Report on compensation schemes and effectiveness in different countries (D6.2.1)

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Accelerating Low carboN Industrial Growth through CCUS

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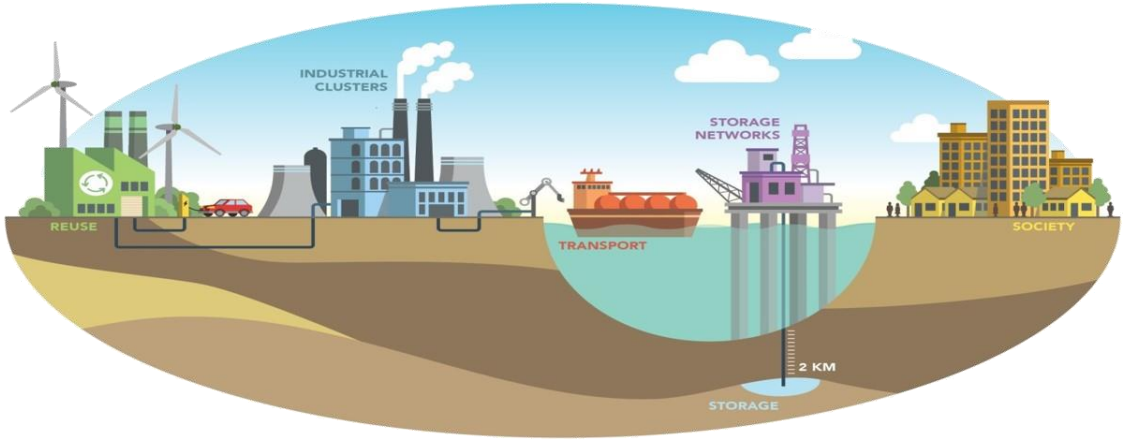

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Executive summary

Societal opposition has the potential to slow down the implementation of onshore and offshore CCUS activities. While there are different underlying reasons for opposition, a common perception is that the distribution of impacts from low carbon developments, such as CCUS, are not equal across society. Projects may lead to less public resistance if there is a balance between local benefits and perceived negative impacts. In Task 6.2 of ALIGN-CCUS we are looking into the role that offering host community compensation can play in this context. Compensation is a form of equity adjustment aimed at correcting imbalances between non-local benefits and local burdens associated with the siting of new or expanded facilities.

Task 6.2 consists of three subtasks: a desk-based review on compensation practices for subsurface activities, and energy and infrastructure developments in EU and non-EU countries (6.2.1); semi-structured interviews with relevant stakeholders (CCUS- and non-CCUS-related such as the energy, infrastructure, planning, and government sectors) in the Netherlands, United Kingdom and Romania to identify best practices and knowledge gaps with regard to compensation strategies (6.2.2); and quantitative studies (surveys, experiments) to test the effectiveness of different compensation schemes (6.2.3). This report concerns the first subtask (6.2.1) and provides a review of compensation practices and effectiveness in different countries.[1]

The review takes a two-part approach. First of all, we review the scientific literature on community compensation in the context of CCUS and other low carbon technologies (e.g. renewables, nuclear energy), subsurface activities (e.g. gas extraction) and land uses that impact local publics (e.g. landfills). This inclusive approach was taken as research on community compensation in the CCUS context is limited.

Second of all, we discuss current community compensation practices and policies in four different countries (the Netherlands, United Kingdom, Germany and Romania) taking the same inclusive approach. These current practices and policies are reviewed from 25 documents, consisting of reports and guidelines published by public sector actors (e.g. government), NGOs, or relevant commercial sectors (e.g. energy companies; consultancies advising the government).

The review of the scientific literature brought forward four key debates around community compensation:

1. Finding a 'fit' between the form of compensation and local needs and concerns;
2. Seeing community compensation as part of the public engagement process;
3. The institutionalization of community compensation;
4. Community compensation for onshore and offshore developments.

These debates were also reflected in the scoping review on current practices and policies. First of all, no documents were found on current community compensation practices and policies in the context of CCUS, and only limited information was found in the context of offshore developments. This reflects the relative infancy of community compensation measures in these fields. Second of all, it was found that different approaches were taken to decide who the relevant community is that should receive compensation (e.g. defined in terms of place, interest or impact), and what form of compensation they should receive (e.g. through a process of stakeholder consultation or legal requirements). Third of all, community compensation was used as both a standalone measure and as part of (various forms of) wider public engagement. Finally, the minority of current practices and policies concerned a form of institutionalized compensation, with the majority concerning voluntary measures.

[1] A scientific journal article about the review was written and submitted for publication in a high quality peer-reviewed journal (see ALIGN-CCUS D6.2.3), providing more context and in depth discussion of the results described in the present report. The journal article was accepted for publication in the International Journal of Greenhouse Gas Control in July 2020. The full text article can be accessed and downloaded for free (full open access) here: https://www.sciencedirect.com/science/article/pii/S1750583620305533. Supplementary material related to this article (i.e., Appendix A) can be found here https://doi.org/10.1016/j.ijggc.2020.103128.

Overall, by identifying key debates in the literature and discussing compensation practices in different countries the report comes to a set of lessons and knowledge gaps for community compensation in the context of CCUS. These findings can provide a useful tool for researchers in this field looking to close knowledge gaps as well as stakeholders (e.g. project developers; authorities) wanting to understand how to effectively make use of community compensation in the CCUS context.

Information requests

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1 Introduction

Fostering positive relationships with the local community remains a key challenge when it comes to the siting of low carbon developments (e.g. carbon capture utilisation and storage (CCUS); wind, solar, or nuclear energy; Aitken, 2010a). This report will focus on one approach which can be used to engage with local communities: **offering community compensation**, also referred to as community benefits or host fees.

"Host community compensation can be defined as a form of equity adjustment aimed at correcting imbalances between regional benefits and local burdens associated with the siting of new or expanded facilities" (p. 130; Ter Mors, Terwel & Daamen, 2012).

