Energy Efficiency Action Plan for years 2008 – 2010

Introduction

The Energy Efficiency Action Plan for 2008 to 2010 is a strategic programming document planning the energy efficiency measures to be adopted in individual sectors of Slovakia's economy in the period from 2008 to 2010.

This document is an implementing instrument for the Energy Efficiency Concept of the Slovak Republic approved by the Slovak Government as government resolution No. 576/2007 of 4 July 2007. The material specifies selected measures and activities for the next three years, including anticipated supporting financial mechanisms. Slovakia will prepare a new action plan every three years as required under the applicable EU laws (Directive of the European Parliament and the Council No. 2006/32/EC on energy end-use efficiency and energy services); performance and achievements under the action plans will be assessed by the European Commission.

The objective of the action plan is to specify targets, define energy efficiency measures and ensure implementation of the proposed measures and their monitoring. The measures specified in this action plan will create a legal basis and appropriate conditions designed to ensure a substantial improvement in the efficient use of energy and long-term energy savings, in particular the following:

- incentives for individual entities to adopt energy efficient measures and behave in an energy-efficient way;
- clearly defined responsibility for required targets and achieved results;
- necessary economic and legal environment.

In a broader sense, the energy efficiency issue may be seen as a necessity and challenge to utilize a complex of positive impacts which extend beyond a single sector. The implementation of energy efficient measures helps increase energy security and reduces dependency of the economy on imports of primary energy sources. In the case of businesses, services and households, the saved energy means lower costs necessary to satisfy their energy needs and thus, both directly and indirectly, increases their competitiveness and quality of people's life. The energy efficiency measures contribute significantly to reduction of pollutant emissions and greenhouse gases, a prominent component in the package of measures aimed at achieving the targets under the Kyoto Protocol. The implementation of such measures stimulates the growth of small and medium-sized businesses, creates room for effective energy services and provides opportunities for creation of new, highly qualified jobs and employment growth. Encouraging the manufacturing industry to develop and manufacture energy-efficient products and technologies represents an excellent opportunity for development of innovative sectors. Results of research and technology development in energy efficiency have a strong competition and export potential. Individual measures support innovation and require further development in information technologies, and represent one of the pillars in building up a knowledge-based economy. In order to promote energy efficiency it is necessary to have at one's disposal and provide the general public with objective information on energy consumption and energy costs, on possibilities of energy efficiency measures and on energy efficiency standards for appliances. The implementation of individual measures and activities requires incentives in the form of supporting programmes and other financial mechanisms.

1 Targets under the Energy Efficiency Action Plan

Slovakia's long-term target is to reduce its GDP energy intensity to the average of other economically advanced European Union Member States (former EU-15). Respecting the EU energy policy priorities and conclusions of the European Council concerning energy efficiency in which the Council

— stressed the need to increase energy efficiency in the EU so as to achieve the objective of saving 20 % of the EU's energy consumption compared to projections for 2020, as estimated by the Commission in its Green Paper on Energy Efficiency, and urged the Member States to make good use of their National Energy Efficiency Action Plans for this purpose;
— called for a thorough and rapid implementation of the ambitious five main priorities as highlighted in the Council conclusions of 23 November 2006 on the Commission's Action Plan on Energy Efficiency, relating to energy-efficient transport, dynamic minimum efficiency requirements for energy-using equipment, energy-efficient and energy-saving behaviour of energy consumers, energy technology and innovations and the energy savings from buildings;

the Slovak Republic is committed to exert its best effort to meet these targets.

Taking into account available values of indicators of energy intensity development in Slovakia in 2001 to 2005 (Annex 2 to the Energy Efficiency Concept of the Slovak Republic) and in connection with the necessity to implement Directive 2006/32/EC and having considered all possibilities for the monitoring of energy saving values it is necessary that Slovakia carries out all measures aimed at achieving annual savings in final energy consumption in an average amount of 4,135 TJ/year. This value is identical with an indicative target set by Directive 2006/32/EC on energy services for the period from 2008 – 2017, i.e. to save 9% of the final energy consumption over 9 years, while the quantification is performed for the period of the last five years (data from years 2001 to 2005).

The overall national indicative energy savings target for the ninth year (2016) referred to in Article 4 of Directive 2006/32/EC is to achieve aggregate energy savings of

9% of final energy consumption, i.e. 37,215 TJ

The intermediate national indicative energy savings target for the third year (2010) referred to in Article 4(2) of Directive 2006/32/EC and set under the 1st National Energy Efficiency Action Plan of the Slovak Republic is to achieve aggregate energy savings of

3% of final energy consumption, i.e. 12,405 TJ

2 Measures and programmes

In order to achieve substantial economically profitable energy savings the government presents a new, market-oriented action plan for the activities related to economical production and energy utilisation. The plan builds on several specific initiatives to amend and better target the existing laws and regulations. At the same time, preparation works will be carried out for a new and more effective organisation of activities associated with energy management.

Given the fact that the Slovak Republic is still missing some crucial instruments necessary in order to create conditions for effective energy savings, the 2008 – 2010 energy efficiency action plan aims at forming the necessary legislative environment, gradual establishment of an effective monitoring and information system and definition and implementation of, above all, low-cost organisational and technical measures and, subsequently, even other measures, including the supporting financial mechanisms. The structure of the measures is based on the effort to define balanced and effective activities, which, if undertaken together, will have the synergic effects providing a long-term perspective and a shorter period of investment return.

The energy savings issue and energy efficiency measures concern all fundamental sectors of energy consumption and use. They are in particular aimed at buildings, appliances, industry and agriculture, transportation, energy generation and transmission, and energy distribution and sale to end users. Some, so-called horizontal measures, concern a larger number, or even all, consumption sectors. Pursuant to the applicable EU legislation the public sector plays a specific role.

3 Overview of existing and new energy efficiency measures in individual sectors of national economy for years 2008 – 2010

3.1 Horizontal measures

Energy efficiency is not merely a matter of a single sector. Many measures are intertwined and mutually supportive. Energy efficiency measures affecting several or all energy consumption sectors are usually called **horizontal measures.**

These measures are usually adopted in the form of cross-sectoral legislation, tax instruments, specific support schemes and funds (such as an energy efficiency fund, white certificate scheme), national and regional energy agencies, provision of energy services, public procurement of energy efficient equipment, information campaigns, energy consultancy services, training towards sustainable development, energy efficiency monitoring and information system. Given their nature, these measures concern a wide range of user target groups.

Target:	**energy efficiency improvement = energy security improvement**
Target group:	**energy consuming entities**

3.1.1. Existing measures continuing in the period of 2008 – 2010

There are several horizontal energy efficiency measures currently in place, but their monitoring is insufficient and the public knowledge of them minimal.

The Slovak Energy Agency, headquartered in Bratislava and with regional offices in Trenčín, Banská Bystrica and Košice, was established by the Ministry of Economy of the Slovak Republic (MoE SR) in 1998 as a quasi-government organisation to provide energy efficiency consultancy services and search for and support energy efficiency projects. The agency was renamed to the Slovak Innovation and Energy Agency (SIEA) in 2007 and its competences were extended to also include innovation.

The Energy Centre Bratislava (ECB) was set up in 1993 under the supervision of the MoE SR within the framework the European Commission programmes Thermie and Joule-Thermie; the ECB has successfully operated as an independent non-government organisation since 1999. Since its establishment the ECB has carried out numerous activities and projects designed to increase public awareness in the field of energy efficiency and renewable energy sources. Its activities are funded from EU programmes and the centre's own sources.

Two regional energy agencies (in Žilina and Šaľa) were set up as part of EU programmes. REMA Žilina was disbanded. Due to the lack of support and financing from the state budget, activities of REA Šaľa – Galanta are currently muffled.

3.1.1.1. Legislation, technical regulations

There is currently no legislation concerning the horizontal energy efficiency measures.

3.1.1.2. Organisational and technical measures

— **"Energy Auditor" training course**
  - organised and professionally supervised by SIEA;
  - a 3-week training course on energy auditing, especially focused on the industry sector;

— **Provision of information about energy efficiency improvements and funding options for energy efficiency measures**
  - SIEA (individual consultations, promotion at seminars, conferences, exhibitions),
  - ECB (energy consultancy services in Slovakia's regional centres, training and awareness-raising seminars, publishing and information campaigns, internet portal www.e-filip.sk)

— **Energy efficiency education for children trough the "Dúhovníci" club**
  - the Kids4Future project co-funded from the Intelligent Energy – Europe (IEE) programme;
  - organised and professionally supervised by SIEA;
  - for children from 6 to 12 years.

3.1.1.3. Financing, support programmes/funds

Public funding:

— state budget, the MoE SR SR budgetary chapter;
— the Intelligent Energy – Europe programme (An EC programme with a 50-, or 25-percent co-funding by applicants; projects are submitted based on calls for project proposals).

3.1.2. New measures

New horizontal measures under the 2008 – 2010 action plan are aimed at creating necessary legislation, setting up an energy efficiency monitoring and information system and increasing the target group's awareness of the significance of energy efficiency improvements in all energy consumption sectors.

3.1.2.1. Expected legislation, technical regulations

— **Energy Efficiency Act, MoE SR (2008) (draft under preparation)**
  - o regional and energy concepts;
  - o energy audits;
  - o minimum energy conversion efficiency requirements for energy sources;
  - o energy management requirements in government bodies and local governments;
  - o energy services business;
  - o provision of energy efficiency information to an energy efficiency monitoring and information system.

3.1.2.2 Expected organisational and technical measures

— **an energy efficiency monitoring and information system, MoE SR (2008)**
  - o monitoring of energy efficiency projects;
  - o project analysis, suggestions for new action plans;
  - o objectification of information;
  - o project to be financed from the Energy Efficiency Fund.

— **information campaign "Dobrá rada = úspora" (Good Advice = Saving), MoE SR, (2008)**
  - o organised through the MoE SR and SIEA;
  - o cooperation with all central government bodies;
  - o co-financing from the Competitiveness and Economic Growth operational programme.

— **regional energy consultancy centres, MoE SR (2008)**
  - o energy consultancy services in regions (regional consultancy and advisory centres, regional energy agencies, relevant associations);
  - o financed through the Intelligent Energy – Europe programme;
  - o support from the Energy Efficiency Fund (max. 3 years).

— **support for energy services development, MoE SR (2009)**
  - o support from the Energy Efficiency Fund (max. 3 years).

— **"E^2" training programme in state administration, MoE SR, central government bodies (2009)**
  - training programme for state administration employees responsible for the monitoring, analysis, preparation and implementation of energy efficiency measures in individual organisations.

— **energy efficiency – a part of sustainable development education for children and youth, Education Ministry (2009)**
  - incorporation of the energy efficiency principles at the appropriate technical level both in general and specialised curricula.

— **application of the energy efficiency principle in public procurement procedures, central government bodies (2008)**
  - application of the energy efficiency criterion in public procurement procedures carried out by central government bodies.

