ANNEX 1

FIRST BIENNIAL REPORT OF THE SLOVAK REPUBLIC

Accompanying the document

SIXTH NATIONAL COMMUNICATION OF THE SLOVAK REPUBLIC UNDER THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

BR1 - 1 INTRODUCTION

This First Biennial Report of the Slovak Republic (BR1 SR) was prepared under decision 2/CP.17 of the Conference of the Parties under the UNFCCC and is submitted as an Annex to the 6th National Communication of the Slovak Republic under the UNFCCC.

As defined in the UNFCCC biennial reporting guidelines for developed country Parties[1], the information is structured as follows:

- Information on GHG emissions and trends and the GHG inventory including information on national inventory system (section 2);
- Quantified economy wide emission reduction target (section 3);
- Progress in achievement of the quantified economy-wide emission reduction targets (section 4);
- Projections (section 5);

Provisions of financial, technological and capacity building support to developing countries, including CTF tables are included in the 6th National Communication on Climate Change of the Slovak Republic in Chapter 7.

Tabular information as defined in the common tabular format (CTF) for the UNFCCC biennial reporting guidelines for developed country Parties (UNFCCC decision 19/CP.18) are enclosed in the CTF Annex. For the CTF submission to the UNFCCC, the electronic reporting facility provided by the UNFCCC Secretariat has been used as required by UNFCCC decision 19/CP.18.

Information which has not been included in some sections of this BR1 SR can be found in the 6th National Communication of the Slovak Republic through the references.

[1] Annex I to UNFCCC decision 2/CP.17

BR1 – 2 INFORMATION ON GHG EMISSIONS AND TRENDS, GHG INVENTORY INCLUDING INFORMATION ON NATIONAL INVENTORY SYSTEM

BR1 – 2.1 Introduction and Summary Information from the National GHG Inventory

The legal basis for the compilation of the inventory and the inventory methodology as well as data availability is described in the Chapter 3.2 of the 6th National Communication of the Slovak Republic. The greenhouse gas data presented in this chapter are consistent with the 2013 submission of the Slovak Republic to the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat submitted on April 15, 2013.

Summary tables of GHG emissions for the Slovak Republic for emission trends by gas and by sector in the common tabular format are presented in the CRF Tables 1 (a) and 1(b) in the CTF Appendix. These data and the complete submissions of the Slovak Republic under Council Decision 280/2004/EC are also available on the website of the European Environmental Agency.[2]

BR1 – 2.2 National Inventory Arrangements

The main institutions involved in the compilation of the GHG inventory of the Slovak Republic together with their relationships and linkages for data flows are described in the Chapter 3.3 of the 6th National Communication of the Slovak Republic.

BR1 -2.3 Summary Information on Changes to National Inventory Arrangements since the last National Communication or Biennial Report of the Slovak Republic

Since the 5th National Communication of the Slovak Republic on Climate Change significant changes within the National Inventory System have occurred, which led to higher robustness, more institutionalization and increase of capacity involved in the preparation of the annual GHG inventories. Major changes have been:

- Enlargement of the Single National Entity delegated on the Department on Emissions and Air Quality Monitoring (SHMI) to the permanent staff capacity equal 3.5(Decree of the Director General from August 2012).
- Establishment of the Special working group within the Inter-ministerial High Level Committee on the Coordination of the Climate Change (Coordination Committee), which comprises the representatives of the relevant ministerial and expert institutions – in force since July 2012.

[2] http://www.eea.europa.eu/

- Increasing number of training and meeting comprising the whole National Inventory System throughout the years, including experts from other EU countries and some stakeholders.
- Framework Agreement between the Ministry of the Environment of the Slovak Republic and the Statistical Office of the Slovak Republic on direct access to the relevant statistical data collected in the energy sector – in force since September 2012.
- Agreement on cooperation between the MoE and the Ministry of Agriculture and Rural Development of the Slovak Republic to facilitate the task of implementation of reporting obligations under the UNFCCC and LULUCF sectors under the Kyoto Protocol in 2013. The contract is registered on the web page of the Ministry of Agriculture and Rural Development of the Slovak Republic[3], as Contract No. 319/2012 – 710/MPRV (general task number 13 on page 29, the specific task is elaborated in an additional protocol).
- Cooperation with the Waste Management Centre Bratislava to enhance capacity and improve data flows for waste sector since January 2012. In 2013 this obligation is listed as the 53rd task in the Main Tasks of the Slovak Environmental Agency for the year 2013.[4]
- Agreement between the MoE and the Ministry of Finance of the Slovak Republic on regular provision of data about the consumption of biofuels and bioliquids in the Slovak Republic.
- Enhancement of external inspections by the MoE to control implementation of the QA/QC procedures and improvements in the Plan of Inventory.
- Established procedure for improvement of the QA/QC procedures and Plan on Inventory according to the ERT`s recommendations from the most recent and previous reviews.
- Agreement on cooperation between the SHMI and Department of Chemical and Environmental Engineering of the Faculty of Chemical Technology of the Slovak Technical University (Energy and IP sectors).
- Agreement on cooperation between the MoE and the Ministry of Transport, Construction and Regional Development of the Slovak Republic, the Transport Research Institute and the SHMI on mutual provision of data and independent inspection of output databases and creation of GHG emissions in transport.
- Inventory planning for 2013: Improvement Plan and Prioritization on the basis of the outcomes and recommendations from the Report of the individual review of the annual submission of Slovakia submitted in 2012.

[3] http://www.mpsr.sk/index.php?start&navID=10
[4] http://www.sazp.sk/public/index/open_file.php?file=Admin/2013/phu2013.pdf

BR1 – 3 QUANTIFIED ECONOMY-WIDE EMISSION REDUCTION TARGET

The EU and its Member States communicated an independent quantified economy-wide emission reduction target of a 20 per cent emission reduction by 2020 compared with 1990 levels. This is documented in the UNFCCC document FCCC/SB/2011/INF.1/Rev.1 of June 7, 2011. In the EU submission to the UNFCCC from March 20, 2012 (FCCC/AWGLCA/2012/MISC.1) the EU target is explained further.

The use of carbon credits from international market-based mechanisms is explained in the EU submission from 2012. With regard to the role of Land Use, Land-Use Change and Forestry (LULUCF), the EU pledge does not include emissions/removals from LULUCF.

More detailed information on the EU target is given in CTF Table 2 in the CTF Appendix to the 1st EU Biennial Report.

Legally binding target trajectories for the period of 2013-2020 are enshrined in both the EU-ETS Directive (Directive 2003/87/EC and respective amendments) and the Effort Sharing Decision (Decision 406/2009/EC). These legally binding trajectories not only result in 20% GHG reduction in 2020 compared to 1990 but also define the EU's annual target pathway to reduce its GHG emissions from 2013 to 2020. The Effort Sharing Decision sets annual national emission targets for all Member States for the period 2013-2020 for those sectors not covered by the EU emissions trading system (EU ETS), expressed as percentage changes from 2005 levels. The Slovak Republic as the EU Member State will contribute by its fair share to the emission reduction target 20% of the emission level from the base year 1990.

Trajectory for GHG emissions from sectors not covered by the EU ETS for the Slovak Republic is defined by the Decision 162/2013/EC on determining Member States' annual emission allocations for the period from 2013 to 2020 as of March 2013 and its complementing Decision 634/2013/EC on the adjustments to Member States' annual emission allocations for the period from 2013 to 2020 as of October 2013.

BR1 – 4 PROGRESS IN ACHIEVEMENT OF THE QUANTIFIED ECONOMY-WIDE EMISSION REDUCTION TARGET

BR1 – 4.1 Introduction and Summary on Mitigation Actions and Their Effects

In the European Union, there are two distinct levels of policies and measures (PaMs) that have an impact on greenhouse gas emissions:

European Union policies, which are proposed by the Commission and subsequently approved, amended or rejected by the Council of the European Union and the European Parliament. These common and coordinated policies and measures are applicable to all Member States, though Member States may implement Directives at different points in time. The EU's National Communication concentrates on these common and coordinated policies and measures.

National policies developed and implemented by Member States themselves. Therefore we are submitting both in the 6th National Communication of the Slovak Republic and in the BR1 SR brief overview of the most significant climate related PaMs on the EU level (directly or as the reference to the 6th National Communication of the EU, or BR1 EU) together with information on specific national PaMs implemented, adopted or planned to reduce emissions.

BR1 – 4.2 Cross-Cutting Policies and Measures

BR1 - 4.2.1 EU Emission Trading Scheme (EU ETS)

Phase One of the EU ETS –Commitment Period 2005-2007:

Phase one was a three-year pilot period of learning-by-doing to prepare for phase two, when the EU ETS would need to function effectively to help ensure that the EU and Member States meet their Kyoto Protocol emission targets.

Before the start of the first one, the Slovak Republic had had to decide how many allowances to allocate to each EU ETS installation on its territory. This was done through the first National Allocation Plan. The Slovak Republic prepared and published the National Allocation Plan by May 1, 2004. The European Commission's Decision on the Phase I National Allocation Plan of Slovakia was adopted on October 20, 2004. Statistics from the phase one:

- 175 installations;
- 38 installations closed their accounts;
- 1 installation's permit revoked.

Table BR1 - 4.1: *Statistics from the Phase I of the National Allocation Plan*

Year	2005	2006	2007
Allocation	30 299 021	30 357 450	30 357 404
Verified emissions	24 892 813	25 200 029	24 153 151

Source: MoE

Phase II of the ETS (Kyoto Protocol's Commitment Period 2008-2012):
The EC Decision on the Phase II National Allocation Plan of Slovakia was adopted on November 29, 2006 and amended with decision from December 7, 2007.

Statistics:

- 193 installations;
- 30 installations closed their accounts;
- 1 installation's permit revoked.

Table BR1 - 4.2: *Statistics from the Phase II of the National Allocation Plan*

Year	2008	2009	2010	2011	2012
Allocation	32 166 094	32 140 581	32 356 123	32 617 164	33 432 258
Verified emissions	25 336 706	21 595 209	21 698 625	22 222 534	20 932 903

Source: MoE

Phase III of the National Allocation Plan: Kyoto Protocol's Commitment Period 2013-2020:
Free allocation decreases each year. Manufacturing industry will receive 80% of its allowances for free in 2013, a proportion that will decrease in linear manner each year to 30% level in 2020. The Slovak Republic has notified the list of installations covered by the Directive in its territory to Commission on August 17, 2012.

- New Entrants Reserve

A maximum of 5% of the EU-wide quantity of allowances over the period of 2013 to 2020 will be reserved to new entrants. To this day, the Slovak Republic registers two official requests.

- New Entrants Reserve 300

None of carbon dioxide capture and geological storage or innovative renewable project from Slovakia has participated at New Entrants Reserve 300 first announcement.

- Auctioning

Auctioning is a new way of distributing allowances in the phase three. Preliminary the auctioning started in 2012 with auctioning of 120 million EUAs, from which the Slovak Republic's share was 1.8 million EUAs. The total revenue from this early auctions was EUR 12 193 290 and it was an income of the Environmental Fund. The auctions in 2013 are held at the European Energy Exchange every Monday, Tuesday and Thursday. The revenue is split

by the two Slovak entities – 20% is an income of the Environmental Fund and 80% is an income of Ministry of the Environment of the Slovak Republic.

- Backloading

Backloading is a term used for describing the process to temporarily withhold larger amount of allowances from the auctions in years 2013-2015 and loading them back to the auctions in years 2019-2020. The main objective is to eliminate current surplus of the allowances in the EU ETS and to ensure the rise of carbon price on the market.

- Connecting the EU ETS with other GHG trading schemes, i.e. linking

In Directive 2009/29/EC are provisions which enable to link the EU ETS with other similar schemes created at regional or national levels outside the EU. Currently the negotiations related to linking are on-going between the EU and Australia and the EU and Switzerland.

BR1 – 4.2.2 Effort Sharing Decision

Actual Progress in Fulfilling Target of the Kyoto Protocol in the period of 2008-2012:

The Effort Sharing Decision[5] establishes annual targets for GHG emissions of Member States between 2013 and 2020, which are legally binding and only refer to GHG emissions that are not included within the scope of the EU ETS, i.e. transport (except aviation), buildings, agriculture (excluding LULUCF) and waste. Each Member State must define and implement national policies and measures, such as promotion of public transport, energy performance standards for buildings, more efficient farming practices and conversion of animal waste to biogas, to limit the GHG emissions covered by the Effort Sharing Decision. Emission limit for the Slovak Republic is +13% by 2020 compared to 2005 levels.

According to GHG emission trends and projections in Europe 2012[6], projections show that Slovakia could achieve its individual 2020 targets in the sectors not covered by the EU ETS with the current set of domestic policies and measures. Analysis of the trend of total anthropogenic emissions shows stabilization after year 2009 (economic recession), however, the emissions have still not reached the level from previous years, which indicates not fully recovered Slovak economic performance. According to the economic development we expect trend of stagnation or a little increase in GHG emissions in the next years. While the share of emissions from stationary sources is declining, share of transport emissions is increasing. Since 1990 emissions from transport have increased by 27% while in 1990 they accounted for only 9% of total emissions. Therefore, it is necessary to pay attention to the introduction of effective policies and measures for control and reduction of road transport emissions in Slovakia.

Expected Progress to the Targets up to 2020:

Direct dependence of the emissions production on the dynamics of an economic development and a very small margin of our trajectory in absolute terms, are the main reasons why we have to develop additional arrangements, despite present satisfactory performance. There are

[5] Decision 406/2009/EC
[6] http://www.eea.europa.eu/publications/ghg-trends-and-projections-2012

reserves especially in transport sector and efficient energy consumption. To encourage initiatives, cooperation and better coordination of departments in this area is also the aim of the aforementioned High Level Committee for Coordination of Climate Change Policy on the level of Secretaries of State.

BR1 - 4.2.3 Biofuels Policy

Directive of the European Parliament and of the Council 2009/28/EC on the promotion of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC was adopted on April 23, 2009. The body responsible for the implementation of the Directive is the Ministry of Economy of the Slovak Republic. The MoE is responsible for the area of compliance with sustainability criteria for biofuels and bioliquids, calculations to determine the impact of biofuels and bioliquids on quantities of greenhouse gas emissions and calculation of greenhouse gas emissions released during the life cycle of fossil fuels. The measures necessary for the functioning within the system at the national level have been developed by the National Action Plan for Renewable Energy, adopted by Resolution of the Government No. 677/2010 on October 6, 2010.

The Slovak Republic transposed articles 17, 18 and 19 of the Directive 2009/28/EC and substantively identical articles 7b, 7c and 7d of the Directive 2009/30/EC by the Act No. 136/2011 Coll.

Amendment of the Act addresses the basic roles and responsibilities of the competent authorities and economic operators in the context of demonstrating compliance with the sustainability criteria for biofuels and bioliquids, which are the conditions for their accounting towards the national target for renewable energy sources.

Ordinance of the Ministry of Environment No. 271/2011 Coll. establishing sustainability criteria and targets to reduce greenhouse gas emissions from fuels came into force on September 1, 2011. The ordinance deals with the details of proving compliance with the sustainability criteria for biofuels and bioliquids.

For assessing compliance with the sustainability criteria throughout the production chain of biofuels and bioliquids, the European legislation institute of voluntary schemes was established, while these schemes are not subject to national approval and national control and each member country has to accept the results of these verification schemes unreservedly.

Ordinance of the Ministry of Agriculture and Rural Development No. 295 Coll. of September 6, 2011 laying down detailed declaration of producer and supplier of biomass for producing biofuels or bioliquids came into force on October 1, 2011. The Slovak Republic introduced a national system of demonstrating compliance with the sustainability criteria for biofuels and bioliquids. The system is based on independent verifiers whose training is organized and who are subject to mandatory examination and registration.

BR1 - 4.2.4 Carbon Capture and Storage Directive

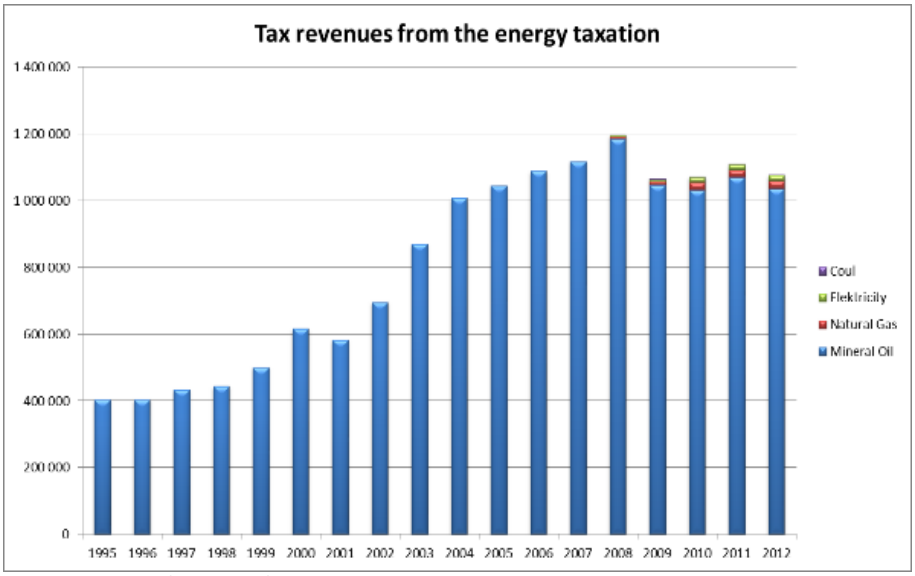
The Carbon Capture and Storage Directive establish a legal framework for the environmentally safe geological storage of CO_2 to facilitate and encourage the development of an important mitigation measure to reduce CO_2 emissions. Article 2 of the Directive states that the legislation will apply to all geological formations located within the EU that store CO_2 and the requirements will need to be enforced over the entire lifetime of a storage site. Geological storage of CO_2 below 100 kiloton threshold only for the purposes of research and development are exempted from the legislation.

BR1 - 4.2.5 Taxation of Energy Products and Electricity

Consumption of energy products such as coal, petroleum products (mineral oil), natural gas, electricity are subject for taxation in the Slovak Republic. In addition to excise taxes levied on energy products these are also subject to the value added tax (20%, tax rate was 19% until January 1, 2010). The most significant in terms of generating tax revenue, is the tax on mineral oils. Income from electricity, coal and natural gas is relatively low (Figure 4.1). The reason is mainly application of a large number of exemptions.[7]

Taxation of other energy products in the Slovak Republic was implemented later - with effect from 2008 (Act No. 609/2007 Coll., on excise duty on electricity, coal and natural gas), including a two-year transitional period during which only a half-tax rate was applied. In 2010, the Government reduced the tax rate for diesel fuel as a measure to compensate for the increased cost for carriers in connection with the introduction of the toll system. Since January 1, 2011, some exceptions have been abolished in the application of excise duties on energy products, such as exemption from excise tax on coal used for the production of heat and electricity.

Figure BR1 - 4.1: *Tax incomes from energy products taxation*



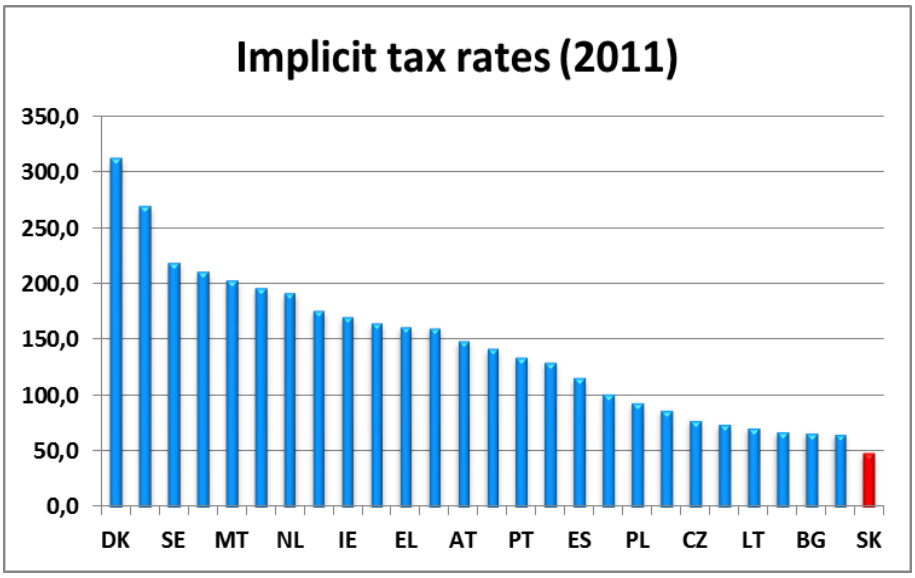
Source: Ministry of Finance of the Slovak Republic, MoE

[7] Energy policies of IEA Countries: Slovak Republic 2012; Economic Survey Slovak Republic 2010; Environmental Performance Review Slovak Republic 2011

Minimum rates required by the Directive 2003/96/EC on taxation of energy products and electricity were for solid fuels obtained from January 1, 2009 and for natural gas and electric energy used for heat production from January 1, 2010.

