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**Energy Transformation and Planning Conflicts:  
How to achieve the Transformation towards Renewable Energies  
in a Conflicting Environment?**

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**Abstract**

Against the background of climate change many countries, regions and communities have set up ambitious agendas regarding a shift from fossil fuels to renewable energies. In this transformation process several questions and challenges have shown up touching land use and spatial planning. Large-scale renewable energy projects like wind parks, solar fields or power lines cause complex land use conflicts that are difficult to handle with existing planning routines. Against the background of the ambitious goals of climate policies and corresponding European and national infrastructure programs regarding renewable energies these conflicts are even expected to further increase in the future.

In consequence achieving the climate mitigation agendas could be threatened if there are – besides existing formal procedures of coordination – no additional and innovative ways of conflict resolution. How could those solutions look like? How to solve multi-level conflict settings where different rationalities of the involved levels seem to be antagonistic? How to handle local or individual concernment versus abstract societal necessities? How to deal with complex planning processes? How to justify severe interventions into landscape or resident population's quality of life against the background of the uncertainty of climate change data? Which new ways of organizing planning processes might be possible? How do they fit into the legal setting of planning law? And how can they meet people's rising skepticism against big infrastructure projects that can be found in many countries?

From a German point of view the paper describes the problem, structures the conflict setting and deduces applicable conflict resolution strategies against different theoretical backgrounds. The topic is tackled regarding earlier findings on environmental conflict

resolution and aims at identifying specific characteristics of current conflicts due to energy transformation. The paper discusses formal as well as informal aspects of adjusting planning processes, including elements of communicative planning in formal and informal planning processes on the regional and local level.

The methodological basis of the paper is a literature review and experts interviews. Furthermore, the author is involved in different expert panels addressing the topic in research as well as in policy advice.

**Keywords:**

climate change, transformation, renewable energies, land use conflicts, conflict resolution

**1. Problem and Background**

Following the German federal government's Energy Concept of 2010 the share of renewable energy regarding the gross energy consumption is intended to increase to 30 % in 2030 and 60% in 2050, the portion of generation of electricity of the gross energy consumption shall rise to 50% by 2030 and 65% by 2050 (Bundesregierung 2010: 4f.). Comparable goals exist on the European level. The EU-directive on renewable energy sets binding targets for all EU-Member States, such that the EU will reach a 20% share of energy from renewable sources by 2020 and a 10% share of renewable energy specifically in the transport sector (EU Commission 2009).

Against the background of these political goals it becomes apparent that the extension of renewable energies will cause an increasing range of land use conflicts (Pfeil, Töpfer 2011). On the one hand there are conflicts around punctual energy infrastructure like wind energy plants, wind-farms, large scale solar fields or extensive biogas plants. On the other hands linear infrastructures like power lines are of interest including an even more complex conflict setting because of their far reaching spacious extension. In particular on the European level the question of linear infrastructures arises to connect water energy resources in Scandinavia or solar potentials in the southern EU Member States with the other energy consuming member states. The EU commission has underlined this challenge with its current multi-annual budget for 2014-2020 including infrastructure investments for Trans-European Networks (TEN), amongst others energy: "The energy sector can look forward to €9.1 billion being invested in trans-European infrastructure, helping to meet the EU 2020 energy and climate objectives. (...) The internal market for energy will be further developed through better interconnections, leading to security of supply and the possibility to transport renewable energy in a cost effective manner across the EU. (...) The money from Connecting Europe will act as a leverage for more funding from other private and public investors" (EU 2011).

