



Federal Ministry
for Economic Affairs
and Energy

Policy measures to increase energy efficiency in Germany's industrial sector

德国工业部门旨在提高能效的政策措施

Berlin, 23 November 2015

柏林，2015年11月23日



Energy Efficiency Targets

Energy Concept of 2010

	2011	2020	2030	2040	2050
Reduction in greenhouse gas emissions (compared to 1990)	-26.4%	- 40%	- 55%	- 70%	- 80%
Share of renewables in gross final energy consumption	12.1%	18%	30%	45%	60%
Share of renewables in electricity consumption	20.3%	35%	50%	65%	80%
Reduction in primary energy consumption (compared to 2008)	- 6%	- 20%			- 50%

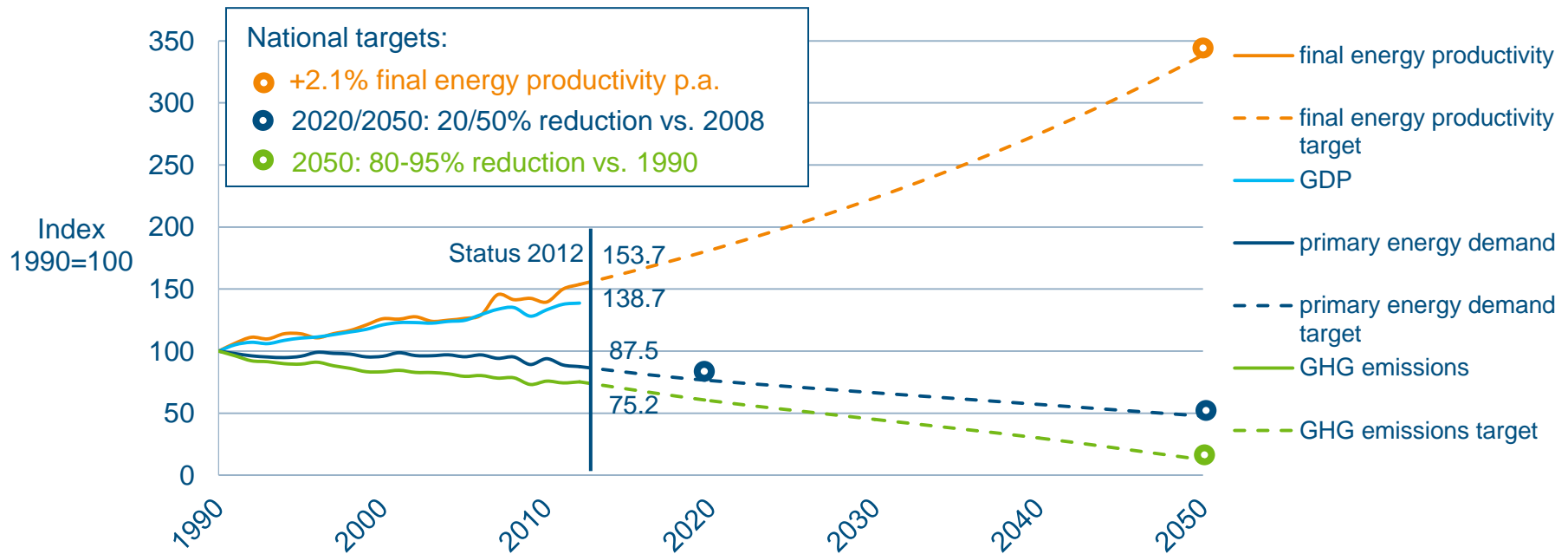


能效目标

能源概念2010	2011	2020	2030	2040	2050
温室气体减排量（相比1990年水平）	-26.4%	-40%	-55%	-70%	-80%
可再生能源占最终总能耗份额	12.1%	18%	30%	45%	60%
可再生能源发电量占电力消费量份额	20.3%	35%	50%	65%	80%
一次能源消费量（相比2008年水平）	-6%	-20%			-50%



