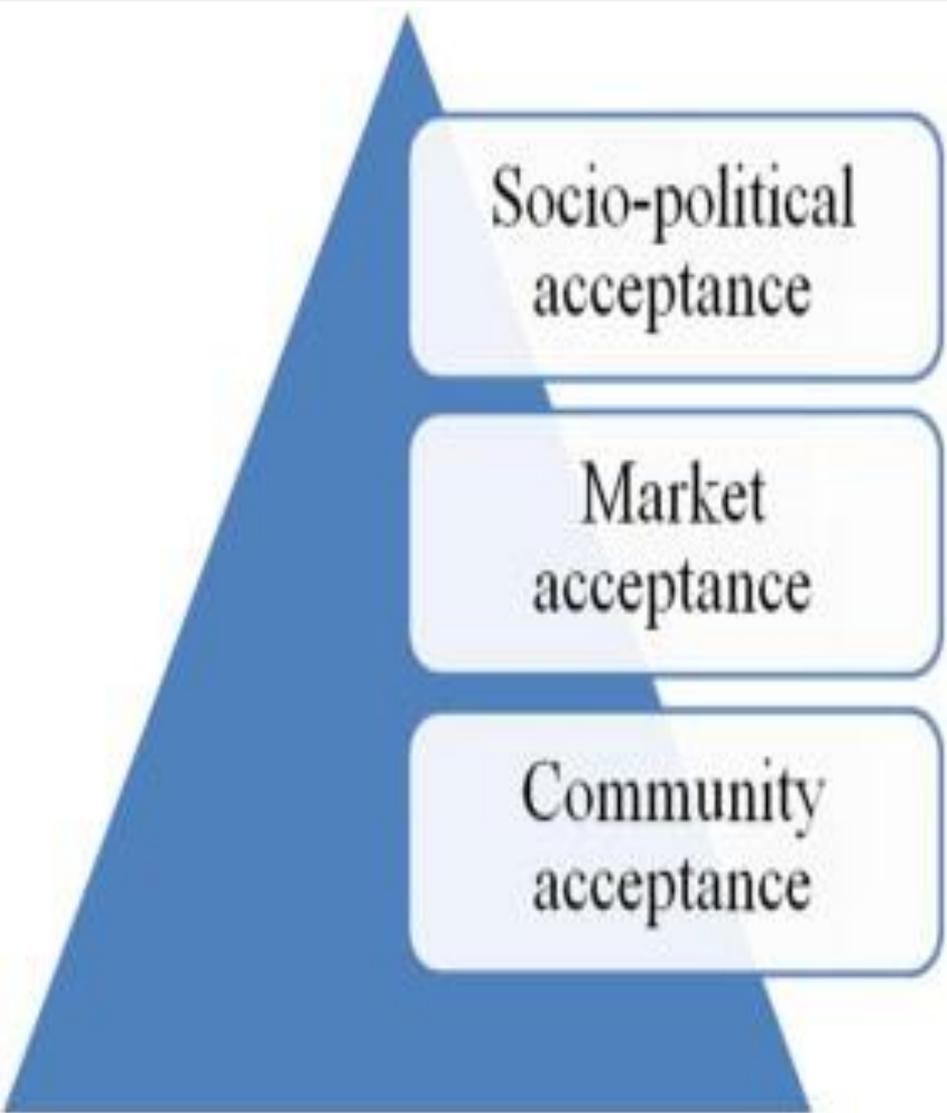
- Procedural justice
- Distributional justice
- Trust

Market acceptance

- Consumers
- Investors
- Intra-firm

Elaboration 3 acceptance dimensions

Sovacool & Lakshmi Ratan, 2012. *Ren Sust Energy Reviews* 16, 5268 - 5279



Socio-political
acceptance

Socio-political acceptance is the broadest and the most general, and it concerns the ability for regulators, policymakers, and other key stakeholders to craft effective policies or frameworks that create and foster community and market acceptance below

Market
acceptance

Market acceptance operates at a meso level between national politics and local communities, involving consumers (that must adopt a technology) and investors (that want to support its manufacturing and use)

