

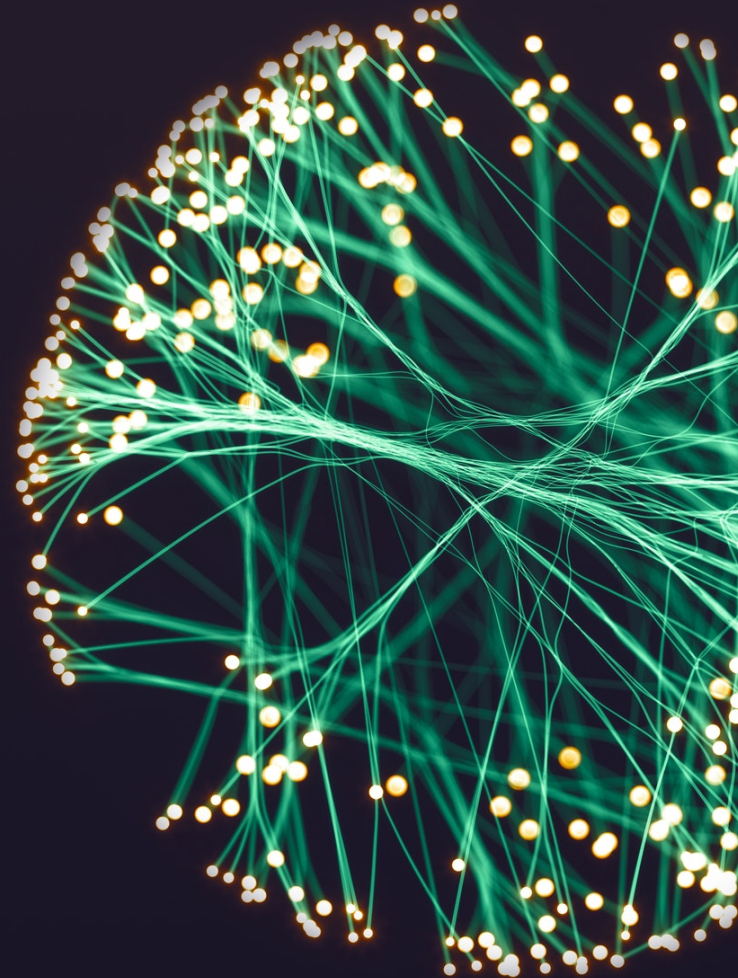
The competing conceptions of energy's role in society

Inês Peixoto
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Energy Business and Innovation



Aalto-yliopisto
Aalto-universitetet
Aalto University



Inês Peixoto

Postdoctoral Researcher, Dep. Management Studies

Aalto University School of Business



Currently working in project *Managing Transition Risks in Risk-Bearing Value Chains* (Wallenberg Foundation 2021-2023) examining transitions to low-carbon business in the shipping and aviation sectors

D.Sc. (Econ) Aalto University School of Business

Doctoral thesis: Organizing for Sustainability in Transnational Market Reforms

Masters in Management

B.Sc. Environmental Engineering

In this session:

- Trade-offs in societal energy and sustainability goals
- Societal evaluation of energy
- Cases of competing conceptions of energy and their implications



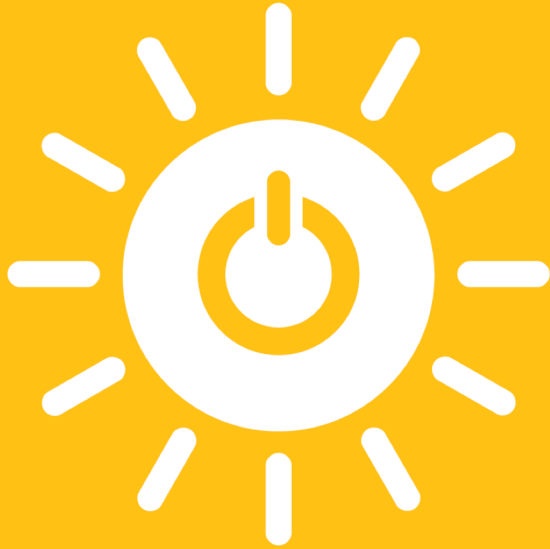
What explains conflicts around energy
issues in society?



