

## Policy Insight

# Challenges and policy options for harnessing renewable energy-based social networks for renewable energy electrification of small off-grid islands

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## Introduction

In the Philippines, off-grid islands refer to small geographically-isolated islands often dependent on highly unreliable and costly electricity generation, if they are not completely unelectrified. In this Policy Insight, we present the potential of and challenges for harnessing renewable energy-based social networks to realize renewable energy transition in the electrification of these small off-grid islands. Comprising small-scale energy developers and local institutions, these social networks can potentially facilitate the deployment of renewable energy projects and potential national and international collaborations. We also discuss the policy and governance challenges to harnessing these networks and their potential, as well as an assessment of key renewable energy policies in the Philippines vis-à-vis off-grid electrification to recommend actions for harnessing renewable energy social networks. This Policy Insight is produced from the outputs of a project called *ElectriPHI: Electrification Planning for Small Off-Grid Islands in the Philippines*, which, among other purposes, seeks to analyze the structural relations of social groups and institutions involved in renewable energy electrification of small off-grid islands. In small off-grid islands, where large-scale and corporate arrangements towards electrification

become challenging, a possible way of bringing renewable energy is through social networks.

### The potential of social networks in off-grid island renewable electrification

Social networks are multi-centered organizational structures that enable social actors to act collectively. Through desk research and expert interviews with actors in government, non-government organizations, and private companies, we have identified possible social networks that can lead to renewable energy transition in small off-grid islands and found the following:

- *Heterogeneous social networks exist for renewable energy electrification in small off-grid islands.* Comprising small-scale energy developers and energy cooperatives, as well as non-local stakeholders, such as suppliers and installers, these social networks have been working towards the electrification of small off-grid islands with renewable energy resources.
- *Relations across actors occur at multiple levels.* Local networks are also connected to national and global renewable energy developer communities. Some local networks have acquired either technical and/or financial assistance from other countries like Germany, Japan, and Korea. These local-global connections are initiated by either local private entities like island electric cooperatives, resorts, rental places, or by foreign renewable energy companies seeking local partners.
- *Local actors have strategic socio-cultural advantage.* Local networks hold a privileged access to their social capital, including social connections, local information, and trust. Developers with exposure to local investments possess an understanding of the local culture and have therefore established social rapport, if not trust, with local people. Access to this social capital, along with mutual interests across actors in renewable energy electrification, proved essential in collaboration.
- *Peace is maintained and local conflicts are minimized following the establishment of mutual interests.* With rapport established, renewable energy developers are also more familiar with the local political conditions and the key local authorities and stakeholders. This knowledge of the local political landscape is advantageous in quelling unnecessary friction among

interest groups and prioritizing electrification that favor the community.

- *Decentralized collaboration matters.* Renewable energy operations are better managed and sustained when they are supported by local networks because island residents are given the shared responsibilities to maintain the energy system without being patronizing while promoting equal respect.
- *Local energy transition is contextualized in culturally appropriate and sustainable approaches.* Because these social networks entail stronger community participation, decision-making in terms of what energy services have to be prioritized must consider the local sustainability of both natural and socio-cultural environments.
- *Social networks offer geographical advantage in scaling and expansion.* Renewable energy projects developed by social networks have localized operations data that can be easily shared to similarly situated island setups for potential replications. By capitalizing on the local networks, neighboring islands can coordinate working groups instead of transacting individually with mainland networks to start new projects.

Our research affirms that social networks involved in renewable energy operations and development, when capitalized upon, can potentially hasten renewable energy electrification in the Philippines' small off-grid islands. However, current policy arrangements tend to hinder the capitalization of these social networks. In the next section, we discuss some of the policy and governance challenges to the harnessing of these networks. We then present our policy assessment of key renewable energy policies in the Philippines vis-à-vis off-grid electrification in small islands, paying attention to strengthening social networks in proposing new policies.

