

# Social acceptance of energy investments



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# Introduction and program

- **What is this presentation about?**

- The transition from fossil/conventional energy to renewable energy is not only a technical question.
- Important: How can effective solutions and technologies be implemented *politically*?

⇒ *The search for social acceptance*

- **Today's focus:**

- What is «social acceptance» and how can we conceptualize and measure it?
- Two empirical examples
  - Ballot support for renewable electricity projects
  - Preferences towards new technology in electricity transmission

# Warm-up

- What does the notion “acceptance” mean?
- Find your answer to this question and write in down.

# Social Acceptance – what the literature tells us

- Quite different things!
    - “one factor that can potentially be a powerful barrier to the achievement of renewable energy targets” (Wüstenhagen et al. 2007).
    - acceptance *as one among various reactions* towards renewable energy technologies, whereby opposition, preferences, and support are other such reactions (e.g., Batel et al. 2013; Fast 2013).
    - And: Many studies do not conceptualize “acceptance” but just operationalize the phenomenon (somehow).
      - Attitudes, voting behavior, perceptions of legitimacy, etc.
- ⇒ Inconsistencies heavily affect the potential for comparisons and implications

# A first clarification: Wüstenhagen et al. 2007

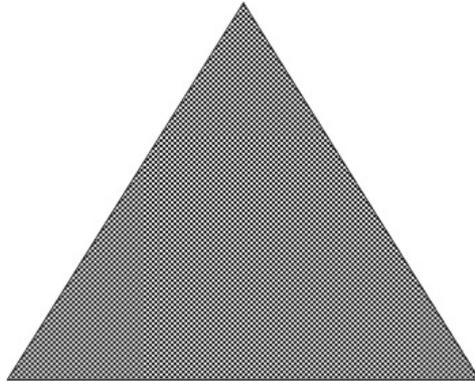
## Socio-political acceptance

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



## However:

Attitudes towards a policy (e.g., ecological tax) vs. voting behaviour vs. compliance



## Community acceptance

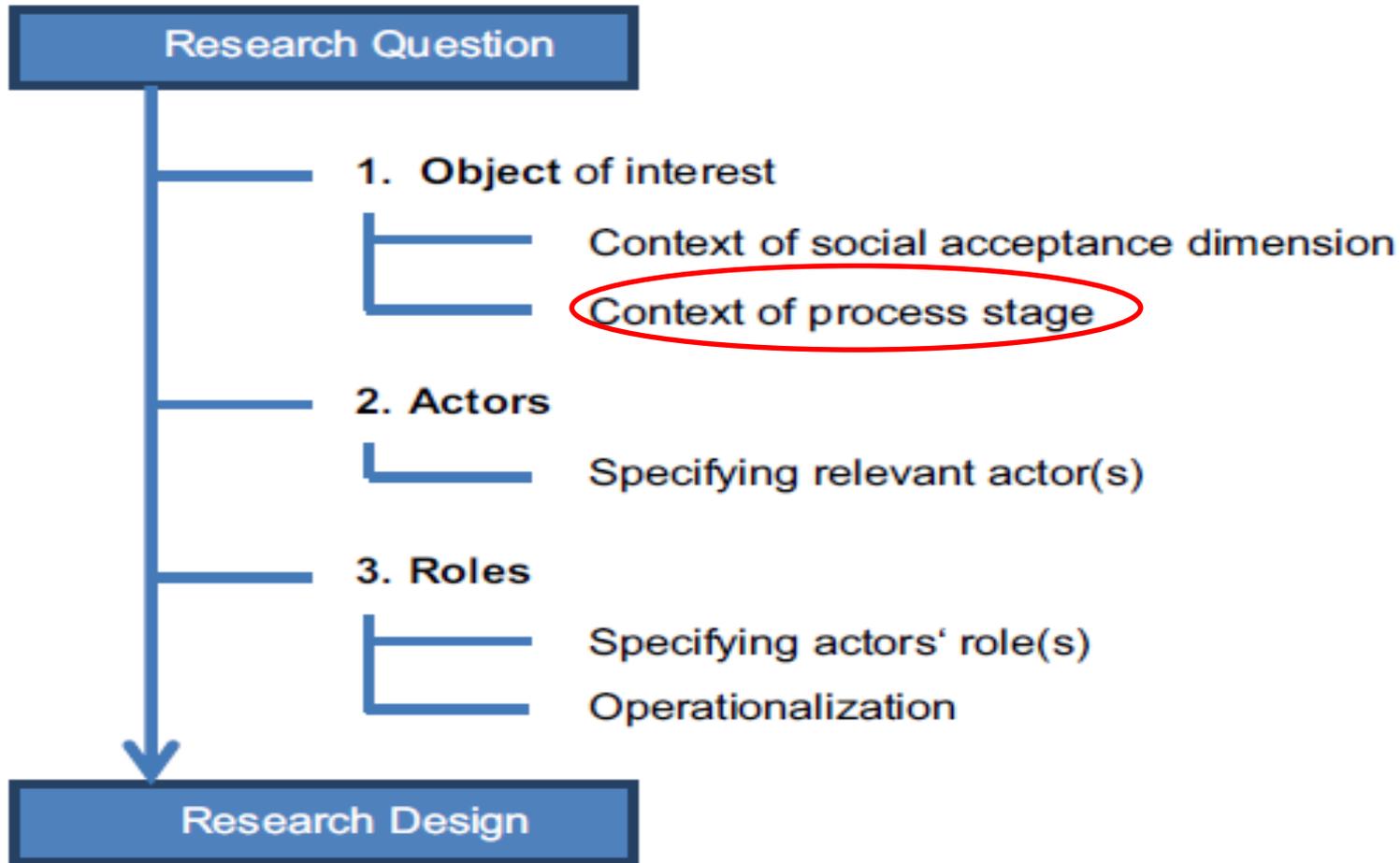
- Procedural justice
- Distributional justice
- Trust

