



German Energy Efficiency Policy - Building Sector -



Indo-German
Energy Forum

**Sub Group 3 Meeting;
New Delhi 13.11.2013**



Role of the German Building Sector

| | |
|---------------------------------------|--|
| | |
| Greenhouse gases (vs.1990) | 1/3 of total emissions |
| Final energy consumption | Around 40% of total |
| Household energy | Almost 90% for heating and domestic hot water |

Source: BMWi; BMU 2012

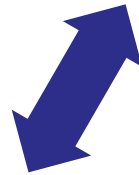
German Climate and Efficiency Goals

| | | 2020 | 2030 | 2040 | 2050 |
|------------|---------------------------------------|-------------------------|--|------|---------------------|
| Efficiency | Energy consumption in buildings | -20% (heat consumption) | Doubling refurbishment rate to 2% p.a. | | -80% (prim. energy) |
| | Primary energy consumption (vs. 2008) | -20% | | | -50% |



Mix of instruments

Energy Saving Ordinance
(EnEV) &
German Act on the
Promotion of Renewables
in the Heat Sector
(EEWärmeG)



KfW and BAFA subsidy
programs for
refurbishment &
renewables



BAFA on-site consultation
and energy performance
certificates for buildings

Legal Regulation

Federal Ministries BMWI; BMU; BMVBS

Type and scope

Energy Saving Ordinance (EnEV)

- Energy performance **standards for refurbishments** and the construction of new buildings
- By 2020 Standards for new buildings** “low energy buildings”

German Act on the Promotion of Renewables in the Heat Sector (EEWärmeG)

- Minimum standards regarding the use of RE for heating and cooling in all new buildings (f.e. 15% of total by Solar)



Information and advice

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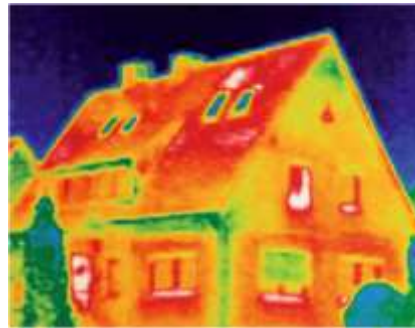
Information

| BAFA, Dena and others | |
|---------------------------|---|
| Type and scope | <p>Advisory Services for Consumers</p> <ul style="list-style-type: none">• Around 650 locations throughout Germany (energy saving in buildings, energy-efficient appliances) <p>Advice in Residential Buildings</p> <ul style="list-style-type: none">• Individual on-the-spot consultations by engineers, architects and other experts• Building performance certificate; energy pass |
| Results in figures | <ul style="list-style-type: none">• More than 100,000 advisory consultations in 2012• € 1 subsidy created more than € 20 additional investment plus• About 20,000 in-site advice services per year |



Economic incentives

Energy Saving Ordinance
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Market Incentive Programme

BAFA

Type and scope of support

- Smaller household and SME projects
 - Grants
 - depending on size, capacity, type of technology
 - E.g. solar collectors up to 40 m² = € 1,500-3,600
- Total installed capacity supported by BAFA:
628.16 MW in 2010

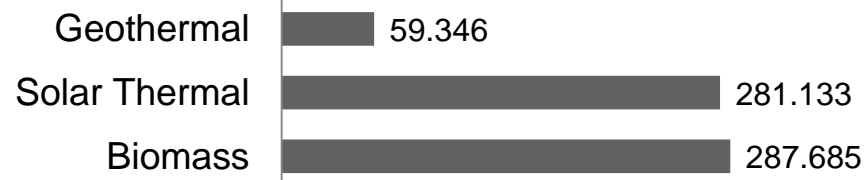
Supported technologies

- solar collectors
- solid biomass plants < 100 kW
- wood carburetion boilers with low emissions
- efficient heat pumps <100 kW
- Bonus for innovative technologies

Volume of financial support

in 2012: € 350m; 2013: € 480m

BAFA Installed Capacity in kW



Building Modernisation Programme

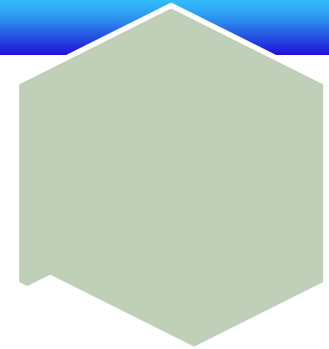
KfW

| | |
|----------------------------------|--|
| Type and scope of support | <ul style="list-style-type: none"> • Soft loans and Grants (2013: 1,8 bn €) • Construction of energy efficient buildings • Energy efficiency measures in the building stock |
| Supported measures | <ul style="list-style-type: none"> • support for households and real estate • Building refurbishment by insulation • Windows and heating systems |
| Results in figures | <ul style="list-style-type: none"> • 2,5 million dwellings refurbished, savings of 5 million t CO₂ • financial support by federal Government was 9,8 bn € • Total soft loan amount 57 bn € • Total investment related to the programme 145 bn € • Around 300000 jobs in this sector created or secured |



