

# ENERGY

Helgi's Pocket Guide

December 2012

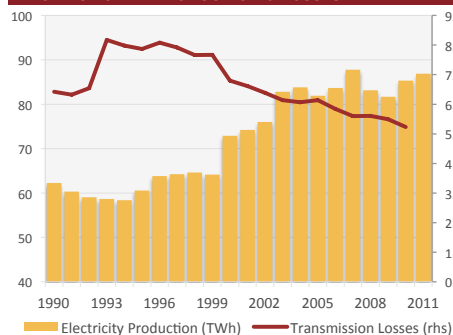


Czech Republic

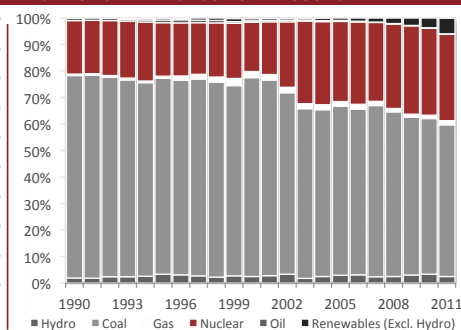
CZECH ENERGY AT A GLANCE	1990	1995	2000	2005	2010
Electric Power Production (GWh)	62,271	60,575	72,911	81,931	85,319
Electric Power Consumption (GWh)	57,871	56,497	58,493	64,917	66,496
Electric Power Consumption Per Capita (kWh)	5,584	5,474	5,697	6,333	6,313
Energy Imports (As Of Energy Use)	17%	22%	25%	27%	28%
Electricity Production From Coal Sources (As Of Total)	76%	74%	75%	64%	59%
Electricity Production From Nuclear Sources (As Of Total)	20%	20%	19%	30%	33%
Electricity Production From Hydro Sources (As % Of Total)	1.9%	3.3%	2.4%	2.9%	3.3%
Electricity Production From Natural Gas (As Of Total)	0.6%	0.8%	2.3%	1.8%	1.3%
Electricity Production From Renewables (As Of Total)	1.9%	4.0%	3.1%	3.8%	6.9%
Fossil Fuel Consumption (As Of Total)	92%	89%	90%	84%	80%
CO2 Emissions (kt)		125,052	124,649	120,736	
CO2 Emissions Per Capita (metric kg)		12,116	12,141	11,778	
Total Gas Consumption (mil cubic metres)		10,064	11,519	11,839	11,573