## Market acceptance

- Consumers
- Investors
- Intra-firm

# Bringing the policy making perspective in

Dermont et al. (2017)



**Fig. 1.** Three steps to define a research design in social acceptance studies.

# Process stages and actors' reactions

Stage 1	Stage 2	Stage 3 (optional)	Stage 4
<b>Drafting a policy</b>	<b>Decision on a policy</b>	<b>Popular Vote on a policy</b>	<b>Implementing a policy</b>
<p><b>Preferences</b> dominate Leads to a <i>policy draft</i></p> <p>Actors: Political elite Stakeholders Target and advocacy groups</p>	<p><b>Support</b> dominates Leads to the introduction of a <i>policy</i></p> <p>Actors: Decision makers Veto Players Policy community</p>	<p><b>Support</b> dominates Leads to a <i>policy</i></p> <p>Actors: Citizens</p>	<p><b>Acceptance to comply</b> Leads to an <i>outcome</i>, e.g., behavioral change</p> <p>Actors: Target groups</p> <hr/> <p><b>Support to implement</b> Leads to an <i>output</i> e.g., subnational legislation</p> <p>Actors: Implementation agents</p>

**Fig. 2.** Exemplary stages of a policy from drafting to implementation including relevant actors and their roles.

# Two empirical illustrations

- What they have in common: **socio-political dimension**
- However: **Different stages in the policy process**
  - different roles of citizens
  - different actor's reactions
- **Example 1: Preferences for new vs. conventional technologies**
  - Also: How to measure preferences on new issues?
- **Example 2: Support of renewable policies**
  - Also: How to measure support?