Efficiency targets and energy productivity in Germany

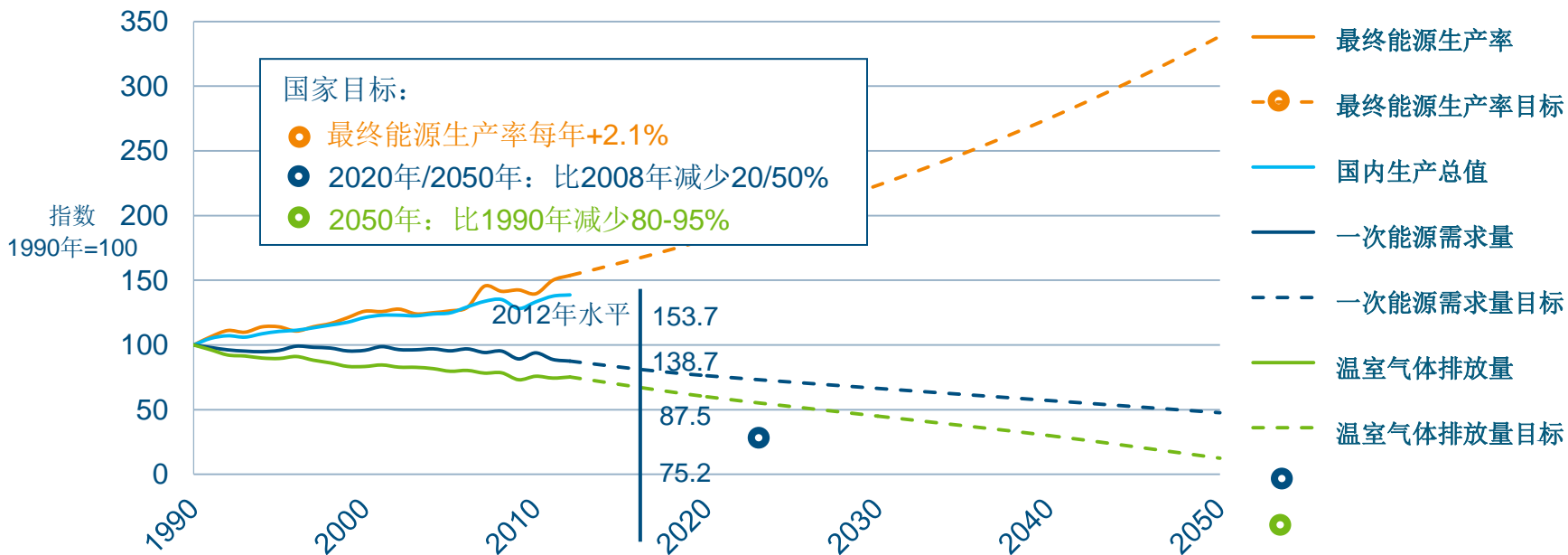


Source: IEA; Worldbank; Eurostat; BMWi

Economic growth decouples from energy consumption and emissions.