The distribution of impacts from low carbon developments is not equal across society, projects may lead to less public resistance if there is a balance between local benefits and perceived negative impacts (Cass, Walker & Devine-Wright, 2010, Cowell et al., 2012; Gregory, Kunreuther, Easterling & Richards, 1993; Himmelberger, Ratick & White, 1991; Kunreather, Fitzgerald & Aarts, 1993). Offering community compensation may be one way to achieve this balance.

Examples of community compensation include: improvement of local economy (e.g. employment), improvement of recreational amenities, a grant to the local government, payments to individual households, or setting up a community fund (Cass et al., 2010; Terwel & Ter Mors 2015; Ter Mors et al., 2012). Furthermore, the party offering community compensation (e.g. developers, government authorities) can have different motives for doing so, including but not limited to: fostering social acceptance, corporate social responsibility (i.e. being a good neighbour), compensating for impacts, mitigating potential problems, or providing rewards to the host community for accepting a facility (Ter Mors et al., 2012; Cass et al., 2010; Kojo & Richardson, 2014; Cowell et al., 2012).

Previous research on the use and effectiveness of community compensation has mostly been conducted in the context of wind energy, while less is known about the use of community compensation for other low carbon technologies. The focus throughout this report will be on community compensation in the context of a specific low carbon technology: carbon capture utilisation and storage (CCUS), which refers to the process of separating CO_2 from industrial or energy-related sources, recycling the CO_2 for utilization, (and/or) transporting the CO_2 to a storage location and long-term storage, isolated from the atmosphere (European Commission, 2018; GCCSI, 2015a;2015b; IPCC, 2005).

Effective public communication and engagement will be key for successful CCUS implementation (cf. Ashworth et al., 2012), and there is a need to further our understanding of the conditions under which community compensation may contribute to preventing or solving CCUS siting controversies (Ter Mors et al., 2012). This report will address this need by providing a literature review which will outline current key debates on community compensation in the scientific literature. This is followed by a discussion of current practices and guidelines (taken from, amongst others: government guidelines and good practice guides) regarding community compensation in four countries: the Netherlands, United Kingdom, Germany and Romania. These countries were selected as they are all part of WP6 of the ALIGN CCUS project. Apart from this research project perspective, these four countries are interesting case studies to look at and compare in terms of community compensation practices as they have differing policies (historical and current) on CCUS and vary in the extent to which attempts have been made to implement CCUS.

Overall, by identifying key debates in the literature and discussing compensation practices in different countries the report will come to a set of lessons and knowledge gaps for community compensation in the context of CCUS. These findings can provide a useful tool for researchers in this field looking to close knowledge gaps as well as stakeholders (e.g. project developers; authorities) wanting to understand how to effectively make use of community compensation in the CCUS context.

2 Literature review: Key debates on community compensation

Given the limited research on community compensation in the context of CCUS, the following literature review will also draw on literature regarding other low carbon technologies (e.g. renewables, nuclear energy), subsurface activities (e.g. gas extraction) and other land uses that impact local publics (e.g. landfills). Although each development presents a specific context there are parallels with CCUS as well; the perceived imbalance between (negative) local impacts and national or global benefits, mentioned at the start of this report, offers a challenge when it comes to public responses towards these technologies.

The four key debates on community compensation identified in the scientific literature on community compensation are listed in Figure 1.

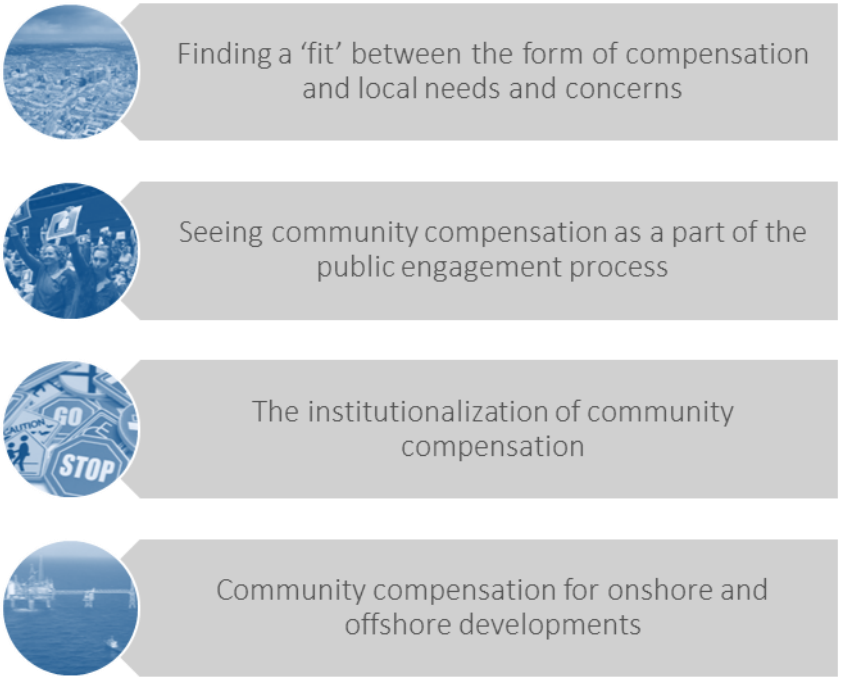

Figure 1. Key debates in the scientific literature.

2.1 Finding a 'fit' between the form of compensation and local needs and concerns

Previous research has indicated that the design and form of compensation offered to a community needs to fit with the local community's needs and concerns (Ashworth et al., 2012; Ter Mors et al., 2012). However, achieving this is not easy, there is a discussion around how to determine who the relevant community is and how their needs and concerns should be identified.

Relevant communities can be defined in terms of place, interest and impact (Bristow et al., 2012). Communities of place relate to communities in areas close to a development. Within communities of place there can be various communities of interest: there may be groups of people in favour or against the development, and there may be disagreement on whether – and which type – of community compensation is desired (see Figure 2 for an example). Defining relevant communities in terms of impact (i.e. who is affected by the development; Bristow et al., 2012) provides another challenge as a development can have many different impacts, ranging from purely aesthetic, to economic impacts (e.g. property values; tourism), health and safety. So, this approach leads to the question of which

impacts should count. As Cowell et al. (2012) state, when it comes to determining community compensation for the development of energy facilities there is little consensus on harm.