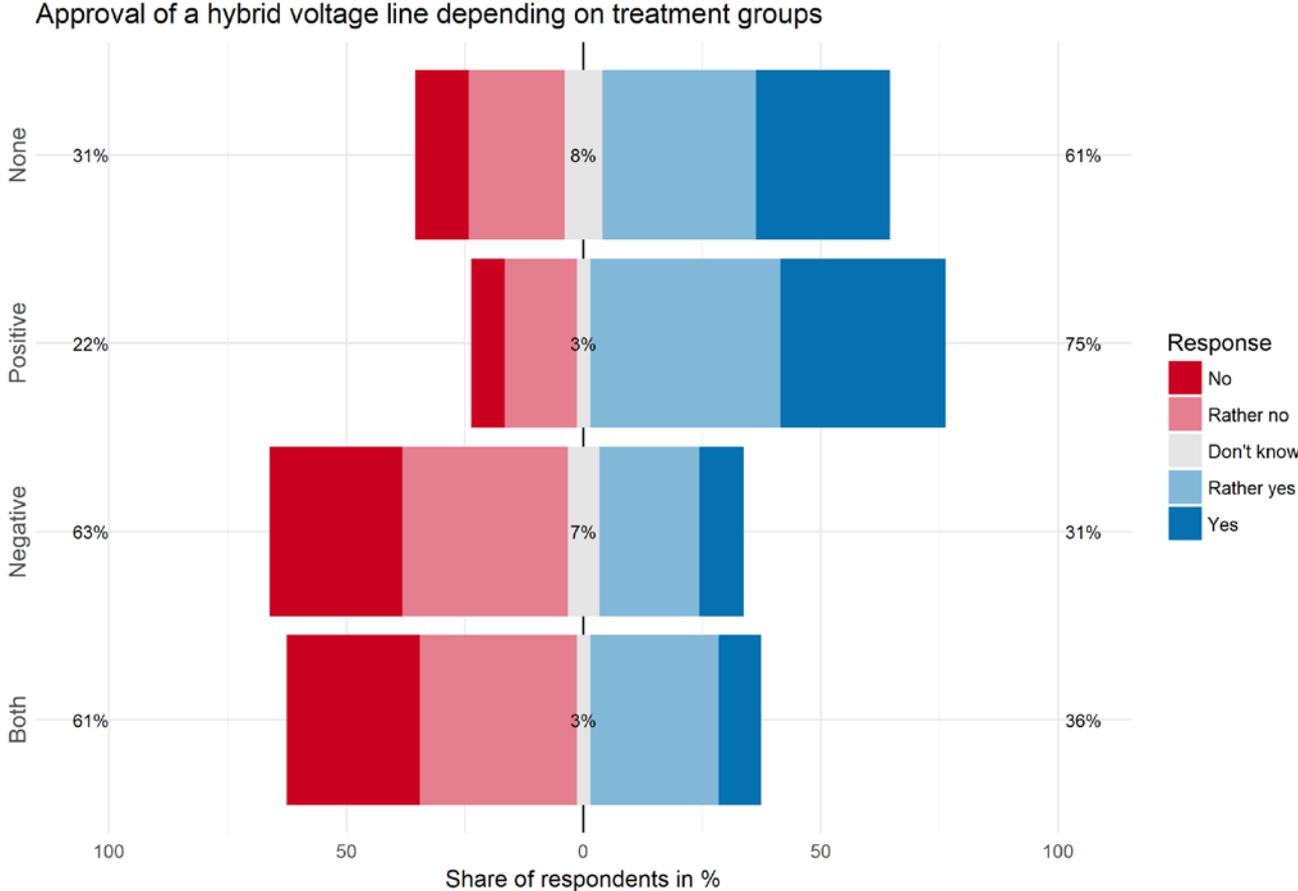
# Example 1: Preferences towards hybrid high voltage lines

- **What are we talking about?**
  - Electricity transmission is an important element of the transition of energy systems
  - need for increasing grid capacity
  - However: popular resistance (e.g., appeals)

⇒ *Research question: Do citizens' approve a new technology (and prefer over the conventional one)?*
- **The social acceptance perspective**
  - Concrete infrastructure projects (community acceptance) vs. social acceptance of a new technology (socio-political acceptance)
  - **Stage 1** (if at all): Elite' responsiveness and citizens' preferences towards new technological solutions
- **Measurement:**
  - The challenge of measuring preferences on new issues
  - Experimental survey design: information treatments
    - To capture volatility and stability

# Positive and negative information effects

## Preferences towards the new technology



**T1:**  
Necessity to  
increase grid  
capacity (positive)

**T2:**  
Potential negative  
effects  
(negative)

# Example 2: Social acceptance of incentive-based instruments in a direct-democratic context

- **What are we talking about?**
  - According to ecological economist, incentive-based instruments are most effective and efficient to reach ecological goals.
    - Ideal: ecological tax reform
  - However: Lacking support and difficult political implementation
    - The role of direct democracy!
  - *Research question: What makes incentive-based instruments so unpopular?*
- **The social acceptance perspective**
  - **Stage 3: We need to measure support**
- **Measurement**
  - The challenge of measuring support in a survey context
  - Experimental survey design (Conjoint Analyse)
    - Multidimensional decision => a ballot proposal consists of various elements

# A choice experiment:

- Conjoint choice analysis
- 4'146 individuals,  
7x2 policy proposals
- Swiss representative sample,  
mail invitation & online survey
- Trilingual survey: D / F / I

To promote electricity production from renewable energies (small hydro power, solar power, wind power, geothermal power), the federal government wants to provide new means. This could be implemented in different ways.

