

Country profile – Slovakia

The section 'Key climate- and energy-related data' was prepared by the EEA. It includes the latest data available as of 31 July 2014

The section 'Climate and energy policy framework' was prepared by eclareon and Ecologic Institute, Germany. It includes the latest information on national policies and measures available as of 31 May 2014.

For methodological details and other country profiles, see www.eea.europa.eu/themes/climate/country-profiles.

Key climate- and energy-related data — Slovakia

Key data on GHG emissions	2005	2011	2012	2013	EU 2012
Total GHG emissions (UNFCCC, Kyoto Protocol) (Mt CO ₂ -eq.)	50.3	44.7	42.7	42.7	4 544.2
GHG per capita (t CO ₂ -eq./cap.)	9.4	8.3	7.9	7.9	9.0
GHG per GDP (g CO ₂ -eq./PPS in EUR)	690	438	407	400	350
Share of GHG emissions in total EU-28 emissions (%)	1.0 %	1.0 %	0.9 %	1.0 %	100.0 %
EU ETS verified emissions (Mt CO ₂ -eq.)	25.2	22.2	20.9	21.8	1 848.6
Share of EU ETS emissions in total emissions (%)	50.2 %	49.7 %	49.0 %	51.2 %	40.7 %
ETS emissions vs allowances (free, auctioned, sold) (%)	- 17.2 %	- 31.9 %	- 37.4 %	- 32.3 %	- 14.1 %
Share of CERs & ERUs in surrendered allowances (%)	0.0 %	5.0 %	5.7 %	n.a.	26.4 %
Non-ETS (ESD) emissions, adjusted to 2013–2020 scope (Mt CO ₂ -eq.)	21.0	20.3	19.6	20.8	2 566.6
Key data on renewable energy	2005	2010	2011	2012	EU 2012
Share of renewable energy in gross FEC (%)			10.3 %	10.4 %	14.1 %
() = including all biofuels consumed in transport	(5.5 %)	(9.0 %)			
Share of renewable energy for electricity (%)	11.6 %	17.8 %	19.3 %	20.1 %	23.5 %
Share of renewable energy for heating and cooling (%)	5.0 %	7.8 %	9.1 %	8.7 %	15.6 %
Share of renewable energy for transport (%)			5.0 %	4.8 %	5.1 %
() = including all biofuels consumed (%)	(1.1 %)	(4.8 %)			
Key data on energy consumption	2005	2010	2011	2012	EU 2012
Primary energy consumption (Mtoe)	17.8	16.8	16.2	15.7	1 584.8
Primary energy consumption per capita (Mtoe/cap.)	3.3	3.1	3.0	2.9	3.1
Final energy consumption (Mtoe)	11.6	11.5	10.8	10.3	1 104.5
Final energy consumption per capita (Mtoe/cap.)	2.2	2.1	2.0	1.9	2.2
Efficiency of conventional thermal electricity and heat production (%)	61.0 %	60.8 %	59.5 %	58.0 %	50.0 %
Energy consumption per dwelling by end use	2005	2009	2010	2011	EU 2011
Total energy consumption per dwelling (toe/dwelling)	1.48	1.30	1.33	n.a.	1.42
Space heating and cooling (toe/dwelling)	0.97	0.87	0.88	n.a.	0.96
Water heating (toe/dwelling)	0.30	0.24	0.26	n.a.	0.18
Cooking (toe/dwelling)	n.a.	n.a.	n.a.	n.a.	0.08
Electricity (lighting, appliances) (toe/dwelling)	0.20	0.19	0.18	n.a.	0.20

Progress towards GHG targets (under the Effort Sharing Decision, i.e. non-ETS emissions)

2013 ESD target (% vs base year)	+ 2.3 %	2020 ESD target (% vs base year)	+ 13.0 %
2013 ESD emissions (% vs base year)	- 8.0 %	2020 ESD projections WEM (% vs base year)	- 24.2 %
		2020 ESD projections WAM (% vs base year)	- 25.6 %

Based on approximated emission estimates for 2013, emissions covered by the Effort Sharing Decision (ESD) (i.e. in the sectors which are not covered by the EU ETS) are expected to be below the annual ESD target in 2013. Projections also indicate that 2020 ESD emissions are expected to be below the 2020 ESD target, with the current existing measures.

