



Energy Efficiency Strategy and Policy Instruments - Experiences from the EU 提升建筑能效战略和工具 ——欧盟经验

Sino-German Energy Efficiency Expert Roundtable

中德能效专家圆桌论坛

Morning Session 上午场

Expert Roundtable on “Energy Efficiency Strategy and Supporting Policies – Experiences from the EU and Germany”

“提升建筑能效战略和工具”专家圆桌论坛

Oliver Rapf, Executive Director

Buildings Performance Institute Europe

Oliver Rapf, 欧洲建筑性能研究所执行理事

Table of Content 主要内容



- 🏠 The Buildings Performance Institute Europe 欧洲建筑性能研究所
- 🏠 The Energy Union 能源联盟
 - 🏠 Efficiency First 效率至上
- 🏠 The EU policy framework 欧盟政策框架
 - 🏠 The Energy Efficiency Directive 2012 2012年《能效指令》
 - 🏠 Renovation strategies 改造战略
 - 🏠 Energy Savings Obligation 节能义务
- 🏠 Outlook 前景

A small blue triangle pointing upwards, located to the left of the main header bar.

The Buildings Performance Institute Europe 欧洲建筑性能研究所

European
not-for-profit
think-tank
欧洲非营利
性智库

Promotes policies and support
instruments to increase the energy
performance of buildings
推行政策和配套工具，以提升建筑的
能源绩效

In operation
since 2010
成立于
2010年

Brussels, Bucharest, Berlin
and Warsaw
布鲁塞尔、布加勒斯特、
柏林和华沙

Knowledge, policy,
implementation
知识、政策、实施

Investing in energy efficiency
in Europe's buildings
A view from the construction
and real estate sectors

EU ENERGY
EUROPEAN
EFFICIENCY
TARGETS
DIRECTIVE
FINANCING
ENVIRONMENT
SUSTAINABILITY

EU ENERGY LAW

VOLUME VII
Energy Efficiency
in the European Union

Energy Efficiency – the first fuel
for the EU Economy
How to drive new finance for energy
efficiency investments

Energy Efficiency
Institutions Group
Interim Report

Knowledge
知识

Policy
政策

Implementation
实施

www.bpie.eu

BPIE

SMART BUILDINGS
IN A DECARBONISED
ENERGY SYSTEM

INDOOR AIR QUALITY,
THERMAL COMFORT
AND
DAYLIGHT

BUILDING
RENOVATION
PASSPORTS

Customised roadmaps
towards deep renovation
and better homes

Financing Energy Efficiency (EE)
in Buildings



The way towards: **The Energy Union**

Where we want to go:

A secure, sustainable, competitive, affordable energy for every European

What this means:

Energy security, solidarity and trust

A fully integrated internal energy market

Energy efficiency first

Transition to a long-lasting low-carbon society

An Energy Union for Research, Innovation and Competitiveness

How we want to reach it:



Energy Union: the guiding dimensions

能源联盟：指导维度



- 1 Secure supplies**
- 2 Internal energy market**
- 3 Energy efficiency**
- 4 Emissions reduction**
- 5 Research & Innovation**



Efficiency First for the Energy Union

能源联盟秉持效率至上原则

...the energy we do not use is the cheapest, most sustainable and most secure energy there is. The EU is already a world leader here; but I think we can do so much more. It starts with taking "efficiency first" as our abiding motto.

EU Climate Action and Energy Commissioner Arias Canete, February 2015

...我们不使用最廉价、最可持续和最安全的能源。欧盟已经是这方面的世界领导者；但我认为我们可以做得更多。一切工作始于将“效率至上”作为我们的永恒口号。

欧盟气候行动和能源专员阿里亚斯·卡内特，2015年2月



Efficiency First 效率至上



The Paris Agreement has now entered into force, and with it, we have accelerated the transition towards a clean, smart and secure energy system. The implementation of our Paris commitments is now our highest priority.

We are building on our 2030 climate and energy goals to reduce green-house gas emissions, to promote the deployment of renewable energy and to achieve significant energy savings.

Turning our commitments into concrete actions will be a considerable challenge: after all, two thirds of greenhouse gas emissions result from energy production and use alone. But if we want to succeed in our endeavour and meet our ambitious climate and energy objectives, we need to take action to reduce energy consumption.

The cheapest energy, the cleanest energy, the most secure energy is the energy that is not used at all. Energy efficiency needs to be considered as a source of energy in its own right. It is one of the most cost effective ways to support the transition to a low carbon economy and to prompt further investment opportunities and to create growth and employment.

That is why the European Commission is promoting ambitious policies that will put energy efficiency first. And that is why the Commission has proposed to increase the ambition level for energy efficiency to the level of 30% binding at EU level.



