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ODYSSEE-MURE

Energy Efficiency Policies – Impact and Indicators
*Third meeting of the project “ODYSSEE-MURE,
a decision support tool for energy efficiency policy evaluation”*
Vienna, 26-27 April 2018

The ODYSSEE-MURE Tool on Multiple Benefits of Energy Efficiency

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MULTIPLE BENEFITS IN ODYSSEE-MURE

Aim:

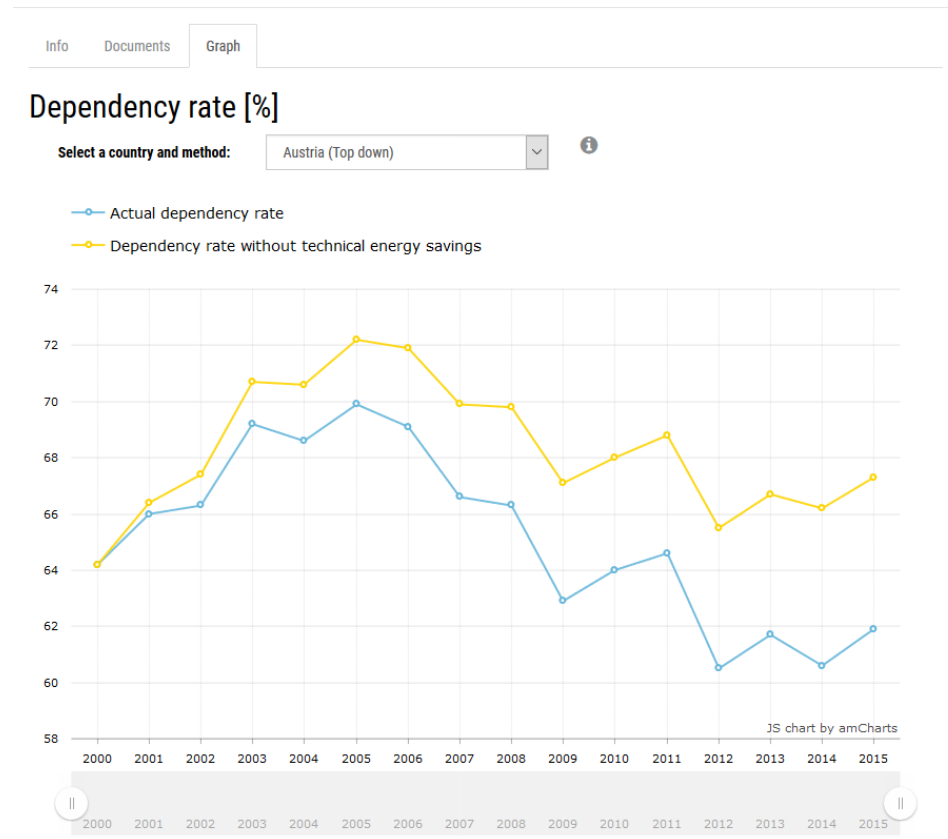
- Improve capacity building on multiple benefits of energy efficiency (MB:EE)
- Set of 19 Indicators
 - 3 main groups: *environmental, economic, social*
 - 8 sub groups
- Application for 31 countries (EU28 plus Norway, Switzerland and Serbia) where possible due to data availability
- Calculation of multiple benefits based on energy savings → both top-down savings (from ODYSSEE) and bottom-up savings (from MURE) are considered
- Ex-post view on multiple benefits