Further Information

- <http://www.bmu.de/en/topics/climate-energy/energy-efficiency/buildings/>
- <http://www.encyclopedia-from-germany.info/>
- <http://www.bafa.de/bafa/en/energy/index.html>
- <http://www.dena.de/en/topics/energy-efficient-buildings.html>





Thank you for your attention!



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Challenges

To move the transition forward successfully, we...

- ...
- ...
-
- ...



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- German Goals by sectors
- EU Energy Efficiency Policies by Sectors
- Energy Efficiency Measures in Germany
- Example Buildings Sector



EE Measures at federal, states and municipal level



EU level

- Directive 2010/31/EU of the energy performance of **buildings**
- Directive 2009/125/EC of **ecodesign** requirements for energy-related products
- Directive 2010/30/EU for energy consumption **labelling**
- Directive 2012/27/EU on **energy efficiency**

Federal government's level

- Energy Saving Ordinance „EnEV“
- KfW-Programs for EE construction and refurbishment
- Ecological tax reform
- On-site energy consultation for residential building owners
- Law on Cogeneration (CHP)
- Energy Consumption Labelling Ordinance

Federal states' level

- Bavarian Modernisation Program
- Progres.nrw (North-Rhine Westfalia)
- Climate Protection Plus Program (Baden-Württemberg)