3.1.2.3. Expected financing, support programmes/funds

Private funding:
— own funds of operators of regional energy consultancy centres

Public funding:
— **state budget, budgetary chapters of individual central government bodies**

— **budgets of higher territorial units (VÚCs), towns and municipalities**

— **Structural funds (2007 – 2013)**
  - operational programme "Competitiveness and Economic Growth", MoE SR - SIEA energy consultancy services
  - operational programme "Informatisation of Society", the Office of the Government of the Slovak Republic

— **Energy Efficiency Fund, MoE SR (2008)**

The Energy Efficiency Fund will be set up under a separate act. The key task of the fund will be to provide complementary funding of energy efficiency measures with an emphasis put on ensuring flexibility of the national energy efficiency policy in line with the priorities of individual programmes. The fund will provide non-repayable grants to support especially the following activities:

  - improving the public knowledge of the energy efficiency principles (project trainings, information campaigns, access to information);
  - ensuring the support for an energy audit system across all sectors of national economy;
  - support for particular rationalisation projects in industry, services, public and household sectors (energy demand regulation, monitoring and management, improvements in thermal-technical properties, etc.);
  - funding of short-term programmes to effect the market orientation (e.g. support programme for heat pumps, support programme for energy efficient household appliances);
  - funding of development of energy services;

- support for individual energy efficiency projects;
- support of cooperation with IEA in research and development focused at energy efficiency.

Start-up activities of the fund are expected to be financed from the state budget through the MoE SR budgetary chapter only until 2010:

- 2008: SKK 150 million
- 2009: SKK 250 million
- 2010: SKK 200 million

After 2010, a substantial portion of finances for the fund (SKK 600 million) will come from compulsory contributions from energy companies (implementation of Directive 2006/32/EC on energy end-use efficiency and energy services). Some part of the financing will be done through penalties for non-compliance with the Energy Efficiency Act.

3.1.3. Overview of selected economic and technical indicators

The share of horizontal energy efficiency measures in overall energy savings projected in the 1st Energy Efficiency Action Plan is estimated at app. **31%.** Individual measures are summarised in the following tables. Indicative amounts of financial resources are indicated for measures financed from the structural funds.

Table 3.1.3-1: Overview of energy efficiency measures - horizontal measures

Measure description		Status	Implementation started	Duration	Contribution to meeting overall AP target	Financial requirements	Monitoring
"Energy Auditor" training course	SIEA training course focused on energy audits in the industry sector	E	1997	unlimited	2	1	partial
Provision of information about energy efficiency improvements and funding options for energy efficiency measures	Contract between MoE SR and SIEA	E	1998	unlimited	2	1	partial
Energy efficiency education for children trough the "Dúhovníci" club	The Kids4Future project co–funded from the Intelligent Energy – Europe programme	E	2007	2009	2	1	yes
Legislative drafts	Energy Efficiency Act, MoE SR	N	2008	unlimited	3	1	yes
Energy efficiency monitoring and information system	Energy Efficiency Fund	N	2008	unlimited	3	1	yes
Information campaign "Dobrá rada = úspora" (Good Advice = Saving)	Structural funds (2007-2013), Competitiveness and Economic Growth operational programme, Measure 2.2 "Building and upgrading of public lighting for towns and municipalities and provision of energy consultancy services"	N	2008	2013	3	1	partial
Regional energy consultancy centres	The Intelligent Energy – Europe programme, Energy Efficiency Fund	N	2008	unlimited	3	2	yes
Support for energy services development	Energy Efficiency Fund	N	2009	2011	3	2	yes
"E2" training programme in state administration	Central government bodies	N	2009	unlimited	2	1	yes

Measure description		Status	Implementation started	Duration	Contribution to meeting overall AP target	Financial requirements	Monitoring
Energy efficiency – a part of sustainable development education for children and youth	Complementary programmes to general and specialised curricula at schools	N	2009	unlimited	3	1	yes
Application of the energy efficiency principle in public procurement procedures	A commitment for central government bodies	N	2008	unlimited	2	2	partial

Explanatory notes:

E ... existing measure
N ... new measure
1 ... low contribution to meeting the overall action plan target/low financial requirements
2 ... medium contribution to meeting the overall action plan target/medium financial requirements
3 ... high contribution to meeting the overall action plan target/high financial requirements

Table 3.1.3-2: Funding of energy efficiency measures – horizontal measures

Measure description, source of funding, ministry responsible			Year, period	Public sources				Private sources	Total	Energy savings
				EU	State budget	Funds outside the state budget	Budgets of VÚCs, towns and municipalities			
				[SKK million]						[TJ]
"Energy Auditor" training course	A SIEA training course focused on energy audits	MoE SR[1]	2008		0.10			0.20	0.30	
			2009		0.10			0.20	0.30	
			2010		0.10			0.20	0.30	
			2008 -2010		**0.30**			**0.60**	**0.90**	
Provision of information about energy efficiency improvements and funding options for energy efficiency measures	Contract between MoE SR and SIEA	MoE SR[1]	2008		15.0				15.00	
			2009		15.0				15.00	
			2010		15.0				15.00	
			2008 -2010		**45.00**				**45.00**	
Energy efficiency education for children, the "Dúhovníci" club	the Kids4Future project co-funded from the Intelligent Energy – Europe programme	MoE SR[1]	2008	0.55	0.55				1.10	
			2009	0.55	0.55				1.10	
			2010	0.55	0.55				1.10	
			2008 -2010	**1.65**	**1.65**				**3.30**	
Legislative drafts	Energy Efficiency Act	MoE SR[1]	2008		3.00				3.00	
			2009		2.00				2.00	
			2010							
			2008 -2010		**5.00**				**5.00**	
Monitoring and information system	Energy Efficiency Fund	MoE SR[3]			50.00				50.00	
					60.00				60.00	
					10.00				10.00	
			2008 -2010		**120.00**				**120.00**	
Information campaign "Dobrá rada = úspora" focused on energy efficiency	Structural funds (2007-2013), C&EG OP, MoE SR, measure 2.2.	MoE SR[2]	2008	10.00	1.76			5.00	16.80	
			2009	10.00	1.76			5.00	16.80	
			2010	10.00	1.76			5.00	16.80	
			2008 -2010	**30.00**	**5.28**			**15.00**	**50.40**	

Measure description, source of funding, ministry responsible			Year, period	Public sources				Private sources	Total	Energy savings
				EU	State budget	Funds outside the state budget	Budgets of VÚCs, towns and municipalities			
				[SKK million]						[TJ]
Regional energy consultancy centres	The Intelligent Energy – Europe programme + Energy Efficiency Fund	MoE SR[3]	2008	15.00	5.00		2.00	3.00	25.00	
			2009	15.00	5.00		2.00	3.00	25.00	
			2010	15.00	5.00		2.00	3.00	25.00	
			2008 -2010	**45.00**	**15.00**		**6.00**	**9.00**	**75.00**	
Support for energy services development	Energy Efficiency Fund	MoE SR[3]	2008							
			2009		20.00			40.00	60.00	
			2010		25.00			45.00	70.00	
			2008 -2010		**45.00**			**85.00**	**130.00**	
"E2" training programme in state administration	Central government bodies	MoE SR[1]	2008		2.00				2.00	
			2009		2.00				2.00	
			2010		2.00				2.00	
			2008 -2010		**6.00**			**0.00**	**6.00**	
Energy efficiency – a part of sustainable development education for children and youth	complementary energy efficiency training programmes for schools	MoEde SR[1]			5.00			5.00	10.00	
					10.00			5.00	15.00	
					10.00			5.00	15.00	
			2008 -2010		**25.00**			**15.00**	**40.00**	
Application of the energy efficiency principle in public procurement procedures	A government resolution concerning the application of the EE criterion in public procurement carried out by central government bodies	central government bodies[1]	2008		50.00				50.00	
			2009		100.00				100.00	
			2010		100.00				100.00	
			2008 -2010		**250.00**				**250.00**	
Total			**2008 -2010**	**76.65**	**518.23**		**6.00**	**124.60**	**725.60**	**3 775.50**

Explanatory notes:

without index ... no state budget funding required
index [1)] ... tasks to be performed by the ministry within approved state budget limits
index [2)] ... funds programmed within the state budget for individual financial mechanisms (structural funds, the EEA Financial Mechanism and the Norwegian Financial Mechanism)
index [3)] ... state budget finances earmarked for energy efficiency funds (EEF, State Housing Development Fund)
index [4)] ... financed from the funds focused on energy efficiency outside the state budget (EEF, State Housing Development Fund)

3.2. Buildings

The housing sector's share represents some 26% of the overall final energy consumption in the Slovak Republic. Heating, hot water heating and lighting account for a substantial portion of the consumption. Apart from climate, the energy consumption in this sector is significantly affected by the thermal-technical properties of buildings, the efficiency of heating and cooling systems, their regular inspection, maintenance and the behaviour of residents.

Measures to improve energy efficiency of buildings are particularly aimed at reducing the amount of energy used for heating and cooling while ensuring thermal comfort, and at reducing energy consumption in the preparation of hot water.

Target:	**reduction/minimisation of the amount of energy used for heating and cooling while ensuring thermal comfort, and reduction of energy consumption in the preparation of hot water**
Target group:	**owners and operators of non-production buildings (family houses, residential buildings, office buildings, healthcare facilities …)**

3.2.1. Existing measures continuing in the period of 2008 – 2010

In the buildings sector, energy efficiency measures have already been in place for several years. They are included in general or specific pieces of legislation and their implementation is binding. The funding of such measures must be provided by the owners and/or operators of the buildings. A majority of the prescribed measures rate among those with low or moderate costs, with a relatively high contribution to reducing energy consumption.

Within the framework of regular reconstruction of housing stock and of other non-production buildings, we observe an increasing trend in the use of energy consumption reduction measures financed by the owners or operators, and very frequently supported by appropriate state programmes and programmes of commercial banks. The measures aimed at improving the thermal-technical properties of buildings, which are implemented within the framework of building reconstruction, are usually rather costly.

3.2.1.1. Legislation, technical regulations

— Act No. 555/2005 Coll. on Energy Performance of Buildings, the Ministry of Construction and Regional Development of the Slovak Republic (MoCaRD)
  - the obligation of energy certification of non-production buildings for the purpose of classification in energy categories

— Act No. 17/2007 Coll. on regular inspection of boilers, heating systems and air-conditioning systems, MoE SR
  - the obligation to regularly inspect boilers, heating systems and air-conditioning systems in order to optimise the functioning of these installations

— Act No. 657/2004 Coll. on the Heat Supply Sector, as amended by Act No. 99/2007 Coll., MoE SR
  - the obligation to efficiently operate thermal-technical facilities beyond the offtake point, i.e. systems of heating and hot water preparation in buildings

3.2.1.2. Organisational and technical measures

— **application of legislative measures**
  - implementation of low-cost measures arising out of energy certification of buildings;
  - implementation of low-cost measures arising out of regular inspection of boilers, heating systems and air-conditioning systems;
  - metering and evaluation of the amount of energy consumed in heating and hot water preparation;
  - hydraulic balancing of heating systems and hot water supply systems;
  - modernisation of heat generation and supply systems in buildings.

— **improvement of thermal-technical properties of buildings**
  - thermal insulation of the buildings' external cladding;
  - thermal insulation of roofs;
  - replacement of windows, etc.

3.2.1.3. Financing, support programmes/funds

Private funding:
— own funds of owners and operators of non-production buildings;
— programmes of commercial banks intended for reconstruction of buildings.