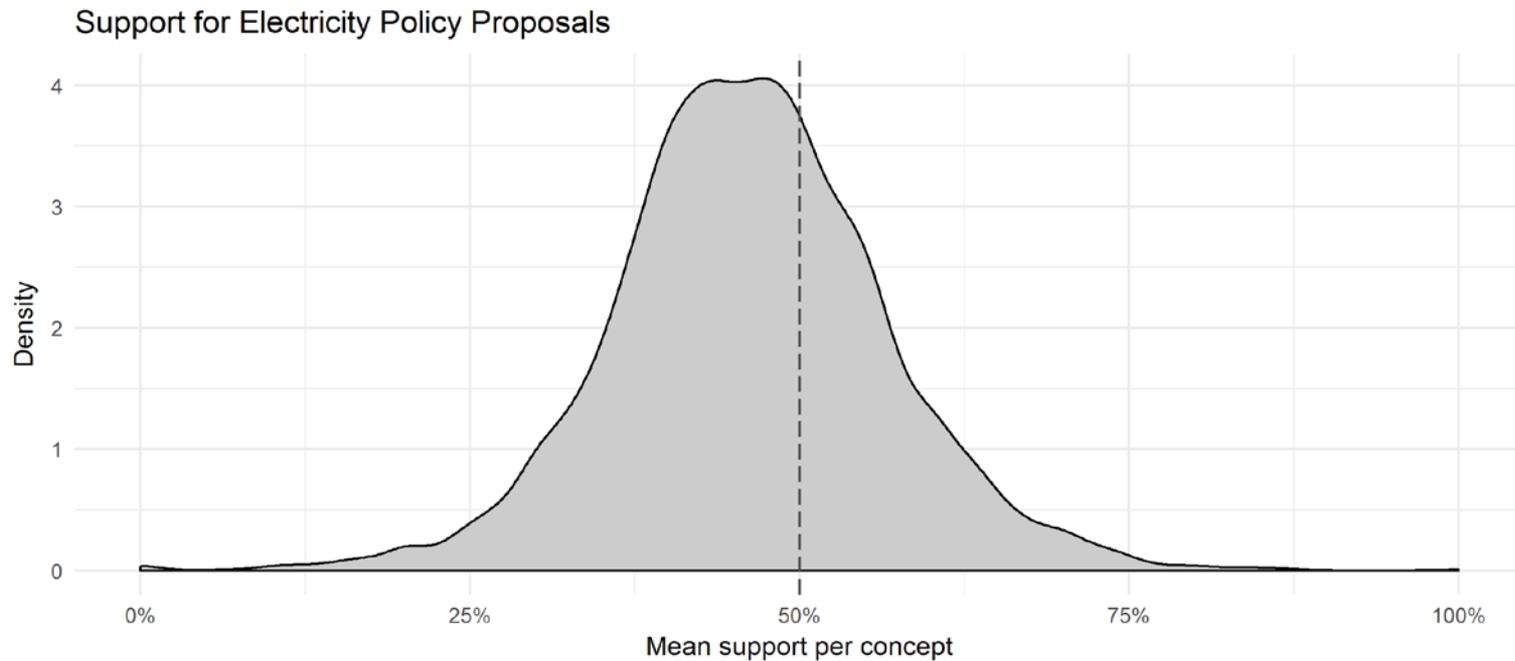
Characteristics	Variant 1	Variant 2
Energy source to be promoted		
Financed through		
Measure		
Costs per household		
Exceptions		
Existing nuclear power plants		
Running time		

Which of the two variants do you prefer?

How likely is it that you would approve the variants in a referendum?

