Task 4.3

Title

Socio-economic-political drivers

Projects (presented on the following pages)

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Spillover dynamics in energy controversies

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Motivation

Energy controversies have been widely studied. Such studies are, however, generally based on either single case studies, providing rich and in-depth understanding of (local) dynamics of planning processes, or they focus on understanding responses to a specific technology (not bounded to a location). These studies tend, therefore, to overlook a key dynamic in controversy, namely that publics respond to projects by drawing on earlier experiences.
Spillovers occur when actors' explicit reference to experiences with a similar technology elsewhere, or with earlier experiences with other technologies at the same location, determine the discursive space of the controversy, and thereby the dynamics of the controversy.
Spillovers are usually considered to be contextual factors and as such ignored as part of the policy debate
The objective of this paper is to conceptualize spillover as an important dynamic in controversies and to develop a research agenda.

Methods

The paper is based on a review of the literature from social science and humanities on energy controversies and on the analysis of three specific cases to understand the mechanisms of spillover.

Three types of spillover

We identify different types of spillovers in energy controversies.

- Spillovers may be spatial: a controversy in one place may spill over to another place. We refer to this type of spillover as *geographical spillover*.
- Spillovers may concern technologies: a controversy on one technology may spill over to another technology, as the example above on geothermal energy and fracking illustrates. We label this type of spillover as *technology spillover*.
- Spillover may also be temporal: it may arise from earlier controversies about other policy issues within a region. We label this type of spillover as *historical spillover*.

Geographical spillover in the Dutch shale gas debate
In 2009 the first plans were made for exploration of shale gas in the Netherlands, when the British oil company Cuadrilla requested exploration permits for two areas in the Netherlands. In 2011, Cuadrilla received the permit to start exploration in Boxtel, a small town in the south of the Netherlands. From that moment onwards, the controversy rapidly expanded. What started as a local debate on safety and risks of shale gas exploration, soon erupted to a fierce national debate on the role of shale gas in the energy transition. In these dynamics, spillover from controversies on shale gas in the US and the UK played an important role. References were made to the movie Gasland and to earthquakes in Blackpool, UK. The case is therefore an illustration of geographical spillover.

Technology spillover in the Swiss deep geothermal energy debate
The Swiss Energy Strategy 2050 supports the development of deep geothermal energy (DGE) production. This triggered debates in the national and local parliaments about whether authorising DGE in Switzerland would open the way to fracking for the exploitation of shale oil and gas. In the town of Haute-Sorne in the Canton of Jura in western Switzerland, residents have opposed a project by drawing on arguments against fracking for shale-gas. Opponents argue that DGE is just like fracking and that it will cause repeated induced earthquakes and groundwater pollution like in US regions that have experienced a shale boom, even suggesting that DGE projects might be a cover-up to develop shale gas exploitation.

Historical spillover in the Dutch Peat Colonies
In 2011 the formal planning procedures for two onshore wind farms in the north-east of the Netherlands were initiated. Both plans triggered fierce local opposition. In addition to common arguments against wind power like the impact of sound and shadow flicker and impact on landscape, opponents also drew from pre-existing sources of contention on the region's past. As renewable energy production has become more and more prominent, the north-east of the Netherlands has been faced with several initiatives for large-scale wind-farms. This has triggered an existing sentiment that renewable energy production is yet another way for the rest of the country to profit from the region's resources. Public debates and issues triggered by preceding energy (related) projects spilled over in this northern Dutch context and (negative) experiences from the past are being projected onto current or proposed projects.

Outlook for a research agenda

Compared to other notions such as "context" or "environment" that are used to describe the effects of site-specific features on energy controversies, the notion of spillover presents several advantages:

1. it emphasizes the agency (intentional or not) needed to "make" something become a context;
2. the notion of geographical spillover points to the possible discursive connections that shape the space of a controversy by linking remote locations;
3. historical spillovers highlight that the relevant past for a project is not limited recent events or other project related controversies.

Our conceptual and empirical explorations of spillover as an important dynamic in energy controversies raise several questions that seem worthwhile to explore. We will propose here four lines of research that support a more detailed understanding of the workings of spillovers in controversies. These lines of research relate to:

1. the empirical analysis of arenas, actors and strategies;
2. the influence of conventional and new forms of media;
3. meta-analysis of the dynamics of controversies, and
4. to normative questions about the political and democratic repercussions that come with spillovers.