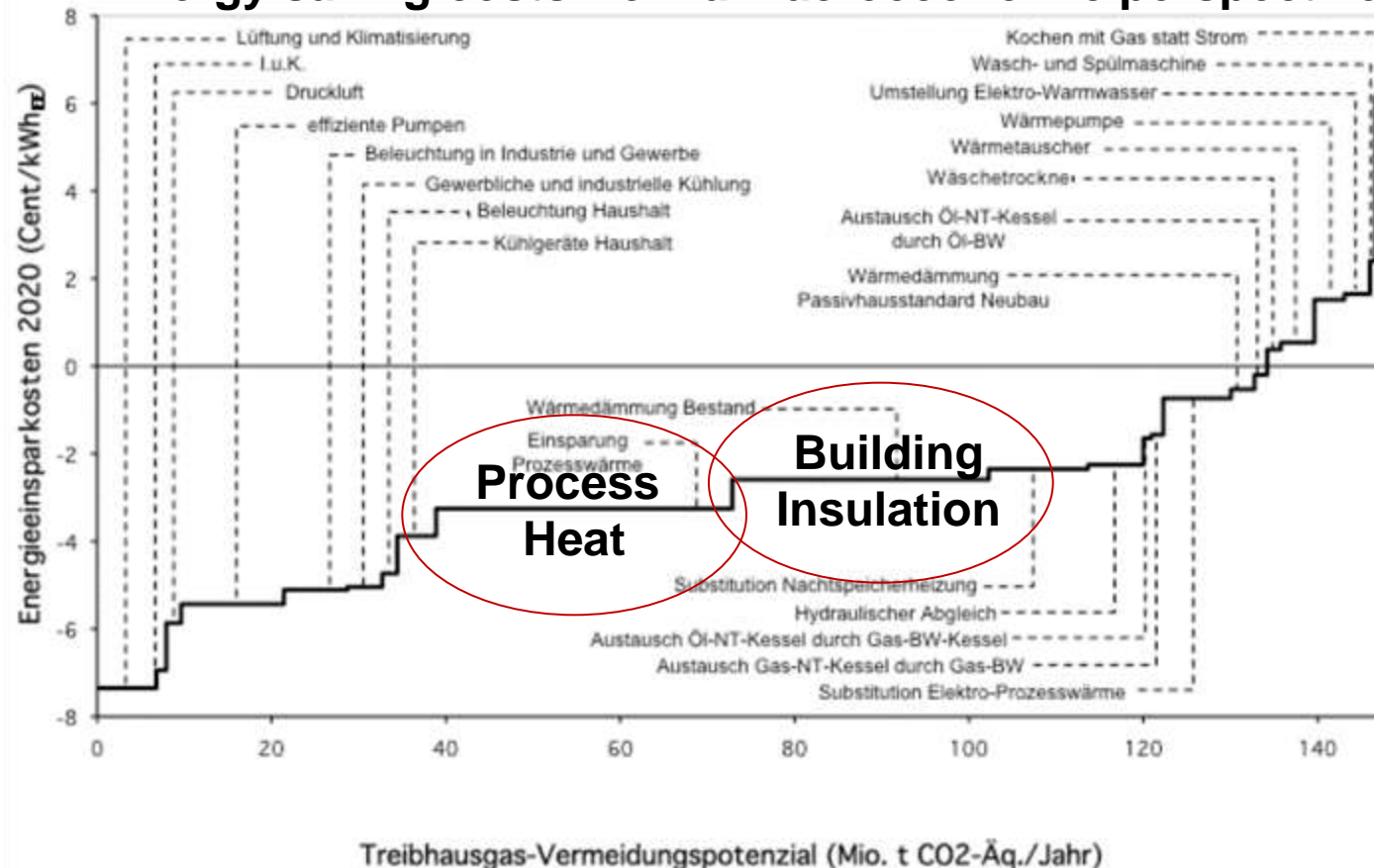
Municipal level

- „Masterplan 100% climate protection“ for municipalities



EE measures and GHG

Energy saving costs from a macroeconomic perspective



Benefits: Employment

Differences in employment between reference and ambitious EE scenarios

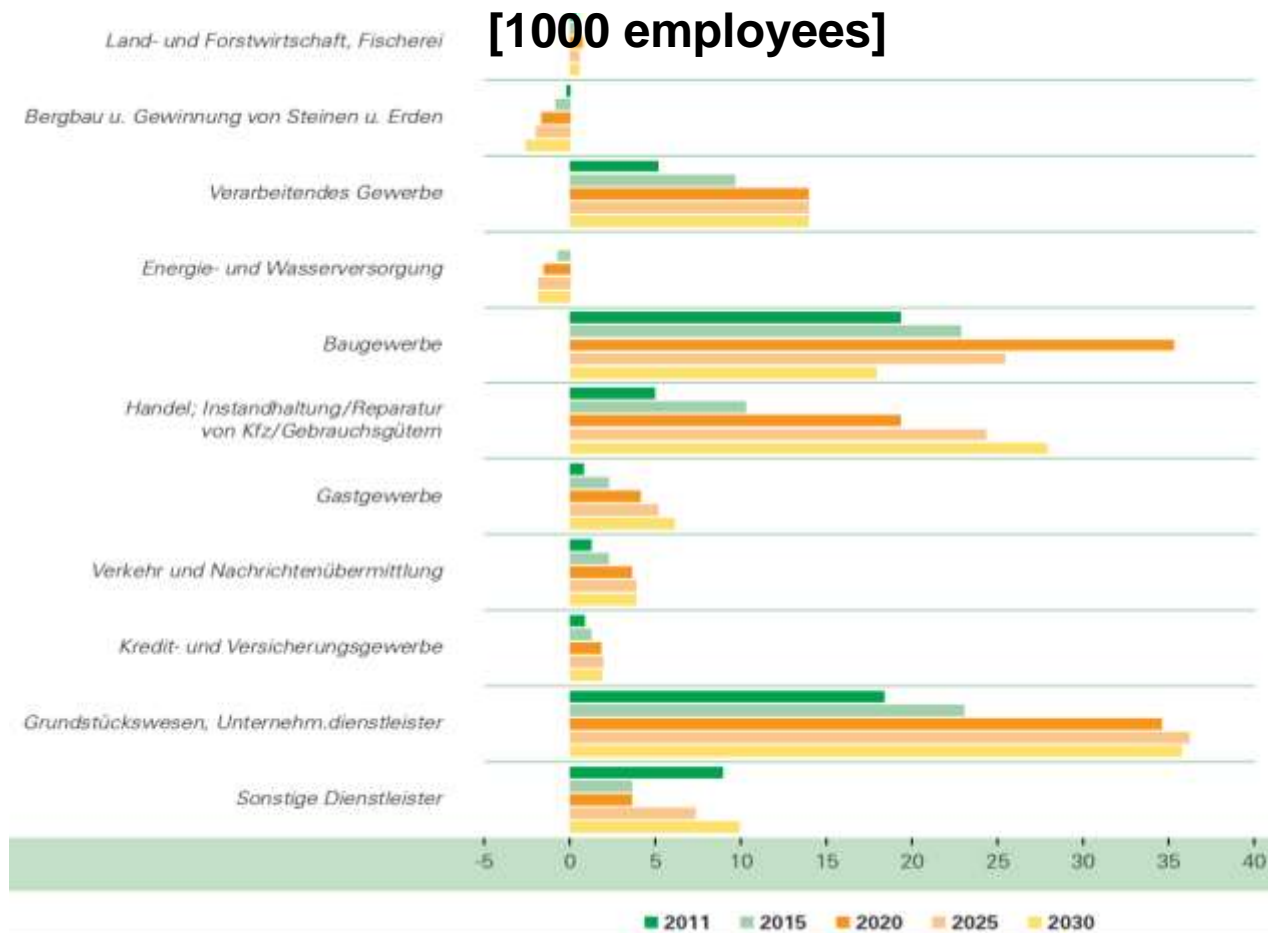




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EU Policy Instruments by sectors



| | Energy Efficiency |
|---------------------------------|---|
| General Climate Strategy | |
| Energy supply | <ul style="list-style-type: none"> • Energy Efficiency Directive (2012/27/EU) • Effort Sharing Decision (2009/406/EC) • European Emissions Trading System (ETS) (2009/29/EC) • Energy Taxation Directive (2003/96/EC) |
| Industry | <ul style="list-style-type: none"> • Eco-design Directive (2009/125/EC) • Energy Labelling Directive (2010/30/EU) • Energy Efficiency Directive (2012/27/EU) • European Emissions Trading System (ETS) (2009/29/EC) • Energy Taxation Directive (2003/96/EC) |
