



LINKING RENEWABLE ENERGY TO RURAL DEVELOPMENT

Renewable energy (RE) is increasingly being championed as potentially significant new source of job creation in OECD countries, as well as addressing concerns with energy security and climate change. In many member 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 on the rural regions where deployment takes place? How can RE bring the greatest benefit to host regions? These are some of the questions explored by this study. Drawing on case studies in 16 regions within 10 countries, the research finds that while RE indeed represents an opportunity for stimulating economic growth in rural communities, its development benefits are not automatic. Realising them requires a complex and flexible policy framework and a long-term strategy, as well as a realistic appreciation of the potential gains from RE deployment.

The report recommends putting renewable energy to work in rural areas. This implies a new paradigm for rural development. Reducing the use of spatially blind incentives, introducing a flexible policy framework, and taking into account the characteristics and specific needs of hosting economies could be a way to capitalise on the investment in renewable energy in terms of economic development. In particular, alternative energy should not be considered as a standalone sector within regional rural economies. Potential backward and forward linkages with rural industries such as forestry or manufacturing should be developed through an integrated approach to renewable energy deployment. Collective action should be stimulated through intermediate institutions active in rural communities and policy makers should aim at involving a larger number of stakeholders in policy interventions to stimulate sustainable development and improve local support. (www.oecd.org/rural/renewables).

1. Spatially blind policies may reduce the opportunities to link RE to rural development. Too often RE is deployed without sufficient attention to the *milieu* in which projects will operate. Generic national criteria without particular attention to the suitability of local conditions reduce the possibility of integrating RE into the existing productive fabric (spillovers).

a. *Public subsidies should be able to adjust to the quality of the RE resources available at the local level.* Supporting RE deployment in low-capacity energy sources, which can arise when spatially blind incentives encourage such development, results in both high-cost energy and a limited quantity.

b. *Subsidies to RE should take into account the current cost of energy at the regional level.* In general, RE is more expensive in the market than conventional energy, but there are regions where the cost disadvantage of certain renewables is relatively small, or nonexistent. In these regions, where conventional energy is relatively expensive, it is much easier for RE to be competitive.

c. *Subsidies should be limited in scope and duration, and should be used as a means to induce RE projects that are close to being viable in the market.* If subsidies are too high, they tend to encourage RE projects that are designed to capture the maximum amount of subsidy. This sort of rent-seeking behaviour can lead to high-cost energy that is only viable as long as high levels of subsidy are sustained.

d. *Subsidies to RE often affect relative prices at regional level in unintended and sometimes undesirable ways, and can intensify competition for natural resources and other inputs.* Large subsidies RE can have a negative impact on land use and displace agricultural activities, particularly if they are spatially blind. Moreover, the structural changes that occur may prove unsustainable as the subsidy is phased out, and yet may also be expensive to reverse. In

the same vein, RE installations can impinge upon landscape amenities negatively affecting tourism, and overall regional attractiveness. Subsidies can also cause RE to involve inputs that have high opportunity cost in current use.

2. Job multipliers associated with RE deployment are higher the more embedded RE is in the local economy. The narrative presenting RE a panacea for job creation is not reflected in reality: RE is in most instances a capital-intensive activity, and energy as a whole represents a small share of employment in regional economies. Since labour, like capital, is a cost of production, efforts to increase either direct or indirect employment via subsidies or other policy interventions will increase the cost of the resulting energy. Better results in terms of job creation are obtained when RE is not a stand-alone activity but is integrated within larger supply-chains within rural economies, such as agriculture, forestry, traditional manufacturing and green tourism.

3. There is no first-mover advantage in adopting technologies that are rapidly evolving. Newer technologies are almost certain to be more efficient and have lower cost per unit of output. When a technology becomes more mature, its unit costs are likely to be both lower and more stable over time, making investments less risky. Efforts to build local manufacturing capacity for future exports may drive up the cost of the installed local energy and still fail to generate future sales of components, because local firms have a high production costs and may quickly be overtaken by competitors who enter the market later.