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Geothermal direct use and electricity in Chilean media discourse

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Motivation

- Media coverage helps understand public opinion of geothermal energy **[1]**, which is important for the realization of projects.
- Chile is a country with growing geothermal development.
- In Chile, lack of information about successful cases of geothermal projects has been linked to the shaping of negative opinions among local stakeholders. However, opinions tend to be more positive for geothermal direct use because it is seen as an opportunity to meet local needs **[2]**.
- Analyzing media coverage may shed light on public opinion of geothermal energy in Chile, and to identify ways to effectively promote it.

Method: collection and analysis of data

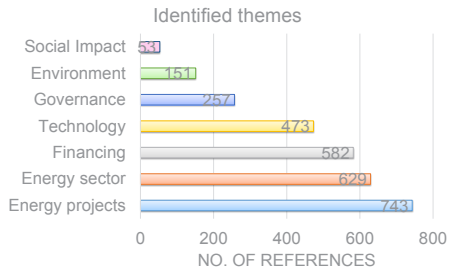
We are conducting a media analysis of the most read National newspapers from Chile: El Mercurio (2002-2018) and La Tercera (2009-2018). The first insights presented only cover findings form El Mercurio's articles.

Article were analyzed through a thematic content analysis using Nvivo 12 Plus. Statements were coded to identify their content. Then they were grouped into thematic categories. Some categories had been predefined based on literature on geothermal energy while others emerged through the grouping of statements. For this poster, we compared the attributes between geothermal end uses to identify differences and similarities.

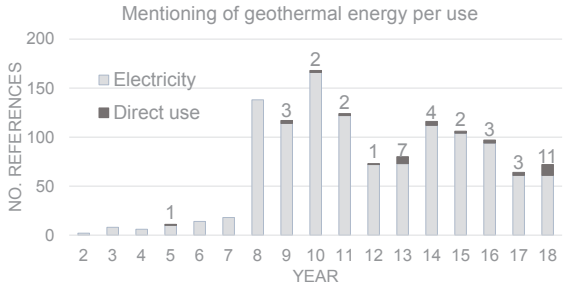
First insights

Statements were grouped into the following themes, and their frequency is show in the bar chart below:

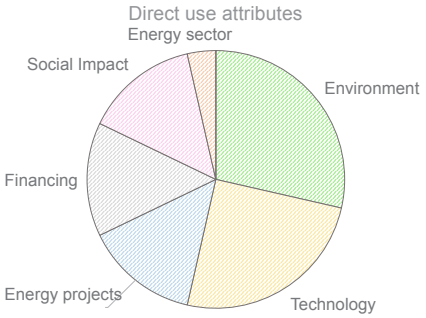
- Social impact: the involvement of the public in energy projects/development
- Environment: the impact of energy projects/development in the environment
- Governance: the way of running the energy sector
- Technology: energy technologies (power plants, grid, greenhouses, etc.)
- Financing: economic aspects of projects and technologies
- Energy sector: general statements about energy, but not specific to projects
- Energy projects: identified projects

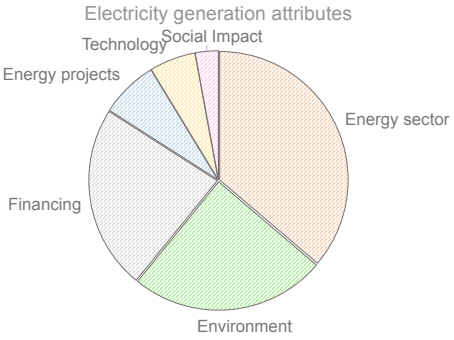


The number of references about direct-use and electricity-generation statements per year are shown in the following histogram. Geothermal direct use was considerably less mentioned than geothermal electricity generation, and started to gain coverage from 2009.



Attributes of geothermal direct use and electricity generation were grouped in the described themes. The later covered mostly positive environmental and technological attributes such as "respectful to the environment", and "efficient technology", respectively. The former was mainly described by: its relation with the energy sector, for example "base-load supply"; and its environmental impact, for example "low-CO2 emissive". In contrast, financing attributes for electricity generation referred to the high investment cost, whereas for direct use to the low investment cost of projects.





Discussion

- The most dominant theme among El Mercurio's articles was energy projects, followed by energy sector, and financing. This shows that this press medium communicates geothermal energy as specific projects and energy sector development, and less focus is given to the environmental and social implications.
- Geothermal direct use was described only positively, whereas electricity generation additionally covered critical attributes in reference to its costs and complexity. This implies such electricity-related challenges are not perceived for direct use projects.
- Energy sector was the most dominant theme for electricity generation, whereas the second least dominant (after governance) for direct use. This suggests that geothermal electricity generation is discussed in relationship to national issues related to energy provision (energy security, development, decarbonization…). Direct-use in contrast is discussed more in terms of its local impacts. This is signalled by the highest share of statements on specific projects as well as the focus on social impact and potential environmental benefits.

