



Permanent Representation of the Republic of Croatia to the EU

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Class: 018-03/15-14/23
Reg.: 521-EU-03-02-15-2
Brussels, 12 June 2015

SRD:		DG: ENER		
A/				
ACTION:		ECPEANCE:		
CODE DOSSIER:				
240615				
A	B	C	D	E
DG	ASS	001	01	SIAC
DGA	DGA	DGA		
DBC	DCDE	DDE		

Subject: Report on the progress made in achieving the nation objectives of energy efficiency pursuant to Article 24 paragraph 1 in accordance with Part 1 of Annex XIV of Directive 2012/27/EU of the European parliament and the Council of 25 October 2012 of energy efficiency

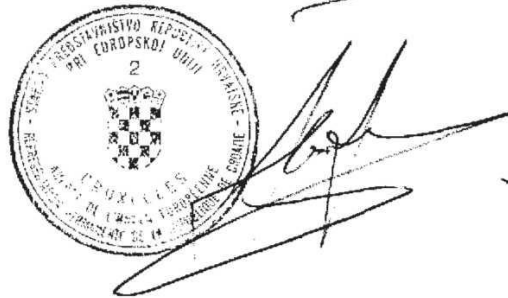
Please find enclosed the original of the letter signed by Mr Ivan Vrdoljak, Minister, Ministry of Economy.

Sincerely,

Goran Štefanić

Ambassador, Deputy Permanent Representative

EUROPEAN COMMISSION
DG ENERGY
Mr. Dominique Ristori
Director - General
Rue J.A. Demot, 24-28
B – 1040 Brussels



Enclosed: as mentioned in the text



REPUBLIKA HRVATSKA
MINISTARSTVO GOSPODARSTVA

CLASS: 310-02/14-01/101
FILE NO: 526-04-01-02/1-15-34
Zagreb, 21 May 2015

European Commission
DG Energy
Mr. Dominique Ristori
Director-General
Rue J. A. Demot, 24-28
B – 1040 Brussels

SUBJECT: Report on the progress made in achieving the nation objectives of energy efficiency pursuant to Article 24 paragraph 1 in accordance with Part 1 of Annex XIV of Directive 2012/27/EU of the European Parliament and the Council of 25 October 2012 on energy efficiency

Dear Mr Ristori,

The Report on the implementation of the National Energy Efficiency Action Plan for 2014 was adopted by the Conclusion of the Governemnt of the Republic of Croatia at the session on 13 May 2015.

Pursuant to Article 24 paragraph 1, in accordance with Annex XIV of Part 1 of Directive 2012/27/EU of the European Parliament and the Council of 25 October 2012 on energy efficiency, since 2013, Member States report each year up to 30 April on progress in achieving the national objectives of energy efficiency increase.

Yours sincerely,


MINISTER
Ivan Vidoljak

cc: Report

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MINISTRY OF ECONOMY

REPORT

ON THE IMPLEMENTATION OF THE NATIONAL ENERGY EFFICIENCY ACTION PLAN
FOR 2014

Zagreb, May 2015

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Introduction

Having joined the European Union as a full member on 1 July 2013, the Republic of Croatia together with other Member States, pursuant to Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, assumed the obligation to increase EU energy efficiency in order to achieve 20% primary energy savings at EU level by 2020 as compared to projections (against *business-as-usual* or the basic scenario of energy consumption).

In the conclusions of the European Council of 17 June 2010, the increased energy efficiency target was reconfirmed as one of the overall targets of the new EU strategy for job creation, smart, sustainable and inclusive growth ("the Europe 2020 Strategy"). Within the process and with a view to implementing the foregoing target at a national level, the Member States must determine national targets in close dialogue with the Commission, and set out how they intend to achieve them in their national reform programmes.

In order to achieve this basic target, each Member State is obliged to adopt National Energy Efficiency Action Plans setting forth national energy savings targets according to the prescribed methodology, and sector specific measures and goals. Every action plan provides an assessment of efficiencies and if necessary, revises current measures and sets new sector specific measures in order to ensure that the target is achieved in 2020.

The significance of energy efficiency in the Republic of Croatia has been reconfirmed through legislative and strategic frameworks. The Energy Act underlines energy efficiency as a national interest, and in October 2014 the Energy Efficiency Act was adopted, promoting energy efficiency and development of the energy services market.

The Croatian Government adopted the Third National Energy Efficiency Action Plan for the 2014 – 2016 Period, furnished to the European Commission (EC) which provides an analysis of the achievement of the target at a European level.

The Report on the Implementation of the National Energy Efficiency Action Plan for 2014 contains data on energy savings achieved at a national level in 2014 and statistics for the 2013 energy consumption, in respect whereof the annual achievement of national energy savings targets is monitored for 2014, which are set out in the Directive as a mandatory section of the report on the implementation of the National Action Plan.

A. Statistics for the 2013 energy consumption, in respect whereof the annual achievement of national energy savings targets is monitored for 2014

I. PRIMARY ENERGY CONSUMPTION

Primary energy consumption is monitored for the year before last (2013) against the reporting year due to availability of statistics, as well as to the monitoring of the achievement of targets as defined under Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency which are determined as against the preceding period.

The structure of forms of total energy consumption during the preceding 2008–2013 period is given in Table 1. Figure 1 shows development of total primary energy consumption during the previous 1988–2013 period. Total primary energy consumption in Croatia in 2013 increased compared to the achieved total consumption in the year before by 4.1 percent. The highest increase in consumption of 73.6 percent is accounted for by hydro power due to very favourable hydrological conditions. Consumption of other renewable energy resources increased by 36.4 percent as well. An increase of coal and coke was 13.4 percent, and heat energy from heat pumps by 1.5 percent. Consumption of other forms of energy decreased. Reduction in imported electricity consumption was 41.1 percent, in natural gas by 6.1 percent, and wood fuel and other solid biomass by 5 percent. There was also a decrease in liquid fuels by 4.3 percent.

From 2008 to 2013, total primary energy consumption decreased at the average annual rate of 1.7 percent. During that period, there was a trend of reduced consumption of imported electricity, liquid fuels, natural gas, as well as coal and coke, whilst consumption of

other forms of energy in total supply recorded increase. Consumption of imported electricity decreased by the average annual rate of 7,3 percent, liquid fuels by the average annual rate of 6,6 percent, natural gas by the average annual rate of 2,8 percent and coal and coke by the average annual rate of 1,5 percent. The average annual growth rate for other renewable resources was 52.3 percent, and for wood fuel and crude biomass was 7.5 percent. The consumption of heat from heat pumps recorded growth at the average annual rate of 6.8 percent, whilst hydro power recorded growth at a rate of 9.5 percent.

Tablica 1. Ukupna potrošnja energije

Table 1. Total Primary Energy Supply

	2008.	2009.	2010.	2011.	2012.	2013.	2013./12.	2008.-13.
	PJ						%	
Ugljen i koks								
<i>Coal and coke</i>	34,65	24,66	30,92	31,66	28,37	32,18	13,4	-1,5
Drvo i biomasa								
<i>Biomass</i>	13,80	14,42	16,05	19,23	20,88	19,84	-5,0	7,5
Tekuća goriva								
<i>Liquid Fuels</i>	180,15	178,04	152,54	149,30	134,17	128,37	-4,3	-6,6
Prirodni plin								
<i>Natural Gas</i>	110,22	102,15	111,37	108,60	101,78	95,54	-6,1	-2,8
Vodne snage								
<i>Hydro Power</i>	50,19	65,77	79,71	42,59	45,45	78,88	73,6	9,5
Električna energija								
<i>Electricity</i>	23,68	20,46	17,15	27,71	27,46	16,17	-41,1	-7,3
Toplinska energija								
<i>Heat</i>	1,25	1,48	1,76	1,68	1,71	1,74	1,5	6,8
Obnovljivi izvori								
<i>Renewables</i>	0,95	1,39	2,24	2,83	5,72	7,80	36,4	52,3
UKUPNO								
<i>TOTAL</i>	414,90	408,37	411,73	383,59	365,54	380,51	4,1	-1,7

Izvor: Energija u Hrvatskoj 2013.

Source: Energy in Croatia 2013.

Note: The figures use decimal points as thousand separators and commas instead of decimal points.