Progress towards renewable energy targets

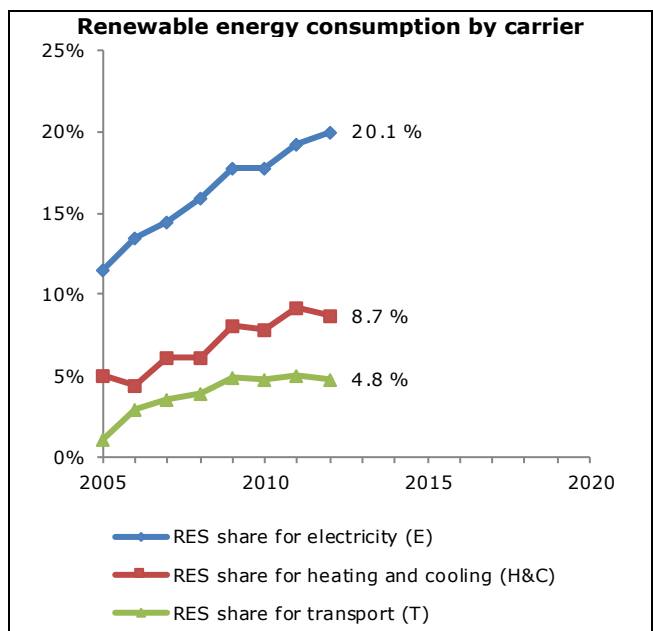
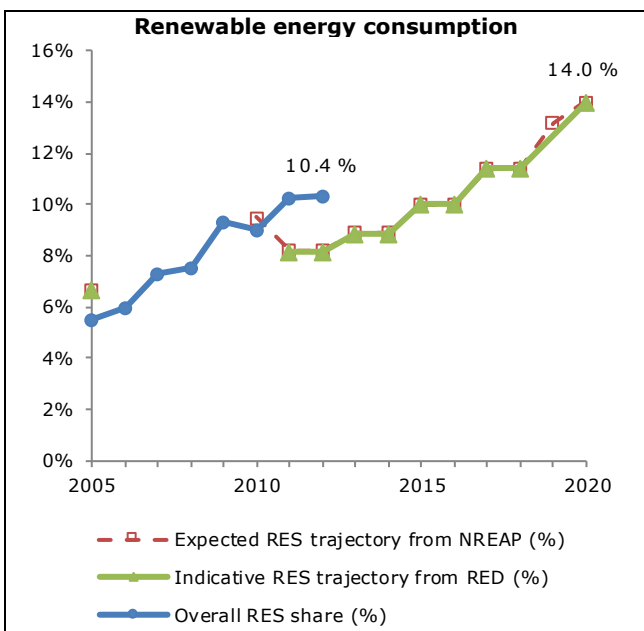
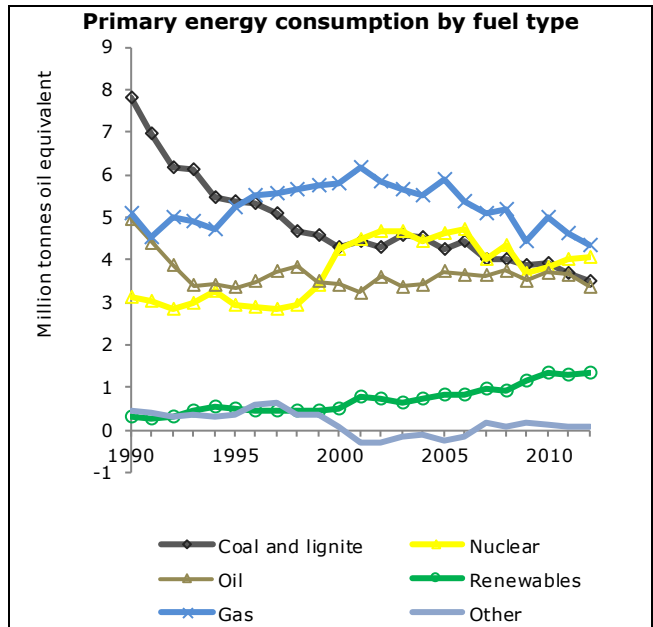
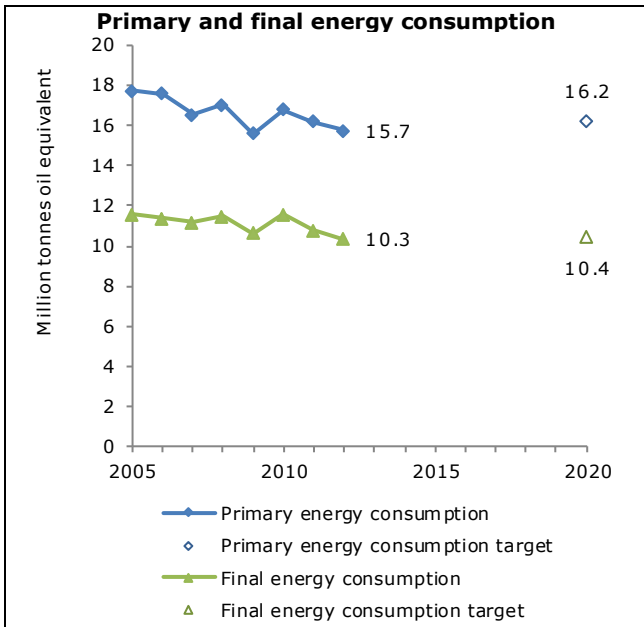
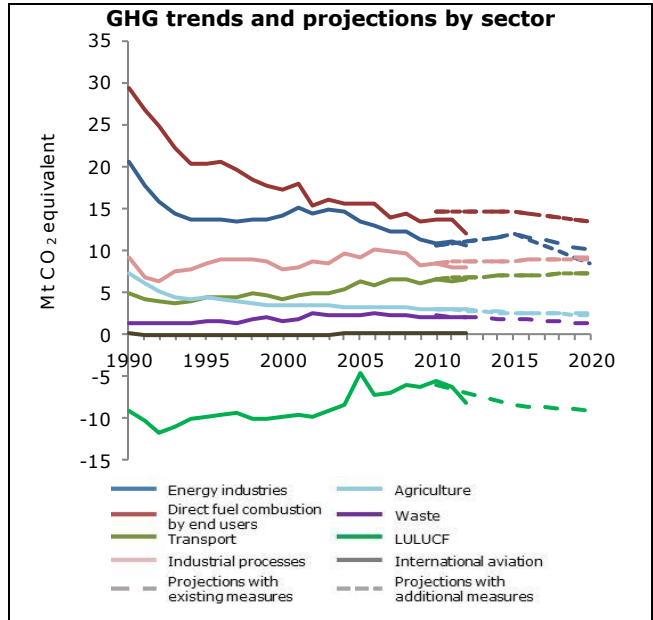