德国效率目标和能源生产率



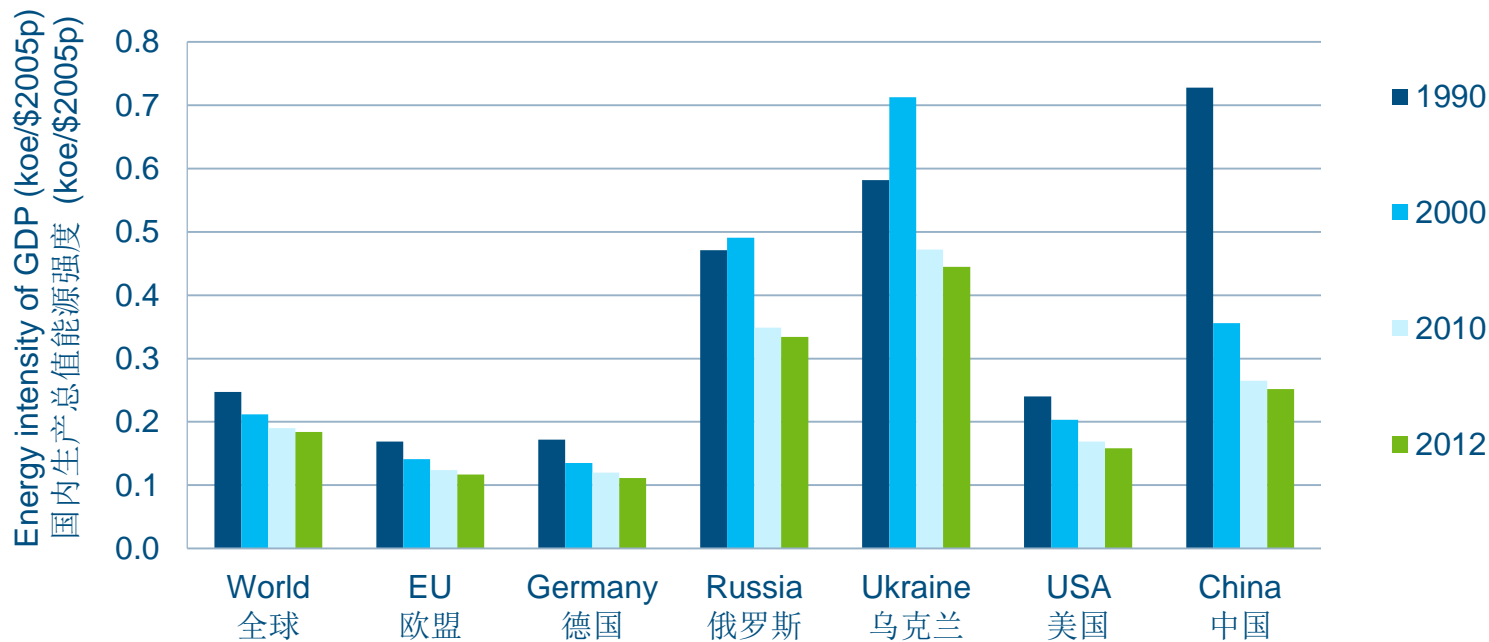
Source: IEA; Worldbank; Eurostat; BMWi

经济增长与能耗及排放量脱钩。



Primary energy intensity of selected countries

部分国家一次能源强度



Source: Enerdata 2013

Energy intensity is improving in various countries.

各国正在降低能源强度。



Main federal-level energy efficiency measures



Buildings

- Energy consulting
- KfW programmes for construction and renovation
- MAP (Market Incentive Programme)
- Energy saving legislation



Products and appliances

- Energy consulting (Energy Efficiency Campaign)
- NTRI: National Top Runner Initiative
- Energy Efficiency Labelling Ordinance
- Ecodesign Directive (eff. classification)



Industry and business

- Energy consulting services
- KfW credits and loans (Effizienzprogramm, BAFA)
- Obligatory energy audits
- European emissions trading (ETS)



Transport

- Labelling (EU Directive Fuel Economy)
- Regulation of consumption
- Motor vehicle taxation
- E-mobility strategy
- Mobility and fuel strategy

Energy efficiency policies find a balance between consultation, information, incentives and regulation.



联邦层面主要节能措施



建筑

- 能源咨询
- 德国复兴信贷银行建设改造项目
- **MAP**（市场激励计划）
- 节能立法



产品与家电

- 能源咨询（节能活动）
- **NTRI**：国家领跑者计划
- 《节能标签条例》
- 《生态设计指令》（效率分级）



工业与商业

- 能源咨询服务
- 德国复兴信贷银行信贷和贷款
（**Effizienzprogramm, BAFA**）
- 强制性能源审计
- 欧盟排放交易体系（**ETS**）



交通运输

- 标签（欧盟燃油经济性标签指令）
- 消费监管
- 机动车辆征税
- 电动交通战略
- 交通和燃油战略

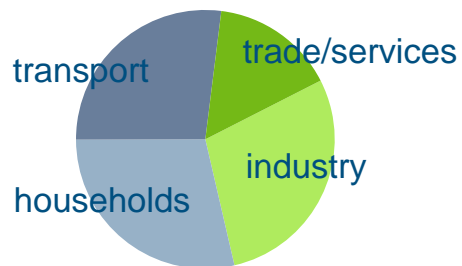
节能政策在咨询、信息、激励与监管之间取得平衡。



Energy efficiency in trade/services and industry

Sector relevance

45% of final energy
consumption in 2012



Sector measures

- Market-driven improvements arising from research and development
- Incentive programmes, e.g. grants for cross-cutting technologies and energy audits in SMEs
- Energy consultation

National efficiency targets

Primary energy demand



20% less by 2020



50% less by 2050

Sector effects achieved



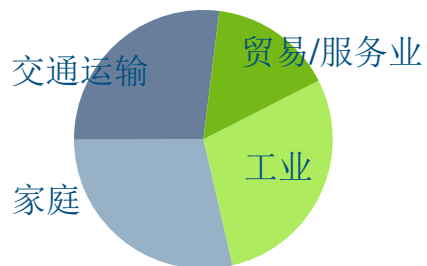
34 PJ/a final energy (-0.85%)
saved in 2012 vs. 2008



贸易/服务业和工业能效

行业相关度

45% 占2012年能源终端消费量的百分比



行业措施

- 通过开展研发活动实现市场驱动型改进
- 激励计划，如先进技术补贴和中小企业能源审计
- 能源咨询

国家效率目标 一次能源需求量



比2020年减少20%



比2050年减少50%

行业实效



2012年能源终端消费量
比2008年减少34PJ/a (-0.85%)