Prices of energy products in the Slovak Republic are in comparison with other OECD countries as well as the EU countries relatively high, however implicit tax rate is low.[8]

Figure BR1 - 4.2: *Implicit tax rate on energy products in EU 27 countries*



Source: Eurostat, Ministry of Finance of the Slovak Republic, MoE

BR1 – 4.2.6 Cross-cutting Policies and Measures no Longer in Place

None of PaMs with significant effect on GHG emission reduction have been cancelled in Slovakia without its replacement.

BR1 - 4.3 Sectoral Policies and Measures: Energy

Majority of policies within this sector presented in the Fifth National Communication of the Slovak Republic on Climate Change (2009) are still relevant. In addition to legislative instruments on emission trading, Act No. 137/2010 Coll. on air protection plays an important role. This act is complemented with the Act No. 401/1998 Coll. on charges for air pollution as amended which serves for control and regulation of emission limits for basic air pollutants. Monitoring and keeping records on emissions from stationary air polluting sources, as well as the system of fees and charges, that is mandatory for the operators of medium and large scale sources of air pollution, have positively affected greenhouse gas emissions reduction and contributed to decoupling (greenhouse gas emissions do not follow the growth of GDP) of emission trajectory in Slovakia since 1997.

[8] Economic Survey 2010, EPR 2011

BR1 – 4.3.1 Action Plan for Energy Efficiency 2008-2010, Resolution of the Government of the Slovak Republic No. 922/2007

Action plan includes measures to improve the energy performance of products, buildings and services, to improve the yield of energy production and distribution, to reduce the impact of transport on energy consumption, to facilitate financing and investments in the sector of households and buildings.

GHG affected: CO_2

Type of the measure: regulatory

Status: in force since 2008

BR1 – 4.3.2 Action Plan for Energy Efficiency 2011-2013, Resolution of the Government of the Slovak Republic No. 301/2011

The second plan evaluates the outcomes of the first phase and building on its results quantifies intermediate targets to the year 2013. Updated action plan includes existing as well as new measures to increase energy efficiency across the relevant sectors and areas with proposed financial and legal tools for achieving the national energy saving targets. Plan identifies the public sector and buildings as the key area for Slovakia to apply energy saving measures with reasonable costs.

GHG affected: CO_2

Type of the measure: regulatory

Status: in force since 2011

BR1 – 4.3.3 Energy Security Strategy of the Slovak Republic, Resolution of the Government No. 732/2008

National energy security strategy and policy defines the basic frame and principles for development of electric power plants, thermal power plants, oil, gas and coal as well as support and utilization of renewable energy sources.

GHG affected: CO_2, CH_4

Type of the measure: regulatory

Status: in force since 2008

BR1 – 4.3.4 National Action Plan for Biomass Use adopted by Resolution of the Government of the Slovak Republic No. 130/2008

With respect to a potential of biomass and a need of biomass utilisation, the Government of the Slovak Republic agreed on the task to develop the National Biomass Utilisation Action Plan by its Resolution No. 383/2007within the Strategy for Further Utilisation of the Renewable Energy Resources. Comprehensive information about the progress in biofuels utilisation is available in the reports under Directive 2003/30/EC published regularly in July.

The 10% share of biofuels in 2020 can be reached presumably only by the utilisation of the second generation biofuels. Currently in the Slovak Republic 4% of the overall energy demands is covered by biomass. However, the energy potential of agricultural biomass is considerably higher and theoretically it represents 20.4% of annual energy consumption in the Slovak Republic, which is 800 PJ. The energy potential of forest biomass has been determined from the average heat value as 12 GJ/t.

GHG affected: CO_2, CH_4 and N_2O

Type of the measure: regulatory

Status: in force since 2008

BR 1 – 4.3.5 National Renewable Energy Action Plan, Resolution of the Government of the Slovak Republic No. 677/2010

Increase in the share of renewable energy sources for electricity generation, i.e. implementation of wind, PV and geothermal electricity sources, is connected with further positive effects, such as better diversification of energy sources, decrease of GHG emissions, saving of energy produced from conventional sources, including natural gas consumption.

GHG affected: CO_2, CH_4 and N_2O

Type of the measure: regulatory

Status: in force since 2013

Implemented in scenario: WEM

BR1 – 4.3.6 Concept on Energy Efficiency in Buildings by 2010 overlooking to 2020, Resolution of the Government of the Slovak Republic No. 336/2012

As we have already mentioned, energy efficiency measures in buildings are considered as the most cost effective measures with high potential to be realized in Slovakia.

GHG affected: CO_2, CH_4 and N_2O

Type of the measure: regulatory

Status: in force since 2010

The following steps of implementation were considered:

Implemented in WEM scenario:

- Decrease of heat demand in apartment houses to the level of 30 kWh/(m^2/year) of floor area;
- Decrease of heat demand in apartment houses to the level of 50 kWh/(m^2/year) of floor area;
- Decrease of heat demand in governmental and public institution buildings to the level of 23 kWh/(m^2/year) of floor area;

- Decrease of heat demand in family houses to the level of 40 kWh/(m^2/year) of floor area;
- Decrease of heat demand in family houses to the level of 80 kWh/(m^2/year) of floor area.
- Decrease of heat demand in other non-residential buildings to the level of 23 kWh/(m^2/year) of floor area.

Implemented in WAM scenario:

- Decrease of heat demand in other apartment houses to the level of 75 kWh/(m^2/year) of floor area;
- Decrease of heat demand in other family houses to the level of 120 kWh/(m^2/year) of floor area.

BR1 – 4.3.7 Act No. 414/2012 Coll. on Emission Trading as amended

New allocation rules for CO_2 emission allowances have been applied for period 2013-2020 in compliance with the EU adopted rules. Distribution of allowances free of charge is for the industrial sources with risks of carbon leakage. In district heat supply sources free allowance distribution is going to be decreased from 80 to 20% in 2013-2020 period. For electricity production sources all equivalent allowances are obtained by auctioning manner only. EU ETS stimulates the use of biomass in fuel mix of energy units. Economic and regulatory measures, which were primarily focused on GHG emissions, have also a positive impact on air protection.

GHG affected: CO_2, N_2O and PFCs

Type of the measure: regulatory and economic

Status: in force since 2013 for phase III, previous phases were regulated by the Act. No 572/2004 Coll.

BR1 – 4.3.8 Act No. 258/2011Coll. on Carbon Dioxide Capture and Geological Storage in the Geological Environment

Act defines legal and technological conditions for carbon dioxide capture and geological storage as obligatory measure for newly build electricity generation sources with installed capacity higher than 300 MW. The act governs legal obligations and procedures for individual stakeholders and state administration related to the processes and monitoring of capture and storage of industrial CO_2 emissions in geological formations.

GHG affected: CO_2

Type of the measure: regulatory

Status: in force since 2010

BR1 – 4.3.9 Regulation of the Government of Slovak Republic No. 242/2008 Coll. amending the Regulation of the Government No. 583/2006 Coll. on Technical Requirements for Reduction of Emissions of Pollutants from Diesel Engines and Spark-ignition Engines Driven by CNG or LPG

New vehicles have to meet the latest European emission standards (EURO V).

GHG affected: CO_2 and N_2O

Type of the measure: regulatory

Status: in force since 2010

BR1 – 4.3.10 Act No. 158/2011 Coll. on Support of Energy-Saving and Environmental Vehicles

Decrease in air pollution from traffic and reduction of liquid fuel consumption are benefits expected from its implementation. The higher availability of CNG in filling stations is supported and the EURO 6 standards are supposed to be introduced from 2015.

GHG affected: CO_2 and N_2O

Type of the measure: regulatory

Status: in force since 2015

All the aforementioned PaMs were included in modelling of emission projections in the Slovak Republic. Synergy effects of PaMs have been reflected in the modelling.

BR1 – 4.3.11 Act No. 137/2010 Coll. on Air Protection as amended

This act is a comprehensive legal framework for control and regulation of air pollutants. It covers wide range of environmental regulation for fuel quality, fuel registration, condition of BATNEEC for fuel combustion in the middle and large scale stationary sources reporting obligations, mechanisms of controlling including charges and support.

GHG affected: CO_2 and N_2O

Type of the measure: regulatory and economic

Status: in force since 1991, the latest amendment in force since 2013

BR1 – 4.3.12 Ordinance of Ministry of Environment No. 271/2011 Coll.

The ordinance defines conditions and rules for achievements of sustainability criteria and targets for reducing greenhouse gas emissions from fuels. The ordinance deals with the details of proving compliance with the sustainability criteria for biofuels and bioliquids.

GHG affected: CO_2

Type of the measure: regulatory

Status: in force since 2011

BR1 – 4.3.13 Act No. 476/2008 Coll. on Efficient Utilisation of Energy

Act provides a framework for improving in energy efficiency of energy end-use, support of energy services and monitoring of energy consumption.

GHG affected: CO_2

Type of the measure: regulatory

Status: in force since 2008

BR1 – 4.3.14 Act No 182/2011 Coll. on Labelling of Energy-Related Products

The act sets a new legal framework for labelling of wide used energy consuming products. Supports and stimulates also the market for efficient energy appliances and environmentally efficient vehicles.

GHG affected: CO_2

Type of the measure: regulatory

Status: in force since 2011

BR1 – 4.3.15 Policies and Measures no Longer in Place

None of PaMs with significant effect on GHG emission reduction have been cancelled without replacement.

Act No. 572/2004 Coll. on emission trading and its previous amendments has been fully replaced by the Act No. 414/2012 Coll. on emission trading in amendments.

BR 1 - 4.4 Sectoral Policies and Measures: Industrial Processes

BR1 – 4.4.1 Act No. 414/2012 Coll. on Emission Trading in Amendments - Nitric Acid Production

Act gives provisions for implementation of secondary catalyst at nitric acid production

GHG affected: N_2O

Type of the measure: regulatory and economic

Status: in force since 2013

BR1 – 4.4.2 Act No. 414/2012 Coll. on Emission Trading in amendments - Aluminium Production

Its implementation enables to control efficiency at aluminium production.

GHG affected: PFCs

Type of the measure: regulatory and economic

Status: in force since 2013

BR1 – 4.4.3 Policies and Measures no Longer in Place

None of PaMs with significant effect on GHG emission reduction have been cancelled without replacement.

BR1 - 4.5 Sectoral Policies and Measures: Agriculture

The most relevant climate change mitigation activities in the agriculture sector are part of the EU Common Agricultural Policy:

- Agricultural Market and Income Support (1st pillar of the EU Common Agricultural Policy).
- Rural Development Policy (2nd pillar of the EU Common Agricultural Policy).

In addition to the EU Common Agricultural Policy, two environmental policy areas are directly relevant to climate mitigation in agriculture:

- Soil Thematic Strategy.
- Nitrates Directive.

Common Agricultural Policy is a set of relevant legislations for agriculture sector. Within the approved policy of sustainable management in agriculture, it is necessary to implement following activities:

- Gathering information on a number of cattle and analysing trends in methane emissions per animal.
- Gathering information on agricultural activities in Member States and identifying areas that are not used for agricultural production.
- Monitoring of greenhouse gas emissions from all agricultural activities.
- Implementing more efficient manure handling.
- Determining a reduction of CO_2 emissions in relation to energy intensity.
- Quantifying impacts of the introduction of subsidies in the biomass production of agricultural crops.

In addition to the policies and measures listed above, the Industrial Emissions Directive regulates the emissions of major pollution sources, including large agricultural facilities. For more detailed description of the above mentioned PaMs see the EU First Biennial Report.

In addition to this an important tool of national mitigation strategy in the agriculture sector is:

BR1 – 4.5.1 Ordinance of the Government of the Slovak Republic No. 488/2010 Coll. on Conditions for Granting Subsidies in Agriculture through Direct Payments

The ordinance represents the national legal framework to meet the targets defined in the EU Common Agricultural Policy in the manure management and agricultural soils.

a) Manure management:

Provisions on measures for manure manipulation and processing in enteric fermentation:

GHG affected: CH_4

Type of the measure: regulatory and economic

Status: in force since 2010

Included in WEM scenario

New measures for manure manipulation and processing in enteric fermentation and new animal feeding policy:

GHG affected: CH_4

Type of the measure: regulatory and economic

Status: will be force since 2015

Included in WAM scenario

b) Agricultural soils:

Efficient use and appropriate timing of nitrogen inputs from mineral fertilizers:

GHG affected: N_2O

Type of the measure: regulatory and economic

Status: in force since 2010

Included in WEM scenario

Efficient use and appropriate timing of nitrogen inputs from mineral fertilizers after the year 2015:

GHG affected: N_2O

Type of the measure: regulatory and economic

Status: in force since 2015

Included in WAM scenario

BR1 – 4.5.2 Policies and Measures no Longer in Place

None of PaMs with significant effect on GHG emission reduction have been cancelled without replacement.

BR1 - 4.6 Sectoral Policies and Measures: Land Use, Land Use Change and Forestry

BR1 – 4.6.1 Rural Development Programme for the Period of 2014-2020

The program of financial support scheme for selected thematic priorities in rural development comprises 56 frame targets for specific policies and measures in this sector with positive environmental impacts. Contribution of supported PaMs to the sustainable development will serve as horizontal criteria for support.

GHG affected: emissions and sinks of CO_2

Type of the measure: regulatory with direct impact on emissions

Status: to be in force from 2015

BR1 - 4.7 Sectoral Policies and Measures: Waste

BR1 – 4.7.1 Act No. 409/2006 Consolidating Waste Act No. 223/2001 Coll. and its Previous Amendments

Its main goal is to meet EU targets for landfilling, including achievement of 60%share on waste management by 2030 for this type of waste treatment. One of the ways to achieve the goal is to increase composting activities conditionally.

GHG affected: CH_4 and N_2O

Type of the measure: regulatory

Status: in force since 2010

Included in WEM scenario

BR1 – 4.7.2 Policies and Measures no Longer in Place

None of PaMs with significant effect on GHG emission reduction have been cancelled without replacement.

BR1 - 5 PROJECTIONS

BR1 - 5.1 Introduction

This section presents projections of GHG emissions of the Slovak Republic up to 2030 for three scenarios: "with existing measures (WEM)", "with additional measures (WAM)" and "without measures (WOM)" reference scenario, divided by sectors, by gases and in aggregated form. Projections are presented for cross years 2010, 2015, 2020 and 2030. Projections of emissions related to fuel sold to ships and aircraft engaged in international transport are presented here, but they were not included in the projections totals.

BR1 - 5.1.1 Context

The year 2010 was determined as the reference year for greenhouse gas emission projections for all three scenarios and verified data sets from the national inventory of greenhouse gas emissions were used for modelling. The scenarios are presented in more details in the Section BR1 - 5.1.2. The gases covered are: CH_4, CO_2, N_2O and F-gases. The sectors covered are: Energy (including transport), Industry (including F-gases), Solvent and other product use, Agriculture, Waste, LULUCF and international transport.

BR1 - 5.1.2 Scenarios

Projections of GHG emissions were prepared for years 2015, 2020, 2025 and 2030 based on following scenarios:

- Without measures scenario (WOM) – projections exclude reductions expected from all measures adopted after 01/01/2010 and exclude impacts of all planned measures. Without measures scenario represents the reference scenario to define emission level when only measures adopted between the year 2000 and 2010 were considered and represents business as usual scenario type - BAU.
- With measures scenario (WEM) – projections reflect all measures implemented or adopted after the year 2010 with expected impact up to 2030.
- With additional measures scenario (WAM) – projections include WEM policies and additional measures officially planned to be adopted in the period up to 2030.

BR1 - 5.1.3 Key parameters and assumptions

Table BR1 - 5.1 presents key projection parameters as applied in the base year 2010 and cross years for projections. Table BR1 - 5.2 gives specific parameters applied for modelling in energy sector.

Table BR1 - 5.1: *Key parameters for projections*

Item	*Units*	2000	2005	2010	2015	2020	2025	2030
Gross Domestic Product	*10^9 EUR*	22.05	28.01	35.19	39.96	46.95	53.01	59.17
Gross domestic product growth rate	*%*	1.4	6.7	2.6	3.3	2.5	2.2	-
Population	*Thousand People*	5401	5387	5435	5416	5417	5340	5200
Population growth rate	*%*	-0.05	0.18	-0.07	0.003	-0.28	-0.53	-
International coal import prices	*EUR 2010/boe*	-	13.10	16.00	21.97	22.57	-	23.98
International oil import prices	*EUR 2010/boe*	-	46.50	60.00	85.97	88.54	-	93.13
International gas import prices	*EUR 2010/boe*	-	31.10	37.90	53.77	61.51	-	64.54
Carbon price in ETS	*EUR (2010 price)/t CO_2*	-	-	-	10	17	27	37

Table BR1 - 5.2: *Parameters applied for projections in relevant economical branches*

Item	*Units*	2010	2015	2020	2025	2030
Gross value-added total industry, Bio Euro (EC95) 2000	*EUR billion (EC95) 2000*	12.28	13.53	14.79	15.70	16.15
Metallurgy	*million EUR*	919.43	971.99	1 034.78	1 071.50	1 072.56
Chemicals	*million EUR*	1 215.91	1 431.84	1 695.90	1 954.44	2 181.28
Non-metallic minerals	*million EUR*	553.12	598.15	652.03	692.79	713.81
Paper and pulp	*million EUR*	1 109.10	1 201.78	1 312.61	1 400.17	1 448.40
Food, drink and tobacco	*million EUR*	993.99	1 096.25	1 219.87	1 323.23	1 394.84
Engineering	*million EUR*	3 920.44	4 564.48	5 352.06	6 113.74	6 770.89
Textiles	*million EUR*	608.76	616.03	622.84	606.80	566.05
Other industries	*million EUR*	778.29	843.64	921.92	981.95	1 016.49
Transportation sector						
Total kilometres by passenger cars	*million passenger km*	8 775.00	8 900.95	9 026.90	9 626.59	10 226.29
Road freight transport	*million tonne km*	37 682.00	45 036.11	52 390.23	60 777.63	69 165.04
Buildings (in residential, commercial or tertiary sector)						
Gross value-added - services	*Value (billion EUR) (EC95)*	16.23	18.96	23.64	28.67	33.70
The number of dwellings	*1 000 dwellings*	1 726.00	1 774.00	1 821.00	1 869.00	1 915.00

Input data on number of livestock used for the projections of GHG emissions in sector agriculture are shown in Table BR1 - 5.3.

Table BR1 - 5.3: *Projections of livestock number in the Slovak Republic (thousands of animals)*

Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030
Cattle total	1 563	983	646	527.9	467	428	379	347	304
Dairy cattle	549	355	271	230	204	171	146	124	105
Other cattle	1 014	628	375	298	263	257	233	223	200
Swine	2 035	1 644	1 099	1 045	687	676	772	878	971
Sheep and lambs	600	428	348	321	394	400	400	400	400
Goats	25	25	51	40	35	35	35	35	35
Horses	14	10	10	8	7	7	7	7	7
Poultry	16 478	13 382	12 446	14 084	12 992	13 000	13 000	13 000	13 000

BR1 - 5.2 Projections

BR1 - 5.2.1 Total Aggregate GHG Emission Projections

Projections of GHG emissions recalculated to CO_2 equivalents by using of officially agreed GWP values have been prepared for all IPCC sectors, defined cross years and according to relevant scenarios. Table BR1 - 5.4 gives the results of modelling data in summary by sectors.