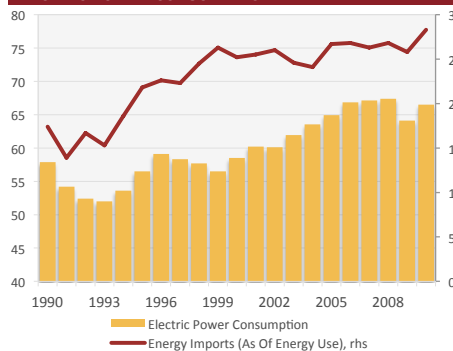
## ELECTRIC POWER PRODUCTION & LOSSES



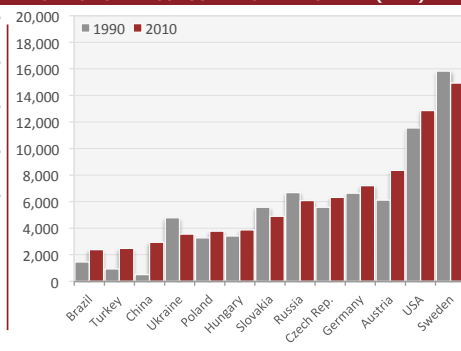
## ELECTRIC POWER PRODUCTION BY SOURCE



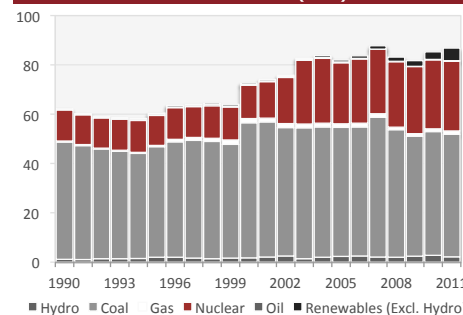
## ELECTRIC POWER CONSUMPTION



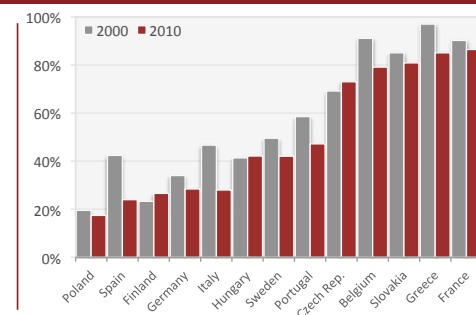
## ELECTRIC POWER CONSUMPTION PER CAPITA (kWh)



## ELECTRICITY POWER PRODUCTION (TWh)

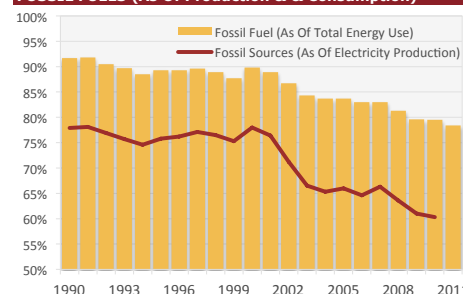


## MARKET SHARE OF THE LARGEST ELECTRICITY PRODUCER

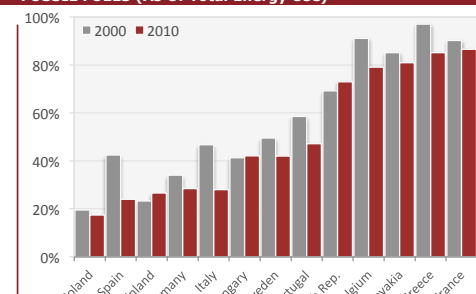


With major thanks to state support (including a friendly regulatory environment), the Czech Republic (or CEZ, its dominant state-owned producer) is one of the largest producers and exporters of electricity in Europe. The production of electricity has increased by 37% since 1990, much of this being due to the completion of the Temelin nuclear power plant in 2002. Unlike in the rest of the EU, the dominant Czech producer has even strengthened its market share to 73% in the last decade.

## FOSSIL FUELS (As Of Production & Consumption)

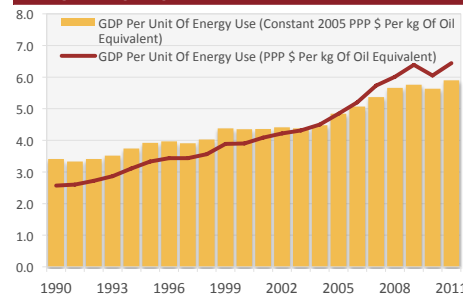


## FOSSIL FUELS (As Of Total Energy Use)

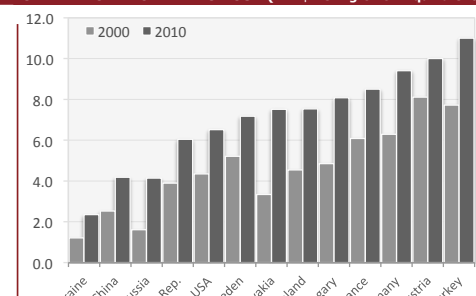


Fossil sources, and coal in particular, still dominate Czech electricity production, though its share has dropped by nearly 20% to around 60% in the last 20 years. When the whole energy picture is taken into consideration, the Czech economy still remains very heavily dependent on fossil sources, with nearly 80% of energy consumption coming from very very old animals and plants.

