

# Draft Law on the Efficient Use of Energy Resources and Energy Efficiency *Part 1*

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## Multiple benefits (not only energy savings)

- Creation of new jobs
- Increased competitiveness of industry
- Lower energy bills for households (direct & indirect)
- Healthier houses
- Environmental protection
- Increased energy export
- Macro Economic impact



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# EU examples of multiple benefits

- Every million € spent on EE creates about 20 new jobs;
- [Clean Energy 4 All Europeans](#) package 's potential impact:
  - market for insulation and flat glass + €23.8 billion
  - building renovation market for SMEs + €80-120 billion
  - other EE work in construction sector + €47.6 billion
- New 30% EE target compared to a previous 27% target:
  - additional €70 billion euros
  - 400,000 jobs
- €490 savings per household per year on energy bills ([ecodesign](#))



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# Structure of the Law (chapters:)

1. General Provisions
2. State Policy
3. National Targets and Action Plans
4. Energy Audit & Energy Management Systems
5. Energy Services
6. Billing & consumer awareness
7. EE in Power Generation, Transmission & Distribution
8. Economic and Financial Mechanisms
9. Other Provisions



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# 1. General Provisions (Objective and Scope)

- The main purpose of this Law:

*to create a legal basis for the efficient and effective use of energy resources as a part of the state energy policy in the energy sector, as well as to identify the rights and obligations of the various stakeholders*

- The scope of the law covers the entire energy chain:
  - exploration of primary energy resources,
  - energy production,
  - transportation,
  - distribution,
  - supply
  - final use



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## 2. State Policy

- **Main Principles**
  1. Ensuring the reliability and safety of the energy system
  2. Ensuring sustainable and competitive economic growth
  3. Creating a favourable environment that promotes investments in EE measures & technologies
  4. Strengthening the cooperation between all actors with the view to meet the EE objectives and targets
- **Main responsibilities of an Executive authority**  
(to be appointed)



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# EE Executive authority - examples

- **No unified approach in the EU & World practice :**
  - Directorate of a relevant Ministry (Estonia, Montenegro);
  - Agency Subordinated to a relevant ministry (Bulgaria, Denmark, Ukraine)
  - Independent Agency (Ireland, France)
  - Independent, not-for-profit organisation funded by the government and other stakeholders(Austria, UK)
- **Common features for successful institutional frameworks:**
  - Sufficient & consistent capacity to attract skilled professionals
  - Mandate to achieve EE targets
  - Power to implement EE policy Measures and suggest legislative improvements
  - Efficient collaboration with other Governmental authorities
  - Active International cooperation



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Source: <http://enr-network.org/members/>



## 3. National Targets & Action Plans

- Determination of EE targets (Primary or Final energy consumption, Energy savings & Energy intensity) should be based on:
  - cost-effective energy saving and energy efficiency potential;
  - GDP Dynamics and Prognosis;
  - population growth and displacement;
  - production, consumption, import and export of energy products;
  - indicators and forecasts of renewable energy sources;
  - planned steps to be applied before the national target is adopted.
- Main tool for monitoring the achievement of targets:
  - National Energy Efficiency Action Plan (NEEAP)