MIGUEL ARIAS CAÑETE
European Commissioner for Climate Action and Energy

What is Efficiency First? 为何秉持效率至上原则？

Efficiency First is a guiding public policy principle :

效率至上是指导性的公共政策原则：

- 📦 applied to energy sector policies, plans, and investments
- 📦 适用于能源部门的政策、计划和投资
- 📦 that chooses and requires investments in demand-side resources*
- 📦 选择并要求投资于需求侧资源*
- 📦 whenever they **would cost less, or deliver more value**, than investing in energy fuels and supply-side infrastructure.
- 📦 在它们比投资能源燃料和供给侧基础设施**花费更少，或者交付更多价值**的任何时候。。

Departures from this rule are permitted only for clear, compelling reasons (e.g., system security)

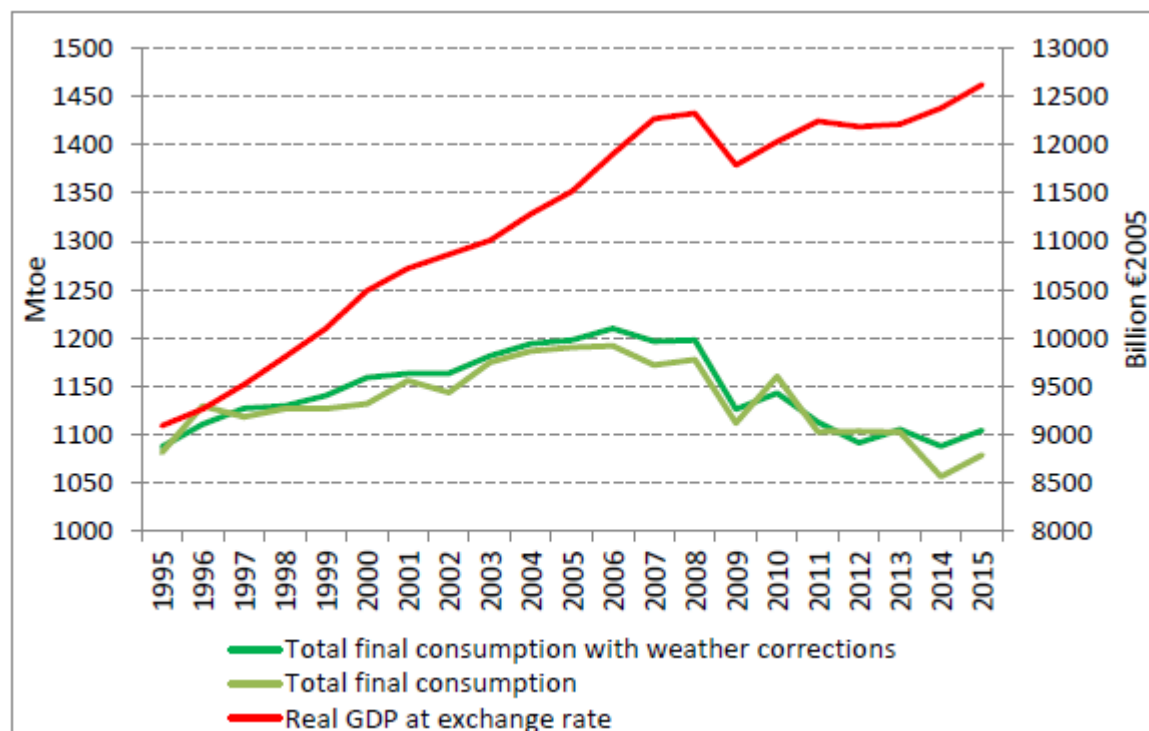
只有提出明确的、令人信服的理由（例如系统安全），方可背离此项规则。

*Including both **end-use efficiency** and **demand response resources**

*包括**最终使用效率**和**需求响应资源**

GDP and weather corrected final energy consumption in 1995-2015

1995-2015年GDP和根据天气修正的终端能源消费量



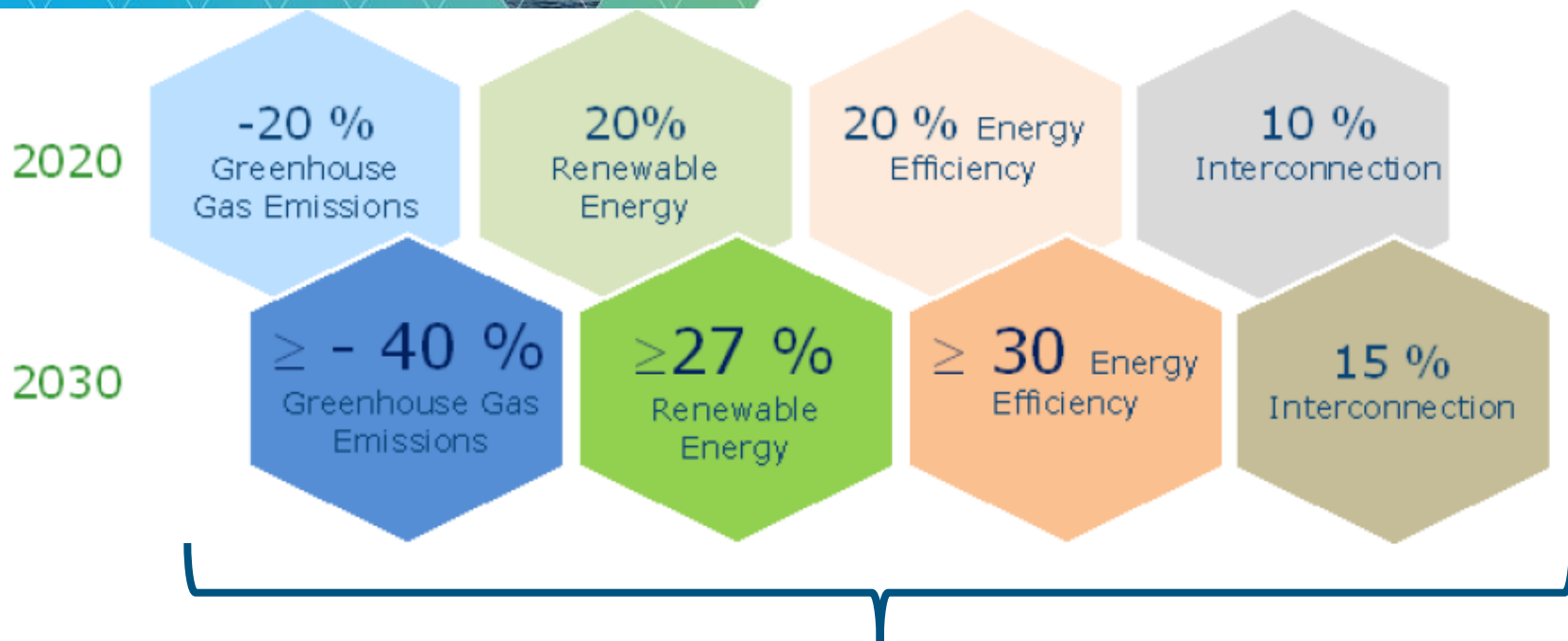
REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND
THE COUNCIL

