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The energy transition by all and for all: the hybridization potential of renewable energy projects

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PROMOTING INNOVATIVE RENEWABLE ENERGY MODELS

Participatory and citizen project models for renewable energy are the subject of increasing interest from political and industrial actors, motivated by the desire to promote project acceptance and to direct local funds towards transition projects. While the French energy transition law explicitly supports these innovative models, it is essential to make a distinction between the many types of existing approaches. Starting with a typology based on the levels of participation in project financing and governance, this study aims to examine the advantages and limitations of these models, along with their ability to meet the objectives defined by the project leaders.

A TYPOLOGY OF RENEWABLE ENERGY PROJECTS

Three major groups of models can be distinguished: conventionally developed projects that focus on direct financial return, that lack the financial participation of local actors and for which citizen involvement in governance is generally limited to an advisory function; projects identified as "citizen" projects, which are developed around the idea of collective governance and where the control of funding is in the hands of local actors (citizen and/or local authorities); and lastly, projects with a range of "participatory" models derived from the hybridization of the two previous categories, combining the business approach with varying degrees of citizen and local participation in project financing and governance.

THE POLITICAL PURPOSE OF PARTICIPATORY PROJECTS

Having a broad diversity of models is generally advantageous for encouraging the growing momentum of participatory projects, however, there is also a risk that attention will be focused only on the financial involvement of local stakeholders, overlooking the broader debate on the use of participative governance models for projects. This debate must address a double challenge: normatively, to determine the political value we want to give to the implementation of a collaborative governance, in line with the vision of an energy transition *by all and for all*; and politically, to reconcile the establishment of a regulatory framework to give a competitive advantage to renewable energies, with the principle of enhanced stakeholder participation.

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1. INTRODUCTION

Traditionally grounded in the technical-economic field, debates on energy transitions have progressively incorporated a more political dimension surrounding governance issues. Thus, while the issue of choosing the right technologies to minimize the costs of decarbonizing the economy remains central, we must also consider the role of different actors and the interactions between technological and social innovations, particularly at the territorial scale. This thought process covers a wide field, ranging from the issue of institutional governance—the distribution of political skills between the State and various local authorities (Saujot, Rüdinger and Guerry, 2014)—through to the issue of territorial anchorage and the social acceptability of projects (Fortin & Brisson, 2015; Walker, Devine-Wright, Hunter High, & Evans, 2010), and includes the central question of the "human factor" in this transition: how can we take behavioural factors and lifestyles into account in the transformation process, on the scale of buildings, cities or countries? What should be the modalities for the participation of local actors and citizens in the planning and implementing of transition projects?

Starting from the analysis of the energy transition as a collective governance issue, the concept of citizen and local ownership has become an important marker, with the aim to enhance the participation of all actors in different ways.[1] This objective was embodied in France by the phrase a "*transition by all and for all*" (CNTE, 2013). In this context, the direct involvement of local actors—citizens and communities—in the implementation of energy projects on their territory has received increasing attention from policy makers, which was enhanced by the latest trend for citizen projects on renewable energies in France, as well as the feedback of experiences from abroad, such as the success of local cooperatives in Denmark, who are long-standing actors in the renewable energy field, and also the increasing importance of the citizen energy movement in Germany.

Based on the direct involvement of citizens and communities in governance and/or the funding of energy projects, these citizen mechanisms are still often confined to an innovative "niche", but are increasingly visible and highly symbolic, and they are associated with many virtues and promises: improved social acceptance of projects, strengthening of the local governance rationale, maximization of economic benefits at the territorial scale, awareness raising among citizens on energy transition issues, to mention only the most important ones.

Could these mechanisms, however, be deployed across a large scale and with sufficient rapidity to significantly accelerate the energy transition and make it—genuinely—a transition by all and for all?

While the mobilization of local actors was often built on the opposition to a "conventional" model of project governance run by major private actors, on this matter we consider it important to avoid contrasting citizen models with industry ones, but rather to open the way for their possible

1. In the first sense, ownership may refer to the concept of appropriation of projects and assets, particularly in the economic sense. In parallel, from a sociological perspective, this "taking possession" can extend to the psychological and social dimensions: the feeling of being able to influence a decision or an object through its use. In its geographic perspective, the notion also refers to the adaption of the object in question (decision, idea, geographical territory, material object) to a specific context, through the action of the user. Thus, the process of consultation and co-construction can equally promote "local ownership" and the financial participation in projects.

hybridization, combining the innovation brought by citizen approaches with the expertise of industrial energy actors.

In this perspective, this study aims to analyse the modalities of such a hybridization and its implications for transition governance: which participatory models, between citizen and industrial approaches, are now emerging? What motivations encourage industry to participate in or build more participatory projects? And—most importantly—what benefits and limitations can be associated with the different participatory and hybrid approaches implemented, including those under consideration or that could be envisaged in future?

Such an approach through the hybridization of governance models seems particularly relevant in relation to the development of renewable electricity for three reasons. Firstly, it is in the electricity sector that there is the greatest amount of feedback on the functioning and diversity of participatory models, due to their rapid development promoted by good investment conditions that provided the support mechanisms in the form of feed-in tariffs (Roberts, Bodman & Rybiski, 2014). Secondly, the renewable electricity sector, particularly the large wind power segment[2], experiences the most vigorous opposition to projects, making participatory approaches especially relevant in the attempt to overcome these challenges at the local level (Musall & Kuik, 2011; Warren & McFadyen, 2010).

Finally, the shift in the type of support mechanisms currently operating in Europe, driven by the European Commission, which aim to support stronger market integration (Dezobry, 2015) could significantly reconfigure the local dynamics around projects (section 2.3.). These changes imply a requirement of skills (technical, financial) that may exclude local "non-professional" and small-sized actors from the dynamic of project development (IZES, 2014; Jacobs, Gotchev, Schäuble & Matschoss, 2014). Given this risk, the emergence of new "hybrid" project development models, involving local stakeholders and industrial actors, could represent an innovative organizational model based on different possible configurations.

From this framework, this study aims to provide an insight into possible hybridization forms that combine citizen and industrial approaches, through an analysis based on a literature review and interviews with several experts from the energy sector and with participatory project leaders.

The study is divided into five sections:

- An analysis of the regulatory changes brought by the energy transition for green growth law and their implications for participatory renewable energy projects;
- An analysis of the benefits that can encourage industrial stakeholders to adopt these innovative models;
- A description of the existing participatory models and the construction of a new classification according to the criteria of financial participation and involvement in project governance;
- An analysis of the various participatory models according to their respective virtues, with a specific focus on the issue of project approval;
- An attempt to put this analysis into perspective through the identification of regulatory and political issues that derive from the proliferation of participatory models in the context of the French energy transition.