SUSTAINABLE DEVELOPMENT GOALS



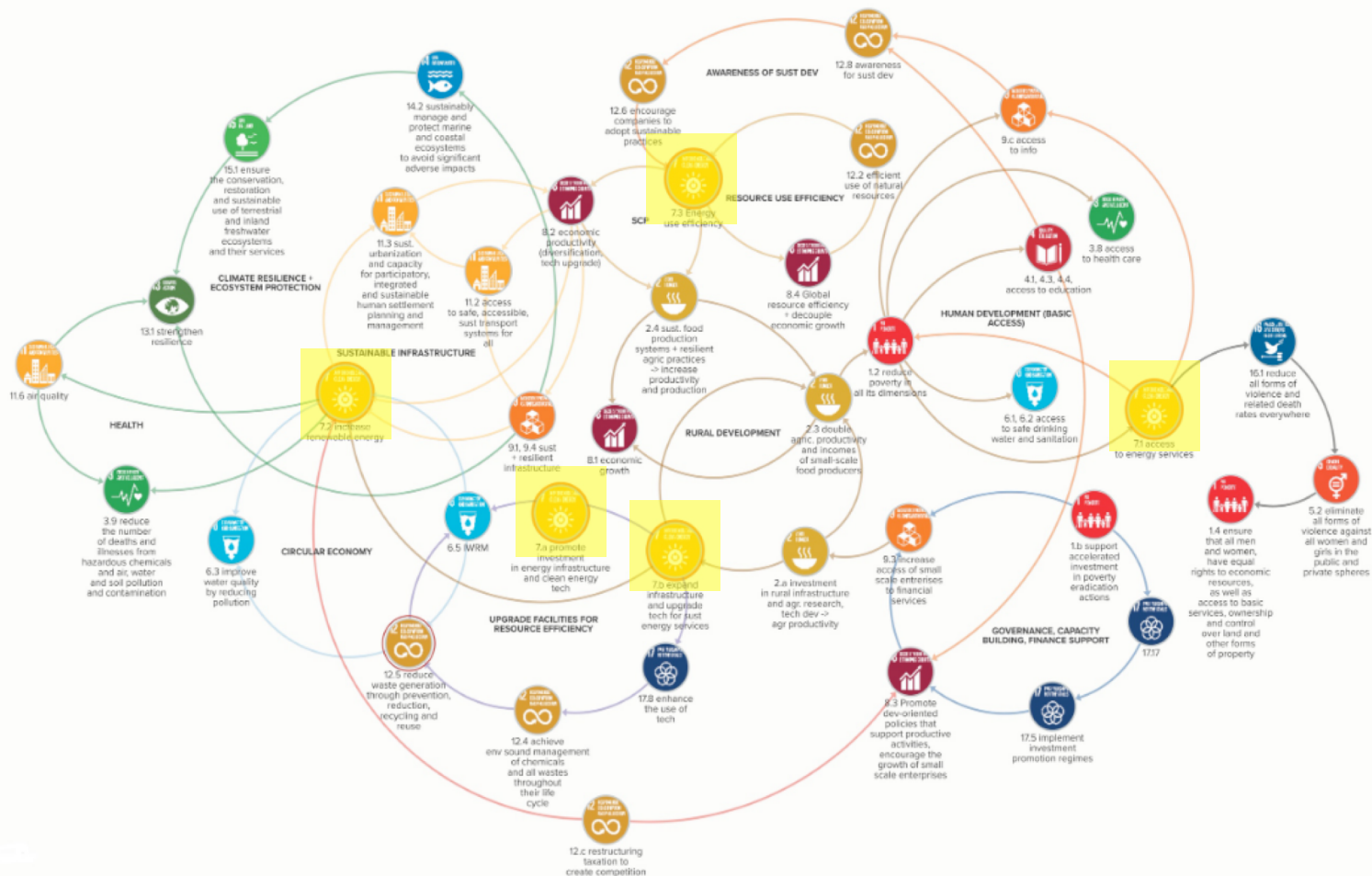
7 AFFORDABLE AND CLEAN ENERGY



Advancing SDG 7 implementation

- Make clean cooking solutions a top political priority
- Close the electricity access gap
- Accelerate the pace of transition towards renewable energy
- Harness the potential of decentralised renewable energy solutions
- Scale up investments in energy efficiency across all sectors of the economy
- Double the financing for SDG7 globally
- Scale up capacity building and education
- Enhance innovation systems, including research, development, deployment and diffusion
- Invest in data collection systems and data analysis