2017 assessment of the progress made by Member States towards the national energy
efficiency targets for 2020 and towards the implementation of the Energy Efficiency
Directive as required by Article 24(3) of the Energy Efficiency Directive 2012/27/EU

2030 framework for climate and energy policies

Agreed headline targets

2030年气候和能源政策框架 达成一致的总体目标



New governance systems and indicators

新的治理制度和指标

Clean Energy for All Europeans Package 欧洲清洁能源一揽子方案



Energy Efficiency Directive 《能效指令》

Energy Performance of Buildings Directive 《建筑能源绩效指令》

A communication on accelerating clean energy in buildings
关于加快建筑使用清洁能源的通讯

Ecodesign working plan 2016-2019
2016-2019年生态设计工作计划

Renewable Energy Directive 《可再生能源指令》

Electricity market and consumers: Electricity Directive, Electricity Regulation and ACER Regulation, and a new Risk Preparedness Regulation
电力市场和消费者：电力指令、电力监管条例和ACER监管条例以及新的风险准备监管条例

Energy Efficiency First

An evolving EU policy framework
for energy efficiency
不断演变的欧盟能源效率政策框架



**Energy
Efficiency
Directive**
《能效指令》

Binding 30% energy
efficiency target for 2030
到2030年能效提高30%
的
约束性目标

Access for
consumers to
consumption
information
为消费者提供
消费信息

Extension of annual
energy savings
obligations for Member
States beyond 2020
将成员国的年度节能义
务延长至2020年之后

**Eco-design
Directive**
《生态设计指
令》

Energy-related products
能源
相关产品

Product regulations
产品监管条例

Reviews of existing
measures and
studies for new
measures for other
products
对现有措施的审查以
及对其他产品配套新
措施的研究

**Governance
Regulation**
治理监管

Requirements for
Member States'
Integrated National
Energy and Climate plans
for 2021 to 2030
对2021至2030年成员国
综合性国家能源和气候
计划的要求

Market Design
市场设计

Provision to
reward flexibility
for generation,
demand-
response and
storage

对生产、需求响
应和存储给予灵
活奖励的规定

Provisions for the
protection of
vulnerable
customers
为弱势客户提供
保护的规定

**Energy
Performance of
Buildings
Directive**
《建筑能源绩
效指令》

Smartness
indicator
智能指标

Electro-mobility
infrastructure
电动交通
基础设施

Member States -
Long-term national
renovation
strategies 成员国 -
长期国家改造战略

**Renewable
Energy
Directive**
《可再生能源
指令》

Obligations for
renewable
energy use in
heating and
cooling
关于在供暖和供
冷领域使用可再
生能源的义务

