# The Social License to Operate Across the Energy Industry: Lessons for Low-Carbon Energy from Oil and Gas

## Introduction

The Social License to Operate (SLO) broadly refers to the ongoing acceptance and approval of an operation (Parsons & Moffat, 2014), and the absence of an SLO may manifest in social, legal and/or political objections which pose severe threats to the viability of exploration and extraction. The concept was originally developed for use in the oil and gas industry (Morrison, 2014), and substantial work has been made in both academia and the industry to develop useful models of the SLO that can be applied to identify the meaningful consent of local communities.

While traditional sources such as coal, oil and gas continue to provide the majority of the world's energy, the contribution of low-carbon alternatives is increasing and likely to grow rapidly in the coming years. As the energy industry diversifies in pursuit of sustainability, many energy companies are seeking to expand their portfolio to include renewable sources. Despite their green credentials, new energy projects such as onshore wind farms, nuclear sites, and solar farms often face local opposition. In particular, on-shore wind energy faces a significant amount of local resistance (Botetzagias, et al. 2015, Horst, 2007) and, in countries such as the UK where local acceptance is required for the approval of new developments, local opposition will have serious implications for the industry.

The SLO has proven to be of crucial importance to the oil and gas industry, because local support is necessary when dealing with geographically bound resources, and since the extraction process is particularly destructive. Resources can only be extracted in the area where they are situated, hence governments of resource-rich nations and oil and gas (O&G) businesses engaged in exploration and extraction must acquire the consent of the populations nearby. While the renewable and low-carbon energy industries are arguably less geographically restricted than the extractive energy industries, they nonetheless encounter

issues of local objection, and there is ample evidence of obstacles in relation to the siting of energy operations such as onshore wind farms, large-scale solar farms, and nuclear power and waste disposal sites. Research suggests that the primary concerns of communities that host oil and gas operations have to do with the immediate and local impacts of the operation, such as concerns with social and economic impacts, as in the case of the Baku-Tbilisi-Ceyhan and Southern Caucasus Pipeline projects (Jijelava & Vanclay, 2017). The salience of local concerns offers both warnings about the proposed projects, and opportunities to turn to alternative, renewable energy sources, such as onshore and offshore wind and solar power. Evidence of highly localized concerns regarding energy operations offers both warning and opportunities to alternative, renewable energy sources such as onshore and offshore wind and solar power. It can be inferred that the low-carbon impact of such initiatives on a global scale will not be sufficient to alleviate local damage, but local concerns can often be addressed with significant local socio-economic investment, such as local content policies and remuneration.

While the SLO remains most closely associated with extractive energy, the utility and applicability of the concept in other areas of operation has been demonstrated in numerous studies, ranging from the use of ocean based resources (Voyer & van Leeuwen, 2019; Kelly, Pecl, & Fleming, 2017) to thoroughbred horseracing (Heleski, et al., 2020). Trust and legitimacy, the fundamental elements of the SLO, are proven to be of crucial value in any industry that either requires or benefits from the consent and support of local stakeholders. The necessity of an SLO does not appear to be limited to 'controversial' industries such as the oil and gas industry, or those with particularly well-known negative environmental impacts.

In this chapter, it shall be argued that there are notable commonalities between the nature of local resistance and the conditions of local acceptance across the energy industries, and that the extant research relating to the SLO of O&G can offer valuable lessons to alternative sources of energy. Conversely, experiences in renewable and low-carbon energy industries such as wind, solar and nuclear energies may provide some useful insights to the O&G industry and these insights will also be considered. For example, evidence that the environmental credentials of newer forms of energy do not outweigh substantial community opposition suggests that where there is local resistance, it is likely due to more immediate, community-specific issues. A greater understanding of these concerns may inform

and influence how the O&G industry approaches difficulties related to social acceptance, even if the industry is unable to compete with alternatives on the basis of sustainability. Such an understanding will be of great value to the O&G industry, as well as to low-carbon alternatives, as governments and industries seek diversified energy portfolios which make the most of our available resources. This chapter will consider the similarities and differences between the local acceptance challenges facing the O&G industry, and renewable alternatives such as onshore wind, and identify the key lessons which can be drawn and applied to other sources of energy.