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The power of collaboration: Case study of two pumped storage hydropower projects

Fabienne Sierro, Selma L'Orange Seigo, Olivier Ejderyan, Johan Lilliestam, Patricia Zundritsch

Background

The Energy Strategy 2050 calls for an increase of hydropower production capacity. Pumped storage hydropower (PSH) projects willplay an important role to reach this goal.

However PSH projects often conflict with protection of landscape and environment and lead to legal opposition from environmental NGOs. We examine two successful cases: Linth Limmern in Canton Glarus & Lagobianco in Canton Graubünden.

- Linth Limmern: extension of existing PSH plant (including a dam raise + and new high-voltage transmission line). A collaborative approach to include stakeholders was chosen from beginning
- Lagobianco: initial project to expand existing dam. Initial project abandoned due to opposition from environmental NGOs. Operators and NGOs searched collaboratively for a new solution and agreed to have a new PSH plant

Aim of paper: Look at success factors, as perceived by involved actors. Results can be used for planning of future projects (in paper we want to make it relevant for outside Swiss context – here the opposite?)

Method

In both case studies, data on the perception of the collaborative process was collected through semi-structured, in-depth interviews (n=14) with involved actors (working group members and decision makers from involved organizations).

Interview transcripts were analysed through thematic content analysis to identify what interviewees perceived key elements in making the collaboration successful. These could be stated explicitly or inferred through the description they made of the process.

Results

The situation in both cases corresponds to what Covey & Brown (2001) have identified as critical cooperation (Tab.1). Operators wanted to develop solutions to maximise electricity production which conflicted with the NGOs and residents wish to protect the environment and landscape. However all actors saw the necessity to have a sustainable energy production system that minimizes impacts on environment and landscape.

	Converging Interests Low	Converging Interests High
Conflicting Interests Low	Non-engagement	Cooperation
Conflicting Interests High	Conflict	Critical Cooperation

Tab. 1: Types of engagement of actors in function of interest conflicts and convergence (adapted from Covey & Brown 2001),

Interviewees highlighted the role of trustable and competent persons that enabled the parties to collaborate. These are brokers who connect organizations or people that would not otherwise be connected (term from social network theory). The importance of their role has been recognized for critical cooperation (Long et al. 2013). Our paper looks at conditions that help brokers to exercise their function successfully.

We identified that the factors enabling good collaboration were not limited to the direct interactions between the actors during the workshops or the meetings. They also related to the situation within the organisation/group to which individual actors belonged too, as well as the cooperation between these organisation.

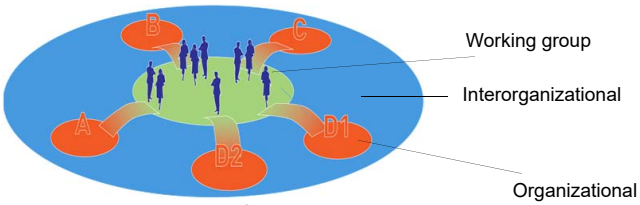

Fig. 1: The 3 spheres of collaboration.

We identify 3 spheres of collaboration that are related to each others (Fig 1.). "Working group" refers to the group of stakeholders meeting to discuss the project. "Organizational" refers to the organization (or group, or community) to which the members of the working group belong, et to whom they have to refer about the process. "Interorganizational" refers to the relationships between the organizations. By considering these 3 spheres, we identified the success factors for collaboration listed in table 2.

Sphere	Perceived success factors
Interorganizational	• Commitment of top-level individuals of each organization • Clear definition of working group mission (outcome left open) • Delegation of negotiation to technical experts • Irregular but sustained involvement of top-level management
Organizational	• Delegation of negotiation to internal experts • Continuous support of and trust in delegated expert • Resource allocation to delegated broker
Working group	• Common definition of rules • Openness of outcome • Transparent knowledge and data sharing • Regular validation within own organization • Focus on particular project at hand, balancing it as a whole

Tab. 2: Perceived success factors in each of the 3 spheres of collaboration

Discussion

- Important to look at all 3 different spheres, not just concentrate on working group, or involved organizations
- Working group members act as brokers between the group and their organizations
- Conditions can be shaped such that brokers can fill their role well
- Commitment has to come from top-level, but actual negotiations should happen between experts in the field
- Focus on project at hand important, no discussion of energy politics in general
- Full disclosure of information within group, commitment not to disclose information to the public/media

Selected References

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