Public funding:

- **State Housing Development Fund; MoCaRD**
  - a purpose-specific fund to finance state aid for the expansion and improvement of housing stock, including the reconstruction of a residential buildings (thermal insulation of a residential building or a single family house with demonstrated savings of at least 20%).
  - provision of support in the form of loans and non-repayable grants (loans prevailing).

- **Supporting programme for housing development – subsidies to remove system failures in residential buildings, MoCaRD**
  - subsidy to remove system failures in residential buildings (including system failures that can be removed through improved thermal protection of the building by means of thermal insulation);
  - non-repayable grant (max. 50%) for selected types of failures of specific construction systems based on an expert statement

- **Structural funds 2004 – 2006, MoCaRD**
  - The "Basic Infrastructure" operational programme, Priority 3 "Local Infrastructure", Measure 3.1. "Building and Development of Civil Infrastructure", focused on thermal insulation of buildings, as well as the upgrading of existing technologies;
  - non-repayable grant

3.2.2. New measures

New measures in the building sector are aimed at changes in the legislative regulations concerning the preparation and realisation of constructions and the operation of buildings. However, the benefits of applying the proposed regulations will only become apparent after 2010, i.e. in the period of the second action plan.

With respect to technical measures, the majority of activities focus on improving the thermal-technical properties of public buildings – in particular schools and buildings where healthcare is provided. These measures will preferably be financed using the possibilities provided by the EU structural funds.

The contribution for the financing of installation of highly efficient heating and air-conditioning systems, for supporting voluntary certification of buildings, and for the construction of buildings with better thermal-technical indicators with a focus on new construction systems, low-energy houses and passive houses is envisaged to be drawn from the Energy Efficiency Fund.

3.2.2.1. Expected legislation, technical regulations

— **amendment of construction regulations**
  - establishment of a mandatory "building documentation package" with the aim to make energy audit and building energy certification processing simpler and more transparent, MoCaRD (2008);
  - more stringent requirements concerning the thermal-technical properties of buildings and construction structures for new and reconstructed buildings, MoCaRD (2010);
  - regular updating of construction regulations and procedures for project designing, construction, launch of operation of buildings and further improvement of the quality of construction authorities' activities, MoCaRD (2010)

— **updating and completing of regulations concerning energy performance of buildings**
  - amendment of Act No. 555/2005 Coll. on Energy Performance of Buildings in the context of Directive No. 2006/32/EC on energy end-use efficiency and energy services, MoCaRD, MoE SR (2008);
  - methodological guidance from MoCaRD, including a complete calculation for energy certification of buildings – MoCaRD (2007 – 2008);
  - definition of a procedure for the evaluation of technical, environmental and economic possibilities of utilising alternative energy systems in the place of construction, in particular the possibility to utilise the generation of heat and power from a source of combined heat and power generation or central supply of heat and cooling, the possibility of energy supply from local systems utilising renewable energy sources, e.g. heat pumps, etc., MoCaRD (2008);
  - review of the existing experience with energy certification of buildings, MoCaRD (2010)

3.2.2.2. Expected organisational and technical measures

— **application of legislative measures**
  - coordination of the establishment of the mandatory "building documentation package", i.e. the creation, supplementing and updating of a building's documentation with emphasis on documentation pertaining to measures that contribute to energy savings;
  - regular monitoring and evaluation of energy consumption in buildings;
  - reconstruction of heating and hot water supply systems with the aim to optimise energy consumption (thermal insulation of distribution lines in buildings, hydraulic balancing of the distribution lines, metering and control systems, installation of energy-efficient circuit pumps ...);

— **improvement of thermal-technical properties of buildings utilised as civil infrastructure facilities (social and school infrastructure);**

— **improvement of thermal-technical properties of buildings where healthcare is provided;**

— **improvement of thermal-technical properties of buildings within the framework of university infrastructure development;**

— **improvement of thermal-technical properties of buildings within the framework of renovation of communities in the Bratislava region;**

— **installation of heat pumps and highly efficient air-conditioning systems in non-production buildings;**

— **measures to support voluntary energy certificates/audits of non-production buildings;**

— **construction of buildings with better thermal-technical indicators (new construction systems, low-energy houses, passive houses ...)**

3.2.2.3. Expected financing, support programmes/funds

<u>Private funding:</u>
— own funds of owners and operators of non-production buildings;
— new programmes of commercial banks focused on energy efficiency of buildings;

<u>Public funding:</u>
- **Structural funds (2007 – 2013)**
  - Regional Operational Programme, MoCaRD SR (2007 – 20l3)
    - interventions in construction structures used as civil infrastructure facilities (social and school infrastructure);
  - operational programme "Healthcare", Ministry of Health of the Slovak Republic (MoH SR) (2007 – 2013)

- construction, reconstruction and modernisation of healthcare infrastructure of hospitals and polyclinics;

- operational programme "Research and Development", Ministry of Education of the Slovak Republic (MoEdu SR) (2007 – 2013)
  - development of university infrastructure;

- operational programme "Bratislava Region", MoCaRD SR (2007 – 2013)
  - reconstruction and development of school infrastructure – reduction of energy intensity of school buildings

- **Energy efficiency fund**

  - **Programme to promote the use of heat pumps**, MoE SR (2009)
    - short-term programme for the launch of activities;
    - the duration of the programme is three years;
    - non-repayable grant to pay a portion of costs of equipping family houses with heat pumps with capacity of up to 15 kW;

  - **Programme to support voluntary energy certificates/audits of non-production buildings,** MoE SR, MoCaRD SR (2009)
    - non-repayable grant to pay a portion of costs related to voluntary energy certificate/audit of non-production building;

  - **Programme to support low-energy and passive houses,** MoCaRD SR (2009)
    - short-term programme for the launch of activities;
    - the duration of the programme is three years;
    - non-repayable grant to pay a portion of costs related to the improvement of energy efficiency of buildings (construction of low-energy and passive houses, comprehensive refurbishment of buildings to meet low-energy standards …);

3.2.3. Overview of selected economic and technical indicators

The existing and new measures in the buildings sector will account for app. **11%** in the overall energy savings proposed in the 1st Energy Efficiency Action Plan.

The individual measures are summarised in the following tables. Indicative amounts of funds are stated for measures financed from the structural funds.

The current monitoring of the individual measures is insufficient and this situation needs to be addressed within the framework of the horizontal energy efficiency measures (Energy Efficiency Monitoring System).

Table 3.2.3-1: Overview of energy efficiency measures – buildings

Measure description		Status	Implementation started	Duration	Contribution to meeting overall AP target	Financial requirements	Monitoring
Application of legislative measures	Act No. 657/2004 Coll. – hydraulic balancing of heating and hot water distribution lines	E	2005	unlimited	3	1	no
	Act No. 555/2005 Coll.; No. 17/2007 Coll. – energy certification of buildings, regular inspection of boilers, heating systems and air-conditioning systems	E	2008	unlimited	2	1	no
Improvement of thermal-technical properties of buildings	State Housing Development Fund – thermal insulation of houses	E	2003	unlimited	1	3	partial
	Programme of housing development support, subsidies to remove system failures in residential buildings, MoCaRD SR	E	2000	unlimited	1	3	partial
	Structural Funds 2004-2006, OP Basic Infrastructure, Measure 3.1. "Building and Development of Civil Infrastructure" with a focus on thermal insulation of buildings and upgrading of existing technologies, MoCaRD SR	E	2004	2008	1	3	partial
	Reconstruction of residential buildings – commercial banks including construction savings banks	E	/	unlimited	1	3	partial
	Reconstruction of residential and family houses (thermal insulation, replacement of windows) – own funds	E	/	unlimited	1	3	no
Drafts of legislative measures	Amendment of construction regulations	N	2008	unlimited	2	1	yes
	Updating and completing of regulations concerning energy performance of buildings	N	2008	unlimited	2	1	yes

Measure description		Status	Implementation started	Duration	Contribution to meeting overall AP target	Financial requirements	Monitoring
Improvement of thermal-technical properties of buildings utilised as civil infrastructure facilities (social and school infrastructure)	Structural funds (2007-2013), the Regional Operational Programme, MoCaRD SR	N	2008	2013	1	3	partial
Improvement of thermal-technical properties of buildings where healthcare is provided	Structural funds (2007-2013), Healthcare operational programme MoH SR	N	2008	2013	1	3	partial
Improvement of thermal-technical properties of buildings within the framework of university infrastructure development	Structural funds (2007–2013), Research and Development operational programme, MoEdu SR	N	2008	2013	1	3	partial
Improvement of thermal-technical properties of buildings within the framework of regeneration of communities in the Bratislava region	Structural funds (2007–2013), operational programme Bratislava Region, MoCaRD SR	N	2008	2013	1	3	partial
Installation of heat pumps and highly effective air-conditioning systems in non-production buildings	Programme to promote the use of heat pumps, Energy Efficiency Fund	N	2009	2011	2	2	no
Measures to support voluntary energy certificates and audits	Measures to support voluntary energy certificates and audits	N	2009	2011	2	1	no
Construction of buildings with better thermal-technical indicators (new construction systems, low-energy houses, passive houses ...)	Programme to support low-energy and passive houses	N	2009	2011	2	3	no

Explanatory notes:

E ... existing measure
N ... new measure
1 ... low contribution to meeting the overall action plan target / low financial requirements
2 ... medium contribution to meeting the overall action plan target / medium financial requirements
3 ... high contribution to meeting the overall action plan target / high financial requirements

Table 3.2.3-2: Funding of energy efficiency measures – buildings

Measure description, source of funding, ministry responsible			Year, period	Public sources				Private sources	Total	Energy savings
				EU	State budget	Funds outside the state budget	Budgets of VÚCs, towns and municipalities			
				[SKK mil.]						[TJ]
Application of legislative measures	Act No. 657/2004 Coll. - hydraulic balancing of heating and hot service water distribution lines	MoE SR	2008					330.00	330.00	
			2009					330.00	330.00	
			2010					330.00	330.00	
			2008 -2010					**990.00**	**990.00**	
	Act No. 555/2005 Coll., No. 17/2007 Coll. - energy certification of buildings, regular inspection of boilers, heating systems and air-conditioning systems	MoE SR[1], MoCaRD[1]	2008		4.00		5.00	10.00	19.00	
			2009		4.00		5.00	10.00	19.00	
			2010		4.00		5.00	10.00	19.00	
			2008 -2010		**12.00**		**15.00**	**30.00**	**57.00**	
Improvement of thermal-technical properties of buildings	State Housing Development Fund - thermal insulation of houses	MoCaRD[3,4]	2008		300.00	450.00		187.50	750.00	
			2009		300.00	450.00		175.00	750.00	
			2010		300.00	450.00		187.50	750.00	
			2008 -2010		**900.00**	**1350.00**		**550.00**	**2250.00**	
	Programme of housing development support, subsidies to remove system failures in residential buildings	MoCaRD[1]	2008		30.00			30.00	60.0	
			2009		48.00			48.00	96.0	
			2010		50.00			50.00	100.0	
			2008 -2010		**128.00**			**128.00**	**256.00**	
	Structural Funds 2004-2006, OP Basic Infrastructure, Measure 3.1. "Building and Development of Civil Infrastructure" with a focus on thermal insulation of buildings and upgrading of existing technologies,	MoCaRD[2]	2008	150.00	50.00		10.50		210.50	
			2009							
			2010							
			2008 -2010	**150.00**	**50.00**		**10.50**		**210.50**	