Renewable
energy target for
2030
2030年可再生能
源目标

The Energy Efficiency Directive 2012

2012年《能效指令》



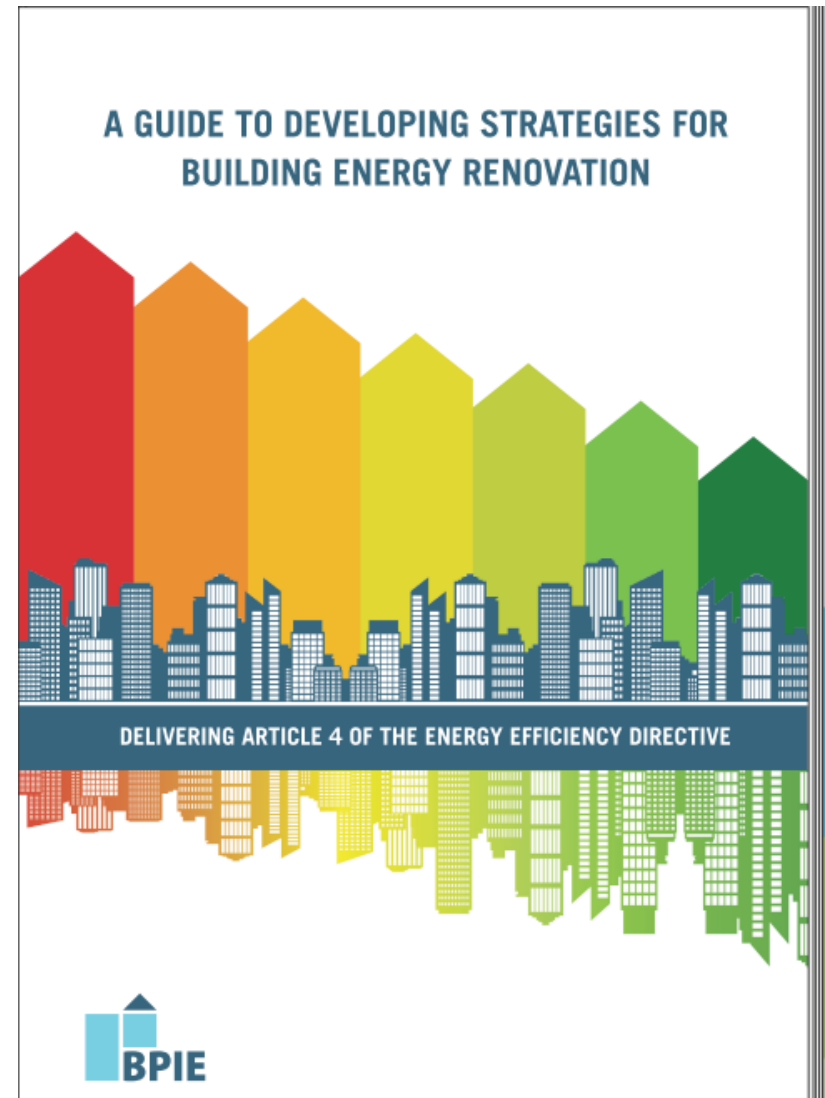
Two examples of implementation:

关于实施的两个示例：

- 🏠 **Article 4:** Development of national renovation strategies
- 🏠 **Article 7:** Energy Saving Obligation
- 🏠 **第4条：** 制定国家改造战略
- 🏠 **第7条：** 节能义务

Energy Efficiency Directive, Art. 4 《能效指令》第4条

- 🏠 *“Member States shall establish a long-term strategy for mobilising investment in renovation of the national stock of residential and commercial buildings, both public and private.”*
- 🏠 “成员国应制定长期战略，调动投资，用以改造全国公共和私有存量居住及商业建筑。”
- 🏠 Publish by 30 April 2014 and update every 3 years thereafter
- 🏠 2014年4月30日前发布，之后每3年更新一次



RENOVATION STRATEGIES OF SELECTED EU COUNTRIES

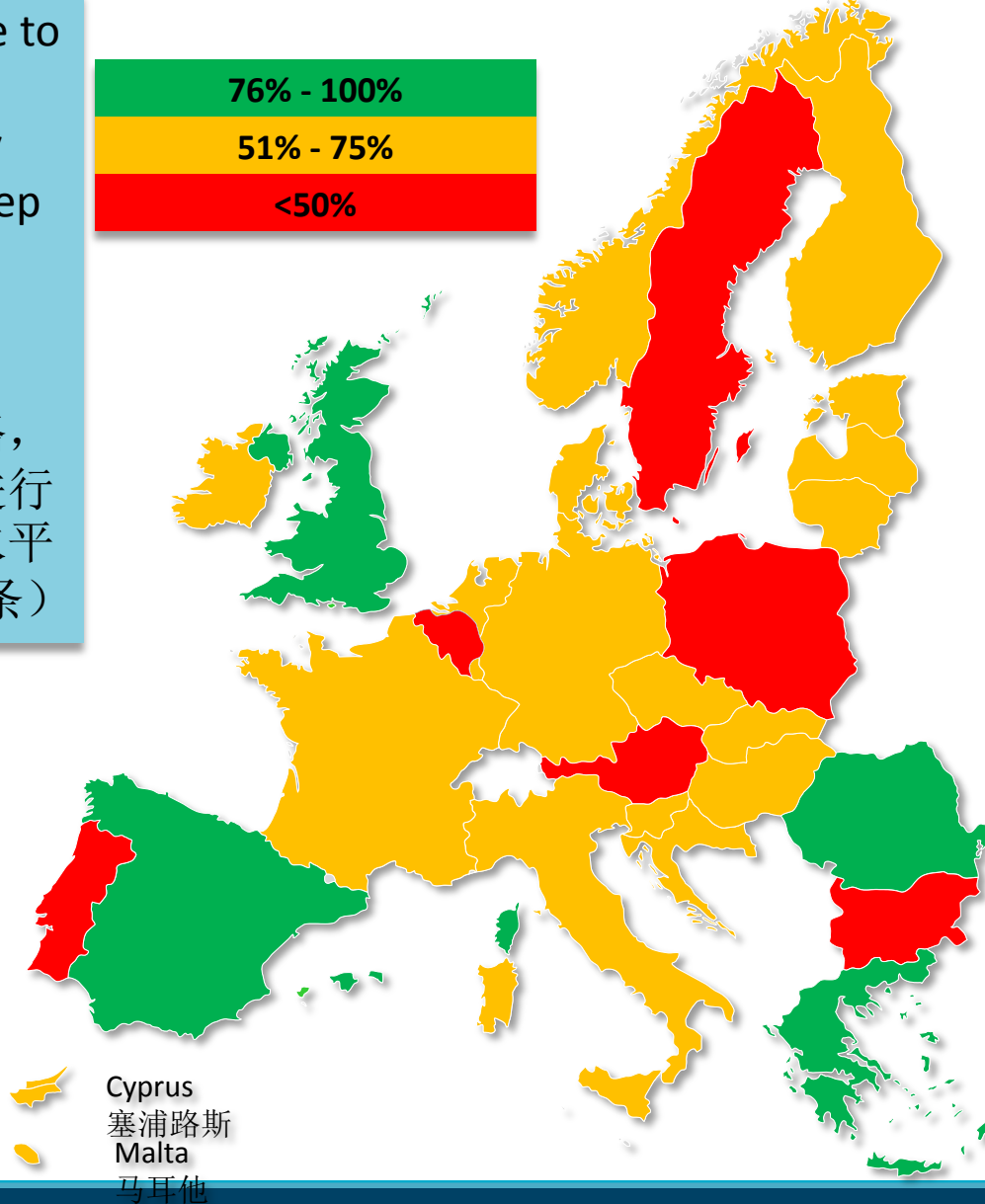
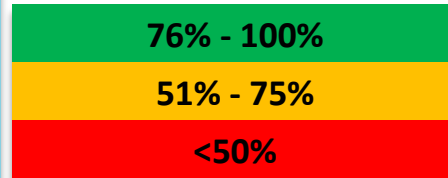
A STATUS REPORT ON COMPLIANCE WITH ARTICLE 4
OF THE ENERGY EFFICIENCY DIRECTIVE