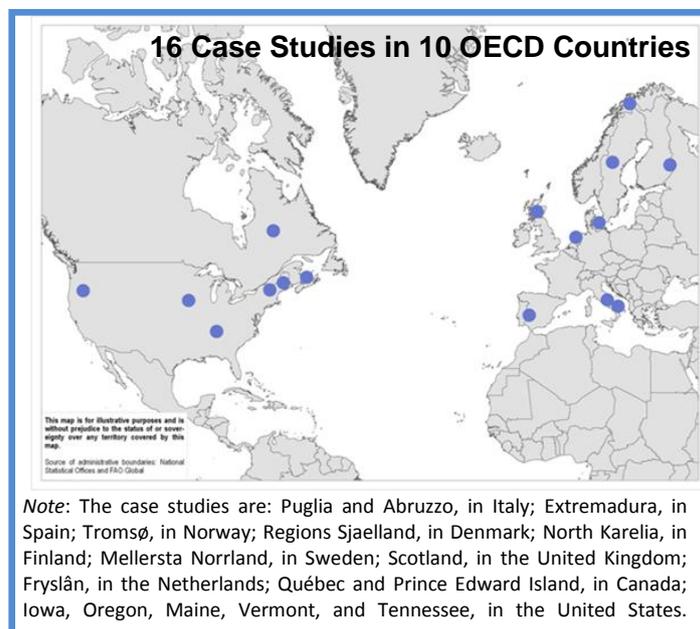
4. RE should be integrated within an energy framework that facilitates dispatch and integration into the grid. Policy should take into account backstop technologies for intermittent power sources. RE should be linked to large hydropower or conventional sources to lower operating costs.

5. Heat energy is an untapped opportunity for RE. Renewable heat is systematically ignored by RE policy, despite its being the most competitive with conventional sources. The direct conversion of a renewable power source to heat involves a relatively cheap transformation, and in many cases it offsets a relatively high-cost fossil-fuel source.

6. RE should be deployed taking into account the transmission infrastructure. In several regions, the capacity to deploy RE is constrained by grid limitations; however, there are no incentives to improve transmission infrastructure. In regions where new capacity has to be created – such as electricity transmission lines, pipelines, rail lines – these add to the associated capital costs of a project. In more remote regions the cost of transport infrastructure may be several times larger than the cost of the RE project.

7. Local social acceptance is crucial and should be supported by RE policy. Local opposition can slow construction and may increase the difficulty of subsequent efforts to introduce RE projects both in that region and in other places. Every RE project has adverse impacts on the community in which it is located. If the community sees net local benefits from the project, and is engaged in the process, it still may be willing to support development. This is one of the main drawbacks of spatially blind incentives: they are often

perceived as benefitting out outside developers while communities bear the local adverse impact.



Factors That Support or Impede the Sustainable Development of RE Projects

Supportive	Impeding
High quality RE resource	Low to moderate quality RE resource
Relatively expensive current energy	Low-cost conventional energy
Provision of small subsidies	Provision of large subsidies
Ability to link RE to existing economic activity	RE is a standalone sector within the regional economy
Good existing energy transport/transmission infrastructure	Project produces stranded energy that cannot be exported
Strong local community support	Significant local opposition
Integration of RE within a broader energy framework that facilitate dispatch	Inadequate backstop energy for intermittent power sources
Mature technology	Novel or infant technology
RE relies on regional inputs that have limited current uses/RE complements existing input uses	Inputs for RE project have high opportunity cost in current use
RE policy aims at producing cheap energy (renewable heat)	Excessive efforts to increase direct and indirect employment from project

For more information about the forthcoming report “Linking Renewable Energy to Rural Development” and on the OECD’s strategic work on renewable energy in rural areas, please contact **Raffaele Trapasso**, Rural and Regional Programme Unit, Regional Development Policy Division, Directorate for Public Governance and Territorial Development (email: Raffaele.Trapasso@oecd.org or tel: +33 145 24 86 08)