## Policy and governance challenges in small off-grid island renewable energy electrification

Philippine policies in the pursuit of renewable energy development are currently lacking an innovative approach to create and use social networks in accelerating renewable energy electrification in off-grid islands. Since the development of social networks often takes cue from policy, we have conducted a policy review via documentary analysis of: (1) renewable energy-related

policies and their implementing rules and regulations; (2) publicly available Department of Energy (DOE) circulars on renewable energy use, and the Renewable Energy Act of 2008 (Republic Act No. (RA) 9513); the 2020 Revised Guidelines on Qualified Third Party Policy; and 3) Senate Bill No. 175 or the “Microgrid Systems Act,” proposed in the First Regular Session of the 18th Congress. We triangulated our policy analysis with data from stakeholder interviews, which we conducted between January and July 2020, with actors in government agencies, especially in energy institutions, non-government organizations, and the small-scale renewable energy development sector. Our analysis reveals the following barriers to harnessing social networks for renewable energy electrification in small off-grid islands.

Challenge 1: Laws exist on aiding the electrification process, but they lack detailed regulating policies tailored for small off-grid island specifications.

Since the consolidation of sustainable energy development efforts in RA 9513, various laws have been passed to address new challenges. Some of these laws include the Anti-Obstruction of Power Lines Act (RA 11361), the Philippine Disaster Risk Reduction and Management Act (RA 10121), and the National Electrification Administration Reform Act (RA 10531). These laws highlight the urgency to address energy challenges; however, as respondents from energy-based non-government organizations, private companies, and the DOE observed, these laws fail to specifically address issues unique to the concerns of small off-grid islands. Other than the long duration of processing documents, respondents from local renewable energy generators and the DOE have also noticed the need to review their contract templates which seemed to have been patterned for large-scale main grid applications. Small private companies engaged in small off-grid island renewable energy development who struggle with the intricacies of the bureaucratic processes share this observation.

Challenge 2: "Competitive selection" of renewable energy developers only filters out small and medium-sized enterprises and small electric cooperatives. Within ten years of implementing the Qualified Third Party Policy, only five joint venture schemes were approved to operate in off-grid islands. Most renewable energy deployments are not initiated within the small off-grid islands.

While policies and regulations are in place, big and small energy players are less clearly distinguished, thus unequally discriminating them in the selection process. Some respondents implied unfair selection during the bidding process. However, documents that detail the process of bidding are absent, except for publicly available Frequently Asked Questions and the DOE-released stakeholder discussions on the bidding process—which neither prove nor disprove any of some respondents' claims. What is clear, however, is that there exists a gap between the financing capacities of small and big players in the energy industry that puts a disproportionate advantage to the big players.

Challenge 3: Small and medium-sized enterprises and small electric cooperatives are not incentivized or encouraged to participate in the Renewable Portfolio Standard.

The Renewable Portfolio Standard mechanism stipulated in RA 9513 aims to help promote renewable energy generation for those who are already generating electricity for the main grid. The mechanism, however, fails to translate in the off-grid setting since there is not much economic incentive to engage to begin with. Small and medium-sized enterprises and small energy cooperatives, thus, have been more inclined to participate in the mechanism for reasons beyond its intended purpose such as for humanitarian reasons and untapped potential business opportunities. Private companies are also somewhat discouraged by the long arduous processes to participate in off-grid renewable energy development because of the lack of economic incentives and financing opportunities available to them.

Challenge 4: Reliable and consistent off-grid island profiles are lacking which also introduces uncertainty for potential renewable energy investors.

Government institutions and private companies alike point to the need to update the available data on the potential of renewable energy

generation in off-grid islands. Investors, however, are more hesitant to finance these projects because of the uncertainties and gaps in off-grid island energy use, socio-economic, and demographic profiles. Small-scale energy developers, who have marginal profits in their small off-grid island projects, are often motivated only by humanitarian reasons. Insufficient and unreliable data on off-grid island energy demand profiles affect profit calculations negatively, thus increasing the risks of uncertainty.

Challenge 5: The process of registering and approving renewable energy projects in off-grid islands takes too long without guarantee of being approved.