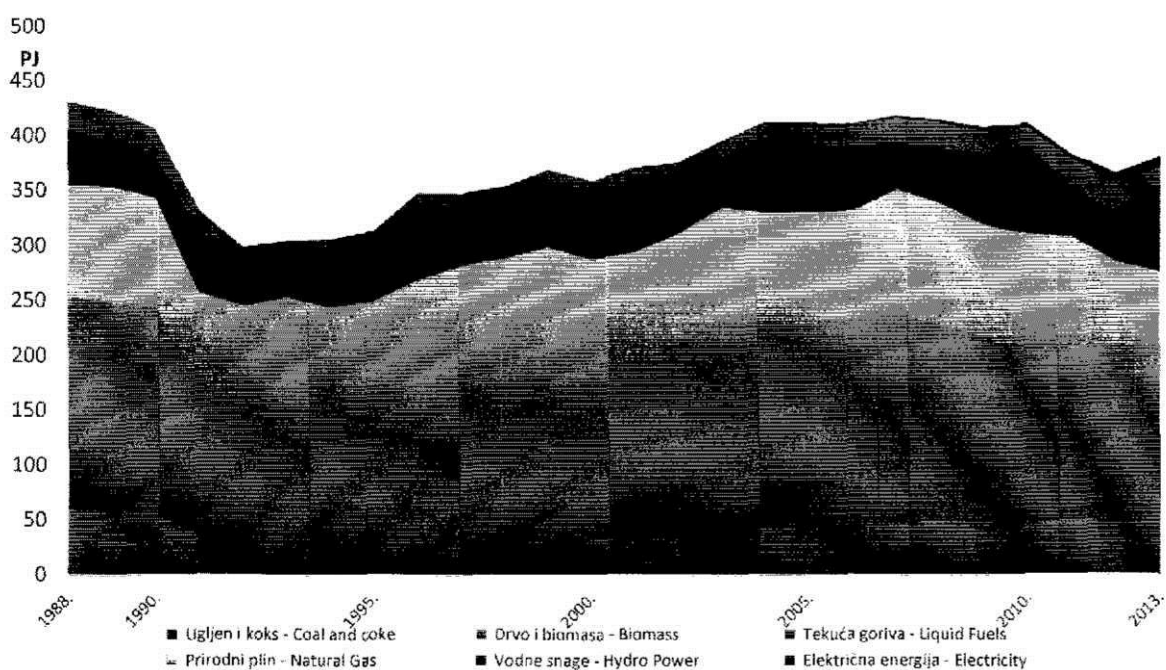


Figure 1 Total primary energy supply in Croatia (Source: Energy in Croatia in 2013)

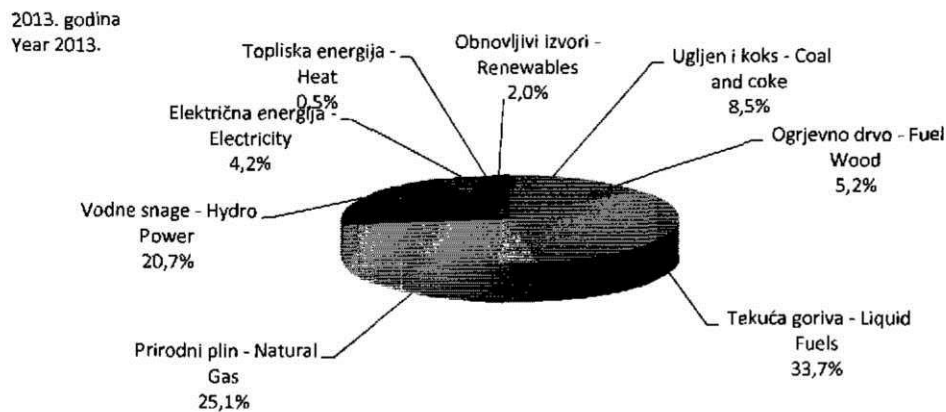


Figure 2 Shares in total primary energy supply (Source: Energy in Croatia in 2013)

Figure 2 shows shares of certain fuels in total primary energy consumption in 2013. The largest share in total primary energy consumption in Croatia was achieved by liquid fuels. Their share was 43.4 percent in 2008, and by 2013 it was reduced to 33.7 percent. In addition to the share of liquid fuels the shares of natural gas and imported electricity also reduced in 2013. The foregoing shares decreased by 1.5 percent so that the share of natural gas was 25.1 percent in 2013, and the share of imported electricity stood at 4.2 percent. The shares of other forms of energy increased. The share of hydro power varies subject to hydrological conditions so that the share thereof was 12.1 percent in 2008, and 20.7 percent in u 2013. The increase and share of other renewable resources (wind energy, solar energy, geothermal energy, biodiesel and biogas) increased from 0.23 to 2 percent, as well as the share of fuel wood and crude biomass from 3.3 to 5.2 percent. The share of heat from heat pumps in total primary energy consumption increased from 0.3 to 0.5 percent. In addition, there is a negligible increase in the share of coal and coke from 8.4 to 8.5 percent.

II. TOTAL FINAL ENERGY CONSUMPTION

Table 2 shows the structure of total primary energy consumption in the Republic of Croatia from 2008 to 2013. The structure of total primary energy consumption during the previous 1988 to 2013 period is showed in Figure 3. In 2013, total primary energy consumption stood at 380.51 PJ, and it increased by 4.1 percent year on year. Final energy consumption for 2013 was 243.67 PJ, which was a decrease of by 1.6 percent compared to 2012.

During the preceding 2008 to 2013 period, final energy consumption showed a decreasing trend at the average annual rate of 2.5 percent.

Tablica 2. Struktura ukupno utrošene energije

Table 2. Total Primary Energy Supply by Sectors

	2008.	2009.	2010.	2011.	2012.	2013.	2013./12.	2008.-13.
	<i>PJ</i>						<i>%</i>	
Ukupna potrošnja energije								
Total Primary Energy Supply	414,90	408,37	411,73	383,59	365,54	380,51	4,1	-1,7
Gubici transformacija								
Conversion Losses	72,43	75,84	79,84	57,35	59,14	80,26	35,7	2,1
Pogonska potrošnja								
Energy Sector Own Use	26,38	31,59	30,24	32,03	26,57	24,33	-8,4	-1,6
Gubici transporta i distribucije								
Transmission Losses	9,43	10,29	10,88	10,14	10,00	9,76	-2,3	0,7
Neenergetska potrošnja								
Non Energy Use	29,89	25,19	24,97	24,94	22,31	22,52	0,9	-5,5
Neposredna potrošnja energije								
Final Energy Consumption	276,77	265,46	265,79	259,13	247,53	243,64	-1,6	-2,5
- Industrija								
- Industry	61,17	51,14	50,30	46,96	41,56	40,92	-1,5	-7,7
- Promet								
- Transport	90,47	89,84	86,80	85,39	84,02	85,41	1,7	-1,1
- Opća potrošnja								
- Other Sectors	125,12	124,48	128,70	126,78	121,95	117,30	-3,8	-1,3

Source: Energy in Croatia in 2013

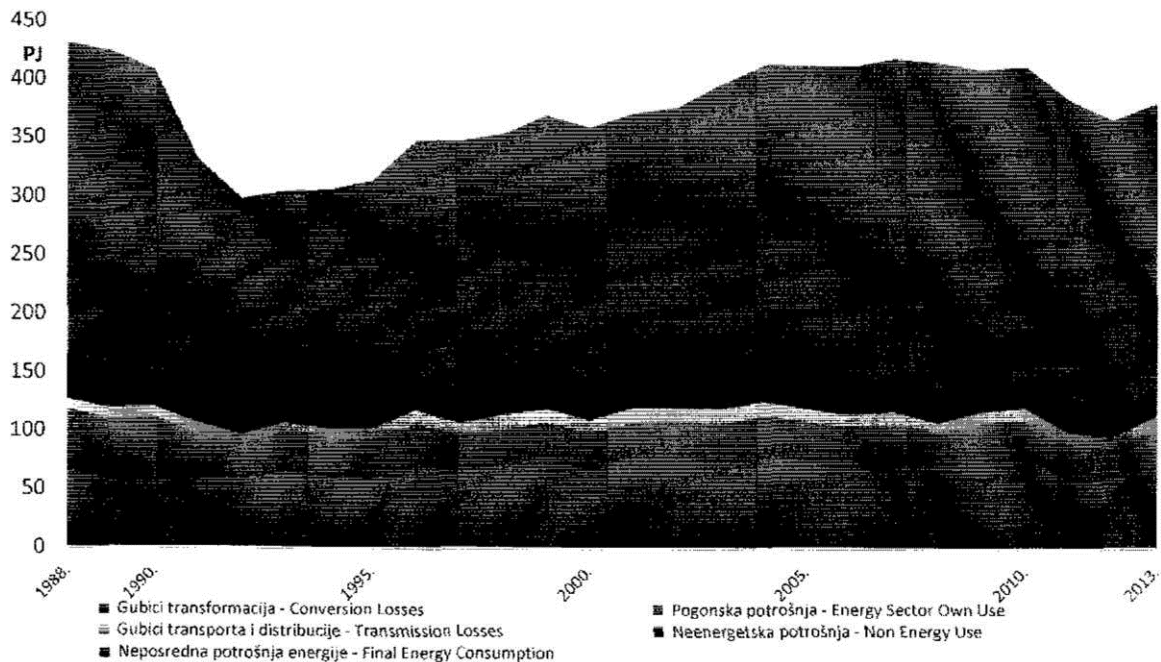


Figure 3 Structure of total primary energy supply (Source: Energy in Croatia 2013)

The largest share in total primary energy consumption was achieved by final consumption, and the share thereof in 2013 was 64 percent. From 2008 to 2013, the share of final consumption declined by 2.7 percent. In the foregoing period the share of non-energy use also decreased from 7.2 to 5.9 percent. The share of energy sector own use remained unchanged at 6.4 percent. The shares of conversion losses and transmission losses increased. Thus, the share of conversion losses increased from 17.5 percent in 2008 to 21.1 percent in 2013, and the share of transmission losses from 2.3 to 2.6 percent.