## ENERGY EFFICIENCY



## GDP PER UNIT OF ENERGY USE (PPP\$ Per kg Of Oil Equivalent)



Energy efficiency has been increasing, though energy consumption still remains relatively high in the Czech Republic. This is partly due to the relatively high proportion of manufacturing and heavy industry in the economy as a whole.

Source: World Bank, National Statistical Office, United Nations, OECD, EIA, Helgi Analytics calculation



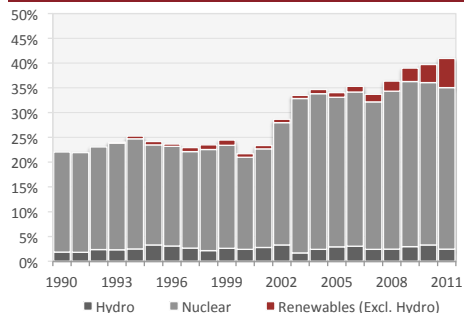
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Source: World Bank, National Statistical Office, United Nations, OECD, EIA, Helgi Analytics calculation



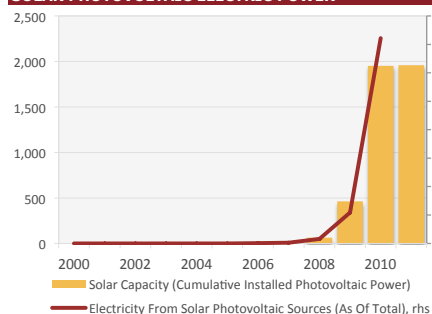
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### ELECTRICITY PRODUCTION FROM RENEWABLES



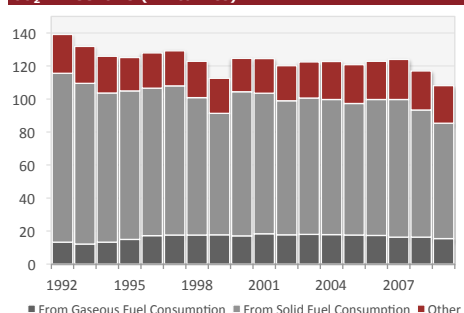
The Temelin nuclear power plant and hefty subsidies for solar electricity have increased the share of "clean" resources in the last decade. When nuclear is excluded, however, the picture is not that great. Only 7% of electricity was produced from renewable sources in 2010. The Czech Republic (along with Poland and Hungary) belongs among the EU countries which use new energy sources the least.

### SOLAR PHOTOVOLTAIC ELECTRIC POWER



Thanks to the government's generous subsidies, the Czech Republic had the 6th largest installed photovoltaic capacity in the world in 2010, accounting for 4.9% of the world's total. Although this has had a very limited effect on the electricity market, generating only 0.6% of total electricity in 2011, Czech taxpayers face an additional bill of USD 2 bil a year (or USD 184 per capita) for this expensive exercise. There is no such thing as a free lunch.

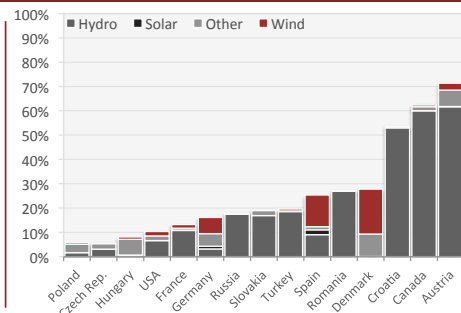
### CO<sub>2</sub> EMISSIONS (mil tonnes)



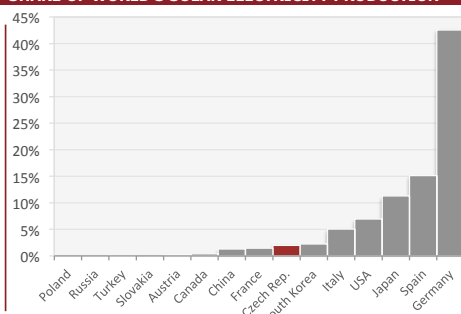
Thanks mainly to its heavy industry and high share of electricity produced from coal, the Czech Republic belongs among the largest CO<sub>2</sub> polluters per capita in the world, just behind the USA, Canada and Russia. In absolute terms, however, the Czech "contribution" is limited. In 2008, it produced 0.4% of the world's emissions of CO<sub>2</sub>. In addition, Czechs have reduced their emissions by 16% since 1992, while the world's output increased by 40% between 1992 and 2008.

