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## **Conflicts and social impacts: EIA of renewable energy**

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**Abstract:** The transition to renewable energy is currently in many places challenged by conflicts over specific projects. For example siting of onshore wind turbines often causes conflicts with local communities, sometimes leading to abandonment of the project or plan. This paper presents an analysis of such conflicts, and the role social impacts play. The paper analyses in depth four cases of renewable energy projects, utilizing a conceptualization of conflict constituted by three elements: Attitude, behavior and contradictions. Through analysis of EIA reports and hearing responses as well as interviews, the paper digs deeper to nuance what constitutes the conflicts and what role social impacts play.

### **Introduction**

In later years there have been many examples, where implementation of renewable energy (RE) projects lead to conflicts with local residents. Notably the erection of wind turbines has been known to cause conflicts with local communities (see e.g. Colvin, Witt and Lacey 2016; Spiess et al. 2015; Otto and Leibenath 2014), but also for example extensions of the electricity grid can be problematic (see e.g. Neukirch 2016; Giron 2014). In many jurisdictions, several types of renewable energy projects are subject to an EIA, and potential for conflict is often high during the EIA stage, because it creates an opportunity for stakeholder interactions (Prenzel and Vanclay 2014; Senécal et al. 1999). In some cases, these conflicts end up standing in the way of implementing projects and plans, causing a problem with the wish for a transition towards renewable energy.

A previous study has been made indicating that social consequences play an important part in the conflicts (Larsen et al. 2015). Based on this, this paper seeks to illuminate what constitutes the conflicts regarding renewable energy projects. For the purpose of this paper, social impacts are defined in accordance with the international best practice principles on social impact assessment as changes to one or more of the following: People's way of life, their culture, their community, their political systems, their environment, their health and wellbeing, their personal and property rights, and their fears and aspirations. (Vanclay 2003) The definition is used as the basis for categories of social impacts.

### **Conceptual framework**

The conceptual framework for this paper is based on the work of Norwegian sociologist Johan Galtung. He describes conflict as a triadic construction, where contradictions between the actors over the issue, attitudes among the actors towards the issue, and behaviour of the actors in the process are equally weighed parts of the understanding of a conflict. This model takes a point of departure in the actors involved in the conflict, and promotes that the conflict arena is described, and the conflict defined, based on mapping these three features (Galtung 1998). Galtung refers to his model as the ABC triangle, where "A stand for attitudes/assumptions, B for behaviour, and C for the contradictions constituting the conflict (Galtung 1998: 3). Galtung describes C as the root of conflict, but also emphasise that as the conflict runs its course, A and B can start taking "ugly shapes". According to Galtung, this can result in A and B constituting the meta conflict, understood as the main conflict or discrepancy, as an overlay conflict after the root conflict. The conflict analysis presented in the following sections of this article, is based on the understanding of conflicts introduced by Galtung. This article is also based on the understanding, that conflicts per definition are genuine and present, if just one party perceives them as real. This means, that emotional factors and conditions expressed by

citizens, that cannot be backed up with facts, are recognised as subjects of importance for citizens, even if they do not translate into active resistance or articulated opposition.

The conflict analysis is focussed on identifying the conflict, as perceived by affected citizens in local communities subject to planning of new RE-projects. The aim is to explore if conflicts are present and what causes them and to do this, the conflict arena constituted by A, B and C is mapped. In the following section we describe how data is collected, and how it feeds into the analysis of the cases, based on the presented framework.

## Methodology

This paper is based on a document study of EIA reports for four renewable energy projects and corresponding hearing statements, combined with interviews with citizens impacted by the projects.

The cases investigated in the document study are presented in table 1.

Title	Project type	Year of EIA publication
Sejrø Bugt in-shore wind turbines	In-shore wind turbines	2015
Wind turbines at Ulvemose og Bækhedede Plantage	On-shore wind turbines	2015
NGF Nature Energy Månsson A/S	Biogas plant	2014
Photovoltaic power plant at Evetofte	Photovoltaic power plant	2015

Table 1 Overview of RE projects included in the document study

The cases were chosen on the basis of the criteria that they are projects with conflict that can be analysed, that the EIA is not older than 2014, and that they represent different types of RE-projects.

For each case an analysis in three steps was carried out:

1. The EIA-reports were reviewed identifying which social impacts are included.
2. Hearing statements from citizens were reviewed identifying which social impacts concern the citizens.
3. The two results were compared identifying contradictions between what concerns the citizens and what is included in the EIA report, and thus the analyses and discussions.

The purpose of the interviews was to investigate attitudes towards the project in question, to nuance our understanding of citizens' perception of the projects and the reasoning behind their opposition and reaction. Three RE projects were chosen for analysis, as shown in table 2.