III. FINAL ENERGY CONSUMPTION BY SECTOR: INDUSTRY, TRANSPORT, OTHER SECTORS (HOUSEHOLDS, SERVICES, AGRICULTURE AND CONSTRUCTION)

Table 2 also shows the structure of energy consumption in three specific sectors of final consumers – industry, transport and other sectors. Energy consumption in other sectors includes energy consumption in households, services, agriculture and construction. Figure 4 also shows the development of energy consumption in the previous period as of 1988. Compared to the energy consumption achieved in 2012, the energy consumption in industry in 2013 decreased by 1.5 percent. There was also reduced energy consumption in other sectors by 3.8 percent, whilst transport recorded a 1.7 percent increase in consumption. From 2008 to 2013, industry recorded decreasing trend of energy consumption at the average annual rate of 7.7 percent. Transport recorded decreasing energy consumption at the average annual rate of 1.1 percent, and other sectors at the average annual rate of 1.3 percent.

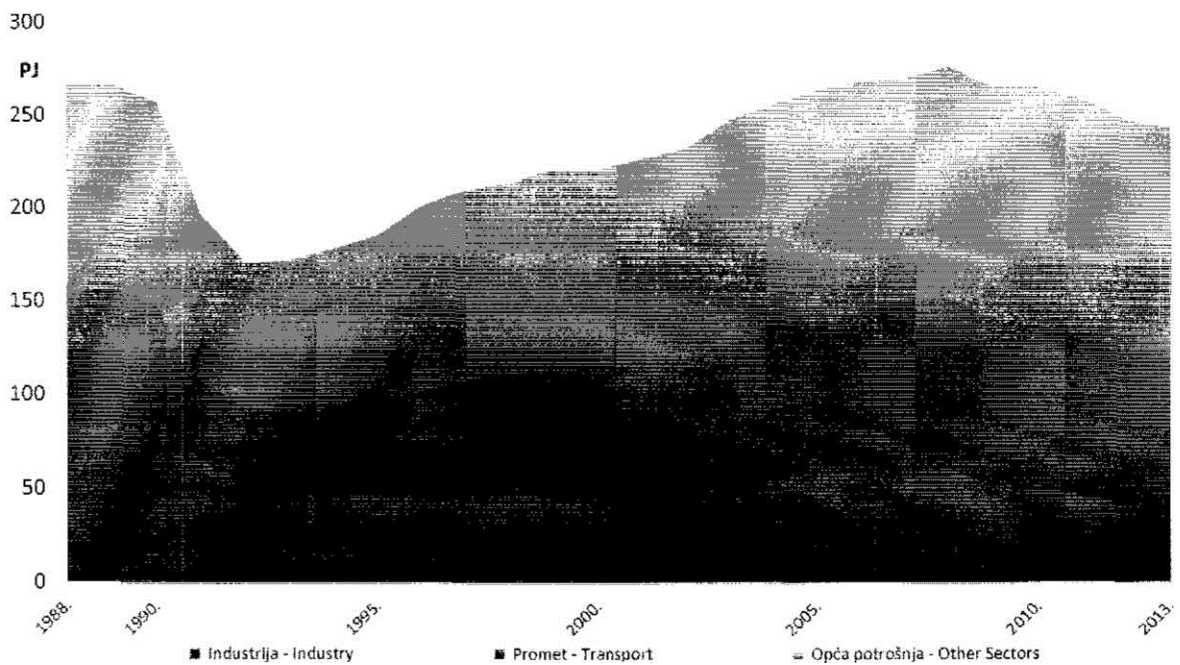


Figure 4 Final energy consumption in certain sectors (Source: Energy in Croatia in 2013)

Figure 5 shows shares of certain sectors in final energy consumption in 2013. The largest share in final energy consumption is accounted for by other sectors at 48.1 %, followed by transport of 35.1 % and industry of 16.8

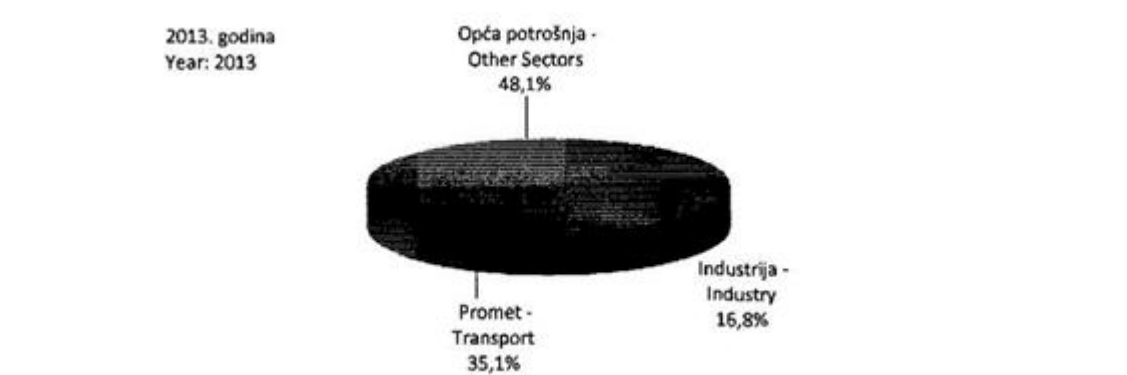


Figure 5 Shares of sectors in final energy consumption (Source: Energy in Croatia 2013)

INDUSTRY

The consumption structure of forms of energy in industry during the observed 2008 – 2013 period is showed in Table 3. Energy consumption in industry kept decreasing, therefore in 2013 it was reduced by 1.5 percent year on year. Such fall in consumption was added by a lower use of most forms of energy used, save for electricity and coal and coke, the use of which increased. The increase in electricity consumption was 3.8 percent, whilst the consumption of coal and coke increased by 14.5 percent. The largest reduction in percentages was achieved in production of wood fuel and other biomass, amounting to 19.4 percent. The consumption of natural gas and liquid fuels decreased by 10.2 percent and 8.3 percent, respectively. The decrease in consumption of steam and hot water was somewhat lower amounting to 7.7 percent.

From 2008 to 2013, the decreasing trend was recorded for energy consumption in industry at an annual rate of 7.7 percent. In that period, a decreasing trend was recorded for consumption of all forms of energy, save for the consumption of wood fuel and other biomass, the consumption of which was increasing at an annual rate of 0.6 percent. The fastest decrease in consumption was that of liquid fuels and natural gas at the average annual rates of 17 percent and 13.7 percent, respectively. The consumption of steam and hot water, and coal and coke was decreasing at average annual rates of 5.5 percent and 5.4 percent, respectively. The reduction in electricity consumption somewhat slowed down, and the average annual rate was 3.6 percent.

Tablica 3. Neposredna potrošnja energije u industriji								
Table 3. Final Energy Consumption in Industry by Fuels								
	2008.	2009.	2010.	2011.	2012.	2013.	2013./12.	2008.-13.
	PJ						%	
Ugljen i koks								
Coal and coke	11,56	9,00	9,28	8,19	7,63	8,74	14,5	-5,4
Ogrjevno drvo i biomasa								
Fuel Wood and biomass	0,93	0,83	0,86	0,63	1,18	0,96	-19,4	0,6
Tekuća goriva								
Liquid Fuels	6,44	4,29	3,32	3,13	2,76	2,53	-8,3	-17,0
Plinovita goriva								
Gaseous Fuels	15,25	12,78	12,42	11,33	8,14	7,31	-10,2	-13,7
Električna energija								
Electricity	13,27	11,82	12,18	11,76	10,65	11,05	3,8	-3,6
Para i vrela voda								
Steam and Hot Water	13,73	12,43	12,22	11,93	11,20	10,34	-7,7	-5,5
UKUPNO								
TOTAL	61,17	51,14	50,30	46,96	41,56	40,92	-1,5	-7,7

Source: Energy in Croatia 2013

TRANSPORT

Table 4 shows the structure of energy consumption in transport from 2008 to 2013. In 2013, energy consumption in transport increased by 1.7 percent compared to the consumption in 2012. There was also an increase in the consumption of diesel fuel, jet fuel, LPG and natural gas, whilst the consumption of other fuels decreased. Motor gasoline consumption reduced by 2.3 percent, electricity by 2.9 percent and liquid biofuels by 11.8 percent. There was also a decrease in the consumption of fuel oils used in transport in very small amounts. The increase in the consumption of diesel fuel was 3.6 percent, jet fuel 9.3 percent and LPG 2.7 percent. A very high increase in consumption was recorded by natural gas still having quite a small share in the overall energy consumption in transport. During the previous 2008 – 2013 period, energy consumption in transport was decreasing at the average annual rate of 1.1 percent.

Tablica 4. Neposredna potrošnja energije u prometu								
Table 4. Final Energy Consumption in Transport by Fuels								
	2008.	2009.	2010.	2011.	2012.	2013.	2013./12.	2008.-13.
	PJ						%	
Tekuća biogoriva								
<i>Liquid biofuels</i>	0,05	0,30	0,11	0,14	1,51	1,33	-11,8	91,5
Ukapljeni plin								
<i>LPG</i>	3,22	3,26	2,75	2,62	2,57	2,64	2,7	-3,9
Prirodni plin								
<i>Natural gas</i>		0,05	0,09	0,03	0,03	0,06	90,0	
Motorni benzin								
<i>Motor gasoline</i>	30,31	30,17	28,41	27,76	25,80	25,20	-2,3	-3,6
Mlazno gorivo								
<i>Jet fuel</i>	4,95	4,26	4,54	4,81	4,98	5,44	9,3	1,9
Dizelsko gorivo								
<i>Diesel oil</i>	50,71	50,67	49,68	48,87	48,00	49,72	3,6	-0,4
Loživa ulja								
<i>Fuel oils</i>	0,06	0,02	0,08	0,07	0,08		-100,0	
Električna energija								
<i>Electricity</i>	1,16	1,12	1,12	1,09	1,04	1,01	-2,9	-2,9
UKUPNO								
TOTAL	90,47	89,84	86,80	85,39	84,02	85,41	1,7	-1,1

Izvor: Energija u Hrvatskoj 2013.