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# NEEAP – EU Example

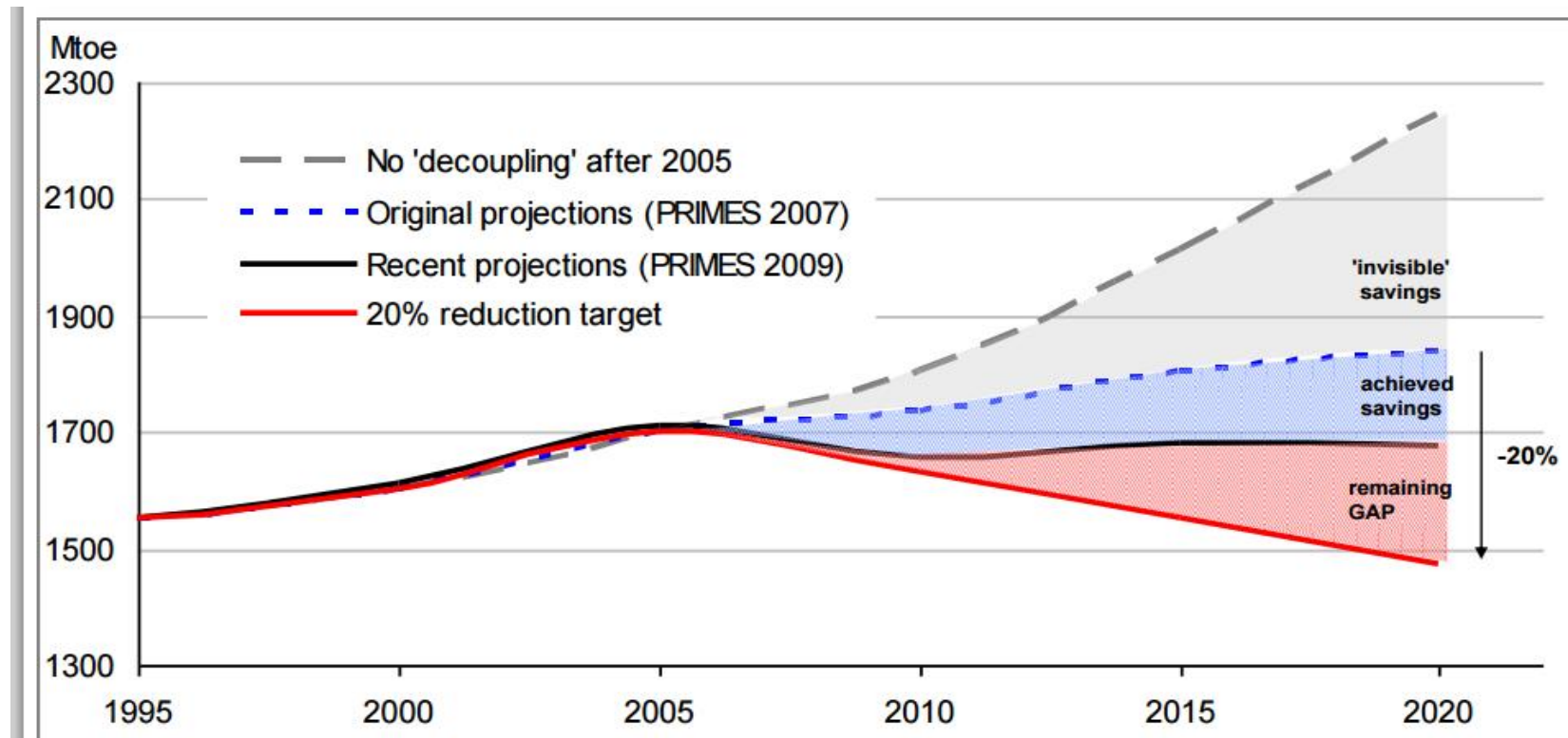
- MS review NEEAPs every 3 year.
- NEEAP breaks down EE targets into elements and sectors
- NEEAP describes the measures foreseen to achieve the targets
- First NEEAP - estimated data only
- Other NEEAPs - analysis of interim results required for achieving the targets.



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## Analysis of NEEAPs = revision of EE Directive



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Source: <http://www.eea.europa.eu/>



## 4. Energy Audit & Energy Management Systems

- **Mandatory energy audits & energy managers:**
  - industrial enterprise consuming > 500 toe per year
  - buildings with a total construction area of >10,000 sq. m. and/or consume > 250 toe per year
  - power plants with the generation capacity >50 MW
  - industrial parks(Exc. From audits -Companies with certified EMS)
- **Guidelines:**
  - Energy Audit Accreditation
  - Energy Audit Implementation
  - Energy Management System
  - Energy Manager certification



