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# The potential of public participation to facilitate infrastructure decision-making: Lessons from the German and European legal planning system for electricity grid expansion

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## ABSTRACT

The article examines the potential role that public engagement and participative processes play a role in effective infrastructure planning in the context of energy policies. For example, by 2050, at least 80% of Germany's electricity has to be derived from re-newable energy sources if Germany is to meet the goals of its own energy policy. This includes the comprehensive and accelerated extension of the electricity grid. As a result of the magnitude of these changes, the German energy transition is not proceeding without debate and controversy. Public engagement is certainly no panacea for enhanced social acceptance, yet it offers substantial potential to facilitate the energy transition. The paper draws together social science and legal expertise in order to investigate the role of public participation in legal planning processes concerning energy infra-structures. The paper not only focuses on the extension of the German power grid, but also deals with participative policy at the European level. To this end, the paper analyzes the potential role of the German legal planning system in grid expansion and in the European processes of nominating Projects of Common Interest (PCI) and of drawing up the Ten Year Network Development Plan (TYNDP).

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## 1. Introduction

The energy transition is a long-term structural change from a nonsustainable use of fossil fuel and nuclear energy to use and production based on renewable sources of energy (WEC, 2014). Technical core elements of this transition are the development of renewable forms of energy, enhancing energy efficiency, and encouraging energy conservation measures. The European objectives for the electricity market (Directive, 2009/72/EC) are crucial for Germany and led to the amendment of the legislative framework in 2011. Core elements of the amendment are:

- greenhouse gas reductions: 80–95% reduction by 2050 (compared with 1990)

- renewable energy targets: 80% share of gross electricity consumption by 2050 (renewables broadly defined as hydroelectric, solar, and wind power)
- energy efficiency: reduction in primary energy consumption by achieving an efficiency rate of 50% by 2050 (compared with 2008)

One major prerequisite of the energy transition is the accelerated extension of the power grid. The existing power grid has been dominated by structures of power generation and consumption that have grown over time and that were designed for large-scale power plants. However, increasing generation from decentralized and distributed renewable sources requires a new form of network system. Speedy, efficient, and socially acceptable infrastructure planning is therefore a key element in facilitating the energy transition. A well-developed power grid will have the additional benefit of making power supplies more reliable because cross-border exchanges based on renewable forms of energy will increase the resilience of the German energy mix.

Due to the requirements imposed by European law on planning processes and public participation for high-voltage lines, which are

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not very detailed, it is worth taking a look at national implementation. Germany is a worthy case study because network expansion is being seriously promoted there, and it has been the aim of national lawmakers to improve public engagement. The development of a trans-European energy infrastructure is also being encouraged at the European level. However, the public is quite unaware of these processes and is largely uninvolved.

Here we focus on how these infrastructure planning processes are organized and how they put the responses to the challenges posed by inclusive governance into practice. The paper brings together legal expertise on infrastructure planning law with a social science perspective on deliberative decision-making and inclusive governance. The paper draws on methodological aspects from the International Risk Governance Council's Risk Governance Framework that offers an innovative approach to discursive public participation and stakeholder involvement. The German and the European legal planning system for electricity grid expansion are analyzed against this backdrop.

## 2. Challenges posed by the task of governing energy transitions

The transition from the use of fossil fuels to renewable forms of energy for the generation of electricity, for heating, and for mobility is one of the major challenges of our time. The challenges posed by infrastructure and technology are further aggravated by the social challenges. On the one hand, citizens are disenchanted with politics, causing public protests against infrastructure projects. Furthermore, the NIMBY principle (Not in my back yard!) is often mentioned as a stumbling block to achieving efficient infrastructure planning. On the other hand, research has shown that social acceptance is the result of a complex interplay of contextual factors (Zoellner et al., 2008a, 2008b). Thus, the fact that a decision is the outcome of a legitimate governance process is itself not sufficient for many to accept it. This holds especially true for infrastructure planning processes in the context of the German energy transition. Public protest is often the result.