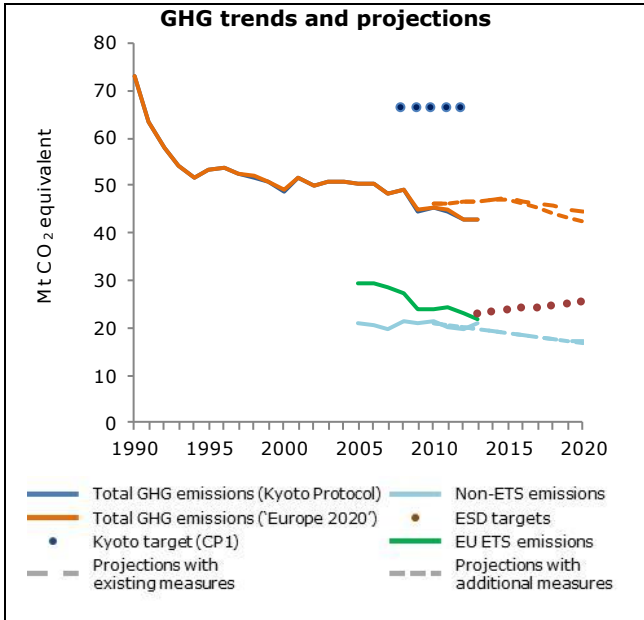
2012 RES share in gross final energy consumption (%)	10.4 %	2011–2012 indicative share from RES Directive (%)	8.2 %
2020 RES target	14.0 %	2012 expected share from NREAP (%)	8.2 %