Communities of interest

A recent study among communities living near wind turbines suggests that people opposed to wind energy might be more interested in receiving compensation compared to people in favour of wind energy.

The study also found that those opposed and in favour of wind energy often had different reasons for preferring certain forms of (financial) compensation.

(Walker & Baxter, 2017)

Figure 2. An example of communities of interest

Following on from defining who the relevant community is, the next step is to decide how their needs and concerns should be identified. A number of recommendations are made in the literature.

First of all, it is important to take into account that a place, community or landscape can hold a lot of different values and meanings for people, and finding the right form of compensation to account for a (perceived) threat to these values can prove difficult. When something is seen to threaten what a place means this can lead to strong reactions (McLachlan, 2009). At the same time a development can also be seen to enhance rather than threaten local values (Devine-Wright, 2013; Whitmarsh et al., 2015). Previous experience (either positive or negative), or a local history, with particular industries could affect the meanings attached to a place. For instance, in a case study among farmers on CCS, familiarity with gas technology in the landscape (e.g. pipelines, gas wells), was cited as a reason for limited objection to a CCS development and a positive evaluation of compensation payments (Anderson, Schirmer & Abjorensen, 2012).

Second of all, for any new development there is a need for flexibility at different levels (i.e. different stakeholders) and stages (i.e. implementation, communication) to adjust to the social context (L'Orange Seigo et al., 2014). For instance, this flexibility takes the form of adjusting the project implementation strategy and framing of the project where needed in response to concerns raised by the local community (Ashworth et al., 2012). This relates closely to the third and final point.

Third of all, meaningful community discussion (before plans are finalized) should take place in order to identify local community compensation measures that are important and of value to local stakeholders (Ashworth et al., 2012). This could take the form of social site characterization (Brunsting et al., 2013), which involves investigating and monitoring local social circumstances in an area over a period of time. This allows for a better insight into the important stakeholders, interested parties and groups in the area, local issues and satisfaction with the area, how the community views itself, and what local residents find important. Processes such as these clearly place local communities at the centre of determining community compensation strategies, which takes us to another key debate in the literature which is discussed in the next section.

2.2 Seeing community compensation as part of the public engagement process

Public engagement includes measures ranging from providing information, education, consultation to deliberation (Whitmarsh et al., 2011). It is important to keep in mind that community compensation is only one aspect of public engagement, and without wider decision making opportunities it may do little for public acceptance (Aitken, 2010a). There is limited and conflicting empirical evidence that community compensation measures on their own can aid in reducing opposition and/or increase acceptance for new developments (Aitken, 2010b; Gallagher, Ferreira & Convery, 2008; Walker, Wiersma & Bailey, 2014). Any community compensation measure is likely to be evaluated by local publics within the wider context of the decision-making process around a development (Cass et al., 2010). We cannot separate people's perceptions of a community compensation measure from their perceptions regarding the fairness of the decision making processes, and feelings of trust placed in the developer (Aitken, 2010a). Therefore, effective community compensation measures should be part of wider community engagement processes. These community engagement 'packages' are likely to be more effective than stand-alone 'rewards' measures (Ter Mors et al., 2012).

There are some suggestions from the literature as to what such a 'package' approach might entail. In the CCUS context, it has been emphasized that in order to build support for a development, local communities should have **access to convincing explanations of the merits of CCUS and receive responses to public concerns from *trusted* sources** (Whitmarsh et al., 2011). Trust is highlighted here as this is a key issue: even developers that want to provide community compensation from genuine selfless intentions can find it difficult to gain the trust of a local community (Walker et al., 2014). Industry and government tend to score low on trustworthiness in a CCUS context, while researchers and NGOs are seen as more trustworthy (L'Orange Seigo et al., 2014). If developers partner with local communities and NGOs when communicating with the public this may help to build trust (Lofstedt, 2015; Ter Mors et al., 2010).

Although information provision may help in explaining the merits of a development and address some public concerns, decision-making processes are unlikely to be judged fairly if limited to information alone (Gross, 2007). Giving local communities a **genuine, meaningful voice during decision-making processes** is key (see Figure 3 for an example).

Meaningful voice: the Barendrecht case

During the planning phase of the CCS project in Barendrecht (NL) members of the public could voice concerns at different stages. Despite this, there was a general feeling that the government would continue with the project without taking any of these concerns into account.

These feelings were strengthened due to new regulations which increased the formal decision making power of the national government (relative to the local government).

In the end local people felt they had little influence on the final decisions regarding the CCS project.

(Terwel et al., 2012).

Figure 3. Meaningful voice: the Barendrecht case (Translated text on photo: CO_2 No, Stop Coal-fired power)

Community compensation is more likely to succeed in terms of getting local communities on board with the development if the host community has control in the decision-making process, rather than only being able to reject or

accept a compensation offer (Upham & Pérez, 2015). When not given this opportunity, people who might initially be willing to support the development may turn into objectors (Wolsink, 2007). It has been suggested that community compensation practices should be more formally regulated in order to facilitate fair decision-making processes and reduce public suspicions; this topic will be elaborated upon in the next section.

2.3 The institutionalization of community compensation

With a few exceptions, community compensation practices tend to be relatively ad hoc and lack an institutionalized approach (Aitken, 2010a; Bristow et al., 2012). This means that, in general, there is a lack of formal guidelines or structures in place dictating whether and in what format developers of low carbon technologies, subsurface activities and other land uses should offer community compensation. This lack of an institutionalized approach to community compensation has downsides, but also offers benefits.