Measure description, source of funding, ministry responsible			Year, period	Public sources				Private sources	Total	Energy savings
				EU	State budget	Funds outside the state budget	Budgets of VÚCs, towns and municipalities			
				[SKK million]						TJ
Improvement of thermal-technical properties of buildings	Reconstruction of residential buildings - commercial banks including construction savings banks	MoF SR	2008					750.00	760.00	
			2009					750.00	760.00	
			2010					750.00	760.00	
			2008 -2010					**2 250.00**	**2 280.00**	
	Reconstruction of residential and family houses (thermal insulation, replacement of windows) - own funds		2008					200.00	200.00	
			2009					200.00	200.00	
			2010					200.00	200.00	
			2008 -2010					**600.00**	**600.00**	
Proposal of legislative measures	Amendment of construction regulations	MoCaRD[1]	2008		2.00				2.00	
			2009		2.00				2.00	
			2010		2.00				2.00	
			2008 -2010		**6.00**				**6.00**	
	Updating and completing of regulations concerning energy performance of buildings	MoCaRD[1]	2008		2.00				2.00	
			2009		2.00				2.00	
			2010		2.00				2.00	
			2008 -2010		**6.00**				**6.00**	
Improvement of thermal-technical properties of buildings utilised as civil infrastructure facilities	Structural funds (2007 – 2013), the Regional Operational Programme, MoCaRD SR	MoCaRD[2]	2008	150.00	26.47		9.29		185.80	
			2009	150.00	26.47		9.29		185.80	
			2010	150.00	26.47		9.29		185.80	
			2008 -2010	**450.00**	**79.41**		**27.86**		**557.40**	
Improvement of thermal-technical properties of buildings where healthcare is being provided	Structural funds (2007 – 2013), the Healthcare operational programme, MoH SR	MoH SR[2]	2008	28.05	4.95		1.74		34.70	
			2009	28.05	4.95		1.74		34.70	
			2010	28.05	4.95		1.74		34.70	
			2008 -2010	**84.15**	**14.85**		**5.21**		**104.10**	

Measure description, source of funding, ministry responsible			Year, period	Public sources				Private sources	Total	Energy savings
				EU	State budget	Funds outside the state budget	Budgets of VÚCs, towns and municipalities			
				[SKK million]						[TJ]
Improvement of thermal-technical properties of buildings designated for education	Structural funds (2007-2013), operational programme Research and Development, MoEdu SR	MoEdu SR[2]	2008	200.00	35.29				235.30	
			2009	200.00	35.29				235.30	
			2010	200.00	35.29				235.30	
			2008 -2010	**600.00**	**105.88**				**705.90**	
Improvement of thermal-technical properties of buildings within the framework of regeneration of communities in the Bratislava region	Structural funds (2007-2013), the operational programme Bratislava Region, MoCaRD	MoCaRD[2]	2008	100.00	17.65		6.19		123.80	
			2009	100.00	17.65		6.19		123.80	
			2010	100.00	17.65		6.19		123.80	
			2008 -2010	**300.00**	**52.94**		**18.58**		**371.40**	
Installation of heat pumps and highly effective air-conditioning systems in non-production buildings	Programme to promote heat pumps from EEF	MoE SR[3]	2008		10.00			101.25	111.30	
			2009		20.00			243.00	263.00	
			2010		25.00			364.50	389.50	
			2008 -2010		**55.00**			**708.75**	**763.80**	
Measures to support voluntary energy certificates and audits	Measures to support voluntary energy certificates and audits from EEF	MoE SR[3]	2008							
			2009		23.00			69.00	92.00	
			2010		15.00			45.00	60.00	
			2008 -2010		**38.00**			**114.00**	**152.00**	
Construction of buildings with better thermal-technical indicators (new construction systems, low-energy houses, passive houses ...)	Programme to support low-energy and passive houses from EEF	MoE SR[3]	2008		5.00			0.00	5.00	
			2009		30.00			120.00	150.00	
			2010		33.00			132.00	165.00	
			2008 -2010		**68.00**			**252.00**	**320.00**	
Total			**2008 -2010**	**1 584.15**	**15 46.08**	**1 350.00**	**77.15**	**5 622.75**	**9 630.10**	**1 257.97**

Explanatory notes:

without index ... no state budget funding required
index [1)] ... tasks to be performed by the ministry within approved state budget limits
index [2)] ... funds programmed within the state budget for individual financial mechanisms (structural funds, the EEA Financial Mechanism and the Norwegian Financial Mechanism)
index [3)] ... state budget finances earmarked for energy efficiency funds (EEF, State Housing Development Fund)
index [4)] ... financed from the funds focused on energy efficiency outside the state budget (EEF, State Housing Development Fund)

3.3 Appliances

Consumption of electricity in households is lower than the European average. This is, in particular, caused by the fact that hot water in the Slovak Republic is, for the most part, produced using methods other than heating in electric boilers. Lighting and the use of electric appliances represent a significant contribution to the consumption of electricity in households. The appliances, however, represent a sector characterised by dynamic development in terms of quantitative growth. A substantial part of appliances is used in households; however, non-negligible number is used in the office buildings and for the provision of services. Apart from the so-called household appliances (refrigerators, washing machines, ...), office equipment forms a considerable part of appliances.

The measures aimed at improving energy efficiency in the use of appliances are partly laid down in legislative regulations, in particular the regulations on energy labelling of appliances.

A substantive growth in purchase of appliances was recorded, mainly in the last decade of last century, due to the non-saturation of the market in the household sector. Over the last few years, however, the positive effects of energy labelling and Eco-label schemes, which have also been introduced in Slovakia, are starting to materialize. The consumers focus more on the purchase of energy-efficient appliances. The voluntary information campaigns, mainly organised by the producers and importers of appliances, partially contribute to this situation.

The focus on energy-efficient appliances must be preserved and, especially, supported to minimise the increase of energy consumption caused by a growing number of appliances. In order to facilitate a wider use of the energy-effective appliances, e.g. white goods in the households, it is advisable to implement a time-limited support programme.

Target:	**reduction or minimisation of energy consumption pertaining to the operation of electrical appliances**
Target group:	**households, service providers, public sector, producers, importers and vendors of appliances**

3.3.1. Existing measures continuing in the period of 2008 – 2010

The existing measures aimed at energy efficiency are included particularly in the specific legislative regulations and their implementation is binding. Funding of these measures has to be ensured particularly by the producers, importers and vendors of the appliances.

3.3.1.1. Legislation, technical regulations

— **Legislative regulations laying down energy labelling of appliances (MoE SR)**
  - the obligation of producers, importers and vendors to provide the consumers with information on basic energy parameters of the selected household appliances through energy labels on the appliances,

    - Government Regulation No. 178/2002 Coll. laying down the details concerning energy labelling of household washing machines,
    - Government Regulation No. 188/2002 Coll. laying down the details concerning energy labelling of household lamps,

- Government Regulation No. 193/2002 Coll. laying down the details concerning energy labelling of household electric tumble driers,
- Government Regulation No. 199/2002 Coll. laying down the details concerning energy labelling of household electric refrigerators and freezers and their combinations as amended by Government Regulation No. 379/2004 Coll.,
- Government Regulation No. 210/2002 Coll. laying down the details concerning energy labelling of household combined washer-driers,
- Government Regulation No. 211/2002 Coll. laying down the details concerning energy labelling of household dishwashers,
- Government Regulation No. 229/2003 Coll. laying down the details concerning energy labelling of household electric ovens,
- Government Regulation No. 231/2003 Coll. laying down the details concerning energy labelling of household air-conditioners,

— **Legislative regulations laying down the minimum technical efficiency of appliances (MoE SR)**
  - the obligation of producers of selected appliances that can produce products complying with the requirements for the minimum technical efficiency of an appliance.
    - Government Regulation No. 425/2000 Coll. laying down the details on technical requirements for energy efficiency and conformity assessment procedures for electric refrigerators and freezers for households and their combinations, as amended by Government Regulation No. 253/2003 Coll.
    - Government Regulation No. 295/2002 Coll. amending Government Regulation No. 425/2000 Coll. laying down the details on technical requirements for energy efficiency and conformity assessment procedures for electric refrigerators and freezers for households and their combinations,
    - Government Regulation No. 433/2000 Coll. laying down the details on technical requirements for energy efficiency and conformity assessment procedures for hot-water boilers fired with liquid or gaseous fuels, as amended by Government Regulation No. 293/2002 Coll.,
    - Government Regulation No. 594/2002 Coll. laying down the details on technical requirements for energy efficiency and conformity assessment procedures for ballasts for fluorescent lighting

— **Draft Act on eco-design and the use of energy-using products, so called Eco-design Act, MoE SR (2007)**
  - the framework for setting the requirements for the eco-design of energy-using products with the aim to ensure a free movement of such products within the internal market,
  - the obligations of a producer, producer's representative and importer before placing the product on the market or putting the product into operation in connection with conformity assessment and product information requirements.

3.3.1.2. Organisational and technical measures

— **application of legislative measures**
  - energy labelling of products (e.g. washing machines, refrigerators, freezers, lighting sources, etc.)

- control of the compliance with the obligation to equip the products with energy labels,

— **voluntary information campaigns on energy labelling of appliances**
  - information activities of the European Committee of Domestic Equipment Manufacturers (CECED Slovakia),
  - the activities of the consumer associations in relation to the comparison of energy efficiency of appliances

3.3.1.3. Financing, support programmes/funds

Private funding:

— own resources of producers of household appliances

Public funding:

At present, energy efficiency of appliances is not supported in a targeted manner by means of programmes and funds. The voluntary information campaigns on energy labelling of appliances are partly financed also from the special-purpose funds provided by the EU, for example from the Intelligent Energy – Europe programme.

3.3.2. New measures

New measures in the appliances sector are focused on changes in legislative regulations, which result from the draft Eco-design Act, however the energy savings will substantially materialize after 2010.

In order to motivate the customers to buy energy-efficient appliances, targeted information campaigns and training of importers and vendors of appliances are being designed in this area.

3.3.2.1. Expected legislation, technical regulations

— **definition of the technical requirements for products, MoE SR (2008-2010)**
  - application of implementing measures pursuant to Directive 2005/32/EC of the European Parliament and of the Council for 19 different groups of energy-using products

3.3.2.2. Expected organisational and technical measures

— **information campaigns for consumers concerning energy-efficiency of appliances,**

— **improvement of consultancy services for consumers through the training of importers and vendors of appliances,**

— **replacement of white goods.**

3.3.2.3. Expected financing, support programmes/funds

Private funding:

— own resources of households, providers of services, producers, importers and vendors of appliances.