EU Member States efforts on renovation

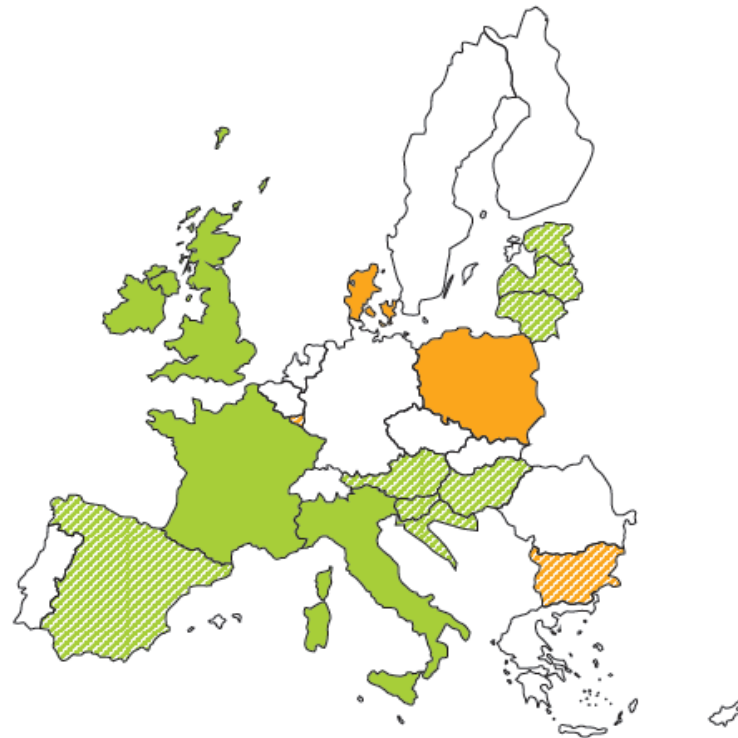
欧盟成员国开展的改造工作

Level of compliance to issue a national renovation strategy which triggers a deep renovation of the building stock (EED 2012, Art.4)
发布国家改造战略，发起对存量建筑进行深度改造的合规水平（EED 2012，第4条）



Energy Savings Obligation (Article 7)