2.3.1 Downsides of non-institutionalized community compensation

Companies might be more hesitant to discuss community compensation measures in detail when there are no formal guidelines in place. As a result, local communities receive limited information about the form and amount of community compensation which can have a negative impact on perceived fairness of the decision-making process and lead to distrust (Aitken, 2010a). Importantly, a lack of institutionalized guidelines may be one reason why community compensation is sometimes associated with negative evaluations such as 'bribing' (Aitken, 2010a; Cass et al., 2010). At early stages of a project, discussing compensation may lead to suspicions that developers are trying to influence the planning process by 'buying support', while offering compensation at later stages might be perceived as a reaction to opposition (Cass et al., 2010). This 'bribing rhetoric' can limit the positive effects that community compensation practices can have on project support (Walker et al., 2014). Institutionalized guidelines could be an effective strategy as it allows community compensation to become standard procedure, rather than a voluntary procedure that can have (perceived) alternative motives (Aitken, 2010a). Also, without a legal framework, communities might feel that they lack the power to get their needs and demands heard (Kerr et al., 2017; Cowell et al., 2012). A clear legal framework may give local publics a stronger voice and the right to be taken into consideration in planning and community compensation decisions.

2.3.2 Benefits of non-institutionalized community compensation

In previous studies on wind energy, formal guidelines on community compensation have received criticism from developers due to worries about the cost-competitive nature of wind energy, and about an increase in bureaucracy that will add complexity and extra expense (Walker & Baxter, 2017). Formal community compensation approaches may also challenge the ambiguity currently associated with compensation. Different terms (e.g. benefits; compensation; host fees) and motivations for community compensation are used by different groups and stakeholders. For instance, different levels of government (e.g. national vs. local) might use various terms depending on the audience they are talking to (Kerr et al., 2017). This ambiguity is beneficial because when meanings are not formalized and hold together a range of interests surrounding a development different parties can rationalize community compensation to fit their own perceptions (Cowell et al., 2011).

Moving forward, the limited studies available tend to recommend the use of a flexible institutionalized approach when it comes to administrating community compensation. Such an approach could overcome some of the downsides of the lack of formal guidelines, but also retain the benefits of an ad hoc, voluntary approach. In this way, legal controls provide a framework to operate in, while negotiations within this framework make sure local conditions add an essential additional perspective (Kojo & Richardson, 2014). Thus, institutionalization should not limit opportunities for negotiations between local communities and developers to decide on the level, form and distribution of community compensation based on specific local needs (cf. Cowell et al., 2011). One aspect that could have a large impact on specific local needs is the location of a proposed development, specifically whether it is placed on- or offshore. Community compensation in the context of onshore versus offshore developments is the final debate discussed in this literature review.

2.4 Community compensation for onshore and offshore developments

Even though community compensation is now relatively common for onshore developments (at least for wind energy), this cannot be said for offshore developments (Kerr et al., 2017). From the literature there are three reasons that might explain this discrepancy:

1. Identifying the relevant community is more complex for offshore projects and may lead to problems when it comes to public engagement. At the same time, communities may feel less able to challenge or oppose a project (Cowell et al., 2012), and have little leverage in terms of property rights (Kerr et al., 2017).

2. The relative infancy of the offshore industry (at least when it comes to low carbon technologies such as offshore wind) has been linked to the lack of community compensation within the offshore context. As 'emergent' technologies it has been argued that project economics not yet allow for community compensation (Cowell et al., 2012; Kerr et al., 2017).

3. Developers or authorities may assume that harms to communities are lower for offshore developments – perhaps making offshore developments easier to site (Cowell et al., 2012; Lofstedt, 2015). However, studies in the context of wind energy have repeatedly shown that the factors that influence public responses to offshore developments are largely the same as those that influence public responses to onshore wind energy. There is no support for a universal preference for offshore developments over onshore developments, rather preferences depend on the local context (Dalton, Lockington & Baldock, 2008; Ek, 2006; Haggett, 2008; 2011; Ladenburg, 2008; McCartney, 2006; Veidemane & Nikodemus, 2015; Wiersma & Devine-Wright, 2014). Although there are examples of offshore CCUS developments which have led to little public resistance, the research available suggests that acceptability for CCUS is not a given when developments are placed offshore rather than onshore (cf. Schumann, Dütschke & Pietzner, 2014). In a study on CO_2 storage options among the German public, the majority of respondents said that they would prefer CO_2 to be stored nowhere at all when asked whether they preferred onshore or offshore storage. Also, although offshore CO_2 storage was seen as a slightly better option than onshore storage among the general public, citizens of coastal regions were equally negative about both storage options (Schumann et al., 2014).

The offshore context also offers specific challenges with regards to public acceptability of low carbon technologies. Studies show that for many people the sea is associated with distinct values and meanings, such as 'openness', 'wide' and 'wilderness' (Gee, 2010), as well as the idea that 'no one owns the ocean', and that it 'belongs to the public' (Kempton et al., 2005). Industrial developments are seen to threaten these values – turning the sea, a place where human structures do not belong, into an industrial area (Gee, 2010; Kempton et al., 2005).

It is also interesting to note that in the context of CCUS, scholars have emphasized that even when storage sites are offshore, a large part of the infrastructure is likely to still be onshore (e.g. transport pipelines; Shackley et al., 2009). So, in addition to the points mentioned above, onshore infrastructure related to offshore developments can also elicit public concern, and further influence public responses to offshore developments.

In sum, four key debates could be identified in the scientific literature on community compensation. The first two debates (i.e. finding a fit and public engagement) have received a lot of attention over the years and there tends to be a relative consensus in the literature with regards to best practices. The final two debates (i.e. institutionalization and onshore/offshore) have emerged more recently and a number of research questions remain unanswered. The next section will examine to what extent the four debates and their outcomes are reflected in current community compensation practices across the Netherlands, United Kingdom, Germany and Romania.

3 Compensation practices in different countries

3.1 Approach scoping review

The purpose of this section is to provide a scoping review which is meant to illustrate current practices and policies on community compensation in the Netherlands, United Kingdom, Germany and Romania, focusing specifically on the topics which have emerged from the literature review. It was not within the scope of the current research to conduct a full policy review, so this section should not be interpreted as such. Due to a lack of documents discussing offshore community compensation, the scoping review focuses on questions linked to the first three debates from the literature review:

1. *Finding a 'fit' between the form of compensation and local needs and concerns*: how is the community defined, how are the aims of community compensation described, and how is the form of community compensation decided upon?
2. *Seeing community compensation as a part of the public engagement process*: is community compensation described as being part of a wider public engagement strategy?
3. *The institutionalization of community compensation*: to what extent is the provision of community compensation formally regulated?