| Buildings | <ul style="list-style-type: none"> • Energy Performance of Buildings Directive (EPBD) (2010/31/EU) • Energy Efficiency Directive (2012/27/EU) • Eco-design Directive (2009/125/EC) • Energy Labeling Directive (2010/30/EU) • Energy Taxation Directive (2003/96/EC) |
| Transport | <ul style="list-style-type: none"> • Regulation on Energy Efficiency for passenger cars (443/2009) • European Emissions Trading System (ETS) (2009/29/EC) • Energy Taxation Directive (2003/96/EC) |



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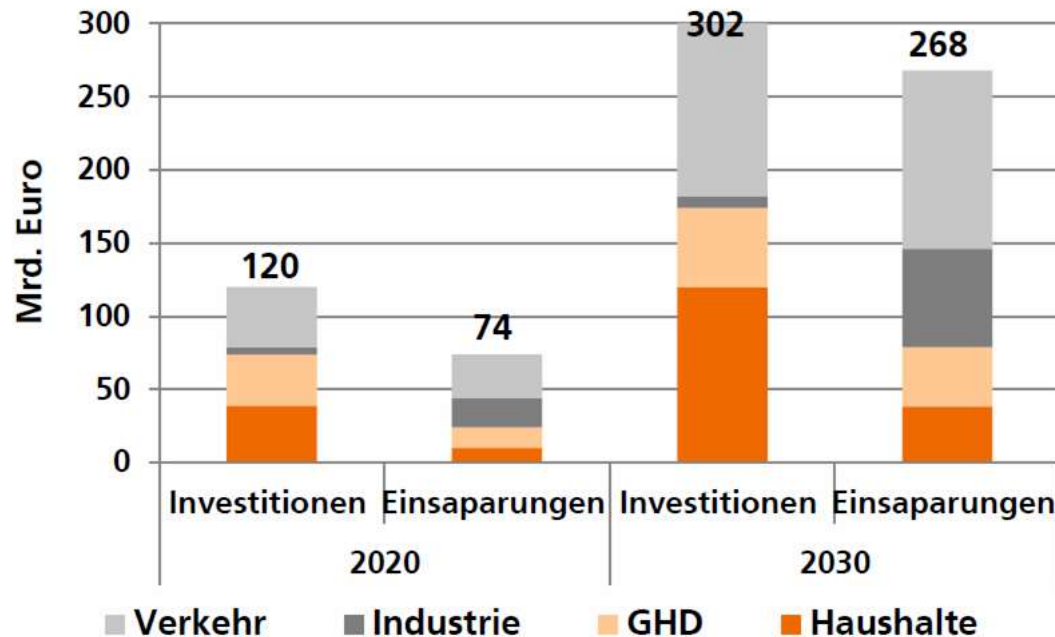
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Tapping EE potentials

Investments vs. savings by tapping potential



Investitionen vs. Einsparungen der Potenzialausschöpfung bis 2020 bzw. 2030 [vgl. Pehnt et al. 2011]

Source: Bauernhansl 2013 based on IfEU, Fraunhofer ISI, Prognos, GWS et al. 2011 and Prognos, EWI, GWS 2010