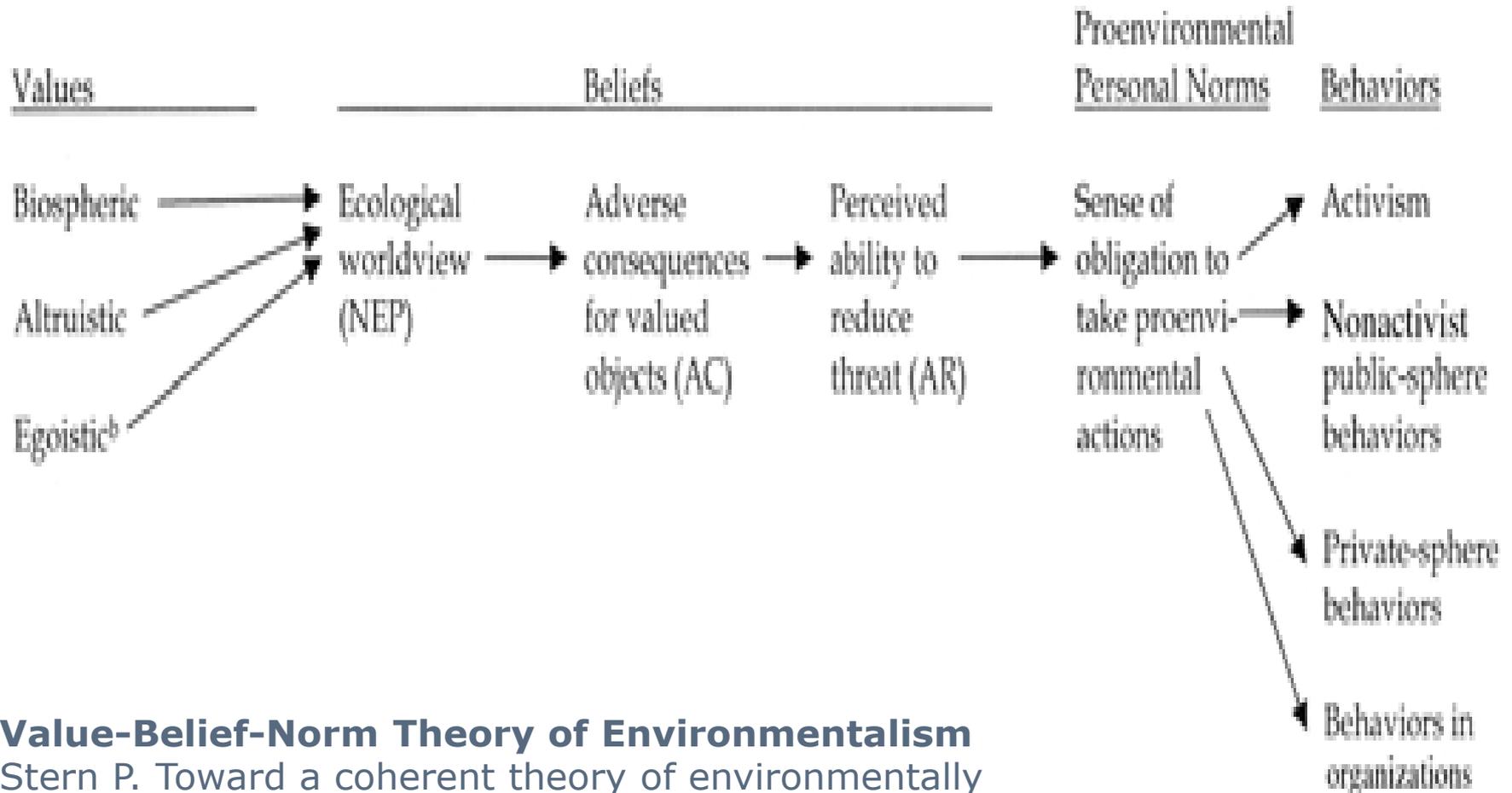
Community
acceptance

Community acceptance is the most specific, and it involves the extent that projects are undertaken or invested in by local stakeholders, how costs and benefit are shared, and how policymaking is conducted