In line with the explorative nature of the review, the discussion will not include an in depth examination of the differences between the four countries. Where interesting differences were observed this is noted, but the limited documents available did not allow for a thorough cross-country comparison. It is also important to note that during data collection no relevant documents could be found concerning community compensation in the CCUS context, reflecting the relative infancy of this field in the Netherlands, United Kingdom, Germany and Romania. Therefore, the scoping review focuses on documents concerning other low-carbon technologies, subsurface activities and land uses. These documents enable us to get an insight into the type of practices and policies that are currently in place in these sectors with regards to community compensation. This is highly relevant as similar regulations might be developed in the CCUS sector as the technology becomes more commonplace in these countries.

3.2 Methodology

In total, twenty-five documents were reviewed from the Netherlands, United Kingdom, Germany and Romania. Figure 4 shows the number of documents per country (see Appendix A for the complete list of documents and inclusion criteria). In total, five types of documents were reviewed: government reports and guidelines (32%), good practice guides or codes of conduct (24%), advisory documents (20%), organizational guidelines (20%), and project contracts (4%). Out of these documents, sixty-four percent consisted of implemented guidelines, while the remaining thirty-six percent were meant to advice or inform. The largest group of documents was published by a government department or agency (40%), followed by documents from an energy company or network operator (16%), an NGO (12%), and a consultancy (8%). Other documents (all 4%) were published by: a policy institute; a research institute; a professional organization; and an advocacy group respectively. Two documents consisted of a joint publication by multiple groups or organizations.

Almost half of the documents related to renewable energy technologies (48%), out of these the largest percentage related to wind energy (43%). The remaining documents related to mining (16%), grid extensions (12%), nuclear power (8%), infrastructure (8%), shale gas (4%), and natural gas extraction (4%). Figure 4 shows that the focus on community compensation regulations in the renewable energy sector was present in all countries except Romania; in the latter the majority of documents that were found concerned the mining sector. Furthermore, in Germany community compensation regulations were often discussed in the context of grid extensions, while this was not the case in other countries.

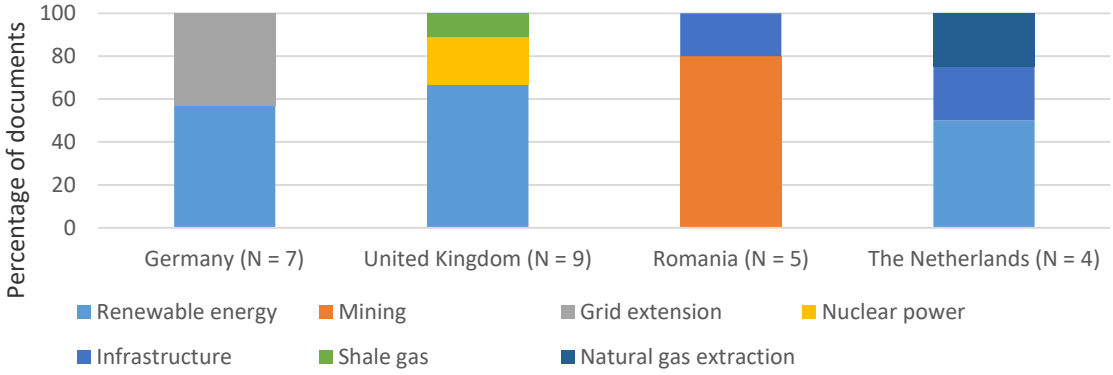

Figure 4. Percentage of documents concerning different low-carbon technologies, subsurface activities and land uses for each country.

3.3 Results of scoping review

3.3.1 Fit between the form of compensation and local needs and concerns

3.3.1.1 Defining communities

When it comes to defining the community, the three types of community (i.e. place, interest and impact; Bristow et al., 2012) identified in the literature were also reflected in the guidelines and practices reviewed here. The majority (64%) of guidelines and regulations discussed the community primarily in terms of a geographical area or location, also referred to as *'communities of place'*. In some cases, guidelines suggested using a combined approach in identifying the target community, focusing not only on place but also '*communities of interest*' (i.e. communities based on shared interests; Bristow et al., 2012). For instance, in a Scottish government report on community compensation for onshore renewable energy developments (DUK8 in Appendix A) an extensive 'community identification process' is described whereby developers, through an initial study, define a geographical area which should benefit from community compensation. Following on from this process, developers are instructed to identify communities of interest (groups and individuals) within that boundary who need to be part of the consultation process – as well as speak to these communities and individuals to determine whether there are other relevant contacts that should be consulted. Another way in which community was discussed in the guidelines and regulations reviewed here was through *'communities of impact'* (Bristow et al., 2012): those communities affected by a development (16%). For instance, by defining community as those individuals who suffer damage from infrastructure developments (DNL25 in Appendix A). The remaining documents (20%), did not include a specific description or definition of the target community in their discussion of regulations regarding community compensation. This does not imply that there was no mention of the target community at all; however the process by which the community is defined remains relatively vague or unclear.

3.3.1.2 Aims of community compensation

A range of different aims for community compensation was found (see Figure 5). Most commonly, community compensation was aimed at *'compensating for impacts'* (36%). Various technologies have different impacts and this was reflected in the differing descriptions of this aim. However, the common aspect was a recognition of the need to compensate communities for the immediate impacts of a development, e.g. the need for job creation for workers after the closure of a mining site (DRO18 in Appendix A), the need to compensate for loss of productive land due to grid extensions (DGE4 in Appendix A), or the need to compensate for noise, disruption and traffic near shale gas production sites (DUK13 in Appendix A). Rather than having one specific aim for community compensation, twenty percent of the guidelines and regulations discussed multiple aims of providing community compensation. An example of this can be found in Germany, in the context of wind energy development (DGE5 in Appendix A). The guidelines describe community compensation (in the form of community co-ownership of wind parks) as a way to *'share the benefits'* of wind energy as well as *'increase acceptance'* for wind parks and the wider energy transition.