Source: Energy in Croatia 2013.

Energy consumption in certain types of transport from 2008 to 2013 is showed in Table 5. In 2013, rail transport recorded an increase in energy consumption by 6.9 percent. All other types of transport recorded increased energy consumption.

Tablica 5. Potrošnja energije pojedinih vrsta prometa								
Table 5. Final Energy Consumption by Means of Transport								
	2008.	2009.	2010.	2011.	2012.	2013.	2013./12.	2008.-13.
	PJ						%	
Željeznički promet								
<i>Rail Transport</i>	2,06	1,84	1,84	1,75	1,65	1,54	-6,9	-5,7
Cestovni promet								
<i>Road Transport</i>	79,97	80,03	77,13	75,59	74,30	75,17	1,2	-1,2
Zračni promet								
<i>Air Transport</i>	5,07	4,38	4,65	4,92	5,07	5,55	9,3	1,8
Pomorski i riječni promet								
<i>Sea and River Transport</i>	1,88	2,07	1,65	1,65	1,58	1,71	8,6	-1,8
Javni gradski promet								
<i>Public City Transport</i>	1,40	1,43	1,45	1,41	1,35	1,36	0,8	-0,6
Ostali promet								
<i>Non Specified</i>	0,09	0,09	0,08	0,07	0,07	0,09	30,1	0,8
UKUPNO PROMET								
TOTAL TRANSPORT	90,47	89,84	86,80	85,39	84,02	85,41	1,7	-1,1

Izvor: Energija u Hrvatskoj 2013.

Source: Energy in Croatia 2013.

OTHER SECTORS (HOUSEHOLDS, SERVICES, AGRICULTURE AND CONSTRUCTION)

Energy consumption in other sectors includes energy consumption in households, services sector, agriculture and construction. The trends in the structure of forms of energy consumption in the period 2008 – 2013 are showed in Table 6. In 2013, energy consumption in other sectors reduced by 3.8 percent year on year. Heat, as well as other renewables increased, whilst the consumption of other forms of energy decreased.

Tablica 6. Neposredna potrošnja energije u općoj potrošnji								
Table 6.. Final Energy Consumption in Other Sectors by Fuels								
	2008.	2009.	2010.	2011.	2012.	2013.	2013./12.	2008.-13.
	PJ						%	
Ugljen								
Cool	0,20	0,18	0,26	0,23	0,22	0,18	-17,1	-1,7
Ogrjevno drvo i biomasa								
Fuel Wood and Biomass	11,07	11,85	13,57	16,36	17,35	16,44	-5,2	8,2
Tekuća goriva								
Liquid Fuels	31,65	29,93	28,06	26,62	23,36	21,74	-7,0	-7,2
Plinovita goriva								
Gaseous Fuels	29,40	30,16	32,29	29,55	27,73	26,87	-3,1	-1,8
Električna energija								
Electricity	43,59	42,82	43,74	43,73	43,50	42,11	-3,2	-0,7
Toplinska energija								
Heat	8,90	9,23	10,26	9,74	9,19	9,34	1,6	1,0
Obnovljivi izvori								
Renewables	0,31	0,32	0,51	0,55	0,59	0,63	5,8	14,8
UKUPNO	125,12	124,48	128,70	126,78	121,95	117,30	-3,8	-1,3
TOTAL								

Izvor: Energija u Hrvatskoj 2013.

Source: Energy in Croatia 2013.

Energy consumption in certain other sectors from 2008 to 2013 and 1988 to 2013 is showed in Table 7 and Figure 6. Total energy consumption in other sectors in 2013 decreased by 3.8 percent, whereby energy consumption reduced in all the sectors. The y-o-y decrease in energy consumption of households was 4.5 percent, and of services 2.9 percent. The decrease in energy consumption in agriculture and construction was 1.2 and 3.9 percent, respectively.

Tablica 7. Potrošnja energije u podsektorima opće potrošnje								
Table 7. Final Energy Consumption in Other Sectors by Subsectors								
	2008.	2009.	2010.	2011.	2012.	2013.	2013./12.	2008.-13.
	PJ						%	
Kućanstva								
Households	76,17	77,23	80,86	79,47	77,11	73,66	-4,5	-0,7
Uslužni sektor								
Services	30,39	30,63	32,18	31,66	30,44	29,55	-2,9	-0,6
Poljoprivreda								
Agriculture	10,59	10,47	10,27	10,49	9,61	9,49	-1,2	-2,2
Građevinarstvo								
Construction	7,98	6,15	5,39	5,16	4,79	4,60	-3,9	-10,4
UKUPNO OPĆA POTROŠNJA	125,12	124,48	128,70	126,78	121,95	117,30	-3,8	-1,3
TOTAL OTHER SECTORS								

Source: Energy in Croatia 2013.

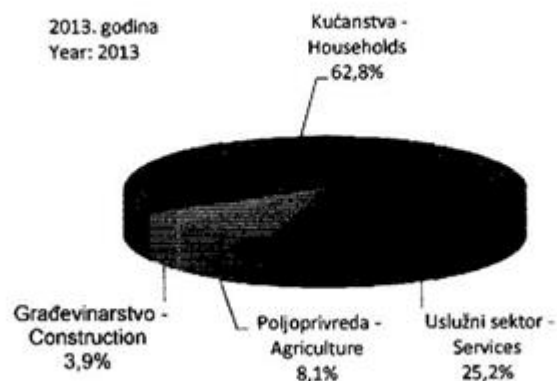


Figure 6. Shares of sub-sectors of other sectors in energy consumption (Source: Energy in Croatia 2013)

IV. GROSS VALUE ADDED BY SECTOR

Gross value added - GVA	2011.	2012.
INDUSTRY	46 539 585 ths. kunas	46 616 955 ths. kunas
SERVICES*	202 455 806 ths. Kunas	200 390 191 ths. kunas

Source: Croatian Bureau of Statistics, Statistical Yearbook 2014.

GVA1 – gross value added – Agriculture, Forestry and Fishery

GVA2 - gross value added – Mining and Quarrying

GVA3 • gross value added – Processing Industry

GVA4 - gross value added - Construction

* **GVA services = GVA total - (GVA1 + GVA2 + GVA3 + GVA4)**

GVA data for 2013 are not available in the Statistical Yearbook 2014.

V. DISPOSABLE HOUSEHOLD INCOME

	2010.	2011.
Disposable household income for the year	86.975 Kn	81.215 Kn

Source: Croatian Bureau of Statistics, Statistical Yearbook 2011 and 2012,

There is no available data in respect of disposable household income for 2012 and 2013.

VI. GROSS DOMESTIC PRODUCT

	2013
Gross domestic product - GDP	326 849 million kunas

VII. PRODUCTION OF ELECTRICITY IN THERMAL POWER PLANTS

Tablica 11. Proizvodnja električne energije u termoelekttranama					
GWh		2012.	2013.	2013./12.%	
Proizvodnja	Production				
-termoelekttrane	-thermal power plants	2513,1	2501,2	-0,5	

Source: Energy in Croatia 2013.

Croatian	English
TABLICA 11. PROIZVODNJA ELEKTRIČNE ENERGIJE U TERMOELEKTRANAMA	TABLE 11. PRODUCTION OF ELECTRICITY IN THERMAL POWER PLANTS

VIII. PRODUCTION OF ELECTRICITY IN COGENERATION PLANTS, INCLUDING INDUSTRIAL WASTE HEAT

Tablica Proizvodnja električne energije u postrojenjima za kombiniranu proizvodnju toplinske i električne energije uključujući i industrijsku otpadnu toplinu					
GWh		2012.	2013.	2012./2013 %	
Proizvodnja	Production				
-javne toplane	-public cogeneration plants	2529,2	1968,8	-22,2	
-industrijske toplane	- industrial cogeneration plants	382,8	326,6	-14,7	
Ukupno	Total	2912,00	2295,4		

Source: Energy in Croatia 2013.

Croatian	English
TABLICA PROIZVODNJA ELEKTRIČNE ENERGIJE U POSTROJENJIMA *A KOMBINIRANU PROIZVODNJU TOPLINSKE I ELEKTRIČNE ENERGIJE UČLUKUJUĆI I INDUSTRIJSKU OTPADNU TOPLINU	TABLE PRODUCTION OF ELECTRICITY IN COGENERATION PLANTS, INCLUDING INDUSTRIAL WASTE HEAT

IX. PRODUCTION OF HEAT IN THERMAL POWER PLANTS

In Croatia, there is no production of heat in thermal power plants, i.e. the production of heat in thermal power plants is zero.

X. PRODUCTION OF HEAT IN COGENERATION PLANTS, INCLUDING INDUSTRIAL WASTE HEAT

Tablica Proizvodnje toplinske energije u postrojenjima za kombiniranu proizvodnju toplinske i električne energije uključujući i industrijsku otpadnu toplinu					
PJ		2012.	2013.	2012./13.%	
javne toplane	-public cogeneration plants	8,964	9,117	1,7	

Croatian	English
TABLICA PROIZVODNJE TOPLINSKE ENERGIJE U POSTROJENJIMA ZA KOMBINIRANU PROIZVODNJU TOPLINSKE I ELEKTRIČNE ENERGIJE UČLUKUJUĆI I INDUSTRIJSKU OTPADNU TOPLINU	TABLE PRODUCTION OF HEAT IN COGENERATION PLANTS, INCLUDING INDUSTRIAL WASTE HEAT

XI. FUEL USED IN THERMAL POWER PLANTS

Table 14 shows an overview of fuel consumed in all forms of energy transformations by raw material.

