

FORECAST DOCUMENT FOR ESTIMATED PRODUCTION OF RENEWABLE ENERGY

(Slovak Republic)

Pursuant to Article 4(3) of *Directive 2009/28/EC on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC*, Slovakia is publishing this forecast document setting out its estimated excess production of energy from renewable sources compared to the indicative trajectory which could be transferred to other Member States in accordance with Articles 6 to 11, as well as its estimated potential for joint projects, until 2020.

According to Annex 1 to the Directive, Slovakia is required to increase the proportion of final energy consumption accounted for by energy from renewable sources (ERS) from 6.7% in 2005 to 14% in 2020.

Expected amount of energy from renewable sources

The expected amount of energy from renewable sources corresponding to the 2020 target of 14% has been calculated from expected total adjusted energy consumption. This information is shown in Table 1.

Table 1: Targets and amounts of ERS relative to adjusted energy consumption in 2020

(A) Share of gross final energy consumption accounted for by energy from renewable sources in 2005 (S2005) (%)	6.7%	
(B) Target value for share of gross final energy consumption to be accounted for by energy from renewable sources in 2020 (S2020) (%)	14.0%	
(C) Expected total adjusted energy consumption in 2020	500 PJ	11.94Mtoe
(D) Expected amount of energy from renewable sources corresponding to the 2020 target (calculated as B x C)	70 PJ	1.67 Mtoe

Energy consumption scenarios

This expected total adjusted energy consumption represents gross final energy consumption in the energy efficiency scenario (EE 2020). The energy efficiency scenario is posited on a reduction of approximately 20% in final energy consumption compared to the business-as-usual (BAU) scenario. The BAU scenario assumes no change in the behaviour of energy consumers and no action on the part of government to apply energy efficiency principles. The energy consumption forecast is taken from the International Energy Agency (IEA), which publishes information on energy consumption and projections for individual countries. The data used are IEA projections for 2020.

Table 2: Energy consumption indicators for 2020

	Scenario		
	2007	BAU 2020	EE 2020
Gross domestic consumption (PJ)	754	830	800
Gross final energy consumption (PJ)	498	616	500

It is estimated that gross final energy consumption in the preferred EE scenario will be the same in 2020 as it is now, at around 500 PJ, as a result of energy saving measures.

Estimated amount of energy from renewable sources for statistical transfer to other countries

Based on its ability to exploit the technical potential of renewable sources of energy, Slovakia expects to meet the indicative trajectory, with the possibility of statistical transfers of energy to other countries. Table 3 sets out the expected total consumption of ERS (D), which is the sum of gross final consumption of ERS in the production of heating and cooling (A) and electricity (B) and of ERS in transport (C).

For 2020 the value of expected total consumption of ERS is 76 PJ, which means that Slovakia will produce an additional 6 PJ of ERS (which is the excess above the amount of 70 PJ which corresponds to the 14% target for 2020).

The use of ERS is based on the principle of minimising costs in an integrated approach to meeting the ERS target and the greenhouse gas emission reduction target. It is clear that in the application of this principle the use of ERS must concentrate on technologies that promote convergence of prices towards market prices. The continued use of ERS reflects the technical potential of these sources and the economic attractiveness of the various types of ERS.

The assumptions are based on efficient use of the available technical potential of ERS. It is expected that fossil fuels will be replaced by growing use of biomass, geothermal energy and solar energy in the production of heat. Since these renewable sources currently account for such a small share of energy production, the growth is expected to be relatively high. Biomass has the highest technical potential, at 150 PJ. This means that even on the assumption that biomass use will predominate in heat production, a large part of its potential will remain unexploited.

A smaller growth in the use of ERS is expected in electricity production. This is because ERS has lower technical potential for electricity production.

The expected final consumption of ERS in transport of 6 PJ corresponds to the 2020 target of 10%, on the assumption that second-generation biofuels produced from waste, residues and non-food cellulose and ligno-cellulose material will predominate in the transport sector. Electric cars are expected to account for a small share, which means that the use of electricity from ERS for transport purposes is expected to be around 200 GWh.

Table 3: Expected transfer of ERS to other Member States and consumption of ERS in accordance with the indicative trajectory

		2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
(A) Expected gross final consumption of ERS in production of heating and cooling	PJ	17.4	19.0	20.0	21.5	23.5	25.5	28.0	30.5	33.5	36.5	39.5	42.5
(B) Expected gross final consumption of electricity from ERS	PJ	16.7	18.5	19.2	20.0	20.8	21.6	22.5	23.4	24.3	25.3	26.1	27.0
(C) Expected final consumption of energy from ERS in transport	PJ	-	3.0	3.0	3.0	3.0	3.0	3.3	3.6	4.0	4.4	5.4	6.5
(D) Expected total consumption of energy from ERS	PJ	34.1	40.5	42.2	44.5	47.3	50.1	53.8	57.5	61.8	66.2	71.0	76.0
(E) Expected transfer of ERS to other Member States	PJ	-	-	1.2	3.5	3.3	6.1	3.8	7.5	4.8	9.2	14.0	6.0
Consumption of ERS according to indicative trajectory (D)-(E)	PJ		40.0	41.0		44.0		50.0		57.0			70.0

Table 3 shows that transfer of ERS to other Member States (E) is expected to be feasible each year. The indicative trajectory has a gentle curve in the initial years and then gradually increases every year up to 2020 (see Figure 1). Since growth in total gross consumption of ERS (i.e. use of ERS) is expected to be more uniform, the statistical transfer of energy differs in different periods. The differences are expressed as percentages in Figure 1.

Figure 1: Curves of indicative trajectory and expected total consumption of ERS

[See original Figure]

Target 14 %

Indicative trajectory

Expected use of ERS

Slovakia is not assuming any joint projects in this document since the estimated potential for joint projects before 2020 is zero.

Estimated costs

The estimated costs to business of constructing installations and making the investments necessary for ERS to reach 14 % of final energy consumption come to a total of ~~€4bn-€5bn~~. This amount includes the Ipe• pumped-storage hydroelectric power plant, which will not contribute directly to a higher production of electricity from ERS. If the costs of building this pumped-storage power plant are not included, the investment costs are somewhere between €3.3bn and €4.3bn. We have quoted a range because different types of renewable energy sources may be used and future reductions in the cost of different technologies are uncertain.