Category	Sub-category	Indicator
	Energy and Resource Management	
Environmental	Energy savings	Annual energy savings
Environmental	Saving of fossil fuels	Saving on fossil fuels; extension of range of fossil fuels
Environmental	Impacts on RES targets	Lowering of RES target; replacement of RES capacity; reduced need for interconnectors
	Global and Local Pollutants	
Environmental	GHG savings	Annual CO ₂ savings linked to energy savings
Environmental	Local air pollution	Emission factors for avoided local pollutants (incl. electricity)
	Energy poverty	
Social	Alleviation of energy poverty	Impact of savings on energy cost shares in household income
	Living comfort	
Social	Health and well-being	Externalities linked to health impacts
Social	Disposable household income	Shares of energy costs in household income
	Innovation and Competitiveness	
Economic	Innovation impacts	Patent indicators
Economic	Competitiveness	Indicators on foreign trade with EE products
Economic	Turnover of energy efficiency goods	Production statistics
	Economy (Macro)	
Economic	Impact on GDP	Impact of energy savings on GDP growth
Economic	Employment effects	Input-Output (I/O) analysis
Economic	Impact on energy prices	Price elasticities
Economic	Public budgets	State income from employment based on energy savings
	Economy (Micro)	
Economic	Industrial productivity	Semi-quantitative classification of impacts
Economic	Asset value	Valuation of buildings and companies for different end-uses according to energy efficiency benefits
	Energy Security and Energy Delivery	
Economic	Energy security (A)	Import dependency (conversion to primary energy necessary)
Economic	Energy security (B)	Impact on supplier diversity (Herfindahl-Hirschman-Index)
Economic	Impact on integration of renewables	Demand-response potentials by country

First results for selected indicators

Energy security (A): Reduction of import dependency

- Based on top-down energy savings (ODYSSEE)

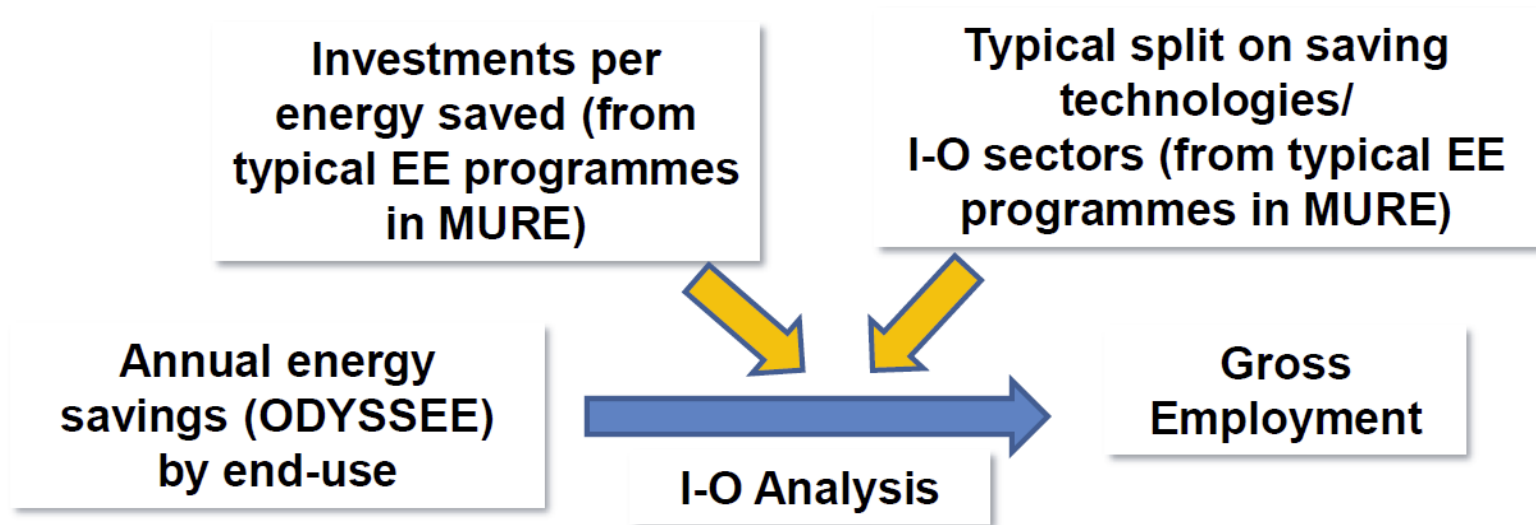


- This ratio is first calculated with the observed primary energy production and consumption (“actual dependency rate”)
- and secondly in a fictive situation without the energy savings (“dependency rate without savings”).