Energy efficiency in companies 企业能效

Obstacles for invests in EE 能效投资领域的障碍

- Lack of internal expertise
- 缺乏内部专业知识
- High cost of identifying energy saving potential
- 发现节能潜力所需成本高企
- amortisation period considered as too long
- 摊还期过长
- Lack of capital
- 缺乏资金



Energy audits and -management in companies

企业能源审计和管理

Energy audits: 能源审计:

= systematic procedure with the purpose of obtaining adequate knowledge of the existing energy consumption profile of a building or group of buildings, an industrial or commercial operation or installation or a private or public service, identifying and quantifying cost-effective energy savings opportunities, and reporting the findings

= 系统程序，目的：获取关于单体建筑或建筑群、工业或商业经营活动或设施或私人或公共服务机构现有能耗状况的充足知识，发现和量化高成本效益节能机会，报告研究结果

- For SMEs: grants for energy audits
- 中小企业：能源审计补助
- For large companies: energy audit compulsory every 4 years
- 大型企业：强制实行能源审计，每4年一次

Energy management systems: 能源管理体系:

- Grants for the introduction of ISO 50001 (both SMEs and large companies)
- 引入ISO 50001相关补助（同时面向中小企业和大型企业）
- Fiscal incentives: Tax rebate from the electricity tax for companies from the manufacturing sector
- 财政激励：面向制造型企业征收电力税退税



Financial promotion of implementing EE technologies 通过实行财政措施促进实施能效技术

Promotion of cross-cutting technologies 推广先进技术

Replacing old with new + potential for better efficiency 以旧换新 + 能效提高潜力

- Electric motors 电动机 (30%)
- Pumps 泵 (30%)
- Compressed air 压缩空气 (50%)
- Ventilation systems 通风系统 (25%)
- Lighting 照明设备 (70%)
- Process heat 工业用热 (30%)

Support for SMEs 扶持中小企业

- Individual measures: investments up to 30,000 euros 单项措施：投资额最高30,000欧元
 - Systems optimisation: investments up to 100,000 euros 系统优化：投资额最高100,000欧元
 - Energy performance improved by at least: 25% 能源绩效至少提高：25%
 - Concept for energy conservation 节能概念
 - Grant of 30% max. 最高30%补助
 - Expertise for implementation 关于实施的专业知识
-



Promotion of cross-cutting technologies

推广先进技术

Funding for cross-cutting technologies: practical experience

资助先进技术：实践经验

- 2,200 applications for the programme since 2012
 - 2012年以来向激励计划提交2,200项申请
 - Total investment: approx. 50 million euros (grants: 12 million euros)
 - 总投资：约5000万欧元（补助金额：1200万欧元）
 - Energy performance 50% better compared to old equipment
 - 能源绩效比旧设备高50%
 - Usually combination of various individual measures
 - 通常同时采取多项不同措施
 - 40% of loans awarded as part of the KfW energy efficiency programme
 - 在德国复兴信贷银行能效计划项下发放40%贷款
-



Energy efficient production processes

节能生产工艺

- Highly individualised approach necessary
需要具有高度针对性的方法
- Funding for investments in energy efficient technologies or other measures of energetic optimization (i.e. changes in the production process)
拨款资助企业投资于节能技术或其他能源优化措施（即生产工艺改进）
- New: Special focus on waste heat recovery
新：特别注重余热回收
- Focus on standardized cross-cutting technologies and individual measures based on preceding energy consultation
根据在先的能源咨询，重点关注标准化跨领域技术和针对性措施



Federal Ministry
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National Action Plan Energy Efficiency

国家能效行动计划



Federal Ministry
for Economic Affairs
and Energy



A good bit of work

Making more out of energy

National Action Plan on Energy Efficiency

- Adopted in December 2014
- 2014年12月通过
- The government's strategy for EE policy
- 政府能效政策战略
- Available in English on the BMWi website
- 德国联邦经济事务和能源部网站载有英文版



NAPE: Improving framework for energy services

国家节能行动计划：不断完善能源服务框架

- Overall goal: Effecting investments in EE technologies / enabling energy services

总体目标：促进节能技术投资/鼓励节能服务

- Focus on Energy Contracting / Energy Performance Contracting
重点关注能源托管/合同能源管理

- Consultation programme for SMEs and municipalities
面向中小企和城市的咨询项目

- Security scheme for SMEs offering contracting services
面向中小企的能源外包服务保障计划

- Improved communication and cooperation between „Bund“, „Länder“ and stakeholders

改善联邦、各州与利益相关者之间的沟通与合作



**Thank you for your
attention!**
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