## The Social License to Operate in Mining, Oil and Gas

The SLO in the extractive energy sector is particularly fraught because the impact of exploration and extraction on local populations can be severe, and consent may not be easy to obtain .Many of the direct consequences resulting from O&G operations are relatively unique to the industry. Such consequences include the relocation of local communities, the impact on the local environment of the operations themselves, and the socio-economic impacts of migratory work. Much academic attention has been paid to exploring the nature and consequences of these aspects of O&G operations, particularly in Africa (e.g. Ogwang & Vanclay, 2109; Arthuer et al., 2020; et al, 2012; Udoh, 2013) and significant attempts have been made to address the worst of these consequences through provisions such as Free Prior and Informed Consent (FPIC) for indigenous communities.

Many of these industry-specific issues do not apply to renewable/low-carbon energy; the relevant resources are not geographically contingent in the same manner, such that while an onshore wind farm may be uncomfortably close to a community, it is unlikely to cause the relocation of a community. Renewable and low-carbon energy does not offer the same labour opportunities as traditional extractives, and as such, creates neither significant employment opportunities nor significant changes in the local population. Nonetheless, there are valuable lessons to be drawn from the experience of the O&G industry which can be applied to the energy industry more broadly.

A majority of the theoretical development initiatives of the SLO concept have been undertaken with reference to the mining industry, then subsequently applied to the O&G, and, more recently, renewable and low-carbon energy. The prevalent finding in extant work is that local context must be carefully considered and reflected in successful attempts to gain community consent. Robust extant literature reveals a diversity in relevant criteria for consent in differing national contexts, including Russia (Wilson, 2016), Greenland (Smits et al., 2017), Australia (Richert et al., 2015; Luke et al., 2018) North America (Gehman et al., 2016), and Uganda (Ogwang et al., 2109). In each of these cases, local factors are identified as key drivers of, or obstacles to, the SLO. For example, in Uganda it was identified that tangible benefits must be made available to local stakeholder in order for the operations to obtain an SLO (Ogwang & Vanclay, 2109), while in Greenland the language barrier between those working for the O&G companies and the local communities was identified as a challenge to good relations (Smits et al., 2017). The literature also identifies institutional factors, such as political and legal frameworks, along with the presence or absence of NGOs, as key determining criteria for precisely what the community will require in order to grant an SLO.

The literature contends that conceptual ambiguity is the primary obstacle which traditional extractive energy industries must overcome in order to successfully apply the SLO concept (e.g. Brueckner et al., 2018; Bice et al., 2017). Vagaries around the term's use lead to a lack of accountability when firms claim an SLO, and allow for companies to use it as a defensive mechanism rather than as a tool of collaborative stakeholder-engagement (Owen et al., 2013; Putten et al., 2018). From an industry perspective, the lack of conceptual clarity also poses challenges in terms of how to identify, interpret, and overcome potential stakeholder objections to lucrative projects, as it may not be obvious to the developers where to look for obstacles or what overcoming these obstacles may entail.

In response to these concerns, efforts have been made to clarify and establish a clear understanding of the concept and its application, including the development of a four-stage 'pyramid' model that depicts the four stages of SLO as follows: withheld/withdrawn, acceptance, approval, and psychological identification (Boutilier & Thomson, 2011). Subsequently, this model was refined in light of additional empirical research and reconceptualized as a four-stage 'arrowhead' model (Boutilier & Thomson, 2011), which delineates economic legitimacy, socio-political legitimacy, interactional trust, and institutionalized trust as the four components of an SLO, operating along a continuum which culminates in institutionalized trust (but within which all four elements are necessary criteria). The model provides a framework for identifying the necessary sources of requisite trust and legitimacy while allowing for substantial contextual differences relating to, for example, the socio-economic context. This approach has been successfully applied to evaluate the SLO of

the O&G projects in Georgia (Jijelava & Vanclay, 2017), demonstrating the utility of a formalized model in this sector.

