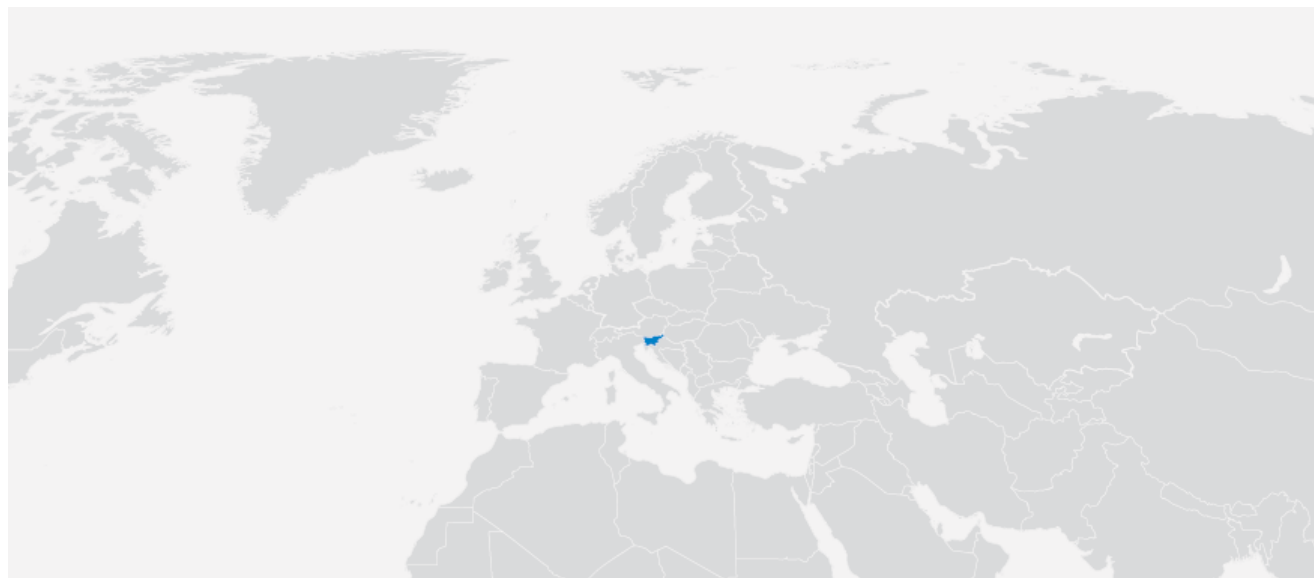


Slovenia

Energy efficiency report



Objectives:

- 4.3 TWh of end-use energy savings in 2016 , including 1.6 TWh in industry
- 18% of CHP in gross electricity consumption in 2016

Overview	2011		2000-2011 (%/year)	
Primary intensity (EU=100) ¹	119	-	-1.4%	-
CO ₂ intensity (EU=100)	117	-	-1.8%	-
CO ₂ emissions per capita (in tCO ₂ /cap)	7.3	-	0.4%	-
Power generation	2011		2000-2011 (%/year)	
Efficiency of thermal power plants (in %)	34	-	0.2%	+
Rate of electricity T&D losses (in %)	7.3	-	0.3%	--
CO ₂ emissions per kWh generated (in gCO ₂ /kWh)	326	+	-0.5%	-
Industry	2011		2000-2011 (%/year)	
Energy intensity (EU=100)	103	-	-2.3%	+
Share of industrial CHP in industrial consumption (in %)	4.8	--	-4.7%	--
Unit consumption of steel (in toe/t)	0.244	+	-2.8%	+

*2010 and 2000-2010 for steel

++ Among the best performing countries + Above the EU average¹ - Below the EU average¹ --Among the worst performing countries

Latest update: May 2013

¹ The European Union, as the best performing region, is used as the benchmark.