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## Mandatory Energy Audits –EU example

- For large enterprises only
  - > 250 employees and
  - > 50 million euro annual turnover and/or an annual balance sheet > 43 million euro.
- Jun 2014 –Dec 2015 – 1st Energy Audit
- After Dec 2015, every 4 years
- Exclusions: Companies introduced and certified energy and environment management systems - (ISO 14001 or ISO 50001)
- Penalties for non-compliance: up to €10 000 in Austria & €200 000 in Romania
- Mandatory implementation of cost-effective measures: Italy, Portugal, Belgium & Romania



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# Energy Management Training Program -Turkey

- **Mandatory energy manager training programme :**
  - for Industrial enterprises – 1997
  - For buildings – 2006
  - for Industrial enterprises & buildings - 2011
- **1997-2017 – 7,400 trained energy managers**
- **Mandatory Certified energy managers:**
  - industrial enterprise consuming > 1000 toe per year,
  - buildings with a total construction area of >20,000 sq. m. and/or consume > 500 toe per year;
  - power plants with the generation capacity >100 MW



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Source: <https://www.iea.org/policiesandmeasures/pams/turkey/name-24431-en.php>





# Part 1

## Roundtable Discussion


### Chapters:

1. General Provisions
2. State Policy
3. National Targets and Action Plans
4. Energy Audit & Energy Management Systems



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# Draft Law on the Efficient Use of Energy Resources and Energy Efficiency Part 2

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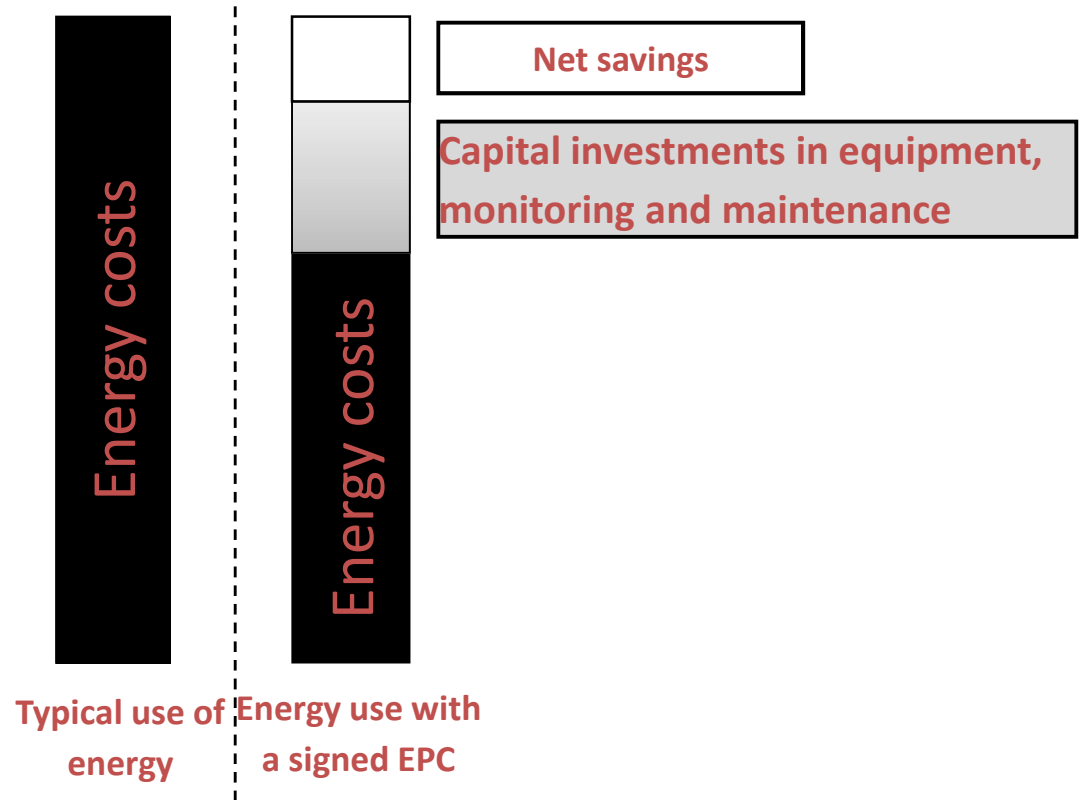


