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ANALYSING THE CONSISTENCY OF THE POLICY MIX FOR RENEWABLE ENERGY TECHNOLOGIES ON THE MACRO-LEVEL

[Special session „How the policy mix is affecting innovation in renewable energy technologies - new insights from the GRETCHEN project"]

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Overview

This paper analyses the consistency of the current policy mix for renewable power generation technologies (RPGT) in Germany. The policy mix as defined by Rogge and Reichardt (2013) includes elements (such as policy strategy, policy instruments and instrument mix), processes and dimensions. The consistency of the policy mix for RPGT will be measured on the elements' level: the consistency of the strategy, the consistency of the mix of the policy instruments and the consistency of the strategy and the instruments mix. One of the questions to be answered is: Will the current target of at least 35% of renewables in electricity production in 2020 (the policy strategy) be reached with the given policy mix for RPGT?

Methods

To this end, different policy scenarios for the years up to 2020 are defined based on current policy options. These include a business-as-usual scenario including only the policies that are currently in place, a scenario that includes relevant policies that have been agreed upon, but are not yet in force (e.g. the amendment of the feed-in-tariff, EEG 2.0, currently in the legislative procedure). These scenarios are implemented in the GINFORS-E model (Lutz and Wiebe 2012), a macro-econometric input-output model as defined in Eurostat (2008), which was extended by a renewable power generation module for the endogenous representation of the development of renewable power generation technologies with a focus on solar PV and wind. In this module both supply-push instruments in form of R&D support as well as demand-pull instruments such as feed-in tariffs or investment subsidies are explicitly modelled.

Results

Preliminary results suggest an overshooting of PV installations, reaching 50GW in 2015 already, given currently implemented policy instruments, with feed-in tariffs being the policy instruments with highest impact on capacity installations. The cap on renewable support implies that the feed-in tariffs for solar PV are not continued, resulting in a significantly lower rate of increase in PV capacity installed after reducing the support through feed-in-tariffs to zero. Still, this scenario suggests a share of PV in total electricity production of about 10% and a share of wind (both on- and off-shore) of 15%. This together with hydro power, biofuels and waste (excl. non-renew. waste) and other renewables suggests that the 35% renewable target will be oversatisfied (as have been almost all past renewable targets in Germany).

Conclusions

The endogenous determination of PV and wind capacity installed depends on costs (represented by global learning curves) and implemented policy instruments. This gives an important additional dynamic impulse to the development of the energy sector in the GINFORS-E model. Using scenario analysis it is possible to determine the effect of individual policy instruments as well as the instrument mix and compare it with the policy strategy, here defined as the share of renewables in total electricity production. Using the GINFORS-E model it is also possible to calculate socio-economic effects of the increased renewable deployment, as well as doing similar analyses for other countries. The final version of the paper will include a similar analysis for other major global players in RPGT installations, such as China, the US or Spain.

References

Eurostat (2008): Eurostat Manual of Supply, Use and Input-Output Tables, Luxembourg.
Lutz, C. & Wiebe, K.S. (2012): Economic impacts of different Post-Kyoto regimes. International Journal of Energy Science 2(4), 163-168.
Rogge and Reichardt (2013) Towards a more comprehensive policy mix conceptualization for environmental technological change: a literature synthesis. Fraunhofer ISI Working Paper Sustainability and Innovation No. S 3/2013.