

Social License to Operate in Geothermal Energy: A Conceptual Framework

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ABSTRACT

Crowdthermal aims to empower the European public to directly participate in the development of geothermal projects with the help of alternative financing schemes (crowdfunding) and social engagement tools. To reach this goal, the project envisages increasing the transparency of geothermal projects and technologies by creating one-to-one links between geothermal actors and the public so that a Social License to Operate (SLO) could be obtained.

The concept of Social License to Operate (SLO) is a derivative of “Corporate Social Responsibility” used extensively in the mining industries where having an SLO is an essential part of operating within democratic jurisdictions, as demonstrating sufficient “popular support” for a given project is likely to speed up bureaucratic procedures for obtaining operational permits or licenses. Altogether an SLO is based “on the degree to which a corporation and its activities meet the expectations of local communities, the wider society, and various constituent groups.”

The general aim of a geothermal SLO will be to further reduce the risks of public criticism and social conflicts, and, in general, provide a universally accepted social acceptance/geoethics framework for the different types of geothermal investment projects. This will result in 1.) more transparency, 2.) reduced investment risk, 3.) more versatile and easier engagement for crowdfunding.

The SLO framework developed through the Crowdthermal project a first of a kind model in the geothermal energy industry which considers

contemporary discussions concerning all stages of geothermal development from exploration to planning and building, and from operations to closure.

This was done considering the various levels of strength in social license ‘contracts’. At the lowest level of SLO, the relationship between the community or a network of stakeholders and the operation is one of absence or withdrawal. A higher level of SLO is represented when the stakeholder explicitly approves of and encourages the continuation of the activity. The highest level is characterized by a community perceiving the operation to be integral to their communal identity and values and therefore feeling invested in the outcomes of the operation (psychological identification) (Figure 1).

1. SOCIAL LICENSE TO OPERATE (SLO)

A Social License to Operate (SLO) is a theoretical construct representing the degree to which a corporation and its activities meet the expectations of local communities, the wider society, and various constituent groups. It is an implied consent, independent from legal or statutory requirements.

2. CONCEPTUAL FRAMEWORK OF THE SLO

Although technical barriers may hinder to an extent the implementation of geothermal projects, the social barriers and perception of geothermal energy remain a critical obstacle to its deployment, limiting its chances of financing and securing support at different governance levels. We propose – in a first known attempt, a conceptual model of the SLO in geothermal energy. This study is based on qualitative research performed within the Crowdthermal project framework through surveying and working group discussions – involving different

actors from the geothermal field (geothermal developers, NGOs, and scientists) (Table 1).

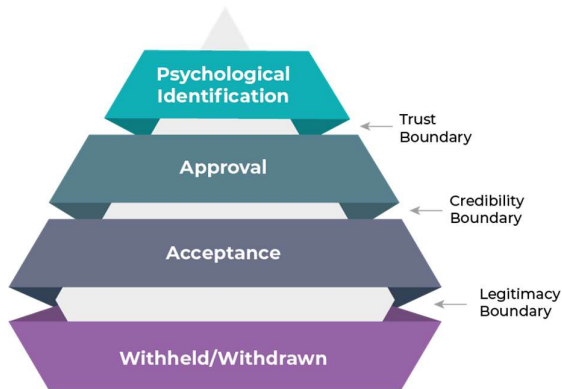


Figure 1: SLO Pyramid Model (modified after Thomson and Boutilier, 2011).

While intrinsically connected, it is important to differentiate between the concept of social acceptance and the concept of the social license to operate. They should not be equated as they are of two different natures. The first is a common and elementary feature of the SLO, whilst the second is a tool and a much broader concept with much deeper political ties Conrad (2018).

SLO is deeply dependent on building trust between communities and businesses, and once achieved, it must be carefully maintained. The timing of the acquisition of an SLO is also crucial. A well-established SLO is one that is coupled with consistency and nurturing, leading to building legitimacy, credibility, and trust with the stakeholders, and ultimately reaching not only acceptance but also approval and support.

Table 1: Analytical framework of SLO.

Definitions	Function	Organizational philosophy
		Tool
	Structure	Pyramid
		Triangle
Three-strand		
Influencing Factors	Public Involvement	Dialogue
		Trust
		Co-production
	Mutual Benefits	Benefit sharing
		Cost-benefit balancing
Impacts	Positive Local Relation	Psychological identification
		Approval
		Acceptance
		Social Capital

2.1. Perspective on Stakeholders Regulations at EU Level

Addressing stakeholders’ issues and concerns is a crucial part in the process of establishing a successful SLO. It is important to acknowledge the potential of geothermal to have both negative and positive effects. Being a domestic resource with different levels of complexity, the experience of stakeholders with geothermal energy is different from one place to the other. On a European level, the contrast of experiences is particularly acute. The focus on stakeholder and community support for geothermal (and other industrial) operations requires an initial consideration of who are the relevant stakeholders, or in other words – who “grants” the social license? Identifying which stakeholders might influence SLO is a key challenge of SLO.