Public funding:

- **Structural funds (2007 – 2013)**
  - operational programme "Competitiveness and Economic Growth", MoE SR
    - energy consulting
  - operational programme "Education", Ministry of Education of the Slovak Republic
    - establishment and development of the lifelong learning system

- **Energy efficiency fund**
  - **The programme supporting the replacement of white goods**, MoE SR (2008)
    - short-term programme for the launch of activities,
    - duration of the programme is three years,
    - non-repayable grant to pay a portion of costs related to the purchase of selected white-goods (refrigerators, freezers) with lower energy consumption than that currently seen in the best selling A category, i.e. support for appliances in the A+ and A++ category.

3.3.3. Overview of selected economic and technical indicators

The existing and new measures in the sector of appliances will account for **3%** in overall energy savings proposed in the 1st Action Plan for Energy Efficiency.

The individual measures are summarised in the following tables. Indicative amounts of financial resources are specified for the financing of measures from the structural funds.

Table 3.3.3-1: Overview of energy-efficiency measures – appliances

Measure description		Status	Implementation started	Duration	Contribution to meeting overall AP target	Financial requirements	Monitoring
Application of legislative measures	energy labelling of appliances	E	2002	unlimited	3	1	partial
Voluntary information campaigns on energy labelling of appliances	Information activities of the European Committee of Domestic Equipment Manufacturers (CECED Slovakia)	E	1997	unlimited	2	1	partial
	The activities of consumer associations in relation to the comparison of energy efficiency of appliances	E	2005	unlimited	2	1	partial
Drafts of legislative measures	Definition of the technical requirements on products	N	2008	unlimited	2	1	yes
Information campaigns for consumers concerning energy-efficiency of appliances	Structural funds (2007 – 2013), OP Competitiveness and Economic Growth, MoE SR	N	2008	2013	2	2	partial
Improvement of consultancy services for consumers through the training for importers and vendors of appliances	Structural funds (2007 – 2013), operational programme Education, MoEdu SR	N	2008	2013	1	3	partial
Replacement of white goods	Energy Efficiency Fund – programme supporting the replacement of white goods	N	2008	2010	2	2	yes

Explanatory notes:

E ... existing measure
N ... new measure
1 ... low contribution to meeting the overall action plan target/low financial requirements
2 ... medium contribution to meeting the overall action plan target/medium financial requirements
3 ... high contribution to meeting the overall action plan target/high financial requirements

Table 3.3.3-2:– Funding of energy-efficiency measures – appliances

Measure description, source of funding, ministry responsible			Year, period	Public sources				Private sources	Total	Energy savings
				EU:	State budget	Funds outside the state budget	Budgets of VÚCs, towns and municipalities			
				[SKK million]						TJ/Year
Application of legislative measures	Energy labelling	MoE SR	2008							
			2009							
			2010							
			2008 -2010							
The voluntary information campaigns focused on energy-efficient appliances	Information activities of the European Committee of Domestic Equipment Manufacturers (CECED Slovakia)		2008					1.00	1.00	
			2009					1.00	1.00	
			2010					1.00	1.00	
			2008 -2010					**3.00**	**3.00**	
	The activities of consumer associations in relation to the comparison of energy efficiency of appliances		2008					0.50	0.50	
			2009					0.50	0.50	
			2010					0.50	0.50	
			2008 -2010					**1.50**	**1.50**	
Drafts of legislative measures	Definition of the technical requirements on products	MoE SR	2008		2.50				2.50	
			2009		2.50				2.50	
			2010		2.50				2.50	
			2008 -2010		**7.50**				**7.50**	
Information campaigns for consumers on energy-efficiency of appliances	Structural funds (2007 – 2013), operational programme C&EG, MoE SR	MoE SR	2008	0.85	0.15				1.00	
			2009	0.85	0.15				1.00	
			2010	0.85	0.15				1.00	
			2008 -2010	**2.55**	**0.45**				**3.00**	
Improvement of consultancy services for consumers through training for importers and vendors of appliances	Structural funds (2007 – 2013), operational programme Education, MoEdu SR	MoEdu SR	2008	0.85	0.15				1.00	
			2009	0.85	0.15				1.00	
			2010	0.85	0.15				1.00	
			2008 -2010	**2.55**	**0.45**				**3.00**	

Measure description, source of funding, ministry responsible			Year, period	Public sources				Private sources	Total	Energy savings
				EU	State budget	Funds outside the state budget	Budgets of VÚCs, towns and municipalities			
				SKK million						[TJ/Year]
Replacement of white goods	Energy efficiency fund	MoE SR	2008		27.00			447.50	474.50	
			2009		27.00			447.50	474.50	
			2010		27.00			447.50	474.50	
			2008 -2010		**81.00**			**1 342.50**	**1 423.50**	
Total			**2008 -2010**	**5.20**	**89.50**			**1 347.00**	**1 441.50**	**374.10**

Explanatory notes:

without index	...	no state budget funding required
index [1)]	...	tasks to be performed by the ministry within approved state budget limits
index 2)	...	funds programmed within the state budget for individual financial mechanisms (structural funds, the EEA Financial Mechanism and the Norwegian Financial Mechanism)
index 3)	...	state budget finances earmarked for energy efficiency funds (EEF, State Housing Development Fund)
index 4)	...	financed from the funds focused on energy efficiency outside the state budget (EEF, State Housing Development Fund)

3.4 Public sector – state administration, local self-governing bodies

The operation of buildings represents the highest contribution to the energy consumption in the public sector. The energy efficiency measures focusing on buildings owned and managed by the public sector are specified in Part 3.1 – Buildings.

In addition to the energy consumption in buildings, operation of public lighting in towns and municipalities significantly contributes to the final energy consumption in the public sector. The total annual electricity consumption for the operation of public lighting reaches approximately 250 GWh. This energy is, to a large extent, being consumed inefficiently. Inefficient consumption particularly results from the use of obsolete light sources, unreliable regulation (switching, declining power supply voltage) and wrong positioning and location of light sources.

Upgrading of public lighting will focus on the installation of modern highly efficient light sources for public lighting as well and reliable and efficient regulation and management of operation.

Target:	**reduction, or minimisation of energy consumption for the public lighting operation**
Target group:	**towns, municipalities, public lighting operators**

3.4.1. Existing measures continuing in the period of 2008 – 2010

Currently, there are no specific measures in place focused on energy efficiency of the public lighting. Reduction of energy consumption for the public lighting operation is gradually carried out within the scope of a regular maintenance, while various types of lights are combined inappropriately.

In order to provide consulting in the area of operation and upgrading of public lighting systems, the Centre for Public Lighting was established under the auspices of the Ministry of Economy and the Ministry of Environment and financed by GEF/UNDP (Global Environment Facility/United Nations Development Programme) and the Energy Centre Bratislava – a civic association.

3.4.1.1. Legislation, technical regulations

Currently, there are no effective specific legislative regulations focused on energy efficiency of the public lighting systems.

3.4.1.2. Organisational and technical measures

— **Centre for Public Lighting** (CEVO – Energy Centre Bratislava)
  - consulting in the area of operation and upgrading of the public lighting systems,
  - energy audits of the public lighting.

— **Provision of energy services in public lighting**
  - financing of the projects focused on energy savings in public lighting,
  - resources for repayment gained from lower costs resulting from energy savings

3.4.1.3. Financing, support programmes/funds

Private funding:
— own funds of the Energy Centre Bratislava civic association,
— funds of private companies providing energy services in the public lighting.

Public funding:
— funds of GEF/UNDP

3.4.2. New measures

New measures in the public sector focus on legislative drafts in relation to the operation of public lighting systems. However, the benefits of energy savings resulting from the implementation of new legislative regulations will materialize only after 2010.

In order to use funds from available mechanisms, the upgrading of the public lighting will be supported with the aim to reduce the energy demand for operation of the public lighting.

3.4.2.1. Expected legislation, technical regulations

— **setting the minimum requirements for energy efficiency of the public lighting, MoE SR (2010)**

3.4.2.2 Expected organisational and technical measures

— **upgrading of the public lighting**

3.4.2.3. Expected financing, support programmes/funds

Public funding:
— **budgets of towns and municipalities**

— **Structural funds (2007 – 2013)**
  - operational programme "Competitiveness and Economic Growth", MoE SR
    - support of the public lighting
    - non-repayable grant for the public sector in the amount of 85% of eligible costs.

— **the EEA Financial Mechanism and the Norwegian Financial Mechanism, the Office of the Government of the Slovak Republic**
  - **the Grant Scheme "Upgrading of the Public Lighting",** MoE SR**, Slovak Innovation and Energy Agency (SIEA) (2008 – 2011)**
    - upgrading of the public lighting
    - non-repayable grant for the public sector in the amount of 85% of eligible costs.

3.4.3. Overview of selected economic and technical indicators

Existing and new measures in the public sector focused on the public lighting systems will account for app. **3%** of total energy savings projected under the Energy Efficiency Action Plan for 2008 – 2010.

Individual measures are summarised in the following tables. Indicative amounts of financial resources are specified for measures financed from the structural funds and the EEA Financial Mechanism and the Norwegian Financial Mechanism.

Measure description		Status	Implementation started	Duration	Contribution to meeting overall AP target	Financial requirements	Monitoring
The Centre for Public Lighting	Consulting in the area of operation and upgrading of the public lighting systems,	E	2005	unlimited	2	1	yes
Provision of energy services in public lighting	Financing of the projects focused on energy savings in the public lighting,	E	2005	unlimited	2	3	partial
Drafts of legislative measures	Setting the minimum requirement for energy efficiency of the public lighting	N	2010	unlimited	2	1	yes
Upgrading of the public lighting	Structural Funds (2007 - 2013), OP "Competitiveness and Economic Growth, MoE SR	N	2008	2013	2	2	partial
	the EEA Financial Mechanism and the Norwegian Financial Mechanism, Office of the Government of the Slovak Republic	N	2008	2011	2	3	yes

Table 3.4.3-1: Overview of energy efficiency measures – the public sector

Explanatory notes:

E ... existing measure
N ... new measure
1 ... low contribution to meeting the overall action plan target/low financial requirements
2 ... medium contribution to meeting the overall action plan target/medium financial requirements
3 ... high contribution to meeting the overall action plan target/high financial requirements

Table 3.4.3-2: Financing of energy efficiency measures – the public sector

Measure description, source of funding, ministry responsible			Year, period	Public sources				Private sources	Total	Energy savings
				EU/other	State budget	Funds outside the state budget	Budgets of VÚCs, towns and municipalities			
				[SKK million]						[TJ]
the Centre for Public Lighting	Consulting in the area of operation and upgrading of the public lighting systems	MoEnv SR, MoE SR	2008	4.30						
			2009					3.50		
			2010					3.50		
			2008 -2010	**4.30**				**7.00**		
Provision of energy services in public lighting **Drafts of legislative measures**	Financing of the projects focused on energy savings in the public lighting,		2008					350.00	350.00	
			2009				35.00	400.00	435.00	
			2010				70.00	500.00	570.00	
			2008 -2010				**105.00**	**1 250.00**	**1355.00**	
	Setting the minimum requirements for energy efficiency of the public lighting	MoE SR[1]	2008							
			2009		0.50				0.50	
			2010		1.00				1.00	
			2008 -2010		**1.50**				**1.50**	
Upgrading of the public lighting	Structural funds (2007 – 2013), C&EG OP,	MoE SR[2]	2008	243.56	42.98		56.60		337.14	
			2009	243.56	42.98		56.60		337.14	
			2010	243.56	42.98		56.60		337.14	
			2008 -2010	**730.68**	**128.94**		**169.80**		**1 011.42**	
	the EEA Financial Mechanism and Norwegian Financial Mechanism	Government Office[2]	2008	22.10			5.20		27.30	
			2009	22.10			5.20		27.30	
			2010	22.10			5.20		27.30	
			2008 -2010	**66.30**			**15.60**		**81.90**	
Total			**2008 -2010**	**801.28**	**130.44**		**272.40**	**1 257.00**	**2 449.82**	**403.06**

Explanatory notes:

without index ... no state budget funding required

index [1)] ... tasks to be performed by the ministry within approved state budget limits

index [2)]	...	funds programmed within the state budget for individual financial mechanisms (structural funds, the EEA Financial Mechanism and the Norwegian Financial Mechanism)
index [3)]	...	state budget finances earmarked for energy efficiency funds (EEF, State Housing Development Fund)
index [4)]	...	financed from the funds focused on energy efficiency outside the state budget (EEF, State Housing Development Fund)

3.5. Industry and agriculture

Agriculture accounts for some 3% of the final energy consumption and the energy efficiency measures in this area will be proposed in the subsequent action plans.