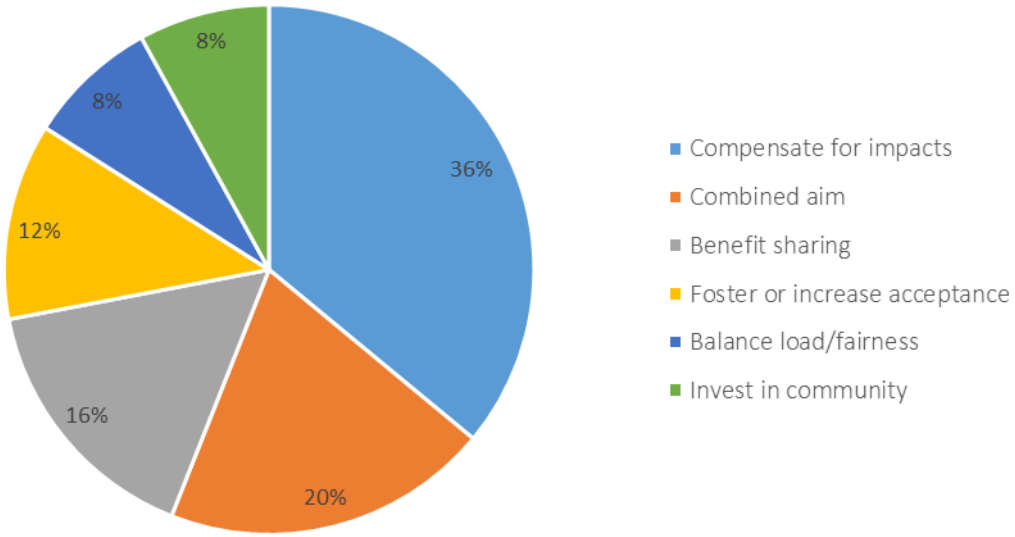

Figure 5. Aims of community compensation

3.3.1.3 Deciding on the form of community compensation

Many different ways and forms of community compensation were described across the documents. In fact, nine out of twenty-five documents mentioned more than one form of community compensation. The guidelines and regulations mostly focus on monetary incentives, but not necessarily in the form of individual payments. The most commonly mentioned types of community compensation were: a local or regional fund (e.g. fund for local infrastructure), individual monetary compensation, community ownership or shareholding, and employment related compensation (e.g. reduced retirement age; job creation). Other, types of community compensation that were mentioned included: monetary compensation for the municipality/local government; in-kind benefits; monetary compensation (not specified); a grant scheme; investment in local energy transition; and compensation for loss of property values.

In the majority of guidelines and regulations there was not a specific amount set aside for community compensation and the amount and form of compensation were decided on through other means. Or, alternatively, the specific amount may be set beforehand, but this was followed by a process to decide how this amount was spend. When examining these decision-making processes three broad categories could be identified as ways of determining type and/or amount of community compensation: consultation with stakeholders, legal requirements (both mentioned in 40% of documents), and characteristics of the development (mentioned in 28% of documents). A small number of documents (12%) referred to a mixture of these processes. Thus, determining community compensation through a **consultation process with stakeholders** (a method preferred in the scientific literature) was fairly common – particularly in the Netherlands and the UK. For instance, a code of conduct for gas extraction in the Netherlands states that, with regards to community compensation, the developer will provide knowledge and resources to make a 'positive contribution to the environment'. What this 'positive contribution' entails should be determined in consultation with the local stakeholders and included in a project coordination program (DNL22 in Appendix A).

When a consultation process is lacking, the type and form of community compensation seems to based on either **legal requirements** – as is the case in Romania where community compensation is determined by governmental departments. Or, by taking into account **specific characteristics of the development**, an example of this can be found in Germany in the wind energy sector: the guidelines suggest a compensation scheme consisting of a one-time payment determined by the height and the power capacity of wind energy developments and a continuous payment determined by the height of the development and the actual electricity production (DGE1 in Appendix A).

3.3.2 Community compensation and public engagement

To support facility siting, community compensation that is part of wider public engagement is likely to be more effective (Aitken, 2010a). Within the guidelines and practices reviewed here three broad categories could be identified with regards to engagement strategies:

1. *Community compensation as a standalone measure*

In forty-four percent of the documents community compensation was not described as being part of a wider public engagement strategy. This high percentage is mainly due to the fact that this was the case for all community compensation guidelines in Romania (*N* = 5), here community compensation is used as a standalone measure.

2. *Community compensation as part of wider public engagement strategies*

In thirty-six percent of the documents community compensation was described as being part of a wider public engagement strategy. An example of this can be found in the context of gas extraction in the Netherlands (DNL22 in Appendix A). According to the code of conduct a project coordination programme should be set up for each development in consultation with local authorities in order to connect with surrounding communities. This programme should fit the wishes and needs of surrounding communities, of which one element is the provision of community compensation to mitigate negative impacts. Although these guidelines recognise the need to connect with local communities in other ways alongside community compensation, it is worth observing that the project coordination programme is set up in consultation with local authorities rather than, for instance, community representatives. One could question whether this gives local communities a genuine, meaningful voice during the decision-making processes that are part of a new development. As may be recalled from the literature review, having a meaningful voice was seen as a key factor to establishing a decision-making process that is seen as fair by local communities (cf. Upham & Pérez, 2015).

3. *Community compensation as the starting point to engaging with the public*

Lastly, community compensation can also be viewed as an opportunity to further engage with the public (20%). In contrast to the previous category, here community compensation is the reason for further engagement with the public, rather than community compensation only being one element of broader public engagement policies. For instance, there might be an opportunity for the community to get involved in various aspects of setting up community compensation (e.g. design, allocation of funds), community compensation may link into community aspirations to find ways to support long-term sustainable development, or may bring communities together (to discuss funding opportunities). Offering community compensation in this manner goes some way towards involving local communities in the decision-making processes surrounding a development. However, without a wider public engagement strategy, the question remains whether this will be enough to build a feeling of trust towards the developer.