Source: World Bank, National Statistical Office, United Nations, OECD, EIA, Helgi Analytics calculation

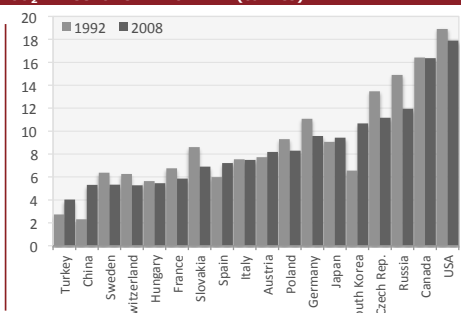
### RENEWABLES ELECTRICITY (Excluding Nuclear), 2009



### SHARE OF WORLD'S SOLAR ELECTRICITY PRODUCTION



### CO<sub>2</sub> EMISSIONS PER CAPITA (tonnes)



POPULATION		2003	2004	2005	2006	2007	2008	2009	2010	2011
Population	<i>mil</i>	10.21	10.22	10.25	10.29	10.38	10.47	10.51	10.53	10.50
Population (As % Of World Population)	%	0.16%	0.16%	0.16%	0.16%	0.16%	0.16%	0.15%	0.15%	0.15%
Persons Per Household	<i>persons</i>	2.49	2.49	2.49	2.49	2.46	2.42	2.41	2.38	2.35
Share Of Population (0-14 Years Of Age)	%	15.6%	15.2%	14.9%	14.7%	14.4%	14.2%	14.1%	14.0%	14.1%
Share Of Population (15-64 Years Of Age)	%	70.5%	70.8%	71.0%	71.2%	71.4%	71.5%	71.4%	71.1%	70.7%
Share Of Population (65+ Years Of Age)	%	13.9%	14.0%	14.0%	14.1%	14.2%	14.3%	14.5%	14.8%	15.2%
Median Age	<i>years</i>	38.2	38.4	38.7	38.8	39.0	39.1	39.3	39.4	39.6
Old Age Dependency Ratio	%	19.7%	19.7%	19.8%	19.8%	19.9%	20.1%	20.4%	20.9%	21.5%
Youth Dependency Ratio	%	22.1%	21.5%	21.0%	20.6%	20.2%	19.8%	19.7%	19.7%	19.9%
Life Expectancy, both sexes	<i>years</i>	75.2	75.7	75.9	76.5	76.7	77.0	77.1	77.4	
Life Expectancy At 65, both sexes	<i>years</i>	15.7	16.1	16.3	16.8	17.0	17.3	17.2	17.4	
Total Fertility Rate	<i>children</i>	1.18	1.23	1.28	1.33	1.44	1.50	1.49	1.49	
Urban Population As Of Total	%	73.8%	73.8%	73.7%	73.7%	73.6%	73.6%	73.5%	73.5%	73.4%

