climate change
Scotland's centre of expertise connecting climate change research and policy

The Local Economic Impact of Renewable Energy Projects: a Shetland Case Study

Grant Allan, Peter McGregor and Kim Swales, Fraser of Allander Institute, University of Strathclyde[1]

1. Introduction

Research has shown that local support for energy projects in rural locations is stronger where economic benefits are expected for the local area (Trent and Stout-Wiegand, 1985). Maximising local economic impact also supports regional economic development objectives, particularly where projects are sited in remote areas.

This research examined the scale of economic impact surrounding a proposed onshore wind development for the Shetland Islands. This specific example was chosen for two reasons. First, there is a proposal for a major onshore wind farm which would be jointly owned by a private developer (Scottish and Southern Energy in this case) and the local community (through the Shetland Charitable Trust (SCT)). Second, there exists a set of economic accounts for Shetland which could be used to model the consequences of such development in this area.

The Shetland Islands economy is relatively small and rural – the wind farm development could therefore have a significant local economic impact. We analysed[2] the potential local economic and employment effects of the project under two scenarios: one where there is no local ownership but a community benefit scheme[3] provides direct payments to the local community; and one with 50% local ownership. We found that local ownership confers the greatest economic benefits for the local community, far above the level that community benefit payments might be expected to provide.

2. Options for economic benefit

Our analysis is based on two options for local economic benefit – scenario A: a Community Benefit scheme (CB) and scenario B: local ownership. Using a social accounting matrix (SAM) the paper provides a quantitative estimate of possible economic impacts of renewable energy developments.

---

[1] This note summarises a research paper by the authors (2011): The Importance of Revenue Sharing for the Local Economic Impacts of a Renewable Energy Project: A Social Accounting Matrix Approach, *Regional Studies,* 45:9, 1171-1186.

[2] The availability of a Social Accounting Matrix (SAM) for Shetland made possible an analysis of the consequence for the local economy of retained non-wage income flows. These would not be considered within the Input-Output method more commonly used for economic impact assessment. This SAM framework therefore offers a superior modelling approach, particularly in the case where there are (potentially) significant non-wage incomes from local or community ownership.

[3] Community benefit payments are not the only financial links that operational wind farms have with their local communities, but they are the most common means by which local communities derive direct financial benefit.

The scale and nature of the impacts vary with CB payments and with any ownership share held by the local community. The analysis does not include the construction phase but focuses on the longer term annual flows of income. The analysis also presumes that all generated electricity is exported to the UK mainland through a link which does not yet exist[4].

A CB is the most common financial link an operational wind farm has to the local community.

Scenario A – A Community Benefit scheme

This scenario assumes that the CB payments are equivalent to an annual payment of £3,000 per MW installed capacity. The remainder of the profit is assumed earned by a firm based outside of Shetland. This means that 96% of the total project profits are transferred out of Shetland to the project owner. £3.30 million remains in Shetland as:

- £0.21 mill as land rental payments
- £1.37 mill to Shetland Island Council through taxes
- £1.72 mill to Shetland Community Trust as CB payments

Scenario B - 50% local share ownership

SCT were proposed to be investing a significant portion of their community funds in exchange for a 45% share of recurring ownership profits in the project. This is not an unprecedented level of community ownership but would be the first of its kind on a project of this scale in Scotland. For the analysis it is assumed that the SCT will spend profits received in the same pattern as the local government spend. A further analysis should be done on the option of building up financial reserves for the longer term.

In scenario B £16.86 million will be retained or spent within the Shetland Islands economy. This is over five times more than is retained under scenario A.

Comparison

A comparison of the two scenarios show that a wind farm with an installed capacity of 600MW, no local ownership but plausible assumption of the level of CB, is estimated to raise GDP by 24% and raise the Shetland employment by almost 3%. If 24% of the ownership profits from the project were to be retained and spent in the islands' economy, GDP would increase by 30.9% and employment by 9%.

The proportionate impact of a wind farm development would be significantly greater for the Shetland economy than for the Scottish or UK economies. If the proposed project on Shetland was to finance part of the cost of a supporting link to the mainland grid, the revenues retained locally would likely be diminished. This could potentially have significant knock-on effect on local economic activity.

[4] Cost estimates for a link to the mainland transmission grid are discussed in the original paper.