The average share of renewable sources in gross final energy consumption for 2011–2012 was 10.3% (1.1 Mtoe), which is higher than the indicative RED target for 2011–2012 (8.2%). At the same time, the share of renewables in 2012 (10.4 %) is higher than the expected 2012 NREAP target (8.2 %). Over the period 2005–2012 the observed average annual growth rate in renewable energy consumption amounted to 8.1%. In order to reach its 2020 NREAP target, Slovakia needs an average annual growth rate of 5.5% in the run-up to 2020. In absolute terms, this is equivalent to 1.3 time its cumulative effort so far.

Progress towards energy efficiency targets

Primary energy consumption:		Final energy consumption:	
2005–2012 average annual change	- 1.7 %	2005–2012 average annual change	- 1.6 %
2012–2020 average annual change to target	+ 0.4 %	2012–2020 average annual change to target	+ 0.1 %

Between 2005 and 2020, primary and final energy consumption in Slovakia decreased at a faster pace than is necessary to meet the 2020 targets. This was a combined results of energy efficiency policies, as well as the effects of the economic recession. Distribution losses and the consumption of the energy sector decreased significantly since 2005. Improvements in energy efficiency took place in final sectors such as industry and the residential sectors. Given the share of energy intensive industries in the Slovak economy, further efforts to limit electricity consumption in industry (which represents 50 % of total final electricity consumption) could also contribute to further reducing final energy consumption. Further improvements in conversion efficiency for power generation (which have been decreasing in recent years due to reduce production from hydro power and increase in nuclear power) could also help limiting primary energy consumption.



Climate and energy policy framework

Challenges and opportunities

Slovakia's economy exhibits high energy intensity and is, despite major efforts, still the fifth most energy-intensive economy in the EU. Since 2009, previous progress on energy efficiency in the industrial sector has been reversed, especially due to developments in the steel industry, which is the biggest energy consumer. Efficiency improvements in the household sector have also been rather slow. At the same time, taxes on energy are significantly below the EU average and while the introduction of a carbon tax for the non-Emissions Trading System (ETS) sectors has been considered, so far no progress has been made. Therefore, while a decision of the Slovak government to significantly reduce fossil fuel subsidies is encouraging, there is still room to shift taxation towards energy and away from labour and other areas, with the potential to boost employment and reduce energy bills in the long run.

Another challenge is the decarbonisation of Slovakia's energy supply. The energy mix is quite diversified, including gas, nuclear, oil and solid fuels, but Slovakia's efforts to reduce emissions in the electricity supply largely focus on the further development of nuclear energy. However, cost overruns and delays in the development of the Mochovce nuclear power plant are significantly increasing the cost of this strategy. Renewables could be increased but since 2012 the Slovak government reduced the financial support for renewables to prevent electricity costs from rising (MFSR, 2012). However, renewables are already cost competitive in various contexts if compared to nuclear energy and could lead to local jobs and revenues.