ENERGY PRODUCTION & USE		2003	2004	2005	2006	2007	2008	2009	2010	2011
Electric Power Production	<i>GWh</i>	82,816	83,790	81,931	83,654	87,764	83,166	81,697	85,319	86,864
Electric Power Production Per Capita	<i>kWh</i>	8,110	8,198	7,992	8,132	8,454	7,945	7,776	8,100	8,273
Electric Power Consumption	<i>GWh</i>	61,927	63,532	64,917	66,845	67,130	67,387	64,119	66,496	
Electric Power Consumption Per Capita	<i>kWh</i>	6,064	6,216	6,333	6,498	6,467	6,438	6,103	6,313	
Electric Power Distribution & Transmission Losses	<i>GWh</i>	5,087	5,084	5,027	4,885	4,915	4,662	4,487	4,466	
Electric Power Losses (As Of Output)	%	6.14%	6.07%	6.14%	5.84%	5.60%	5.61%	5.49%	5.23%	
Market Share Of The Largest Electricity Generator	%	73.2%	73.1%	72.0%	73.5%	74.2%	72.9%	73.7%	73.0%	
Household Electric Power Consumption	<i>GWh</i>	14,508	14,525	14,719	15,198	14,646	14,703	14,687	15,028	
Electricity Consumption Per Household	<i>kWh</i>	3,539	3,533	3,570	3,672	3,471	3,404	3,364	3,398	
Energy Production (kt Of Oil Equivalent)	<i>kt</i>	33,508	34,543	32,925	33,590	33,788	32,857	31,230	31,620	31,714
Energy Use (kt Of Oil Equivalent)	<i>kt</i>	44,413	45,511	44,941	45,904	45,845	44,870	42,072	44,108	42,901
Energy Imports (As Of Energy Use)	%	24.6%	24.1%	26.7%	26.8%	26.3%	26.8%	25.8%	28.3%	26.1%
Energy Use (kg Of Oil Equivalent Per Capita)	<i>kg</i>	228	223	206	197	186	177	174	177	169
Energy Use Per USD 1,000 Of GDP (2005 PPP)	<i>kg</i>	228	223	206	197	186	177	174	177	169
Fossil Fuel Consumption (As Of Total)	%	84.3%	83.7%	83.7%	83.0%	83.0%	81.3%	79.6%	79.5%	78.4%
CO <sub>2</sub> Emissions	<i>kt</i>	122,379	122,709	120,736	122,786	123,945	116,952	108,121		
CO <sub>2</sub> Emissions Per Capita	<i>kg</i>	11,984	12,006	11,778	11,936	11,939	11,173	10,291		
CO <sub>2</sub> Emissions (kg Per PPP USD Of GDP)	<i>kg</i>	0.64	0.60	0.55	0.51	0.47	0.43	0.40		
CO <sub>2</sub> Emissions From Electricity And Heat Production	<i>mil tonnes</i>	68.2	68.3	66.5	66.4	71.4	66.9	61.8	65.2	
CO <sub>2</sub> Emissions From Gaseous Fuel Consumption	<i>kt</i>	17,961	17,836	17,642	17,334	16,402	16,307	15,405		
CO <sub>2</sub> From Gaseous Fuel Consumption (As Of Total)	%	14.7%	14.5%	14.6%	14.1%	13.2%	13.9%	14.2%		
CO <sub>2</sub> Emissions From Solid Fuel Consumption	<i>kt</i>	82,647	81,873	79,644	82,324	83,344	77,084	69,897		
CO <sub>2</sub> From Solid Fuel Consumption (As Of Total)	%	67.5%	66.7%	66.0%	67.0%	67.2%	65.9%	64.6%		
CO <sub>2</sub> Emissions From Manufacturing & Construction	<i>mil tonnes</i>	22.6	23.4	23.2	22.9	20.8	20.3	19.1	19.8	
CO <sub>2</sub> Emissions From Transport	<i>mil tonnes</i>	15.2	15.9	17.2	17.5	18.5	18.3	17.7	16.7	
CO <sub>2</sub> Emissions (As Of Total Worldwide Emissions)	%	0.39%	0.39%	0.39%	0.39%	0.39%	0.39%	0.39%	0.39%	0.39%
Total Gas Consumption (cubic metres)	<i>bil</i>	12,045	11,974	11,839	11,588	10,789	10,834	10,207	11,573	11,154
Gas Consumption Per Capita (cubic metres)	<i>'000</i>	1,180	1,172	1,155	1,126	1,039	1,035	971	1,099	1,062