2. DIRECTION OF THE FRENCH ENERGY TRANSITION FOR GREEN GROWTH LAW: TOWARDS A MORE PARTICIPATIVE TRANSITION?

2.1. The level of ambition in the law on energy transition in France

Through national and territorial debates in 2012 and 2013 and the energy transition for green growth law (TECV law), France has set an ambitious national strategy for the decarbonization of its economy and the transformation of its energy model. While the effort in terms of controlling the energy demand represents the first priority, the diversification of energy production is also significant and is based around three key principles: (1) reducing the consumption of fossil fuels in all sectors (-30% in 2030 compared to 2012), (2) reducing the share of nuclear power in the electricity supply to 50% by 2025, and (3) accelerating the development of all sources of renewable energy, increasing their share to 23% of the gross final consumption in 2020, and to 32% by 2030. This accelerated deployment will have a significant impact on all energy sectors (heat, mobility, electricity). But it is the power sector that must lead the way, with the goal of achieving a 27% share of renewable by 2020, and 40% by 2030.[3]

2. Increasingly, this observation on local acceptability difficulties also applies to biogas projects.

3. In 2014, the electricity from renewable sources represented 19.5% of French electricity consumption (RTE, 2015). Achieving the 2020 and 2030 targets presupposes

Far from being an isolated case, this objective echoes the strategies developed at the European level and in neighbouring countries: for example, Germany aims to reach a share of renewable electricity of 50% by 2030, while Denmark seeks to increase the share of wind power to 50% of the electricity mix by 2020, and achieve a 100% renewable supply in the sectors of electricity and heat by 2030. Similarly, at the scale of the European Union, the scenarios of the impact study published in connection with the development of the 2030 energy-climate package aim for a renewable share of 47-66% in the electricity sector (European Commission, 2014:70).

The objectives defined in the TECV law are accompanied by significant regulatory changes. These changes, which are analysed in the following sections, aim firstly to encourage the participation of local stakeholders (communities and citizens) in renewable energy projects and secondly, to adjust the support mechanisms for renewable electricity, to facilitate its integration into European and national electricity markets.

2.2. The legal enshrinement of participatory models

Recognizing participatory models as a potential vehicle for promoting territorial ownership and reducing project approval problems, the law on the energy transition contains several provisions designed to encourage their future development. Defined in Articles 109 to 111, these regulatory amendments include:

- Articles 109 and 110, which facilitate investments by local authorities and boards in renewable energy projects, by allowing them to invest directly in commercial companies (limited companies and joint-stock companies) to take on projects;[4]
- Article 111, which allows the financial participation of citizens and local authorities in renewable energy projects in the form of equity or debt participation with the company leading the project. In this context, renewable energy project companies who wish to use crowdfunding should be exempt from legal obligations related to the public offering of securities, which is a particularly long and costly procedure (Poize & Rüdinger, 2014).

It is worth noting that alongside the parliamentary debates, the possibility of introducing the obligation (rather than allowing the possibility) for project holders to allow access to a part of the capital of sustainable energy project companies has also been considered. Inspired by the Danish model, where the 2008 law on renewable energy states that at least 20% of the capital of wind project companies must be open to local residents, this provision has not however been retained. This type of obligation has also been considered as risky, being detrimental to project leaders by adding a new level of complexity to the development process, which is already perceived as difficult (SER, 2014).[5]

Another interesting observation emerges from the comparison of the legislation and the impact assessment with which it is associated. Indeed, while the provisions of the bill exclusively target the financial participation of citizens, the explanatory memorandum also addresses participation in project governance from as early as the design phase, stating that: "*The acknowledgement of acceptability problems for many renewable energy development projects in France and other countries, and the study of the arrangements implemented in some countries, shows that the participation of local residents in such projects, particularly by enabling them to understand and participate in the definition of these projects, greatly improves acceptability*."[6] While this distinction between participation in finance and in governance has had relatively little attention in parliamentary debates, it remains at the heart of the issue on participatory models and is addressed throughout this study.

Finally, the provisions of Article 111 to remove the financial contribution to renewable energy project companies from the system of the public offerings of securities (OPTF) from the French Monetary and Financial Code may also raise questions about their legal and operational validity. Indeed, while the regulatory requirements associated with OPTF to protect investors against the

a major acceleration in the project deployment pace in the coming years. The President of the French Renewable Energy Union (SER), Jean-Louis Bal, has indicated that "France can forget about its renewable targets for 2020," especially due to the delay on wind farms (terrestrial and offshore) and biomass: Pierre Le Hir, Le Monde, 12 February 2015.

4. This development may be important insofar as the creation of an umbrella company with a majority public ownership (for example, in the form of an SEM or a local public company) was previously obligatory for the integration of a community into the project, making the setting up process longer and more complex.

5. Furthermore, the French State Council had also expressed doubts about the validity of such an obligation, which would impair the freedom of enterprise and the right to property (Bareigts, Battistel, Buis, Baupin, & Plisson, 2014).

6. The Explanatory Memorandum is available at the following address: http://www.assemblee-nationale.fr/14/projets/ pl2188-ei.asp#P3194_322057

risks entailed seem too complex with regard to renewable project companies, the total exoneration of these companies from any regulatory obligations can also lead to new difficulties.[7] Thus, it is important to think about an alternative control mechanism, which is less cumbersome than the OPTF in its application, but making it possible to protect potential investors against excessive risk. In this regard, some actors have suggested, for example, that the financial participation of local communities could be used as a "safeguard" to prevent any divergence by project companies. Another alternative would consist of the definition of a fully fledged mechanism for monitoring and auditing, for companies that are exempt from the OPTF rules, as is the case in Germany for cooperative societies, subject to regular monitoring by their regional federations (Poize & Rüdinger, 2014). Moreover, there is a major question regarding the application scope of such an exemption: in the absence of a legal definition of the criteria for classifying participatory projects, the article in fact refers to a decree from the French State Council that would have to determine "*the amounts of tenders, the nominal values of securities, asset classes and the categories of investors to whom the aforementioned offers (...) do not constitute a public offering within the meaning of Article L. 411-1 of the monetary and financial code*."

2.3. Putting the participatory model to the test with new renewable energy support mechanisms

Although hardly thematized in the national energy transition debate, the provisions relating to changes in renewable electric energy support mechanisms represents a major reform of the TECV law (Articles 23 and 24). These reforms are directly inspired by the "Guidelines on State aid for environmental protection and energy for 2014-2020", adopted by the European Commission on 9 April 2014, which recommend in particular two important principles:[8]

- Replacement of guaranteed feed-in tariff type support measures for electricity from renewable sources with a mechanism associating a premium in addition to the market price from the direct sales of renewable electricity on the wholesale market, applicable to all new facilities from 1 January 2016;[9]
- From 1 January 2017, these support measures, in the form of "premium + market", will be supplemented by an allocation according to a competitive bidding process, complying with the principle of technological neutrality: all renewable technologies targeted (wind, solar photovoltaic, biomass) should thus be in competition on the basis of the criterion of cost-effectiveness.

While these upcoming regulatory changes affect all renewable projects, the feedback from neighbouring countries shows that they can be particularly disadvantageous for small project holders such as local authorities or citizen groups. Finally, for citizen projects, these new challenges will be added to the many regulatory barriers that have already been identified concerning the complexity of legal arrangements and access to financing (Poize & Rüdinger, 2014).