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# 5. Energy Services

- Promotion of Energy Services
- Model Energy Performance Contract (EPC)
- Development of relevant Guidelines
- Eliminate barriers



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## ESCO – Example (USA)

- Project: Florida A&M university
- Contract: EPC with guaranteed energy savings
- ESCO: Siemens
- Total investments: \$ 12.2 million
- EE Measures:
  - installation of individual boilers
  - insulated pipes
  - energy-efficient lighting
  - solar-thermal heating system, etc
- Energy Consumption reduction:
  - Natural Gas consumption -42%
  - Electricity - 12%
- Payback Period: 10 years



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Source: <http://www.buildingtechnologies.siemens.com/bt/global/en/news/site-news/pages/florida-university-doubles-down-on-energy-efficiency.aspx>



## 6. Billing & consumer awareness

- **Calculation of consumed energy:**
  - Based on actual energy consumption
  - Competitively priced individual meters for electricity, natural gas, district heating (cooling) & domestic hot water
  - Deployment of Smart meters for new & reconstructed buildings
  - Viable alternative measures for measuring heat consumption
- **Free-of-charge access to the following info:**
  - Previous energy consumption (up to 3 years)
  - Electronic access to other information



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# Alternative measures for measuring heat consumption



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## 7. EE in Power Generation, Transmission & Distribution

- **Energy Efficiency Obligation Scheme:**
  - Promotion of optimal working regimes and quality indicators of generation sector
  - Achievement of min. 1,5% new estimated savings annually
- **Efficiency in TSO & DSO for electricity and gas & DH systems:**
  - Assessment of EE potential & needed investments
  - Requirements for the Regulator to identify incentives to stimulate EE, demand side resources, optimal operation etc.
- **Promotion of High-efficient Cogeneration:**
  - Comprehensive assessment of high-efficient cogeneration
  - Guideline for the preparation of cost-benefit analysis for installing/ renovating generators >20MW



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# Demand side resources – example Mexico

## Refrigerators replacement program 2009-2012:

Vouchers and soft credits for low-income consumers to replace refrigerators (including collection and scrapping)- WB funded (US\$250 million)

- Replaced 1,800,000 refrigerators and A/C with modern EE models
- Way of living improvement + reduction of energy bills
- Created jobs -1,000
- Reduced peak electricity demand
- Gas freon- elimination – ozone layer protection
- Avoided costs for construction of new power plant and reinforcement of the network
- 14,012 GWh reduction (2,100,000 ton.CO2 equivalent to 240,000 new trees)
- Export of saved oil and electricity (at higher prices than at local market)
- Recuperation of copper, aluminum, steel, plastics ( 120,000 ton)

**Win- Win program for society, government, environment and industry**



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Source: [worldbank.org](http://worldbank.org)



# Example - Austria

## Assessment of the potential for application of high-efficiency cogeneration and efficient district heating and cooling

Final report

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Source: [https://ec.europa.eu/energy/sites/ener/files/documents/at\\_report\\_en.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/at_report_en.pdf)