Private companies, especially small renewable energy developers, face disproportionate benefit from participating in off-grid renewable energy generation projects. Not only are they presented with uncertainties from the absent energy profiles of off-grid islands, they also incur costs to overcome current policy barriers in regulations. Although poor benefit-risk investment ratio for small players was partly addressed by newer policies, this recurring issue remains fully unresolved. Energy developers, for instance, complain about going through “several loops” in the permitting process that requires them a *de facto* legal department to exclusively focus on this concern to accelerate the process. Our research shows that small and big projects are not properly differentiated since small-scale kilowatt project proposals require the same documentary requirements as their peers with large-scale megawatt projects. The long duration that proponents have to take between project registration and approval also discourages small energy developers from participating.

Challenge 6: Developers shoulder initial funding requirements through a capital loan from the Renewable Energy Trust Fund before their proposals are approved, which ensures smooth implementation but filters out small, less-capitalized, and less-resourced players.

A documented financial capital is required of all renewable energy projects to ensure that the developer is able to maintain the energy system during its useful life. Although small energy developers have been developing renewable energy projects in

economically less-viable areas, their lack of access to financing and steady capital streams remains their biggest challenge. Notably, small scale energy developers are not guaranteed access to the publicly funded Renewable Energy Trust Fund until they have an established history. This means that they should invest first in establishing their business reputations, a process that could take years to complete. The lack of access to the Trust Fund thus precludes small-scale developers from even continuing in their businesses. Some energy developers would instead operate “under the radar” to electrify off-grid communities, while also potentially getting fined for breaking regulations.

Challenge 7: There is a poor coordination between local government units and electric cooperatives regarding the entry of off-grid renewable energy developers in the latter's franchise areas.

Our research highlights the lack of coordination between local government units and electric cooperatives operating in their franchise areas. New players in renewable energy development, thus, are often delayed in their participation due to the varied interpretations of regulations and unclear institutional roles for different local parties. Poor coordination also increases uncertainties for small energy developers.

These seven policy and governance challenges emphasize how much more work is needed to properly address the concerns of off-grid electrification that tap the power of social networks to accelerate the deployment of renewable energy systems in unelectrified off-grid islands. Current and upcoming policies on off-grid island electrification, thus, need to be carefully assessed to identify plausible modifications to facilitate the creation of these networks so that smoother transition to renewable energy electrification can occur in these islands.

## Addressing the challenges through policy improvements

### On the Renewable Energy Act of 2008

The more than a decade law, for all its challenges, has provided the foundation for accelerating renewable energy transition in the Philippines, including the full electrification of small off-grid islands. The law provides regulations and market mechanisms to increase the penetration of renewable energy in the Philippines. As mentioned earlier, the DOE has developed the implementing rules for RPS, one of the key mechanisms mentioned in the law. This mechanism specifies a percentage of electricity generation or sales to be delivered by renewable energy resources by a specific date. Since the mechanism requires big players to add a fraction of their generation with renewable energy, participation has been encouraged, albeit limited only to on-grid development. Our research has identified three points to improve the Renewable Energy Act as it relates with network creation for renewable energy development in small off-grid islands. Our proposals focus on empowering local and small-scale private investors since they are the primary actors in the social networks we have identified.

Proposal 1: Reduce the time duration for processing small renewable energy development project registration and accreditation, and provide financing guarantees for small-scale developers.

The private sector, particularly small-scale energy developers, observes that the registration and accreditation process of their businesses and energy projects often takes too long to even bear marginal benefits. There are accounts of companies struggling for at least up to seven years to register their businesses without guarantee of approval. If the Renewable Energy Act is modified to explicitly mention a streamlined process for business permits, there will likely be more private sector participation, especially given the sector's corporate social responsibility work. The Renewable Energy Act could also be amended to provide initial guarantees of financing specifically for small- and medium-sized enterprises and off-grid island energy cooperatives.

## Proposal 2: Redefine “hybrid systems” and “micro-scale projects.”

The Renewable Energy Act defines “hybrid systems” as any power generation facility having both conventional and renewable fuel sources *with a minimum of ten megawatts*, and “micro-scale projects” as renewable energy projects with capacity *not exceeding one hundred kilowatts*. This arbitrary definition has introduced confusions with the registration of renewable energy projects. Small energy developers that are disqualified as micro-scale project developers are often stuck in a bureaucratic process that is originally designed for bigger players. The Renewable Energy Act could be modified to include a reassessment of these legal definitions based on actual off-grid island contexts and the size of renewable energy businesses.