Acceptance wind energy ≠ Acc. Wind projects

(1) expectation not theoretically supported

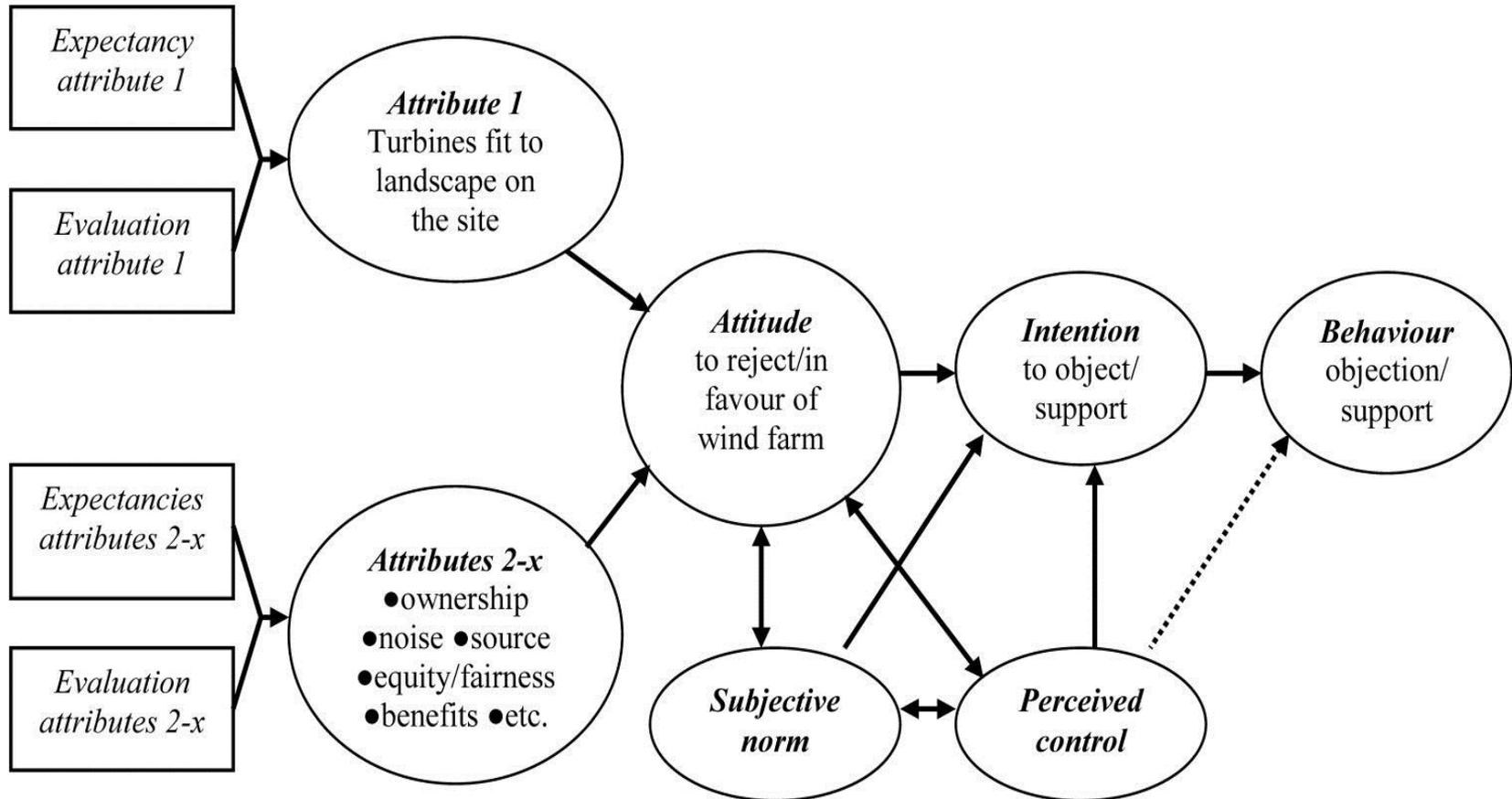
VBN theory on environmentally relevant behaviour



Value-Belief-Norm Theory of Environmentalism

Stern P. Toward a coherent theory of environmentally significant behavior. J Social Issues 2000.

Attitudes: expectancies and values of **attributes** of an **object of behaviour**; "Theory of Planned Behaviour" (Ajzen 1991; Wolsink 1988; 1990)



Subjective norm: perceived expectancies of important 'others'

Perceived control: control of the individual over behaviour and its aims.