Visualisation map of the interlinkages between SDG 7 and other SDGs*



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Trade-offs and interlinkages in SDG7

- Energy cuts across all SDGs
- Complexity of interrelationships challenges conventional structures and processes of decision-making
- Implications: Decision-makers can no longer think in silos, need to widen participation and build consensus

Integrating competing conceptions of energy in the analysis:

Helps with design of policies and innovation that balance trade-offs across well-being, infrastructure and environment.

How are energy alternatives evaluated in society?

Common worlds	Market	Industrial	Civic	Domestic	Inspired	Fame	Green
Mode of evaluation (worth)	Price, cost	Technical efficiency	Collective welfare	Esteem, reputation	Grace, singularity, creativeness	Renown, Fame	Environmental friendliness
Test	Market competitiveness	Competence, reliability, planning	Equality and solidarity	Trustworthiness	Passion, enthusiasm	Popularity, audience, recognition	Sustainability, renewability
Form of relevant proof	Monetary	Measurable: criteria, statistics	Formal, official	Oral, exemplary, personally warranted	Emotional involvement and expression	Semiotic	Ecological ecosystem
Qualified objects	Freely circulating market good or service	Infrastructure, project, technical object, plan	Rules and regulations, fundamental rights	Patrimony, locale, heritage	Emotionally invested body, the sublime	Sign, media	Pristine wilderness, healthy environment, natural habitat
Qualified human beings	Customer, consumer, merchant, seller	Engineer, professional, expert	Equal citizen, solidarity unions	Authority	Creative beings, artists	Celebrity	Environmentalist, ecologist
Time formation	Short-term, flexible	Long-term planned	Perennial	Customary part	Eschatological, revolutionary, visionary moment	Vogue, trend	Future generations
Space formation	Globalization	Cartesian space	Detachment	Local, proximal anchoring	Presence	Communication network	Planet ecosystem

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Source: Thévenot, Moody and Lavaye (2000: 24).

Inspired



Green



Fame



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Market / Industrial



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Example of multiple conceptions:
Energy as service or commodity?

Exercise



1. Skim through the first section of the article by E.Shove & M.Watson

"No more meters? Let's make energy a service, not a commodity"

<https://theconversation.com/no-more-meters-lets-make-energy-a-service-not-a-commodity-40207>

2. Open discussion (Raise hand or use the chat):

Spot the different conceptions of energy: Pick 1-2 and share.

From commodity to service

Market	Industrial	Civic	Inspired	Green
Energy as commodity	Intermittent and variable electricity supply	Changing energy regulations	Recent technology developments: smart meters	Decarbonization of energy sector / Emission targets
New market entrants	Systems of energy provision under transformation	Consumers increasingly producers Affordability (energy justice)	New business models	Renewables

Cases of competing conceptions in conflict

Case: Nuclear incident at Vattenfall plant, Sweden 2006



Forsmark 1 fast stopped

At 1:58 PM on Tuesday 25 July, reactor 1 at Forsmark was fast stopped due to an electrical problem in the 400 kV distribution plant. In connection with maintenance work by Swedish Power Nets [Svenska Kraftnät] in the 400 kV distribution plant a major electrical disturbance took place. The consequences of the disturbance was a fast stop of the reactor Forsmark 1. During a short period, parts of the plant's power supply was not functioning. ***The power supplies are now re-established and an analysis of the reasons is taking place. Nobody was injured in the incident. Forsmark was the first nuclear power plant in the world to deliver electricity with a certified environmental declaration*** – the so-called EPD (Environmental Product Declaration). Furthermore, Forsmark is registered according to the EMAS (European Union's Eco-Management and Audit Scheme) and certified according to ISO 14001. Forsmark produces approximately one sixth of the total Swedish production of electricity, equivalent to the consumption of three cities the size of Stockholm.