ENERGY DEPENDANCE & ALTERNATIVES		2003	2004	2005	2006	2007	2008	2009	2010	2011
Energy Dependence (Hard Coal & Derivatives)	%	-48.5%	-38.4%	-51.1%	-43.7%	-40.8%	-40.7%	-73.2%		
Energy Dependence (Petroleum Products)	%	95.8%	93.6%	97.5%	96.8%	96.2%	97.4%	96.5%		
Energy Dependence (Natural Gas)	%	98.2%	91.1%	97.8%	104.5%	93.4%	98.7%	104.4%		
Comb. Renewables & Waste (Of Oil Equivalent)	<i>metric tons</i>	1,527	1,705	1,746	1,861	2,110	2,198	2,372	2,652	2,901
Comb. Renewables & Waste (As Of Total Energy)	%	3.44%	3.75%	3.88%	4.06%	4.60%	4.90%	5.64%	6.01%	6.76%
Renewable Internal FreshWater Withdrawal Per Cap.	<i>cubic metres</i>					1,272				1,247
Biofuels Production (Barrels)	<i>'000/day</i>									
Biofuels Production (As Of Worldwide Production)	%									
Biofuels Production (Tonnes Of Oil Equivalent)	<i>'000 tonnes</i>									
Electricity Production (As Of Worldwide Production)	%	0.50%	0.48%	0.45%	0.44%	0.44%	0.41%	0.41%	0.40%	#DIV/0!
Solar Capacity (Cum. Installed Photovoltaic Power)	<i>MW</i>	0.0	0.0	0.0	1.0	3.0	64	462	1,952	1,959
Solar Capacity (As Of Worldwide Total)	%	0.00%	0.00%	0.00%	0.01%	0.03%	0.40%	1.98%	4.88%	2.82%
Wind Capacity (Cum. Installed Wind Capacity)	<i>MW</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wind Capacity (As Of Worldwide Total)	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Geothermal Capacity (Cum. Installed Capacity)	<i>MW</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Geothermal Capacity (As Of Worldwide Total)	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Source: World Bank, National Statistical Office, United Nations, OECD, EIA, Helgi Analytics calculation. For more details, description and explanation of particular indicators, please, visit [www.helgilibrary.com](http://www.helgilibrary.com)

