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INNOVATIVE FINANCE MECHANISMS FOR GEOTHERMAL ENERGY

There are a number of new and innovative finance models that can be used to realise, or add to, financing in geothermal projects. These new finance models give different options to involve investors from the community surrounding the project thus realising **community involvement, commitment, and funding for the project**.

Community funding is the umbrella for alternative finance methods that are used to facilitate investment by the community directly into projects or companies. Community funding means **members of the community choose in which project, or project category they want to invest**, and their repayment and return are (usually) connected to the success of the specific project or project category. The process of community funding can be realised via a platform, like a crowdfunding platform or a direct lending platform, or directly into bonds or shares issued by a project or company itself.

Community funding in general is focused more on **impact and social context** than just on financial reward. This makes it a suitable form of (co)finance for geothermal projects where it is important to involve the community and other stakeholders.

Community funding comes in different shapes and sizes. It uses **new finance schemes and old traditional ways**. New fintech development can help to realise a community project at lower cost, because it can reduce the cost of the financing process or can realise funding where the bank would not fund. It can also increase the outreach to all possible members which makes the community project more effective. Geothermal projects could possibly benefit from using these new financing schemes.

Because the outreach to, and involvement of, the community is very important for the acceptance, use and community support of geothermal projects, involving the community on the finance side of a project can be useful to make the successes and results of the project more accessible to the community.

The main advantages to be gained by using these new financing schemes can be:

- Outreach to a larger part of the community
- More transparency for an involved community
- Customer friendly process through use of digital models
- Easy maintenance of the community funding project
- Easier to comply with regulation thanks to a digital approach
- Easier communication with the community group and individuals.
- Lower costs for the community funding project

When raising capital for a geothermal project three main questions must be answered first:

1. What type of capital is needed? What is the level of risk involved and does this match the risk appetite of possible investor groups?
2. How much capital is needed?
3. How does the project want to involve a community?

We have defined four types of investment capital that fit geothermal projects:

1. Risk-absorbing capital that not only shares the risk but also compensates project developers for the financial risk if the project is not successful. Often because it does not have to be repaid if the project is not successful, or not completely successful. For example, donations, grants, subsidies etc.
2. Risk-sharing, capital that carries part of the risk of the project, so the total risk is decreased for other participants, for example equity
3. Debt
4. Reserves

Illustration: Leonnidas - Text: CrowdfundingHub

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Depending on the development phase of the project and the associated risk of the phase and the project, a certain type of capital can be selected.

After defining the type of capital needed, how much risk is involved and how the project wants to involve the community, **the following finance schemes can be used in geothermal projects**:

- Crowdfunding,
- Direct lending
- (Crowdfunding) Social impact bonds / Green Bonds
- Leasing
- Match funding with grants or donations
- Reward or output-based funding
- Donations
- Revenue based financing
- Steward ownership
- and the possibility of a pay it forward mechanism between member states.

Several **additional financial supporting instruments** can be added to align the risk return profile of the finance mix to that of the project: Guarantee schemes, Decentralized Finance, Smart contracts and Fiscal instruments.

Important findings from analysing the situation in the three case study countries are:

1. IDEA from Spain uses reward or output-based funding to support sustainable energy projects. This is a very good model that should be exported to be used European-wide.
2. Steward ownership models could be a way to involve communities more in the development of geothermal projects.
3. Guarantee instruments can be a successful way to support financing schemes for geothermal projects.
4. Smart contracts can be a way to reduce financing costs and to make sure money is only used in projects if certain conditions are met.
5. Leasing and social impact bonds can be methods to reduce risks for government and/or investors and to get projects started even if a government is not willing or able to do so.
6. Leasing can also be a way to let the ownership of a project return to the government at the end who is most suited to handle decommissioning and post-closure.
7. Crowdfunding is a very flexible instruments with many different ways to involve community investors. Combined with guarantee schemes the risk for community investors can be manageable (as is suggested in deliverable 3.4 of this project).
8. Direct lending can be a way to increase the funding for a project, while risk can be diversified, but the link between the project and the investors is limited

It is always important to look at the project specific situation when deciding which form of community funding to use, as these factors determine the success. For example, the local and national legal framework, the characteristics of the community, the availability of financers and sponsors and the availability of government instruments, like guarantees and grants. Based on the general outlines however, such as the legal factors and the underlying market, certain financing schemes could be successful in a certain country while others would probably not be.

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FINANCE SCHEME	TYPE OF CAPITAL	AMOUNT OF CAPITAL	INVOLVEMENT OF COMMUNITY
PROVEN INNOVATIVE FINANCE SCHEMES			
Crowdfunding loan	Debt	Suited for small up to moderate amounts	Risk moderate (because it is a debt product), involvement moderate
Market place lending	Debt	Most suited for medium to large amounts	Risk moderate (because it is a debt product), involvement low
Equity crowdfunding	Risk-sharing	Suited for all amounts	High, investors share fully in the risk and have voting rights as shareholders.
Reward based crowdfunding	Risk-sharing	Most suited for small and medium amounts	Risk-wise high, return dependent on success and non- monetary involvement high. Usually investors have no voting rights but are committed to the product and its realisation
Direct lending	Debt	Most suited for larger amounts	Risk low (because it is a debt product and the financial intermediary is in between), involvement low
Social impact bonds	Risk-absorbing	Most suited for medium amounts from larger investors but can be used for crowdfunding too	risk high, involvement high
Leasing	Asset-based debt, but can be risk-sharing in case of operational lease	Suited for large amounts	Risk high if community is the lessee and it is financial lease, lower in case of operational lease. Risk moderate if the community is the lessor (because it is a debt product),
Match funding	Debt, equity or donations (grants). The government contribution can be risk absorbing or risk sharing in case of donation or grant, or debt as well if it subordinate debt is used.	Suited for all amounts	Depends on the funding provided by both the government and the investors in the matching. Usually the risk is reduced for investors so would be moderate to low.
Reward-based funding	Risk-absorbing	Suited for all amounts	Risk high for the government but the community is not involved
Donations	Risk-absorbing	Most suited for small and medium amounts	Risk high, involvement limited depending on conditions of the donations. Usually no voting rights
Revenue-based financing	Risk-sharing	Suited for all amounts	Risk high, involvement limited depending on conditions of the repayments, no voting rights.
NEW INNOVATIVE FINANCE SCHEMES			
Steward ownership	Risk-sharing	Suited for all amounts	Risk high, involvement high
Pay it forward scheme	All forms possible	Suited for all amounts, most suited to whole projects	None, but governments high, Risk government

More information:

CROWDTHERMAL Deliverable 2.3 Innovative finance mechanisms for geothermal energy

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