Table BR1 - 5.4: *Total aggregate GHG emission projections by sectors (Gg CO_2 eq.)*

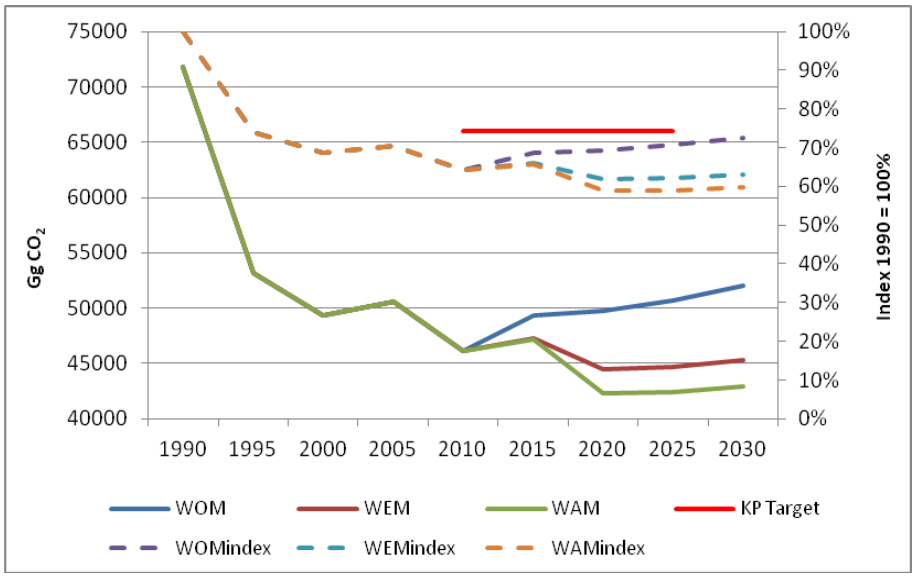
WOM	1990	1995	2000	2005	2010	2015	2020	2025	2030
Total excluding LULUCF	71 781.8	53 211.9	49 298.7	50 596.3	46 114.1	49 357.6	49 782.3	50 733.4	51 993.0
Total including LULUCF	61 762.7	42 433.4	38 584.8	44 493.4	40 025.7	40 919.5	40 752.9	41 112.8	41 804.8
1. Energy	53 875.8	38 947.7	35 646.6	35 500.6	32 007.8	34 805.2	34 886.9	35 492.6	36 444.1
of which transport	4 887.6	4 243.2	4 150.3	6 162.5	6 652.5	7 064.9	7 365.7	7 897.3	8 435.8
2. Industrial Processes	9 543.3	8 552.3	8 294.0	9 407.0	8 621.5	9 538.3	10 127.0	10 395.8	10 554.8
3. Solvent and Other Product Use	147.2	121.5	85.0	171.5	164.3	153.0	151.2	150.8	145.8
4. Agriculture	7 124.3	4 357.6	3 496.0	3 171.0	3 098.3	2 888.6	2 918.8	2 947.8	2 970.9
6. Waste	1 091.3	1 232.7	1 777.0	2 346.1	2 222.2	1 972.5	1 698.3	1 746.4	1 877.3
5. LULUCF	-10 019.1	-10 778.6	-10 713.9	-6 102.9	-6 088.4	-8 438.2	-9 029.4	-9 620.5	-10 188.2
WEM	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
Total excluding LULUCF	71 781.8	53 211.9	49 298.7	50 596.3	46 114.1	47 310.1	44 492.4	44 647.8	45 290.9
Total including LULUCF	61 762.7	42 433.4	38 584.8	44 493.4	40 025.7	38 871.9	35 463.0	35 027.2	35 102.7
1. Energy	53 875.8	38 947.7	35 646.6	35 500.6	32 007.8	33 817.2	31 200.3	31 320.9	31 931.4
of which transport	4 887.6	4 243.2	4 150.3	6 162.5	6 652.5	7 064.5	7 365.8	7 896.9	8 435.5
2. Industrial Processes	9 543.3	8 552.3	8 294.0	9 407.0	8 621.5	8 851.5	9 256.2	9 502.4	9 668.0
3. Solvent and Other Product Use	147.2	121.5	85.0	171.5	164.3	143.2	139.6	135.0	130.0
4. Agriculture	7 124.3	4 357.6	3 496.0	3 171.0	3 098.3	2 670.1	2 577.2	2 547.7	2 487.8
6. Waste	1 091.3	1 232.7	1 777.0	2 346.1	2 222.2	1 828.0	1 319.2	1 141.7	1 073.6
5. LULUCF	-10 019.1	-10 778.6	-10 713.9	-6 102.9	-6 088.4	-8 438.2	-9 029.4	-9 620.5	-10 188.2

WAM	1990	1995	2000	2005	2010	2015	2020	2025	2030
Total excluding LULUCF	71 781.8	53 211.9	49 298.7	50 596.3	46 114.1	47 167.0	42 294.8	42 360.4	42 940.8
Total including LULUCF	61 762.7	42 433.4	38 584.8	44 493.4	40 025.7	38 659.8	32 912.4	32 445.8	32 520.5
1. Energy	53 875.8	38 947.7	35 646.6	35 500.6	32 007.8	33 811.8	29 448.5	29 569.5	30 179.9
of which transport	4 887.6	4 243.2	4 150.3	6 162.5	6 652.5	7 064.9	7 365.7	7 897.3	8 435.8
2. Industrial Processes	9 543.3	8 552.3	8 294.0	9 407.0	8 621.5	8 851.5	9 028.0	9 195.1	9 272.9
3. Solvent and Other Product Use	147.2	121.5	85.0	171.5	164.3	143.0	111.6	83.5	82.2
4. Agriculture	7 124.3	4 357.6	3 496.0	3 171.0	3 098.3	2 532.7	2 387.5	2 370.6	2 332.1
6. Waste	1 091.3	1 232.7	1 777.0	2 346.1	2 222.2	1 828.0	1 319.2	1 141.7	1 073.6
5. LULUCF	-10 019.1	-10 778.6	-10 713.9	-6 102.9	-6 088.4	-8 507.2	-9 382.4	-9 914.6	-10 420.4

Figure BR1 - 5.1 shows historical and projected data for total aggregate GHG emissions according to three scenarios for period 1990-2030. Trends of curves indicate that our reduction target under the Kyoto Protocol for the second commitment period is already achievable in the WEM scenario.

The measures used in the WEM and WAM scenarios have influence on GHG reductions only until 2020. We have used linear model and therefore after 2020 GHG emissions are slowly increasing due to expected economic growth which was considered. Projections after the year 2020 neither in WEM nor in WAM still do not reflect any positive impact of reduction measures due to the fact that energy and climate policy framework by 2030 in the Slovak Republic as well as the EU is still only in the preparation. This framework would include mitigation policies and measures and will be reflected in the next Biennial Report of the Slovak Republic.

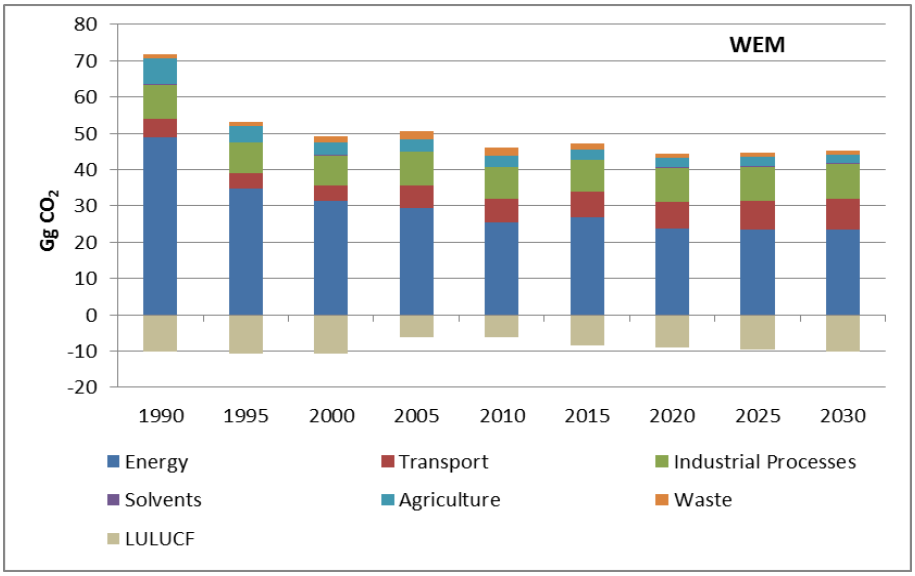
Figure BR1 - 5.1: *Total aggregate GHG emission projections (Gg CO_2 eq.)*

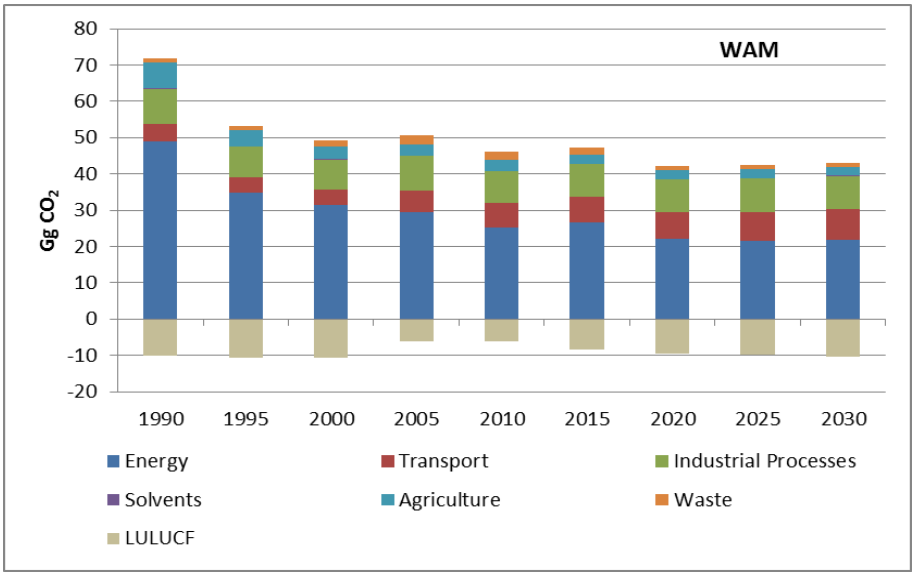


BR1 - 5.2.1.1 Total Aggregate GHG Emission Projections per Sector

Figure BR1 - 5.2 illustrates a quantitative evaluation of sectoral shares on projections for WEM and WAM scenarios, detailed figures are presented in the CTF Table 6(a/c) in the CTF Annex.

Figures BR1 - 5.2: *Sectoral shares of aggregated GHG emissions projection – WEM and WAM scenario*





As it is shown in Figure BR1 - 5.2 for PaMs involved in the WEM and WAM scenarios we do not expect significant changes in sectoral contributions to the total GHG emissions up to 2030. For stronger reductions or changes in sectoral shares we would have to apply specific and more ambitious sectoral policies. Table BR1 - 5.5 gives the figures of relative changes in GHG emissions for different sectors.

Table BR1 - 5.5: *GHG emission changes from 1990 to 2020 and 2030; WEM and WAM scenario*

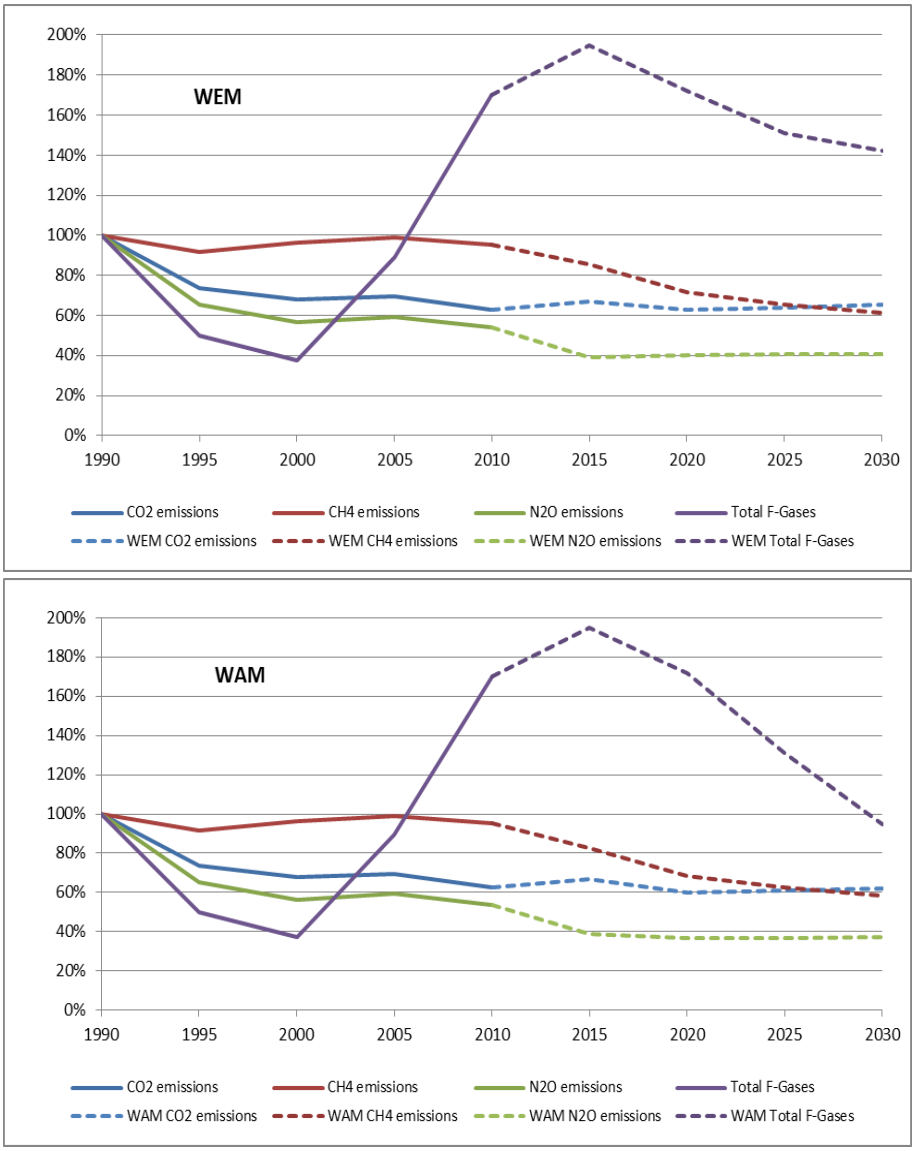
	WEM 2020	WEM 2030	WAM 2020	WAM 2030
Energy	-25 153.8	-25 492.3	-26 905.6	-27 244.1
Transport	2 478.2	3547.9	2 478.2	3 548.2
Industrial Processes	-287.1	124.8	-515.3	-270.3
Solvents	-7.6	-17.2	-35.5	-64.9
Agriculture	-4 547.1	-4 636.5	-4 736.8	-4 792.1
Waste	227.9	-17.7	227.9	-17.7
Total (without LULUCF)	-27 289.4	-26 491.0	-29 487.1	-28 841.0

Figure BR1 - 5.3: *Absolute projected GHG emission changes from 1990 to 2020 and 2030; WEM and WAM scenario*

BR1 - 5.2.1.2 Total Aggregate GHG Emission Projections per Gas

Figures BR1 - 5.4 show aggregated projections of GHG emissions from individual greenhouse gases between 1990 and 2030, for the WEM and WAM scenarios. For absolute values please refer to CTF Table 6 (a)/(c) in the Annex 2 of the BR1 SR.

Figures BR1 - 5.4: *GHG emissions per gas relative to 1990; WEM and WAM scenario*



By 2020 in the WEM and WAM scenarios we expect a decrease of all greenhouse gases except F-gases. The F-gases are expected to peak by 2015 and then with the help of then implemented measures, such as Regulation on F-gases and others, we expect their decrease by 2030. Although the increase in Figures 5.4 seems a substantial, their share on country's overall GHG emissions is small; therefore we do not expect any complication with fulfilment of our reduction commitments.

BR1 – 5.2.2 Sector Energy Including Transport

Sector energy produces GHG emissions from combustion and transformation of fossil fuels. Fugitive methane emissions are generated during the fossil fuel extraction, transport and processing.

The model MESSAGE was used for stationary energy sources, i.e. IPCC sectors 1A1, 1A2, 1A4 and 1A5, while model TREMOVE was used for transportation sector 1A3. In scenario

WOM all implemented measures in the base year 2010 were included to calculate emission level. Emission levels in the cross years are determined by the final energy growth rate only.

Scenario WEM comprises following measures:

- Act No. 414/2012 Coll. on mission trading in amendments;
- National action plan for biomass use, Government Resolution of the SR No. 130/2008;
- National Renewable Energy Action Plan, Government Resolution of the SR No. 677/2010 concept on energy efficiency in buildings by 2010 overlooking to 2020, Governmental Resolution of the SR No. 336/2012;
- Regulation of the Government of SR No. 242/2008 Coll. amending the Regulation of the Government SR No 583/2006 Coll. on technical requirements for reduction of emissions of pollutants from diesel engines and spark-ignition engines driven by natural gas or liquefied petroleum gas;
- Regulation 510/2011/EC on setting emission performance standards for new light commercial vehicles as part of the Union's integrated approach to reduce CO_2 emissions from light-duty vehicles;
- Regulation 692/2008/EC of 18 July 2008 implementing and amending Regulation 715/2007/EC of the European Parliament and of the Council on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information.

Scenario WAM comprises the following measures:

- Concept on Energy Efficiency in Buildings by 2010 overlooking to 2020, Governmental Resolution of the SR No. 336/2012;
- Act No. 258/2011 Coll. on carbon capture storage to the geological environment;
- Act No. 158/2011 Coll. on support for energy;
- Regulation 692/2008/EC of 18 July 2008 implementing and amending Regulation 715/2007/EC of the European Parliament and of the Council on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information.

For the detailed description of the measures, please refer also to Chapter BR1 - 4.

BR1 – 5.2.2.1 Projections of CO_2 Emissions in Energy Sector Including Transport

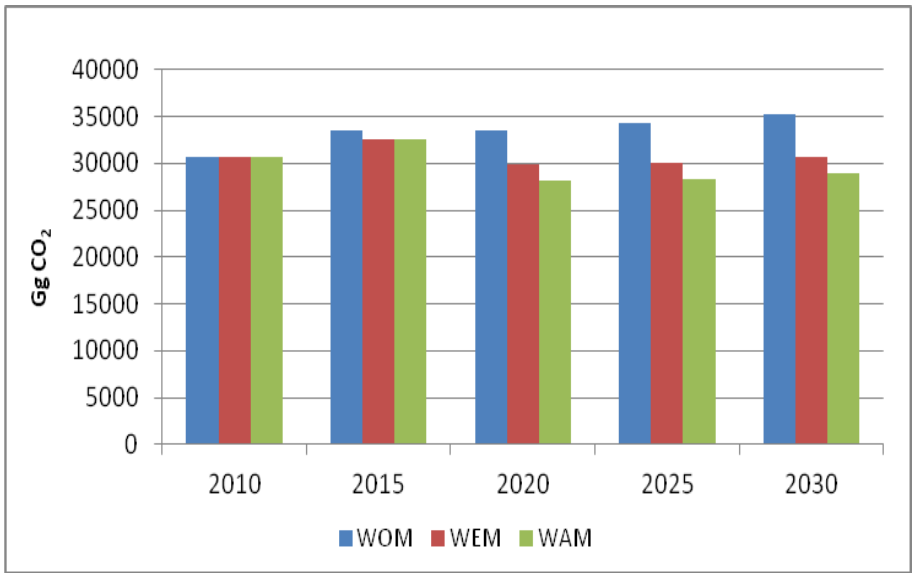
Figure BR1 - 5.5 shows the results of modelling for projections of CO_2 emissions in the energy and transport sector. Anticipated dynamics of economic growth will lead to the

increase in CO_2 emissions. In spite of this trend, achievement of reduction target of the Slovak Republic under the Kyoto Protocol during the second commitment period seems to be realistic with PaMs as included to the WEM and WAM scenarios.

Table BR1 - 5.6: *Projections of CO_2 emissions in energy sector (Gg)*

WOM	**2010**	**2015**	**2020**	**2025**	**2030**
1. Energy	**30 649.39**	**33 504.20**	**33 583.68**	**34 242.83**	**35 216.87**
1A Fuel Combustion Activities	30 649.21	33 504.02	33 583.50	34 242.64	35 216.69
1A1 Energy Industries	9 469.70	11 665.84	11 179.65	11 107.27	11 154.86
1A2 Manufacturing Industries and Construction	9 290.95	9 376.47	9 321.52	9 057.93	8 820.15
1A3 Transport	6 557.09	6 967.37	7 269.74	7 794.84	8 325.77
1A4 Other Sectors	4 395.90	4 559.01	4 878.77	5 355.79	5 995.33
1A5 Other	935.56	935.33	933.82	926.80	920.57
1B Fugitive Emissions from Fuels	0.19	0.18	0.18	0.18	0.18
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
1. Energy	**30 649.39**	**32 526.78**	**29 922.30**	**30 101.35**	**30 737.72**
1A Fuel Combustion Activities	30 649.21	32 526.60	29 922.12	30 101.17	30 737.54
1A1 Energy Industries	9 469.70	10 994.71	9 145.86	8 587.15	8 288.45
1A2 Manufacturing Industries and Construction	9 290.95	9 308.13	8 791.77	8 543.60	8 321.65
1A3 Transport	6 557.09	6 967.37	7 269.70	7 794.83	8 325.77
1A4 Other Sectors	4 395.90	4 321.88	3 809.10	4 276.64	4 908.69
1A5 Other	935.56	934.51	905.69	898.96	892.98
1B Fugitive Emissions from Fuels	0.19	0.18	0.18	0.18	0.18
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
1. Energy	**30 649.39**	**32 521.11**	**28 182.25**	**28 361.27**	**28 997.61**
1A Fuel Combustion Activities	30 649.21	32 520.92	28 182.07	28 361.09	28 997.43
1A1 Energy Industries	9 469.70	10 993.01	7 484.53	6 925.82	6 627.11
1A2 Manufacturing Industries and Construction	9 290.95	9 308.06	8 790.78	8 542.61	8 320.67
1A3 Transport	6 557.09	6 967.37	7 269.74	7 794.84	8 325.77
1A4 Other Sectors	4 395.90	4 317.97	3 731.32	4 198.86	4 830.90
1A5 Other	935.56	934.51	905.69	898.96	892.98
1B Fugitive Emissions from Fuels	0.19	0.18	0.18	0.18	0.18

Figure BR1 - 5.5: *Projections of CO_2 emissions according to developed scenarios in energy sector*



BR1 – 5.2.2.2 Projections of CH_4 Emissions in Energy Sector Including Transport

Energy-related CH_4 emissions originate from the combustion and transformation of fossil fuel. Fugitive methane emissions arise from the extraction transport and processing of fuels. The projections of CH_4 emissions from the combustion and transformation of fossil fuels have been prepared based on assumptions of fossil fuel consumptions using the IPCC method and recommended IPCC aggregated emission factors. To calculate CH_4 emissions in transport sector we used emission factors of the model COPERT IV for individual types of vehicle. For modelling we have used the same scenarios as for CO_2 emissions from the combustion and transformation of fuels (see Section BR1 –5.2.2). This approach allows us to quantify possible impact of measures primarily focused on reduction of CO_2 emissions also on the level of CH_4 emissions. The annual fugitive emissions of CH_4 have been calculated for the following activities (see Table BR1 - 5.7):

- Underground mining and post-mining activities;
- Transport and processing of oil and oil products;
- Extraction and transport of natural gas;
- Venting and flaring.

