



Social Acceptance and Development of Renewable Energy in Rural Area: A Critical Analysis

KEYWORDS

Renewable energy, Energy security, Climate change mitigation, Economic development, coherent policy, OECD countries, learning fabric, MWh of output

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ABSTRACT *Social acceptance as a part of renewable energy technology implementation has largely been neglected in the eighties when the policy programs started. Most developers, including energy companies, authorities, and private local investors thought that implementation was not a problem, because the first surveys on the public acceptance of renewable, in particular wind power, revealed very high levels of support for the technology. However, the first investigations that looked beyond this simple observation tried to further elaborate the conditions that determine the effective support that applications of wind power would get. At the time, such issues were usually perceived as residual questions simply called 'non-technical' factors.*

INTRODUCTION

Renewable energy (hereafter, RE) is being championed as a potentially significant new source of jobs and rural growth in OECD countries, and a means of addressing environmental and energy security concerns. In most countries, governments have invested large amounts of public money to support RE development and are requiring significant quantities of it to be sold by energy providers. But what are the economic impacts of these policies and investments? Can RE really help to develop rural economies? It finds that while RE indeed represents an opportunity for stimulating economic growth in hosting communities, it also requires a complex and flexible policy framework and a long-term strategy. RE is not going to create lot of jobs, but rather some additional employment opportunities in rural areas.

Making a positive connection between RE development and local economic growth will require more coherent strategies, the right set of local conditions, and a place-based approach to deployment.

What does renewable energy offer rural areas?

The global deployment of RE has been expanding rapidly. For instance, the RE electricity sector grew by 26% between 2005 and 2010 globally and currently provides about 20% of the world's total power (including hydro-power). Rural areas attract a large part of investment related to renewable energy deployment, tending to be sparsely populated but with abundant sources of RE. The case studies have found that RE deployment can provide hosting communities with some benefits, including:

- New revenue sources. RE increases the tax base for improving service provision in rural communities. It can also generate extra income for land owners and land-based activities. For example, farmers and forest owners who integrating renewable energy production into their activities have diversified, increased, and stabilized their income sources.
- New job and business opportunities, especially when a large number of actors is involved and when the RE activ-

ity is embedded in the local economy. Although RE tends to have a limited impact on local labour markets, it can create some valuable job opportunities for people in regions where there are otherwise limited employment opportunities. RE can create direct jobs, such as in operating and maintaining equipment. However, most long-term jobs are indirect, arising along the renewable energy supply-chain (manufacturing, specialized services), and by adapting existing expertise to the needs of renewable energy.

- Innovations in products, practices and policies in rural areas. In hosting RE, rural areas are the places where new technologies are tested, challenges first appear, and new policy approaches are trialed. Some form of innovation related to renewable energy has been observed in all the case studies. The presence of a large number of actors in the RE industry enriches the "learning fabric" of the region. Small and medium-sized enterprises are active in finding business niches as well as clients and valuable suppliers. Even when the basic technology is imported from outside the region, local actors often adapt it to local needs and potentials.

- Capacity building and community empowerment. As actors become more specialized and accumulate skills in the new industry, their capacity to learn and innovate is enhanced. Several rural regions have developed specific institutions, organisms, and authorities to deal with RE deployment in reaction to large investment and top-down national policies. This dynamic has been observed both in regions where local communities fully support RE and in regions where the population is against potentially harmful developments.

- Affordable energy. RE provides remote rural regions with the opportunity to produce their own energy (electricity and heat in particular), rather than importing conventional energy from outside. Being able to generate reliable and cheap energy can trigger economic development.

Key challenges

Renewable energy policy is expected to deliver in three areas:

- Energy security,
- Climate change mitigation, and
- Economic development (job creation).

However, this is not always the case and there can be significant trade-offs among them. For instance, large biomass heat and power plants can generate new employment opportunities in rural communities, but may have a negative CO₂ balance due to land-use change and transportation of feedstock over relatively long distances. Similarly RE is in most instances a capital-intensive activity, and energy as a whole represents a small share of employment in regional economies. Small-scale installations typically source labour and equipment from international suppliers, so the impact at the community level in terms of job creation is rather limited.