The pressure of successfully implementing the energy turnaround leads to requests from politics and administration to connect the ambitious aims with more efficient planning processes. In particular they wish a speeding up of the implementation and fear that pro-

tests could become a severe restriction. For example, EU-commissioner Oettinger claimed that three years should be enough for planning and permitting a project whereas it can take up to 15 years nowadays. This claim for acceleration stands in contrast to latest public protests against big infrastructure projects that have been manifold regarding transportation, e.g. the enlargement of airports or the building of new rail-tracks, but also energy infrastructure. In Germany the notion of the “Wutbürger” has become the “word of the year 2011”, describing angry or furious citizens whose protest against infrastructure projects is decidedly and well organized. How realistic can claims for acceleration be if they are counteracted by a new public self-confidence of opposing top down decisions?

## **2. Conflict Structure in Large-scale Renewable Energy Projects**

What are specific characteristics of conflicts regarding energy infrastructure that are different from familiar land use conflicts? (vgl. Glasl 2010, Schiller 2009) On the one hand conflicts about energy infrastructure are comparable to other land use topics that deal with change or intervention into existing structures. They are mainly interest conflicts concerning a change for the worse from the point of view of affected communities, land-owners, citizens or institutions. In the case of the energy grid there is another conflict layer questioning if those projects are necessary at all and if they could be substituted by intelligent energy grids operating on a decentralized basis.

On the local level there are multiple critical arguments with regard to energy projects. For example, concerning high voltage transmission lines power health impacts of electro-magnetic fields or the impact on landscape and nature or forests are questioned. In this respect the possibility of under-grounding cables is discussed, but this solution can increase the costs massively. Quite often those aspects are criticized as NIMBY behavior (Not in My Backyard), meaning that affected individuals refuse to accept any change.

In Germany for some decades energy infrastructure has been a main political battlefield because of the severe conflict about nuclear energy. Environmentalists have been opponents of nuclear energy and claimed for alternative solutions. Now, the energy turnaround towards renewable energies sometimes leads to a complex conflict constellation. Whereas on the federal level environmental NGOs plead for the extension of renewable energies they can become opponents against infrastructure projects on the local level. This makes the conflict structure quite complicated, accustomed constellations have to be reconsidered.

Furthermore, the economic side of renewable energies leads to new actors. Whereas energy provision for a long time has been a field of monopolistic resp. oligarchic semi-public business structures renewable energies have opened up new business fields for small scale energy producers or providers. In consequence, these new actors show up in the conflict pushing the installation of energy infrastructure. If they are integrated in the community or region, e.g. as citizen-energy plant or local provider, this might allow other compromises than in the case of anonymous investors coming from outside.

The whole discussion about the extension of renewable energies is overlaid by the basic dispute about the necessity of the energy turnaround and skepticism resp. uncertainty of the evidence of climate change. If local politicians or citizens are not convinced that climate change really happens or will affect them they will hardly be willing to accept disadvantages for their property or quality of life. A bit similar is the affect of the time-dimension of climate change. If the risks of climate change might show up not earlier than in 50, 70 or 100 years many affected actors do not see the need for a compromise. Politicians fear to lose coming elections, and local people are afraid of suffering the loss of quality of life.

In the field of energy infrastructures another aspect can become important for conflict resolution. Energy planning is traditionally a technically oriented domain characterized by an engineering rationality. Involved experts are mostly socialized professionally in an engineering community that is used to identify the best solution from a technical point of view. From this respect, citizen protest appears to be disturbing and obstructing to select the preferred solution. This specific self-understanding of energy planning can restrict achieving a compromise between different conflict actors.

### **3. Conflict resolution strategies**

Conflict resolution in the field of energy infrastructures includes approaches regarding existing formal regulations as well as additional informal procedures and instruments. In the following in particular informal approaches and their linkage to formal procedures are tackled.