Greenpeace wrote that the ***events at Forsmark were comparable to a "ghost ship," with nobody at the rudder.*** And the **Swedish Environment Ministry** described the event as a ***"serious" safety incident.*** Swedish nuclear expert Lars-Olov Höglund, who served as chief of construction for Vattenfall until 1986, put it far more dramatically. ***"It was pure luck that there was not a meltdown,"*** he said. "It was the worst incident since Chernobyl and Harrisburg," a reference to the 1979 meltdown at Three-Mile Island in Pennsylvania.

"At no point in time was there a danger of an accident," asserted Anders Markgren of the **plant's operator, Forsmarks Kraftgrupp.** Nevertheless, Markgren said he was relieved that Forsmark has been taken off the grid.

Vattenfall spokesman Ivo Banek, whose company operates two nuclear power plants in Germany, sought to assuage any fears. ***"We have no reason to doubt the security of our facilities,"*** he said.

Aftermath: Public debate over security of nuclear power plants

Dynamics of justifications by nuclear energy defenders and opponents

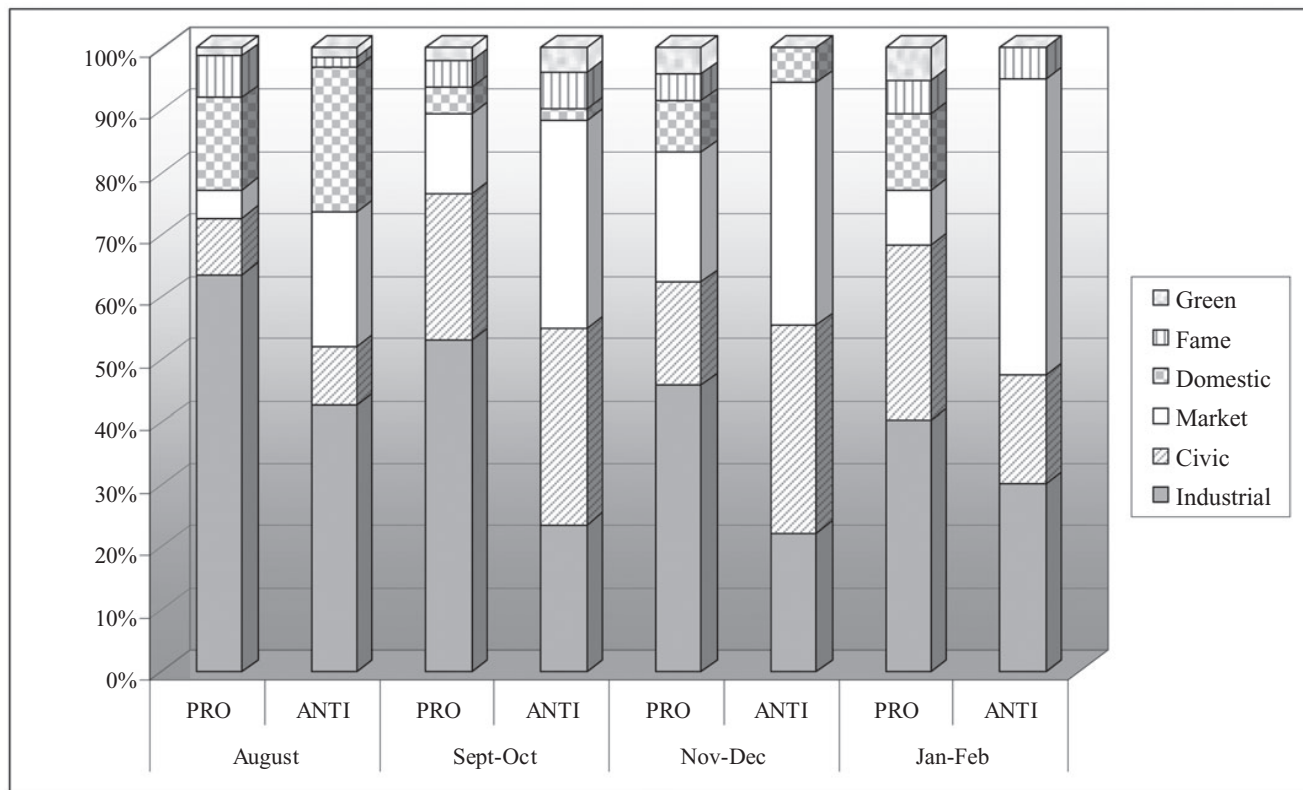
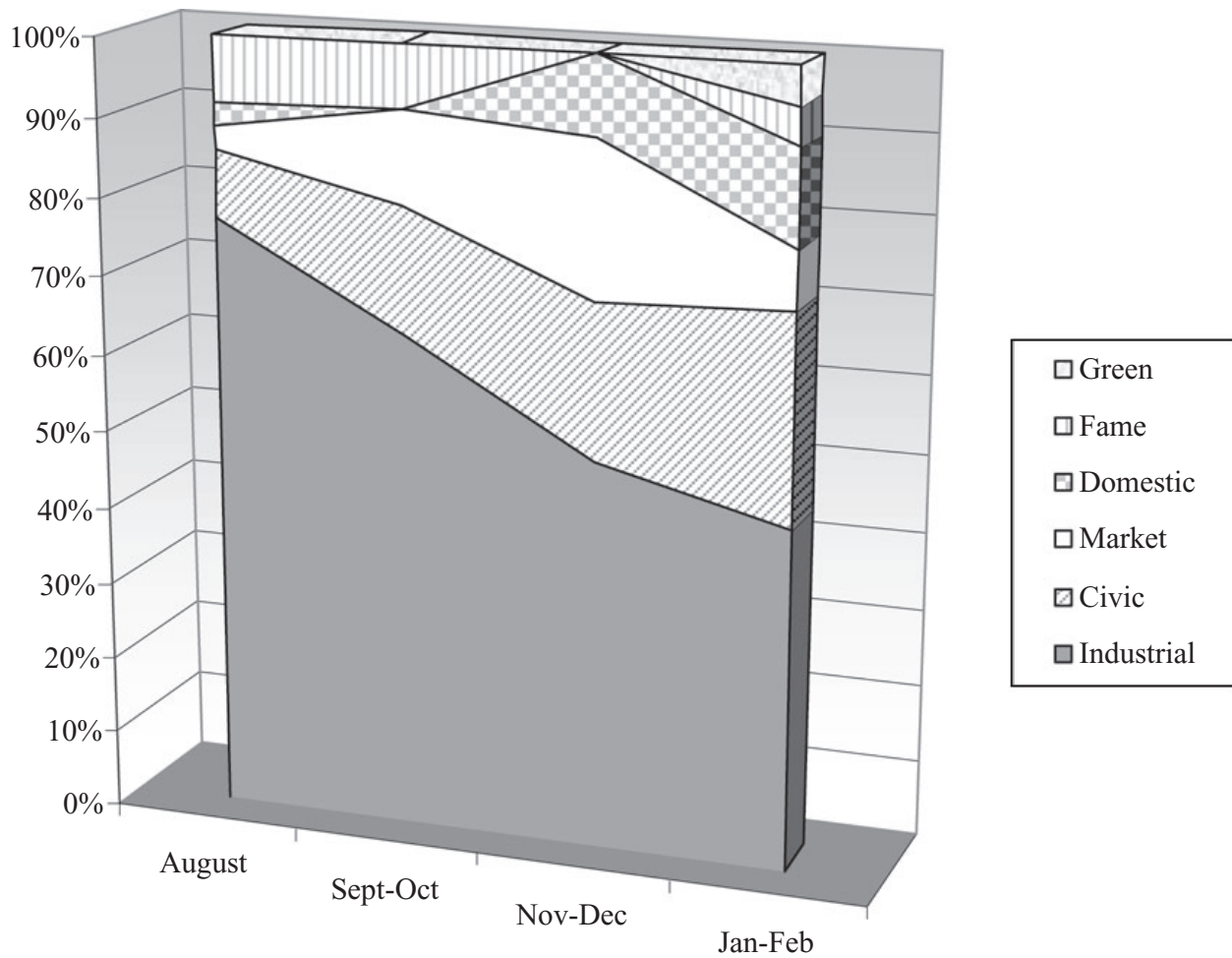
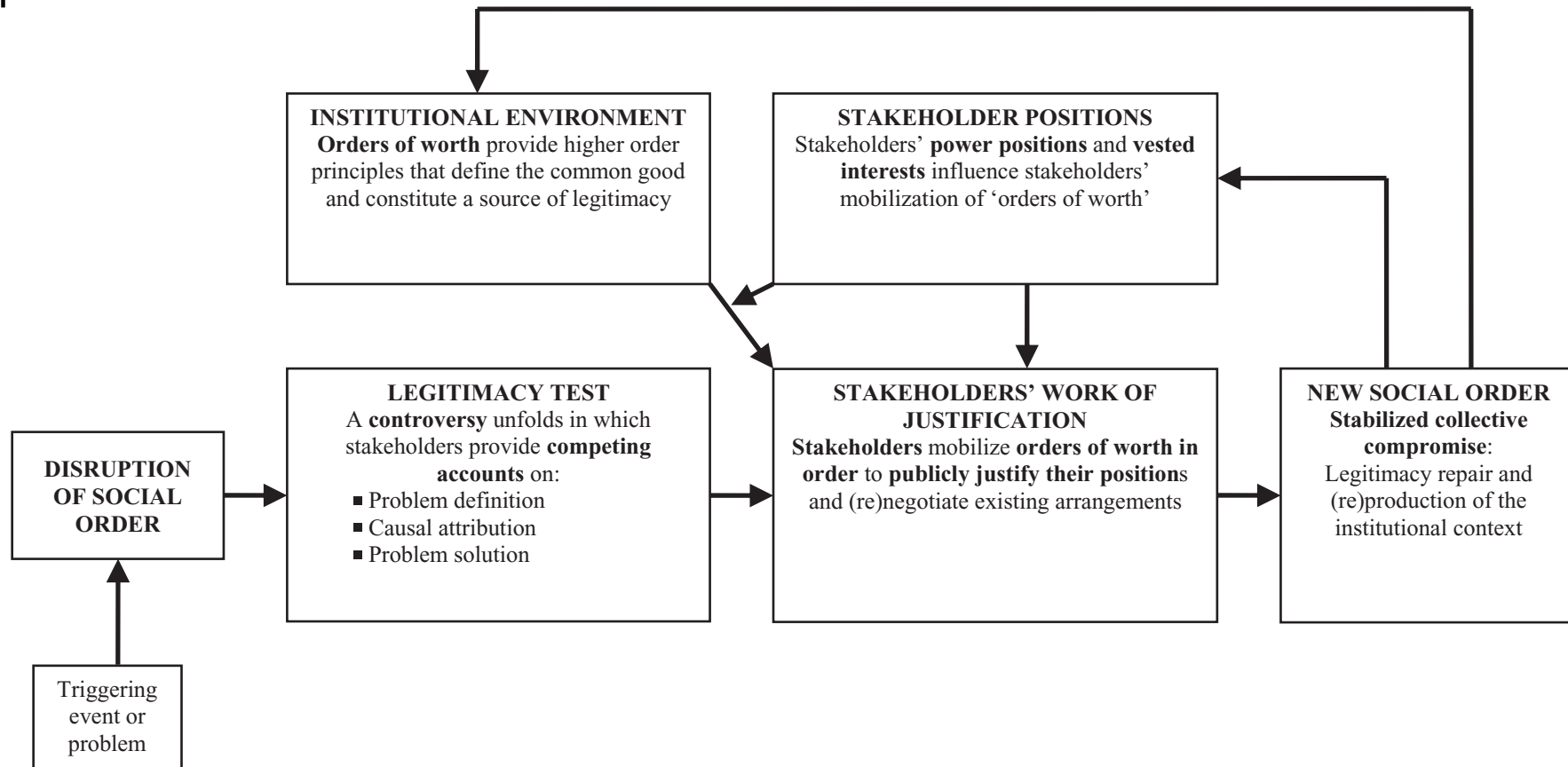