Results for selected indicators

Economy (Macro): (Gross) Employment effects of energy efficiency

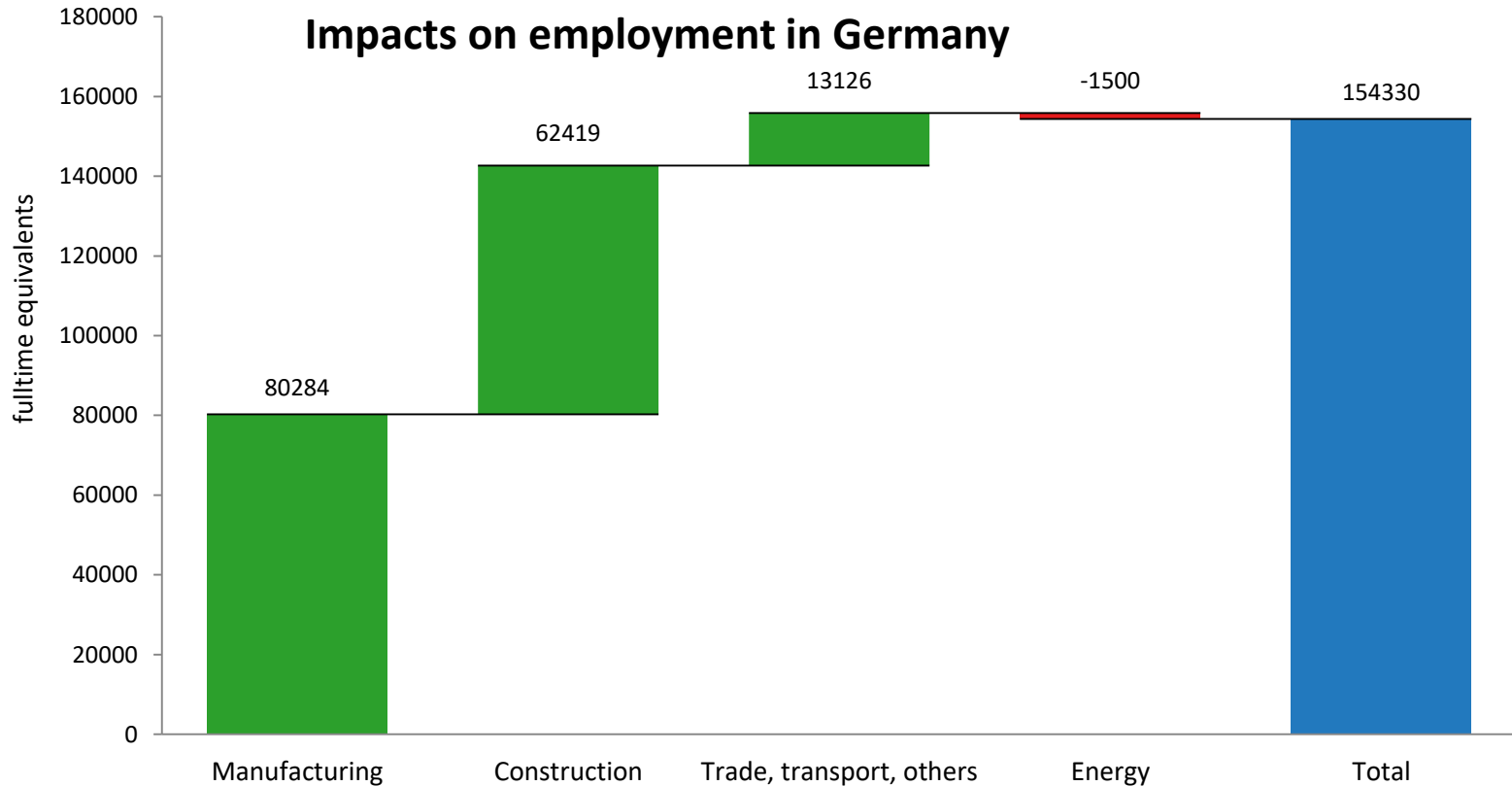
- Based on input-output tables provided by eurostat
- 19 EU countries at the moment