Table BR1 - 5.7: *Projections of CH_4 emissions in energy sector (Gg)*

WOM	2010	2015	2020	2025	2030
1. Energy	**57.23**	**53.80**	**53.87**	**50.74**	**49.03**
1A Fuel Combustion Activities	7.32	7.45	7.81	8.40	9.30
1A3 Transport	0.72	0.53	0.40	0.27	0.18
1B Fugitive Emissions from Fuels	49.91	46.35	46.06	42.35	39.73
1B1a Coal Mining and Handling	15.23	13.00	12.70	8.98	6.37
1B2 Oil and Natural Gas	34.68	33.36	33.37	33.37	33.37
1B2a. Oil	0.10	0.07	0.05	0.05	0.05
1B2b Natural Gas	31.74	30.55	30.59	30.59	30.58
1B2c Venting and Flaring	2.84	2.73	2.73	2.73	2.73
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
1. Energy	**57.23**	**53.43**	**53.03**	**49.81**	**48.03**
1A Fuel Combustion Activities	7.32	7.08	6.96	7.47	8.30
1A3 Transport	0.72	0.53	0.40	0.27	0.18
1B Fugitive Emissions from Fuels	49.91	46.35	46.06	42.35	39.73
1B1a Coal Mining and Handling	15.23	13.00	12.70	8.98	6.37
1B2 Oil and Natural Gas	34.68	33.36	33.37	33.37	33.37
1B2a. Oil	0.10	0.07	0.05	0.05	0.05
1B2b Natural Gas	31.74	30.55	30.59	30.59	30.58
1B2c Venting and Flaring	2.84	2.73	2.73	2.73	2.73
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
1. Energy	**57.23**	**53.43**	**52.89**	**49.67**	**47.89**
1A Fuel Combustion Activities	7.32	7.07	6.82	7.32	8.15
1A3 Transport	0.72	0.53	0.40	0.27	0.18
1B Fugitive Emissions from Fuels	49.91	46.35	46.06	42.35	39.73
1B1a Coal Mining and Handling	15.23	13.00	12.70	8.98	6.37
1B2 Oil and Natural Gas	34.68	33.36	33.37	33.37	33.37
1B2a. Oil	0.10	0.07	0.05	0.05	0.05
1B2b Natural Gas	31.74	30.55	30.59	30.59	30.58
1B2c Venting and Flaring	2.84	2.73	2.73	2.73	2.73

BR1 – 5.2.2.3 Projections of N_2O Emissions in Energy Sector Including Transport

The energy related N_2O emissions arise from the combustion and transformation of fossil fuels. The production of N_2O emissions from transport activities has also been calculated within this sector. Similarly to methane gas emissions, the projections of N_2O emissions were calculated by means of IPCC method and use of recommended emission factors. In transport sector the emission factors for individual types of vehicles were used from the model COPERT IV. Scenarios for the calculation of emissions from combustion and transformation

of fuels are the same as the scenarios for CO_2 and CH_4 emissions. This allows for comparisons and analyses of impacts of measures primarily focused on reduction of CO_2 emissions to production of N_2O.

Table BR1 - 5.8: *Projections of N_2O emissions in energy sector (Gg)*

WOM	**2010**	**2015**	**2020**	**2025**	**2030**
1. Energy	**0.51**	**0.55**	**0.55**	**0.59**	**0.64**
1A Fuel Combustion Activities	0.51	0.55	0.55	0.59	0.64
1A1 Energy Industries	0.10	0.12	0.12	0.12	0.12
1A2 Manufacturing Industries and Construction	0.05	0.05	0.05	0.05	0.05
1A3 Transport	0.26	0.28	0.28	0.31	0.34
1A4 Other Sectors	0.09	0.09	0.10	0.11	0.13
1A5 Other	0.004	0.004	0.004	0.004	0.004
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
1. Energy	**0.51**	**0.54**	**0.53**	**0.56**	**0.60**
1A Fuel Combustion Activities	0.51	0.54	0.53	0.56	0.60
1A1 Energy Industries	0.10	0.12	0.10	0.10	0.09
1A2 Manufacturing Industries and Construction	0.05	0.06	0.06	0.05	0.05
1A3 Transport	0.26	0.28	0.28	0.31	0.34
1A4 Other Sectors	0.09	0.09	0.09	0.10	0.11
1A5 Other	0.004	0.003	0.003	0.003	0.003
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
1. Energy	**0.51**	**0.54**	**0.50**	**0.53**	**0.57**
1A Fuel Combustion Activities	0.51	0.54	0.50	0.53	0.57
1A1 Energy Industries	0.10	0.12	0.08	0.07	0.06
1A2 Manufacturing Industries and Construction	0.05	0.06	0.06	0.05	0.05
1A3 Transport	0.26	0.28	0.28	0.31	0.34
1A4 Other Sectors	0.09	0.09	0.09	0.10	0.11
1A5 Other	0.004	0.003	0.003	0.003	0.003

BR1 – 5.2.2.4 Total Aggregate GHG Emission Projections in Energy Sector Including Transport

Table BR1 - 5.9 shows historical and projected data of total aggregate GHG emissions in sector energy, including transport. Figure BR1 - 5.6 shows the comparison of projected emissions in sector energy in CO_2 equivalents by 2020 for all scenarios as well as their index of emission level towards the IPCC base year 1990.

Table BR1 - 5.9: *Total aggregate GHG emission projections in energy sector, including transport (Gg CO_2 eq.)*

WOM	2010	2015	2020	2025	2030
1. Energy	32 007.8	34 805.2	34 886.9	35 492.6	36 444.1
1A Fuel Combustion Activities	**30 959.6**	**33 831.6**	**33 919.4**	**34 603.2**	**35 609.6**
1A1 Energy Industries	9 506.9	11 711.6	11 222.8	11 150.5	11 198.4
1A2 Manufacturing Industries and Construction	9 316.4	9 402.1	9 346.9	9 082.1	8 843.3
1A3 Transport	6 652.5	7 064.9	7 365.7	7 897.3	8 435.8
1A4 Other Sectors	4 545.2	4 714.6	5 047.2	5 543.4	6 208.5
1A5 Other	938.6	938.4	936.9	929.8	923.6
1B Fugitive Emissions from Fuels	**1 048.2**	**973.6**	**967.5**	**889.4**	**834.5**
1B1 Solid Fuels	319.7	273.0	266.6	188.5	133.7
1B2 Oil and Natural Gas	728.5	700.7	700.9	700.9	700.8
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
1. Energy	32 007.8	33 817.2	31 200.3	31 320.9	31 931.4
1A Fuel Combustion Activities	**30 959.6**	**32 843.6**	**30 232.7**	**30 431.5**	**31 096.9**
1A1 Energy Industries	9 506.9	11 038.8	9 182.9	8 621.6	8 321.2
1A2 Manufacturing Industries and Construction	9 316.4	9 334.4	8 818.1	8 568.4	8 345.2
1A3 Transport	6 652.5	7 064.5	7 365.8	7 896.9	8 435.5
1A4 Other Sectors	4 545.2	4 468.3	3 957.6	4 442.8	5 099.4
1A5 Other	938.6	937.5	908.4	901.7	895.7
1B Fugitive Emissions from Fuels	**1 048.2**	**973.6**	**967.5**	**889.4**	**834.5**
1B1 Solid Fuels	319.7	273.0	266.6	188.5	133.7
1B2 Oil and Natural Gas	728.5	700.7	700.9	700.9	700.8
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
1. Energy	32 007.8	33 811.8	29 448.5	29 569.5	30 179.9
1A Fuel Combustion Activities	**30 959.6**	**32 838.1**	**28 480.9**	**28 680.1**	**29 345.4**
1A1 Energy Industries	9 506.9	11 037.1	7 513.0	6 951.7	6 651.3
1A2 Manufacturing Industries and Construction	9 316.4	9 334.4	8 817.1	8 567.5	8 344.2
1A3 Transport	6 652.5	7 064.9	7 365.7	7 897.3	8 435.8
1A4 Other Sectors	4 545.2	4 464.2	3 876.6	4 361.9	5 018.4
1A5 Other	938.6	937.5	908.4	901.7	895.7
1B Fugitive Emissions from Fuels	**1 048.2**	**973.6**	**967.5**	**889.4**	**834.5**
1B1 Solid Fuels	319.7	273.0	266.6	188.5	133.7
1B2 Oil and Natural Gas	728.5	700.7	700.9	700.9	700.8

Figure BR1 - 5.6: *Total aggregate GHG emission projections in energy sector, including transport*

BR1 – 5.2.3 Sector Industrial Processes Including F-gases

PAMs implemented in the industrial processes sector do not have a significant impact on the emission production in this sector. The reason is that the major source for this sector is CO_2 emissions production directly driven by the stoichiometry of chemical transformation during the production. The significant N_2O emission reduction is therefore possible only through reduction of production volume or, in limited scale, through technological innovations. CO_2 emissions can be reduced by implementing the reduction measures in the energy part of production. The implemented policy is F-gases regulation 842/2006/EC on certain fluorinated GHGs regulates production and use of F-gases. A new proposal for regulation on F-gases is planned in the EU next year. The replacement of the F-gases with other substances and introducing new technologies are the major measures to reduce these emissions.

BR1 – 5.2.3.1 Projections of CO_2 Emissions in Industrial Processes Including F-gases

The drivers for projections in the mineral, chemical and metallurgy industries were sectoral value added growth rates. These drivers will determine non-energy CO_2 projections. Due to the fact, that the emission production is influenced only by stoichiometry, only one scenario was followed in these categories, except for category 2A3 Limestone and dolomite use. Production of CO_2 emissions in this category depends directly on the production of construction materials and the use of mineral raw materials. Projections of emissions reflect gradual increase of the production by 2030. In the category 2A3 Limestone and dolomite use we have followed also the WAM scenario where coal power plants with desulphurization will be closed and no limestone will be further used for this technology. Measures connected with the fuel consumption and increasing share of renewable energy sources were already included in projections for energy sector (category 1A2f). Table BR1 - 5.10 shows GHG emission projections for sector of industrial processes. Projections of emissions in chemical industry

and metal production categories were prepared by WEM and WAM scenarios, while the WAM scenario is identical with the WEM.

Table BR1 - 5.10: *Projections of CO_2 emissions in sector of industrial processes (in Gg)*

WEM	2010	2015	2020	2025	2030
2. Industrial Processes	**7 254.52**	**7 885.30**	**8 262.12**	**8 564.36**	**8 754.29**
2A Mineral Products	**2 303.17**	**2 869.14**	**3 127.56**	**3 323.10**	**3 423.93**
2A1 Cement Production	844.58	1 291.82	1 408.17	1 496.21	1 541.61
2A2 Lime Production	728.80	788.12	859.11	912.82	940.52
2A3 Limestone and Dolomite Use	340.31	368.01	401.16	426.24	439.17
2A7 Other	389.49	421.19	459.12	487.83	502.63
2B Chemical Industry	**703.75**	**743.50**	**841.50**	**940.20**	**1 029.10**
2B1 Ammonia Production	484.65	480.50	578.50	677.20	766.10
2B4 Carbide Production	219.10	263.00	263.00	263.00	263.00
2C Metal Production	**4 247.59**	**4 272.66**	**4 293.06**	**4 301.06**	**4 301.26**
2C1 Iron and Steel Production	3 807.76	3 807.76	3 807.76	3 807.76	3 807.76
2C2 Ferroalloys Production	200.45	211.90	225.60	233.60	233.80
2C3 Aluminium Production	239.38	253.00	259.70	259.70	259.70
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
2. Industrial Processes	**7 254.52**	**7 885.30**	**8 174.65**	**8 451.81**	**8 628.81**
2A Mineral Products	**2 303.17**	**2 869.14**	**3 040.09**	**3 210.55**	**3 298.45**
2A1 Cement Production	844.58	1 291.82	1 408.17	1 496.21	1 541.61
2A2 Lime Production	728.80	788.12	859.11	912.82	940.52
2A3 Limestone and Dolomite Use	340.31	368.01	313.69	313.69	313.69
2A7 Other	389.49	421.19	459.12	487.83	502.63
2B Chemical Industry	**703.75**	**743.50**	**841.50**	**940.20**	**1 029.10**
2B1 Ammonia Production	484.65	480.50	578.50	677.20	766.10
2B4 Carbide Production	219.10	263.00	263.00	263.00	263.00
2C Metal Production	**4 247.59**	**4 272.66**	**4 293.06**	**4 301.06**	**4 301.26**
2C1 Iron and Steel Production	3 807.76	3 807.76	3 807.76	3 807.76	3 807.76
2C2 Ferroalloys Production	200.45	211.90	225.60	233.60	233.80
2C3 Aluminium Production	239.38	253.00	259.70	259.70	259.70

BR1 – 5.2.3.2 Projections of CH_4 emissions in the Industrial Processes Including F-gases

Productions of ammonia and ferroalloys are the main sources of methane emissions in sector of industrial processes in the Slovak Republic. Outcomes from projections are shown in Table BR1 - 5.11. Methane emissions are directly connected with the consumption of natural gas (and thus with the production of ammonia) and with the production of ferrosilicium alloys. Therefore, only one scenario (WEM) was assumed, based on the value added growth rate.

Table BR1 - 5.11: *Projections of CH_4 emissions from ammonia and ferroalloys production (in Gg)*

WEM	2010	2015	2020	2025	2030
2 Industrial Processes	**0.07**	**0.07**	**0.08**	**0.09**	**0.10**
2B Chemical Industry	**0.04**	**0.04**	**0.05**	**0.06**	**0.07**
2B1 Ammonia Production	0.04	0.04	0.05	0.06	0.07
2C Metal Production	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**
2C2 Ferroalloys Production	0.03	0.03	0.03	0.03	0.03

BR1 – 5.2.3.3 Projections of N_2O Emissions in Industrial processes Including F-gases

Nitric acid production is the major source of N_2O emissions. Nitric acid is produced in two plants. In 2010, improved technology with secondary catalyst was used in one plant. This led to reduction of N_2O emissions. After inclusion of this production within the scope of EU ETS it has stimulated further measures leading to reduction of emissions. The other source of N_2O emission (using of natural gas for the production of ammonia) is negligible. Modelling results are presented in Table BR1 - 5.12:

- Scenario without measures (WOM) – scenario is assuming the same usage of the capacity of secondary catalyst technology as was in 2010. Maximum production capacity will be reached in 2020.
- Scenario with existing measures (WEM) – scenario is assuming exploitation of full capacity for the secondary catalyst technology. Maximum production capacity will be reached in 2020. In this scenario also the impact of the Act No. 414/2012 Coll. on emission trading (inclusion into the ETS) was followed.
- Scenario with additional measures (WAM) – scenario is assuming implementation of similar technology with secondary catalyst also in the second production plant. Maximum production capacity will be reached in 2020.

Table BR1 - 5.12: *Projections of N_2O emissions from ammonia and nitric acid production (in Gg)*

WOM	2010	2015	2020	2025	2030
2 Industrial Processes	**2.92**	**3.50**	**4.23**	**4.23**	**4.23**
2B Chemical Industry	2.92	3.50	4.23	4.23	4.23
2B1 Ammonia Production	0.00	0.00	0.00	0.00	0.00
2B2 Nitric Acid Production	2.92	3.50	4.23	4.23	4.23
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
2 Industrial Processes	**2.92**	**1.41**	**1.70**	**1.70**	**1.70**
2B Chemical Industry	2.92	1.41	1.70	1.70	1.70
2B1 Ammonia Production	0.00	0.00	0.00	0.00	0.00
2B2 Nitric Acid Production	2.92	1.41	1.70	1.70	1.70

WAM	2010	2015	2020	2025	2030
2 Industrial Processes	**2.92**	**1.41**	**1.24**	**1.24**	**1.24**
2B Chemical Industry	2.92	1.41	1.24	1.24	1.24
2B1 Ammonia Production	0.00	0.00	0.00	0.00	0.00
2B2 Nitric Acid Production	2.92	1.41	1.24	1.24	1.24

BR1 – 5.2.3.4 Projections of PFCs, HFCs and SF_6 Emissions in Industrial Processes Including F-gases

During the aluminium production, perfluorocarbons CF_4 a C_2F_6 emissions are produced. These emissions are produced by the technological perturbation known as anode effect. This effect is connected with the quality of technological process. This quality is very high in Slovakia, therefore these emissions are low. After inclusion of this production activity into the scope of EU ETS, some further measures to reduce emissions have been considered.

Applied scenarios:

- Scenario without measures (WOM) – this scenario is assuming the same parameters for quality control processes in production chain as implemented in 2010.
- Scenario with existing measures (WEM) – this scenario is assuming increasing quality control processes in production chain and including of this production activity into the scope of EU ETS.

In both scenarios we assumed that maximum production of aluminium will be reached in 2015. There is no information about plans for opening a new electrolysis hall in the current plant for aluminium production, so we do not expect any increase in production. Figures for projected emissions of PFCs from aluminium production are presented in Table BR1 - 5.13.

Table BR1 - 5.13: *Projections of PFCs emissions in the sector of industrial processes (Gg CO_2 eq.)*

WOM	2010	2015	2020	2025	2030
2C3 Aluminium Production	21.2	22.4	22.4	22.4	22.4
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
2C3 Aluminium Production	21.2	17.9	17.9	17.9	17.9

Fluorinated gases (F-gases) belongs to three basic groups of greenhouse gases (HFCs, PFCs and SF_6) defined in the Annex A to the Kyoto Protocol. These substances have replaced the ozone depleting freons and are monitored under the Montreal Protocol. Projections of F-gases emissions are complicated due to a relatively high number of various mixtures of gases. Some mixtures can contain 12 different gases in different shares. Currently implemented policies and measures in the EU concerning F-gases were considered in the WEM scenario. Application of new natural cooling agents (as ammonia or CO_2) has influenced emission projections' trends. It is not possible to predict accurately trends for the fire extinguishers' emissions. The F-gases emissions with a high GWP have significant impact on emission level. Measures to reduce emissions in this sector are based mostly on selection of appropriate

equipment, filling media and connected services. This also allows replacing of several gases or excluding it from the use. Projected emissions of HFCs and SF_6 according to the WOM, WEM and WAM scenarios are summarized in Tables BR1 - 5.14 and 5.15:

- Scenario without measures (WOM) – this scenario is assuming late introduction of new F-gases and later utilization of new technologies. The emission factor will not decrease and increasing trend of potential emissions from cooling agents will not be stabilized.
- Scenario with existing measures (WEM) – this scenario is assuming the full implementation of adopted PAMs (F-gas Regulation 842/2006/EC), including inspections of fugitive emissions, recycling of cooling agents and products and use of new gases. Decrease in consumption is projected after 2012, when HFCs gases will be excluded from new mobile air-conditioning equipment. After 2015, introduction of new natural cooling agents is proposed after expiration of HFCs utilization and recycling. These measures are not applied at the moment due to high investment costs.
- Scenario with additional measures (WAM) – this scenario is assuming implementation of new measures for foam agents, such as expected cancellation of their usage after 2020. Utilization of gases with high GWP will be stopped in refrigeration and air conditioning equipment. Shift to the use of gases with lower GWP will occur also in aerosols and fire extinguishers. The service of electrical equipment will be on the level of the best available technologies for cooling and air-conditioning industry. These measures will be considered in a new proposal for F-gases regulation.