Attitude object: Wind as Source / Power Supply with substantial amount of RES

Essential characteristics

- Environmentally benign, renewable
- Supply Characteristics
- Visibility
- Economics
- Structure energy sector

Associated Attributes

Alternative to fossil
Alternative to nuclear
Source can't run out

Variability; Reliability;
Capacity credit;
Domestic source

Landscape impact turbines
Nature/wildlife; birds

Price (\leftrightarrow alternatives)
Related to supply charact.
Impact industry, employment

Distributed Generation;
Decentralised; Small scale;
Entrance new parties

Attitude object: RES project (wind)

Essential characteristics

- Location and site
- 'Project Owner': Initiator – Investor – Manager
- Wind power
- Decision making process

Associated Attributes

Landscape identity; Annoyance; Nature/wildlife; Design; Competing spatial functions

Community in/outsider initiative
Part of microgrid; Benefits local economy; Shareholders; Community identity; Demand;

Visibility; Clean – renewable; Supply characteristics

Open / closed; Community involvement; Public/stakeholder participation; Justice/Fairness: Distributive – Recognition - Procedure

Barriers to deployment **NOT** primarily local opposition (lack of community acceptance)

- The idea that opposition to RES projects is in any way reveals a 'gap' is an example of lack of understanding
- Or worse, effective biased 'framing'; hiding a lack of understanding of social acceptance
- A misguided assumption that policy/developers (and unfortunately also many researchers) know who is 'right' in RES conflicts...
and "instead we must engage with the possibility that objectors to wind power are not always 'wrong'"

Aitken M (2010) Why we still don't understand the social aspects of wind power. Energy Policy 38: 834-841

- PV/Wind: institutional constraints mainly at the level of socio-political acceptance

Renewable Energy Innovation: Institutional lock-in and institutional change

- **Institutions (def)** “patterns of behaviour of all types of actors that are reproduced and shaped by (formal as well as informal) rules and norms”
- “the organizational structure in society shaped by **the rules of the game in society**”
*North D, 1991. *Instit, Inst Change and Econ Perform*. Cambridge University Press.*
- → Fundamental acceptance question is:
*What **institutional changes** are required to implement and integrate renewable energy (including wind) in power supply and demand?*
- Or: The acceptance to changes in “the organizational structure” in power supply, to escape the **institutional lock-in**

Jacobsson & Johnson (En Pol 2000); Wolsink (Ren En 2000) Unruh (En Pol 2002)

Institutional lock-in: existing patterns of thinking and behaviour

“Alternatives representing radical technological change have to come from outside organisations representing the existing technologies, whereas the existing incumbents even make efforts to eliminate alternatives from decision-making processes.”

Lund H (2010) *The implementation of renewable energy systems. Lessons learned from the Danish case*. Energy 35: 4003-4009.

Comparison of 12 decision-making processes in RES projects in 1st country successful in RES implementation

Actors designated for social acceptance (categories)

Stakeholders in development

- **Incumbents** in the existing energy supply sector
 - Existing power production companies
 - Power distributing companies
 - Grid managing organizations/companies
 - Wind power **developers** (incl. new emerging)
 - Wind **turbine industry** related actors
 - Actors with vested **interests in domains relevant** to establishing **wind farms** (e.g. R&D, consultancy, engineering, construction etc.)
 - Actors representing **energy consumers'** interests
 - All actors with **secondary interest** in investments in wind power (e.g. financial)
-

Actors designated for social acceptance (categories)

Authorities and public bodies

- National government
 - **Ministries** in policy domains relevant to wind power implementation
 - Energy **market regulator(s)**
 - Many Government **agencies**
 - Regional governments
 - **Spatial planning** officers
 - Regional **economic development** officers
 - Local governments
 - **Spatial planning** officers
 - Local **economic development** officers
 - Landscape - nature officers (permits)
-

Actors designated for social acceptance
(categories)

Stakeholders in related domains

- **Landscape protection** organizations (ngo's)
 - national – regional - local
 - Environment and **nature protection** organizations
 - All actors with interests in **competing spatial functions**:
 - tourism – agriculture – airports – construction etc.
 - fisheries – shipping – army/navy etc.
 - Actors with interests in **economic sectors affected** by wind power
 - consultancy – agriculture – fishery – technology development - transport
-

Actors designated for social acceptance (categories)

public, individuals as well as organized

- General public (**electorate**, public opinion)
 - Individuals with any perceived interest in wind developments (potential **investors; co-producers**)
 - **Communities** (geographically or socially defined)
 - Civil society organizations representing affected interests (**members of ngo's**)
 - Electricity consumers
 - Civil society **organizations established because of wind power** implementation issues
 - for private investment in wind developments
 - to counteract proposed wind developments
-