Figure 5. Dynamics of justifications by nuclear energy defenders and opponents

Dynamics of Vattenfall's work of justification



Resolving competing conceptions at conflict in the public debate



Implications

The legitimacy of competing conceptions is tested in public debates -> threats to licence to operate -> undermining legitimacy of energy source and technology

Temporal patterns of Vattenfall justifications suggest:

- managers should anticipate early the politicization of controversies
- strategies that maintain a controversy within a purely technical arena or close to core business may fail to restore legitimacy when there are multiple competing conceptions -> need for specific managerial training and skills

From policy-making perspective:

- justifications (conceptions) mobilized in debate forced Vattenfall to acknowledge and discuss broader implications of incident
- complex process: increasing nr. of conceptions invoked by increasing nr. of actors -> focus shift from incident to nuclear power legitimacy

Parallel example: BP Deepwater Horizon



“The **new regulations** have prompted the industry to fund organizations to build equipment and capabilities to contain future sea-floor blowouts.

Oil companies have also combined to create a Center for Offshore Safety in Houston, Texas, which is developing the environmental safety management systems now required by drilling permits. The US oil industry had resisted such a requirement, despite working under similar systems in Canadian waters and the North Sea. “This spill allowed some of those good ideas to move forward,” says Boesch. But, he adds, without legislation to make more stringent drilling regulations permanent, current or future administrations could easily relax or withdraw regulations: “You need legislation that codifies many of these requirements.”” Nature, 2012

Case: Biofuels (food vs fuel debates)

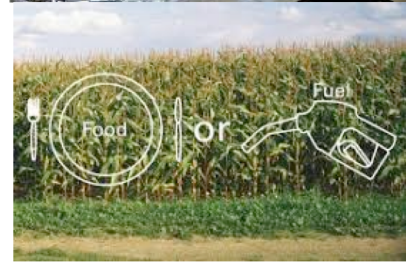
Virtues of biofuels praised by renewable energy advocates -> low environmental impact(s) substitutes for fossil fuels

Scale-up of biofuels triggered a food vs. fuel debate:
“Human food energy and free-nature or cleaner burning alternative and renewable fuels?”

Debate expanded to include forests and biodiversity

Latched onto interrelated debate on climate change mitigation:

- “carbon-capturing free standing forests” VS.
- “cleaner fuels” via clearing such forests for large-scale agricultural production?