Climate and energy strategies

At present, Slovakia has not adopted a climate strategy; however, the Slovak government has established a working group at the Commission for the Coordination of Climate Change Policies to prepare and coordinate Slovakia's Low-carbon Development Strategy and the Climate Change Adaptation Strategy.

Slovakia's Energy Policy Strategy (Energetická politika SR) is expected to be approved in May 2014 and outlines the long-term energy objectives and priorities of the energy sector until 2035 with an outlook to 2050. The Strategy focuses on increasing domestic production of nuclear and hydro energy sources to reduce import dependency, which is above the EU average, and outlines the development of several energy projects, including the construction of a new nuclear power plant in Jaslovské Bohunice, a 180 GWh hydropower plant in Sered', and a 600 MW pumped storage hydropower plant in Ipeľ (Energia, 2013e). The last Energy Policy of the Slovak Republic strategy was approved in 2008.

Renewable energy

The Slovak Republic is making good progress on renewables, but renewable electricity was dominated by hydro and a small contribution of biomass, until the photovoltaic (PV) sector increased sharply in 2011. Since 2009, the Slovak government has supported renewables through a feed-in tariff (FIT) that guarantees payment for 15 years (Act. No. 309/2009). Renewables are given priority connection and dispatch. Recent reforms to Slovak renewable support are aimed at cost reduction, as the government fears disproportionate increases in electricity prices. Therefore, the recent amendments to the Renewable Energy Act scale back FITs for all technologies, and limit support for solar PV to installations on buildings and rooftops with a maximum capacity of 30 kW. The amendment also raises the current minimum share of renewable energy and allows for support of gases generated as by-products of metallurgical production processes (CFO, 2013). The Slovak government has also taken efforts to decrease administrative barriers to small-scale renewables up to 10 kW, issuing a development plan in July 2013 and the new Renewable Energy Act simplifies the connection process, guarantees free grid connection at existing delivery points for these producers, and requires distribution system operators to provide for the free installation of a bi-directional meters measuring the amount of electricity taken from and fed into the grid (Energia, 2013d).

Biomass accounts for the largest share of heat from renewable sources, but its use is still minimal in comparison to other EU countries, despite the implementation of a National Action Plan for Biomass Use (FES, 2012). The support of heat from renewable energy sources mainly takes the form of a building obligation for the use of renewable heating and financial support for investments, including subsidies from the Operational Programmes funded by the European Regional Development Fund (ERDF) and the Slovak Ministry of Economy. There is also a professional training programme for installers.

Energy networks

The volume of investments by the Slovak transmission system operator Slovenská elektrizačná prenosová sústava (SEPS) has more than doubled from EUR 41.6 million in 2012 to EUR 95.9 million in 2013 (Energia, 2013a). Moreover, in June 2013 representatives of the regulatory authorities of the Czech Republic, Hungary, Poland and Slovakia (the Visegrad Four) decided at their first joint meeting to establish a permanent forum on energy regulation issues in order to strengthen the existing cooperation on 'projects of common interest' in cross-border energy infrastructure.

Energy efficiency

The Energy Efficiency Concept of the Slovak Republic (Konceptcia energetickej efektívnosti SR) from 2007 is a strategic document aimed at supporting the implementation of energy efficiency measures with an outlook to 2020. Slovakia's implicit tax rate on energy in 2011 was EUR 48.5 per toe, the lowest registered in Europe. Energy products are subject to excise duties and value-added tax. However, revenues from electricity, coal and natural gas are relatively low mainly due to a large number of exceptions, some of which the Slovak Ministry of Finance is considering abolishing in order to generate additional revenues for the state budget (Program stability, 2013). Subsidies for electricity generated from domestic coal, which had been in place since 2005, were significantly lowered since 2011 (Ministerstvo spravodlivosti, 2011). However, no progress has been seen in a previously proposed carbon tax for the non-ETS sector.

