Lessons about facility siting

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What can the social sciences tell us about engaging with communities to reach agreements – or not – to site energy generation facilities?

Three basic lessons

- Marketing and persuasion approaches don't work (e.g., Decide, Announce, Defend). They can harden views and exacerbate conflict – especially in the long term.
- More information often doesn't help – especially when it is information that some people tell others it is what they should know.
- Dismissing concerns doesn't help.

NIMBY – a way to dismiss concerns

- NIMBY has often been used to refer to any opposition to Locally Unwanted Land Uses (LULUs).
- A poor way to frame challenges of siting facilities.
- Often used as a pejorative term to describe any opposition as arising from selfish or irrational behavior or from ignorance; those opposing are preventing something in the common good.
- A more nuanced definition: "resistance to locally unwanted land uses, but not necessarily resistance to those types of land uses elsewhere." (Wolsink 2000)

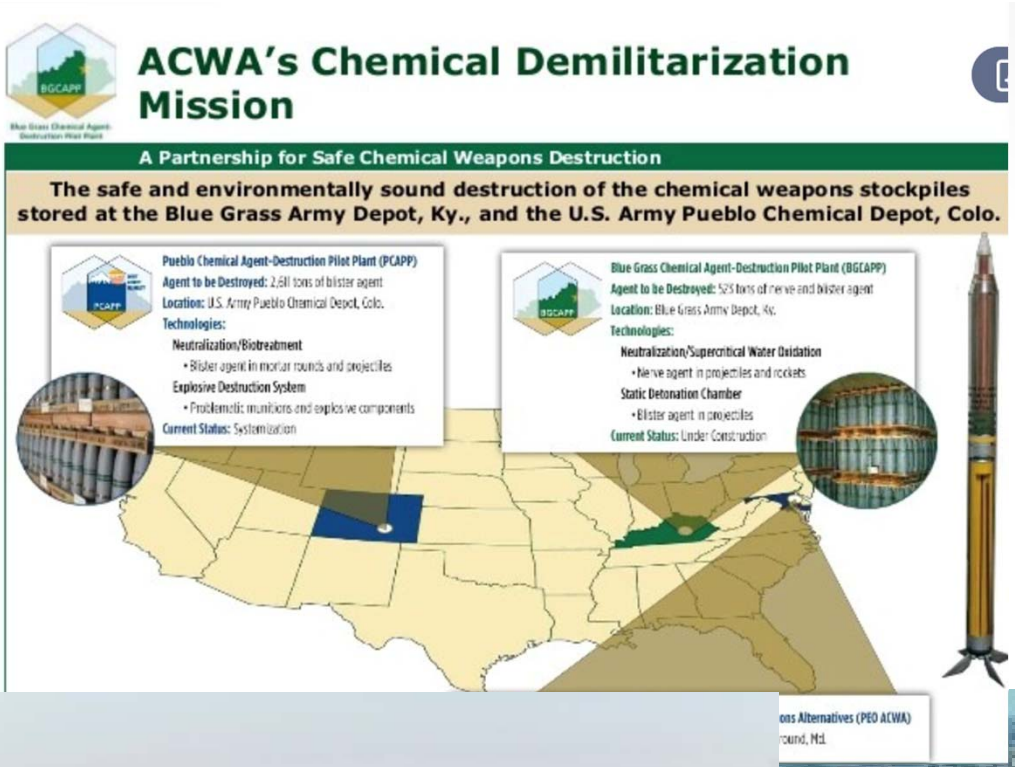
NIMBY – not a helpful explanation

- Evidence only rarely supports the explanation that opposition arises from selfish attitudes and behaviors or ignorance; sometimes, but rarely.

- Other reasons for opposition to facilities with uncertain and debatable risks and benefits (again, Wolsink 2000, 2007)
  - Do not support the technology / facility anywhere (i.e., character of the technology)
  - Believe that a particular proposal is flawed, but that the technology / facility could be appropriate in other cases
  - Initially positive, but the more learned in a particular context the more oppose in general.

Two more

- Engaging stakeholders and the public in a well-designed and meaningful process is necessary – and can
  - Lead to better decisions – and sometimes that means "no"
  - Lead to more legitimacy
  - And, it is the right thing to do
  - (NAS 2008, *Public Participation in Environmental Assessment and Decision Making*)
- Process is key, but not a guarantee
  - It is the quality, not the quantity


ACWA's Chemical Demilitarization Mission
A Partnership for Safe Chemical Weapons Destruction
The safe and environmentally sound destruction of the chemical weapons stockpiles stored at the Blue Grass Army Depot, Ky., and the U.S. Army Pueblo Chemical Depot, Colo.
Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP)
Agent to be Destroyed: 2,611 tons of blister agent
Location: U.S. Army Pueblo Chemical Depot, Colo.
Technologies:
Neutralization/Biotreatment
• Blister agent in mortar rounds and projectiles
Explosive Destruction System
• Problematic munitions and explosive components
Current Status: System ization
Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP)
Agent to be Destroyed: 523 tons of nerve and blister agent
Location: Blue Grass Army Depot, Ky.
Technologies:
Neutralization/Supercritical Water Oxidation
• Nerve agent in projectiles and rockets
Static Detonation Chamber
• Blister agent in projectiles
Current Status: Under Construction