In general, public protest is characterized by the following (Brettschneider, 2013; Walter, 2013). First, citizens are expected to accept a deterioration in their living situation as part of a change creating alleged benefits for the community. With regards to the extension of the German power grid, this pertains to aesthetic changes in landscape, potentially adverse health effects, and a potential deterioration in property value. Second, even the alleged benefit to the community is a matter of controversy. Third, citizens directly affected by infrastructure projects often perceive the decision-making process as being intransparent, inscrutable, or even corrupt. The perceived intransparency is in turn associated with the complexity of governance processes. An essential feature of the relationship between citizens and the state pertains to the growing gap between legality and perceived legitimacy. Even if infrastructure projects such as high-voltage transmission lines meet all legal requirements, the complexity of the processes may overwhelm the affected citizens, leading them to feel left out and to be skeptical of the claimed benefit to the public (Renn et al., 2014).

As a consequence, the crucial question for any governance process is how to overcome these problems and create a constructive atmosphere for making decisions and planning with regard to infrastructure issues. Empirical research has shown that people are positively inclined towards new technological infrastructures if the social and individual benefits of the project can be identified. This cognitive insight exerts a positive influence on the acceptance of infrastructure projects. Another crucial factor is the level of perceived personal control and agency. Individuals tend to be averse to changes in technological infrastructure if they

perceive a loss of personal control. Furthermore, acceptance of changes in an infrastructure increases if citizens are involved in the planning process. The legal decision-making process for infrastructure planning supports public engagement. Research investigating the criteria for successful public engagement indicates that involvement at an early stage and continuous participation in the governance process prove most promising (Molinengo and Danelzik, 2016; Richter et al., 2016; Schröter et al., 2016). This dilemma often strikes in infrastructure planning processes that are intended to accelerate planning decisions besides promoting participation.

All of these issues apply not only to the national scale of infrastructure planning but also to the European one. The specific conditions in Germany, which is a small but densely populated industrialized country that relies on imported energy for its economic development, make it highly dependent on an integrated European power grid. Germany is furthermore in the core of Europe and plays an important role for transnational power grids. Governance of Germany's energy infrastructure can therefore only be conceptualized within its European context. In the following sections, we will introduce the concept of inclusive governance because it offers a coherent yet flexible decision-making framework for tackling the governance challenges posed by technological risks such as that of the energy transition.

### 2.1. Inclusive governance

Each decision-making process must deal with two major challenges. On the one hand, what and whom to include (inclusion), and on the other, what and how to select (closure). Inclusion and closure are therefore the two essential parts of any decision- or policy-making activity (Hajer and Wagenaar, 2003; Stirling, 2005). Inclusive governance is based on the assumption that all stakeholders have something to contribute to the process of risk governance and that communication and the mutual exchange of ideas, assessments, and evaluations improve final decisions rather than impeding the decision-making process or compromising the quality of scientific input and the legitimacy of legal requirements (Klinke and Renn, 2012; Renn, 2004; Webler, 1999). Inclusive governance also implies that collectively binding decision-making cannot be confined to governments alone. Rather it involves the four central actors in modern plural societies, namely governments, economic players, scientists, and civil society organizations (Renn, 2008).

### 2.2. The IRGC risk governance framework

In the 2005 White Paper on Risk Governance, the International Risk Governance Council (IRGC) put forward an innovative integrative model of inclusive governance which harmonizes existing risk governance approaches. The IRGC Risk Governance Framework (IRGC RGF; Fig. 1) offers a framework that deals with the challenges of inclusion and closure in a coherent way, which includes all four central actors of society. It comprises analytic research on governance structures as well as normative advice to improve governance practice. The IRGC RGF serves two purposes. First, it conceptualizes good risk governance of policy issues. Second, it offers a framework for the coherent analysis of risk governance processes. The Framework consists of four consecutive steps: pre-assessment, risk appraisal, tolerability and acceptability judgment, and risk management. Risk communication and participation run parallel to these phases. Due to the cyclical nature of the Risk Governance Framework, constant feedback between the phases is assured.

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