Tablica 14. Gorivo utrošeno u termoelektanama				
		Ugljen 1000 ten Coal 1000 toe	Derivati nafte 1000 ten Petroleum Products 1000 toe	Plinovita goriva 1000 ten Gas 1000 toe
Javne elektrane	Public Electricity Plants	556	19,1	2,2
Javne toplane	Public CHP Plants	-	26,3	471,3

Source: Energy in Croatia 2013.

Croatian	English
TABLICA 14. GORIVO UTROŠENO U TERMoeLEKTRANAMA	TABLE 14 FUEL CONSUMED IN THERMAL POWER PLANTS

XII. PASSENGER-KILOMETRES (PKM)

Transport sector is one of the most intense consumers of electricity in the Republic of Croatia, and it is expected to record a higher increase in consumption in future than other sectors. From 1991 to 2013, the share of transport sector's consumption in the final consumption increased from 21 to 33 percent, indicating a high potential for implementing energy efficiency measures.

The potentials for increasing energy efficiency principally lie in optimising the structure of forms of transport, in utilising capacities (increasing loading factor/s) as much as possible, and employing as efficient as possible engines and vehicles, as well as appropriate driving modes.

Tablica 15. Putnički kilometri			2010.	2011.	2012.	2013.
Automobili benzin	Car gasoline	[10 ⁹ pkm]	13,815	13,499	12,546	12,254
Automobili dizel	Car diesel	[10 ⁹ pkm]	12,516	12,312	12,092	12,526
Automobili elektr.	Car electric	[10 ⁹ pkm]	0,000	0,000	0,000	0,000
Automobili SPP	Car CNG	[10 ⁹ pkm]	0,001	0,000	0,000	0,001
Automobili UNP	Car LPG	[10 ⁹ pkm]	1,285	1,225	1,201	1,234
Zrakoplovi	Air plane	[10 ⁹ pkm]	1,510	1,591	1,451	1,340
Motorkotači	Motorbike	[10 ⁹ pkm]	0,750	0,733	0,682	0,666
Autobusi	Bus	[10 ⁹ pkm]	6,296	6,194	6,083	6,301
Autobusi SPP	Bus CNG	[10 ⁹ pkm]	0,058	0,019	0,019	0,039
Vlakovi	Train	[10 ⁹ pkm]	1,742	1,486	1,104	0,858
Tramvaji elektri.	Tramway el.	[10 ⁹ pkm]	1,348	1,292	1,192	1,167
Ukupno	Total		39,322	38,351	36,371	36,385

Source: Energy Institute Hrvoje Požar

Croatian	English
Tablica 15. Putnički kilometri	Table 15 Passenger-kilometres

Data have been collected from the official statistics (Croatian Bureau of Statistics), but these data contain only the measures for public transport, i.e. data for personal vehicles that have by far the largest share are not included. Such data have been obtained by modelling certain results from previous periods by the Energy Institute Hrvoje Požar. The table above shows the result for total pkm from 2010 to 2013, which is the modelling result and gives a realistic view of ratios for certain types of transport.

The passenger-kilometres structure (estimate for personal vehicle road transport in the Republic of Croatia based on the number of registered personal vehicles, the average annual distances travelled and average car occupancy), as expected, is dominated by personal vehicle road transport.

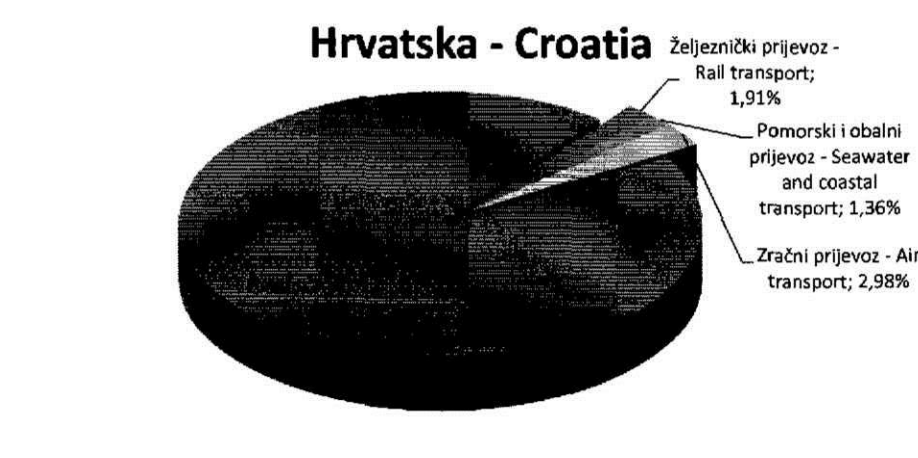


Figure 7. Structure of passenger-kilometres in passenger transport in the Republic of Croatia in 2013 (Source: Energy in Croatia 2013)

From 1995 to 2008, a virtually steady increase in the number of all vehicle was recorded in the Republic Croatia at the average annual growth rate of 4,8 percent. The number of registered personal vehicles in 1995 was 817.229, while by the end of 2008 it reached 1.537.876. In 2009, a decrease in the number of registered personal vehicles was recorded for the first time, continuing in 2010 with a total of 1.517.079 registered vehicles (or nearly 346 personal vehicles per 1 000 inhabitants, i.e. nearly every third inhabitant of the Republic of Croatia owns a personal vehicle). The situation slightly improved in 2011, but there was stagnation in the number of personal vehicles in 2012 and 2013.

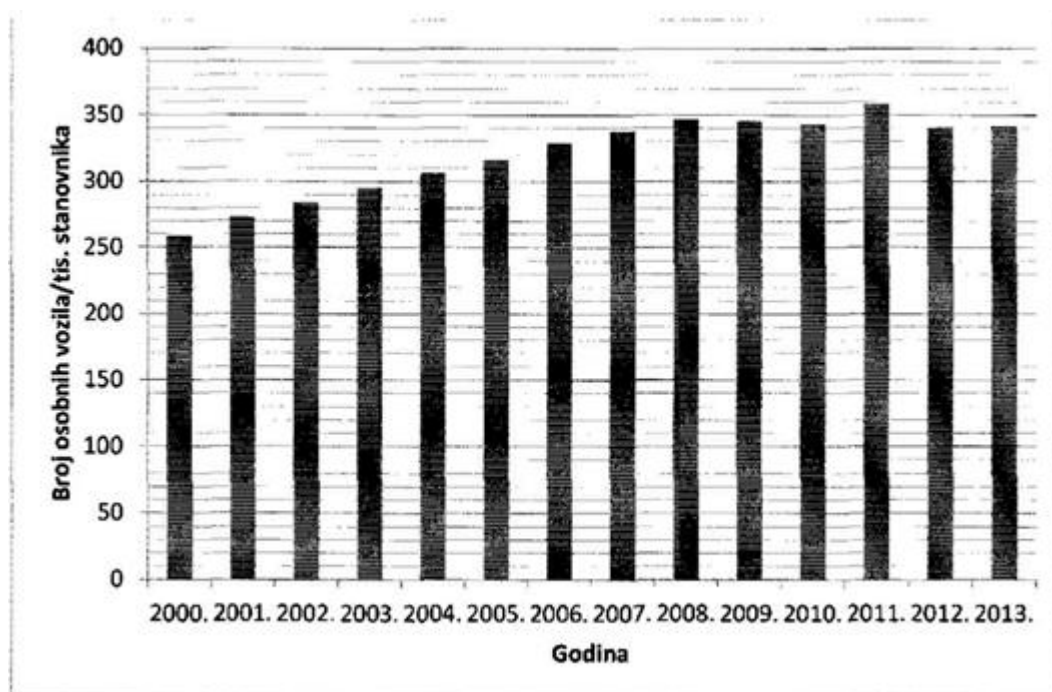


Figure 8 Number of personal vehicles per 1000 inhabitants in the Republic of Croatia

Croatian	English
Broj osobnih vozila/tis. stanovnika	Number of personal vehicles/thousand of inhabitants
Godina	Year

In the observed period (1995 - 2013) the Republic of Croatia recorded a significant increase in the share of diesel cars in the total number of personal vehicles, with persistent continuing positive trend (the total increase in the number of diesel cars was as much as 226 percent). In the structure of total number of personal vehicles, the share of petrol powered cars decreased from 80.5 percent in 1995 to 56,96 percent in 2013, whilst in the same period the share of diesel cars rose from 17.5 to 39.66 percent. The share of LPG cars increased from 2.0 percent in 1995 to 3.35 percent u 2013.