Acceptance of "*Distributed generation*" → optimization of different supplies and demands

Charles D 2009 Science 324: 172-175 "Renewables test IQ of the grid"

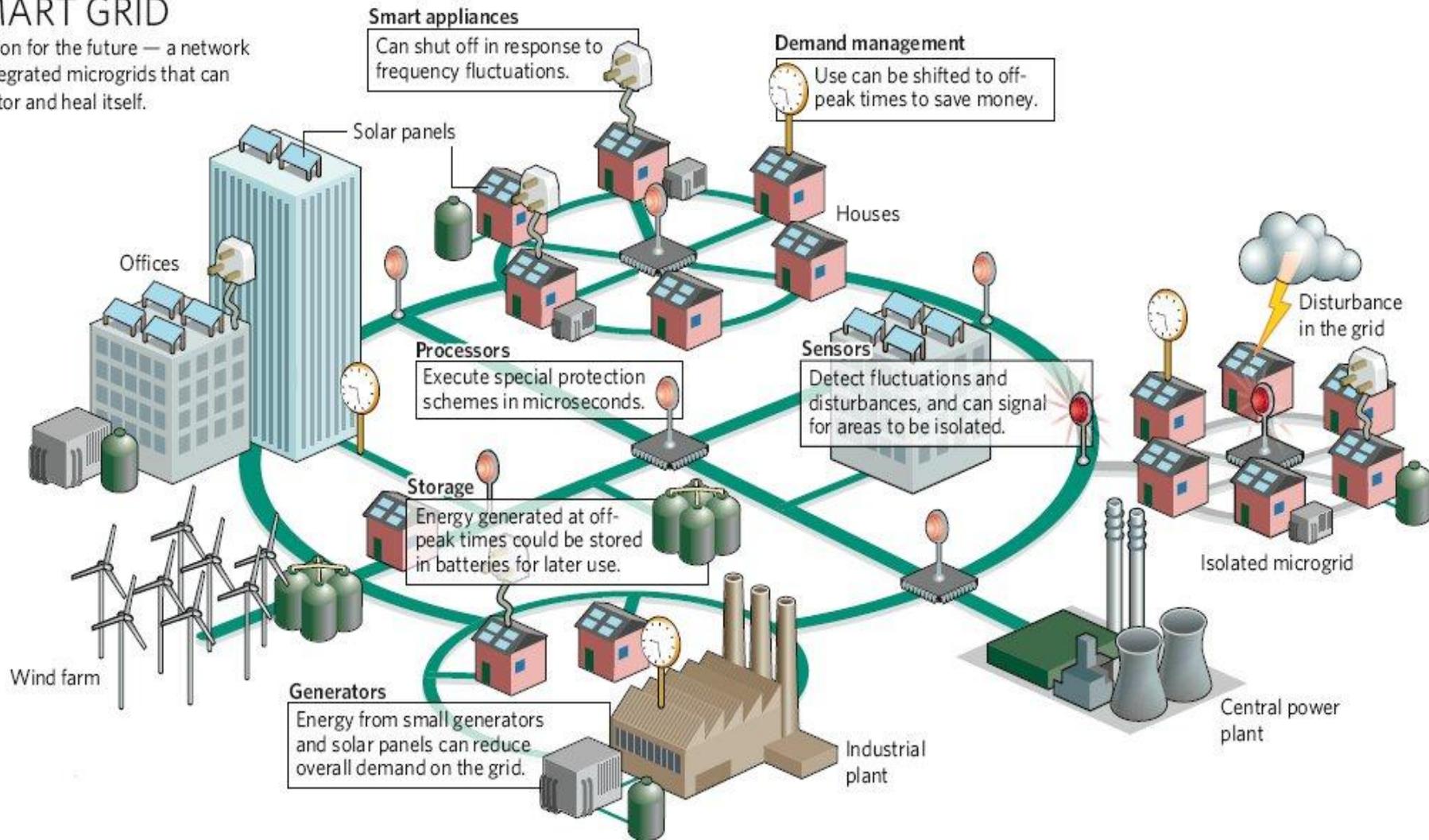
- Spatial claims renewables "huge"
MacKay DJC 2008. Sustainable Energy – without the hot air.
 - DG: Combining variable sources
 - Reduction distance production-consumption (reducing transport infrastructure and cost; improving grid balances)
 - Fine-tuning / optimization DG supply and local demand;
 - Optimization in microdrids by Smart Metering, including **smart regulation**
 - - of several users/co-producers in a 'community'
 - **load-control** (≠ demand side management)
 - **local storage** (e.g. electric vehicles)
-

'Smart grid': "...rescaling and distributed generation" ... "integrated micro-grids that can monitor and heal itself"

Marris 2008, *Nature* 454, 570

SMART GRID

A vision for the future — a network of integrated microgrids that can monitor and heal itself.



