

20% BY 2020 – ENERGY EFFICIENCY IN GERMANY

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OVERVIEW

The increasing pressure of climate change and the dissatisfaction with the Post-Kyoto process lead to an increasing interest in energy efficiency measures. The basic idea of the “negajoule” is that any unit of energy not consumed contributes to the target of keeping global warming below 2°. Moreover, energy efficiency is considered a valuable contribution to increased energy security and decreased dependence on energy imports and less vulnerability to price shocks etc.

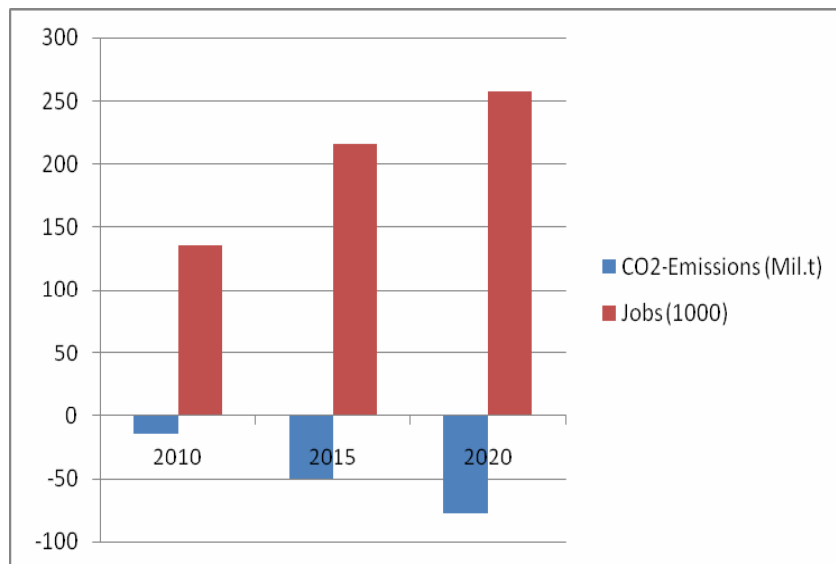
The objective of the contribution is therefore twofold. It firstly provides a systematic analysis of energy efficiency potentials in different economic sectors (households, industry, and transport). The analysis focuses on so-called no-regret potentials which can be refinanced by the energy saving over the lifetime of the appliances used. Secondly, the analysis takes on a macro-economic view and shows the effects of investments in energy efficiency for various economic sectors and the economy as a whole (labor market, GDP, structural effects, value added).

METHODS

These objectives are pursued using scenario techniques and a macro-econometric model (PANTA RHEI). To be able to model the effects of increased energy efficiency, we have to develop two scenarios: A reference scenario following a business as usual path with no further measures and a policy scenario. The macro-econometric model is then applied to calculate net economic effects on growth, employment, public budgets as well as on the environment in terms of emissions. Costs and benefits are fully accounted for.

RESULTS

It turns out that the overall effect of a program to increase efficiency leads to positive economic results. Growth and employment effects can be maintained under certain continuity assumptions.



CONCLUSIONS

Energy efficiency can lead to overall positive effects. However, it is crucial how the distribution effects and the allocation effects are modeled. Since the macroeconomic model does not require efficient use of resources to begin with, it is well suited to model efficiency improvements.

SELECTED REFERENCES

1. Almeida, A.T. et al. (2001): Improving the penetration of energy-efficient motors and drives - University of Coimbra / Department of Electrical Engineering in Cooperation with Electricite de France; ENEL (Italy); ETSU (UK); NESAs (Denmark), Fraunhofer ISI (Germany), Coimbra(Portugal): University of Coimbra.
2. Henzelmann et al. (2009): GreenTech made in Germany 2.0, Umwelttechnologie-Atlas für Deutschland, Hrsg. Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit
3. IEA (2009): The Impact of the Financial and Economic Crisis on Global energy Investment. IEA background paper for the G8 energy ministers' meeting, 24-25 May.
4. Infrac (2006): COST-EFFECTIVENESS OF GREENHOUSE GASES EMISSION REDUCTIONS IN VARIOUS SECTORS; FINAL REPORT; Framework Service Contract No Entr/05/18; Zurich/Bern, 30 November 2006 for EC - DG ENTERPRISE AND INDUSTRY.
5. Lehr, U., Nitsch, J., Kratzat, M., Lutz, C. und Edler, D. (2008): Renewable Energy and Employment in Germany. Energy Policy, 36, pp. 108-117, DOI:10.1016/j.enpol.2007.09.004.
6. Lutz, C. und Meyer, B. (2009): Economic impacts of higher oil and gas prices. The role of international trade for Germany. Energy Economics, 31. 10.1016/j.eneco.2009.05.009
7. Lutz, C., Meyer, B., Nathani, C. und Schleich, J. (2007): Endogenous innovation, economy and environment: impacts of a technology based modelling approach for energy-intensive industries in Germany. Energy Studies Review, 15(1), pp. 2-18.
8. Radgen, P. (2002): Market study for improving energy efficiency for fans, Stuttgart: Fraunhofer IRB Verl.
9. Radgen, P.; Blaustein, E. (2001): Compressed air systems in the European Union, Stuttgart: LOG_X.
10. TNO (2006): Review and analysis of the reduction potential and costs of technological and other measures to reduce CO2-emissions from passenger cars; Final Report; October 31, 2006.