3.3.3 Institutionalizing community compensation

In line with the ad-hoc approach towards community compensation identified in the scientific literature (Aitken, 2010a; Bristow et al., 2012), only a minority of guidelines and regulations could be categorized as describing an institutionalized form of community compensation. That is, thirty-six percent of the documents described community compensation guidelines regulated by law. In these cases, the provision of community compensation was mandatory. For the remainder of the documents (64%), community compensation was not regulated at all, or only in part. Most commonly, the guidelines mentioned that the provision of community compensation was voluntary, but once a community compensation agreement was made this should be in the form of a legally binding contract between the developer and other parties. To illustrate, in the context of offshore renewable energy developments in the UK (DUK11 in Appendix A), guidelines with regards to community compensation state that the provision of compensation is a voluntary arrangement. However, it is advised that all agreements are provided in writing between relevant parties at an early stage in the process, followed by the signing of a legally binding document.

In the documents reviewed here highly regulated community compensation guidelines were less likely to include a wider public engagement strategy compared to more voluntary community compensation guidelines. In fact, out of

the nine community compensation guidelines that were regulated by law, only one document described some form of public engagement alongside community compensation. This pattern was not necessarily tied to a specific country or technology. This observation is in line with one of the downsides of institutionalizing community compensation mentioned in the scientific literature, namely: limiting opportunities for negotiations between local communities and developers (cf. Cowell et al., 2011). It shows that a clear legal framework does not necessarily give local publics a stronger voice.

Finally, as mentioned a few times already – overall a relatively small number of documents were available that fitted our inclusion criteria. This may be due to the scope of the review which focused only on publicly available documents; more documents may exist on community compensation which are not available to the public. However, the limited documents available could also point towards community compensation as being a relatively unfamiliar or unspecified area within public engagement practices and policies.

4 Conclusion: Lessons and knowledge gaps

Implementing low carbon technologies such as CCUS in society will bring along benefits, such as reductions in CO_2 emissions, which are mostly on a (inter)national level. However, on a local level there are likely to be negative burdens as well. Community compensation is a way to provide a fairer balance between local benefits and perceived negative impacts. Research into community compensation is an emerging field, and while there is (relative) consensus on some issues, other questions still remain unanswered. This report aimed to provide an overview of key debates on community compensation in the scientific community, along with a discussion on current compensation practices and policies in the Netherlands, United Kingdom, Germany and Romania. As community compensation literature and current compensation policies on CCUS are limited the report also looked at other low carbon technologies (e.g. renewables, nuclear energy), subsurface activities (e.g. gas extraction) and land uses that impact local publics (e.g. landfills). Bringing together the literature review and discussion of current practices and policies we can come to a set of lessons and knowledge gaps with regards to implementing community compensation in the context of CCUS (see Figure 6).

Figure 6. Lessons on community compensation in the CCUS context

1. *Fit compensation with local needs and concerns.* Community compensation is more likely to be accepted by local publics and aid towards positive perceptions of the project if the form of compensation aligns well with local needs and concerns. Following on from this, making an effort to understand local social circumstances at an early stage of the project will be crucial for developing effective community compensation measures. This also means that there is a need for flexibility within the project to adjust to the local social context. Knowledge gaps remain as to how different ways of defining the relevant community might impact the use and form of compensation. To illustrate, when communities are selected on the basis of whether they are impacted by the project: which impacts should count, and how can impacts in one domain be compensated by measures in another domain? Also, currently relevant communities are often decided upon based on location, but this brings forward the question whether this approach takes into account the differing needs of various 'communities of interest' within this 'community of place'.

2. *Offer local communities a meaningful voice and use other ways to engage the public.* The perceived imbalance between local benefits and perceived negative impacts is only one factor influencing public perceptions around the siting of CCUS developments. As such, providing community compensation on its own is not enough, and further measures are needed to effectively engage with the public. First of all, local publics should be offered a meaningful voice in the decision making process around community compensation, allowing genuine control rather than only being able to reject or accept a compensation offer; and second of all, further public engagement measures should be in place. This seems to be recognized in practice where current compensation practices are often embedded in wider public engagement strategies (e.g. public consultation, information provision), while it is also still offered as a standalone measure. Knowledge gaps remain regarding effective ways to build trust with the local community, and how to overcome perceptions of 'bribing' when it comes to offering compensation. Even though developers might have genuine interest in engaging with local communities, participation may be limited when there is no trust relationship.

3. *Leave room for negotiations when institutionalizing community compensation.* One approach that has been put forward as a way towards building better trust relationships, and moving away from the 'bribing rhetoric' around community compensation, is to further institutionalize compensation. Currently, there is a lack of formal guidelines on community compensation in the context of low-carbon technologies, subsurface activities and land uses; practices are mostly ad hoc and voluntary. However, care should be taken that institutionalization does not limit opportunities for negotiations between local communities and developers which is needed to ensure compensation meets specific local needs. As this is a relatively new development in the field, there are still many knowledge gaps around the impact of institutionalization on the effectiveness of community compensation (and other public engagement measures).

4. *Consider community compensation for offshore CCUS as well.* Offshore developments are sometimes perceived by developers as being easier to site with less need for engagement practices such as community compensation. In contrast, there is no support in the literature for a universal preference for offshore developments over onshore developments, with the same factors influencing public responses as for onshore developments. Therefore, it is important not to overlook the values that many people associate with the sea and not to assume that CO_2 storage will automatically be more easily accepted by the public when placed offshore. In terms of knowledge gaps, there is little experience with offering community compensation in the context of offshore developments. Determining the relevant community will be more challenging within this context for instance. There is also limited research on public responses to offshore (as compared to onshore) aspects of CCUS.

This report highlights the complex nature of implementing CCUS into society and the importance of careful consideration of local contexts and needs. However it also offers useful lessons learned from related technologies that can be applied to ensure community compensation is practised more effectively to engage with local publics. Furthermore, the knowledge gaps put forward here provide opportunities for future research.

Within task 6.2 of the ALIGN CCUS project these knowledge gaps will be addressed through interviews with community engagement managers about their experiences with community compensation measures, along with quantitative studies (surveys, experiments) testing the effectiveness of different compensation schemes.