ELECTRICITY PRODUCTION BY SOURCE		2003	2004	2005	2006	2007	2008	2009	2010	2011
Electricity From Coal Sources	<i>GWh</i>	53,108	52,824	52,267	52,255	56,688	51,724	48,695	50,161	49,683
Electricity From Coal Sources Per Capita	<i>kWh</i>	5,201	5,168	5,099	5,080	5,461	4,941	4,635	4,762	4,732
Electricity From Coal Sources (As Of Total)	%	64.1%	63.0%	63.8%	62.5%	64.6%	62.2%	59.6%	58.8%	57.2%
Electricity From Nuclear Sources	<i>GWh</i>	25,872	26,325	24,728	26,046	26,172	26,551	27,208	27,998	28,283
Electricity From Nuclear Sources Per Capita	<i>kWh</i>	2,534	2,576	2,412	2,532	2,521	2,537	2,590	2,658	2,694
Electricity From Nuclear Sources (As Of Total)	%	31.2%	31.4%	30.2%	31.1%	29.8%	31.9%	33.3%	32.8%	32.6%
Electricity From Hydro Sources	<i>GWh</i>	1,383	2,019	2,380	2,550	2,089	2,024	2,429	2,789	2,138
Electricity From Hydro Sources Per Capita	<i>kWh</i>	135	198	232	248	201	193	231	265	204
Electricity From Hydro Sources (As Of Total)	%	1.7%	2.4%	2.9%	3.1%	2.4%	2.4%	3.0%	3.3%	2.5%
Electricity From Natural Gas Sources	<i>GWh</i>	1,584	1,543	1,470	1,567	1,370	1,018	975	1,073	1,421
Electricity From Natural Gas Sources Per Capita	<i>kWh</i>	155	151	143	152	132	97	93	102	135
Electricity From Natural Gas Sources (As Of Total)	%	1.9%	1.8%	1.8%	1.9%	1.6%	1.2%	1.2%	1.3%	1.6%
Electricity From Oil Sources	<i>GWh</i>	368	348	326	258	115	131	156	159	128
Electricity From Oil Sources Per Capita	<i>kWh</i>	36	34	32	25	11	13	15	15	12
Electricity From Oil Sources (As Of Total)	%	0.4%	0.4%	0.4%	0.3%	0.1%	0.2%	0.2%	0.2%	0.2%
Electricity From Oil, Gas & Coal Sources	<i>GWh</i>	55,073	54,715	54,074	54,040	58,188	52,894	49,835	51,447	
Electricity From Oil, Gas & Coal Per Capita	<i>kWh</i>	5,393	5,353	5,275	5,253	5,605	5,053	4,743	4,885	
Electricity From Oil, Gas & Coal (As Of Total)	%	66.5%	65.3%	66.0%	64.6%	66.3%	63.6%	61.0%	60.3%	
Electricity From Renewable Sources	<i>GWh</i>	1,876	2,741	3,132	3,520	3,410	3,731	4,654	5,903	7,252
Electricity From Renewable Sources Per Capita	<i>kWh</i>	184	268	306	342	328	356	443	560	691
Electricity From Renewables (As Of Total)	%	2.3%	3.3%	3.8%	4.2%	3.9%	4.5%	5.7%	6.9%	8.3%
Electricity From Renewables (Excl. Hydro)	<i>GWh</i>	493	722	752	970	1,321	1,707	2,225	3,114	5,114
Electricity From Renewables (Excl. Hydro) Per Capita	<i>kWh</i>	48	71	73	94	127	163	212	296	487
Electricity From Renewables Excl. Hydro	%	0.6%	0.9%	0.9%	1.2%	1.5%	2.1%	2.7%	3.7%	5.9%
Electricity From Solar Photovoltaic	<i>GWh</i>	0.0	0.0	0.0	1.0	2.0	13	89	616	2,118
Electricity From Solar Photovoltaic Per Capita	<i>kWh</i>	0.0	0.0	0.0	0.1	0.2	1.2	8.5	58	202
Electricity From Solar Photovoltaic (As Of Total)	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.7%	2.4%
Electricity From Wind Power	<i>GWh</i>	4	10	21	49	125	245	288	335	
Electricity From Wind Power Per Capita	<i>kWh</i>	0.4	1.0	2.0	4.8	12	23	27	32	
Electricity From Wind Power (As Of Total)	%	0.0%	0.0%	0.0%	0.1%	0.1%	0.3%	0.4%	0.4%	

