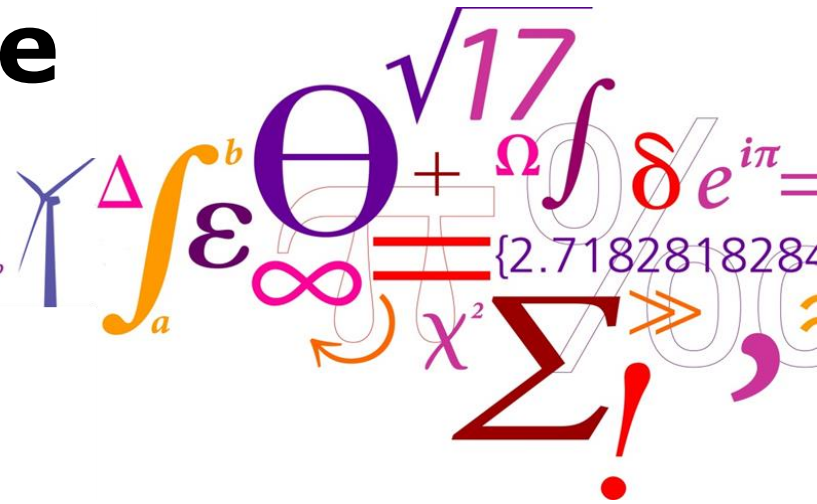


Social Acceptance and the Siting of Wind Energy Turbines: Questions for a Robust Knowledge Base

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$$P = \frac{1}{2} \rho A v^3 C_p$$



Bonnie Ram

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- University of Delaware – Sr. Research Scientist
- Associate Director, Center for Carbon-free Power Integration
- Ram Power, L.L.C.
- National Science Foundation grant - Risk and uncertainty analyses for offshore wind siting
- Co-author - IEA Offshore Annex
- Supported coalitions of wind stakeholders
- Regional marine spatial planning – MD & DE
- National Wind Coordinating Committee
- Bat & Wind Energy Cooperative
- Chair of AWEA R&D Subcommittee on Offshore
- Co-authored articles – risk, energy transformation

Outline of the Presentation

- ❑ Is the past prologue?
- ❑ What do we need to know?
- ❑ Creating a robust knowledge base
- ❑ 4 questions to consider
- ❑ Facts and Myths

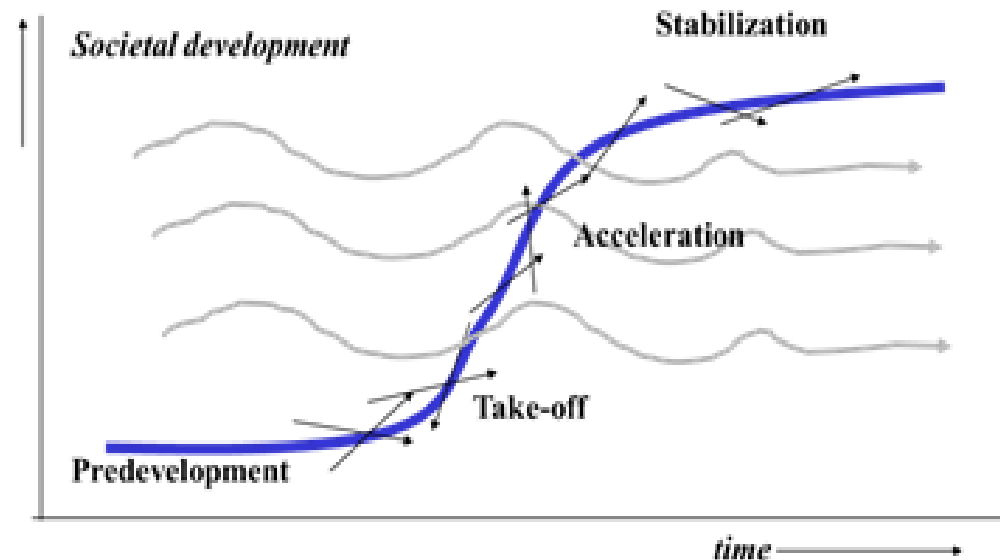


Is the Past Prologue?