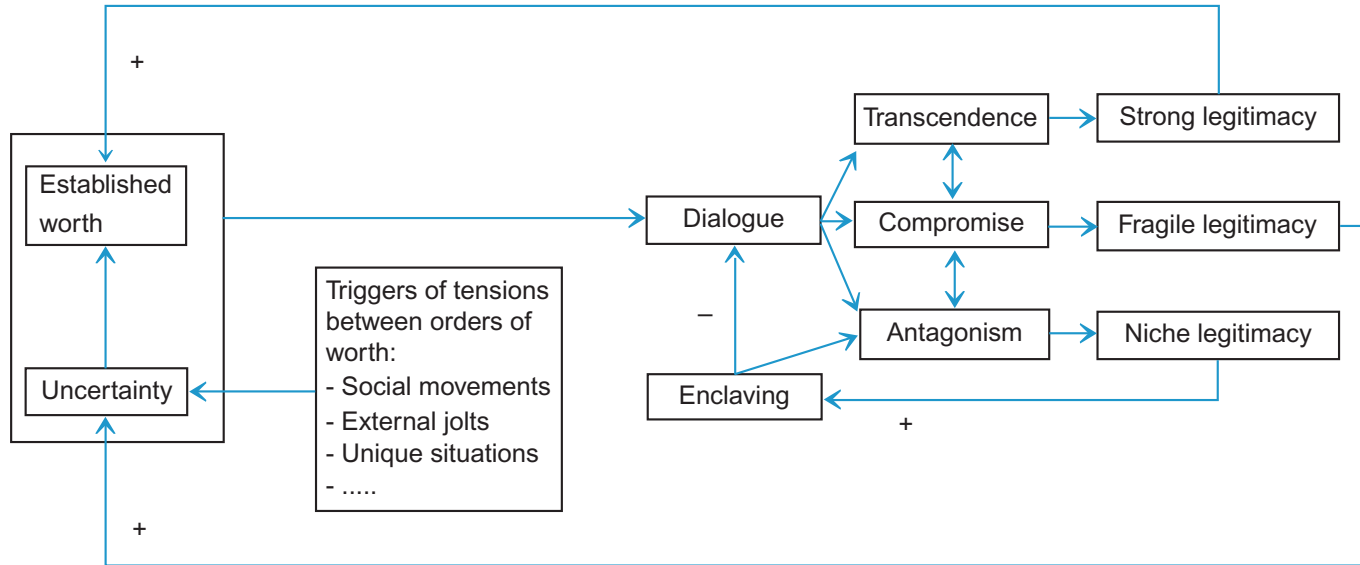


	Energy Efficiency	Priced Energy	Alternative Energy	Energy Conservation	Energy Justice	Energy Stewardship	Downscaling Energy	Eco-Energy
Relevant worlds of worth	Industrial	Market	Industrial, green	Civic, green	Civic	Domestic, green	Green, civic	Green, industrial, market
Basis for worthiness	Technical, efficient, reduced use in production/services rendered	Price, supply, demand	Technical, ecological integrity	Collective-behavioral, reduced energy demand	Equitable distribution of risk and benefit	Divinely or spiritually ordained; responsibility to “steward” God’s creation	Needs focus and social and environmental well-being via de-growth	Techno-scientific innovation, markets, ecological integrity
Test/justification	Rationalized uses and reductions	Competitiveness	Reduced social and environmental impacts	Reduced consumption; increased availability	Distributive and retributive justice	Sustain and nurtures life based on spiritual precepts	Downscaling of energy use (production, consumption, waste)	Prosperity and sustainability
Proof/evidence in support	Measurable reductions in energy use; scientifically evaluated, statistically verified	Optimal selection, diffusion, natural allocation	Measurable reductions in undesirable impacts; scientifically evaluated, statistically verified	Disciplined consumption, measurable reductions	Rates of unequal access and distribution	Consumption in line with well-being of earth and moral fitness of human inhabitants	Needs met, maximized well-being/minimized energy consumption (small is beautiful)	Intensified energy availability; shrinking ecological footprint
Focal objects	Infrastructure, production processes, methods, products	Free exchange, choice, individual liberty	Infrastructure, ecological systems	Energetic services, energy independence, cost savings, ecological systems	Equal access, equal protections	Interpretation of doctrine/beliefs in support of sustainable living	De-growth, steady-state economy, overdevelopment, collective well-being	Techno-science, innovation, energy availability, ecological systems
Focal timeframe	Continuous	Short-term	Long-term	Short/long-term	Short/long-term	Ongoing	Long-term	Long-term

Competing conceptions of energy's role in society

- Energy debates are plural and multipolarized (multiple conceptions)
- Introducing energy sources, technology & infrastructure (i.e, era of ferment):
 - Uncertainty regarding the dominant conception of the common good
 - Actors can shape the dominant conception through debates and by "investing" in a particular conception or a combination of them

Resolving competing conceptions in conflict



Take aways

- Multiple conceptions of energy in society
- Across almost all energy sources, technology and infrastructure (to varying extent) because energy is the basis of our society
- Conflicts around energy emerge from competing *evaluations* of energy sources
- Analysis of different conceptions at play is more useful than focus on positions (industry vs. policy-makers vs. civil society) -> Overlaps!
- Addressing competing evaluations is crucial -> required strategic skill in energy business and innovation