Cogeneration, mainly from fossil fuels, is supported through a FIT under the same act promoting renewables (Act. No. 309/2009). Energy efficiency in **industry** is promoted through an obligation to carry out energy audits but no specific targets have been established. Financial support is provided by the SlovSEFF programme for restructuring, upgrading and modernising installations and the Operational Programme 'Competitiveness and Economic Growth' to increase innovative activities and ensure technology transfer to companies.

Slovakia introduced a new obligation for **municipalities** to report their aggregated energy consumption data for 2013 until the end of March 2014 to the Slovak Innovation and Energy Agency in order to allow for reliable records of energy consumption in municipalities. Moreover, Act No. 476/2008 Coll. on Energy Efficiency provides the obligation to develop a concept for a 10-year period and defines minimum technical requirements for heat insulation and hot water distribution networks, as well as minimum standards of transfer, transport and distribution of heat.

Efficiency improvements in **households** are promoted through the Slovak Law on Thermal Energy. It includes an obligation for residential consumers to install heating meters in all residential buildings with an area above 500 m² and to notify the energy regulatory office Úrad pre reguláciu sieťových odvetví (URSO) about their heat production. More frequent inspections of biomass- and biogas-fired boilers have also been introduced by Act No. 314/2012 Z.z. in order to improve their operation. Act No. 300/2012 provides a regulation on Energy Performance Certificates for buildings. Moreover, financial support for energy efficiency measures is provided, among other places, by the State Housing Development Fund, in the form of grants and favourable loans for thermal insulation of residential buildings and apartments.

Transport

Measures addressing emissions from transport are rather limited. There is no registration tax and an existing ownership tax on vehicles used for business purposes is not based on CO₂ emissions and is relatively low compared to other EU Member States. The petrol tax rates are at EU average, but diesel is taxed well below the EU average (European Commission, 2013). Slovakia levies an annual vignette for cars and a distance-based road toll for heavy-duty vehicles on specific highways (ACEA, 2012; CE Delft, 2012) and EURO 6 standards are expected to be introduced in 2015. The Slovak transport sector has a biofuel energy content target and an obligatory minimum biofuel quota, and supports the use of biofuels with reduced excise duties. A strategy published by the Slovak Association for Electromobility (SEVA) in March 2013 that seeks to promote and identify the potential for electric mobility was subsequently adopted by the Ministry of Economy and a joint memorandum between the government and SEVA was signed (Energia, 2013b). While the updated Concept of Combined Transport Development by 2010 (approved in 2001) defines measures targeting modal shift in the Slovak Republic and some subsidies are provided, little progress is observed in this field.

Agriculture

For the first time, the Rural Development Programme for 2014–2020 incorporates climate change measures regarding plant production. The recommendations of the Common Agricultural Policy (CAP) mostly regarding manure management and agricultural soils were implemented in Governmental Decision No. 488/2010 and should lead to decreasing emissions. Current legislation and recommended good agricultural practice mainly concerns the storage of waste from animal production and the integration of waste into agricultural land.

Waste

Landfilling is still the predominant method of waste disposal in Slovakia and waste incineration only played a minor role. The Consolidating Waste Act aims at reducing the practice of landfilling, including through the conditional increase in composting. However, only few investments are taken in waste-to-energy projects due to a lack of investment security as a result of frequent legislative changes in the Slovak heating sector (Energia, 2013c).

Land use, land-use change and forestry

Within the framework of the Rural Development Programmes for the periods 2007–2013 and 2014–2020, the Slovak Republic plans to afforest 800 ha of low-productive land with fast-growing trees, grassing of 50 000 ha of arable land by 2015, and to afforest 23 000 ha of agricultural land by 2015 and 2020, respectively.

References

ACEA, 2012, 'Taxation Guide 2012', European Automobile Manufacturer's Association (<http://www.acea.be/publications/article/acea-tax-guide>) accessed 8 October 2014.