As SLO is a multiscale construct, geothermal stakeholders occur both on a local and a broad scale. They differ from one place to the other and from one project to the other. However, Geothermal ERANET stakeholder analysis in 2013 identified geothermal stakeholders at the national level in several participating European countries. The broader stakeholders group includes:

- Government Institutions
- Academic Institutions
- Power Industry (important in some countries, where high-enthalpy resources are already exploited or where a high potential is expected)
- Industry, private companies
- Public
- NGOs

In the framework of European legal initiatives, there are different implementations and amendments to geothermal laws. The European Union strongly supports clean energy and environmental policies and regulations regarding development of the renewable energy resources. The perception of the development and utilization differs between countries and is still lacking clear declarations from governments. Gaining SLO at the EU level is parallel to the establishment of relevant deployment strategies and legal actions to support the implementation and utilization of this resource. A thorough regulatory work (legal license) is being developed through the European Strategic Energy Technology Plan (SET Plan), which represents the key EU energy R&I initiative whose role serves the Energy Union goals and delivers the innovations necessary to achieve the European transition to climate-neutrality by 2050 (European Commission, 2019).

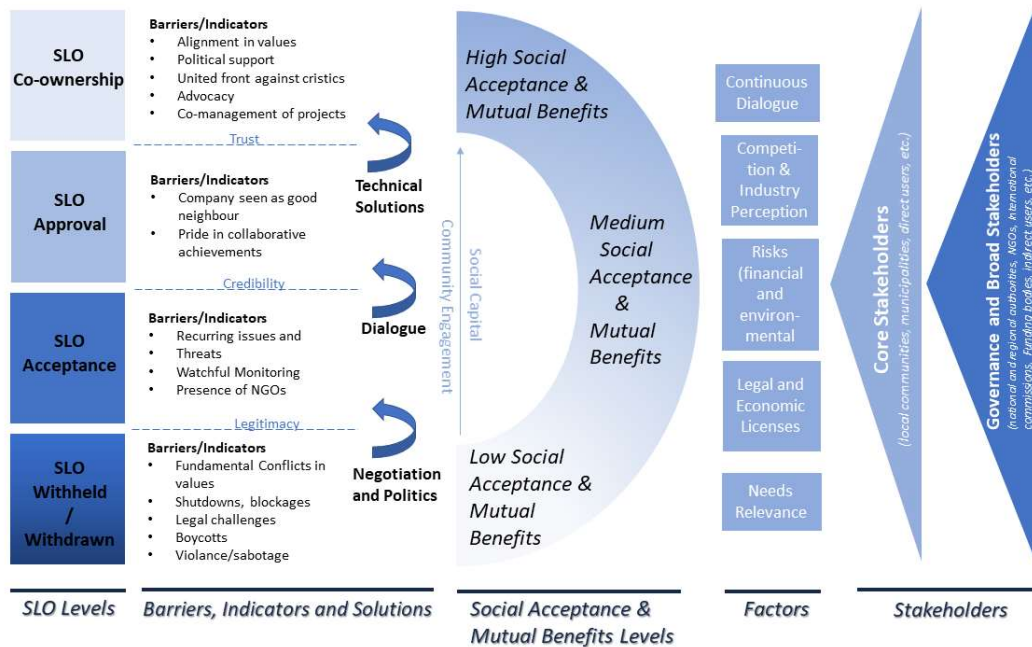


Figure 2: Conceptual Model of the Social License to Operate in Geothermal Energy (modified after Barich et al., 2022).

The components of the conceptual model (Figure 2) are:

- SLO Levels
- Barriers, Indicators and Symptoms
- Social Acceptance & Mutual Benefits Levels
- Stakeholders

The SLO model also includes one more element: Factors. These include:

- Needs of the stakeholders (especially the local communities and the relevance of the proposed projects to those communities).
- Relevance of geothermal development projects is intrinsically linked to the national (and regional and international) strategic energy utilization.
- Legal and economic licenses.
- Environmental and financial risks.
- Competition and industry perception
- Dialogue.

Qualitative studies in geothermal social perception show that engagement activities are critical and should not be isolated from the evolving geothermal exploration/exploitation activities, but rather as a whole project that understands and responds to the dynamics within a given territory (Vargas-Payera et al., 2020). There is no standard procedure applicable to any type of project everywhere in the world (Trutnevyte and Ejderyan, 2018). Community engagement thus needs to

be a continuous process throughout all geothermal project phases in order to ensure stakeholders' informative and participatory aspects.

3. CONCLUSIONS

Efforts to gain SLO start prior to the implementation of the project. The project operator needs to undertake social studies to map and understand the social structure, issues and vision of the various individuals, groups and organizations in the network that collectively form the 'community'.

To support the institutionalization of SLO concepts into practice, some recommendations can be derived for potential actions taken on the policy level. The described conceptual approach points out the importance of SLO criteria as a principal public interest in terms of an acceptable transformation. Thus, also measures regarding the regulatory frame should be used to encourage developers to invest more efforts in establishing participatory activities on the local level and reaching an SLO.

Moreover, a comparison of geothermal projects in different geological/enthalpy and regional/cultural contexts, and different systems is recommended in order to investigate the potential additional or specific variables involved in the SLO in geothermal energy.

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