## 8. Economic and Financial Mechanisms

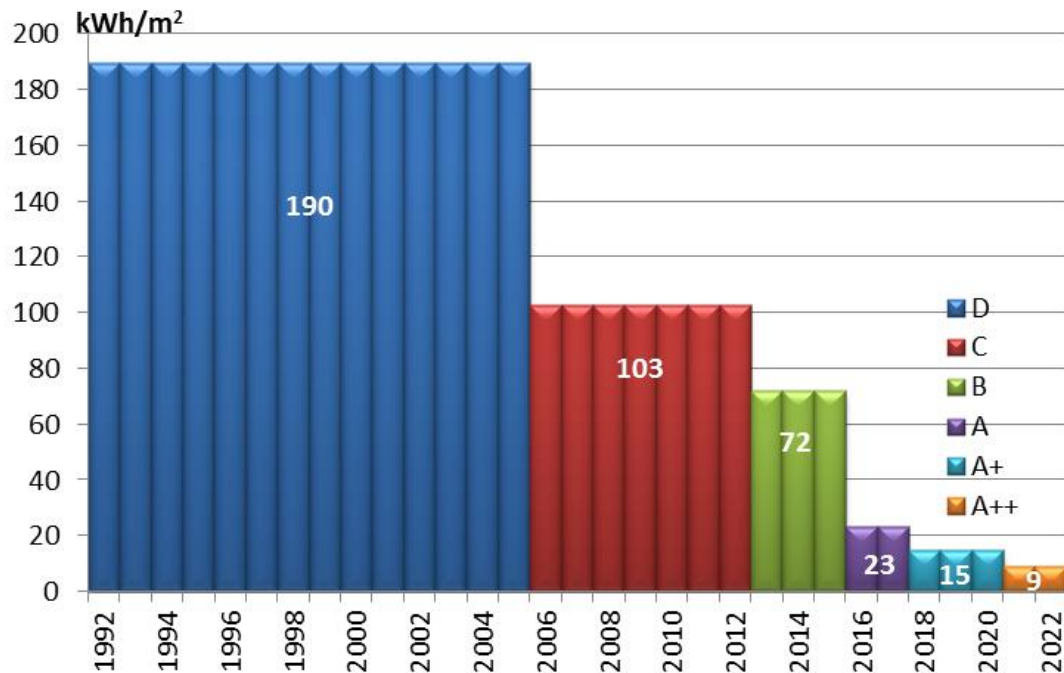
- **Promotion of EE Measures, i.e.:**
  - Financial incentives, grants, exemplary pilot projects, etc.
- **Establishment and Operation of EE Fund:**
  - To be established based on the relevant secondary legislation
- **Promotion of other energy efficiency Policy Measures**
  - Minimum energy performance requirements for buildings
  - Energy Performance Certification of buildings
  - Energy Labelling
  - Eco-design



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# EE in buildings (MEPR & EPC)



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### DEAP Version X.Y

## Building Energy Rating (BER)

BER for the building detailed below is: **C1**

Name of House, Street Name One, Street Name Two, Town name One, Town Name Two, County name One, County name Two,

BER Number: XXXXXXXXXX  
 Date of Issue: Day Month Year  
 Valid Until: Day Month Year  
 BER Assessor No.: XXXX  
 Assessor Company No.: XXXX

The Building Energy Rating (BER) is an indication of the energy performance of this dwelling. It covers energy use for space heating, water heating, ventilation and lighting, calculated on the basis of standard occupancy. It is expressed as primary energy use per unit floor area per year (kWh/m²/yr).

'A' rated properties are the most energy efficient and will tend to have the lowest energy bills.

#### Building Energy Rating kWh/m²/yr

**MOST EFFICIENT**

<25	A1
>25	A2
>50	A3
>75	B1
>100	B2
>125	B3
>150	C1
>175	C2
>200	C3
>225	D1
>260	D2
>300	E1
>340	E2
>380	F
>450	G

**LEAST EFFICIENT**

#### Carbon Dioxide (CO<sub>2</sub>) Emissions Indicator kgCO<sub>2</sub>/m²/yr

**BEST**

0

Calculated annual CO<sub>2</sub> emissions

XXX kgCO<sub>2</sub>/m²/yr

**WORST**

>120

The less CO<sub>2</sub> produced, the less the dwelling contributes to global warming.

**IMPORTANT:** This BER is calculated on the basis of data provided to and by the BER Assessor, and using the version of the assessment software quoted above. A future BER assigned to this dwelling may be different, as a result of changes to the dwelling or to the assessment software.