The industrial sector is the largest energy consumer. The final energy consumption in industry represents some 34%.

Given the significant industrial investment primarily in the automobile and electrical engineering industry, a reduction of the absolute energy consumption in industry is not expected in the years to come. However, it is necessary to make use of energy efficient technologies and production methods which make it possible to reduce energy intensity of the production. Considerable energy savings potential can be harnessed in the processing industry (metallurgical industry, chemical industry, paper and cellulose industry...), but it is also necessary to deal with energy industries.

The measures to improve energy efficiency in the industry must be particularly targeted at energy demand monitoring and management in the individual technological processes, introduction of innovative approaches primarily aimed at reducing the energy intensity of industrial production, and investments in energy efficiency in the selected industrial branches.

Target:	**Reduction of energy intensity with respect to value-added production in the industry**
Target group:	**stakeholders in industrial production**

3.5.1. Existing measures continuing in the period of 2008 – 2010

So far no conditions for mass measures focused on energy efficiency in the industry have been created. Reduction of energy consumption in the industry is undertaken on an individual basis and is particularly influenced by the market environment.

The Sectoral Operational Programme Industry and Services (2004 – 2006), financed from the European Regional Development Fund and the state budget of the Slovak Republic, represents one of the few support mechanisms aimed at reducing energy intensity of the industry. The funding of projects from this operational programme will continue by the end of 2008.

3.5.1.1. Legislation, technical regulations

Currently, there are no effective specific legislative regulations focused on energy efficiency in the processing industry. Energy industries and the processing companies supplying heat have an obligation to efficiently operate the facilities for the conversion and transport of energy or energy carriers. Direct support for energy efficiency is set in the draft act on the promotion of cogeneration based on a useful heat demand in the internal energy market.

— Act No. 656/2004 Coll. on Energy, MoE SR
  - when tendering for new energy facilities, the MoE SR may impose an obligation to introduce technologies ensuring the improvement of the energy efficiency of the system

- when constructing new electricity facilities, it is also necessary to meet the energy efficiency criterion.

— Act No. 657/2004 Coll. on the Heat Supply Sector, as amended by Act No. 99/2007 Coll., MoE SR
  - obligation for the heat producer, supplier and customer to comply with the rules of efficient operation of a system of heating facilities, i.e. operation meeting the energy efficiency indicators for heat generation and distribution facilities and normative heat consumption indicators, which means achieving optimum energy efficiency of a heating facility
  - regular verification of the efficiency of the operation of a system of heating facilities.

— draft act on the promotion of cogeneration based on a useful heat demand, MoE SR
  - definition of high-efficiency cogeneration of electricity, or mechanical energy and heat (savings amounting to at least 2% or 10 % of the primary energy sources),
  - support mechanisms for high-efficiency cogeneration of electricity and heat in the industry.

3.5.1.2. Organisational and technical measures

— **application of legislative measures**
  - regular maintenance and modernisation of the systems of heat facilities (heat sources in the processing industry, which partially supply heat to sectors other than processing industry, heat distribution systems, cogeneration of electricity and heat),

— **transfer of new, progressive and environment-friendly technologies**

— **bringing the energy intensity of the industry closer to a level comparable with the EU, by means of energy savings and efficiency improvement**

3.5.1.3. Financing, support programmes/funds

Private funding:
— own funds of stakeholders in industrial production

Public funding
- **Structural funds (2004 – 2006), MoE SR**
  - Sectoral Operational Programme Industry and Services, Measure 1.1. "Support for new and existing enterprises and selected services", Measure 1.4. "Support for energy savings and use of renewable energy sources"

3.5.2. New measures

New measures in the industry sector aimed at the preparation of audits in industrial undertakings will detail the savings potential in the individual industrial branches and form a basis for targeting the measures of the second action plan for the industry sector.

As regards technical measures, support will be aimed at energy demand monitoring and management in industrial undertakings, optimisation of the conversion and distribution of

energy in the industrial undertakings and investment in innovative technologies and in energy efficiency improvement within the processing industry. A separate measure will be aimed at the development of high-efficiency cogeneration in the industry.

A contribution for the funding of audits in the industrial undertakings, introduction of the systems of energy demand monitoring and management, including energy conversion and distribution optimisation, will be available from the Energy Efficiency Fund on the basis of aid schemes for businesses. Investment in energy efficiency measures in the processing industry will be supported through the "Competitiveness and Economic Growth" operational programme.

3.5.2.1. Expected legislation, technical regulations

Within the framework of the First Energy Efficiency Action Plan, individual legislative regulations are not expected to be proposed for the industry sector. However, it will be partially addressed in the Energy Efficiency Act proposed as one of the horizontal energy efficiency measures.

3.5.2.2. Expected organisational and technical measures

— **energy audits in industrial undertakings – a basis for determining the energy savings potential**

— **energy demand monitoring and management in industrial undertakings**

— **optimisation of energy conversion and distribution in industrial undertakings**

— **innovation and technology transfers in industrial undertakings**

— **energy efficiency improvement in the processing industry**

— **high-efficiency cogeneration in the industry**

3.5.2.3. Expected financing, support programmes/funds

Private funding:
— own funds of stakeholders in industrial production

Public funding:
- **Structural Funds (2007 – 2013)**
    - operational programme "Competitiveness and Economic Growth", MoE SR
        - Measure 2.1 – Increasing energy efficiency both on the side of generation and consumption and introducing advanced technologies in the energy sector
        - Measure 2.2 – Building and upgrading of public lighting for towns and communities and provision of energy consultancy services

- **Energy efficiency fund**

    - **Programme for the promotion of energy audits in the industry**, **MoE SR (2008)**
        - the duration of the programme is three years at least,
        - non-repayable grant to pay a portion of costs related to energy audit preparation.

    - **Programme for the promotion of the installation and upgrade of energy demand monitoring and management systems in industrial undertakings, MoE SR (2008)**
        - the duration of the programme is three years at least,
        - non-repayable grant to pay a portion of costs related to the installation and upgrade of the energy demand monitoring and management system.

    - **Programme to promote optimisation of energy conversion and distribution in industrial undertakings, MoE SR (2010)**
        - the duration of the programme is three years at least,
        - non-repayable grant to pay a portion of costs related to the optimisation of energy conversion and distribution in industrial undertakings.

3.5.3. Overview of selected economic and technical indicators

Existing and new measures in the industry will account for approximately **30%** of total energy savings projected under the 1st Energy Efficiency Action Plan.

Individual measures are summarised in the following tables. The current monitoring of the individual measures is insufficient, and this situation must be addressed within the framework of horizontal energy efficiency measures (Energy Efficiency Monitoring System).

Measure description		Status	Implementation started	Duration	Contribution to meeting overall AP target	Financial requirements	Monitoring
Application of legislative measures	Act No. 657/2004 Coll. – principles of economy and regular verification of economic operation of a system of heating facilities	E	2005	unlimited	3	1	partial
Transfer of new, progressive and environment-friendly technologies	Structural Funds 2004 – 2006, MoE SR, SOP Industry and Services, Measure 1.1 "Support for new and existing enterprises and selected services"	E	2004	2008	1	3	partial
Bringing the energy intensity of the industry closer to a level comparable with the EU, by means of energy savings and efficiency improvement	Structural funds 2004 – 2006, MoE SR, SOP Industry and Services, Measure 1.4 "Support for energy savings and the use of renewable energy sources"	E	2004	2008	1	3	partial
Energy audits in industrial undertakings – a basis for determining the energy savings potential	Programme for the promotion of energy audits in the industry, MoE SR	N	2008	2010	1	3	Yes
Energy demand monitoring and management in industrial undertakings	Programme for the promotion of the installation and upgrade of energy demand monitoring and management systems in industrial undertakings, MoE SR	N	2008	2010	1	3	yes

Table 3.5.3-1: Overview of energy efficiency measures – industry

Measure description		Status	Implementation started	Duration	Contribution to meeting overall AP target	Financial requirements	Monitoring
Optimisation of energy conversion and distribution in industrial undertakings	Programme to promote optimisation of energy conversion and distribution in industrial undertakings, MoE SR	N	2010	2013	3	2	Yes
Innovation and technology transfers in industrial undertakings	Structural Funds (2007 – 2013), operational programme "Competitiveness and Economic Growth (C&EG OP)", MoE SR, Measure 1.1 "Innovation and technology transfers"	N	2008	2013	2	1	partial
Energy efficiency improvement in the processing industry	Structural funds (2007 – 2013), C&EG OP, Measure 2.1 – Increasing energy efficiency both on the side of generation and consumption and introducing advanced technologies in the energy sector	N	2008	2013	2	1	partial
High-efficiency cogeneration in the industry	Structural funds (2007 – 2013), C&EG OP, Measure 2.1 – Increasing energy efficiency both on the side of generation and consumption and introducing advanced technologies in the energy sector	N	2009	2013	2	1	Yes

Explanatory notes:

E ... existing measure
N ... new measure
1 ... low contribution to meeting the overall action plan target/low financial requirements
2 ... medium contribution to meeting the overall action plan target/medium financial requirements
3 ... high contribution to meeting the overall action plan target/high financial requirements