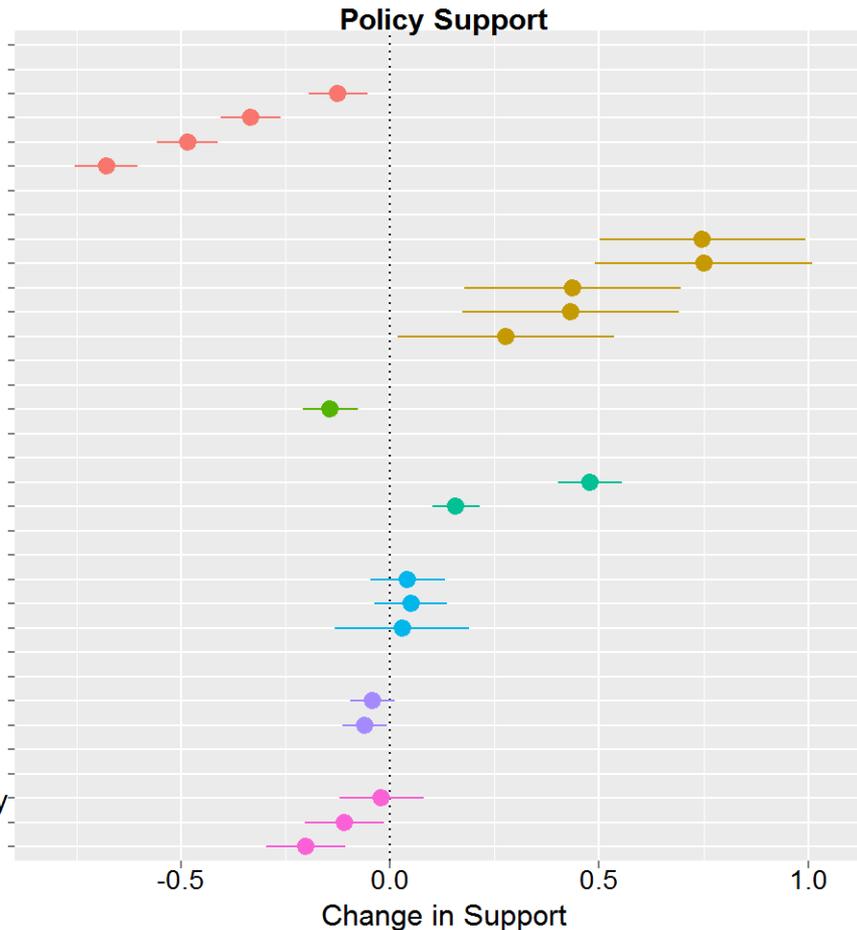
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
<b>Variant 1</b>	<input type="radio"/>										
<b>Variant 2</b>	<input type="radio"/>										

# Mean support for incentive-based energy policies



# What factors boost citizens' support, what are the red lines?

- Costs:
  - (Baseline = none)
  - +8 CHF
  - +15 CHF
  - +23 CHF
  - +30 CHF
- Energy.Source.Priority:
  - (Baseline = no priority)
  - renewable energy in general
  - solar power
  - wind power
  - small-scale hydro power
  - geothermal power
- Exceptions:
  - (Baseline = no exceptions)
  - industry
- Nuclear.Power.Plants:
  - (Baseline = no run-time limit)
  - switch off
  - 60 years run-time limit
- Policy.Measure:
  - (Baseline = feed-in tariff)
  - investment grants
  - tax release
  - redistribution
- Running.Time:
  - (Baseline = 10 years)
  - 20 years
  - 35 years
- Source.of.Funding:
  - (Baseline = tax on electricity)
  - tax on non-renewable electricity
  - income and revenue tax
  - value added tax



No costs!

Focus on renewables, in particular PV

No exceptions

No nuclear energy

But what to do???

Not long-term

Energy tax

# Summary and take home message

- Lacking social acceptance as an important potential barrier to the transition of energy systems towards renewables.
- **The substantial conclusions**
  - Even though renewables are strongly preferred by citizens, support for according instruments and technologies is not self-evident.
  - The crucial question: how can costs be compensated for?
  - Uncertainty, lack of knowledge and experience: a hurdle to “social acceptance” – but also a natural characteristics of renewable energy solutions.
- **Methodological conclusions**
  - How to receive valid measurements of actors’ reactions in surveys?
  - Experimental survey approaches may be promising
  - The advantages of the Swiss direct-democratic context

# Summary and take home message II

- **Conceptual conclusions**
  - Specify your conceptualization of “social acceptance” based on the relevant context the actors and their roles
  - Don’t forget the policy making process (i.e., the different stages)
  - Conceptualizing “social acceptance” is challenging, but substantially and methodologically relevant
    - for the research design, but also
    - when comparing results, and
    - when deriving conclusions and implications.

# References

Batel, Susana; Patrick Devine-Wright and Torvald Tangeland. 2013. "Social acceptance of low carbon energy and associated infrastructures: A critical discussion." *Energy Policy* 58: 1-5.

Dermont, Clau; Karin Ingold; Lorenz Kammermann and Isabelle Stadelmann-Steffen. 2017. "Bringing the policy making perspective in: A political science approach to social acceptance." *Energy Policy* 108: 359-368.

Fast, Stewart. 2013. Social Acceptance of Renewable Energy: Trends, Concepts, and Geographies. *Geography Compass* 7(12), 853-866.

Wüstenhagen, Rolf; Maarten Wolsink and Mary Jean Bürer. 2007. "Social acceptance of renewable energy innovation: An introduction to the concept." *Energy Policy* 35: 2683-2691.