Thus, the direct marketing obligation for electricity that has been introduced by the shift to a "market + premium" scheme requires technical skills that these project initiators do not usually possess (IZES, 2014).

Furthermore, by increasing the complexity of the development and operation of projects, this change may lead to an increase in the level of risk perceived by investors, thus increasing the cost of capital (Degenhart & Nestle, 2014).

In the medium term the generalization of bidding procedures for the allocation of support mechanisms could greatly increase the barriers to market entry for citizen projects. A study by the German Alliance for citizen energy (*Bündnis Bürgerenergie e.V.*) indicates that this procedure runs the risk of completely excluding small "non-professional" project holders from the market, due to the risk of stranded investments and financial guarantees that are necessary for an eligible application (Degenhart & Nestle, 2014: 85).[10]

7. For example, the law does not indicate a maximum sum in the call for public savings for project companies targeted by Article 111. This could indirectly penalize funds regulated by the Ordinance on crowdfunding of 31 May 2014 (essentially the crowdfunding platforms on the internet), for which a ceiling of one million euros per project and a limit of one thousand euros per citizen investor and per project had been defined.
8. For a more detailed discussion of the features of the guidelines applicable for electricity from renewable sources and questions on the political competencies that they raise, see Dezobry (2015).
9. To further study the reform of support schemes for renewable energy (Mathieu, Rüdinger, 2016).
10. The German study cites a figure of €100,000 for the creation of an application, based on interviews with professional developers, funds that may be completely lost if the project is not selected. While this risk is acceptable for an industrial developer who can offset stranded investments through the realization of other projects, it appears excessive for a citizen initiative on a single project. For a discussion of how to include community projects in a call for tender mechanism, see the study (Jacobs, Gotchev, Schäuble, & Matschoss, 2014, in German).

While they already constitute a very small minority in the French context, these regulatory changes to the support mechanisms for electricity from renewable sources consequently risk making it very difficult (or even impossible) to implement citizen renewable projects (initiated and controlled entirely by local actors). Without commenting on whether (or not) this move is a conscious choice by the regulator, these new challenges will therefore tend to push local actors who seek to initiate projects to search for hybridization solutions based on new forms of cooperation with industrial developers. These industrial developers could also decide to take an interest in these participatory approaches, which potentially provide added value for projects.

3. PARTICIPATORY MODELS: WHAT ARE THE MOTIVATIONS FOR INDUSTRIAL STAKEHOLDERS?

The analysis of the emergence of participatory renewable energy models has hitherto strongly focused on the motivations of local actors to initiate and become involved in projects (Boon & Dieperink, 2014; Doci & Vasileiadou, 2015; Seyfang, Park, & Smith, 2013; Walker et al., 2010). Conversely, few studies question the factors and motivations that can promote and encourage the adoption of such innovative models by industrial actors. On the basis of interviews conducted and a literature review, this section aims to identify initial ideas on this issue, before focusing on the question of which participatory models can be applied.

A commitment to a participatory energy transition: initially, the shift towards more open and participatory project models can respond to the will to develop innovative solutions. We can therefore schematically distinguish between an "ethical" commitment, derived from a proactive approach based on strong convictions within a company,[11] and a more reactive attitude, responding to the expectations of other actors: by the regulator or political authorities at the national level, by local authorities or by citizens directly. In some cases, the adoption of participatory models can also begin as a result of external pressure, before becoming a specificity of a company itself.[12]

Defusing difficulties associated with local project acceptance: this argument is particularly present in the case of wind farms and biogas projects, which often entail significant problems of local opposition. New modes of project participation are then perceived as levers enabling the strengthening of local and citizen ownership of projects. This enables the modification of the interaction between actors by providing a means of "collaborative" participation for local actors who are committed to the project, where the regulatory framework provides primarily a "confrontational" form of participation through legal recourse (Fortin & Brisson, 2015).[13] However, this argument continues to incite debate[14] given that the results in terms of improving acceptability will depend heavily on the local context of the project and on the nature and level of participation in the project: in some cases, the possibility of a minority financial participation may be sufficient to enable local ownership of the project. In other cases, the same actors may demand the collective control of a project for it to be fully accepted. Moreover, regardless of the participative model, results in terms of acceptance can never be guaranteed, because participatory approaches only rarely affect diehard project opponents (see Box 1).

Developing a new corporate image and strengthening customer relations: the development of participatory projects can also be a way to change the image of a company and rebuild its customer relations, shifting away from the classic "supplier-consumer" image to move towards a more cooperative model of project pooling. For example, this direction has been taken by local cooperatives developed by the energy companies RWE and EnBW-City in Germany (see section 4),

11. Thus, during the interviews, some medium-sized developers put forward their "militancy" and values to explain their pioneering role in the adoption of participatory approaches, like Valorem or Quadran (formerly Aérowatt).

12. This amounts to the transposal to the company of the theory of regime evolution in the multi-level approach developed by Geels and Schot: innovation can firstly come from a niche that is external to the dominant "regime" (the functioning of the company), before being adopted as part of the same regime (Geels & Schot, 2007).

13. In this sense the interaction between actors evolves from a field where only the developers and local opponents are visible, to a configuration where the opponents are also confronted with some of the local actors committed to the project.

14. At this point, few scientific analyses enable the precise study of the varying degrees of acceptance or local opposition depending on the development model implemented. Quantitative analyses including a limited number of local case studies in Germany (Musall & Kuik, 2011), Scotland (Warren & McFadyen, 2010) and Belgium (Bauwens, 2015) nevertheless seem to confirm the hypothesis of a significant improvement in the local acceptance of wind projects in the presence of shared governance from as early as the project design phase. See also: Viardot, 2013; Walker, Devine-Wright, Hunter, High, & Evans, 2010; Yildiz *et al.*, 2015.

and can also apply to the intermediation of projects by crowdfunding platforms, which beyond their financial function, can also be a useful communication tool.

Mobilizing new sources of funding for projects: the adoption of participatory models can also address a limitation related to financial resources. However, in the current financial context where borrowing at historically low rates is possible, this reason remains confined to arrangements where citizen funding can indeed replace a part of the equity invested by the developer, the latter usually having a profitability requirement that is higher than that of citizens. Nevertheless, the advantage of this approach is highly dependent on the capacity of the industrial actor to raise equity on capital markets at a lower cost. While this may be of interest to small developers that may have significant constraints on their available capital (and no access to capital markets), it seems less relevant for large groups able to raise large sums on the stock and bond markets.

Diversifying the range of services offered: the adoption of participatory models also enables the industrial stakeholder to diversify its range of services, in a context where an increasing number of project partners (including communities) want projects in their territories to be open to participation. Thus, to avoid having to create a new entity, the RWE group did not hesitate to integrate its cooperative "Bürgerenergie eG" in the financing of a project, although this cooperative was legally independent of the parent company, to have an intermediary tool of citizen co-financing. Similarly, the development of highly innovative participatory models can be an asset when bidding (locally or nationally) to give specificity to a proposed project.