Table 3.5.3-2: Funding of energy efficiency measures – industry

Measure description, source of funding, ministry responsible			Year, period	Public sources				Private sources	Total	Energy savings
				EU	State budget	Funds outside the state budget	Budgets of VÚCs, towns and municipalities			
				[SKK million]						[TJ]
Application of legislative measures	Act No. 657/2004 Coll. - principles of economic operation of a system of heating facilities	MoE SR	2008					77.00	77.00	
			2009					77.00	77.00	
			2010					77.00	77.00	
			2008 -2010					**231.00**	**231.00**	
Transfer of new, progressive and environment-friendly technologies **Bringing the energy intensity of the industry closer to a level comparable with the EU, by means of energy savings and efficiency improvement**	Structural Funds 2004 – 2006, SOP Industry and Services, Measure 1.1. "Support for new and existing enterprises and services"	MoE SR[2]	2008	26.55	8.85			35.40	70.80	
			2009							
			2010							
			2008 -2010	**26.55**	**8.85**			**35.40**	**70.80**	
	Structural Funds 2004-2006, SOP Industry and Services, Measure 1.4 "Support for energy savings and the use of renewable energy sources"	MoE SR[2]	2008	33.75	11.25			50.0	61.30	
			2009							
			2010							
			2008 -2010	**33.75**	**11.25**			**50.00**	**61.30**	
Energy audits in industrial undertakings - a basis for determining the energy savings potential **Energy demand monitoring and management in industrial undertakings**	Programme for the promotion and upgrade of energy demand monitoring and management systems in industrial undertakings, MoE SR	MoE SR[3]	2008		28.00			84.00	112.00	
			2009		35.00			105.00	140.00	
			2010		35.00			105.00	140.00	
			2008 -2010		**98.00**			**294.00**	**392.00**	
	Energy Efficiency Fund	MoE SR[3]	2008		25.00			50.00	75.00	
			2009		30.00			50.00	80.00	
			2010		25.00			50.00	75.00	
			2008 -2010		**80.00**			**150.00**	**230.00**	
Optimisation of energy conversion and distribution in industrial undertakings	Programme to promote optimisation of energy conversion and distribution in industrial undertakings, MoE SR	MoE SR[4]	2008							
			2009							
			2010			600.00		1 400.00	2000.00	
			2008 -2010			**600.00**		**1 400.00**	**2000.00**	

Measure description, source of funding, ministry responsible			Year, period	Public sources				Private sources	Total	Energy savings
				EU	State budget	Funds outside the state budget	Budgets of VÚCs, towns and municipalities			
				[SKK million]						[TJ]
Innovation and technology transfers in industrial undertakings	Structural funds (2007 – 2013), C&EG OP, Measure 1.1.	MoE SR[2]	2008	63.16	11.15			74.31	148,62	
			2009	63.16	11.15			74.31	148,62	
			2010	63.16	11.15			74.31	148,62	
			2008 -2010	**189.48**	**33.45**			**222.93**	**445,86**	
Energy efficiency improvement in the processing industry	Structural funds (2007 – 2013), C&EG OP, Measure 2.1.	MoE SR[2]	2008	142.76	25.19			167.95	335,90	
			2009	142.76	25.19			167.95	335,90	
			2010	142.76	25.19			167.95	335,90	
			2008 -2010	**428.28**	**75.57**			**503.85**	**1007,70**	
High-efficiency cogeneration	Structural funds (2007 – 2013), C&EG OP, Measure 1.1.	MoE SR[2]	2008	88.54	15.63			104.17	208,34	
			2009	88.54	15.63			104.17	208,34	
			2010	88.54	15.63			104.17	208,34	
			2008 -2010	**265.62**	**46.89**			**312.51**	**625,02**	
Total			**2008 -2010**	**943,70**	**354,00**	**600.00**		**3 199.70**	**5 063.70**	**3 919.90**

Explanatory notes:

without index ... no state budget funding required
Index [1)] ... tasks to be performed by the ministry within approved state budget limits
Index [2)] ... funds programmed within the state budget for individual financial mechanisms (structural funds, the EEA Financial Mechanism and the Norwegian Financial Mechanism)
Index [3)] ... state budget finances earmarked for energy efficiency funds (EEF, State Housing Development Fund)
Index [4)] ... financed from the funds focused on energy efficiency outside the state budget (EEF, State Housing Development Fund)

3.6. Transport

The transport sector accounts for 18% of the total final energy consumption. The largest portion of the energy used by the transport sector comes from oil products. Another portion is made up of electricity used primarily in railway and urban transport (trams, trolleybuses). A considerable increase in energy consumption in this sector was mainly caused by a boom in road transport – both freight and passenger – to the detriment of railway transport.

The key objective of the Transport Policy of the Slovak Republic until 2015 is to ensure sustainable mobility. Measures aimed at energy efficiency improvement in transport and reduction of adverse environmental impacts include, in particular, the following:

— replacement and modernisation of vehicle fleet, checking the compliance of vehicles in operation with technical requirements;
— optimal utilisation of the potential of individual modes of transport and support for the development of more environment-friendly and energy efficient modes;
— promotion of public transport as a service in public interest and its optimisation;
— transport infrastructure modernisation and development and removal of traffic bottlenecks;
— traffic control using information and communication technologies and telematics.

Target:	**reduction, or minimisation, of energy consumption in freight and passenger transport**
Target group:	**traffic participants, transport route owners and operators, owners and operators of means of transport, state administration, local and regional governments**

3.6.1. Existing measures continuing in the period of 2008 – 2010

The existing energy efficiency measures in the transport sector include especially the ongoing intensive development of a motorway and expressway network and laws and regulations focused on:

— a system of regular technical and emission checks focused on general technical conditions of vehicles and their operating parameters;
— a system of driving courses emphasising the rules of economic driving, etc.;
— a vehicle category-based road toll system using stickers; an electronic toll system will be introduced for vehicles over 3.5 tonne in compliance with approved legislation;
— funding of bus transport (VÚCs, municipalities) and rail transport (Ministry of Transport, Posts and Telecommunications - MTPT SR) services delivered in public interest.

3.6.1.1. Legislation, technical regulations

— **Act No. 725/2004 Coll. on conditions for vehicle operation in road traffic, including government regulations laying down conditions for the issuance of roadworthiness certificates and on amendments to certain acts;**
— Act No. 25/2007 Coll. on electronic toll for the use of selected road sections and on amendments to certain acts;

— Government regulation No. 350/2007 Coll. laying down toll rates for the use of selected road sections;
— Act of the National Council of the Slovak Republic No. 129/1996 Coll. on certain measures to accelerate the construction of motorways and expressways as amended by Act of the National Council of the Slovak Republic No. 160/1996 Coll. and Act No. 275/2007 Coll.;
— Act No. 280/2006 Coll. on mandatory basic qualification and regular training of certain drivers;
— Act No. 93/2005 Coll. on driving schools and amendments to certain acts and related decrees;
— Government Regulation No. 350/2007 Coll. laying down toll rates for the use of selected road sections;
— Act of the National Council of the Slovak Republic No. 168/1996 Coll. on road transport as amended (public interest, contracts on services performed in public interest, transport serviceability planning);
— Act of the National Council of the Slovak Republic No. 164/1996 Coll. on railways as amended (public interest, contracts on services performed in public interest, basic transport serviceability);
— Act No. 582/2004 Coll. on local taxes and local fees for municipal and minor construction waste (motor vehicle tax);
— Decree of the Railway Regulatory Authority No. 73/2007 Coll. amending Decree of the Railway Regulatory Authority No. 654/2005 Coll. laying down the scope of price regulation in the railway transport.

3.6.1.2. Organisational and technical measures

— **application of legislative measures and conceptual documents**
  - Government regulations laying down technical requirements for motor vehicles;
  - Transport Policy of the Slovak Republic until 2015 (government resolution No. 445/2005);
  - Concept of passenger bus and railway transport focused on a systemic solution for the financing of services performed in public interest (government resolution No. 377/2005);
  - Update to the Concept of Combined Transport Development with an outlook until 2010 (2003).

3.6.1.3. Financing, support programmes/funds

Private funding:
— own funds of transport stakeholders

Public funding:

— **Funding of the bus transport services performed in public interest, budgets of VÚCs, municipalities and towns**
  - Act of the National Council of the Slovak Republic No. 168/1996 Coll. on road transport as amended;
  - up to 100 km – financed by VÚCs;
  - municipal transport – financed by municipal authorities;

- a possibility to set age limits on vehicles used for the performance of services in public interest.

— **Funding of railway transport services performed in public interest, MTPT SR**
  - contract on the performance of services in public interest between the state (represented by the Transport Ministry) and ŽSR railway infrastructure operator (nation-wide and regional railways) and Železničná spoločnosť Slovensko a.s. rail transport provider (transport serviceability).

— **Decree of the Ministry of Transport, Posts and Telecommunications No. 491/M-2006 on the provision of subsidies in combined transport, MTPT SR**
  - subsidies to reduce road congestions, improve environmental qualities of the transport system and promote intermodal transport.

3.6.2. New measures

New measures in the transport sector are focused on legislative amendments which should promote the use of so-called clean vehicles and vehicles used for intermodal transport.

Organisational and technical measures will concentrate on vehicle fleet, transport operation, transport infrastructure and combined transport.

These measures will preferably be financed through the EU structural funds.

3.6.2.1. Expected legislation, technical regulations

— **an amendment to Act No. 582/2004 Coll. on local taxes and local fees for municipal and minor construction waste** (motor vehicle tax);
  - lower taxes for clean vehicles (EURO IV, EURO V),
  - extension and completion of motor vehicle tax relief (full or partial tax refund) for road vehicles used in intermodal transport.

3.6.2.2. Expected organisational and technical measures

— **fleet modernisation**
  - *Fleet replacement and modernisation in public passenger railway transport*
    The aim is to promote suburban and regional passenger railway transport through fleet modernisation which will increase attractiveness of the public transport, improve energy efficiency and mitigate adverse environmental impacts. An energy efficiency indicator is the reduction of energy consumption by some 25% per train-kilometre.

  - *Improved energy efficiency of means of transport, promotion of low-emission road vehicles and promotion of intermodal transport*
    The aim is to improve energy efficiency of means of transport and reduce emissions of carbon dioxide and other combustion products through road vehicle fleet modernisation to include low-emission vehicles and promotion of intermodal transport.

— **transport operation optimisation**

- *Introduction of fees for the use of transport infrastructure in order to ensure balanced utilisation of individual modes of transport*

  The aim is to harmonise billing terms and conditions for the use of railway and road infrastructure. In order to ensure the balanced use of individual modes of transport it is necessary that a transport infrastructure user bear all transport-related costs. As far as its energy efficiency impacts are concerned, this measure will lead to more extensive use of modes of transport with better energy indicators.

- *Traffic control optimisation and intelligent transport systems*

  The aim of the traffic control optimisation using new advanced control and information technologies is to improve road safety, reduce congestions, fuel consumption and emission production.

- *Public transport optimisation*

  The aim of public transport planning is to ensure optimal serviceability (extent and share of individual modes of transport) to make sure that the public funds are used as effectively as possible, which will serve as a basis for the functioning of an integrated system. Public transport optimisation will result in an increased use of public means of transport – in particular rail transport whose energy efficiency increases with a higher load factor – as well as in elimination of simultaneous operation of modes of passenger transport on identical routes that will lead to lower fuel consumption.

— **building and modernisation of transport infrastructure**

- *Building of transport infrastructure and elimination of traffic bottlenecks*

  The aim is to provide access for the regions to trans-European transport networks (TEN-T), eliminate regional disparities and reduce congestions which helps improve energy efficiency in the transport sector. A COPERT-based research project was used to asses the benefits of motorway operation in terms of energy savings with the following results: energy savings in specific fuel consumption (g/km) represented for passenger cars 11%, for long-distance coaches 12.7% and for utility vehicles 5.6% of energy consumed.

— **building of the basic network of public intermodal transport terminals**

The aim is to preserve the share of railway transport approximately at 27% of the total volume of transported goods and create conditions for its further growth mainly by shifting freight transport from roads to railway and inland waterway transport.