In an attempt to provide a broader suite of consent, reflective of the multifaceted risks to viability operations may face, Bice et al. (2017) developed the Social, Actuarial and, Political (SAP) model. The SAP model identifies how mining and extractive industries must engage with stakeholders when seeking permission to proceed, and it reflects the three sources of consent required for a successful project. While the SAP model breaks the SLO into three categories, it is argued that stakeholder concerns regarding all three should, ideally, be properly addressed. It is also acknowledged that, in reality, the relationship between the stakeholder groups and the three sources of risk are complex, changeable, and unlikely to be balanced. The SAP model has been applied to investigate legitimacy gaps in the Australian extractive industry (Brueckner & Eabrasu, 2018), and it was found to be effective in drawing attention to the complexity of stakeholder risks and relations.

There is some tension between the two lessons identified above, as these identify a need for both a broadly applicable and widely recognized framework, and a contextually sensitive approach. However, the models outlined above provide frameworks for identifying and understanding local issues, and they also have been successfully applied in a variety of contexts. The conceptual issues presented here are applicable to any industry where local consent is both important and challenging to obtain, and are not exclusive to the O&G industry or to the industry-specific challenges previously discussed in this chapter, such as relocation.

### The Social License to Operate and Renewable and Low-Carbon Energy

There are notable differences between the social challenges facing the O&G industry, and renewable energy has a reputational advantage over O&G which increasingly poses a threat to the industry's existence. Nonetheless, there is ample evidence of local objections to the siting of onshore wind and solar operations across national contexts. Nuclear energy is particularly controversial, but is often quietly supported by governments as the most efficient, readily available form of low-carbon energy and a necessary contributor to net-zero ambitions. It is therefore likely that there is much which can be learned by renewable energy operators from traditional energy operators who have been grappling with issues of local consent for much longer. The four primary sources of low-carbon energy globally are

nuclear, hydropower, wind, and solar energy (Low Carbon Power, 2022). In this section we shall consider the SLO of nuclear, onshore wind and solar energy as operations on land are the most likely to directly affect communities and are therefore more likely to face community opposition. As will be discussed further below, the community opposition faced by all three sources suggests that industry would benefit from a more concerted effort towards obtaining an SLO, and that while some academic attention has been given to this in relation to wind energy, the SLO for nuclear and solar operations has yet to be adequately considered in the academic literature.

#### Nuclear Energy and the SLO

Nuclear energy is the most important form of low-carbon energy, notably in Europe, where nuclear power accounts for 25% of total electricity production (Low Carbon Power, 2022). Nuclear power is also one of the more controversial sources of low-carbon energy, and political appetite for energy diversification in this direction varies dramatically from country to country. Many governments moved away from nuclear power following the Fukushima disaster in 2011 (Wang & Kim, 2018), although more recently nuclear has regained favour, such as in the UK where the government is now planning for nuclear power to supply 25% of the country's energy by 2050 (Department for Business, Energy & Industrial Strategy, 2022). Despite high-profile accidents and opposition, the social license to operate for nuclear power remains understudied and unexplored. However, it is apparent that trust in public and private institutions is a crucial issue for the support of large-scale nuclear projects (Lehtonen et al., 2022) and much of the extant research addresses the importance of public faith in the government policies and practices which regulate the nuclear power industry, rather than in the industry itself. Within this research it has been found that the governance processes are, on the whole, lacking. According to Richter, Bernstein, and Farooque (2022), there is evidence of inadequacy in the procedures for obtaining consent for the placement of nuclear waste in the United States, as well as with the procedures for obtaining local approval for restarting a nuclear power plant in Japan (Nakazawa & Tatsumi, 2022). Moreover, Lehtonen et al. (2020) assert that the role of the state is of such particular importance to the management of the nuclear industry, due to the very long-term timescale of the risks of nuclear waste disposal, that state-related elements must be added to the Thomson and Boutilier model in order to better reflect the nature of the SLO for projects such as nuclear power operations.

#### Solar Power and the SLO

Large-scale solar panel installations known as "solar farms" or photovoltaic power plants provide power for the national grid (as opposed to smaller solar panel installations which might be used to produce power directly for homes or businesses). Despite the significant land requirements of these installations, there is relatively little research on whether communities support or oppose this type of renewable energy. The majority of the relevant research relates to community opposition to the siting of solar farms in North America, despite solar power accounting for only a small fraction (Low Carbon Power, 2022) of the energy produced there. While the extant literature does not explicitly relate the SLO concept to solar farms, there is evidence that the solar industry community opposition in much the same way as other energy operations. Although the majority of Americans support solar energy generally, the industry faces specific challenges when deciding where to locate farms (Carlisle J. et al., 2014), and local opposition exists on environmental grounds due to the ecological impacts of land redevelopment (Mulvaney, 2017), and the impact of solar farms on local property values (Carlisle J. E., Kane, Solan, Bowman, & Joe, 2015).