Table BR1 - 5.14: *Projections of HFCs emissions in sector industrial processes (Gg CO_2 eq.)*

WOM	2010	2015	2020	2025	2030
2. Industrial Processes	**420.49**	**521.40**	**507.80**	**473.20**	**441.10**
2F Consumption of Halocarbons and SF_6	420.49	521.40	507.80	473.20	441.10
2F1 Refrigeration and Air Conditioning Equipment	397.73	498.80	485.30	450.80	418.80
2F2 Foam Blowing	1.80	1.60	1.50	1.40	1.30
2F3 Fire Extinguishers	13.88	13.90	13.90	13.90	13.90
2F4 Aerosols/ Metered Dose Inhalers	7.08	7.10	7.10	7.10	7.10
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
2. Industrial Processes	**420.49**	**489.10**	**425.80**	**369.60**	**345.10**
2F Consumption of Halocarbons and SF_6	420.49	489.10	425.80	369.60	345.10
2F1 Refrigeration and Air Conditioning Equipment	397.73	466.50	406.80	354.70	334.10
2F2 Foam Blowing	1.80	1.60	1.50	1.30	1.10
2F3 Fire Extinguishers	13.88	13.90	11.10	7.80	4.70
2F4 Aerosols/ Metered Dose Inhalers	7.08	7.10	6.40	5.80	5.20
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
2. Industrial Processes	**420.49**	**489.10**	**425.80**	**317.90**	**222.60**
2F Consumption of Halocarbons and SF_6	420.49	489.10	425.80	317.90	222.60
2F1 Refrigeration and Air Conditioning Equipment	397.73	466.50	406.80	305.10	213.60
2F2 Foam Blowing	1.80	1.60	1.50	0.00	0.00
2F3 Fire Extinguishers	13.88	13.90	11.10	7.40	4.40
2F4 Aerosols/ Metered Dose Inhalers	7.08	7.10	6.40	5.40	4.60

Table BR1 - 5.15: *Projections of SF_6 emissions in sector industrial processes (Gg CO_2 eq.)*

WOM	2010	2015	2020	2025	2030
2. Industrial Processes	19.90	21.90	22.90	23.90	24.90
2F8 Electrical Equipment	19.90	21.90	22.90	23.90	24.90
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
2. Industrial Processes	19.90	21.90	22.90	22.90	22.90
2F8 Electrical Equipment	19.90	21.90	22.90	22.90	22.90
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
2. Industrial Processes	19.90	21.90	22.90	20.60	16.50
2F8 Electrical Equipment	19.90	21.90	22.90	20.60	16.50

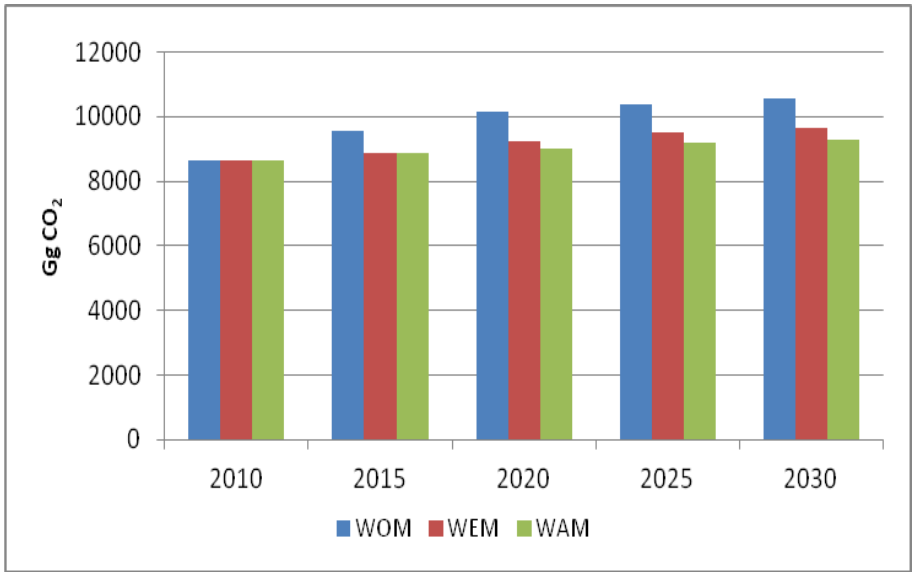
BR1 – 5.2.3.5 Total Aggregate GHG Emission Projections in Sector Industrial Processes Including F-gases

Table BR1 - 5.16 and Figure BR1 - 5.7 gives aggregated data of projections for technological GHG emissions in sector industrial processes including F-gasses.

Table BR1 - 5.16: *Projections of aggregated GHG emissions in sector industrial processes including F-gasses (Gg CO_2 eq.)*

WOM	2010	2015	2020	2025	2030
2. Industrial Processes	**8 621.51**	**9 538.35**	**10 126.97**	**10 395.80**	**10 554.80**
2A Mineral Products	2 303.17	2 869.14	3 127.56	3 323.10	3 423.93
2B Chemical Industry	1 608.63	1 830.33	2 152.65	2 251.54	2 340.61
2C Metal Production	4 269.30	4 295.57	4 316.06	4 324.06	4 324.26
2F Consumption of Halocarbons and SF_6	440.40	543.30	530.70	497.10	466.00
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
2. Industrial Processes	**8 621.51**	**8 851.51**	**9 256.21**	**9 502.44**	**9 668.03**
2A Mineral Products	2 303.17	2 869.14	3 127.56	3 323.10	3 423.93
2B Chemical Industry	1 608.63	1 180.26	1 368.35	1 467.24	1 556.31
2C Metal Production	4 269.30	4 291.11	4 311.59	4 319.59	4 319.79
2F Consumption of Halocarbons and SF_6	440.40	511.00	448.70	392.50	368.00
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
2. Industrial Processes	**8 621.51**	**8 851.51**	**9 028.00**	**9 195.15**	**9 272.91**
2A Mineral Products	2 303.17	2 869.14	3 040.09	3 210.55	3 298.45
2B Chemical Industry	1 608.63	1 180.26	1 227.61	1 326.50	1 415.57
2C Metal Production	4 269.30	4 291.11	4 311.59	4 319.59	4 319.79
2F Consumption of Halocarbons and SF_6	440.40	511.00	448.70	338.50	239.10

Figure BR1 - 5.7: *Total aggregate GHG emission projections in sector industrial processes including F-gasses (Gg CO_2 eq.)*



BR1 – 5.2.4 Sector Solvent and Other Products Use

In the sector solvent and other product use the potential emissions of CO_2 from the oxidation of NMVOC emissions are presented. They occur in categories 3A – 3C. In the category 3D, the emissions of N_2O from medical area and food industry are projected.

BR1 – 5.2.4.1 Projections of CO_2 Emissions in Solvent and Other Product Use

The CO_2 emissions occurred in this sector (categories 3A-3C) represent indirect (potential) GHG emissions and they are calculated from the NMVOC emissions. The same methodology was also used for preparing projections. Projections of CO_2 emissions are based on the projected emissions of NMVOC and are presented in Table BR1 - 5.17.

Applied scenarios for NMWOC emission:

- Scenario without measures (WOM) – Baseline scenario, current policy and measures were used and where available, national projected activity was used. Activity data for the industry and waste sector were based on Eurostat statistics. Activity data for the agriculture sector takes into account national data on the number of animals, national data on fertilizers and fertilizer production.
- Scenario with existing measures (WEM) – Scenario includes current policy and measures as WOM scenario, using results from CAPRI model for agriculture sector and other data from FAO database.
- Scenario with additional measures (WAM) – In the scenario we assume impacts from the revision of Gothenburg protocol.

Table BR1 - 5.17: *Projections of CO_2 emissions in sector solvent and other products use (Gg)*

WOM	**2010**	**2015**	**2020**	**2025**	**2030**
3. Solvent and Other Product Use	**83.56**	**78.29**	**81.74**	**86.63**	**86.63**
3A Paint Application	58.88	51.37	53.63	56.83	56.83
3B Degreasing and Dry Cleaning	6.14	9.78	10.21	10.83	10.83
3C Chemical Products. Manufacture and Processing	18.53	17.14	17.90	18.97	18.97
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
3. Solvent and Other Product Use	**83.56**	**68.50**	**70.11**	**70.79**	**70.79**
3A Paint Application	58.88	44.94	46.00	46.44	46.44
3B Degreasing and Dry Cleaning	6.14	8.56	8.76	8.85	8.85
3C Chemical Products. Manufacture and Processing	18.53	15.00	15.35	15.50	15.50
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
3. Solvent and Other Product Use	**83.56**	**68.29**	**70.08**	**70.76**	**70.76**
3A Paint Application	58.88	44.81	45.98	46.43	46.43
3B Degreasing and Dry Cleaning	6.14	8.53	8.76	8.84	8.84
3C Chemical Products. Manufacture and Processing	18.53	14.95	15.34	15.49	15.49

BR1 – 5.2.4.2 Projections of N_2O Emissions in Solvent and Other Product Use

N_2O emissions occur in 3D category. They originate from the use of N_2O as anaesthesia and from food industry. Outcomes of emission projections are summarized in Table BR1 - 5.18.

Applied scenarios and assumptions:

- Scenario with existing measures (WEM) – is based on assuming step-by-step reduction of N_2O utilization for medical purposes. N_2O use in food industry has been decreasing for longer time and this trend is expected also in future.
- Scenario with additional measures (WAM) – is based on assuming step-by-step reduction of N_2O utilization for medical purposes, as in WEM scenario. The N_2O utilization in food industry will decrease continually with complete cancellation after 2020.

Table BR1 - 5.18: *Projections of N_2O emissions in sector solvent and other products use (Gg)*

WEM	**2010**	**2015**	**2020**	**2025**	**2030**
3. Solvent and Other Product Use	**0.26**	**0.24**	**0.22**	**0.21**	**0.19**
3D1 Use of N_2O for Anaesthesia	0.05	0.05	0.05	0.04	0.04
3D3 N_2O from Aerosol Cans	0.21	0.19	0.18	0.17	0.15
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
3. Solvent and Other Product Use	**0.26**	**0.24**	**0.13**	**0.04**	**0.04**
3D1 Use of N_2O for Anaesthesia	0.05	0.05	0.05	0.04	0.04
3D3 N_2O from Aerosol Cans	0.21	0.19	0.09	0.00	0.00

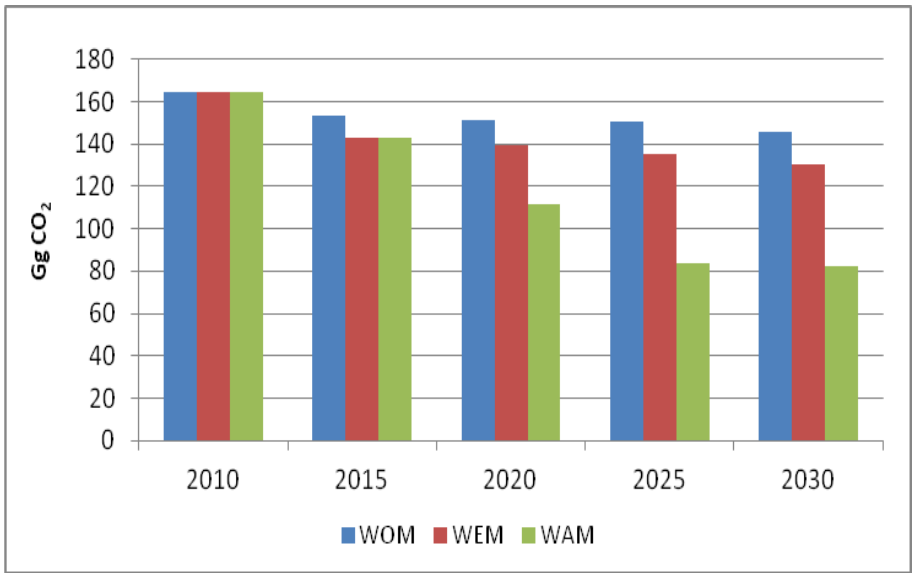
BR1 – 5.2.4.3 Total Aggregate GHG Emission Projections s in Solvent and Other Product Use

Table BR1 - 5.19 and Figure BR1 - 5.8 gives the outcomes data of total aggregate GHG emission projections in sector solvents and other product use.

Table BR1 - 5.19: *Total aggregate GHG emission projections in sector solvent and other product use (Gg CO_2 eq.)*

WOM	**2010**	**2015**	**2020**	**2025**	**2030**
3. Solvent and Other Product Use	164.35	153.00	151.18	150.80	145.84
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
3. Solvent and Other Product Use	164.35	143.21	139.55	134.96	130.00
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
3. Solvent and Other Product Use	164.35	143.00	111.62	83.47	82.23

Figure BR1 - 5.8: *Total aggregate GHG emission projections in sector solvent and other product use (Gg CO_2 eq.)*



BR1 - 5.2.5 Sector Agriculture

The mitigation potential in agriculture is mostly connected with manure management (storage, application on soil) and animal feeding policy. Since 2011, there have not been approved any significant policy paper related to climate change mitigation for plant production activities. Nowadays, the Rural Development Program for 2014-2020 is being prepared, where this issue will be incorporated to the measures.

Currently, there is the legislative process to amend the Act No. 220/2004 Coll. on the protection and use of agricultural land, which would partly address the issue of poorer quality land use for the establishment of plantations of fast growing trees. It is a land with lower quality and the biomass production from such soils will increase the renewable energy use, thereby reducing the need for fossil fuels. Scenario with additional measures includes further decrease in animal numbers as well as the strict implementation of EU Common Agricultural Policy recommendations, mostly in manure management and agricultural soils as was implemented in the Governmental Regulation No. 488/2010 Coll. The adaptation measures are also important to be considered in agriculture sector.

Current legislation and recommended good agricultural practice with measures taken is mainly manifested in the storage of waste from animal production and the integration of waste to agricultural land. Although detailed mapping of storage space lacks, it can be assumed that in Slovakia in 2015, all liquid waste will be stored in covered area for more than 120 days. This allows the use of effective measures also in field of the incorporation of waste into agricultural land. This assumption will be fulfilled not only for new construction of storage space, but also for ever-decreasing livestock numbers. This measure has the greatest impact on the pigs breeding, even now when we record return to litter, particularly in dairy farms. Part of the liquid waste is then absorbed by straw and is stored in solid form. Therefore after 2015 a further scope for reducing emissions from manure storage is not expected. Biogas

processing is currently not very well supported therefore only 4 biogas plants in Slovakia are working. Effective control of nitrogen paths in cycle of agricultural production changes can change nitrogen emissions into valuable fertilizer instead of losing them. Storage of waste is possible only in intensive farms for grazing animals such as sheep, goats, horses and some categories of cattle), it has only limited application for keeping.

Input data on number of livestock used for the projections of GHG emissions in sector agriculture are shown in Table BR1 - 5.20.

Table BR1 - 5.20: *Projections of livestock number in the Slovak Republic (thousands of animals)*

Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030
Cattle total	1 563	983	646	528	467	428	379	347	304
Dairy cattle	549	355	271	230	204	171	146	124	105
Other cattle	1 014	628	375	298	263	257	233	223	200
Swine	2 035	1 644	1 099	1 045	687	676	772	878	971
Sheep and lambs	600	428	348	321	394	400	400	400	400
Goats	25	25	51	40	35	35	35	35	35
Horses	14	10	10	8	7	7	7	7	7
Poultry	16 478	13 382	12 446	14 084	12 992	13 000	13 000	13 000	13 000

BR1 – 5.2.5.1 Projections of CH_4 Emissions in Agriculture

The following scenarios have been used for modelling projections of methane emissions (Table BR1 - 5.21) from enteric fermentation and manure management:

- Scenario without measures (WOM) – there will not be introduced any new measures in manure manipulation and processing in enteric fermentation and manure management categories.
- Scenario with existing measures (WEM) –includes new measures in manure manipulation and processing in enteric fermentation and manure management categories.
- Scenario with additional measures (WAM) – scenario includes new measures in manure manipulation and processing and in addition new animal feeding policy implementation in enteric fermentation and manure management categories.

Table BR1 - 5.21: *Projections of CH_4 emissions according to livestock species in category manure management (Gg)*

WOM	2010	2015	2020	2025	2030
4 Agriculture	**46.48**	**45.88**	**45.07**	**44.39**	**42.13**
4A Enteric Fermentation	**40.81**	**40.15**	**39.14**	**38.17**	**35.72**
4A1 Cattle	35.63	35.04	33.96	32.83	30.29
4A3 Sheep	3.85	3.68	3.68	3.68	3.68
4A4 Goats	0.18	0.18	0.18	0.18	0.18
4A6 Horses	0.13	0.13	0.13	0.13	0.13
4A8 Swine	1.03	1.13	1.20	1.35	1.46
4B Manure Management	**5.67**	**5.74**	**5.94**	**6.23**	**6.41**
4A1 Cattle	1.82	1.63	1.63	1.53	1.42
4A3 Sheep	0.07	0.08	0.08	0.08	0.08
4A4 Goats	0.004	0.004	0.004	0.004	0.004
4A6 Horses	0.01	0.01	0.01	0.01	0.01
4A8 Swine	2.75	3.00	3.20	3.60	3.88
4B9 Poultry	1.01	1.01	1.01	1.01	1.01
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
4 Agriculture	**46.48**	**45.35**	**41.36**	**39.86**	**36.42**
4A Enteric Fermentation	**40.81**	**39.88**	**35.70**	**33.90**	**30.25**
4A1 Cattle	35.63	34.88	30.56	28.60	24.82
4A3 Sheep	3.85	3.68	3.68	3.68	3.68
4A4 Goats	0.18	0.18	0.18	0.18	0.18
4A6 Horses	0.13	0.13	0.13	0.13	0.13
4A8 Swine	1.03	1.01	1.16	1.32	1.46
4B Manure Management	**5.67**	**5.47**	**5.66**	**5.96**	**6.17**
4A1 Cattle	1.82	1.66	1.47	1.34	1.18
4A3 Sheep	0.07	0.08	0.08	0.08	0.08
4A4 Goats	0.004	0.004	0.004	0.004	0.004
4A6 Horses	0.01	0.01	0.01	0.01	0.01
4A8 Swine	2.75	2.70	3.09	3.51	3.88
4B9 Poultry	1.01	1.01	1.01	1.01	1.01
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
4 Agriculture	**46.48**	**40.20**	**34.41**	**33.27**	**30.55**
4A Enteric Fermentation	**40.81**	**35.47**	**29.61**	**28.31**	**25.42**
4A1 Cattle	35.63	30.57	24.59	23.14	20.13
4A3 Sheep	3.85	3.68	3.68	3.68	3.68
4A4 Goats	0.18	0.18	0.18	0.18	0.18
4A6 Horses	0.13	0.13	0.13	0.13	0.13
4A8 Swine	1.03	0.91	1.04	1.19	1.31

4B Manure Management	**5.67**	**4.73**	**4.80**	**4.97**	**5.13**
4A1 Cattle	1.82	1.54	1.29	1.12	0.98
4A3 Sheep	0.07	0.08	0.08	0.08	0.08
4A4 Goats	0.004	0.004	0.004	0.004	0.004
4A6 Horses	0.01	0.01	0.01	0.01	0.01
4A8 Swine	2.75	2.19	2.50	2.85	3.15
4B9 Poultry	1.01	0.91	0.91	0.91	0.91

BR1 – 5.2.5.2 Projections of N_2O Emissions in Agriculture Sector

Scenarios for modelling projections of N_2O emissions are defined in the same way as the projections of methane emissions and according to description of measures above. Table BR1 - 5.22 shows outcomes from all three scenarios as prepared for the projections of N_2O emissions in sector agriculture.

Table BR1 - 5.22: *Projections of N_2O emissions in sector agriculture (Gg)*

WOM	**2010**	**2015**	**2020**	**2025**	**2030**
4 Agriculture	**6.85**	**6.21**	**6.36**	**6.50**	**6.73**
4B Manure Management	**1.21**	**0.70**	**0.71**	**0.71**	**0.74**
4B12 Liquid Systems	0.03	0.03	0.04	0.04	0.04
4B13 Solid Storage and Dry Lot	1.18	0.66	0.67	0.68	0.70
4D Agricultural Soils	**5.64**	**5.51**	**5.65**	**5.79**	**5.99**
4D1 Direct Soil Emissions	4.09	4.00	4.11	4.21	4.36
4D2 Pasture. Range and Paddock Manure	0.30	0.36	0.35	0.35	0.33
4D3 Indirect Emissions	1.24	1.15	1.19	1.23	1.29
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
4 Agriculture	**6.85**	**5.54**	**5.51**	**5.52**	**5.56**
4B Manure Management	**1.21**	**0.52**	**0.46**	**0.41**	**0.38**
4B12 Liquid Systems	0.03	0.01	0.01	0.01	0.01
4B13 Solid Storage and Dry Lot	1.18	0.51	0.44	0.40	0.37
4D Agricultural Soils	**5.64**	**5.02**	**5.06**	**5.11**	**5.18**
4D1 Direct Soil Emissions	4.09	3.69	3.74	3.79	3.87
4D2 Pasture. Range and Paddock Manure	0.30	0.36	0.33	0.32	0.29
4D3 Indirect Emissions	1.24	0.97	0.98	0.99	1.01
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
4 Agriculture	**6.85**	**5.45**	**5.37**	**5.39**	**5.45**
4B Manure Management	1.21	0.49	0.41	0.37	0.35
4B12 Liquid Systems	0.03	0.01	0.01	0.01	0.01
4B13 Solid Storage and Dry Lot	1.18	0.48	0.40	0.36	0.34
4D Agricultural Soils	**5.64**	**4.96**	**4.96**	**5.02**	**5.10**
4D1 Direct Soil Emissions	4.09	3.66	3.71	3.77	3.85
4D2 Pasture. Range and Paddock Manure	0.30	0.34	0.30	0.29	0.27
4D3 Indirect Emissions	1.24	0.95	0.95	0.97	0.99

BR1 – 5.2.5.3 Total Aggregate GHG Emission Projections in Agriculture Sector

Table BR1 - 5.23 and Figure BR1 - 5.9 show total aggregate data of GHG emission projections s in sector agriculture.