MACROECONOMIC ROUND-UP		2003	2004	2005	2006	2007	2008	2009	2010	2011
GDP	<i>USD bil</i>	95.3	114.0	130.1	148.3	180.5	225.4	197.2	198.9	217.0
GDP Growth	%	3.8%	4.7%	6.8%	7.0%	5.7%	3.1%	-4.5%	2.5%	1.9%
GDP Per Capita	<i>USD</i>	9,336	11,157	12,706	14,446	17,467	21,627	18,806	18,910	20,579
Industrial Production Growth	%	1.6%	10.4%	3.9%	8.3%	10.6%	-1.8%	-13.6%	10.3%	6.9%
Retail Sales Growth	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Government Budget Balance (As % Of GDP)	%	-4.9%	-3.2%	-3.7%	-2.4%	-0.7%	-2.2%	-5.8%	-4.8%	-3.1%
Public Debt (As % Of GDP)	%	20%	29%	28%	28%	28%	29%	34%	38%	41%
Unemployment Rate	%	7.8%	8.3%	7.9%	7.1%	5.3%	4.4%	6.7%	7.3%	6.7%
Gross Average Monthly Wage	<i>USD</i>	638	759	847	951	1,124	1,405	1,256	1,289	1,407
Foreign Debt (As % Of GDP)	%	37%	40%	36%	39%	42%	37%	45%	48%	
Imports (As % Of GDP)	%	60%	62%	62%	64%	66%	62%	55%	63%	69%
Exports (As % Of GDP)	%	59%	63%	64%	67%	68%	64%	59%	67%	73%
Current Account Balance (As % Of GDP)	%	-6.3%	-5.2%	-1.3%	-2.5%	-4.4%	-2.1%	-2.5%	-3.8%	-3.0%
Foreign Exchange Reserves (Including Gold)	<i>USD bil</i>	27.0	28.5	29.6	31.5	34.9	37.0	41.6	42.5	40.3
Foreign Exchange Reserves (As % Of Imports)	%	47%	40%	37%	33%	29%	26%	38%	34%	27%
Foreign Direct Investments	<i>USD bil</i>	2.0	5.0	11.6	5.5	10.6	6.6	2.9	6.1	5.4
Foreign Direct Investments (As % Of GDP)	%	2.1%	4.4%	8.9%	3.7%	5.9%	2.9%	1.5%	3.1%	2.5%
Foreign Direct Investments (As % Of CA Deficit)	%	33%	83%	704%	149%	134%	137%	59%	80%	84%
Workers' Remittances, Received (As % Of GDP)	%	0.5%	0.7%	1.1%	1.1%	1.1%	0.9%	1.0%	1.0%	0.8%
Portfolio Investments (As % Of GDP)	%	-1.2%	1.7%	-2.6%	-0.8%	-1.5%	0.0%	4.4%	3.9%	0.2%
Development Assistance (As % Of GDP)	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

INFLATION, FOREX & INTEREST RATES		2003	2004	2005	2006	2007	2008	2009	2010	2011
Inflation, CPI (Average)	%	0.1%	2.8%	1.8%	2.5%	2.9%	6.4%	1.0%	1.5%	1.9%
Long-Term Interest Rate (10-Year Gov. Bond Yield)	%	4.1%	4.8%	3.5%	3.8%	4.3%	4.6%	4.8%	3.9%	3.7%
Short-Term Interbank Interest Rate (3-Month)	%	2.3%	2.4%	2.0%	2.3%	3.1%	4.0%	2.2%	1.3%	1.2%
Interest Spread To USD, 10-Year Gov. Bond	%	0.1%	0.5%	-0.7%	-1.0%	-0.3%	1.0%	1.6%	0.7%	0.9%
Interest Spread To USD, 3M IBOR	%	1.1%	0.8%	-1.5%	-2.9%	-2.2%	0.8%	1.3%	0.8%	0.8%
FX Rate To USD (Average)	<i>per USD</i>	28.2	25.7	23.9	22.6	20.3	17.0	19.1	19.1	17.7
FX Rate To EUR (Average)	<i>per EUR</i>	31.8	31.9	29.8	28.3	27.8	25.0	26.4	25.3	24.6

Source: World Bank, National Statistical Office, National Central Bank, United Nations, OECD, EIA, Helgi Analytics calculation. For more details, description and explanation of particular indicators, please, visit [www.helgilibrary.com](http://www.helgilibrary.com)

## ABOUT HELGI ANALYTICS

Helgi Analytics is a consulting company based in the Czech Republic. The company mainly provides consultancy in the area of financial services and real estate and focuses primarily on the region of Central and Eastern Europe.

Helgi Analytics also runs a web application called Helgi Library, which is a database/library offering data and analyses on more than 95% of the world's economy and population. The Library aims to bring interesting statistical data and analyses to a wide audience under affordable conditions. If you wish to get more details, please visit [www.helgilibrary.com](http://www.helgilibrary.com) or contact us at [info@helgianalytics.com](mailto:info@helgianalytics.com).

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