

GROSS EMPLOYMENT FROM RENEWABLE ENERGY IN GERMANY

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Overview

Jobs from renewables have been subject to much and sometimes reiterated debate in Germany. While the earlier discussions focused on the assumed negative employment effects of renewable energy [1] more detailed analyses have helped to better understand the mechanisms between investment, employment, global trade shares and domestic renewable energy policy [2]. In the last five years, employment from renewable energy also became the focus of analyses for developing countries and emerging economies [4]. The methodological approaches applied to measure gross employment differ widely, from estimates relying on employment factors and regional adjustments to more sophisticated input-output and model based estimates.

Germany is an interesting case to study, because it has a) a very detailed support landscape for renewable energy in the heat and electricity sector, b) is an export oriented economy, which thrives from opportunities on global markets and c) has established a measurement framework and a database on employment from renewables through a series of studies on these issues.

This paper gives a summary of the current situation of employment from renewable energy. It explains the underlying method, gives results and discusses the results against the backdrop of Germany's Energiewende and energy political discussion.

Methods

The method used to quantify employment in the renewable energy industry in Germany is based on an input-output approach. This has the advantage that direct as well as indirect employment can be identified. Four areas are looked at specifically a) the production and installation of RE systems for domestic use and for export, b) operation and maintenance, c) supply of biogenic fuels and d) publicly funded research and administration.

Due to its immediate importance the production and installation of RE systems has been subject to a very detailed investigation. Already three surveys of approx. 1.200 companies in Germany for the years 2004, 2007 and 2012 have been conducted so far. The information that was gained regarding the flow of goods as well as production interlinkages with other sectors of industry in Germany and abroad is the basis for deriving specific input-output structures for each of the RE technologies. The input-output based representation of RE operation and maintenance activities is based on a series of in-depth interviews and case studies of planners and plant operators.

The analysis of the supply of biogenic fuels is a very difficult area of investigation. 15 different fractions are subject to detailed examination in this study. Input-Output-Vectors have been designed for each area taking special circumstances into consideration like the employment per hectare for individual crops.

The assessment of the employment that can be related to public funding is straightforward.

Results

Gross employment from renewable energy in Germany has developed very positively in the past. Until 2011, it rose steadily each year. In 2012 a light decrease in employment was observed for the first time since the beginning of the estimation of these figures in 2004. Last year, however, total employment fell by 7 % to 371,400 jobs.

In 2013, wind energy contributes most to gross employment. With new installations of about 3 GW in Germany and a strong position in other prospering markets, German companies increased their turnover again, compared to 2012. Biomass occupies the second position in a ranking of technologies by employment and dropped from being in the leading position. 126,400 people work in this sector; more than half of these jobs are in the provision of biogenic fuels. The solar sector, which includes photovoltaic (PV) systems, solarthermal heating systems and concentrating solar power plants (CSP), has experienced a major setback. Of formerly 113,900 jobs in 2012 only 68,500 jobs remained in 2013 mainly due to a significant reduction of new PV installations in Germany. Geothermal energy, which also includes environmental heat, is slowly growing and accounts for 17,300 jobs in 2013 with heat pumps being the dominant part with more than 90 % of those jobs. Hydro power

being the most mature industry in the area of renewable energies also saw a slight increase over the years, which is mainly driven by the development of small hydro power in Germany due to the national feed in system.

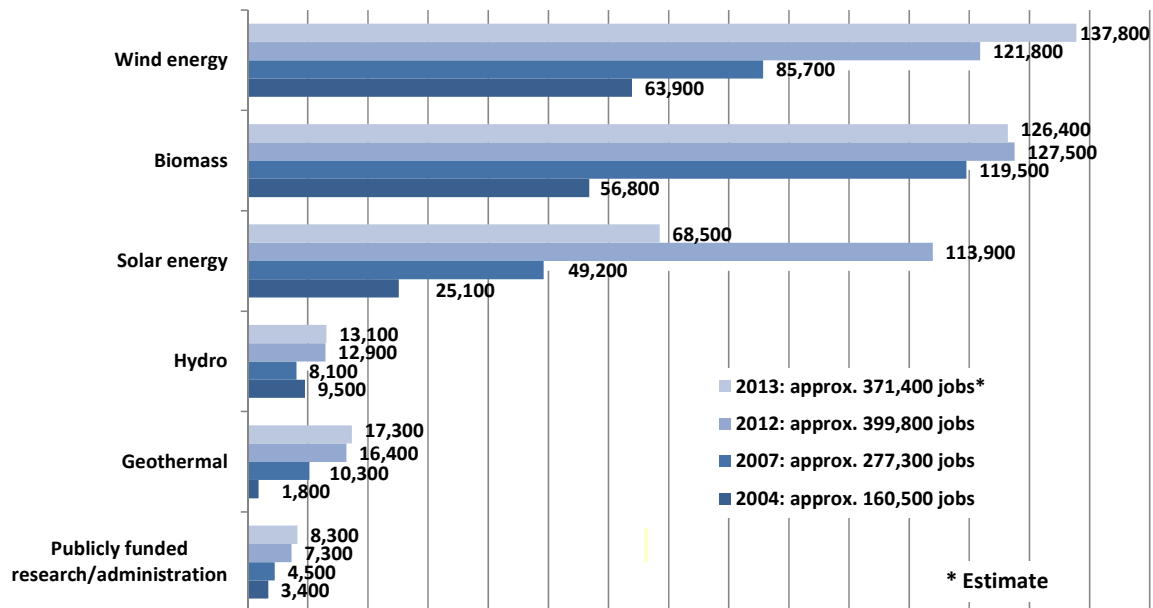


Figure 1: Trends in gross employment from renewable energy in Germany [3]

Production and installation of RE systems in Germany and abroad mainly contributes to gross employment (62 %). 17 % are associated with the operation and maintenance of domestic systems and another 19 % with the supply of biogenic fuels. Publicly funded research and administration account for approximately 2 %. About 261.500 jobs are a consequence of the Renewable Energy Sources Act in Germany. These include jobs from exports, if we assume that in the RE industry as such was not existent in most sectors prior to the political support measures.

Conclusions

The German government has taken on the enormous task of “Energiewende”, that is the transition from fossil based fuel supply to the use of RE sources. It implies many challenges. Without a large hydropower potential to balance the fluctuation of other RE sources, Germany is a pioneer to this task and its success and failure is carefully observed by other nations. The “Energiewende” therefore developed to be a very controversial issue, monitored not only by the respective institutions but also watched by the public.

As employment is a fundamental issue in any economy, the employment effects of this transition are crucial for the policy maker. The investigation of the employment effects of the expansion of renewable energies in Germany tackles this issue in its core.

The development of gross employment so far has shown that a successful domestic promotion system can help to develop an internationally competitive industry. However, it has also shown that promotion instruments that are not directly linked to the market development can lead to rapid development in installations and therefore in employment. Abrupt changes that lead to a loss of jobs have a very painful angle on a personal level and lead to a negative perception in the public.

References

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