Table BR1 - 5.23: *Total aggregate GHG emission projections in sector agriculture (Gg CO_2 eq.)*

WOM	**2010**	**2015**	**2020**	**2025**	**2030**
4 Agriculture	**3 098.29**	**2 888.56**	**2 918.83**	**2 947.76**	**2 970.94**
4A Enteric Fermentation	857.08	843.07	821.86	801.47	750.18
4B Manure Management	493.46	337.00	344.85	352.04	364.76
4D Agricultural Soils	1 747.75	1 708.50	1 752.12	1 794.25	1 855.99
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
4 Agriculture	**3 098.29**	**2 670.12**	**2 577.18**	**2 547.71**	**2 487.79**
4A Enteric Fermentation	857.08	837.46	749.68	711.93	635.33
4B Manure Management	493.46	275.45	260.09	252.69	247.65
4D Agricultural Soils	1 747.75	1 557.21	1 567.41	1 583.09	1 604.81
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
4 Agriculture	**3 098.29**	**2 532.68**	**2 387.48**	**2 370.55**	**2 332.11**
4A Enteric Fermentation	857.08	744.84	621.83	594.45	533.86
4B Manure Management	493.46	249.99	227.68	219.43	215.90
4D Agricultural Soils	1 747.75	1 537.85	1 537.96	1 556.68	1 582.35

Figure BR1 - 5.9: *Total aggregate GHG emission projections in sector agriculture (Gg CO_2 eq.)*

BR1 – 5.2.6 Sector Land Use, Land Use Change and Forestry

Updated emission and sink projections in the LULUCF sector were based on sectoral strategy document Rural Development Programme of the Slovak Republic 2007-2013. This strategy

was developed taking into account adopted National Forest Program of the SR as well as the Indicative Action Plan of the Slovak Republic for 2009-2013. The Indicative Action Plan contains 56 frame targets for specific policies and measures (mitigation) in the LULUCF sector. Emission and sink projections were updated for all scenarios (WOM, WEM and WAM) and projection parameters (area of managed forest).

Projections of GHG emission/removals (CO_2, CH_4, N_2O) in sector LULUCF were prepared based upon following measures:

- Afforestation of non-forested areas;
- Grassing of arable soil;
- Increasing protection against forest fires.

Results of modelling are presented in emission projections template according to the IPCC categories.

Applied scenarios:

- Scenario without measures (WOM) – takes into account the current status of forest management and land use in conformity with adopted legislation and estimated development of forests according to adopted forest management plans without introduction of any specific measures. In 2004-2006, only few specific mitigating measures were implemented in forest management and land use. In 2004-2006, afforestation of agricultural soil was supported by the Rural Development Programme and Sectoral Operational Programme Agriculture and Rural Development. 15 projects covering forest area of 100 ha in total were approved within these programmes.
- Scenario with existing measures (WEM) – represents impact of all considered measures implemented by the year 2010. This scenario is almost identical with the scenario without measures.
- Scenario with additional measures (WAM) – reflects impact of measures implemented after the year 2010. The Rural Development Programme for the period of 2014-2020 was considered as the main tool for mitigation with following assumptions applied:
  - Afforestation of 800 ha of low productive soil by fast growing trees and the first afforestation of 600 ha of agricultural soil by 2015;
  - Grassing of 50 000 ha of arable soil by 2015;
  - Afforestation of 23 000 ha of agricultural soil by 2020;
  - Regulation 2152/2003/EC estimates the reduction of risk of forest fires to 90% compared the period of 2000-2003.
  - Increased removals of CO_2 in 2015 compared to 2010 are due to the decrease in the harvested volume and at the same time unchanged area of forest plantations. Projections of CO_2 removals show increasing trend between the years 2015 and 2030.

Scenario with additional measures estimates emissions after afforestation of 23 000 ha of grassland by 2020 and grassing 50 000 ha of cropland by 2015. Based on this scenario, it is visible a rise of CO_2 removals in forests and in cropland and slight decrease in meadows and pastures and likewise an increase of emissions from settlements and other land category. Compared with the projections contained in the previous national report, it is possible to observe higher values of the projected removals in the whole LULUCF sector, in the forests and in the cropland and vice versa lower values for grassland category. Significantly lower CO_2 emissions from other land were calculated. However, overall trends in each of the land use category remain preserved.

In the scenario with the additional measures projections of CH_4 and N_2O emissions, which are caused by biomass burning after logging, show the downward trend, especially as the result of increasing the share of shelter wood system in forestry.

BR1 – 5.2.6.1 Projections of CO_2 Sinks in LULUCF

Table BR1 - 5.24 shows the results of modelling for CO_2 sinks in the land use land use change and forestry sector.

Table BR1 - 5.24: *Projections of CO_2 sinks in sector LULUCF (Gg)*

WOM	**2010**	**2015**	**2020**	**2025**	**2030**
5. Land Use. Land-Use Change and Forestry	**-6 115.98**	**-8 461.40**	**-9 052.62**	**-9 643.77**	**-10 211.41**
5A Forest Land	-5 332.61	-7 688.69	-8 279.91	-8 871.05	-9 438.70
5A1 Forest Land remaining Forest Land	-4 872.00	-7 222.08	-7 813.31	-8 404.45	-8 972.09
5A2 Land converted to Forest Land	-460.61	-466.60	-466.60	-466.60	-466.60
5B Cropland	-714.79	-721.59	-721.59	-721.59	-721.59
5B1 Cropland remaining Cropland	-853.69	-859.60	-859.60	-859.60	-859.60
5B2 Land converted to Cropland	138.90	138.01	138.01	138.01	138.01
5C Grassland	-325.94	-324.72	-324.72	-324.72	-324.72
5E Settlements	119.44	124.47	124.47	124.47	124.47
5F Other Land	137.92	149.13	149.13	149.13	149.13
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
5. Land Use. Land-Use Change and Forestry	**-6 115.98**	**-8 461.40**	**-9052.62**	**-9643.77**	**-10211.41**
5A Forest Land	-5 332.61	-7 688.69	-8 279.91	-8 871.05	-9 438.70
5A1 Forest Land remaining Forest Land	-4 872.00	-7 222.08	-7 813.31	-8 404.45	-8 972.09
5A2 Land converted to Forest Land	-460.61	-466.60	-466.60	-466.60	-466.60
5B Cropland	-714.79	-721.59	-721.59	-721.59	-721.59
5B1 Cropland remaining Cropland	-853.69	-859.60	-859.60	-859.60	-859.60
5B2 Land converted to Cropland	138.90	138.01	138.01	138.01	138.01
5C Grassland	-325.94	-324.72	-324.72	-324.72	-324.72
5E Settlements	119.44	124.47	124.47	124.47	124.47
5F Other Land	137.92	149.13	149.13	149.13	149.13

WAM	2010	2015	2020	2025	2030
5. Land Use. Land-Use Change and Forestry	**-6 115.98**	**-8 529.25**	**-9 404.26**	**-9 936.50**	**-10 442.23**
5A Forest Land	-5 332.61	-7 703.06	-8 578.07	-9 110.31	-9 616.04
5A1 Forest Land remaining Forest Land	-4 872.00	-7 236.46	-8 055.22	-8 587.46	-9 093.19
5A2 Land converted to Forest Land	-460.61	-466.60	-522.85	-522.85	-522.85
5B Cropland	-714.79	-721.59	-721.59	-721.59	-721.59
5B1 Cropland remaining Cropland	-853.69	-859.60	-859.60	-859.60	-859.60
5B2 Land converted to Cropland	138.90	138.01	138.01	138.01	138.01
5C Grassland	-325.94	-378.20	-378.20	-378.20	-378.20
5E Settlements	119.44	124.47	124.47	124.47	124.47
5F Other Land	137.92	149.13	149.13	149.13	149.13

BR1 – 5.2.6.2 Projections of CH_4 Emissions from Forest Fires

The same approach as it was used in the projections of CO_2 sinks was applied for modelling of CH_4 emissions. The projections of CH_4 emissions from forest fires are shown in Table BR1 -5.25.

Table BR1 - 5.25: *Projections of CH_4 emissions in sector LULUCF from forest fires (Gg)*

WOM	2010	2015	2020	2025	2030
5. Land Use. Land-Use Change and Forestry	**1.09**	**0.92**	**0.92**	**0.92**	**0.92**
5A Forest Land	1.09	0.92	0.92	0.92	0.92
5A1 Forest Land remaining Forest Land	1.09	0.92	0.92	0.92	0.92
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
5. Land Use. Land-Use Change and Forestry	**1.09**	**0.92**	**0.92**	**0.92**	**0.92**
5A Forest Land	1.09	0.92	0.92	0.92	0.92
5A1 Forest Land remaining Forest Land	1.09	0.92	0.92	0.92	0.92
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
5. Land Use. Land-Use Change and Forestry	**1.09**	**0.88**	**0.87**	**0.87**	**0.87**
5A Forest Land	1.09	0.88	0.87	0.87	0.87
5A1 Forest Land remaining Forest Land	1.09	0.88	0.87	0.87	0.87

BR1 – 5.2.6.3 Projections of N_2O Emissions from Forest Fires

Projections of N_2O emissions have been developed similarly as the projections of CO_2 sinks. The results are shown in Table BR1 - 5.26.

Table BR1 - 5.26: *Projections of N_2O emissions in sector LULUCF from forest fires (Gg)*

WOM	2010	2015	2020	2025	2030
5. Land Use. Land-Use Change and Forestry	**0.02**	**0.01**	**0.01**	**0.01**	**0.01**
5A Forest Land	0.02	0.01	0.01	0.01	0.01
5A1 Forest Land remaining Forest Land	0.02	0.01	0.01	0.01	0.01

WEM	2010	2015	2020	2025	2030
5. Land Use. Land-Use Change and Forestry	**0.02**	**0.01**	**0.01**	**0.01**	**0.01**
5A Forest Land	0.02	0.01	0.01	0.01	0.01
5A1 Forest Land remaining Forest Land	0.02	0.01	0.01	0.01	0.01
WAM	**2010**	**2015**	**2020**	**2025**	**2030**
5. Land Use. Land-Use Change and Forestry	**0.02**	**0.01**	**0.01**	**0.01**	**0.01**
5A Forest Land	0.02	0.01	0.01	0.01	0.01
5A1 Forest Land remaining Forest Land	0.02	0.01	0.01	0.01	0.01

BR1 – 5.2.6.4 Total Aggregate Projections of GHG Emissions and Sinks in LULUCF sector

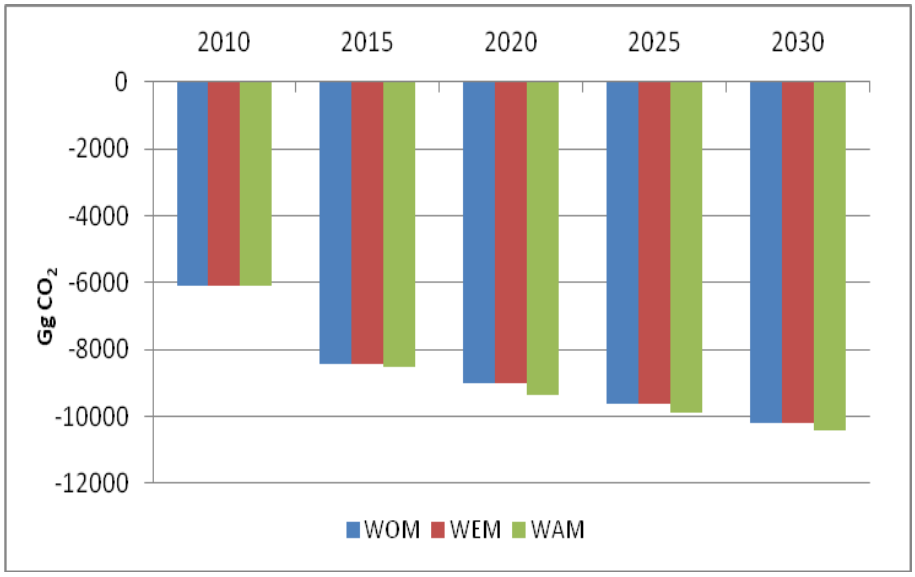
Table BR1 - 5.27 and Figure BR1 - 5.10 show total aggregate projections of GHG emissions and sinks in sector LULUCF.

Table BR1 - 5.27: *Total aggregate projections of GHG emissions and sinks in sector LULUCF (Gg CO_2 eq.)*

WOM	2010	2015	2020	2025	2030
5. Land Use. Land-Use Change and Forestry	**-6 088.42**	**-8 438.18**	**-9 029.40**	**-9 620.54**	**-10 188.19**
5A Forest Land	-5 305.04	-7 665.46	-8 256.69	-8 847.83	-9 415.47
5A1 Forest Land remaining Forest Land	-4 844.43	-7 198.86	-7 790.08	-8 381.23	-8 948.87
5A2 Land converted to Forest Land	-460.61	-466.60	-466.60	-466.60	-466.60
5B Cropland	-714.79	-721.59	-721.59	-721.59	-721.59
5B1 Cropland remaining Cropland	-853.69	-859.60	-859.60	-859.60	-859.60
5B2 Land converted to Cropland	138.90	138.01	138.01	138.01	138.01
5C Grassland	-325.94	-324.72	-324.72	-324.72	-324.72
5E Settlements	119.44	124.47	124.47	124.47	124.47
5F Other Land	137.92	149.13	149.13	149.13	149.13
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
5. Land Use. Land-Use Change and Forestry	**-6 088.42**	**-8 438.18**	**-9 029.40**	**-9 620.54**	**-10 188.19**
5A Forest Land	-5 305.04	-7 665.46	-8 256.69	-8 847.83	-9 415.47
5A1 Forest Land remaining Forest Land	-4 844.43	-7 198.86	-7 790.08	-8 381.23	-8 948.87
5A2 Land converted to Forest Land	-460.61	-466.60	-466.60	-466.60	-466.60
5B Cropland	-714.79	-721.59	-721.59	-721.59	-721.59
5B1 Cropland remaining Cropland	-853.69	-859.60	-859.60	-859.60	-859.60
5B2 Land converted to Cropland	138.90	138.01	138.01	138.01	138.01
5C Grassland	-325.94	-324.72	-324.72	-324.72	-324.72
5E Settlements	119.44	124.47	124.47	124.47	124.47
5F Other Land	137.92	149.13	149.13	149.13	149.13

WAM	2010	2015	2020	2025	2030
5. Land Use. Land-Use Change and Forestry	**-6 088.42**	**-8 507.17**	**-9 382.39**	**-9 914.63**	**-10 420.36**
5A Forest Land	-5 305.04	-7 680.98	-8 556.20	-9 088.44	-9 594.17
5A1 Forest Land remaining Forest Land	-4 844.43	-7 214.37	-8 033.35	-8 565.59	-9 071.32
5A2 Land converted to Forest Land	-460.61	-466.60	-522.85	-522.85	-522.85
5B Cropland	-714.79	-721.59	-721.59	-721.59	-721.59
5B1 Cropland remaining Cropland	-853.69	-859.60	-859.60	-859.60	-859.60
5B2 Land converted to Cropland	138.90	138.01	138.01	138.01	138.01
5C Grassland	-325.94	-378.20	-378.20	-378.20	-378.20
5E Settlements	119.44	124.47	124.47	124.47	124.47
5F Other Land	137.92	149.13	149.13	149.13	149.13

Figure BR1 - 5.10: *Total aggregate projections of d GHG emissions and sinks in sector LULUCF (Gg CO_2 eq.)*



BR1 – 5.2.7 Sector Waste Management

Modelling of municipal waste and wastewater emission projections was based on the demographic prognosis prepared by the Demographic Research Centre in 2002 and updated in 2008. This prognosis shows an increase of population until 2024 and after then a slight decrease. The activity data on municipal and industrial waste generation was based on the statistical publication, Waste, and extrapolated to population or industrial production predictions. Information on wastewater generation was based on the Statistical Yearbook and complemented by the expert estimations on sludge based on judgment from the Association of Treatment Experts of the Slovak Republic.

Applied scenarios for the category solid waste disposal on sites:

- Scenario without measures (WOM) – represents current trend of landfilling practices with the extrapolation of logarithmic function up to 2030. Current share of landfilling is 78% and level proposed up to 2030 is 74%. The continuation of current trend of

technological development in municipal waste processing is insufficient for reaching EU targets in landfilling.

- Scenario with existing measures (WEM) – is identical with the WAM scenario and represents fulfilling of EU targets in landfilling and achieving of goal for share of this waste management in 2030 to 60%. It includes increasing of composting activity.

Applied scenarios for the category waste incineration:

- Scenario with existing measures (WEM) – is identical with the WAM scenario and includes construction of a new incineration plant with the capacity 150 000 tons per year.

Applied scenarios for category composting:

- Scenario without measures (WOM) – includes linear increase of composting activities and the constant ratio between composting and recycling.
- Scenario with existing measures (WEM) – is identical with the WOM scenario and includes additional composting capacity up to 140 000 tons per. This assumption caused increase of projected CH_4 and N_2O emissions in this category for the WEM scenario in the comparison with the WOM scenario (Tables BR1 – 5.29 and 5.30).

The modelling of projections in wastewater was not disaggregated to the different scenarios. The assumption of linear increase of waste gas utilization during projected period was applied.

BR1 – 5.2.7.1 Projections of CO_2 Emissions in Waste Sector

CO_2 emissions are generated only from category waste incineration. Results of modelling are shown in Table BR1 - 5.28. The scenario WEM is identical with the WAM scenario.

Table BR1 - 5.28: *Projections of CO_2 emissions from waste incinerations (Gg)*

WEM	2010	2015	2020	2025	2030
6. Waste	**37.09**	**37.09**	**37.09**	**37.09**	**37.09**
6C Waste Incineration	37.09	37.09	37.09	37.09	37.09

BR1 – 5.2.7.2 Projections of CH_4 Emissions in Waste Sector

CH_4 emissions are generated from landfilling of solid waste and waste water treatment. The implementation of measures presented in sector waste allows preparing projections of CH_4 emissions according to two scenarios. The scenario WEM is identical with the scenario WAM.

Table BR1 - 5.29: *Projections of CH_4 emissions in waste sector (Gg)*

WOM	2010	2015	2020	2025	2030
6. Waste	**96.71**	**88.03**	**75.18**	**77.43**	**83.61**
6A Solid Waste Disposal on Land	76.92	76.29	67.55	70.96	78.29
6A1 Managed Waste Disposal on Land	46.86	46.86	39.54	44.02	52.17
6A3 Other	30.06	29.43	28.01	26.94	26.12
6B Waste Water Handling	17.12	8.89	4.69	3.45	2.20
6B1 Industrial Wastewater	0.30	0.29	0.24	0.19	0.15
6B2 Domestic and Commercial Waste Water	16.82	8.59	4.45	3.26	2.06
6D Other	2.68	2.85	2.94	3.03	3.12
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
6. Waste	**96.71**	**80.53**	**56.51**	**48.02**	**44.72**
6A Solid Waste Disposal on Land	76.92	68.23	48.32	40.98	38.84
6A1 Managed Waste Disposal on Land	46.86	38.80	20.31	14.04	12.72
6A3 Other	30.06	29.43	28.01	26.94	26.12
6B Waste Water Handling	17.12	8.89	4.69	3.45	2.20
6B1 Industrial Wastewater	0.30	0.29	0.24	0.19	0.15
6B2 Domestic and Commercial Waste Water	16.82	8.59	4.45	3.26	2.06
6D Other	2.68	3.41	3.50	3.59	3.68

BR1 – 5.2.7.3 Projections of N_2O Emissions in Waste Sector

N_2O emissions are generated from waste water treatment, waste incineration, other waste and waste composting. The implementation of measures presented in the sector waste allows defining projections of N_2O emissions for two scenarios. The scenario WEM is identical with the scenario WAM.

Table BR1 - 5.30: *Projections of N_2O emissions in sector waste (Gg)*

WOM	2010	2015	2020	2025	2030
6. Waste	**0.50**	**0.28**	**0.27**	**0.27**	**0.27**
6B. Waste Water Handling	0.28	0.05	0.03	0.03	0.02
6B1 Industrial Wastewater	0.03	0.05	0.03	0.03	0.02
6B2 Domestic and Commercial Waste Water	0.25	IE	IE	IE	IE
6C Waste Incineration	0.02	0.02	0.02	0.02	0.02
6D Other	0.20	0.21	0.22	0.23	0.23
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
6. Waste	**0.50**	**0.32**	**0.31**	**0.31**	**0.31**
6B. Waste Water Handling	0.28	0.05	0.03	0.03	0.02
6B1 Industrial Wastewater	0.03	0.05	0.03	0.03	0.02
6B2 Domestic and Commercial Waste Water	0.25	IE	IE	IE	IE
6C Waste Incineration	0.02	0.02	0.02	0.02	0.02
6D Other	0.20	0.26	0.26	0.27	0.28

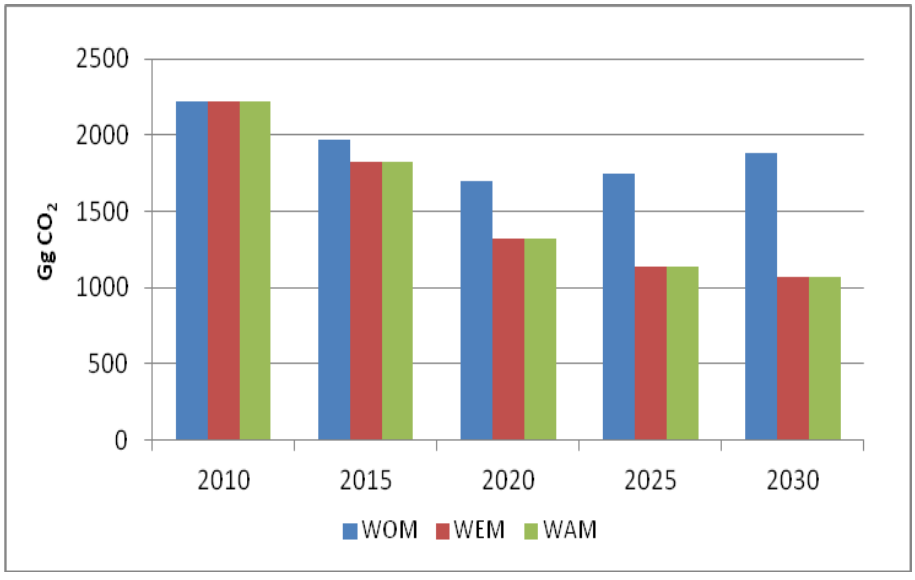
BR1 – 5.2.7.4 Total Aggregate GHG Emission Projections in Waste Sector

Table BR1 - 5.31 and Figure BR1 - 5.11 show aggregated data of GHG emission projections in sector waste management.