1. Overview

1.1. Policies: 4.3 TWh of energy savings in 2016

In the framework of its National Energy Efficiency Action Plan (NEEAP) Slovenia has set an energy savings target of 4.3 TWh (or 366 ktoe) for 2016; this target was preserved in the second NEEAP adopted in 2011. The country has presented a large range of measures that could make it possible to achieve up to 6.9 TWh of energy savings by 2016; of those savings 25 percent would be achieved in transport, 24 percent in industry, 23 percent in the residential sector, 6 percent in the public sector, 4 percent in services and 18 percent through cross-sectoral measures. By 2020 these measures could save up to 10.3 TWh. The NEEAP involves financial incentives, mainly for the households and services sectors, the thermal retrofitting of existing buildings and the construction of energy-efficient buildings, high-efficiency heating systems and rational electricity use. Moreover, it establishes minimum energy efficiency requirements for electrical appliances.

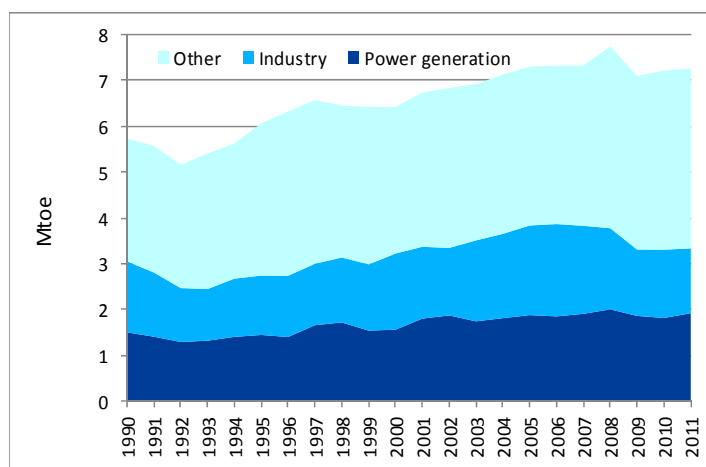
Slovenia also established an energy savings target in its National Energy Program, which aims to achieve a 20 percent improvement in energy efficiency by 2020. Final energy consumption (excluding transport) should decrease by more than 7 percent by 2020 compared with 2008, and remain stable from 2020 until 2030. Slovenia aims to limit the electricity consumption growth (excluding transport) to below 5 percent up to 2020 (and below 7 percent up to 2030, compared with 2008). Slovenia aims for 100 percent of the new and renovated buildings in the country to be almost zero-energy buildings as of 2020 (as of 2018 in the public sector).

Since 2010, energy suppliers are required to achieve energy savings of 1 percent/year among final customers and to collect an energy efficiency tax from final customers.

1.2. Energy consumption trends: rising energy consumption

Energy consumption per capita in Slovenia has been slightly above the EU average since 2005 (3.5 toe in 2011). Energy consumption grew by 1.8 percent/year between 1990 and 2011, despite a sharp fall in 2009 (-8.3 percent).

Figure 1: Energy consumption trends by sector



Source: Enerdata

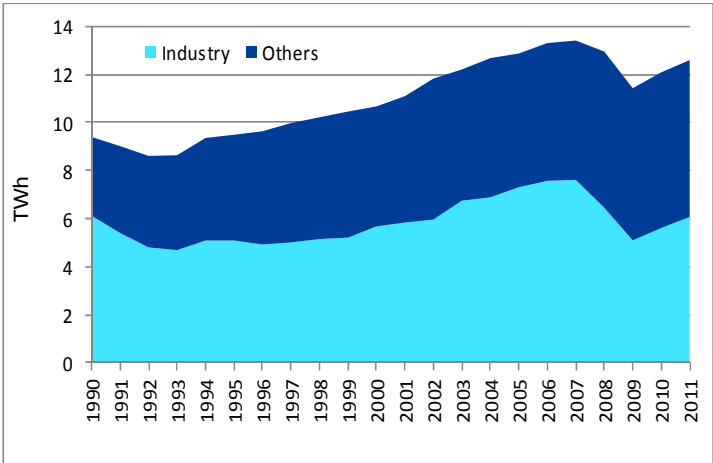
The power sector is the largest energy consuming sector, with 21 percent of total energy consumption in 2011 (stable since 1990). Industry – including non-energy uses – also has a significant share, with 19 percent in 2011, compared with 27 percent in 1990 and 28 percent in 2006 (sharp decrease in industrial energy consumption between 2006 and 2009).

Oil covered 36 percent of total energy consumption in 2011, followed by coal (19 percent), gas (10 percent) and biomass (9 percent). Nuclear power and hydroelectricity account for 22 percent and 4 percent of total consumption, respectively.