Title	Project type	Number of interviews	Time and place
Wind turbines at Ulvemose og Bækhedede Plantage (2015)	On-shore wind turbines	3 (6 participants)	22. september 2016, Varde Municipality
NGF Nature Energy Månsson A/S (2014)	Biogas plant	3 (8 participants)	22. september 2016, Brande Municipality
Photovoltaic power plant at Lerchenborg (2014)	Photovoltaic power plant	2 (2 participants)	3. oktober 2016, Kalundborg Municipality

Table 2 Overview of RE project and interviews conducted

Here, the cases were chosen on the basis of the criteria that they are projects with conflict, that the EIA is not older than 2014, that they represent different types of RE-projects, and that they have a manageable size. For each RE project, interviews were arranged with randomly selected residents, living within one kilometre from the planned facility. Eight interviews were setup, with a total number of sixteen residents participating, as some respondents invited partners, family and neighbours to join. The interviews were semi-structured, and the participants were encouraged to tell their story.

## Results

Here the results of the analysis are presented following the framework of attitudes, behavior and contradictions

### *Attitudes*

In terms of attitudes, the hearing statements in general, express opposition to the projects. Most hearing statements express a wish for relocation of the project. This is especially pronounced in the projects involving wind turbines, where many statements propose to move the turbines offshore. In a number of statements, there is an expression of support for implementation of RE generally, despite the negative attitudes concerning the specific project. In contrast, many statements question the feasibility of the projects, and weigh the pros and cons of the projects on a more overall and holistic scale. For example: *We have not heard or read any argument, regarding new jobs, revenue or environmental improvements, that is anywhere close to justify such a severe degradation of nature, environment and quality of life for so many people.* (Hearing statement: Sejerø Bugt in-shore wind turbines, own translation from Danish) The project concerning a photovoltaic power plant at Evetofte stands out among the projects, as relatively many citizens do not express attitudes specifically against the project. They are more focussed on proposing alternatives, for example regarding minor local re-locations or fencing.

### *Behaviour*

In the hearing statements and interviews, issues related to the perceived behaviour of the authorities and proponents in the process and dialogue regarding the RE projects are raised. The issues can be grouped and described as follows:

- Mistrust towards independency of EIA practitioners and content of EIA-reports: The locals point to specific mistakes and incongruences in the EIA-reports, which are considered scrambling the perception of the 'real' impacts. Such issues, together with the fact that the EIA-report is paid for by the proponent, leads to a mistrust of the EIA-report, which is sometimes seen as biased.
- In-transparency in RE-planning processes: Many locals perceive a lack of transparency in the process, for instance in the form of lacking documentation, and limitations when they have requested access to records. Several citizens have also experienced not being informed early on in the process. Several citizens also make the point that it can be difficult to keep up with the development in the projects, for example when changes to the projects are continuously made through the EIA-process.
- Use of limited resources: The citizens also express that they find it very demanding for them to follow the sometimes year-long planning processes, and that they spend much time and many resources on this. It is also clear from hearing statements and interviews that some citizens have hired lawyers and draw on external expertise to keep up with the process and write statements. Several citizens point to the how the insecurity for them and their future is a heavy burden through the long processes.
- Allocation of costs and benefits and unequal and inappropriate distribution of compensation: The interviews point to how disagreements about the RE-projects divide the local communities. In many hearing statements and in interviews people point to issues related to compensation, who gets what and why, and how these issues create division and conflict in the local community. Citizens also question whether the compensation is sufficient and whether the right people (most affected) can get compensation.
- Perceived lack of democracy and influence on decision-making: Several citizens perceive that the decision regarding the RE-projects was taken before they were involved, making their opinions insignificant. Also they criticise a perceived lack of response to their enquiries. Citizens to varying

degrees criticise the role of the municipalities as not living up to their own stated goals or plans, and siding with the proponent rather than their citizens. Thus the citizens feel that the municipalities place more weight on the short-term economic benefits from the projects rather than protecting their citizens.

The other angle on behaviour is that of the citizens. Here the affected citizens engage to varying degrees in making hearing statements, talking together in the local community, arranging local meetings, organising local public resistance, seeking access to records, participating in official public meetings, participating in town council meetings, organising petitions, filing complaints to the appeals board, asking the municipality officials questions, participating in field trips to similar facilities, contacting neighbours to similar facilities, talking to local media, meeting with proponent and politicians, contacting industrial actors to pressure the municipality and cooperating with national resistance organisations.

### Contradictions

A main part of the conflict, according to the perception of the residents, is that their main concerns regarding social issues are not addressed properly during EIA or in the planning processes in general. They find it unfair that local communities are exposed to negative impacts, because a private proponent is establishing a facility and will make money from it. As one stated in a hearing statement:

*...that you can be allowed to put a whole family in that situation. Where we might have to leave our home to sit and rot in a small apartment, and never again be free of debt, while our house rots. All because a private individual choses 'well it suits me to locate it here'.* (Interview: NGF Nature Energy Månsson A/S)

Regarding the concerns about social impacts, residents are generally more nuanced, specific and detailed in their concerns than what is captured by the EIA reports. And they generally worry about other impacts, than those addressed in the EIA reports. An overview of the contradictions between the content of the analysed EIA reports, and what is expressed in the related hearing statements and interviews, is presented in Table 3.