Table BR1 - 5.31: *Total aggregate GHG emissions projections in waste sector (Gg CO_2 eq.)*

WOM	2010	2015	2020	2025	2030
6 Waste	**2 222.15**	**1 972.51**	**1 698.33**	**1 746.43**	**1 877.27**
6A Solid Waste Disposal on Land	1 615.26	1 602.12	1 418.61	1 490.07	1 644.07
6A1 Managed Waste Disposal on Land	984.05	984.09	830.40	924.33	1 095.55
6A3 Other	631.21	618.03	588.21	565.74	548.52
6B Waste Water Handling	446.59	202.44	107.83	80.51	53.40
6B1 Industrial Wastewater	15.34	21.98	14.38	12.07	10.25
6B2 Domestic and Commercial Waste Water	431.25	180.45	93.45	68.44	43.16
6C Waste Incineration	41.84	41.74	41.74	41.74	41.74
6D Other	118.46	126.21	130.16	134.11	138.06
WEM	**2010**	**2015**	**2020**	**2025**	**2030**
6 Waste	**2 222.15**	**1 828.03**	**1 319.22**	**1 141.72**	**1 073.62**
6A Solid Waste Disposal on Land	1 615.26	1 432.83	1 014.72	860.58	815.64
6A1 Managed Waste Disposal on Land	984.05	814.80	426.51	294.84	267.12
6A3 Other	631.21	618.03	588.21	565.74	548.52
6B Waste Water Handling	446.59	202.44	107.83	80.51	53.40
6B1 Industrial Wastewater	15.34	6.17	4.96	3.95	3.09
6B2 Domestic and Commercial Waste Water	431.25	196.26	102.87	76.56	50.32
6C Waste Incineration	41.84	41.74	41.74	41.74	41.74
6D Other	118.46	151.02	154.93	158.89	162.84

Figure BR1 - 5.11: *Total aggregate GHG emission projections in waste sector (Gg CO_2 eq.)*



BR1 – 5.2.8 Projections of GHG Emissions from International Transport

GHG emissions from international transport are not included in the national balance. Projections of GHG emissions from international aviation have been developed for the scenario WEM and scenario WAM. From the data in Tables BR1 - 5.32 – 5.35 it is obvious that projected GHG emissions from these transports are negligible in comparison with other emission sources.

Table BR1 - 5.32: *Projections of GHG emissions from international aviation for scenario with measures (Gg)*

WEM	2010	2015	2020	2025	2030
CO_2	103.45	111.71	114.28	115.25	116.67
N_2O	0.002	0.002	0.002	0.002	0.002
CH_4	0.003	0.004	0.004	0.004	0.004

Table BR - 5.33: *Projections of GHG emissions from international aviation for scenario with additional measures (Gg)*

WAM	2010	2015	2020	2025	2030
CO_2	103.45	111.56	113.83	115.08	116.77
N_2O	0.002	0.002	0.002	0.002	0.002
CH_4	0.003	0.004	0.004	0.004	0.004

Projections of GHG emissions from international navigation have been prepared only for the scenario with measures.

Table BR1 - 5.34: *Projections of GHG emissions from international navigation for scenario with measures (Gg)*

WEM	2010	2015	2020	2025	2030
CO_2	33.61	33.61	33.61	33.61	33.61
N_2O	0.002	0.002	0.002	0.002	0.002
CH_4	0.014	0.014	0.014	0.014	0.014

Table BR1 - 5.35: *Total aggregated data for projections of GHG emissions from international transport for scenario with existing measures (Gg CO_2 eq.)*

WEM	2010	2015	2020	2025	2030
International Transport	142.67	151.12	153.69	154.74	156.18
Aviation	104.54	112.99	115.56	116.62	118.06
Navigation	38.13	38.13	38.13	38.13	38.13

BR1 – 5.2.9 Projections of Indirect GHG

Projections of indirect GHG emissions (NMVOC, SO_2, NO_X and CO) were reported under the Convention on Long-Range Transboundary Air Pollution and can be found on the web page[9].

[9] http://cdr.eionet.europa.eu/sk/un/UNECE_CLRTAP_SK.

BR1 – 5.3 Assessments of Aggregate Effects of Policies and Measures

For detailed information about aggregate effects of policies and measures please refer to Section 5.3 in the 6th National Communication on Climate Change of the Slovak Republic.

BR1 – 5.4 Sensitivity Analyses

For the detailed information about sensitivity analysis please refer to Section 5.4 the 6th National Communication on Climate Change of the Slovak Republic.

BR1 -5.5 Supplementarity

For the detailed information about supplementarity, please refer to Section 4.3.2 in the 6th National Communication on Climate Change of the Slovak Republic.

BR1 -5 6 Methodology

For the detailed information about methodology, please refer to Section 5.6 in the 6th National Communication on Climate Change of the Slovak Republic.

Annex 2: CTF Tables for the 1st Biennial Report of the Slovak Republic

Overview on CTF tables provided with the first Biennial Report:

CTF Table 1:	Emission trends
CTF Table 2:	Description of quantified economy-wide emission reduction target
CTF Table 3:	Progress in achievement of the quantified economy-wide emission reduction target: information on mitigation actions and their effects
CTF Table 4:	Reporting on progress
CTF Table 4(a)II:	Progress in achievement of the quantified economy-wide emission reduction targets – further information on mitigation actions relevant to the counting of emissions and removals from the land use, land-use change and forestry sector in relation to activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol
CTF Table 4(b):	Reporting on progress
CTF Table 5:	Summary of key variables and assumptions used in the projections analysis
CTF Table 6(a)/(c):	Information on updated greenhouse gas projections under a 'with measures' scenario and under a 'with additional measures' scenario
CTF Table 7:	Provision of public financial support: summary information
CTF Table 7(b):	Provision of public financial support: contribution through bilateral, regional and other channels

CTF Table 1: *Emission trends by gases and sectors*

GREENHOUSE GAS EMISSIONS	Base year 1990	1991	1992	1993	1994	1995	1996	1997
	CO_2 equivalent (Gg)							
CO_2 emissions including net CO_2 from LULUCF	50 606.13	42 846.80	36 794.56	34 023.64	32 340.05	34 021.90	34 004.24	34 344.26
CO_2 emissions excluding net CO_2 from LULUCF	60 745.23	54 091.96	49 749.76	46 078.75	43 526.70	44 879.11	44 699.10	44 811.47
CH_4 emissions including CH_4 from LULUCF	4 428.26	4 292.00	4 062.63	3 817.26	3 839.07	4 046.77	4 026.74	4 091.44
CH_4 emissions excluding CH_4 from LULUCF	4 414.17	4 283.03	4 054.61	3 809.15	3 830.55	4 037.22	4 016.51	4 080.17
N_2O emissions including N_2O from LULUCF	6 456.94	5 197.81	4 329.69	3 675.73	4 006.55	4 228.79	4 371.70	4 274.31
N_2O emissions excluding N_2O from LULUCF	6 351.04	5 104.12	4 218.54	3 561.90	3 924.94	4 159.70	4 302.24	4 217.93
HFCs	NA.NO	NA.NO	NA.NO	NA.NO	0.17	11.65	24.06	32.60
PFCs	271.37	266.94	248.42	155.42	132.06	114.32	34.51	34.62
SF_6	0.03	0.03	0.04	0.07	9.27	9.91	10.76	11.34
Total (including LULUCF)	**61 762.74**	**52 603.58**	**45 435.34**	**41 672.11**	**40 327.18**	**42 433.35**	**42 472.01**	**42 788.57**
Total (excluding LULUCF)	**71 781.85**	**63 746.08**	**58 271.38**	**53 605.29**	**51 423.69**	**53 211.91**	**53 087.19**	**53 188.12**

GREENHOUSE GAS EMISSIONS	Base year (1990)	1998	1999	2000	2001	2002	2003	2004
	CO_2 equivalent (Gg)							
CO_2 emissions including net CO_2 from LULUCF	50 606.13	33 273.25	32 272.36	30 568.03	33 612.48	31 597.53	32 553.92	33 063.62
CO_2 emissions excluding net CO_2 from LULUCF	60 745.23	44 324.34	43 434.62	41 367.41	44 168.53	42 405.42	42 836.47	42 742.09
CH_4 emissions including CH_4 from LULUCF	4 428.26	4 348.13	4 559.22	4 259.44	4 306.51	4 916.43	4 744.24	4 621.02
CH_4 emissions excluding CH_4 from LULUCF	4 414.17	4 336.85	4 546.42	4 247.68	4 292.24	4 902.38	4 729.13	4 603.82
N_2O emissions including N_2O from LULUCF	6 456.94	3 852.79	3 360.44	3 655.53	3 797.05	3 767.80	3 817.86	3 841.75
N_2O emissions excluding N_2O from LULUCF	6 351.04	3 804.04	3 312.30	3 581.79	3 762.96	3 739.18	3 787.70	3 813.82
HFCs	NA.NO	40.42	58.18	77.01	102.30	130.12	154.22	181.34
PFCs	271.37	25.40	13.60	11.65	15.59	13.75	21.65	19.91
SF_6	0.03	12.24	12.68	13.11	13.48	14.42	15.03	15.53
Total (including LULUCF)	**61 762.74**	**41 552.24**	**40 276.49**	**38 584.76**	**41 847.42**	**40 440.06**	**41 306.91**	**41 743.17**
Total (excluding LULUCF)	**71 781.85**	**52 543.30**	**51 377.81**	**49 298.65**	**52 355.10**	**51 205.27**	**51 544.20**	**51 376.51**

GREENHOUSE GAS EMISSIONS	Base year (1990)	2005	2006	2007	2008	2009	2010	2011
	CO_2 equivalent (Gg)							
CO_2 emissions including net CO_2 from LULUCF	50 606.13	36 073.08	33 219.48	31 716.37	33 237.73	28 323.37	30 955.22	30 164.19
CO_2 emissions excluding net CO_2 from LULUCF	60 745.23	42 224.47	41 718.12	39 857.26	40 492.91	35 802.01	37 911.16	37 671.87
CH_4 emissions including CH_4 from LULUCF	4 428.26	4 379.95	4 462.55	4 383.55	4 399.99	4 216.17	4 130.63	4 161.08
CH_4 emissions excluding CH_4 from LULUCF	4 414.17	4 357.51	4 443.65	4 364.81	4 378.94	4 195.41	4 107.72	4 138.49
N_2O emissions including N_2O from LULUCF	6 456.94	3 797.90	4 061.74	3 995.57	3 867.57	3 561.90	3 434.16	3 027.19
N_2O emissions excluding N_2O from LULUCF	6 351.04	3 771.85	4 040.35	3 970.84	3 852.08	3 541.50	3 416.27	3 009.36
HFCs	NA.NO	205.96	248.14	284.44	335.17	380.08	420.16	439.50
PFCs	271.37	20.25	35.82	24.88	36.16	17.76	21.15	17.00
SF_6	0.03	16.27	16.81	17.44	18.51	19.39	19.90	20.74
Total (including LULUCF)	**61 762.74**	**44 493.41**	**42 044.54**	**40 422.25**	**41 895.13**	**36 518.68**	**38 981.23**	**37 829.71**
Total (excluding LULUCF)	**71 781.85**	**50 596.32**	**50 502.89**	**48 519.67**	**49 113.78**	**43 956.15**	**45 896.36**	**45 296.96**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year (1990)	1991	1992	1993	1994	1995	1996	1997
	CO_2 equivalent (Gg)							
1. Energy	53 875.84	48 694.21	44 578.88	40 793.10	37 934.98	38 947.71	38 929.38	38 805.77
2. Industrial Processes	9 543.26	7 737.66	7 400.44	7 242.93	8 023.03	8 552.32	8 547.54	8 759.58
3. Solvent and Other Product Use	147.15	126.64	110.00	101.65	102.96	121.53	115.50	97.62
4. Agriculture	7 124.26	6 081.67	5 072.08	4 348.57	4 187.69	4 357.64	4 201.16	4 040.70
5. Land Use, Land-Use Change and Forestry	-10 019.11	-11 142.50	-12 836.04	-11 933.17	-11 096.51	-10 778.56	-10 615.18	-10 399.55
6. Waste	1 091.33	1 105.90	1 109.98	1 119.03	1 175.03	1 232.71	1 293.62	1 484.45
7. Other	NA	NA	NA	NA	NA	NA	NA	NA
Total (including LULUCF)	**61 762.74**	**52 603.58**	**45 435.34**	**41 672.11**	**40 327.18**	**42 433.35**	**42 472.01**	**42 788.57**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year (1990)	1998	1999	2000	2001	2002	2003	2004
	CO_2 equivalent (Gg)							
1. Energy	53 875.84	37 941.63	36 856.98	35 646.59	38 132.84	35 854.22	36 521.34	35 439.92
2. Industrial Processes	9 543.26	8 954.24	8 874.59	8 293.99	8 770.08	9 152.43	9 021.00	10 131.28
3. Solvent and Other Product Use	147.15	94.45	90.52	85.04	99.74	131.92	137.35	163.49
4. Agriculture	7 124.26	3 724.15	3 462.98	3 495.99	3 541.59	3 482.24	3 362.62	3 174.53
5. Land Use, Land-Use Change and Forestry	-10 019.11	-10 991.06	-11 049.45	-10 713.89	-10 507.68	-10 765.22	-10 237.28	-9 633.33
6. Waste	1 091.33	1 828.83	2 092.74	1 777.04	1 810.85	2 584.46	2 501.90	2 467.29
7. Other	NA	NA	NA	NA	NA	NA	NA	NA
Total (including LULUCF)	**61 762.74**	**41 552.24**	**40 328.36**	**38 584.76**	**41 847.42**	**40 440.06**	**41 306.91**	**41 743.17**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year (1990)	2005	2006	2007	2008	2009	2010	2011
	CO_2 equivalent (Gg)							
1. Energy	53 875.84	35 500.64	34 432.40	32 749.51	33 546.07	30 200.64	31 789.70	31 533.37
2. Industrial Processes	9 543.26	9 407.00	10 251.98	10 010.10	9 901.67	8 374.69	8 621.23	8 248.22
3. Solvent and Other Product Use	147.15	171.54	170.59	166.25	166.59	164.38	164.35	170.54
4. Agriculture	7 124.26	3 171.01	3 115.33	3 231.22	3 129.46	3 052.37	3 098.29	3 117.52
5. Land Use, Land-Use Change and Forestry	-10 019.11	-6 102.90	-8 458.35	-8 097.42	-7 218.64	-7 437.46	-6 915.13	-7 467.26
6. Waste	1 091.33	2 346.13	2 532.60	2 362.59	2 369.99	2 164.06	2 222.79	2 227.32
7. Other	NA	NA	NA	NA	NA	NA	NA	NA
Total (including LULUCF)	**61 762.74**	**44 493.41**	**42 044.54**	**40 422.25**	**41 895.13**	**36 518.68**	**38 981.23**	**37 829.71**

CTF Table 2: Description of quantified economy-wide emission reduction target

Emission reduction target: base year and target		
Base year/ base period	1990	
Emission reductions target (% of base year/base period)	20.00%	Legally binding target trajectories for the period 2013-2020 are enshrined in both the EU-ETS Directive (Directive 2003/87/EC and respective amendments) and the Effort Sharing Decision (Decision No 406/2009/EC). These legally binding trajectories not only result in a 20% GHG reduction in 2020 compared to 1990 but also define the EU's annual target pathway to reduce EU GHG emissions from 2013 to 2020. The Effort Sharing Decision sets annual national emission targets for all Member States for the period 2013-2020 for those sectors not covered by the EU emissions trading system (ETS), expressed as percentage changes from 2005 levels. The Slovak Republic as the EU member state will contribute by its fair share to the emission reduction target 20% of the emission level from the base year 1990. Trajectory for GHG emissions from sectors not covered by the EU ETS for the Slovak Republic is defined by the Decision No 162/2013/EC on determining Member States' annual emission allocations for the period from 2013 to 2020 as of March 2013 and its complementing Decision No 634/2013/EC on the adjustments to Member States' annual emission allocations for the period from 2013 to 2020 as of October 2013.
Emission reductions target (% of 1990) [b]	20.00%	
Period for reaching target	2020	

Gases and sectors covered. GWP values				
Gases covered	**Covered**	**Base Year**	**GWP[c] reference source**	**Comments**
CO_2	Yes	1990	4 AR	as adopted in UNFCCC reporting guidelines for national GHG inventories of Annex I Parties and as adopted under the EU Monitoring Mechanism Regulation
CH_4	Yes	1990	4 AR	as adopted in UNFCCC reporting guidelines for national GHG inventories of Annex I Parties and as adopted under the EU Monitoring Mechanism Regulation
N_2O	Yes	1990	4 AR	as adopted in UNFCCC reporting guidelines for national GHG inventories of Annex I Parties and as adopted under the EU Monitoring Mechanism Regulation
HFCs	Yes	1990	4 AR	as adopted in UNFCCC reporting guidelines for national GHG inventories of Annex I Parties and as adopted under the EU Monitoring Mechanism Regulation
PFCs	Yes	1990	4 AR	as adopted in UNFCCC reporting guidelines for national GHG inventories of Annex I Parties and as adopted under the EU Monitoring Mechanism Regulation
SF_6	Yes	1990	4 AR	as adopted in UNFCCC reporting guidelines for national GHG inventories of Annex I Parties and as adopted under the EU Monitoring Mechanism Regulation
NF_3	Yes	1995/2000	4 AR	as adopted in UNFCCC reporting guidelines for national GHG inventories of Annex I Parties and as adopted under the EU Monitoring Mechanism Regulation. Base year not yet determined.
Other gases (specify) [d]				

Sectors covered [e]	Covered	Comments
Energy	Yes	
Transport[f]	Yes	
Industrial processes[g]	Yes	
Agriculture	Yes	
LULUCF	No	
Waste	Yes	
Other sectors (specify) [h]		
Aviation	Yes	Aviation in the scope of the EU-ETS: CO_2 emissions from all flights falling within the aviation activities listed in Annex I of the EU ETS Directive which depart from an aerodrome situated in the territory of a Member State and those which arrive in such an aerodrome from a third country, excluding small commercial emitters.

Role of LULUCF sector		Comments
LULUCF in base year level and target	Excluded	
Contribution of LULUCF is calculated using		

Possible scale of contributions of market-based mechanisms under the Convention (estimated kt CO_2 eq)		
		Comments
CERs		The exact number of units that can be used during the period 2013-2020 can only be determined following the availability of final data concerning the use of these units during the period 2008-2012 and relevant greenhouse gas emissions data. The use of these units under the ETS Directive and the Effort Sharing Decision is subject to the limits specified above which do not separate between CERs and ERUs, but include additional criteria for the use of CERs.
ERUs		The exact number of units that can be used during the period 2013-2020 can only be determined following the availability of final data concerning the use of these units during the period 2008-2012 and relevant greenhouse gas emissions data. The use of these units under the ETS Directive and the Effort Sharing Decision is subject to the limits specified above which do not separate between CERs and ERUs, but include additional criteria for the use of ERUs.
AAUs[i]		AAUs for the period 2013-2020 have not yet been determined. The EU expects to achieve its 20% target for the period 2013-2020 with the implementation of the ETS Directive and the ESD Decision in the non-ETS sectors which do not allow the use of AAUs from non-EU Parties.
Carry-over units[j]		The exact number of carry-over units for the EU and its Member States from the first commitment period that can be used for compliance during the period 2013-2020 can only be determined after the true-up period of the first commitment period. In the second commitment period the use of such units in the PPSR account depend on the extent by which emissions during the second commitment period exceed the assigned amount for that commitment period, which can only be determined at the end of the second commitment period. At CMP.9 the EU made a declaration when adopting the Doha amendment of the Kyoto Protocol that the European Union legislation on Climate-Energy Package for the implementation of its emission reduction objectives for the period 2013-2020 does not allow the use of surplus AAUs carried over from the first commitment period to meet these objectives.
Other mechanism units under the Convention (specify)[k]		There are general provisions in place in the EU legislation that allow for the use of such units provided that the necessary legal arrangements for the creation of such units have been put in place in the EU which is not the case at the point in time of the provision of this report.
Possible scale of contributions of other market-based mechanisms (estimated kt CO_2 eq.)		None
Any other information:[l]		

Note: Tables 2(a), 2(b), 2(c), 2(d), 2(e) and 2(f), as defined in UNFCCC decision 19/CP.18 were merged into a single Table 2 in the electronic reporting facility provided by the UNFCCC Secretariat

Abbreviations: LULUCF = land use, land-use change and forestry.