At 6,100 kWh in 2011 electricity consumption per capita is close to the EU average (it was slightly higher between 2001 and 2008). Since 1990, electricity has covered about 20 percent of final energy consumption. Power consumption increased regularly between 1990 and 2008 (+1.8 percent/year) but fell by nearly 12 percent in 2009, since industrial demand for electricity fell strongly. In 2010 and 2011 electricity consumption again grew at a dynamic pace (+5.8 percent and +4.2 percent), but remained below its pre-crisis level.

Industry accounts for 48 percent of power consumption in Slovenia, but its share is declining (65 percent in 1990) due to the soaring electricity consumption of the services sector, which increased fourfold between 1990 and 2010 (from 9 percent in 1990 to 25 percent in 2011).

Figure 2: Electricity consumption trends by sector

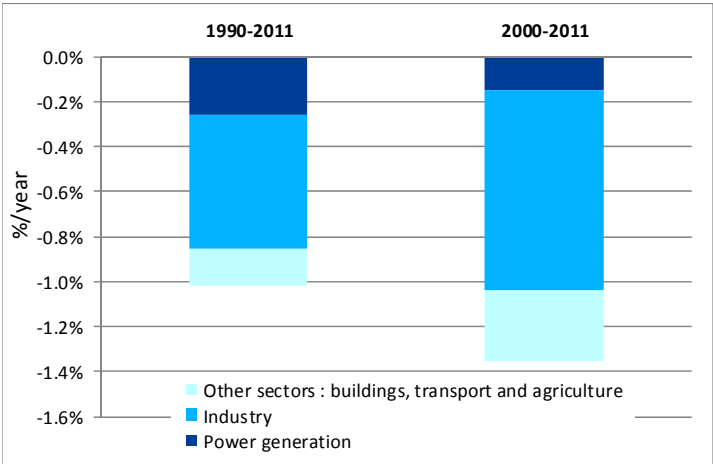


Source: Enerdata

1.3. Energy efficiency trends: slow improvements

Between 1990 and 2011 energy consumption per unit of GDP (total energy intensity) decreased slightly, at a rate of 1 percent/year, on average. The decrease in energy intensity was faster after 2000, with a pace of 1.4 percent/year, but it remains slower than the European average (1.6 percent/year). Industry accounted for 66 percent of the decrease over this period. The power sector accounted for just 15 percent of the energy intensity reduction.

Figure 3: Energy intensity trends



Source: Enerdata

2. Power generation

2.1. Policies: 18% of CHP in gross electricity consumption by 2020

The National Energy Program (2010) targets an 18 percent share of CHP in gross electricity consumption by 2020, and a 23 percent share by 2030, in order to improve the efficiency of energy conversions in transformations and end-use energy consumption. The NEP also includes plans for the refurbishment of existing thermal power plants, with a conversion to high-efficiency CHP or to gas, and aims to promote the use of BAT.

In 2008, amendments to the Energy Act were adopted to promote renewable electricity and cogeneration of heat and electricity through price regulation (feed-in tariffs and premiums). A new decree on support for electric power produced from high-efficiency cogeneration was adopted. Certificates of origin are also in use in Slovenia. The second NEEAP expects the support scheme for renewables and CHP to save up to 711 GWh by 2016 and up to 1.4 TWh by 2020.

2.2. Efficiency of the power sector: low efficiency of thermal power generation

Low-efficiency generation (coal and nuclear power) accounts for 72 percent of the electricity mix (2011). The efficiency rate of thermal power generation equals 34 percent, which is below the EU average (37 percent). This efficiency rate has been stable since 2003 (so far Slovenia does not have gas combined-cycles).