Meeting a regulatory standard: the adoption of hybrid models could also meet a future regulatory requirement, such as the obligation to open up the capital of companies involved in renewable projects which had initially been introduced by the government (then again by the Senate) in the law on the energy transition, based on the model applicable in Denmark (Mendonça, Lacey & Hvelplund, 2009).[15] In the same spirit, it is quite possible that future renewable energy bids may insist on the participation of local actors in the specifications as an eligibility criterion, which would, however, raise a new challenge, that of the legal definition of what is, or is not, a participatory model.

15. In Denmark, the law on renewable energies has, since 2008, required developers to open at least 20% of the project company capital to residents living near the project (Roberts, Bodman, & Rybiski, 2014).

Box 1: Acceptability and acceptance of projects: defining concepts

The improvement of social acceptability is usually cited as the primary motivation for the adoption of participatory models. Nevertheless, the absence of a clear definition of these concepts can lead to major shortcuts in the thought process. Thus, the widespread argument that links financial participation to the acceptability of projects ignores the multi-dimensionality of the social acceptability concept applied to renewable projects (Fournis & Fortin, 2013). According to Fortin and Brisson (2015), *acceptability* refers to the process of negotiation between different actors at the territorial scale, calling for a wide range of topics to redefine the technological project and facilitate its anchoring in a given territory in terms of socio-political, geographical, historical and economic dimensions. This anchoring therefore also refers to a symbolic and ideational appropriation of the project by local actors related to the ability to change the concepts of "territory" or "landscape" by integrating this new project, rather than by creating a sterile opposition between the technological equipment and the aesthetic value of the landscape (Labussière & Nadaï, 2011).

Conversely, *acceptance* refers to the outcome of this process, which is never binary (10% for or against) and can take many forms (active acceptance, passive acceptance by a "silent" majority, non-acceptance).[1] In this sense, the financial participation may provide an input to the negotiations and influence the game of actors, but cannot alone determine a negotiation that includes other non-economic dimensions (landscape impact, pollution, local ownership, etc.).

This definition of concepts thus raises a major question about the purpose of the acceptability process. According to Fortin and Brisson, considering it as a top-down approach that necessarily ends with the "passive" acceptance of the project as designed ex ante by an actor external to the territory, would in many cases be the principle reason for the emergence of a strong opposition. Conversely, focusing on the process itself, ensuring a genuine co-development of the project from its conception amounts to an admission that a project remains open to different outcomes, including non-acceptance: "The best processes do not always lead to acceptance" (Fortin & Brisson, 2015).

1. This distinction between acceptability and acceptance is particularly relevant for emphasizing the fact that the acceptability process remains open to many outcomes. In this sense, the fact of considering this process as a top-down approach that necessarily ends with (passive) acceptance of the proposed project would in many cases be the principle reason for the emergence of a strong opposition (Fortin & Brisson, 2015).

Although not exhaustive, this first assessment enables the illustration of the diversity of motivations that can mobilize professional energy actors in the broad sense (developers, suppliers, financiers) to be more involved in participatory models, whether related to a specific need (to improve the acceptance of a project locally, mobilizing new sources of capital, project communication) or with a more strategic objective (tools for communication and corporate image, diversification of the proposed services, cooperation with new actors and the anticipation of future regulations).

4. THE DIVERSITY OF PARTICIPATORY MODELS: A CLASSIFICATION

Participatory projects currently include a multitude of models, a diversity that is also reflected in the terminology used. In English language literature, many concepts have been used to describe and analyse this phenomenon[16] without necessarily associating it with a single definition or specific forms of participation.[17] The same confusion can also be observed in the French literature. Indeed, references to "citizen", "participative", "local", "collective" or "territorial" projects are often used to designate the same projects and approaches, while referring to different characteristics.

For purposes of clarification, the classification developed here aims to address three objectives:

- To better distinguish the main groups of development models (industrial, participatory, citizen) by referring to an analytical framework and common criteria (section 4.1.);
- To develop a mapping of existing participatory models according to their main characteristics (section 4.2.);
- To evaluate these models based on the expectations and virtues associated with them, as well as their potential limitations (section 5).

4.1. Classifying models according to the criteria of participation in financing and governance

For efficiency this analysis is based on two defining criteria, which enable the positioning of all models on a single matrix: the involvement of local actors in project governance and participation in funding.[18] These two criteria also enable the reflection of the two dimensions of the collective governance concept, put forward in the synthesis of the national debate on energy transition: "A transition by all (collective governance) and for all (financial participation and profit distribution)" (CNTE, 2013). Our analysis therefore puts other criteria aside, such as the legal forms associated with these arrangements, which have already been the subject of analysis (Cichowlas, 2011).

According to this classification, we can define participation in governance as an opportunity to actively influence the decision-making process at all phases (design, development, operation) of the project. In short, the two opposite extremes of this classification would be, at one end, a project fully controlled by an actor that is "external" to the territory, where local actors have no power of influence (except through regulatory procedures or the possibility of appeal); and at the other end, a project that is entirely designed and controlled by local actors (public, private, citizen) that are located in a project's vicinity. By extension, the notion of "local anchoring", which is often used in connection with participatory projects, refers primarily to the existence of collective governance, which necessarily includes the major involvement of local actors.[19]

The second criterion of the matrix is financial participation. It can take many different forms, firstly in terms of varying levels of participation: we can distinguish between projects in which local actors hold the majority of the capital of the project company, and projects where local actors have a minimal or even symbolic amount of financial participation. Secondly, this variation may relate to the nature of the "participatory" funding, which can take the form of an equity investment (that usually confers voting rights), investment in bonds (assimilated or not with equity, generally not convertible into shares), or participation in the project debt. Finally, this also includes the question of modalities and the financial participation channel, according to whether it intervenes directly or through the intermediation of an online crowdfunding platform, a bank or a capital market.[20] At first glance there seems to be a clear link between these two dimensions, the decision-making power

16. For example, the terms include *"community renewable energy"* (Li, Birmele, Schaich, & Konold, 2013; Walker & Devine-Wright, 2008; Wirth, 2014), *"renewable energy communities" (Dóci, Vasileiadou, & Petersen, 2015), "renewable energy cooperatives" (Viardot, 2013; Yildiz et al., 2015), "citizen-led energy projects" (RESCOOP, 2015; Yalçın-Riollet, Garabuau-Moussaoui, & Szuba, 2014), "financial citizen participation" (Yildiz, 2014), "local civil society based renewable energy organizations" (Boon & Dieperink, 2014).*

17. These forms include, for example, the involvement in the financing or governance of the project itself, the co-development of an upstream local transition strategy and the creation of initiatives (educational, commercial, tourism) marking the local anchoring and integration of the project in a territorial rationale.