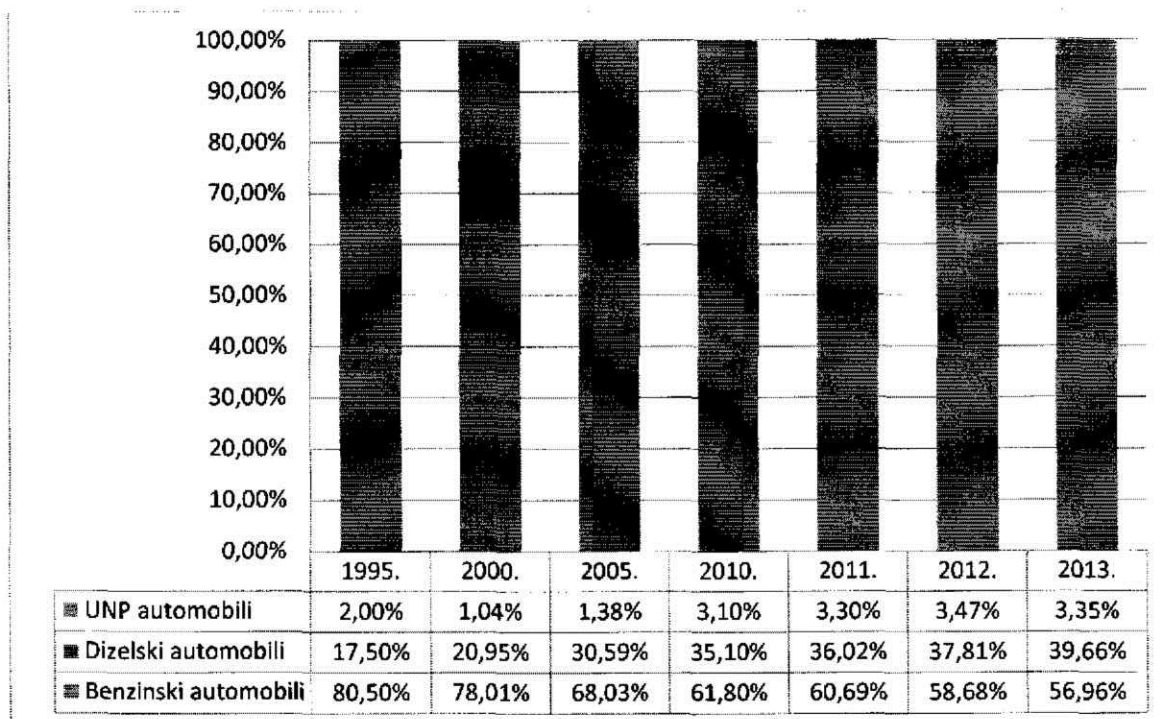


Figure 9 Structure of personal vehicles by type of fuel (1995 - 2011)

Source: Ministry of Interior, Energy Institute HP

Croatian	English
UNP automobili	LPG cars
Dizelski automobili	Diesel cars
Benzinski automobili	Petrol cars

The above structure is indicative of evident changes in the customer habits in respect of the increasing need for bigger and more powerful cars, while relatively well meeting the criteria of purchasing more energy efficient cars, through an increasing share of diesel cars. The mechanism of structural change is based exclusively on market principles, namely, though a more favourable price of diesel fuel during the observed period, i.e. without any special incentives.

XIII. TONNE-KILOMETRES (TKM)

The fundamental indication of energy efficiency in transport is no other than the structure of certain forms of transport and, for instance, the share of rail transport is indicative of a higher level of energy efficiency in freight transport.

The structure of tonne-kilometres in freight transport shows that the primary form of freight transport in the Republic of Croatia is road transport.

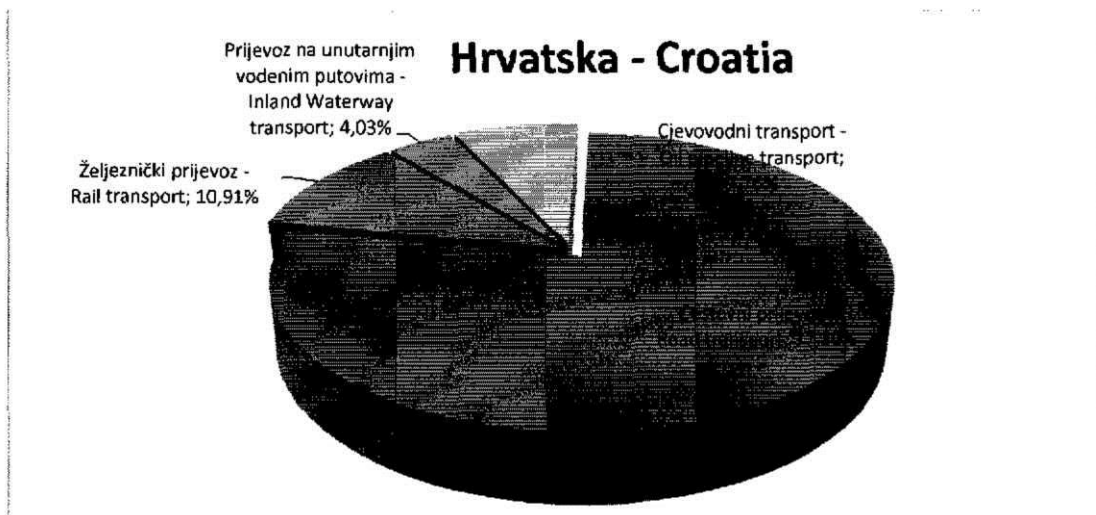


Figure 10) Structure of tonne-kilometres in freight transport in the Republic of Croatia in 2011 (Source: Energy in Croatia 2013)

It should be noted that the assessment left out seawater and coastal transport, giving a somewhat distorted picture since due to long distances travelled in the international maritime freight transport there is a high share of tonne-kilometres in EU 28 .

Tonne-kilometres (tkm)	2012	2013
Road transport	8 649 mil.km	9 133 mil.km
Rail transport	2 332 mil.km	2 086 mil.km
Pipeline transport	1216 mil.km	1485 mil.km
Air transport	3 mil.km	2 mil.km
Inland waterway transport	772 mil.km	771 mil.km
TOTAL	12972mil.km :	13 477 mil.km

Source: Croatian Bureau of Statistics, Statistical Yearbook 2014.

XIV. COMBINED TRANSPORTED KILOMETRES-IF DATA FOR XII. AND XIII. ARE NOT AVAILABLE

The sections above show data for passenger- and tonne-kilometres individually.

XV. POPULATION

Population (census 2011): 4 437 460

Number of households: 1 535 635 (average number of members per household 2,88)

Population density per km²:78.5

Capital: Zagreb (779145 inhabitants)

Language: Croatian

Script: Latin

Currency: kuna (HRK or Kn)

B. The latest data in respect of key statutory and non-statutory measures implemented in 2014 contributing to achieving total national energy efficiency targets for 2020.

KEY REGULATORY AND NON-REGULATORY MEASURES IN 2014

The Croatian Government on 11 June 2014 adopted a decision on the adoption of a long-term strategy to stimulate investment in the renovation of the national building stock of the Republic of Croatia, the Strategy to stimulate investment in the renovation of the national building stock of the Republic of Croatia under article 4 of Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012. on energy efficiency. This strategy concerns investment in energy efficiency and integration of renewable energy in the building sector over the period up to 2050.

Based on this strategy, the Government enacted the fourth National program of renovation of buildings of the national building stock:

1. The program of energy renovation of family houses for the period from 2014 to 2020 with a detailed plan for the period from 2014 to 2016 (pdf, Official Gazette 43/14) adopted by the Croatian Government on 27 March 2014. The objectives of this program are the identification and analysis of energy consumption and energy efficiency in the existing housing stock of Croatia, to identify the potential and possibilities of reducing energy consumption in the existing residential buildings, working out the implementation of measures to encourage improvements in energy efficiency in the existing residential buildings and evaluation of their performance. The program of energy renovation of family houses refers to existing houses used for residential purposes that were built legally. The term 'house' is considered to be a building that is in its entirety intended, or in which more than 50% of the gross floor area is intended, for residential use and has a maximum of two residential units, built on a separate building plot and having a gross construction area of less than or equal to 400 m². Family and semi-detached houses represent about 65% of the total housing stock of the Republic of Croatia.
2. The program of energy renovation of apartment buildings for the period from 2014 to 2020 with a detailed plan for the period from 2014 to 2016 (pdf, OG 78/14) issued by the Croatian Government on 24 June 2014. The objectives of this program are the identification and analysis of energy consumption and energy efficiency in the existing housing stock in Croatia, to identify the potential and possibilities of reducing energy consumption in the existing residential buildings, working out the implementation of measures to encourage improvements in energy efficiency in the existing residential buildings and the evaluation of their performance. The energy renovation programme of multiple-apartment buildings pertains to existing buildings that have been constructed legally. The term 'apartment building' is every building which is in its entirety used, or in which more than 50% of the gross floor area is used, for housing and has three or more housing units, and is managed by a building manager, who is a legal or natural person, in accordance with the Law on Ownership and Other real Rights (Official Gazette Nos 91/96, 68/98, 137/99, 22/2000, 73/2000,129/2000, 114/2001, 79/2006, 141/2006, 146/2008, 38/2009, 153/2009 and 143/2012). The building manager and owner's representative for energy renovation of its buildings must obtain written consent from the other co-owners. Apartment buildings account for about 35% of the total housing stock of the Republic of Croatia. The complete renovation of apartment buildings allows for a more comfortable space, significant savings on energy for heating and reduces CO₂ emissions to the atmosphere.
3. The program of energy renovation of public buildings for the period 2014 - 2015. The Croatian Government, at its session held on 31 October 2013, adopted a program of energy renovation of public buildings for the period 2014-2015, which envisaged the reconstruction of about 200 public buildings in 2014 and 2015, which would encourage investments of an estimated value of about HRK 400 million. One of the goals is to meet the requirements under Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, according to which the Member States are required as of January 1, 2014, to renovate each year 3% of the total floor area in heated and / or cooled buildings owned and used by the central government. The Law on Efficient Use of Energy in Direct Consumption (Official Gazette Nos 152/2008, 55/2012 and 101/2013) and the Regulation on the negotiation and implementation of energy services in the public sector (Official Gazette No 69/2012) regulate the procedure of implementation of energy services in the public sector and thus ensure that measures are implemented with no additional budget expenditure by the owner / user so as to improve energy efficiency in public sector buildings. The authority in charge of the implementation of the Programme is the Agency for Transactions and Mediation in real estate while the Fund for Environmental Protection and Energy Efficiency provides funds for financing and co-financing of the implementation.
4. The program of energy renovation of buildings of commercial non-residential buildings for the period from 2014 to 2020 with a detailed plan of energy renovation of commercial non-residential buildings for the period 2014-2016, prepared by the Ministry of Construction and Physical Planning was adopted by the Croatian Government at its session on 30 July 2014. The