Figure 4: Efficiency of power generation and thermal power plants

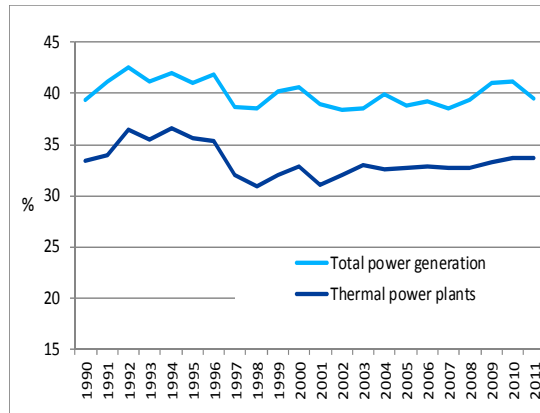
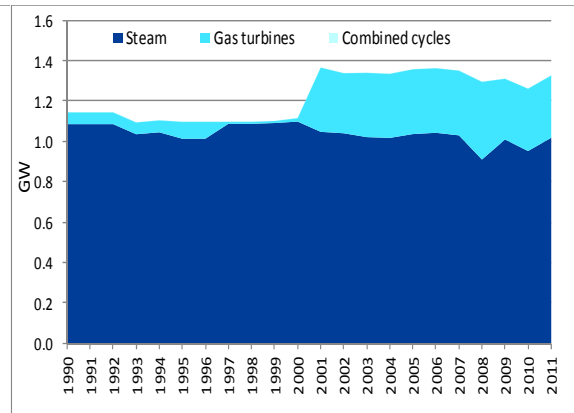


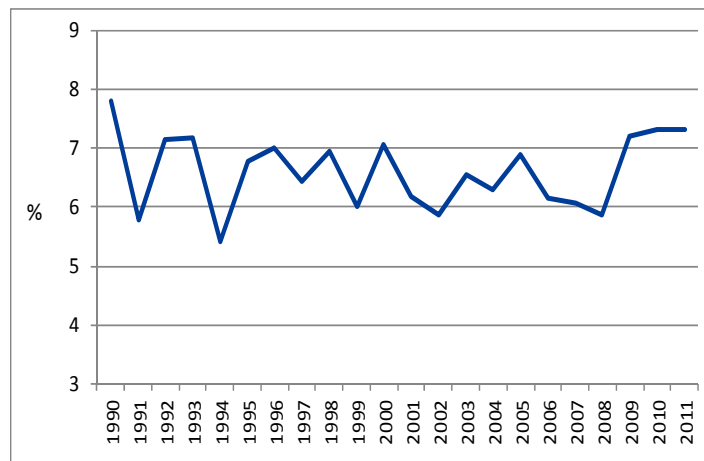
Figure 5: Thermal electricity capacity, by technology



Source: Enerdata

The rate of T&D losses fluctuates around 6.5 percent (7.3 percent in 2011).

Figure 6: Electric T&D losses



Source: Enerdata

3. Industry

3.1. Policies: promotion of efficient electricity use in industry

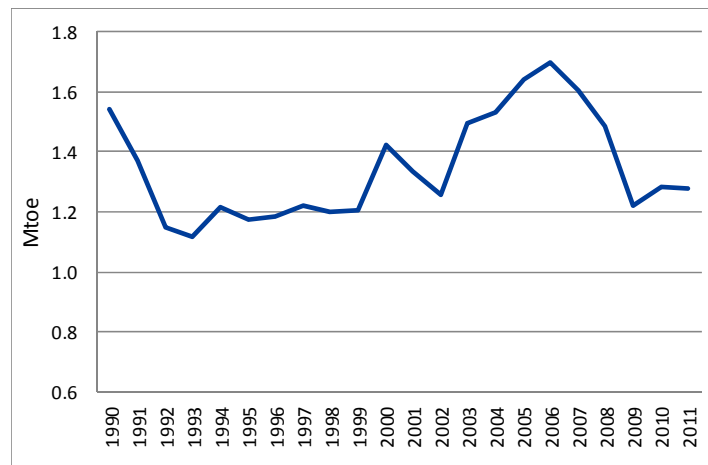
The target set in Slovenia's National Energy Efficiency Action Plan is to achieve 1,634 GWh of energy savings in industry by 2016 and up to 2,486 GWh by 2020. Financial incentives (15 million euros, ie about 19 million US dollars) will be granted to promote efficient electricity use, to replace low-efficiency electric motors and air-compressors, and to install frequency converters, energy-saving pumps and ventilators. Between 1997 and 2007, the Fund for Efficient Energy Use granted soft loans to the industrial sector for the energy rehabilitation of buildings and the replacement of low-efficiency technologies.