18. This matrix also reiterates closely that developed by the British researchers Devine-Wright and Walker, in their study of community projects in Britain. The two researchers established their typology by differentiating the dimension of the "process" (terms of development and governance of the project) and "result" (distribution of funds and economic impact) (Walker & Devine-Wright, 2008).

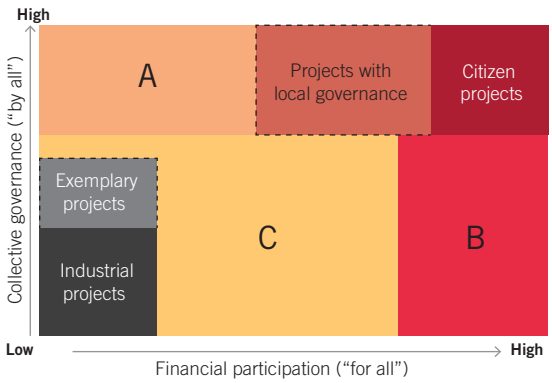
19. Conversely, this geographical proximity is not a priori present on the financial dimension, the project can be fully funded by citizens external to the territory, for example via a national or European crowdfunding platform.

20. Referring to the typology used by Devine-Wright and Walker, the financial aspect may also include the question of the distribution of economic benefits, it can vary between two extremes "local and collective" and "remote and privatized" (Walker & Devine-Wright, 2008).

of local actors in relation to project companies is generally proportional to the capital shares held. This logical link must nevertheless be qualified, for various reasons:

- Firstly, because the majority of crowdfunding mechanisms (particularly through crowdfunding platforms) take the form of investments in bonds (non-convertible) or of debt, which does not confer voting rights;
- Secondly, since it also depends on the legal form chosen, some (such as cooperatives) grant voting rights independently of the subscribed capital;[21]
- Conversely, in the case of "democratic" governance, it is important to differentiate between the possibility of voting rights and the effective exercise thereof. Thus, while the functioning of a cooperative society in theory gives the same decision-making power to all of its members, some may not exercise this right, either through lack of interest or time, or due to the trust they place in the project leaders, while being reassured by the obligations of transparency and the opportunity to exercise their influence in cases of disagreement that may arise;
- In the same way, a majority shareholder may well grant a high importance to dialogue (or even consensus) with its minority partners, without any actual distribution of voting rights: thus, some projects may be subject to an important consultation work or even collaborative governance with local actors, without these actors being financially involved (see Box 2).

Figure 1. Model classification according to criteria for participation in financing and governance



Source: IDDRI (2015).

21. In *sociétés coopératives d'intérêt général* (SCIC), the voting rights are distributed according to the democratic logic of "one member, one vote", regardless of the volume of subscribed capital. The sociétés par actions simplifiée (SAS) may also enter this mode of governance in its statutes or set other conditions (voting rights defined by groups and shareholder pacts, guaranteeing a certain impact for actors regardless of their capital shares).

Box 2. Taking the diversity of "industrial" approaches into account

The differentiation between "industrial" and "participatory" approaches for project development is commonly carried out based on the opening of the project to the financial participation of citizens and local authorities. However, this distinction based solely on financial criteria leads to the neglect of the diversity of industrial models that may exist and which, without necessarily offering financial participation, may be more or less virtuous in terms of governance processes. Thus, some industrial developers do not hesitate to go beyond the regulatory requirements for consultation and public information to improve the dialogue with the residents and elected officials concerned. For example, the French *club des collectivités locales* éoliennes (CLEO) initiated by the Amorce association[1] has recently developed the "Charter of communities and professionals for the territorial and joint development of wind farm projects", which aims to promote the best consultation and communication practices for projects, ensuring that local elected officials are involved at all stages of the process.

1. Founded in 1987, Amorce brings together more than 820 community associations and companies involved in waste management, energy and heating networks in France.

Based on the criteria of governance and financial participation, three major families of models can be defined, as shown in Figure 1:

- At one extreme are the projects developed by a conventional approach, focused on direct financial profitability[22] (shown in grey in Figure 1), which do not include the financial participation of local actors and for which the involvement in governance is generally limited to provisions of the regulations (information meetings, public surveys, possibilities of appeal), although some "best practice" projects aim to have greater consultation with local actors (Box 2);
- At the other extreme are projects that are designated as "citizen" projects (shown in red in Figure 1), developed around a collective governance and financing that is controlled by local actors (citizen and/or local authorities), which are often associated with specific objectives in terms of local anchoring, collective governance and the maximizing of local economic benefits (Box 3). Beyond the projects that are fully controlled by local actors (governance and financing), this family also includes projects that promote local governance without local actors holding the majority of capital (Box 5);

22. All renewable energy projects are by nature "industrial" projects, requiring major technology and technical expertise. It would be more appropriate to differentiate the projects exclusively adhering to a rationale of financial profitability and those aiming to include other objectives (local anchoring, distribution of profits, etc.). The term "industrial" is used here for simplification.

- Finally, the A, B & C areas represent the diversity of "participatory" models deriving from forms of hybridization between these two approaches, combining the industrial approach to varying forms and levels of citizen and local participation to project financing and governance. Inspired by the typology developed by Walker and Devine-Wright (2008), these participatory models are grouped into three categories: firstly, models that focus on the strong involvement of local actors in project governance (A), with varying levels of financial participation (absent, weak or strong); secondly, models that leverage strong financial participation (B), but without being subject to a very strong collective governance; and finally, all models that incorporate participation in financing and/or governance at a low level (C).

Although very schematic at first, this analytical framework remains relevant for analysing the different project model "families" in relation to the objective of an "energy transition by all and for all". Indeed, while the approach solely through the financial dimension, as put forward in the TECV law, remains a relevant entry point to facilitate the sharing of benefits "for all", it does not go far enough to address the key issue of a collective governance of projects "by all", although this seems to correspond to a real expectation from actors, as evidenced by the numerous projects developed in this perspective.

4.2. An analysis of the diversity of participatory models

On the basis of the analysis of the motivations of industrial actors, as well as on the classification of large families of project development models described in the previous sections, this section aims to further explore the various participatory models that have already been implemented by industrial actors in France and Europe:

1. Investment funds that group together private investors represent a first model, although one less directly related to participatory approaches focused on a specific project. In this case, a developer (or financial actor) creates a financial company that ultimately becomes the owner (majority or minority) of one or more developed projects.[23] The financial contribution is not made on a criterion of proximity and is intended for informed investors (individuals or financial managers) with a familiarity with equity investments and an ability to invest large amounts. Being a purely financial commitment, private investors are not involved in the governance of projects.[24]

2. Forming associations among a limited pool of investors involved in a project: to test the possibility of widening the financial participation, some industrial developers have proposed

Box 3. Differentiation between "participatory" and "citizen" models

In the first instance, participatory projects involve all models including citizen participation, without any distinction in nature (governance, financing) or in the level of involvement (minority or majority). Within this group, citizen projects evoke the concept of majority control by local actors (citizens, communities). As a first initiative to clarify the definition of citizen projects, the *Energie Partagée* Charter gives the following distinguishing criteria:[11]

- Local anchoring, which materializes as project control by individuals or local authorities.
- Non-speculative objective, through the limitation of the return on capital and, ideally, the allocation of a share of the profits to new citizen projects or actions of solidarity and awareness-raising on transition issues in the territory.
- Cooperative type of democratic governance (one member, one vote), around the principle of transparency in decision-making and financial aspects.
- An ecological commitment, combining investment in sustainable energy sources with an effort to reducing energy consumption.