Renewable energy is increasingly being championed as a new source of jobs in OECD countries, as well as addressing concerns with energy security and climate change. In most OECD member countries, governments have invested large amounts of public money to support renewable energy development, and have also required that significant quantities of renewable energy be sold by energy providers. With most renewable energy facilities located in rural areas.

- What are the economic impacts of these policies and investments?

-Can renewable energy really help to develop rural economies?

These are some of the questions to be explored. For renewable energy to trigger rural economic growth requires a coherent policy framework and the right set of local conditions.

Positive impacts

- Local revenue
- Local jobs
- Innovations, in products, processes and policies
- Capacity building and local empowerment
- Affordable and reliable energy

Why technologies are termed "innovative" is that they have been tested for the first time and have been modified and remodified in order to suit local settings. "Innovative" also means adopting a new working approach in order to popularize an old technology as is true in the case of the community biogas plant and the group production of bio-briquettes. Another innovative aspect of technologies is the use of notoriously invasive exotic species such as Eupatorium and water hyacinth as the raw material to produce energy.

Promoting different technologies provides users with choices. In rural lowland areas, rich and middle-class people can afford to rear the cattle needed to be able to use biogas technology. But for the rural poor, rice husk stoves and improved cook stoves or bio-briquettes may be better options. In the hills and mountains, however, none of these technologies are appropriate. Highlanders will instead opt for cooking technologies such as metal stoves and stoves with smoke hoods which also keep their houses warm. Aside from renewable energy technologies' commercial benefits, these technologies improve human health, provide environmental services, and promote forest conservation. Their introduction also helps initiate gender sensitive dialogue in local communities. Promoting renewable energy technologies is a win-win proposition for all stakeholders. It has opened a huge market niche for traders and producers and enabled them to make profits. For users, in contrast, adopting renewable energy Technologies are a proven money-saving step.

CONCLUSION

Studies already showed that neither public support, nor support from crucial stakeholders at varying scale-levels could be taken for granted. Nevertheless, the issue of social acceptance remained largely neglected in the nineties, because of the high level of general public support for renewable energy technologies. However, there is more than one aspect of social acceptance that must be taken into account. A number of features of renewable energy innovation bring new aspects to the debate on social acceptance:

- For one, renewable energy plants tend to be smaller-scale than conventional power plants, increasing the number of sitting decisions that need to be taken.
- Secondly, as renewable energy conversion tends to be characterized by lower energy densities, the relative visual impact (per MWh of output) tends to be higher. It also means that renewable energy conversion tends to happen closer to where the energy consumer lives (the "backyard"), thereby increasing its visibility and bringing the environmental impact closer to their residence.
- Thirdly, given the ubiquitous presence of externalities in the energy sector, most renewable energy technologies compete with incumbent technologies not on a level playing field, thereby making acceptance of them a choice between short-term costs and long term benefits.

Public acceptance is recognized as an important issue shaping the widespread implementation of renewable energy technologies and the achievement of energy policy targets. Furthermore, it is commonly assumed that 'public attitudes' need to change to make more radical scenarios about the implementation of renewable energy technologies feasible.

REFERENCE

- (1) Boix R., Vaillant, Y., 2010. "Industrial districts in rural areas of Italy and Spain", Sviluppo, Locale, Rosenberg & Sellier Editori, Torino, 14(35): 73-114. (2) IEA (International Energy Agency) (2011), Deploying Renewables 2011: Best and Future Policy Practice, IEA, Paris. (3) Kammen, D. M., Kapadia, K., and Fripp, M. (2004), Putting Renewables to Work: How Many Jobs Can the Clean Energy Industry Generate? RAEL Report, University of California, Berkeley.(4) OECD (Organisation for Economic Co-operation and Development) (2011), Regional Outlook 2011, OECD, Paris. (5) Selfa, T., Kulcsar, L., Bain, C., Goe, R., Middendorf, G. (2010), "Biofuels Bonanza? Exploring community perceptions of the promises and perils of biofuels production", Biomass and Bioenergy, (6) UNEP (United Nations Environment Programme) (2011), Global Trends in Renewable Energy Investment 2011, UNEP, Nairobi (7) Energy Policy 35 (2007) 2683-2691 (8) Social acceptance of renewable energy innovation: An introduction to the concept BY Rolf Wu'stenhagen, Maarten Wolsink, Mary Jean Bu'rer