节能义务（第7条）

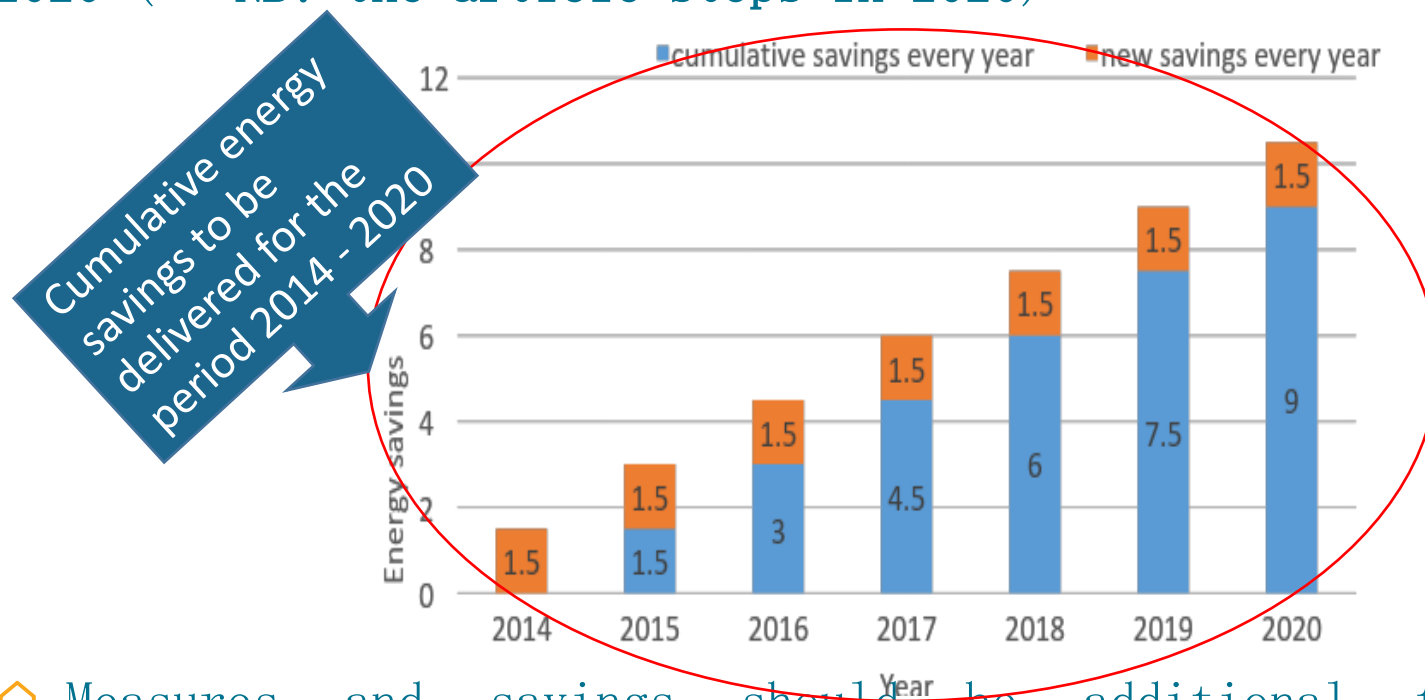


- EEOS only (existing)
- EEOS only (planned)
- Alternative measures with EEOS existing
- Alternative measures with EEOS planned
- Only alternative measures

Source: Ricardo AEA/CE Delft (2016)

Energy savings obligation: how does it work?

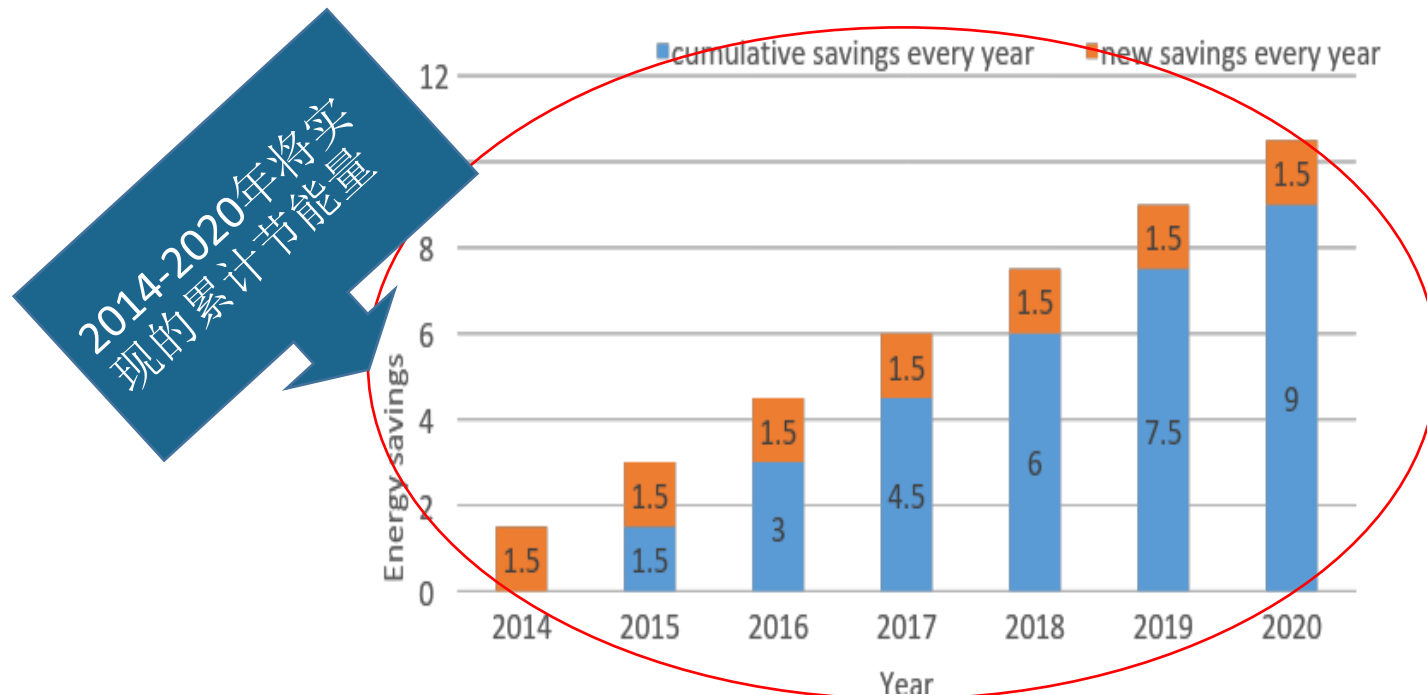
Art. 7 requires MSs to achieve 1.5% energy savings of final energy sales (among final consumers) every year from 2014 to 2020 (→ NB: the article stops in 2020)



- Measures and savings should be additional to the implementation of other EU legislation such as for products and vehicles