Social issue	Contradictions	Elaboration and examples
<b>People's way of life</b>	There is a clear contradiction as the EIA reports focus on officially appointed recreational assets, while the statements of citizens express other broader concerns. The statements amongst other address issues, which are more intangible than those assessed in the EIA reports.	For example several citizens mention the use of outdoor spaces around their homes: <i>Our little paradise is completely shattered. Never again will we be able to sit and enjoy the morning sun in the courtyard.</i> (Hearing statement: Wind turbines at Ulvemoose and Bækhede Plantage)
<b>Culture</b>	No contradiction	Culture is not pronounced as a parameter in either the EIA reports or the hearing statements, and thus is not identified as an issue of contradiction.
<b>Community</b>	There is contradiction, concerning the nuances and understanding of the issues addressed, and the implications of impacts. While the EIA reports generally cover many issues addressed by the citizens, the citizens address a more specific and nuanced perception of potential impacts, which are not covered in the EIA reports.	For example regarding jobs, the citizens are concerned not only about new job opportunities at the facility, which is what the EIA reports mainly include, but about the affect on local development in general, including increased risk of de-population: <i>We are afraid that the area will loose jobs in the longer term, because these businesses [other local businesses ed.] do not want to create new jobs.</i> (Hearing statement: NGF Nature Energy Månsson A/S)
<b>Political systems</b>	There is no contradiction in general, though a few citizens point to the issue of non-local management and control of the facility and land passing, which is not being addressed in the EIA reports.	There is in general concordance between statements and content of EIA-reports. The citizens do not express concerns of the RE-project impacting on local democracies.
<b>Environment</b>	No contradiction	There is a large degree of concordance between the concerns of the citizens, and what is covered in the EIA reports.
<b>Health and wellbeing</b>	Concerning the photovoltaic facilities and biogas plant there are no contradictions, as	The EIA reports for the wind turbine projects, are often focussed on analysing environmental

	health impacts are not emphasised by citizens or pronounced in the EIA-reports. However, in the cases of wind turbine projects the EIA reports do not satisfactorily cover the issues raised by the citizens, and thus contradictions are present.	impacts, and whether they comply with limit values. In contrast, the citizens express greater concerns about influences of noise on the level of stress, ability to learn, diabetes and more.
<b>Personal and property rights</b>	There are contradiction related to the EIA-reports narrow focus on impacts on property value and value of agricultural land, while citizens express a broader concern about property values and also raise other issues.	The citizens in all cases express a broader concern about property values, sales period, and the risk of unsalable properties. The citizens also raise issues regarding livelihoods and possibilities to take up loans if negative impacts occur in the community. These issues are not addressed in the EIA reports  <i>If this becomes a reality, we will not be able to live here, but our house is worth nothing. So what do you do? What do we do? We cannot afford to move, but because of the impacts, we cannot live here either. (Interview: NGF Nature Energy Månsson A/S)</i>
<b>Fears and aspirations</b>	The EIA reports only address issues of road safety, which is in accordance with concerns expressed by citizens. However, the citizens also emphasise issues related to their potential futures, and issues related to cumulative impacts, which are not addressed in the EIA reports.	Citizens refer to impacts on local development and individual economies, as well as to concerns about the future of children and coming generations in the area, and what will be handed down to them. The citizens further emphasise worries about cumulative impacts. They are for example concerned that the projects will lead to development of further industrial facilities, when the area is first considered appropriate for this type of development:  <i>And what is next? Because here in Sejerøbugten nature is no longer pristine, there are wind turbines here. So it has become a place where other infrastructure and plants can be placed. (Hearing statement: In-shore wind turbines as Sejerø Bugt)</i>

Table 3 Comparative analysis of content in the EIA reports and concerns of the citizens

The disagreements, about what is important and should be included in the EIA report and thus the decision making process, are part of the basis for the conflict, in accordance with the conceptual framework.

### Conclusion

The results presented in this paper shows what are the main parts of the conflict concerning the analysed RE-projects:

- Attitudes: The attitudes of the citizens are basically that they are against the projects either completely or in their present form and location.
- Behaviour: The perceived behaviour of the authorities and proponents and its repercussions regarding mistrust towards independency of EIA practitioners and EIA-reports, in-transparency in RE-planning processes, use of limited resources, allocation of costs and benefits and unequal and inappropriate distribution of compensation, lack of democracy and influence on decision-making.
- Contradictions: There are contradictions between which social impacts concern the citizens and which are dealt with in the EIA-reports, and also in how much detail they are dealt with.

This underpins the assumption that social impacts, and how they are dealt with the EIA-process, are important to the conflicts concerning RE-projects. It is however an important conclusion, that the citizens emphasise both the contradictions and the behaviour. This means that solely focussing on integrating social impacts in the EIA report - identifying, assessing and mitigating them - will not be enough to respond to the conflicts, a focus is also needed on the process and the dialogue with citizens.

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