program of energy renovation of commercial non-residential buildings is based on the second National Action Plan for Energy Efficiency (NAPEnU) adopted by the Croatian Government in February 2013. It analyses the state of the existing building stock and its consumption of energy, and proposals are put forward as to the development of measures to improve the energy efficiency of existing buildings to be implemented in the period 2014 - 2020. The program does not apply to new construction of commercial non-residential buildings. The main objective of drafting the program is the launch of a comprehensive energy renovation of commercial non-residential buildings in the Republic of Croatia.

NATIONAL ACTION PLAN FOR ENERGY EFFICIENCY

3. The National Energy Efficiency Action Plan for the period 2014-2016 includes an annual and three-year national report on the implementation of energy efficiency policy - June 2014.

CEI as the National Energy Efficiency Authority prepared the 3rd National Energy Efficiency Action Plan, which the Croatian Government has adopted and notified to the European Commission in June 2014.

The third National Action Plan for Energy Efficiency (NAPEnU) is a comprehensive document for implementation of the energy efficiency policy for the next three years (2014-2016), and also includes a report detailing the activities carried out in the preceding three-year period (the period of implementation of the second NAPEnU).

The report also sets out actual energy savings in relation to the objectives set in the Second National Action Plan for Energy Efficiency of the Republic of Croatia by the end of 2013.

The adoption of the NAPEnU and reports on the implementation of the plan has thus far been an obligation under the Directive on final energy consumption and energy services (ESD 2006/32/EC), whereas from the third NAPEnU onwards the obligation stems from the new directive on energy efficiency (EED 2012/27/EU), which requires the adoption of the National Action Plan by 30 April 2014 and every three years thereafter. Meanwhile, annual reports will be adopted every year on progress in energy saving and achieving the set objective of increasing energy efficiency. In preparing the 3rd NAPEnU more than 180 institutions were contacted and coordinated, and in the end there are over 30 bodies for implementation of specific measures. The intention was to reduce the number of institutions responsible for the implementation of measures so as to increase the responsibility of implementation. However, successful implementation requires the cooperation of many institutions, and such cooperation is strongly encouraged. The CEI is often mentioned as the monitoring body. On the one hand, the CEI will track all the action, as it is responsible for the system of measurement and verification of savings (SMIV), a national Internet platform in which all the participants in the third NAPEnU will be required to enter the implemented measures.

NAPEnU outlines measures developed to achieve the planned reduction in consumption through energy efficiency measures. Implementation of these measures is not saving as such, but rather development through encouragement of a more rational use of energy, through advanced processes and more conscientious behaviour. Track is kept of savings in primary and final consumption and energy efficiency targets are expressed as an absolute level of primary and final energy consumption in 2020.

For the period 2014-2016 a total of 40 measures are planned. Of these, 28 measures are continued from the 2nd NAPEnU while 12 measures are new. Of the new measures, 7 relate to savings by and large of primary energy, and they will be carried out by certain energy distributors. A large number of measures, in particular information related, affect several sectors. 11 measures are of an informative nature, or it is not clearly specified what the extent of implementation of measures will be, which is why the effects of these measures were not calculated. Through the remaining 29 measures, savings of 10.16 PJ in 2016 were calculated.

Through the planned measures a total of 10.16 PJ will be saved by 2016 and 16.66 PJ by 2020. One innovation is Article 7 of the Directive on energy efficiency, which requires that in the period 2014 to 2020 annual energy savings of 1.5% be made. This means that Croatia should achieve cumulative savings of 54.25 PJ. Croatia has decided to achieve it through a combination of alternative measures and mandatory schemes. Mandatory schemes are yet to be determined, and through alternative measures the plan is to save 32.094 PJ or 60% of the total cumulative mandatory target. For this purpose, 10 existing measures were taken, and repeated with stricter calculations required by Article 7. These measures, which fulfil the purpose of cumulative mandatory targets, are shown in section 3.1.1. 3 of the NAPEnU.

This document is the official update notification under Article 7 of the Directive on energy efficiency - energy efficiency obligation scheme. The Republic of Croatia decided on a combined approach of alternative policy measures and obligations of distributors.

The Croatian Parliament passed the Energy Efficiency Act in October 2014. This is the latest and most important law (primary legislation) which transposes the Directive on energy efficiency. Although previous laws in the field of energy and construction already transposed certain provisions of the Directive on energy efficiency, this law transposed all the main provisions along with defined payers and penal provisions. Pursuant to this Act a series of by-laws (secondary legislation) are being drawn up defining the details of certain provisions of the directive and the Act in general.

The Energy Efficiency Act is aligned with Directive 2012/27 / EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, which entered into force on 4 December 2012. This Directive aims to determine, and in turn ensure that savings in direct and primary energy are achieved through application of energy efficiency measures, all in order to reach the goal of increasing the energy efficiency of the EU by 20% by 2020, and facilitate further improvements in energy efficiency after 2020.

Directive 2012/27/EC defines the obligation scheme and the method for calculating the energy savings due to the justified fear that the intended goals of the European Union in the field of energy efficiency will not be achieved, which requires a more rigorous and detailed way of determining national targets.

Also, this Act defines the body responsible for the implementation of energy efficiency policies in the Republic of Croatia, which is the national coordinating body for energy efficiency (National Energy Efficiency Authority), which, among other things, provides a systematic plan to improve energy efficiency in the Republic of Croatia, monitors the fulfilment of obligations of energy efficiency, monitors the results of the implementation of energy efficiency plans and policy measures and runs the scheme for monitoring, measurement and verification of energy savings.

Regulation on the negotiation and implementation of energy services in the public sector

Drafting of this Regulation (act issued by the Government) that will define the procedure of contracting the Agreement on the energy performance of budget and extra-budget users of the state budget.

The system for monitoring, measurement and verification of energy savings (SMIV)

The system for monitoring, measurement and verification of energy savings (SMIV) is a web application that aims to systematically monitor the energy savings incurred as a result of the implementation of energy efficiency plans, and plans that are made due to the reduction of carbon dioxide emissions. The application presents a unique register of plans and implemented energy efficiency measures in which it is possible to monitor the implementation of an arbitrary number of plans at different levels (national, regional, local) in the Republic of Croatia. Without a systematic monitoring of the effectiveness of the implementation of energy efficiency policies (on the basis of an information system) it is not possible to make accurate assessment of the realization of energy savings that result from measures of policy of incentives set out in the National Action Plan, or to take activities that are driven by these measures.

Web application uses a bottom-up methodology, which is part of the Rulebook on the methodology for monitoring, measurement and verification of energy savings in final consumption. It is important to note that in cases where there are measurement results before and after the implementation of measures, it is possible to enter the exact data through a graphic interface programme. Otherwise, when the measurements before and after the implemented measures are not available, use is made of the reference values laid down in the Methodology. The main purpose of SMIV is to monitor the implementation of measures under the National Action Plan for Energy Efficiency (NAPeU).

To ensure that the savings achieved can be measured in a unified and proper manner, CEI in cooperation with the German Society for International Cooperation GIZ is developing a system for monitoring, measurement and verification of energy savings (SMIV) which shall include all plans and implemented energy efficiency measures.

Parties who have the obligation to enter data into SMIV are: Public Administration, companies concluding energy performance agreements and all providers of subsidies for energy efficiency measures. Obligated parties are required to feed into the system all the energy efficiency measures under their area of responsibility. This means that for each measure implemented there will be a method of reporting and verification of actual savings and it will be possible to check the forecast with actual results. This kind of monitoring is a prerequisite for a systematic and consistent measurement of savings achieved at the national level.

Introductory presentations were held in four major cities: Zagreb, Split, Osijek and Rijeka and it is expected that workshops for users of the System for monitoring, measurement and verification will start in the near future.

Industrial Energy Efficiency Network (IEEN)

Through *IEEN* a series of activities aimed at promoting energy efficiency in the industry will be conducted. The main goal is to improve awareness and knowledge of the leadership of industrial enterprises and employees so that full use will be made of the overall

potentials of achievable measures of energy savings. It is necessary to put in place at the company level as well as at the level of industrial groups energy consumption management structures and introduce monitoring and analysis of energy consumption against the set targets.

This will result in an extensive database of energy consumption in the industry and will develop indicators that will be used for benchmarking with companies from the same branch in Croatia and the EU. It is necessary to develop through the measure a plan of action of action for key industries and co-finance the implementation of targeted energy efficiency measures.