节能义务：如何运作？

第7条要求2014至2020年期间，成员国的终端能源销售额（最终消费者）每年减少1.5%。（→注意：本条规定将在2020年失效）



- 应当在实施欧盟其他法规期间采取额外的节能措施，例如针对产品和汽车

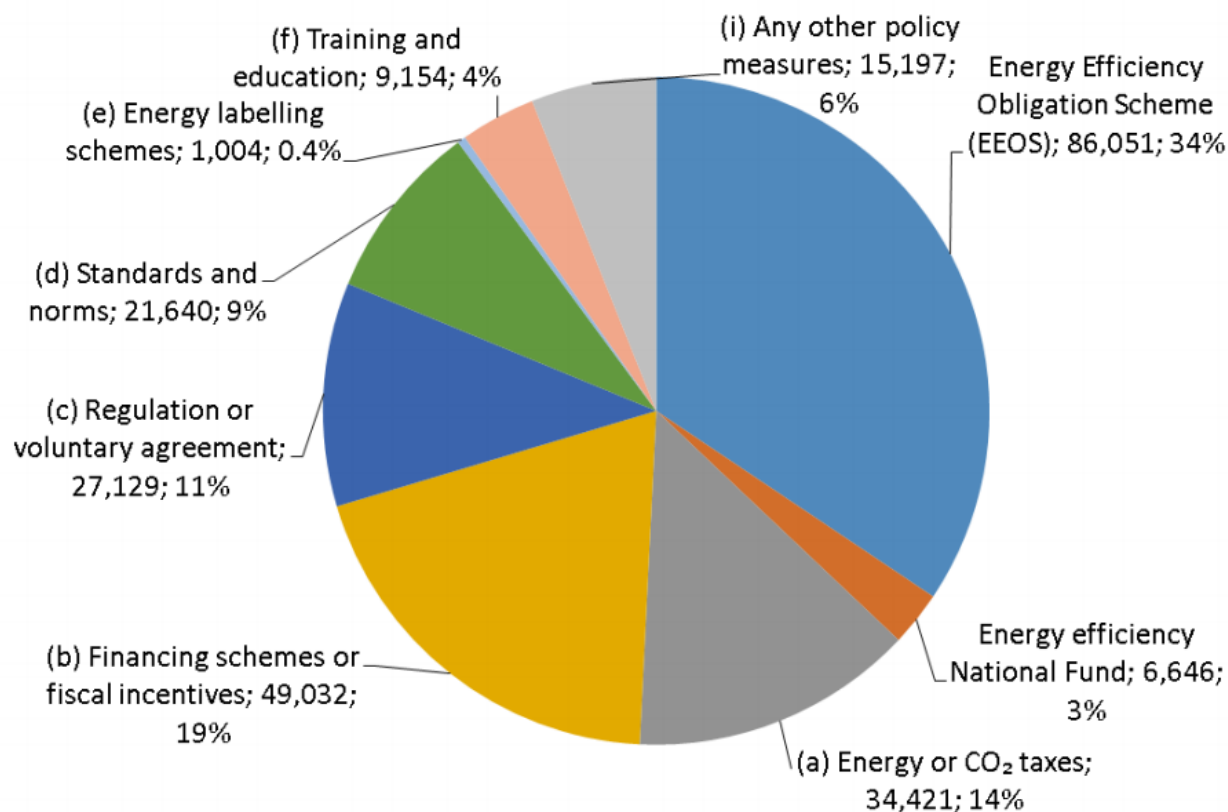
Energy savings obligation: how does it work?

节能义务：如何运作？



- 🏠 Article 7 delivers most of the EED energy savings until 2020;
- 🏠 第7条规定了2020年之前《能效指令》的大部分节能要求;
- 🏠 It gives **flexibility** to MSs on how to achieve energy savings (EEOs or alternative measures);
- 🏠 它在如何实现节能（“节能机会”或其他措施）方面为成员国赋予了**灵活性**;
- 🏠 MSs have reported **around 500** measures under Article 7, the majority in the building sector;
- 🏠 根据第7条，成员国已经报告**大约500项措施**，其中大部分针对建筑行业;
- 🏠 New business models for energy efficiency and new stakeholders involved in implementation;
- 🏠 新的节能商业模式和参与实施的新利益相关方;
- 🏠 Evidence shows that the cost of saving energy is lower than the cost of supplying energy (for both EEOs and other policy measures).
- 🏠 有证据表明，节能成本低于供能成本（适用于“节能机会”及其他政策措施）。

Breakdown of ex-ante energy savings, based on notified savings by type of policy measure for EU-28 over period 2014–2020 (figures in ktoe)
事前节能量细分，基于2014–2020年欧盟28国通报的采取不同类型政策措施所实现的节约量（数据单位：千吨油当量）



Examples of measures reported under Article 7

根据第7条报告的措施示例

16 Energy efficiency obligations implemented or planned – typical measures promoted by the EEOS include:

- energy efficient appliances; building insulation; heating and cooling system upgrades; and cross-cutting industrial measures (e.g. energy efficient motors).