Block Island Wind Farm, RI


Fernald, OH

When decisions are controversial

- Reach clarity and agreement about the problem and the choice
- Don't make it a technical decision that will be resolved by more (technical) information
- Identify and address full range of concerns
- Early, deep, and broad engagement
- Develop and disclose information
- Build confidence – a "chain of trust" (Dwyer and Bidwell 2019)
- Independence and oversight

Address concerns

- Anticipated harms and benefits
  - Health and safety
  - Environment
  - Economy
  - Sense of place
  - Quality of life
  - Social cohesion and conflict
  - Stigma
  - Equity (risks and benefits)
  - Degree of personal exposure to benefits, costs, risks
  - Potential for greenhouse gas mitigation
- Process design
  - Opportunities to participate at all stages - planning, decision making, oversight, closure
  - Fairness
  - Respect
  - Availability of information
  - Honesty and credibility, confidence, and competence of institutions (trust)
  - Independence
  - Legitimacy
  - Motivations and actions of developers, proponents, and opponents (trust)

- Connections to other technologies, systems, and decisions.
- Concerns are not static, they can change.

Frameworks

- Facility Siting Credo (Kunreuther et al. 1993, *Siting noxious facilities: A test of the facility siting credo*)
- Consensus Building (Susskind et al. 1999, *The consensus building handbook: A comprehensive guide to reaching agreement*)
- Social License to Operate (Prno and Slocombe 2012, *Exploring the origins of 'social license to operate' in the mining sector: Perspectives from governance and sustainability theories*)
- Analytic – Deliberation (National Research Council 1996, *Understanding risk: Informing decisions in a democratic society*)
- Free, Prior, and Informed Consent (FPIC) (Goodland 2004, *Free, prior and informed consent and the World Bank Group*)

Challenges

- Matching process design with (multiple) preferences
  - Determining the goal
  - Determining who participates and who decides?
    - Locally, nested hierarchies, inter-connected communities
  - Determining how agreement / disagreement is expressed? When?
  - Determining what information is needed and shared?
  - Determining who should lead (trust)?
  - Bad actors and ensuring oversight and enforcement of clear and fuzzy standards
- Achieving voluntariness, avoiding coercion
- Proceeding in a context of systemic social distrust
- Defining and assessing success

Proximity, experience, and timing

- Wind farms:
  - Before: proximity ↑, support ↓, opposition ↑
  - After: proximity ↑, support ↑, opposition ↓
  - Even when they are highly visible
  - May depend on adequate resolution of concerns
  - Post-siting opinions contingent on how concerns addressed

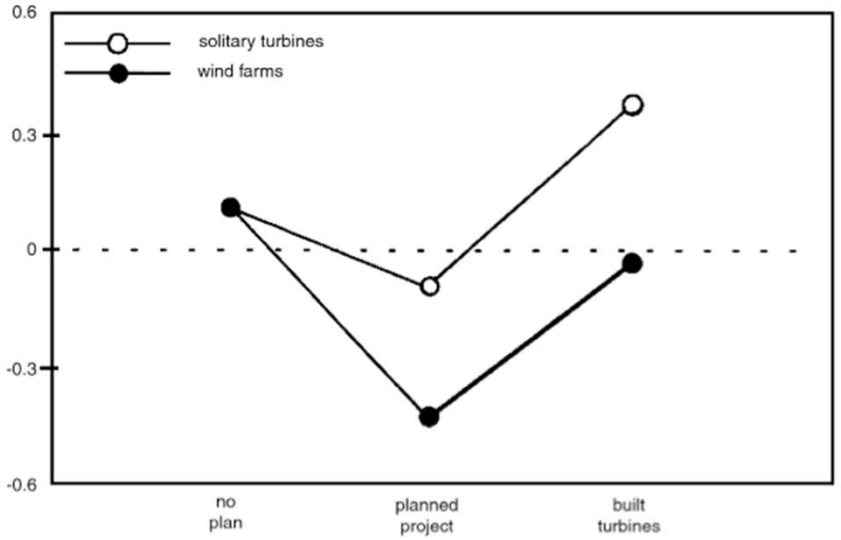


Fig. 3. Development of public attitudes towards wind power, dependent on near-by project [30]. *Note*: Group averages in standard units (*z*-scores). Overall average is zero, representing a clear majority in favour of large scale application of wind energy.

From Wolsink 2007, Wind power implementation: The nature of public attitudes: Equity and fairness instead of 'backyard motives'

Proximity, experience, and timing

- Hazardous facilities:
  - proximity ↑, support ↓, opposition↑
  - but always?
    - WIPP (Jenkins-Smith et al. 2011)
    - Experience and familiarity– the basis for "concentrating locations at major plants" (CLAMP; Greenberg 2009)
    - Patterns of change observed with wind may not apply to nuclear

- Long duration projects allow opinions to change – for, against, and conditional acceptance
  - Preferences can change because knowledge, options, and priorities change
  - Preferences can change because confidence / trust change
  - Preferences can seem to change when attention and vigilance soften

A selective list: What the social sciences say

- Making choices about new and advanced nuclear technologies is not a marketing problem, but a policy choice among multiple options for energy.
- Framing the problem is critical - what problem is to be solved, what time horizons, what options, and what risks and benefits?
- Support *and* opposition can be reasonable and considered – and varied.
- Opinions in general and opinions in the context of site specific proposals are not the same thing.
- Small and early mis-steps can cascade and amplify.

All of these will impact efforts to site new nuclear – and other - energy generation facilities and how meaningful processes should be designed.

Thank you