## Proposal 3: Reassess the net metering program.

The net metering program, which compensates small scale renewable energy generators for the electricity they generate for the grid, has a potential to encourage an energy transition among consumers. However, the program has been heavily criticized by the renewable energy community for its ambiguity and failure to consider the perspectives of the consumers, as well as of small players. The Renewable Energy Act could be amended following a reassessment of current net metering regulations as a supplement for small off-grid island electrification, particularly for those with solar home systems.

## On Solar Para sa Bayan Act and the proposed Microgrid Systems Act

The Renewable Energy Act has been supplemented by a new legislation called the Solar Para sa Bayan Act (RA 11357), which provides a national franchise to a private company to expand the penetration of solar energy in the Philippines. There is also the proposed “Microgrid Systems Act” currently pending in the Philippine Senate, which seeks to expand renewable energy microgrids in the country. We have assessed the Solar Para sa Bayan Act and the proposed Microgrid Systems Act versus our research data and propose the following strategies.

#### Proposal 4: Review the Solar Para sa Bayan Act.

Our respondents have raised concerns with the Solar Para sa Bayan Act, making less than positive remarks on the law which provides a franchise to a single company. While our respondents consider the franchise's positive "disruptive" effects in renewable energy electrification, they were cautious about how the law disrupts the procedures that, in turn, can discourage developers who have already commenced projects but are still facing documentation issues. The Solar Para sa Bayan Act, which promotes franchise ownership, disadvantages small energy developers and small energy cooperatives, according to our respondents; hence should be reviewed for these grounds.

#### Proposal 5: Strengthen the proposed Microgrid Systems Act.

The proposed Microgrid Systems Act (House Bill [HB] No. 7060 forwards policy improvements to assist in off-grid island electrification by addressing some lacking components of the Renewable Energy Act. The Bill provides an inclusive definition of Microgrid Service Providers by differentiating on-grid from off-grid developers. It also addresses red tape by setting a clear schedule for a stepwise registration and accreditation process. The Bill also waives the consent of franchise owners in underserved and unserved areas, which can hasten the documentation process for renewable energy developers.

The proposed law can be strengthened in terms of laying a more "levelled playing field" for both small and big energy developers. Currently, the Bill does not distinguish economies of scale, that is, the differences between small and medium-sized enterprises, small cooperatives, and local providers from big electric companies and cooperatives. This means that processes remain conflated, and, therefore, disadvantage small players. The "competitive selection" process, according to the proposed law and also according to our respondents, favors big players with more financial and technical resources.

## Conclusion

In this Policy Insight, we have presented the potential of renewable energy-based social networks, comprising largely of small-scale energy developers and island-based, small energy cooperatives, for electrifying small off-grid islands using renewable energy resources. Our study reveals that current off-grid renewable energy-based electrification policies lack provisions that could strengthen these important actors hence maximize the potential of social networks for renewable electrification in the islands. We have proposed five policy action items that could encourage and strengthen the participation from these key actors through amendments to present legislations, especially the Renewable Energy Act and the Solar Para sa Bayan Act, and the strengthening of a proposed law, the Microgrid Systems Act. While policy changes are important to create a level playing field for these small actors, it is key to note that the electrification of small off-grid islands in the Philippines using our indigenous renewable energy resources requires interventions beyond policy changes. These, as we in the ElectriPHI project have acknowledged, include access to relevant technical data, novel financing schemes, and capacity-enabled end-users, among others.

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## References

- Republic of the Philippines. 2008. Republic Act No. 9513 ("Renewable Energy Act of 2008"). Approved December 16, 2008.
- . 2010. Republic Act No. 10121 ("Philippine Disaster Risk Reduction and Management Act of 2010"). Approved May 27, 2010.
- . 2013. Republic Act No. 10531 ("National Electrification Administration Reform Act of 2013"). Approved May 7, 2013.
- . 2019a. Republic Act No. 11357 ("Solar Para sa Bayan Act"). Approved July 31, 2019.
- . 2019b. Republic Act No. 11361 ("Anti-Obstruction of Power Lines Act"). Approved August 8, 2019.