"...integrated micro-grids that can monitor and heal itself"

- Micro-grids of various local actors: consumers & co-producing suppliers
- → Fundamental question:
*Which **institutional changes** are needed to create smart micro-grids deploying renewable distributed generation as much as possible?*
- Do we (=all relevant actors)
 - accept huge changes in control over electricity?
 - accept priority for micro-generation over large-scale conventional, inflexible capacity?

System of Distributed Generation in a Micro-Grid

- 'Community' of actors
- Co-producing a common good: low carbon power
- Mutual supply
- Creating and managing a socio-technical system
- For the use of Natural Resources
- → Common Pool Resources
- CPR theory on natural resources management

Adaptive governance (CPR): trust and reciprocity, issues of justice

- **System boundaries** (defining 'the community')
 - geographical, physical, social (who participates as co-producer and/or RE consumer)?
 - **Property regimes**: Who owns
 - generating units;
 - smart meters;
 - required space (your land/rooftop still yours?)
 - who controls: deliverance, the data etc., the tariffs for mutual delivery
 - **Access rules**: who may participate?
Who decides? Free? Limited? Who may be excluded?
-

'Community' and 'Self-Governance' not romantic concepts; but particularly **beware of centralized regulation** to address justice issues in CPR's

"Contemporary policy analysis of the governance of **common-pool resources** is based on three core assumptions:

- (a) resource users are **norm-free maximizers of immediate gains**,
- (b) designing rules to **change incentives** of participants is a relatively simple analytical task
- (c) organization itself requires **central direction**.

"..... all three assumptions are a poor foundation for policy analysis."



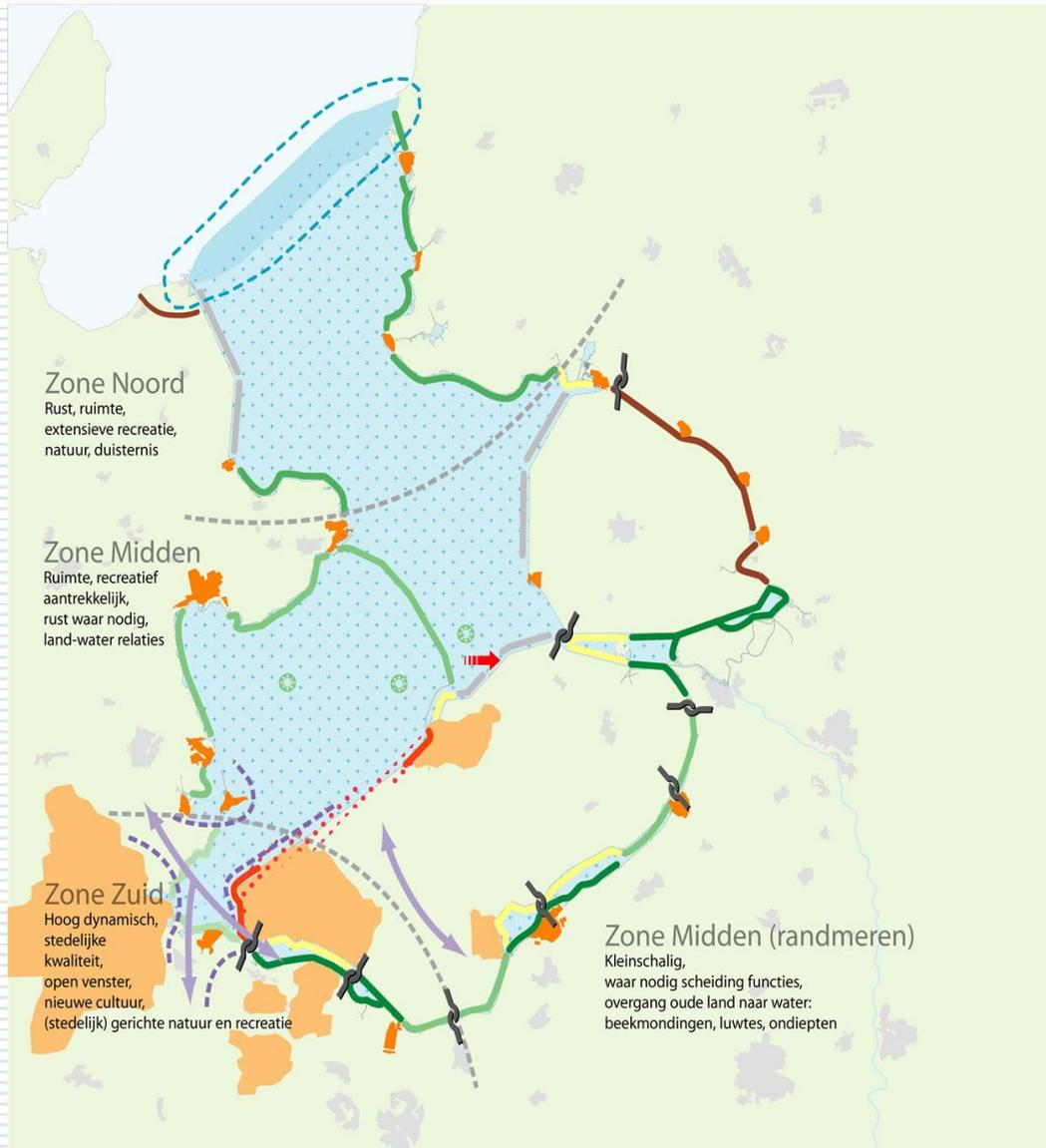
Adaptive governance (CPR): escape from institutionally determined centralized power supply