- The siting of wind turbines has proceeded effectively and with high public support over the past several decades in Denmark & beyond.
- The US has over 60 GW of land-based wind **without** consistent renewable energy policies

The Past is not Prologue

- A new generation of technologies with much taller turbines and HVDC transmission lines on land and at sea present siting challenges and local controversies over the next period of time
- Socio-technical system perspectives & energy transformations

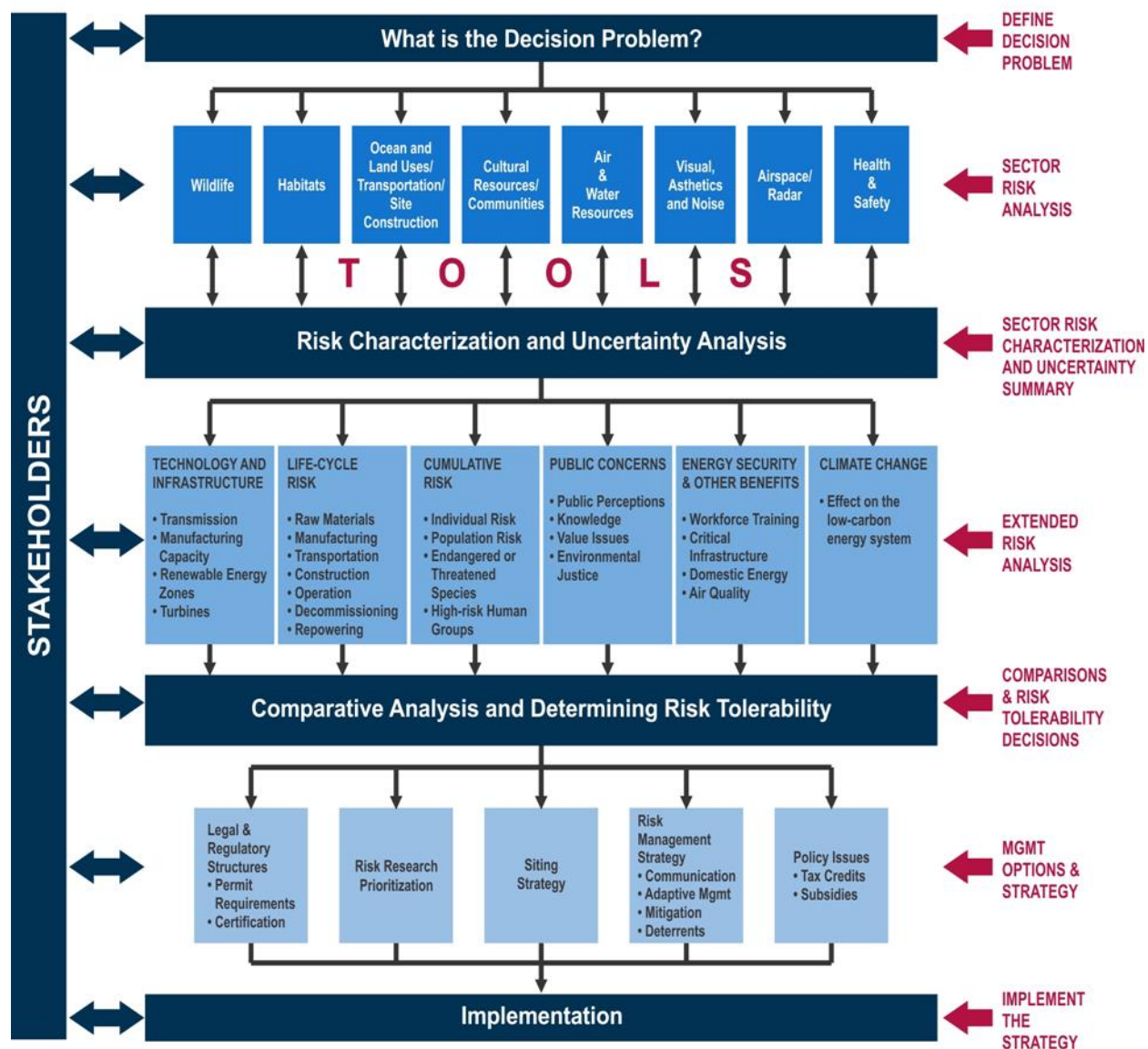


After Rotmans (2002)

Socio-technical System Concepts Needed –

An Integrated Risk Model to Consider

Gigawatts-Scale Wind Energy Deployments: A Framework for Integrated Risk Analysis