3.6.2.3. Expected financing, support programmes/funds

Private funding:

— own funds of transport stakeholders

Public funding:

The measures are expected to be financed through the existing subsidy mechanisms in line with the applicable legislation (services performed in public interest) and from structural

funds earmarked for Operational Programme Transport under the authority of the Transport Ministry.

— **Decree of the Ministry of Transport, Posts and Telecommunications No. 491/M-2006 on the provision of subsidies in combined transport**
  - reduce road congestions;
  - improve environmental qualities of the transport system;
  - intermodality improvement;
  - a total annual subsidy of SKK 20 million for combined transport operation.

— **Contract on bus transport services provided in public interest and funding of public urban transport services (VÚCs, municipalities)**
  - Act No. 168/1996 Coll. on road transport as amended;
  - in a total annual amount of SKK 3.6 billion at the level of self-governing regions and municipalities (public urban transport).

— **Contracts on railway transport services performed in public interest**
  - Act No. 164/1996 Coll. on railways as amended;
  - contract on the performance of services in public interest with the infrastructure operator (ŽSR – nation-wide and regional railways), SKK 3.6 billion a year;
  - contract on the performance of services in public interest with rail transport provider (Železničná spoločnosť), SKK 5.4 billion a year.

- **Structural funds (2007 – 2013)**
  - Operational Programme Transport (OPT), MTPT SR
    OP Transport (priority axes: railway infrastructure, road infrastructure, intermodal transport infrastructure, integrated transport systems, road infrastructure, public passenger railway transport) – EUR 3.845 billion in total.

    OPT focuses primarily on the construction and modernisation of Slovakia's transport infrastructure and its integration in the European transport system. At the same time, the programme also represents a means to gradually eliminate unsatisfactory parameters of transport infrastructure in regions and address pressing problems in transport safety, reliability and quality. OPT focuses mainly on:

    - construction of transport infrastructure in order to improve effectiveness and quality of the transport system both at international and national/regional level;
    - improvement in transport infrastructure parameters and approximation to EU standards;
    - improved access of individual regions to transport infrastructure;
    - promotion of public passenger railway transport;
    - promotion of integrated passenger transport systems;
    - the ensuring of proportionate development of individual modes of transport;
    - reduction of adverse environmental impacts of the transport sector;
    - improved road safety.

3.6.3. Overview of selected economic and technical indicators

Existing and new measures in the transport sector will account for approximately **22%** of total energy savings projected under the 1st Energy Efficiency Action Plan.

Table 3.6.3-1: Overview of energy efficiency measures – transport

Measure description		Status	Implementation started	Duration	Contribution to meeting overall AP target	Financial requirements	Monitoring
Application of legislative measures and conceptual documents	Regulations on technical requirements for motor vehicles, Act No. 280/2006 Coll. – drivers qualification and training	E	2005	unlimited	1	1	no
	Concept of passenger bus and railway transport – financing of services performed in public interest – bus transport (VÚCs) – railway transport (MTPT SR)	E	1996	unlimited	1	3	partial
	Update to the Concept of Combined Transport Development, decree of the MTPT SR No. 491/M-2006 - subsidies for combined transport	E	2006	unlimited	1	3	partial
	Possibility to set age limits on vehicles used for the performance of services in public interest.- funding of the services performed in public interest, VÚC budgets	E	2008	unlimited	1	1	partial
Vehicle fleet modernisation	Replacement and modernisation of vehicle fleet used in passenger railway transport – structural funds (2007-2013), OP Transport – Public railway transport	N	2008	unlimited	2	1	partial
	Improved energy efficiency of means of transport – a changed in the structure of motor vehicle taxes, disadvantaging of older vehicles	N	2008	2013	1	3	partial

Measure description		Status	Implementation started	Duration	Contribution to meeting overall AP target	Financial requirements	Monitoring
Transport operation optimisation	Introduction of fees for the use transport infrastructure in order to ensure balanced utilisation of individual modes of transport	N	2008	unlimited	3	1	partial
	Traffic control optimisation and intelligent transport systems, structural funds (2007-2013), OP Transport	N	2008	2013	2	1	partial
	Public transport optimisation (transport serviceability plans), MTPT SR, VÚCs, municipalities	N	2008	unlimited	2	1	partial
Building and modernisation of transport infrastructure	Building of transport infrastructure and elimination of bottlenecks, financed through EU funds, PPP, VÚC budgets	N	2008	2013	3	3	partial
Building of the basic network of public intermodal transport terminals	Structural funds (2007-2013), OP Transport – Intermodal transport infrastructure	N	2008	2013	3	3	partial

Explanatory notes:

E ... existing measure
N ... new measure
1 ... low contribution to meeting the overall action plan target/low financial requirements
2 ... medium contribution to meeting the overall action plan target/medium financial requirements
3 ... high contribution to meeting the overall action plan target/high financial requirements

Table 3.6.3-2: Funding of energy efficiency measures – transport

Measure description, source of funding, ministry responsible			Year, period	Public sources				Private sources	Total	Energy savings
				EU	State budget	Funds outside the state budget	Budgets of VÚCs, towns and municipalities			
				[SKK million]						[TJ]
Application of legislative measures	Regulations on technical requirements, Act No. 280/2006 Coll.	MTPT SR	2008					10.00	10.00	
			2009					10.00	10.00	
			2010					10.00	10.00	
			2008 -2010					**30.00**	**30.00**	
	Concept of passenger bus and railway transport - financing of services performed in public interest – bus transport (budgets of VÚCs, public urban transport – municipalities)	VÚCs	2008				3 600.00		3 600.00	
			2009				3 600.00		3 600.00	
			2010				3 600.00		3 600.00	
			2008 -2010				**10 800.00**		**10 800.00**	
	Concept of passenger bus and railway transport – financing of services performed in public interest – financing of railway transport * (MTPT SR)	MTPT SR[1]	2008		9 000.00				9 000.00	
			2009		9 000.00				9 000.00	
			2010		9 000.00				9 000.00	
			2008 -2010		9 000.00				9 000.00	
	Update to the Concept of Combined Transport Development, decree of the Transport Ministry No. 491/M-2006 - subsidies for combined transport	MTPT SR[1]	2008		20.00			120.00	120.00	
			2009		20.00			120.00	120.00	
			2010		20.00			120.00	120.00	
			2008 -2010		**60.00**			**360.00**	**360.00**	
	Possibility to set age limits on vehicles used for the performance of services in public interest.– funding of the services performed in public interest (VÚCs)	MTPT SR	2008							
			2009				50.00		50.00	
			2010				50.00		50.00	
			2008 -2010				**100.00**		**100.00**	
Vehicle fleet modernisation	Replacement and modernisation of vehicle fleet used in passenger railway transport - SF (2007 – 2013), OP Transport – Public railway transport	MTPT SR[2]	2008							
			2009	1 003.12	1 144.28				1 144.28	
			2010	1 003.12	1 144.28				1 144.28	
			2008 -2010	**2 006.24**	**2 288.56**				**2 288.56**	

Measure description, source of funding, ministry responsible			Year, period	Public sources				Private sources	Total	Energy savings
				EU	State budget	Funds outside the state budget	Budgets of VÚCs, towns and municipalities			
				[SKK million]						[TJ]
Vehicle fleet modernisation	Improved energy efficiency of means of transport – a changed in the structure of motor vehicle taxes, disadvantaging of older vehicles	MTPT SR	2008							
			2009					100.00		
			2010					100.00		
			2008 -2010					**200.00**		
Transport operation optimisation	Introduction of fees for the use transport infrastructure in order to ensure balanced utilisation of individual modes of transport		2008		25.00			20 000.00	20 025.00	
			2009		125.00			500.00	625.00	
			2010		125.00			500.00	625.00	
		MTPT SR[1]	2008 -2010		**275.00**			**21 000.00**	**21 275.00**	
	Traffic control optimisation and intelligent transport systems, structural funds (2007 –2013), OP Transport		2008							
			2009							
			2010	50.00	20.00				20.00	
		MTPT SR[2]	2008 -2010	**50.00**	**20.00**				**20.00**	
	Public transport optimisation (transport serviceability plans), Transport Ministry, VÚCs, municipalities		2008		50.00		150.00	50.00	250.00	
			2009		50.00		150.00	50.00	250.00	
			2010		50.00		150.00	50.00	250.00	
		MTPT SR[1]	2008 -2010		**150.00**		**450.00**	**150.00**	**750.00**	
Building and modernisation of transport infrastructure	Building of transport infrastructure and elimination of bottlenecks, financed through EU funds and state budget		2008	15 000.00	2 000.00				2 000.00	
			2009	15 000.00	2 000.00				2 000.00	
			2010	15 000.00	2 000.00				2 000.00	
		MTPT SR[2]	2008 -2010	**45 000.00**	**6 000.00**				**6 000.00**	
Building of the basic network of public intermodal transport terminals	Structural funds (2007 – 2013), OP Transport – Intermodal transport infrastructure		2008	859.45	151.67			151.67	303.34	
			2009	859.45	151.67			151.67	303.34	
			2010	859.45	151.67			151.67	303.34	
		MTPT SR[2]	2008 -2010	**2 578.35**	**455.00**			**455.01**	**910.02**	
Total for transport sector			**2008 -2010**	**49 634,59**	**19 448,56**		**22 150.00**	**22 195.01**	**53 333.58**	**2 742.00**

Explanatory notes:

without index	...	no state budget funding required
index [1)]	...	tasks to be performed by the ministry within approved state budget limits
index [2)]	...	funds programmed within the state budget for individual financial mechanisms (structural funds, the EEA Financial Mechanism and the Norwegian Financial Mechanism)
index [3)]	...	state budget finances earmarked for energy efficiency funds (EEF, State Housing Development Fund)
index [4)]	...	financed from the funds focused on energy efficiency outside the state budget (EEF, State Housing Development Fund)

4 Conclusion

The submitted Energy Efficiency Action Plan for years 2008 – 2010 identifies potential energy efficiency improvement measures. These measures are essential in order for the Slovak Republic to achieve energy savings with a long-term perspective. Their implementation will help achieve energy savings complying with the requirements under Directive 2006/32/EC, i.e. at the 3-percent level at the end of 2010.

The share of individual sectors in meeting the indicative energy savings target will be as follows:

— horizontal measures	31	%
— buildings	11	%
— appliances	3	%
— public sector (except for buildings)	3	%
— industry and agriculture	30	%
— transport	22	%

Their implementation will require strong effort and systematic cooperation of all affected public authorities and organisations and all energy market participants since they have clearly multi-sectoral impacts. The measures specified in this action plan form only a portion of the variety of activities through which we have to strive to mitigate the adverse impacts of energy consumption on the environment from a global point of view.

Further activities will include making the legislative environment more transparent, improving people's quality of living, improving housing conditions in terms of access to energy services, increasing competitiveness of the industry sector and development of small and medium-sized businesses and high added-value services. Equally important is to improve people's knowledge of and access to information about the energy efficiency principles and their impacts on the living conditions, improve education and adopt a new approach to the given issue – global warming. Energy efficiency improvement substantially increases security of energy supply since it reduces nation's dependence on imports of energy carriers.