- Most **assets** of DisGenMiGrids are **decentralized**
- Incumbents (power companies) are **not trusted** (e.g. currently framing 'Smart Meters' as one-way devices to support DSM)
- Community identity factors are key for adaptation
 - place identity; landscape ; the regional economy
 - cultural values
- Internal tariffs part of the micro-grid regime (current tariffs are instruments of centralization)
- Social Acceptance becomes: **acceptance of required full re-organization of power supply**
and structurally embedded collaborative, deliberative

decision making

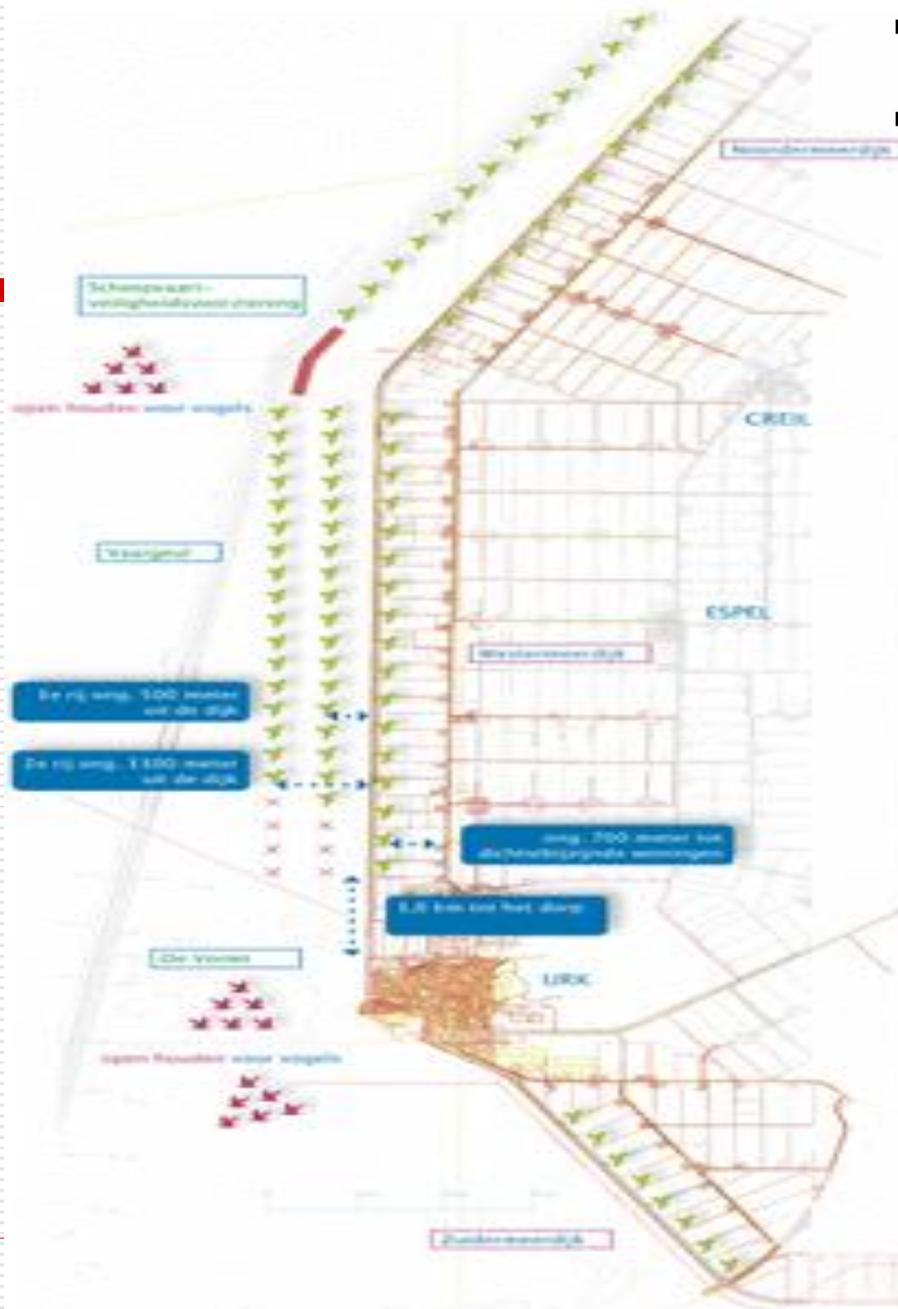
Example: NOP windfarm Netherlands

Zoning IJsselmeer area



Kaart F: Zonering IJsselmeergebied

- Binnendijkse stedenbouw (grotendeels bestaand of in planvorming gereed)
- (Cultuurhistorische) kern; (mogelijkheid) kwaliteitsverbetering bestaand waterfront
- Ontwikkeling nieuw waterfront
- Voorkeursgebied intensivering natte natuur
- Voorkeursgebied intensivering natte natuur met extensieve recreatie (Zone Noord)
- Voorkeursgebied afwisseling natte natuur en recreatie (Zone Midden en Zone Zuid)
- Voorkeursgebied intensivering recreatie met versterking natuurlijke kwaliteit (Zone Zuid)
- Voorkeursgebied intensivering recreatie
- Recreatieve vaardoelen met natuurontwikkeling (locaties indicatief)
- Optimalisatie waterberging (seizoensgebonden peilbeheer) en vrijwaringszones in het IJsselmeergebied
- Studiegebied brakke zone
- Indicatieve zonegrens