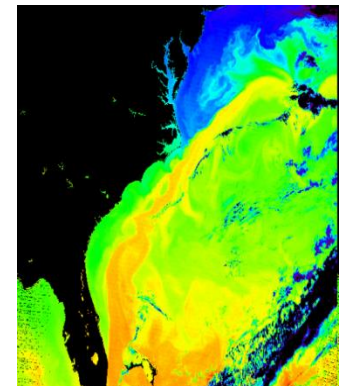
The Past is not Prologue

- The timeframe for achieving ambitious climate goals and energy independence is incompatible with a timeline required for sustained public engagement for transforming our energy system
- Educational system is now training the right people



Diverse Controversies May be Process Issues

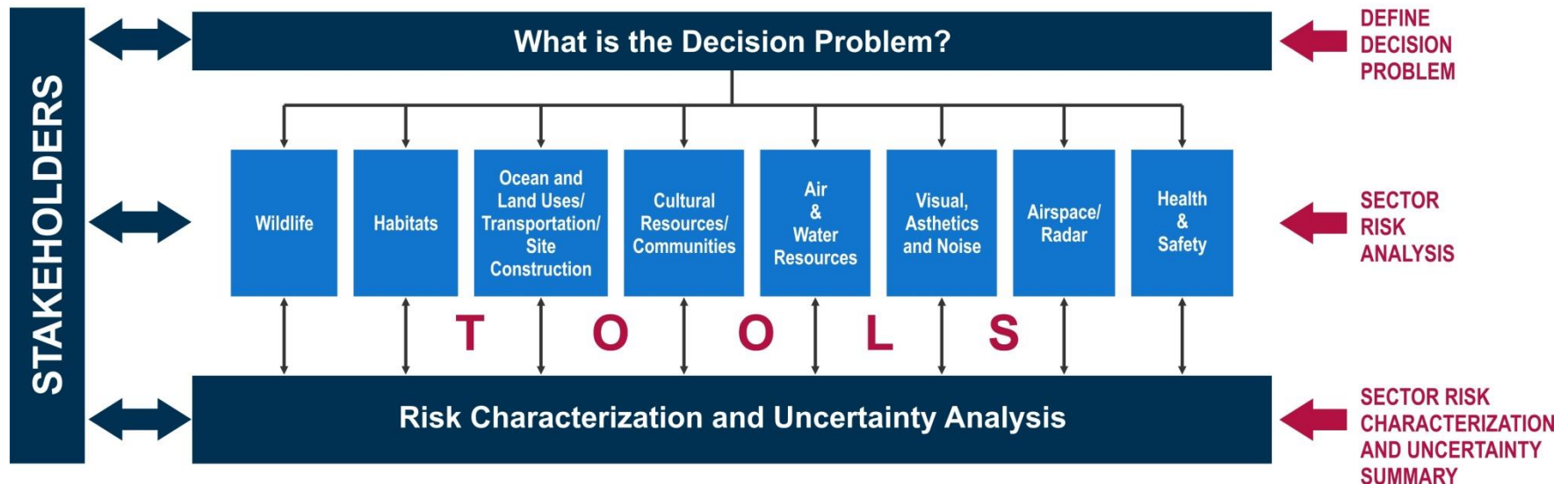
- Distribution of benefits & risks
 - Equity issues
- Procedural justice & civil liberties
- Social distrust of institutions & science
- Significant remaining risks & uncertainties
- Transparency, inclusivity in decision-making



Innovation & Paradigm Shifts

- Need for new, low-carbon electricity supplies & conservation requires an institutional transformation
- Success will depend on systemic thinking
 - Face lock-in to fossil & nuclear infrastructure
- Rapid transformation requires new siting paradigms
- A robust knowledge base is needed

Gigawatt-Scale Wind Energy Deployments: A Framework for Integrated Risk Analysis



What Do We Need to Know?

- How will the needed knowledge base be created?
 - Will guide the analysis of local controversy
 - Help decision makers respond to a changing social setting and technology advance
 - Supports spatial planning (land & sea)
- Who leads, funds, designs, and maintains?
- It needs to be robust:
 - Multidisciplinary
 - Based on science
 - Incorporates community concerns

Building a Robust Knowledge Base

- 1) What is the nature of public perceptions and underlying values that will come into play in community responses to wind power development over the next 5-10 years?
- 2) How has social trust in developers and managers changed since the first generation of wind turbines were put in place?