Results for selected indicators

Economic: Economy (Macro): (Gross) Employment effects of energy efficiency

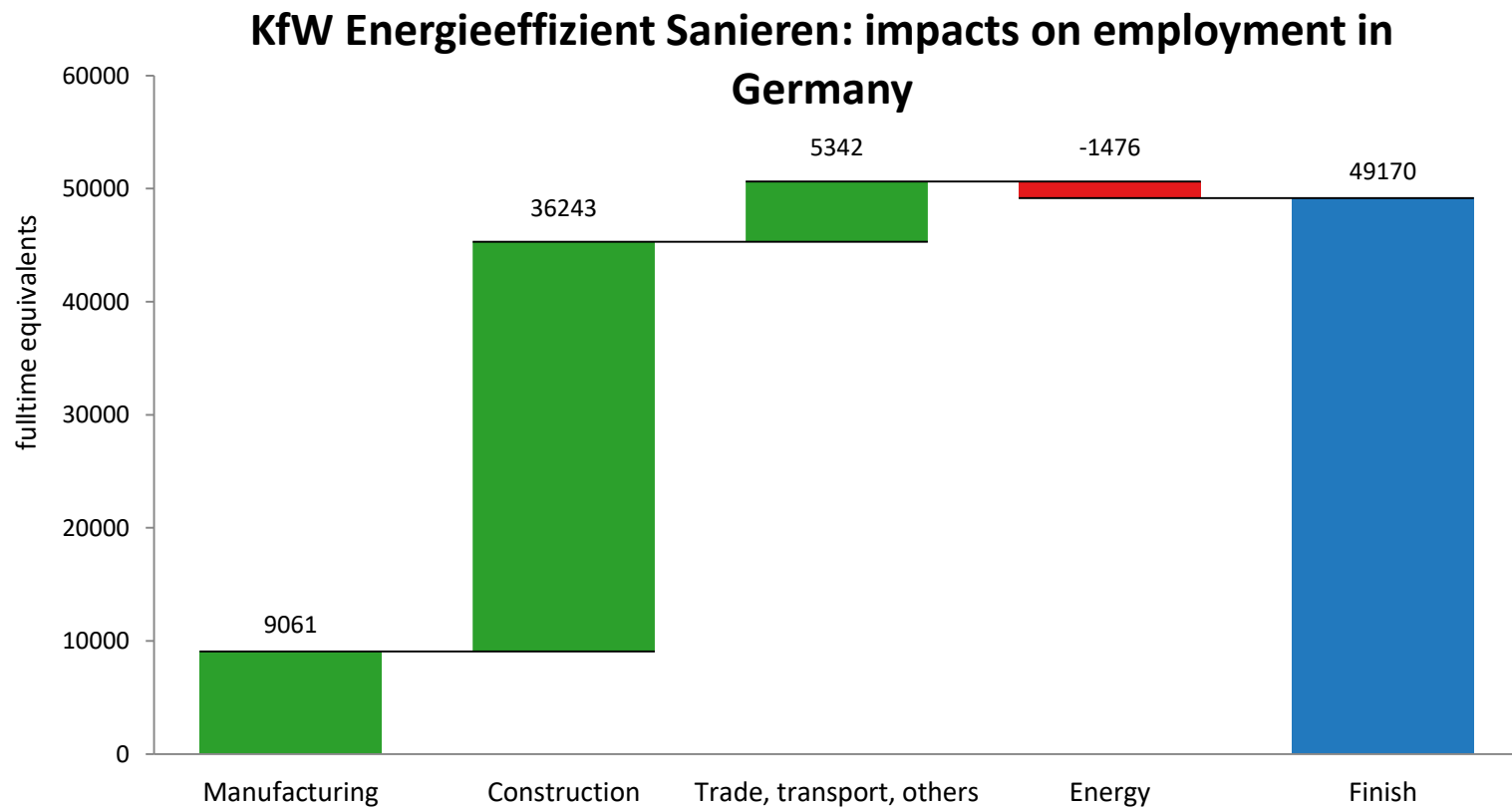
Based on Top-down savings:



