DEFAULT SHARING RULE AND THE SLOW TAKE UP OF RENEWABLE ENERGY COMMUNITIES IN FRANCE

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Overview

Renewable energy communities (RECs) are local initiatives where community members live close to one another and jointly invest in renewable energy production units. These communities are emerging as key players in the energy transition, fostering decentralized energy systems by encouraging collective self-consumption. Following European legislations, particularly the Renewable Energy Directive II (European Parliament and Council, 2018), national legislative frameworks are required to accommodate RECs and integrate them into their broader energy system.

One critical aspect of this integration is determining how the energy produced that is consumed locally is shared among community members. In other words, the issue lies in the specific sharing rule governing collective self-consumption. Such a rule is key, as it directly influences the distribution of the main benefits and financial returns from the shared energy system, ensuring that all participants receive the rewards of their collective investment. The energy community holds the responsibility of selecting the sharing rule that best aligns with its values and goals. Once chosen, this rule must be communicated to the energy distributor, who will account for all energy flows according to their different nature (collective self-consumption, import from or export to the energy grid). It will then relay the information to the retailer(s) to ensure accurate billing for all members.

The role of national legislations is to ensure the adoption of a technically implementable sharing framework while guiding the selection of rules that support the intended objectives of the policy framework. Unlike other legislations, the French Energy Code does not prescribe a variety of rules to choose from. Instead, it defines the ‘pro rata to consumption’ as a default rule where the renewable energy produced is allocated locally among community members proportionally to their consumption level at each metered point in time, specifically every 30-minute interval. The Code also allows communities to establish their own rules and coefficients for allocating electricity among members.

This study examines the economic rationale behind implementing such a default rule in the context of renewable energy communities. While the rule appears simple and easy to understand, we argue that it raises significant issues that hinder the formation and development of RECs in France.

Methods

To emphasize this point, we adopt several complementary approaches. We begin with using data from Enedis, the largest energy distributor in France, we demonstrate that nearly 90% of energy communities have opted for the 'pro rata to consumption' rule (the default). We then proceed by examining the Brussels region—where no such default rule exists—as a close counterfactual. We discuss this difference supported by behavioral economics literature to explain why communities tend to adhere to this rule. As discussed by Johnson and Goldstein (2003), three interrelated factors can account for this tendency: (1) there may be a resistance to change stemming from status quo bias; (2) the cognitive effort required to deviate from the default is amplified in a community setting, where decisions must be collectively agreed upon; and (3) the default option is often interpreted as an expert recommendation. Hence, defaults are a powerful mechanism to induce behaviors by slightly modifying the decision structure.

In the next step, we argue that two significant issues render the selection of this specific rule as the default problematic. This may, in part, explain the slow adoption of renewable energy communities in France.

First, the 'pro rata to consumption' rule exacerbates a self-selection problem. From a societal perspective, renewable energy communities are most valuable when they include heterogeneous members, for example, households with different consumption profiles and energy needs. However, under the French default rule, members with high demand during production times or those with flexible consumption schedules can secure a disproportionately large share of the jointly produced electricity, leading to an unfair allocation of the local energy. This potential to claim a greater share of benefits discourages participation from members with less favorable consumption profiles, undermining the creation of potential communities.

Second, the default rule creates a moral hazard problem by encouraging overconsumption during production times. Because the sharing mechanism relies solely on proportional consumption within a given time slot, individual members are incentivized to increase their energy use temporarily to maximize their share of the collective self-consumption to decrease their bill. This behavior can result in temporary overgrazing, a phenomenon where the common good nature of electricity leads to inefficient consumption patterns and to a potential rebound effect. Whether this occurs will largely depend on the community's ability to establish effective collective action and self-governance mechanisms.

Results

Default rules are a powerful tool for nudging participants in renewable energy communities towards adopting a specific sharing mechanism. However, in this context, their influence can be problematic. The inherent heterogeneity among potential participants means that a default rule like 'pro rata to consumption' may discourage individuals from forming or joining such communities, as they might perceive limited benefits, particularly in the form of reduced energy costs. Moreover, by tying benefits solely to consumption patterns, this default can incentivize overconsumption, further complicating the functioning of these communities.

Conclusions

Recognizing the heterogeneity of participants and the diversity of possible members is essential when designing policies and frameworks to boost the development of RECs. A one-size-fits-all approach, such as the default rule in the French case, is ill-suited to address these variations effectively. Legislations and energy distributors should adopt a more pro-active pedagogical role, offering clear guidance on the advantages and disadvantages of different rules across various contexts while also being mindful of the impact of default choices. Default rules can strongly influence behavior, particularly in complex or unfamiliar settings, and should be carefully designed to nudge participants towards beneficial outcomes while preserving the freedom to choose alternatives. By promoting informed choice, policies can better serve diverse stakeholders and foster more effective outcomes.

References

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