As a body of evidence, these criteria have the advantage of clarifying the main objectives of citizen projects, while highlighting issues, including among actors involved in the citizen project movement (Labo de l'ESS, 2015): for example, can a local authority-controlled project be considered as a "citizen" project if it has strong local anchoring but lacks direct citizen participation? Considering the high risk associated with renewable projects (wind in particular), where is the line between a "fair" return on capital investment and a purely lucrative or speculative approach? Is cooperative governance practicable in all cases, including when legal persons (communities, developers, banks) hold significant capital shares? And what specific criteria could ensure that the energy generation initiative is genuinely coupled with a usage control approach?

Rather than challenging the approach of citizen projects, these definitional issues instead demonstrate the difficultly of integrating criteria of very high standards into a single definition, while leaving the necessary flexibility to allow the emergence of a variety of models adapted to local situations.

1. Available at: http://energie-partagee.org/le-mouvement/la-charte-energie-partagee/

23. For example, this approach has been developed by the German wind energy company AboWind with its listed holding company ABOInvest, which is owned by 4,000 individuals; and also by the French developer Cap Vert Energy, which offers an equity investment with a minimum amount of €50,000.

24. The German company Prokon was a known example of this model. However, financial mismanagement forced the company to declare insolvency, before being transformed in August 2015 into a citizen cooperative with over 37,000 members. Its activities cover the development and operation of wind turbines (537 MW) and electricity supply (40,000 clients).

co-financing deals for specific projects. In France, these deals usually include restrictions, to avoid falling within the scope of the complex regulations on public offerings of securities (OPTF). Thus, such deals are directed to a small group of investors, a maximum of 150 people, so they are not considered as public offerings and include a relatively high entry point (a minimum of around €1,000 to €5,000).[25] Citizen investors are generally (but not always) located near to the project site (landowners directly affected by the project, residents). The investment is usually in the form of bonds, without voting rights in the project company and citizen funding remains limited.

3. Setting up projects through crowdfunding platforms: increasingly, instigators of renewable energy projects rely on crowdfunding platforms (which may or may not be specialized in renewable energies) to co-finance their projects. Compared with previous models, this one has a significantly lower minimum investment: in some cases, project participation is possible for just €25. The maximum amount of participatory investment depends on the nature of the funding, with a limit of €1,000 per person per project, which has been introduced for loan-based financing, that does not apply to bond financing.[26] Financial participation in the project company is usually through bonds or loans without any associated voting rights. In some cases, the project initiator may propose an enhanced remuneration rate to residents living near the project (for example in the same county) to promote local anchoring.[27] Fundraising can take various forms depending on the desired object: some project developers use citizen funding for a relatively short duration with a rather high rate (5-7%). Citizen funds are then used to substitute equity capital to finance the study phase before setting up the project (particularly for wind farms). In other cases, citizen funding intervenes during the financial planning of the project. It can then substitute a part of the bank loan, with equivalent conditions (duration, remuneration).[28] Similarly, citizen capital can substitute a portion of equity capital held by the project managers. In general, citizen funding still only makes up a small proportion of the final package.

4. Creating an "in-house" crowdfunding platform: the industrial stakeholder can also choose to develop their own financing platform, enabling them to propose a crowdfunding option on projects that they develop, where they control all modalities, or even propose this service to other project holders.[29]

5. Developing partnerships with local banks: used in a growing number of projects, this model most often takes the form of a time deposit account offered by the partner bank (or banks). Citizen savings are then used later in the project, either as a loan or as equity capital. This type of financing may also be used after project completion, allowing citizens to gradually acquire shares while greatly reducing the financial risk, the project having already been completed and put into operation.[30] In this situation, the transaction enables the project manager to release equity capital for new projects. Generally, this arrangement is developed with local banks and is intended primarily for local citizen investors, potentially enabling the promotion of local anchoring.

6. A specific project development service: the involvement of industry stakeholders can also take the form of a specialized project development

Box 4. Promoting the gradual rise of the influence of local actors

The green energy operator Valorem has created a particularly innovative form of partnership to enable local communities and citizens to gradually become involved in the project, while limiting the risks. In this model, the developer is the only project company investor from the outset and takes on the risk of the development. At the same time, the developer signs a unilateral promise to release shares to communities wishing to engage. Local investors (communities and citizens through an SEM or crowdfunding platform) may purchase shares after the commissioning of the facility, to buy back part of the site. Through its progressive nature, this scheme helps communities gradually increase their participation in the project by recycling tax revenues from the same project, thus allowing communities with a limited budget to commit to the project to optimize economic benefits for the territory.

25. For example, the park of *Haut des Ailes*, developed by Erelia (subsidiary of Engie) in Moselle, was one of the first projects to mobilize this approach in France in 2005. The average contribution of local citizen investors is more than €18,000 each, totalling €1.8 million, compared with the total investment into the park of €35 million. For more information: http://www.arehn.asso.fr/outils/Catalogue_ actions_DD/01_lorraine.pdf
26. Ordinance No. 2014-559 of 30 May 2014 on crowdfunding.
27. For example, such bonuses for citizen investors living near the project were given by the renewable energy developer Valorem in a wind farm financing project in the Somme, through the Lendosphere platform.
28. This arrangement is for example used by the crowdfunding platform Lumo, which specializes in renewable energy.
29. In the same vein, in late 2015 Engie launched its own crowdfunding platform for renewables, called "Green Channel".
30. This participatory investment model in existing wind farms was notably promoted in France by the developer Valorem.

service for participatory and citizen projects, to advise and assist local project initiators at the different stages of the project, from the design to the operation. This is for example the case for "Bürger-Energie eG" (citizen energy plc) developed by the German energy company EnBW.[31] This company offers a service exclusively focused on participatory and citizen projects for local actors (cooperatives and communities), without necessarily becoming a shareholder of the project company. Similarly, industry stakeholders may propose the development of "turnkey" projects for which they meet all development costs before selling them to local actors. However, such a model is only possible if local actors have the necessary financial resources for the purchase. Moreover, this approach should be complemented by a consultation process, along with clear rules on the transfer of property from the development phase, to ensure that the project meets local expectations.[32]

7. Creating local cooperatives: some operators may also choose to develop their own structures for the implementation of participatory renewable projects. This is the case for the initiatives developed by the German energy companies EnBW and RWE. EnBW has created a local cooperative that aims primarily to promote the development of solar projects in cooperation with the group's employees, while also targeting other individual investors. For RWE, the "BürgerEnergie eG" cooperative primarily targets the electricity provider's customers. The cooperative has co-funded the development of several photovoltaic parks and wind farms, developed by RWE Innogy (the group's renewable energy development branch). In the case of PV plants, these include rooftop installations on the group's offices, and customer and employee buildings. Independent from the industrial group, this cooperative also enables an increase in the service offering. Thus, if a municipality seeks to encourage citizen participation on a specific project, RWE uses this cooperative as an investment vehicle.