Slovenia has also introduced financial incentives (non-returnable investment funds and soft loans) to support R&D projects and energy audits for small- and medium-sized industrial companies (subsidies cover up to 50 percent of the audit cost). Following the energy audits, SMEs can benefit from investment subsidies (CHP or renewable electricity generation facilities under 10 MW). The existing system of guaranteed electricity purchase prices for electricity produced by high-efficiency cogeneration will, in the future, be expanded to industrial CHP facilities.

3.2. Energy consumption trends: sharp drop since 2007

Industrial energy consumption grew by 3.3 percent/year between 1993 and 2006; industrial consumption then fell by 28 percent between 2006 and 2009. In 2010 it increased by 5.1 percent and in 2011 it remained stable.

Figure 7: Trends in industrial energy consumption

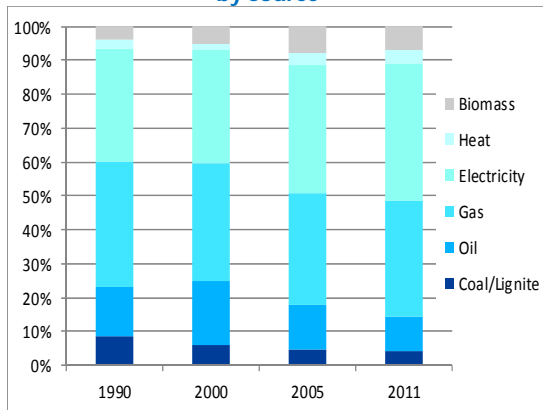


Source: Enerdata

Electricity and gas are the most consumed fuels in Slovenian industry, with 40 percent and 34 percent, respectively, of industrial consumption in 2011 (33 percent and 37 percent, respectively, in 1990). Industrial consumption of coal and oil has decreased regularly since 1990, and their shares fell from 9 percent and 15 percent, respectively, to 4 percent and 10 percent in 2011. Biomass and heat now account for 7 percent and 4 percent, respectively, compared with 4 percent and 3 percent in 1990.

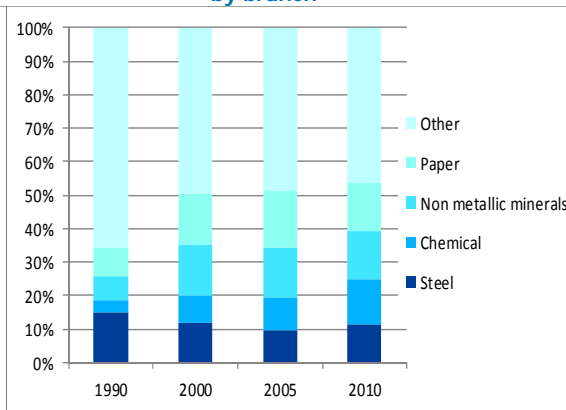
The share of energy-intensive branches in industrial energy consumption grew from 34 percent in 1990 to 54 percent in 2010. This increase was particularly noticeable in the chemical and petrochemical sector, where it tripled between 1990 and 2010 (from 4 percent to 13 percent of industrial energy consumption); in the non-metallic minerals branch (+66 percent in energy consumption), which saw its share in industrial consumption double from 7 percent to 14 percent; and in the paper and pulp branch (+46 percent), which absorbed 15 percent of industrial energy consumption in 2010 (8 percent in 1990). The energy consumption of the steel industry fell by 36 percent over this period, and its share dropped from 15 percent to 12 percent in 2010.

Figure 8: Energy consumption of industry, by source



Source: Enerdata

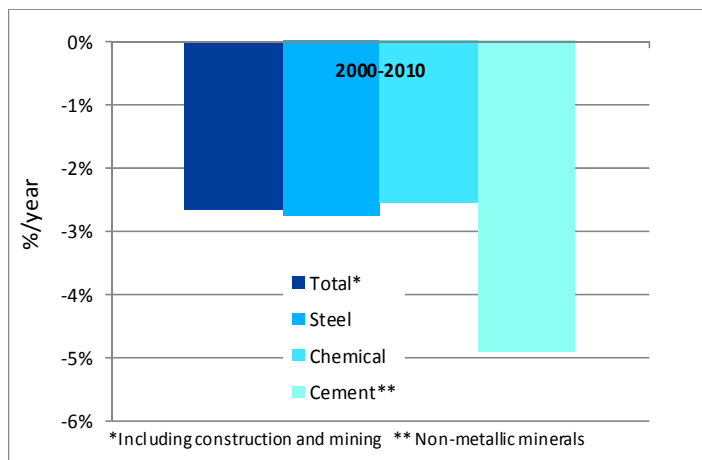
Figure 9: Energy consumption of industry, by branch