The EU Commission's goal of shortening the processes of planning and permitting energy infrastructure, in particular the construction of the European network of power lines correlates with many actors' aims of successfully proceeding with the energy turnaround. But how can this ambitious goal be reached? – Concerning planning processes and administrative routines the past decades have been characterized by a “communicative turn in planning” (Fischer, Forester 1993, Healey 1992, 1996) underlining that hierarchical steering modes have to be reconsidered to include citizens' expectation of been able to participate and influence decision-making processes (critical Tewdwr-Jones, Allemendinger 1998)

In recent years in the field of large scale infrastructure projects attempts of including communicative elements of conflict resolution have indicated potentials and restrictions of such approaches. In particular in airport-projects, e.g. in Berlin and Frankfurt, mediators have been hired to moderate between conflicting parties in addition to the formal planning process. In some respects these efforts have shown good results as they have brought together many different actors and their interests. But they failed in reaching a binding compromise because in Frankfurt the political decision making process did not fully take over the results of the mediation and in Berlin later changes of the project annoyed the affected citizens. Nevertheless, both projects have proven that mediation has the potential to contribute positively to the planning process. If the politicians would respect the results more consequently mediation could function more positively.

Another prominent attempt of communicative conflict resolution has been the “Schlichtung” in the case “Stuttgart 21”, the rebuilding of the Stuttgart railway station. Here, similar to a familiar procedure of conflict resolution in tariff conflicts, a mediator was involved as well. His competency was to work out a sort of dictum after having heard all arguments. Although the procedure that was even shown in TV offered a high degree of transparency and included a lot of conflicting parties the results did not lead to a real appeasement. On the one hand the project executing organization, here the railway company German Railway DB, did not really accept the dictum, on the other hand some of the citizen groups had left the process before its end. Nevertheless, Stuttgart 21 initiated a lot of discussion of new forms of conflict resolution besides the existing formal regulations in planning law (Böhm 2011; Selle 2011, Wulfhorst 2011).

Concerning energy infrastructure there have been similar attempts of conflict resolution by negotiation resp. mediation in the U.S.A. (Raab, Susskind 2009). Here, against a different formal background compared to German law allowing the closure of a mediation process with a binding agreement of all participating actors, mediation has already been discussed for cases of large-scale energy infrastructure. Like in Europe the spatial connection of energy production and energy consumption by building new power lines has been the initial cause: “The best solar energy resources in the U.S. are similarly located in the less populated Southwestern states. In the Northeast, there is also extensive debate about whether to build new transmission lines to bring renewable energy from Eastern Canada and Northern New England to population centers in Southern New England and New York City” (Raab, Susskind 2009: 1).

In the U.S. routines of conflict resolution have been evolved in different fields of large scale infrastructure. For example, the U.S. Federal Energy Regulatory Commission’s (FERC) has implemented an ambitious integrative stakeholder involvement model. This procedure has originally been developed for certifying natural gas pipelines. A main element of the so called Integrated Licensing Process (ILP) is a “pre-filing environmental review process” which is intended to “facilitate maximum participation from all interested entities and individuals and to assist an applicant in compiling the information needed to file a complete application”. In addition, each applicant has to file a “Participation Plan” for the further process (FERC 2006). In some cases the conflict parties can already reach an agreement on their own which is then checked by FERC whether it can be accepted or not. For more conflictual cases FERC offers another procedure, the so called Alternative License Process (ALP). This approach was developed against the background of conflicts in hydropower projects including FERC staff directly participating in the conflict resolution process (Raab, Susskind 2009: 6f.).

Nevertheless, these attempts have also been criticized as being not sufficient enough. Grounded on scientific and practical experiences, Raab and Susskind (2009: 9) propose principles for planning and implementing large-scale energy infrastructure projects addressing the procedural and communicative dimension (see table 1).

Table 1: Six Principles for Using Consensus Building to Improve the Licensing and Siting of Large-Scale Energy Infrastructure (source: Raab, Susskind 2009: 9)

**Six Principles for Using Consensus Building to Improve the Licensing and Siting of Large-Scale Energy Infrastructure**

1. Initiate stakeholder involvement process as early as possible and set realistic but firm timetables
2. Include broad representation of legitimate stakeholder groups (including government agencies, and – for site-specific projects – citizen groups)
3. Seek consensus, and consider using professional neutrals to facilitate collaborative decision-making
4. Do not exclude contentious issues, instead seek ways to address negative aspects of any proposal (including compensation, contingent agreements)
5. Consider incorporating alternative siting processes (such as voluntary processes, pre-approval, competitive solicitations)
6. Structure stakeholder involvement processes to supplement but not supplant formal back-stop process, while modifying formal processes to better accommodate consensus building opportunities.