8. Creating *"sociétés d'économie mixte"* (SEM): as a form of public-private partnership with a majority public involvement (51% to 85% of the capital), the SEM cannot be described a priori as a "hybrid" model in the sense that the initiative derives from communities and not from the industry stakeholder. In the case of certain SEMs, which are structured so that they have an involvement in several projects (as a manager, investor or operator), the durable partnership with industry stakeholders can also be problematic, in the sense that each project should normally be subject to competition between contractors.[33] Thus, for SEMs with a renewable energy specialism, private shareholder participation primarily comes from the banking sector (*Caisse des Dépôts*, private banks) rather than industry stakeholders.[34] However, there are a number of exceptions, whether in the field of hydropower or other renewable sources.[35]

9. Developing local projects with shared governance: in this case, the industry stakeholder directly partners with local actors (citizens and/or communities) to develop the whole project together from the design phase. The principle of shared governance can take many forms, the developer may have a majority or minority stake in the project company, while ensuring that local actors have a sufficient power of influence (see Box 5). This model can be described, first and foremost, as the most "participatory" of the hybrid models, in the sense of a real sharing of project governance. However, this model has certain constraints. Firstly, co-development requires that all stakeholders (particularly local actors) are willing to share the risks associated with the development phase of the project,[36] which are usually borne by the de-

31. EnBW is the third largest electricity producer in Germany after E.ON and RWE. The company belongs exclusively to local and public investors: the Baden-Württemberg region and the federation of municipal companies each hold 47% of the company.

32. For example, the wind project Clamecy-Oisy was developed through this approach, the project company which was brought initially by industrial stakeholder Abo Wind, with an important consultation work carried out by citizen associations and local elected officials, which were ultimately intended to hold a share of the project. However, the conditions of recuperation had not been clearly established and the project is currently the subject of a dispute between local stakeholders and the developer.

33. However, there are exceptions, like the SAFIDI subsidiary of the EDF group, which has invested capital in about 40 SEMs in France, which are particularly active in planning, but also in the development of renewable energy projects (SAS Eilan in Brittany). Similarly, the developer Quadran is one of the private partners of the PER SEM in Herault, which aims to promote biogas.

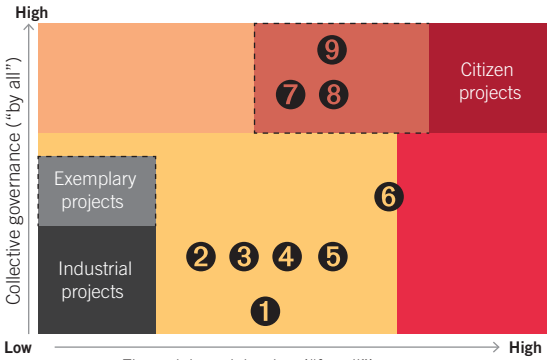
34. This is for example the case for the SEMs: Energy Posit'IF (Île-de-France), Sergies (Poitou-Charentes), Anjou ENR (Pays de la Loire) or Nièvre Energies (Burgundy).

35. Article 118 of the Act on the energy transition to green growth provides the opportunity to create new single purpose SEMs for the renewal of hydroelectric concessions, on the initiative of the State and Local Government.

36. The development phase here means the steps preceding the actual project realization, namely prospecting and detailed assessment (technical potential and impact studies, land security, connection, etc.) and the pre-trial phase (obtaining building permits, public enquiries and authorizations for installations classified for the protection of the environment, connection requests, etc.). Development can be extremely costly (in the case of a wind project: several hundred thousand euros), and these

veloper. Secondly, this approach can also be more complicated to implement due to the multiplicity of stakeholders with an ability to exert influence on the project.

Figure 2. Classification of different participatory models



❶ investment fund-owned project
❷ projects with a limited pool of local or dispersed investors
❸ external crowdfunding
❹ in-house crowdfunding
❺ partnerships with local banks
❻ specific development service
❼ creation of local cooperatives
❽ local SEMs
❾ local projects with shared governance

Source: IDDRI (2015).

Using the classification set out in the previous section, Figure 2 shows these initiatives in relation to the landscape of participatory models.[37] This mapping necessarily remains schematic in the sense that each model can be applied in very different ways. Nevertheless, it can be seen that the majority of models focus primarily on a "moderate" participatory approach, i.e. usually in the form of a minority financial involvement. Besides which, these models are the easiest to implement and are the most used today. Conversely, while approaches that include shared governance remain the exception at present, their diversity offers scope for numerous models—local cooperatives, SEMs, dedicated development services—which could proliferate in future, provided that their specificities and added values are better understood by local actors, but also by the industry stakeholders, who could seize them.

funds can be completely lost if the project is cancelled following a refusal of a permit or the validation a legal action against the project.

37. This classification is necessarily simplified, since all models can be applied in various conditions: for example, co-financing through a platform may either only be used for a symbolic part of the project, or enable citizens to become majority investors.

Box 5. The *Ailes de Taillard* project, an exemplary approach

Initiated by the elected representatives of the Monts du Pilat (Loire) *communauté de communes* and by a local citizen association, the wind power *Ailes de Taillard* project is highly innovative. Following an initial consultation work and an assessment of the potential, elected officials and citizens launched a call for applications to choose an industrial developer in line with the participatory approach of the project, which was won by the company Aérowatt (now Quadran). The approach is original because it is based on the equitable sharing of governance, despite a financial contribution that differs between actors: during the initial endowment, the developer provided 50% of the project company's capital as well as €150,000 into a partner current account without voting rights. The remaining 50% of the capital was shared between the local communities and citizens to promote the co-construction and local anchoring of the project.[11] This shared governance also applies at the board level, even though local actors are unable to maintain their share of funding at the same level in the final financial package, since the project represents €20 million to €30 million. While this approach based on genuine collaborative governance has helped win over the vast majority of locals to the project, there are still opponents who, although in the minority, are sometimes bitterly hostile, which is a good illustration of the complexity of local acceptance processes.[22]

1. The industrial developer has invested €70,000 in capital and €150,000 in the form of a partner current account, while communities and local citizens have provided €35,000 each. Due to strong demand, citizen subscription was limited to a €100 maximum, showing the appetite for investment in local projects. Ultimately, it is also intended that the SPL OSER, the energy project financing tool of the Rhône-Alpes region, will enter the project's financial package.
2. The installed wind measurement tower was vandalized in September 2015. It is hoped that this will not put the project's progress into doubt. See Le Progrès, 18 September 2015.