A scientific journal article about the review was written and submitted for publication in a high quality peer-reviewed journal (see ALIGN-CCUS D6.2.3), providing more context and in depth discussion of the results described in the present report. The journal article was accepted for publication in the International Journal of Greenhouse Gas Control in July 2020. The full text article can be accessed and downloaded for free (full open access) here: https://www.sciencedirect.com/science/article/pii/S1750583620305533. Supplementary material related to this article (i.e., Appendix A) can be found here https://doi.org/10.1016/j.ijggc.2020.103128.

Appendix A. Documents included in scoping review

Inclusion criteria

Documents were included in the review if they adhered to the following criteria:

1) the document describes guidelines for implementing community compensation; these could be either implemented guidelines or a document advising on how community compensation could be implemented;
2) the document is publicly available;
3) the document is published outside the scientific literature; instead data collection was focused on documents published by public sector actors (e.g. government), NGOs, or relevant commercial sectors (e.g. energy companies; consultancies advising the government).

These criteria were phrased relatively broad on purpose as it was expected that there would be limited documents available describing community compensation practices and policies.

Table A1: Overview of documents included in the scoping review

Doc nr.	Country	Title	Published by	Type of organisation	Technology	Retrieved from
DGE1	DE	Wie weiter mit dem Ausbau der Windenergie?	AGORA Energiewende	Policy institute	Renewable energy	https://bit.ly/2QLaSBg
DGE2	DE	Netzausbaus und Akzeptanz aus kommunaler Sicht – lokale und regionale Auswirkungen des Netzausbaus	Deutscher Städte- und Gemeindebund	Government department/agency	Grid extension	https://bit.ly/2NmgHaq
DGE3	DE	Ausgleichszahlungen an vom Netzausbau betroffene Städte und Gemeinden	50hertz	Energy compancy/network operator	Grid extension	https://bit.ly/2pkvqnR
DGE4	DE	Entschädigung von Grundstückseigentümern und Nutzern beim Stromnetzausbau – eine Bestandsaufnahme	Bundesministerium für Wirtschaft und Energie	Government department/agency	Grid extension	https://bit.ly/2PLyWTt
DGE5	DE	Rücken- und Gegenwind für die Bürgerenergie	Weltwindenergieverband; Landesverband Erneuerbare Energien Nordrhein-Westfalen	NGO	Renewable energy	https://bit.ly/2QIIXlB
DGE6	DE	Bürger- und Kommunalbeteiligung, Stadtwerker und Energiewende	Institute for Advances Sustainability Studies (IASS Potsdam)	Research institute	Renewable energy	https://bit.ly/2QFkptX
DGE7	DE	Erneuerbare Energien in Kommunaler Hand	Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit	Government department/agency	Renewable energy	https://bit.ly/2NYn3MA

DUK8	UK	Scottish government good practice principles for community benefit from onshore renewable energy developments.	Natural Scotland	Government department/agency	Renewable energy	https://bit.ly/2NX5qNc
DUK9	UK	SSE Community Investment Review 2015/16	SSE	Energy company/network operator	Renewable energy	https://bit.ly/2MOJ5wG
DUK10	UK	EDF energy – Community fund Hinkley point C	EDF Energy	Energy company/network operator	Nuclear power	https://bit.ly/2NTxalR
DUK11	UK	Good Practice Principles for Community Benefits from Offshore Renewables	Natural Scotland	Government department/agency	Renewable energy	https://bit.ly/2NTFUIK
DUK12	UK	Horizon Nuclear Power – Charity donations, Community Support & Sponsorship Policy: Guidance for applications	Horizon Nuclear Power	Energy company/network operator	Nuclear power	https://bit.ly/2xmsQlR
DUK13	UK	REMSOL - A Blueprint for Shale Gas Community Benefits	REMSOL	Consultancy	Shale gas	https://bit.ly/2NnmRY3
DUK14	UK	Securing the benefits of wind power in Scotland	Vento Ludens & Docherty Consulting Ltd	Consultancy	Renewable energy	https://bit.ly/2D8vDnQ
DUK15	UK	The protocol for public engagement with proposed wind energy developments in England	Centre for Sustainable Energy	NGO	Renewable energy	https://bit.ly/2QH3GpQ

DUK16	UK	Delivering community benefits from wind energy development: A toolkit	Centre for Sustainable Energy	NGO	Renewable energy	https://bit.ly/2PQ8UOV
DRO17	RO	Law no. 144/2017 for the amendment of par. (5) of art. 65 of the Law no. 263/2010 on the unitary pension system	Parlamentul României	Government department/agency	Mining	https://bit.ly/2xpb1CJ
DRO18	RO	Law no. 20 of 15 January 1999 for the approval of Government Emergency Ordinance no. 24/1998 on the regime of disadvantaged areas	Parlamentul României	Government department/agency	Mining	https://bit.ly/2xqEw6U
DRO19	RO	Government Decision no. 266/2017	Guvernul României	Government department/agency	Mining	https://bit.ly/2pjGSQC
DRO20	RO	"Alternative vocational training using computer solutions - a solution for the conversion of the mining workforce" (POSDRU/82/5.1/S/59756 grant)	University of Petrosani, Siveco, AMPOSDRU e.o..	Joint publication	Mining	https://bit.ly/2NoBryk
DRO21	RO	Law no. 255/2010 on the expropriation for a public utility cause, necessary for the achievement of national, county and local interest objectives	Parlamentul României	Government department/agency	Infrastructure	https://bit.ly/2OCTNbx

DNL22	NL	Code of conduct: Gas production from marginal fields	Nederlandse Olie en Gas Exploratie en Productie Associatie (NOGEPA)	Professional organisation	Natural gas extraction	https://bit.ly/2POPAS1
DNL23	NL	Gedagscode Windenergie op land	Nederlandse Vereninging Omwonenden Windturbines (NLVOW)	Advocacy group	Renewable energy	https://bit.ly/2s6t6QL
DNL24	NL	Gedagscode Acceptatie en Participatie Windenergie op land	Nederlands WindEnergie Associatie (NWEA)	Joint publication	Renewable energy	https://bit.ly/2PLqtzJ
DNL25	NL	Schadevergoeding in de vorm van nadeelcompensatie en planschade	Rijkswaterstaat	Government department/agency	Infrastructure	https://bit.ly/2xlTVFO

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