Results for selected indicators

Economic: Economy (Macro): (Gross) Employment effects of energy efficiency

Based on bottom-up savings



Tackling of multiple benefits in other H2020 project: the COMBI project

Project background & objectives

Quantification of multiple impacts of EE

Coordinated by  **Wuppertal Institut**

- Quantification & monetization of multiple impacts
- By EU member state & 21 EEI actions
- Common framework scenarios: based on 21 energy efficiency improvement (EEI) actions
- Extended Cost-Benefit analysis

- Ex-ante view on MBs
- Modelling approach
- Launch of the COMBI MB tool at the COMBI final conference on 17 May in Brussels

Air pollution

air pollutants
health
eco-system

Resources

material footprint
abiotic/biotic
energy/non-energy
unused extraction

Social welfare

disposable income
health
productivity

Macro economy

employment/ GDP
public budget
Fossil fuel/ETS prices
Terms of Trade

Energy system

energy system costs
energy security



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Tackling of multiple benefits in other H2020 project: the M-Benefits project

M-BENEFITS- Valuing and Communicating Multiple Benefits of Energy-Efficiency Measures

Aim:

Development of methods and tools to include multiple benefits in energy-efficiency investment decision of companies

Additional contribution of the project (start: March 2018)

- View of an investor in a private or public company
- Additional company-specific multiple benefits are considered (e.g. improved product quality, greater flexibility, reduced production time and losses, reduced risks)

The MB tool of ODYSSEE-MURE and M-Benefits will be presented at the COMBI final conference on 17 May in Brussels



Web facility on MB:EE

Live demo in Browser

[LINK](#)

[Back up](#)

<http://bfig1.de/mbee/en/> (The MB-website is in the phase completion in the period December 2017-January 2018)
Later on this will be integrated into the official ODYSSEE-MURE website

Multiple Benefits of Energy Efficiency





About MB:EE | Multiple Benefits of Energy Efficiency

This tool represents a quantitative indicator approach to measure multiple benefits of energy efficiency (MB-EE) developed as part of the ODYSSEE-MURE project. It aims to show the different aspects of energy efficiency beyond energy savings and give a more holistic view on its benefit.

The MB-EEs are classified into three groups: environmental, economic, and social –related MBs. The first group contains most relevant and direct aspects of energy efficiency such as energy savings and reduced GHG emissions. The second group comprises, among others, positive macro-economic impacts on economic growth, for innovation and competitiveness as well as import dependency. The third group of impacts covers aspects such as health benefits, poverty alleviation and employment.

To use the tool just click on a group of benefits you are most interested in and browse the different aspects. To see a group as a whole just click on “Map View” and choose the group you like.

Multiple Benefits of Energy Efficiency



MB:EE | Energy savings

[Info](#)[Documents](#)[Graph](#)

Info

For a number of our indicators the energy savings calculated from the ODYSSEE database (top-down savings) or the MURE database (bottom-up savings) are important starting points. In ODYSSEE, energy savings are calculated based on the unit consumption at the level of up to 30 sub-sectors or end-uses. Savings from international air transport and ETS sectors in industry are included as well. In industry and freight transport, savings may be negative for some years due to a deterioration of energy efficiency; this is due to capacity effects in industry and freight transport in times of economic recession. They are derived from the ODEX, an indicator that measures the energy efficiency progress by sector. For each sector, this index is calculated as a weighted average of subsectoral indices of energy efficiency progress. Such sub-sectors are branches of the sectors industry or service, end-uses for households or modes for transport.

The bottom-up savings provided by the MURE database originate from policy evaluation studies on a national level and National Energy Efficiency Plans (NEEAP) as well as Article 7 notifications published by each Member state. For the indicators in our framework we use, if suitable, both top-down and bottom-up energy savings, as they provide different but equally interesting perspectives.

Energy savings

Saving of fossil fuels

Multiple Benefits of Energy Efficiency