Abbreviations: GWP = global warming potential

Abbreviations: AAU = assigned amount unit, CER = certified emission reduction, ERU = emission reduction unit.

a Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

b Optional

c Please specify the reference for the GWP: Second Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) or the Fourth Assessment Report of the IPCC.

d Specify other gases
e More than one selection will be allowed. If Parties use sectors other than those indicated above, the explanation of how these sectors relate to the sectors defined by the IPCC should be provided.
f Transport is reported as a subsector of the energy sector.
g Industrial processes refer to the industrial processes and solvent and other product use sectors.
h Specify other sectors
i AAUs issued to or purchased by a Party.
j Units carried over from the first to the second commitment periods of the Kyoto Protocol, as described in decision 13/CMP.1 and consistent with decision XX/CMP.8.
k As indicated in paragraph 5(e) of the guidelines contained in annex I of decision 2/CP.17 .
l This information could include information on the domestic legal status of the target or the total assigned amount of emission units for the period for reaching a target. Some of this information is presented in the narrative part of the biennial report.

CTF Table 3: *Progress in achievement of the quantified economy-wide emission reduction target: information on mitigation actions and their effects (NG = National Government, LG = Local Government, RE = Regional, CB = Central Bank, BM = Biomass)*

PAM No	Name of mitigation action	Objective	Brief description	Type of instrument,	GHG affected	Status of implementation	Start year of Implementation	Implementing entities	ESTIMATE OF MITIGATION IMPACT (NOT CUMULATIVE)			
									2015	2020	2025	2030
									Total kt CO_2 eq. per year			
1	Act No. 414/2012 Coll. on Emission Trading in amendments	Decrease of CO_2 emission	ETS stimulate use of BM in fuel mix of energy units	Economic, regulatory	CO_2, CH_4, N_2O	implemented	2013	NG	56.415	221.084	213.715	208.153
2	National action plan for biomass use, Government Resolution of SR No. 130/2008	Decrease CO_2, Energy – natural gas import decrease	Implementation of new energy units for BM combustion in ETS and non-ETS sources	regulatory	CO_2, CH_4, N_2O	implemented	2008	NG	15.253	1 865.374	1860.585	1 860.002
3	National Renewable Energy Action Plan, Government Resolution of SR No. 677/2010	Increase of RES at electricity generation	Implementation of PV a wind generators	regulatory	CO_2, CH_4, N_2O	implemented	2013	NG	428.142	542.445	542.445	510.705
4	National Renewable Energy Action Plan, Government Resolution of SR No. 677/2010	Decrease CO_2, Energy – natural gas import decrease	Use of local geothermal sources for heat supply	regulatory	CO_2, CH_4, N_2O	implemented	2013	NG, RE, LG, CB	97.865	407.928	904.684	1283.687
5	Conception of energy efficiency of buildings, Government Resolution of SR No. 384/2008	Decrease CO_2, Energy – natural gas import decrease	Decrease of heat demand in apartment houses on the level 30 kWh/(m^2.a) of floor area	regulatory, economic	CO_2, CH_4, N_2O	implemented	2010	NG, RE, LG, CB	16.732	11.503	11.502	11.493
6	Conception of energy efficiency of buildings, Government Resolution of SR No. 384/2008	Decrease CO_2, Energy – natural gas import decrease	Decrease of heat demand in governmental and public institution buildings on the level 23 kWh/(m^2.) of floor area	regulatory, economic	CO_2, CH_4, N_2O	implemented	2010	NG, RE, LG, CB	9.514	5.760	5.760	5.750

7	Conception of energy efficiency of buildings, Government Resolution of SR No. 384/2008	Decrease CO_2, Energy – natural gas import decrease	Decrease of heat demand in family houses on the level 40 kWh/(m^2.a) of floor area	regulatory, economic	CO_2, CH_4, N_2O	implemented	2010	NG, RE, LG, CB	34.100	34.110	34.100	34.110
8	Conception of energy efficiency of buildings, Government Resolution of SR No. 384/2008	Decrease CO_2, Energy – natural gas import decrease	Decrease of heat demand in apartment houses on the level 50 kWh/(m^2.a) of floor area	regulatory, economic	CO_2, CH_4, N_2O	implemented	2010	NG, RE, LG,	131.039	190.513	190.514	190.524
9	Conception of energy efficiency of buildings, Government Resolution of SR No. 384/2008	Decrease CO_2, Energy – natural gas import decrease	Decrease of heat demand in other non-residential buildings on the level 23 kWh/(m^2.a) of floor area	regulatory, economic	CO_2, CH_4, N_2O	implemented	2010	NG, RE, LG, CB	7.021	3.943	3.943	3.931
10	Conception of energy efficiency of buildings, Government Resolution of SR No. 384/2008	Decrease CO_2, Energy – natural gas import decrease	Decrease of heat demand in family houses on the level 80 kWh/(m^2.a) of floor area	regulatory, economic	CO_2, CH_4, N_2O	implemented	2010	NG, RE, LG, CB	191.528	404.037	404.037	404.027
11	Conception of energy efficiency of buildings, Government Resolution of SR No. 384/2008	Decrease CO_2, Energy – natural gas import decrease	Decrease of heat demand in other apartment houses of 75 kWh/(m^2.a) of floor area	regulatory, economic	CO_2, CH_4, N_2O	adopted	2010	NG, RE, LG, CB	1.827	24.940	24.940	24.949
12	Conception of energy efficiency of buildings, Government Resolution of SR No. 384/2008	Decrease CO_2, Energy – natural gas import decrease	Decrease of heat demand in other family houses on the level of 120 kWh/(m^2.a) of floor area	regulatory, economic	CO_2, CH_4, N_2O	adopted	2010	NG, RE, LG, CB	4.013	80.342	80.342	80.352
13	Act No. 258/2011 on carbon capture storage to the geological environment	Decrease CO_2	CCS in public electricity generation sources	regulatory	CO_2, CH_4, N_2O	adopted	2018	CB	0.000	1 646.495	1 646.495	1 646.495

14	Regulation of the Government of SR No 242/2008 Coll. amending the Regulation of the Government SR No 583/2006 Coll. on technical requirements for reduction of emissions of pollutants from CI engines and SI engines driven by natural gas or liquefied petroleum gas.	Decrease air pollution from traffic	New vehicles must meet latest European emission standards (EURO V)	regulatory	CO_2, CH_4, N_2O	implemented	2010	NG	9.2554469	104.07578	190.96747	250.21341
15	Act No. 158/2011 on Support for Energy-Saving and Environmental Vehicles	Decrease air pollution from traffic	This belongs to additional measures. The massive availability of CNG in filling stations are supposed	voluntary agreement	CO_2, CH_4, N_2O	adopted	2013	NG	76.021562	161.00595	268.91056	359.21879
16	Act No. 158/2011 on Support for Energy-Saving and Environmental Vehicles	Further decrease air pollution from traffic	This belongs to additional measures. The EURO 6 standards are supposed to be introduced from 2015	Economic, regulatory	CO_2, CH_4, N_2O	adopted	2015	NG	177.38365	375.68055	627.45798	838.17719
17	Act No. 414/2012 Coll. on Emission Trading in amendments	Decrease of N_2O	The implementation of secondary catalyst at nitric acid production	Economic, regulatory	N_2O	implemented	2013	NG, CB	270.904	784.300	784.300	784.300
18	Act No. 414/2012 Coll. on Emission Trading in amendments	Decrease of PFC	Implementation of control efficiency at aluminium production	Economic, regulatory	PFC	implemented	2013	NG, CB	4.463	4.463	4.463	4.463
19	Ordinance of the Government of the SR No. 488/2010 Coll. on conditions for granting subsidies in agriculture through direct payments	Manure management		regulatory, economic	CO_2, CH_4, N_2O	adopted	2010	NG	61.550	84.757	99.354	117.111
20	Ordinance of the Government of the Slovak Republic No. 488/2010 Coll. on conditions for granting subsidies in agriculture through direct payments	Manure management		regulatory, economic	CO_2, CH_4, N_2O	adopted	2015	NG	25.462	32.414	33.264	31.750
21	Ordinance of the Government of the Slovak Republic No. 488/2010 Coll. on conditions for granting subsidies in agriculture	Agricultural soils		regulatory, economic	N_2O	adopted	2010	NG	151.284	184.715	211.160	251.183

	through direct payments											
22	Ordinance of the Government of the Slovak Republic No. 488/2010 Coll. on conditions for granting subsidies in agriculture through direct payments	Agricultural soils		regulatory, economic	N_2O	adopted	2015	NG	19.363	29.442	26.412	22.462
23	Ordinance of the Government of the Slovak Republic No. 488/2010 Coll. on conditions for granting subsidies in agriculture through direct payments	Decreasing the number of dairy cattle		regulatory, economic	CH_4	adopted	2010	NG	5.607	72.182	89.534	114.854
24	Ordinance of the Government of the Slovak Republic No. 488/2010 Coll. on conditions for granting subsidies in agriculture through direct payments	Decreasing the number of dairy cattle		regulatory, economic	CH_4	adopted	2015	NG	92.623	127.844	117.486	101.467
25	Act No. 409/2006 - complete text of the Act. 223/2001 on Waste	Solid Waste Disposal on Land		regulatory, economic	N_2O, CH_4	adopted	2010	NG	169.290	403.886	629.488	828.428
26	The Rural Development Programme for the period of 2014 - 2020	Support for rural development by the European Agricultural Fund for Rural Development		regulatory, economic	N_2O, CH_4	adopted	2015	NG, RE	15.515	243.266	184.361	122.448

CTF Table 4: Reporting on progress

	Unit	Base Year	2010	2011	2012	Comment
Total (without LULUCF)	kt CO_2 eq	71 781.85	45 896.36	45 296.96		
Contribution from LULUCF [c]	kt CO_2 eq	-10 019.11	-6 915.13	-7 467.26		Average projected accounting of activities under Article 3.3
Market-based mechanisms under the Convention	number of units					
	kt CO_2 eq					
Other market-based mechanisms	number of units					
	kt CO_2 eq					

Abbreviation: GHG = greenhouse gas, LULUCF = land use, land-use change and forestry.

[a] *Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.*

[b] *For the base year, information reported on the emission reduction target shall include the following: (a) total GHG emissions, excluding emissions and removals from the LULUCF sector; (b) emissions and/or removals from the LULUCF sector based on the accounting approach applied taking into consideration any relevant decisions of the Conference of the Parties and the activities and/or land that will be accounted for; (c) total GHG emissions, including emissions and removals from the LULUCF sector. For each reported year, information reported on progress made towards the emission reduction targets shall include, in addition to the information noted in paragraphs 9(a–c) of the UNFCCC biennial reporting guidelines for developed country Parties, information on the use of units from market-based mechanisms.*

[c] *Information in this column should be consistent with the information reported in table 4(a)I or 4(a)II, as appropriate. The Parties for which all relevant information on the LULUCF contribution is reported in table 1 of this common tabular format can refer to table 1.*

CTF Table 4(a)II: *Progress in achievement of the quantified economy-wide emission reduction targets – further information on mitigation actions relevant to the counting of emissions and removals from the land use, land-use change and forestry sector in relation to activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol*

GREENHOUSE GAS SOURCE AND SINK ACTIVITIES	Base year[d]	Net emissions/removals[e]					Accounting Parameters[h]	Accounting Quantity[i]
		2008	2009	2010	2011	Total[g]		
	(kt CO_2 eq)							
A. Article 3.3 activities		-318.75	-257.39	-371.23	-489.33	**-1 436.71**		**-1 963.56**
A.1. Afforestation and Reforestation		-453.55	-469.73	-512.43	-527.85	**-1 963.56**		**-1 963.56**
A.1.1. Units of land not harvested since the beginning of the commitment period[j]		-453.55	-469.73	-512.43	-527.85	**-1 963.56**		**-1 963.56**
A.1.2. Units of land harvested since the beginning of the commitment period[j]		NA	NA	NA	NA	NA		NA
A.2. Deforestation		134.80	212.34	141.19	38.53	**526.86**		**526.86**
B. Article 3.4 activities								
B.1. Forest Management (if elected)		NA	NA	NA	NA	NA		NA
3.3 offset[(3)]							0.00	NA
FM cap[(4)]							9 166.67	NA
B.2. Cropland Management (if elected)	0.00	NA	NA	NA	NA	NA	0.00	0.00
B.3. Grazing Land Management (if elected)	0.00	NA	NA	NA	NA	NA	0.00	0.00
B.4. Revegetation (if elected)	0.00	NA	NA	NA	NA	NA	0.00	0.00

Note: 1 kt CO_2 eq equals 1 Gg CO_2 eq.

Abbreviations: CRF = common reporting format, LULUCF = land use, land-use change and forestry.

[a] Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.

[b] Developed country Parties with a quantified economy-wide emission reduction target as communicated to the secretariat and contained in document FCCC/SB/2011/INF.1/Rev.1 or any update to that document, that are Parties to the Kyoto Protocol, may use table 4(a)II for reporting of accounting quantities if LULUCF is contributing to the attainment of that target.

[c] *Parties can include references to the relevant parts of the national inventory report, where accounting methodologies regarding LULUCF are further described in the documentation box or in the biennial reports.*

[d] *Net emissions and removals in the Party's base year, as established by decision 9/CP.2.*

[e] *All values are reported in the information table on accounting for activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, of the CRF for the relevant inventory year as reported in the current submission and are automatically entered in this table.*

[f] *Additional columns for relevant years should be added, if applicable.*

[g] *Cumulative net emissions and removals for all years of the commitment period reported in the current submission.*

[h] *The values in the cells "3.3 offset" and "Forest management cap" are absolute values.*

[i] *The accounting quantity is the total quantity of units to be added to or subtracted from a Party's assigned amount for a particular activity in accordance with the provisions of Article 7, paragraph 4, of the Kyoto Protocol.*

[j] *In accordance with paragraph 4 of the annex to decision 16/CMP.1, debits resulting from harvesting during the first commitment period following afforestation and reforestation since 1990 shall not be greater than the credits accounted for on that unit of land.*

[k] *In accordance with paragraph 10 of the annex to decision 16/CMP.1, for the first commitment period a Party included in Annex I that incurs a net source of emissions under the provisions of Article 3 paragraph 3, may account for anthropogenic greenhouse gas emissions by sources and removals by sinks in areas under forest management under Article 3, paragraph 4, up to a level that is equal to the net source of emissions under the provisions of Article 3, paragraph 3, but not greater than 9.0 megatonnes of carbon times five, if the total anthropogenic greenhouse gas emissions by sources and removals by sinks in the managed forest since 1990 is equal to, or larger than, the net source of emissions incurred under Article 3, paragraph 3.*

[l] *In accordance with paragraph 11 of the annex to decision 16/CMP.1, for the first commitment period of the Kyoto Protocol only, additions to and subtractions from the assigned amount of a Party resulting from Forest management under Article 3, paragraph 4, after the application of paragraph 10 of the annex to decision 16/CMP.1 and resulting from forest management project activities undertaken under Article 6, shall not exceed the value inscribed in the appendix of the annex to decision 16/CMP.1, times five.*

CTF Table 4(b): *Reporting on progress*

	Quantity of units	kt CO_2 eq	Comments
2011			
Kyoto Protocol Units [d]			
AAUs		17 818	
ERUs		12	
CERs		NO	
tCERs		4 363	
lCERs		NO	
Units from market-based mechanisms under the Convention [d, e]		NO	
Units from other market-based mechanisms [d, e]		NO	
Total			
2012			
Kyoto Protocol Units [d]			
AAUs		21 251	
ERUs		104	
CERs		NO	
tCERs		1 018	
lCERs		NO	
Units from market-based mechanisms under the Convention [d, e]		NO	
Units from other market-based mechanisms [d, e]		NO	
Total			

Abbreviations: AAUs = assigned amount units, CERs = certified emission reductions, ERUs = emission reduction units, lCERs = long-term certified emission reductions, tCERs = temporary certified emission reductions.

Note: 2011 is the latest reporting year.

[a] *Reporting by a developed country Party on the information specified in the common tabular format does not prejudge the position of other Parties with regard to the treatment of units from market-based mechanisms under the Convention or other market-based mechanisms towards achievement of quantified economy-wide emission reduction targets.*

[b] *For each reported year, information reported on progress made towards the emission reduction target shall include, in addition to the information noted in paragraphs 9(a-c) of the reporting guidelines, on the use of units from market-based mechanisms.*

[c] *Parties may include this information, as appropriate and if relevant to their target.*

[d] *Units surrendered by that Party for that year that have not been previously surrendered by that or any other Party.*

[e] *Additional rows for each market-based mechanism should be added, if applicable*

CTF Table 5: *Summary of key variables and assumptions used in the projections analysis*

Item	***Units***	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
Gross Domestic Product	*10^9 EUR*	22.05	28.01	35.19	39.96	46.95	53.01	59.17
Gross domestic product growth rate	*%*	1.4%	6.7%	2.6%	3.3%	2.5%	2.2%	-
Population	*Thousand People*	5401	5387	5435	5416	5417	5340	5200
Population growth rate	*%*	-0.05%	0.18%	-0.07%	0.003%	-0.28%	-0.53%	-
International coal import prices	*EUR 2010/boe*	-	13.10	16.00	21.97	22.57	-	23.98
International oil import prices	*EUR 2010/boe*	-	46.50	60.00	85.97	88.54	-	93.13
International gas import prices	*EUR 2010/boe*	-	31.10	37.90	53.77	61.51	-	64.54
Carbon price in ETS	*EUR (2010 price)/t CO_2*	-	-	-	10	17	27	37

Abbreviation: boe: barrel of oil equivalent

CTF Table 6(a)/(c): *Information on updated greenhouse gas projections under a 'with measures' scenario and under a 'with additional measures' scenario*

Sector/Gas	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
1. Energy	53 875.8	38 947.7	35 646.6	35 500.6					
of which transport	4 887.6	4 243.2	4 150.3	6 162.5					
2. Industrial Processes	9 543.3	8 552.3	8 294.0	9 407.0					
3. Solvent and Other Product Use	147.2	121.5	85.0	171.5					
4. Agriculture	7 124.3	4 357.6	3 496.0	3 171.0					
6. Waste	1 091.3	1 232.7	1 777.0	2 346.1					
5. LULUCF	-10 019.1	-10 778.6	-10 713.9	-6 102.9					
CO_2 emissions									
CH_4 emissions									
N_2O emissions									
Total F-Gases									
International Bunker: Marine									
International Bunker: Aviation									
WEM					**2010**	**2015**	**2020**	**2025**	**2030**
1. Energy					32 007.8	33 817.2	31 200.3	31 320.9	31 931.4
of which transport					6 652.5	7 064.5	7 365.8	7 896.9	8 435.5
2. Industrial Processes					8 621.5	8 851.5	9 256.2	9502.4	9 668.0
3. Solvent and Other Product Use					164.3	143.2	139.6	135.0	130.0
4. Agriculture					3 098.3	2 670.1	2 577.2	2 547.7	2 487.8
6. Waste					2 222.2	1 828.0	1 319.2	1 141.7	1 073.6
5. LULUCF					-6 088.4	-8 438.2	-9 029.4	-9 620.5	-10 188.2
CO_2 emissions					38 024.6	40 517.7	38 291.6	38 773.6	39 599.9
CH_4 emissions					200.5	179.4	151.0	137.8	129.3
N_2O emissions					11.0	8.1	8.3	8.3	8.4
Total F-Gases					461.5	528.9	466.6	410.4	385.9
International Bunker: Marine					38.1	38.1	38.1	38.1	38.1
International Bunker: Aviation					104.5	113.0	115.6	116.6	118.1

WAM					2010	2015	2020	2025	2030
1. Energy					32 007.8	33 811.8	29 448.5	29 569.5	30 179.9
of which transport					6 652.5	7 064.9	7 365.7	7 897.3	8 435.8
2. Industrial Processes					8 621.5	8 851.5	9 028.0	9 195.1	9 272.9
3. Solvent and Other Product Use					164.3	143.0	111.6	83.5	82.2
4. Agriculture					3 098.3	2 532.7	2 387.5	2 370.6	2 332.1
6. Waste					2 222.2	1 828.0	1 319.2	1 141.7	1 073.6
5. LULUCF					-6 088.4	-8 507.2	-9382.4	-9 914.6	-1 0420.4
CO_2 emissions					38 024.6	40 511.8	36 464.1	36 920.9	37 734.3
CH_4 emissions					200.5	174.2	143.9	131.1	123.3
N_2O emissions					11.0	8.0	7.6	7.5	7.6
Total F-Gases					461.5	528.9	466.6	356.4	257.0
International Bunker: Marine					38.1	38.1	38.1	38.1	38.1
International Bunker: Aviation					104.5	112.8	115.1	116.4	118.2

CTF Table 7: *Provision of public financial support: summary information*

Please see Chapter 7 of the Sixth National Communication of the Slovak Republic on Climate Change, Tables 7.1 – 7.13.