Research suggests that organized opposition from small groups is the main threat to securing siting consent for solar farms. This opposition can have a disproportionate impact on the projects' progression, but it has been argued that such obstacles could be overcome by involving community earlier, in order to identify and mitigate the minority objections early in the siting process (Crawford et al., 2022, Susskind et al., 2022). The North American experience can be contrasted with findings of support for a proposed solar farm in Morocco, where there was a strong expectation of socio-economic benefit contributing to overall support for the initiative (Hanger, Komendantova, Schinke, & Zejli, 2016). These findings support the notion that for onshore wind energy, socio-economic benefits are critical in the context of developing countries (Stephens & Robisnon, 2021).

#### Onshore Wind and the SLO

Local opposition to onshore wind farms is particularly well publicized, and it may provide the most direct evidence that renewable energy faces much of the same local opposition as more traditional energy initiatives. The wind energy industry is well-developed, and many national governments have championed wind energy as a key pillar in their country's carbon reduction efforts in recent years. However, the proliferation of onshore wind farms has sparked opposition in some countries, particularly in Europe, leading to an academic and policy interest in the methods in which an SLO could be obtained for onshore wind farms.

Much of the community opposition to onshore wind appears to be based on concerns/objections to the visual impact of the operations (e.g. (Jones & Eiser, 2010; Hall et al., 2013; Phillips, 2015), which holds true in different national contexts. A further barrier to social acceptance, is the lack of local consultation; local communities feel that the wind farms are being imposed on them without any consideration of, or consultation with, the community, and the SLO is generally lacking (D'Souza & Yiridoe, 2014). The value of local consultation links closely to the importance of trust which is fundamental to the SLO as obtained in the O&G industry; trust in the developers was shown to be a contributing factor to the SLO of wind farms in Tunisia (Hammami et al., 2016) and Australia (Hall et al., 2013), and trust in the local government was found to be an important aspect of the SLO for a proposed onshore wind farm in England (Jones & Eiser, 2010). It can therefore be concluded that strong, trusted institutions will be conducive to obtaining the social license to operate for onshore wind.

Extant literature also demonstrates some effective tools for obtaining an SLO for visually intrusive wind farms. The success of some form of community ownership in obtaining an SLO has drawn some attention, and has been shown to be successful in European countries (Musall & Kuik, 2011; Toke et al., 2008), in Scotland (Warren & McFadyen, 2010) and in South Africa (Stephens & Robisnon, 2021). However, in Denmark it was found to appeal only to those who were already supportive the operation, and opponents did not want to invest in something to which they were fundamentally opposed (Johansen & Emborg, 2018).

Discussion of the economic benefits of the onshore wind industry is conspicuously absent in the onshore wind literature; indeed, it has been shown that economic benefits are of little concern to affected local communities (Groth & Vogt, 2014). An emergent theme in the available data is the importance of very local concerns, rather than global (e.g. environmental) concerns. These local concerns are likely to have negative associations because wind energy neither provides many jobs, nor trickle-down investments. Furthermore, aspects such as the visual impact of the turbines (which may in turn lead to concerns regarding the impact on tourism and local-political concerns to do with the involvement of untrusted actors may hinder the process of obtaining consent from local communities to build them). Onshore wind thus lacks an opportunity for support which is afforded O&G developments, which hold at least the promise of significant local and national economic benefit. It is also worth noting that the literature does not show that the macro-environmental advantages of renewable energy, such as wind, offer much in terms of incentivizing community consent. Opposition and acceptance are both based on local impact and local consultation and as such the O&G industry, which cannot capitalize on global environmental concerns, can similarly adopt very local approaches to obtaining consent.