5. DIFFERENT MODELS, DIFFERENT VIRTUES

While the previous section provides an initial inventory of the diversity of participatory models in terms of their characteristics, it does not address the underlying issue: how can we assess the ability of these models to meet the expectations and objectives of actors? And what limitations should be taken into account?

A first conclusion already emerges: there is not one "perfect" model that is applicable to all situations, but rather the choice depends as much on the priorities of the various actors as it does on the context of each project.

Through the analysis of this classification of models from the perspectives of governance and funding, three groups can be distinguished: firstly, models that are aimed at sophisticated investors; secondly, intermediation through crowdfunding platforms that are designed for large numbers of citizen investors with a low involvement in the project itself; and finally, models based on collective project governance, based on strong local anchoring and shared risk.

Table 1 summarizes the main characteristics of these subsets of models and highlights arbitration matters. It shows in particular that the potential added value of participatory models in terms of local acceptance depends heavily on the ability to establish genuine shared governance with local actors (section 3). Conversely, these models are much more complicated to implement for all actors, requiring an ability to collectively take on the project risks and to manage the governance of a structure built on the diversity of stakeholders (communities, businesses, citizens), objectives and numbers: indeed some cooperatives can have up to several thousand members.[38]

Table 1. Key features and virtues of different hybrid model groups

	Group of sophisticated investors (funds, bank services)	Participatory funding (platforms, in-house package)	Models with shared governance (cooperatives, SEMs)
Raising capital	Medium/high volumes	Moderate volumes	Low to medium and more complex
Entry stake	High	Low	Low
Collective governance	Limited (right to information)	Limited (right to information)	High
Complexity of package	Low	Low	High
Project risk-sharing	Low	Low	High
Local anchoring	None or very little	Variable	High
Added value for communication	Low	High	Moderate (local)
Potential impact on local acceptability	Low	Moderate	Medium to High

Source: IDDRI

Lastly, it is important for three reasons to qualify the somewhat schematic representation of the advantages and limitations of these models:

The first of these reasons is that each of these major "models" can be implemented according to very different modalities. Thus, co-funding projects aimed at a limited number of sophisticated investors may be exclusively targeted to local actors, together with consultation work, and concern a large part of the capital to establish strong local anchoring. Conversely, a co-funding project may be a purely financial operation, targeting sophisticated investors on a European-wide level who have no connection to the project. In addition, financing through crowdfunding platforms can be a communications exercise that lacks any genuine impact on the financial make up of a project or, conversely, it can aim to strengthen local anchoring[39] and co-finance a large part of the project.

Secondly, these models are never mutually exclusive. Many projects for example combine a collective management of the local project company (in varying proportions), with wider co-funding through a crowdfunding platform at the national level, with even the possibility of complementing the funding with an investment fund that groups together sophisticated investors. Thus, it is possible to combine the advantages of the respective models to broaden the financial backing while promoting local anchoring and consultation, as it is for the model applied in the Bégawatt pioneer project.[40]

Thirdly, each project has unique characteristics. Thus, while in some cases a shared governance model can be adapted to change the local momentum in favour of the project, in other cases this is not enough to convince diehard opponents. Conversely, other projects may receive good initial approval, while having difficulties completing the financing package, in which cases other approaches, more oriented towards sophisticated investors or participatory finance, may be useful.

In conclusion, the strength of participatory models therefore lies in their diversity and their hybridization, which enable a better adaptation to the specifics of the project and the expectations of both local actors and industry stakeholders. Indeed, beyond the incentives for industry that may gear it towards a particular model (issues of funding, communication, local acceptability and service diversification), the expectations of citizens and local actors can also vary: while the creation of a shared governance project company may represent an "ideal type" of local anchoring, not all citizens and municipalities are prepared to make such a heavy commitment. In some cases, less binding forms of involvement (the crowdfunding type) may therefore be better suited, ideally combining a whole range of participatory mechanisms and models.

38. This is for example the case of the local cooperative that co-funded one of the first offshore wind farms in Denmark *Middelgrunden*, with almost 10,000 members. In Germany, the change of status of Prokon, from an investment fund to a cooperative, produced a renewable energy cooperative with over 37,000 members.

39. Through subsidized rates for those living near the project or a clause allowing only inhabitants of the territory to invest in the project.

40. Bégawatt combines public funds at the local scale (through investor clubs), with public co-financing (SEM ENEE 44 and SAS Eilan) and capital raising through a crowdfunding platform (Energie Partagée Investissement) and other private partners.

6. CONCLUSION: RECOMMENDATIONS TO SUPPORT THE DEVELOPMENT OF PARTICIPATORY MODELS

While absent from the public debate a few years ago, participatory renewable energy projects are now emerging as a major issue in the discussions on the governance of the energy transition. Nevertheless, beyond the general consensus on the desire to promote participatory approaches, the underlying complexity of their implementation remains inadequately addressed.

This complexity refers primarily to the diversity of participatory models that coexist in relative confusion in the absence of clear definitions and boundaries. However, as shown in the classification developed in this study, these models refer to contrasting participation rationales, whether in terms of their nature, the level of involvement of different actors or the associated outcomes.

Far from being a conceptual artefact, the recognition of this diversity of participatory models has practical implications, firstly for project managers themselves. Indeed, it is synonymous with flexibility, enabling each actor to select (or combine) different models depending on project characteristics and expectations associated with the participatory approach: raising additional financing, communication strategy and image, diversification of proposed services and improvement of the acceptance of projects by local actors. Conversely, the recognition of this diversity also implies an awareness of the fact that these models do not all have the same virtues, especially regarding their ability to change project acceptability, an objective sought in the majority of cases. While the models based on shared governance with local actors are more likely to produce a result in terms of acceptance, they are also the most complicated to implement.

The issue of the definition of criteria to enable the qualification of participatory models also arises from the standpoint of public policy. Indeed, while the law on energy transition introduces provisions to facilitate the participation of citizens and local communities in alleviating certain regulatory constraints, it fails to define the criteria that would enable the identification of the "participatory" nature of a project while restricting the participation modalities to the financial dimension.

However, this simplistic solution can be problematic, in that it avoids raising the issue of the political purpose that is associated with these participatory approaches: is the objective to use these tools to address the problems of local project acceptability to "sweeten the pill"? Or is it to ensure financial participation with a minimum number of local actors? And if this is the case, why? Or is the objective to trigger a real paradigm shift in the management of energy projects according to the adage of "a transition by all and for all", highlighting the collaborative process and democratic governance, as well as the outcome?

If it is this normative vision that is sought, all the conclusions will have to be drawn. This primarily involves the realization by all stakeholders that such an approach is not a "luxury" that is a source of delays and additional costs, but a real necessity from a democratic perspective.

Moreover, this involves addressing issues of governance not as merely debates on matters of principle without any influence on the development of the regulatory and economic framework, but as an essential and cross-cutting dimension. Should it fail to take issues of governance into account, the reform of support mechanisms for renewable energy, which is currently underway, may indeed bring an abrupt halt to the still emerging dynamic of renewable energy citizen projects in France.

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