- Zoekgebied ruimtelijke afronding Zuidelijk Flevoland
- Buitendijkse zoeklocatie (uitbreiding) windmolens
- Zoekgebied windmolens IPWA
- Ruimtelijke reservering nieuwe randmeren
- Venster op de open ruimte
- Robuuste verbinding
- Overslagcentrum
- Bundeling infrastructuur



Windpark

Windmolens

- maxihoogte** (exclusief fundamente)
 - Waterlocaties: 95 meter
 - Landlocaties: 87,5 meter
- tophoogte** (als het is van de wind en verticaal boven de mast staat) (exclusief fundamente)
 - Waterlocaties: 249,5 meter
 - Landlocaties: 239,5 meter
- afstand** tussen de molens in een lijnreeksstelling
 - Waterlocaties: 415 tot 520 meter
 - Landlocaties: 483 tot 535 meter
- Z**, door de molens van 62 tot 100m, met integratie windmolens
- schapevangersverligtingsvoorziening nabuurnoordelijke zijterugzijde

De platingrond is een schematische weergave.

Community initiative in municipality NOP

Most affected community: excluded

- Combined schemes Consortium (civilians investing) and Energy company Nuon
- Invited shareholders: NOP and Lemmer only
- May 2008 National Government support;
Local political support (=municipality NOP)
- Excluded community (but most affected)
 - opposition in population of Urk
 - opposition local government Urk
- August 2008: National government takes over all planning procedures'; overpowering opposition, continuing top-down planning

Langbroek, Vanclay, *Imp Assess Proj Apprais*, 2013

THANK YOU

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