Building a Robust Knowledge Base

3) What have we learned about the dynamics of controversy and public concern from experience with siting wind turbines in Denmark and other countries?

4) Drawing upon the above, how may publics and communities be constructively involved and controversy avoided or resolved?

Building a Robust Knowledge Base Q1

(1) What is the nature of public perceptions and underlying values that will come into play in community responses to wind power development over the next 5-10 years?

- In-depth understanding of 'social perceptions' is essential for constructive discussions with potential host communities

- Complicated methods involving psychology, cultural contexts, values, media
- 2-way communication

➤ Understanding linked to respect and exploration of these concerns/perceptions:
Examples = environmental protections, perceived noise and health effects, visibility and sense of place

➤ Understand whether communities are prepared to accept changes and tolerate risks:

- Will uncertainties be addresses and tolerated?
- Will civil liberties be affected?

Building a Robust Knowledge Base Q2

(2) Has social trust in developers and managers changed since the first generation of wind turbines were put in place?

- 'Social trust' is an important resource for moving forward on any technology (new or established):
 - Higher here than in the US
 - Not static
 - Once lost, difficult to regain

- A generational transition from alternative energy fairs, anti-nuclear movements, & climate
 - Now it's corporate businesses and local siting conflicts

- Trust is particularly important if uncertainties exist

- Multi-dimensional perspectives from the literature:
 - Perceived competence of developers/planners/experts
 - Transparency of decision making
 - Caring about those who bear the risks and/or effects

Building a Robust Knowledge Base Q3

(3) What have we learned about the dynamics of controversy and public concerns from siting wind turbines in Denmark and other countries?

- Learning occurs from past experiences with siting any energy facility
 - Very site-specific and local
 - Not readily known to wind experts

- Major reservoir of studies exist to inform us about:
 - Involving public(s) in a variety of ways
 - Decision processes
 - Identifying & involving stakeholders & affected parties
 - Communicating risks

- Perceptions, attitudes, expectations change over the life-cycle of the project:
 - Cast of characters
 - Range of issues
 - Unexpected events and surprises

- Learning leads to understanding of which initiatives or responses abate or exacerbate controversy
- Creative & aggressive dissemination

Building a Robust Knowledge Base Q4

(4) How may publics and communities be constructively involved and controversy avoided or resolved?

- Major changes from current planning processes and analyses are needed to achieve social trust
 - "Checking the boxes" for permits are inadequate
 - Signals the beginning of a process, not the end

- Independent panels and 3rd party involvement are essential for risk communication strategies
- Define an integrated risk analyses not '*risk du jour*'
- Comparative risks and benefits
- Define a compelling climate change context: is there a need?

- Develop inclusive siting processes that can achieve high level of involvement and avoid unnecessary social controversy:
 - Monitoring and evaluations
 - Citizen advisory committees
 - Collaborative studies

- Serious commitment to meet siting and performance 'standards' as defined by host community
- Media training and risk communication for decision makers

Building a Robust Knowledge Base

- 1) What is the nature of public perceptions and underlying values that will come into play in community responses to wind power development over the next 5-10 years?
- 2) How has social trust in developers and managers changed since the first generation of wind turbines were put in place?
- 3) What have we learned about the dynamics of controversy and public concern from experience with siting wind turbines in Denmark and other countries?
- 4) Drawing upon the above, how may publics and communities be constructively involved and controversy avoided or resolved?

Thank you



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EXTRA SLIDES FOR DISCUSSION

Facts or Myths

- Wind energy has broad public support in democratic societies at the national level
- It's the same few trouble-makers that are opposing wind projects in Denmark
- Lessons learned from other energy siting are relevant to wind community
- The public(s) trust experts and do not trust developers
- Ecological stresses, e.g., bird collisions, are related to governance and value issues
- Some risks cannot be reduced



Facts or Myths

- Social acceptance is the big issue with siting wind turbines, not controversies
- Conflicts are usually spearheaded by about 5-10% of the stakeholders or publics
- Opponents are emotional about wind – there's nothing we can do about "them"
- Cannot solve conflicts without understanding causes



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