3.3. Energy intensity trends: significant energy efficiency improvements since 2000 offset by a faster development of energy intensive branches

Between 2000 and 2010 industrial energy intensity decreased by 2.7 percent/year. Over the given period the energy intensity of the non-metallic mineral branch fell by 4.9 percent/year. Efficiency gains were slower in the steel and chemical branches, with the energy intensity of chemicals dropping by 2.6 percent/year and the unit consumption of steel by 2.8 percent/year.

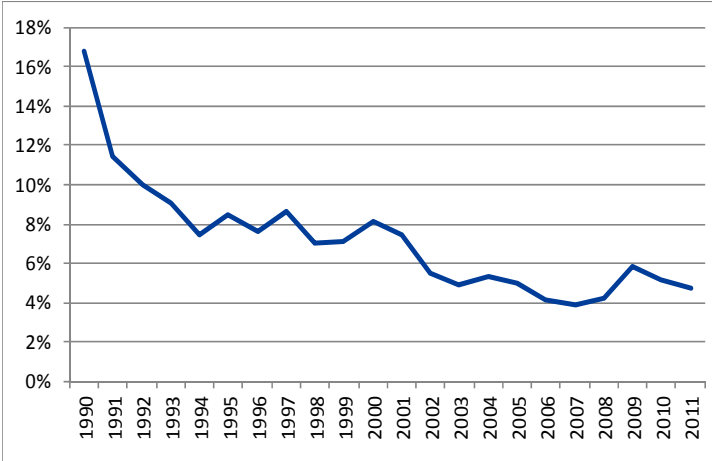
Figure 2: Trends in the energy intensity of industrial branches



Source: Enerdata, Odyssee

The share of CHP generation in industrial electricity consumption fell regularly between 1990 and 2007 (-13 percentage points) and has remained relatively stable between 4 percent and 6 percent since then. At 5 percent in 2011, it is far below the EU average (18 percent).

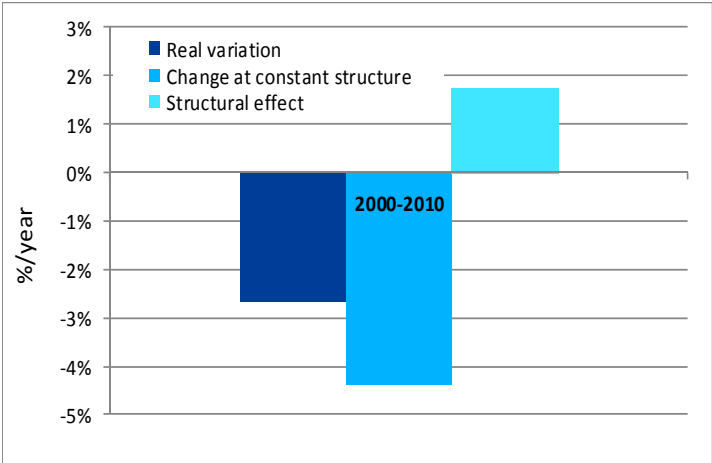
Figure 3: Share of industrial CHP in industrial consumption



Source: Enerdata

Between 2000 and 2010 the energy intensity of the manufacturing industry (ie excluding mining and construction) dropped at the same pace as the energy intensity of industry as a whole (around 2.7 percent/year). That decrease was mainly linked to energy efficiency gains in industrial branches, as measured by the reduction in the energy intensity at constant structure (4.4 percent/year). Structural changes limited the effect of energy efficiency gains on the energy intensity reduction and contributed to increase the energy intensity by 1.7 percent/year; these structural changes corresponded to a faster growth of energy-intensive branches and to an increase in their share in the total industrial value added.

Figure 4: Trends in the energy intensity of manufacturing and structural effect



Source: Enerdata, Odyssee