CE Delft, 2012, 'An inventory of measures for internalising external costs in transport', Final report. European Commission, Directorate-General for Mobility and Transport (<http://ec.europa.eu/transport/themes/sustainable/studies/doc/2012-11-inventory-measures-internalising-external-costs.pdf>) accessed 15 October 2014.

CFO, 2013, 'Parlament schválil novelu zákona o podpore obnoviteľných zdrojov energie' (<http://www.cfo.sk/articles/parlament-schvalil-novelu-zakona-o-podpore-obnovitelnych-zdrojov-energie#.VFJrvTSG98F>) accessed 8 October 2014.

Energia, 2013a, 'SEPS plánuje tento rok preinvestovať takmer 96 mil. eur' (<http://www.energia.sk/spravodajstvo/elektrina-a-elektromobilita/seps-planuje-tento-rok-preinvestovat-takmer-96-mil-eur/9556/>) accessed 8 October 2014.

Energia, 2013b, 'Bratislava chce rozvíjať e-mobilitu' (<http://www.energia.sk/spravodajstvo/elektrina-a-elektromobilita/bratislava-chce-rozviat-e-mobilitu/11350>) accessed 8 October 2014.

Energia, 2013c, 'Slováci sa odpadov desia, nevidia v nich potenciálny zdroj energie' (<http://www.energia.sk/tema/zemny-plyn-a-teplo/slovaci-sa-odpadov-desia-nevidia-v-nich-potencialny-zdroj-energie/10162/>) accessed 8 October 2014.

Energia, 2013d, 'Vláda: Vážny má pripraviť koncepciu rozvoja výroby elektriny z OZE do 10 kW' (<http://www.energia.sk/spravodajstvo/obnovitelne-zdroje/vlada-vazny-ma-pripravit-koncepciu-rozvoja-vyroby-elektriny-z-oze-do-10-kw/9540/>) accessed 8 October 2014.

Energia, 2013e, 'Nová energetická politika pomaly smeruje do vlády' (<http://www.energia.sk/spravodajstvo/legislativa-a-regulacia/nova-energeticka-politika-pomaly-smeruje-do>)

[vlady/11810/](#)) accessed 8 October 2014.

European Commission, 2013, 'Excise duty tables, Part II – Energy products and Electricity', RED 1036, January 2013, Directorate-General for Taxation.

FES, 2012, 'Resource Efficiency Gains and Green Growth Perspectives in Slovakia' (<http://library.fes.de/pdf-files/id-moe/09379.pdf>) accessed 8 October 2014.

MFSR, 2012, 'Národný program reforiem Slovenskej republiky 2012' (http://www.finance.gov.sk/Components/CategoryDocuments/s_LoadDocument.aspx?categoryId=8046&documentId=7359) accessed 8 October 2014.

Ministerstvo spravodlivosti, 2011, 'Analýza fungovania štátnej podpory baníctva' (https://lt.justice.gov.sk/Attachment/Anal%C3%BDza_vlastn%C3%BD%20materi%C3%A1l_doc.pdf?instEID=191&attEID=33275&docEID=161187&matEID=3698&langEID=1&tStamp=20110401122047233) accessed 8 October 2014.

Program stability, 2013, 'Program stability Slovenskej republiky na roky 2013 až 2016' ([https://lt.justice.gov.sk/\(X\(1\)S\(ev0jd1a23grebj45fnfu3bqz\)\)/Attachment/material.pdf?instEID=1&attEID=53621&docEID=300752&matEID=6084&langEID=1&tStamp=20130415195605093](https://lt.justice.gov.sk/(X(1)S(ev0jd1a23grebj45fnfu3bqz))/Attachment/material.pdf?instEID=1&attEID=53621&docEID=300752&matEID=6084&langEID=1&tStamp=20130415195605093)) accessed 8 October 2014.