## Conclusion

Across the literature relating to nuclear, solar and onshore wind energy, there is evidence that the key findings from the O&G literature (the importance of conceptual clarity, the importance of institutional trust and legitimacy and the context dependency of SLO criteria), are highly applicable to the renewable and low-carbon energy industries. There is also evidence of some consent challenges that are specific to renewable energy, such as the role of subsides and incentives (or the perception of subsidization or incentives), which may undermine the legitimacy of a project which is perceived to have an unfair competitive advantage (e.g. solar energy, Carlisle J. E., Kane, Solan, Bowman, & Joe, 2015). There is more evidence that strong and trustworthy institutions facilitate an SLO for renewable operations than for O&G, but this may well reflect the developmental context of the operation and the research; i.e. there is more research on O&G in developing contexts and renewable energy in developed contexts, and it is likely that operations in countries with governance gaps attempt to bypass government in search of an SLO whereas operations in countries with more well-established political institutions can 'piggyback' on governmental legitimacy to gain the operational legitimacy.

However, the extant academic literature demonstrates that all energy sources face local opposition, and there are noteworthy commonalities in the nature of these oppositions. While O&G operations are frequently far more disruptive to lives and livelihoods than low-carbon alternatives, it is clear that affected communities may challenge any imposition which they deem counters their own interests. Therefore, while the specific interventions required of the

O&G industry to such challenges may not be widely applicable (e.g. free, prior and informed consent in the case of relocation), the conceptual underpinnings of the SLO offer much to alternative energy sources. It is apparent that there is a need for a clear understanding of what an SLO is, what it covers, and what are the implications when a company claims such a license.

According to the literature reviewed above, local considerations are critical across nations and industries, and the most effective approach to community agreement is one which entails detailed consideration of the host communities. Relatively deprived communities are likely to place greater value on tangible benefits, whereas more affluent and/or rural communities may be less willing to compromise on the aesthetic consequences of developments such as solar and wind farms (Stephens & Robisnon, 2021). Beyond such generalizations, however, are a plethora of local concerns which will vary dramatically from community to community and which can only be identified through careful consultation. Trustworthy industry standards, which include provision for local content, community investment and extensive local consultation, are likely to ensure that companies with a solid track record benefit from a good reputation, engendering the goodwill of potential host communities. A formal process for demonstrating extensive local consultation may also serve to balance-out any disproportionate opposition from small minority groups.

There are also lessons to be drawn from the experiences of nuclear, solar and wind energy. The dominance of local concerns over global environmental concerns is notable, and suggests an opportunity for high-carbon sources of energy in obtaining an SLO as companies in this field may be better resourced and able offer more in terms of mitigating local environmental impact. Similarly, the evident concerns about the (lack of) local economic benefit offered by low-carbon energy sources do not apply to the more labour intensive traditional energy operations, which will have more to offer in terms of employment and trickle-down investments. The provision of infrastructure and public goods such as health and education also offer an SLO-boosting 'offset,' and arguably, the more established energy companies with a strong local presence are in the best position to make these contributions effectively. The benefits of community ownership as demonstrated in the wind industry offer lessons that can be applied to all energy operators, and it has been established that local ownership goes a considerable way toward overcoming potential resistance to new energy projects. Community ownership polices must be carefully crafted to ensure maximum benefit and inclusion for the community while also taking into account the region's socioeconomic conditions; for instance, optional buy-in is less likely to work in economically deprived contexts.

Overall, the literature reviewed here serves as a reminder of the significant challenges posed by energy production. The pervasive nature of local objections to energy operations, regardless of global environmental impact, suggests that the growing urgency of climate change and the race to net zero has done little to persuade communities to tolerate unsightly and intrusive energy production sites, and attempts to obtain an SLO will continue to be fraught. As governments seek to address the combined dangers of climate change and energy security, the variety of communities with which energy companies must engage will expand considerably. As a result, an increasing number of communities will become both energy producers and consumers.

Some encouragement can perhaps be found in the consistency of local objections across the renewable and low-carbon energy sectors, which may be effectively addressed through close consultation with local stakeholders. The O&G industry may also discover that using their considerable resources to provide local benefits to communities might win them favor. There is considerable opportunity for further research into how solar and nuclear operations can gain an SLO, as well as lessons which can be applied from the onshore wind industry and O&G. More broadly, industry and academia would benefit from further consideration of the conditions under which the SLO was won, across industries and national contexts, so that lessons can be learned from best-practice.

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