The principles underline the importance of early and broad participation, the inclusion of external neutrals as facilitators, consensus orientation and thus collaborative decision making as well as the necessary nexus of informal and formal processes (see also MacCallum 2009).

Ideas from the U.S. had been impulses for the German discussion earlier before, when forms of communicative conflict resolution and mediation in particular were discussed in the 1990s. The Harvard Negotiation Program was a prominent brain-pool for innovative approaches. After a period of optimism the implementation in Germany stagnated because of different formal regulations. Most notably the problem that mediation agreements cannot be binding but have always to be qualified by the responsible parliament hindered a successful implementation of mediation in planning cases. Nevertheless there are several fields of local and regional planning as well as project development where communicative forms of conflict moderation have been introduced (e.g. Siegel 2002, Battis 2011, Pitschas 2011).

#### **4. Future Research**

Considering the challenges of the energy transformation on the one hand and the restrictions of formal procedures of planning and implementing the necessary energy infrastructure on the other hand it becomes obvious that additional approaches of organizing the relevant processes could get decisive importance for coming discussions. Nevertheless, the description of latest references from Germany and the U.S. has shown that implementing communicative forms of conflict resolution poses a lot of questions in detail. Future research might be able to contribute to those questions.

One aspect of communicative conflict resolution is the point of time when to start with a specific form of participation or negotiation. Raab and Susskind claim to start as early as possible, but what does this mean in the formal process. Is it sufficient to start when the applicant for a project informs the administration or should he even start before this when he considers a new project internally? This might sound unrealistic but at the time an application is submitted to the administration main decisions have already been taken by the institution running the project. This problem is underlined by the saying “that participation always comes too late”.

Who are the actors of a conflict resolution process? - Raab and Susskind propose to include stakeholders as broad as possible, sometimes the range is limited to the affected actors. What are the advantages and disadvantages of those alternatives? Does a broad inclusion restrict the effectiveness of the procedure or are there instruments available that make it possible to handle a big group of actors in a communicative negotiation process? Is a restricted participation critical because of a lack of legitimization of the final agreement?

Another research topic is the nexus between informal and formal instruments. Serious participation makes sense only if its results have a chance to be included into the formal decision making process. How this can be achieved in a most productive way?

Some specific questions arise from climate change as the framing topic of the energy turnaround. Because of the far reaching time-horizon of climate change and its impacts on local stakeholders the NIMBY-phenomenon might be more relevant than in other planning conflicts. The conflict resolution needs to give answers how to tackle this problem. Another point is the uncertainty about climate change. This can make it even more difficult to convince opponents of the necessity of a project.

Another aspect has already been mentioned above but should be explored in more detail, the self-understanding of technical oriented energy planning and its comparability with social processes like conflict-resolution. This aspect addresses the social-ecological dimension of energy transformation which has hardly been discussed to date. The construction of power lines, wind-farms or solar-fields is still mainly seen as a technical and economical question. For the transportation sector “Stuttgart 21” has shown what results such ignorance can have, for the energy turnaround towards renewable energies it would be desirable to prevent this escalation.

Finally, this paper has discussed the challenges of energy transformation mainly against the background of the German political discussion and its administrative structures. Looking at Europe it will be necessary to differentiate and include the specific planning cultures of the EU Member States (Knieling, Othengrafen 2009). Such a discussion makes the research even more promising because it allows conceptualizing different models of conflict-resolution each depending on the respective national specifics.

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