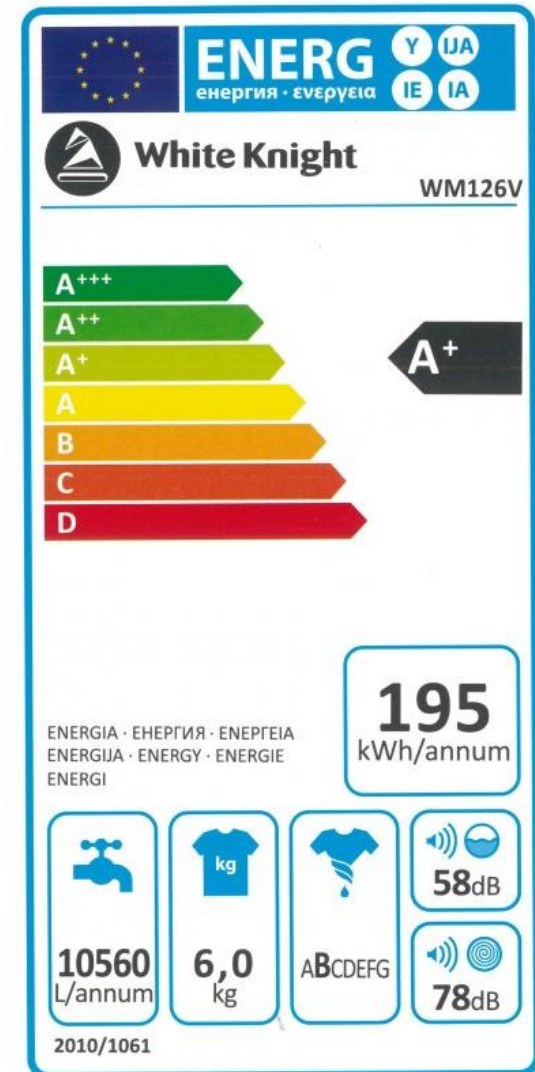


# Ecodesign & Energy labelling

- Self-declaration by producers, importers
- 1500 tests for compliance with energy labelling are held annually
- Previously the most energy efficient was a class "A", now it is "A +++",
- "A+++" Refrigerator uses 30% of the energy to perform the same work as a 10-y.o. model



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## 9. Other Provisions

- **Public Procurement:**
  - EE indicators for goods, services and buildings (taking into account cost-effectiveness, sustainability, technical compliance and competitiveness)
  - Changes to existing legislation framework & monitoring of implementation
- **Information Support:**
  - Awareness raising
  - Providing information and advice to market players and banks
  - Support behavioural changes
- **Other provisions** (Scientific and Technical Support, Personnel Training, International Cooperation, Entry into Force etc.)



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# To be further adopted

- The Law on EE in Buildings
- Law on Energy Labelling (Marking)
- Law on Ecodesign (MEPS) Requirements
  
- Secondary legislation
  1. NEAP
  2. Guidelines on Energy Audit Accreditation
  3. Guidelines for Conducting Energy Audit
  4. Standard on Energy Management System
  5. Guidelines and requirements for Energy Managers
  6. Model contract for Energy Performance Contracting



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# To be further adopted

7. The guidelines for providing energy services
8. The guidelines for the costs distribution of the heat and hot water supply
9. Order on Energy efficiency scheme
10. Permit procedure and guidelines for the preparation of cost-benefit analysis on the use of cogeneration and high-performance cogeneration
11. The procedure for granting state support in the EE filed
12. Order on energy efficiency fund
13. Introduction of energy efficiency indicators in the process of the public procurement



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# Part 2

## Roundtable Discussion

### Chapters:

5. Energy Services
6. Billing & consumer awareness
7. EE in Power Generation, Transmission & Distribution
8. Economic and Financial Mechanisms
9. Other Provisions



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