16项已实施或规划的节能义务——“节能机会”推行的典型措施包括：

- 节能型电器；建筑保温隔热；供暖和供冷系统升级；以及跨领域行业措施（如节能型电机）。

More than 130 individual financial schemes and fiscal incentives have been notified by MS in relation to Article 7 (e.g.):

- Building renovation:
 - grants for building renovation (Croatia, Romania, Italy)
 - tax incentives (Italy: up to 65% tax reduction on energy efficient investments in buildings)
 - guarantee fund for building renovation (France)
 - mixed soft loan and grant for buildings (Germany)
 - grants for the construction of exemplary buildings with energy efficiency features (Brussels region)
- Products:
 - modernisation of public lighting (tax credit in Malta and grants in Romania)

关于第7条，成员国已经通报130多项财政计划和财政激励措施，例如：

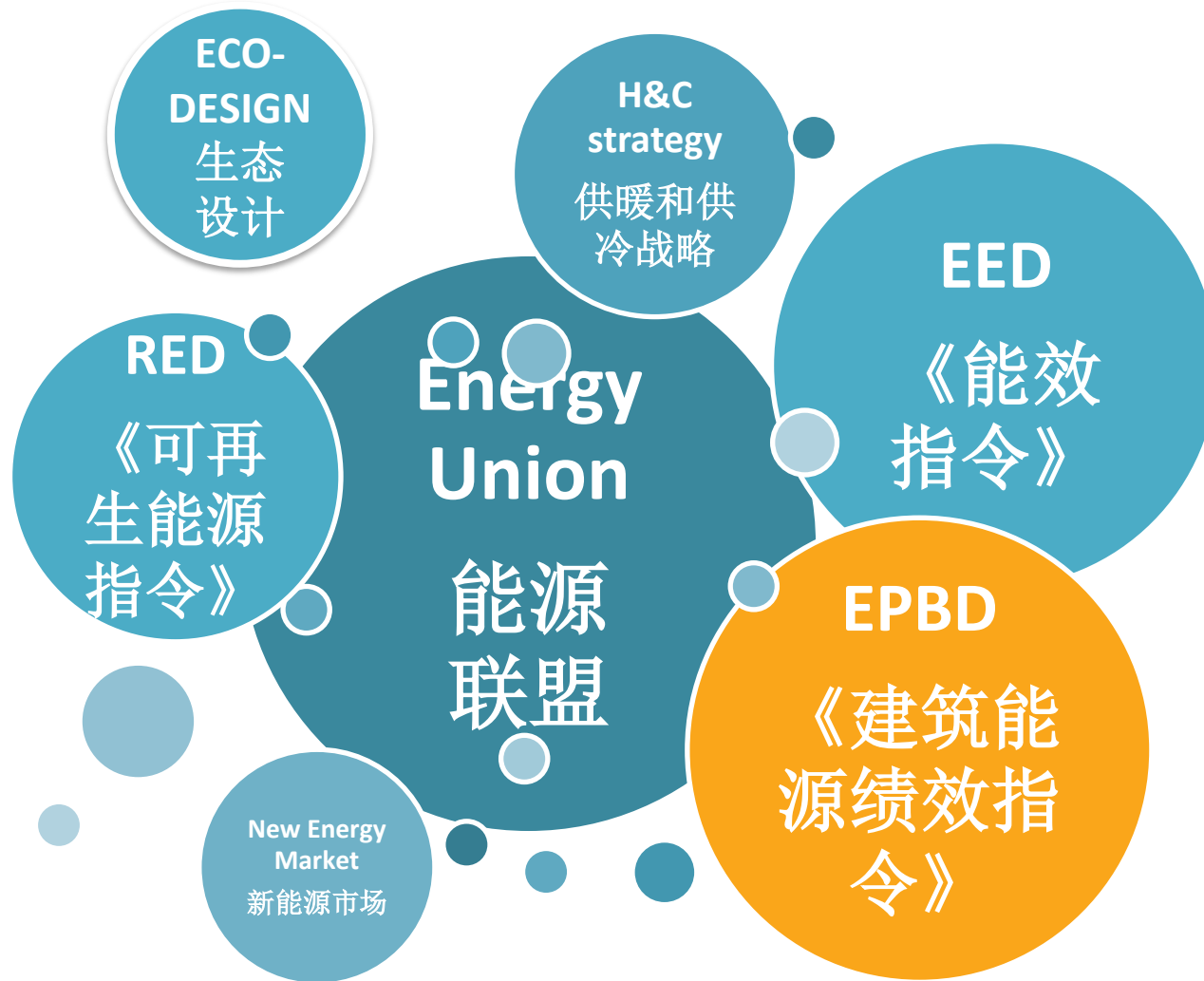
- 建筑改造：
 - 建筑改造补贴（克罗地亚、罗马尼亚、意大利）
 - 税收优惠（意大利：建筑节能投资最高减税65%）
 - 建筑改造保障基金（法国）
 - 混合软贷款和建筑补贴（德国）
 - 具有节能特征之示范建筑的建设补贴（布鲁塞尔地区）
- 产品
 - 公共照明现代化（马耳他税收抵免和罗马尼亚补贴）

Outlook:

The EU policy framework for
Energy Efficiency - it is evolving!

前景:

欧盟能源效率政策框架——持续演变!





Thank you!
谢谢!

Oliver.Rapf@bpie.eu

You can find all our reports on
查阅我们的所有报告, 请登录
WWW.BPIE.EU

NEWSLETTER

Subscribe to our contact list



[Newsletters archive >](#)