Programme of energy renovation of public sector buildings 2014 - 2015 - Agency for Transactions and Mediation in Immovable Properties

Croatian Government at its session held on October 31 2013, adopted a program of energy renovation of public buildings for the period 2014 - 2015, which stipulated that in 2014 and 2015 about 200 public buildings will be renovated, which would encourage investment with estimated value of about 400 million.

According to Table 17, it is evident that a total of 10 projects have been agreed and are ready for implementation through the reconstruction program for a total of 86,158 m². In addition to the agreed projects, there are 10 more projects being negotiated at present. The total area of all buildings covered by the program of reconstruction so far is 131,734 m². The expected start of the implementation of agreed projects is in 2015.

	Ministry of Social Policy and Youth	"Fra Ante Sekelez" Rehabilitation Centre building, Vrlika	Vrlika	8,402.95	8,112,578.00	6,490,800.00	3,245,400.00
CONTRACTED	Ministry of Social Policy and Youth	"Bidružica" home for mentally ill adults building, Desinić	Desinić	5,500.00	10,093,200.00	8,345,600.00	4,172,800.00
	Ministry of Internal Affairs	Set of buildings - Požega-Slavonia Police Department, Osijek-Baranja Police Department - II Osijek Police Station	Požega	2,802.72	4,440,000.00	4,197,200.00	2,098,600.00
			Osijek	930.00			
	Ministry of Internal Affairs	Set of buildings - Sisak Police Station and Dubrava Police Station	Sisak	990.00	4,004,600.00	3,412,500.00	1,706,250.00
			Zagreb	1,220.00			
	Ministry of Maritime Affairs, Transport and Infrastructure (MMATI)	MMATI building, Prisavlje 14, Zagreb (Kockica)	Zagreb	16,150.00	19,038,000.00	16,391,000.00	8,195,500.00
	Cres Town	"Girice" kindergarten building,	Cres Town	985.00	1,077,236.00	1,038,400.00	519,200.00
	Ministry of Health	A set of buildings Clinical Hospital Centre Split - Križine wing	Split	36,043.00	92,126,719.18	55,950,000.00	27,975,000.00
	Velika Gorica Town	Primary school building, Vukouina, Školska 20, Velika Gorica	Velika Gorica	2,256.61	3,387,400.00	2,898,000.00	1,449,000.00
	Velika Gorica Town	Primary school Nikola Hribar building, Ftudevca Boškovića 11, Velika Gorica	Velika Gorica	5,239.04	4,887.88000	4,744,500.00	2,372,250.00
UNDER NEGOTIATION	Velika Gorica Town	Set of buildings - primary school Eugen Kvaternik, Velika Gorica and primary school, Velika Gorica	Velika Gorica	2,850.98	4,451,400.00	4,335,000.00	2,167,500.00
			Velika Gorica	2,788.53			
	Ministry of Internal Affairs	Set of buildings Ministry of Internal Affairs, Insurance Office and Jastrebarsko Police Station	Zagreb	803.00	3,024,320.68	2,762,511.96	1,381,255.98
			Jastrebarsko	1,025.00			
	Ministry of Social Policy and Youth	Set of buildings - Reform and Education Centre Velika Gorica and the "Kolodvorska" off-campus unit	Velika Gorica	2,070.00 944.00	4,808,525.22	3,089,875.71	1,544,937.86
Ministry of Internal	Set of buildings - Vinkovci Police Station and Slavonski	Vinkovci Slavonski	682.00	3,970,800.00	3,602,600.00	1,801,300.00	

Affairs	Brod-Posavina Police Station	ki Brod	1,832.00				
Ministry of Social Policy and Youth	Rudolf Stelner Reform and Education Centre building, Daruvar	Daruvar	2,285.00	2,111,000.00	1,997,600.00	998,800.00	
Ministry of Internal Affairs	Karlovac police station and fire station	Karlovac	3,494.00	4,836,000.00	4,188,000.00	2,094,000.00	
Ministry of Internal Affairs	Police station building Rijeka, Trinajstićeva 2, Rijeka	Rijeka	2,720.00	4,960,000.00	4,694,000.00	2,347,000.00	
Varaždin County	Secondary school building Ivanec, Eugena Kumičića 7, 42 240 Ivanec (school with sports hall)	Ivanec	7,212.00	4,227,680.00	4,116-500.00	2,058,250.00	
FINA	Financial agency building Regional centre Zagreb - office 1, Ulica grada Vukovara 70, Zagreb	Zagreb	19,990.00	34,184,788.74	34,184,788.74	17,092,394.37	
FINA	Financial agency building - Gospić	Gospić	1,211.10	3,488,656.60	3,488,656.60	1,744,328.30	
Križevci Town	Križevci kindergarten building	Križevci	1,307.61	1,981,756.00	1,580,728.45	790,364.23	
	TOTAL		131,734	219,212,540	and 171,508,261	85,754,130	

Systematic Energy Management - Agency for Transactions and Mediation in Immovable Properties

Department for systematic energy management in the public sector, in cooperation with the Ministry of Construction and Physical Planning prepared the Regulations on systematic energy management in the public sector (NN18 / 15) in which the Agency for Transactions and Mediation in Immovable Properties (APN) was designated as the implementing body for systematic management of energy in the public sector (SGE) and for the administration, development and use of the National Information System for energy (ISGE). Following the Regulations and Methodology, major efforts are being made to connect the measurement sites database with billing databases of suppliers' and providers of energy and water so that EMIS could enter data on the public sector. Thus for the first time the exact number of public sector buildings and their consumption of energy and water will be known. In terms of development of EMIS- new modules of public lighting, energy renewal and reporting have been put in place, which has so far included 98% of all facilities of the public administration.

Besides the course for the use of national EMIS system - ISGEonica Department for systematic energy management in terms of technical and expert assistance in the introduction of sustainable energy in the public sector, the development of training at two levels:

1. The course for energy consultants and energy users (TESS) intended for the designated persons in the public sector for the successful fulfilment of the obligations under the Regulations. The aim of the course is set up functional structures of persons responsible for monitoring the consumption and for planning energy efficiency measures in the public sector.
2. Green Office (AA) is the educational and motivational workshop intended for all public administration employees. The goal is to approach the concept of energy efficiency through examples from everyday life and encourage them to cooperate with the energy consultants and associates in the workplace or individual action in their own home. They are also encouraged to join the existing activities of MoCPP, the Fund and JLRS.C.

C. The total floor area of buildings owned and used by the central government of a Member State with a total useful floor area exceeding 500 m² and of 9 July 2015, more than 250 m², which, until January 1, 2015 have not met the energy performance requirements

Not applicable in the case of Croatia, who chose an alternative approach for the calculation of energy savings in eligible buildings owned and used by the central government.

D. The total floor area of heated and / or cooled buildings owned and used by central authorities of Member States, which was renovated in 2015, as stated in Article 5, paragraph 1, or the amount of energy savings in eligible buildings owned and used by the central government

Directive 2012/27/EU introduced the obligation of achieving energy savings in public buildings owned or used by the central government institutions in such way that the annual renewal of at least 3% footprint of these buildings at the very minimum to the level of investment in the renovation of public and private residential and non-residential buildings, which must include a review of national building fund, cost-effective approaches to reconstruction according to the type of buildings and climatic zones, policies and measures to encourage in-depth reconstruction phase and include renovation of buildings, review of future movements of the market for the purposes of investment by private individuals, the construction industry and financial institutions, as well as the assessment of energy savings and broad use by the society. A uniform register of buildings of central government with the clearly stated energy performance of buildings is still not fully functional. Data of the project "Bring the house in order," on the basis of which active base energy consumption for non-residential buildings of central government and local governments was formed, is used as a kind of substitute.

Base EMIS collects data on measured consumption of energy and water on a monthly basis according to the accounts of distributors in buildings. From a total of 3,700 buildings involved in the project EMIS, 774 buildings are public buildings of the central government.

For the purposes of ensuring the possibility to monitor the savings through energy supplied, energy renovation of public buildings at a pace of 17 buildings per year (14 in continental Croatia and 3 in coastal Croatia) will be carried out nationally, corresponding to a total heated area of 33,267 m² for a standard set of buildings or, according to the specific savings that differ significantly from office buildings to hospitals, ranging from 10,941 m² to 51.309m² per year. This will achieve savings equivalent to the energy renovation of buildings 3% per year in the amount of 0.00489 PJ annually.

Achieved target for 2014 is 0.01099 PJ, which is more than double the planned target of 3% renovation of buildings. A large share of the realized goal *relates to* the change of the heating system in large building compounds such as the prison in Gospić, penitentiary in Turapolje, Police at home in Rijeka, the University Library of Rijeka and the Croatian Institute for Transfusion but also a complete renovation of the Municipal Court in Metkovic. A total of 18 energy efficiency projects in buildings of central government were carried out.

Table 18 3% of the renovation of central government buildings		
	Planned target	Achieved saving
3% of the renovation of central government buildings	0.00489 PJ	0.01099 PJ

Source: The national coordination body for energy efficiency, CEI

E. Energy savings achieved in 2014 through a system of national energy efficiency obligation under Article 7(1) or the alternative measures adopted in application of Article 7(9) of the Directive

Table 19, Energy saving achieved through implementation					
Name of measure	Number of projects	Saving [PJ]	Saving [tCO2]	Total investment amount [HRK]	Total funds paid from the Fund [HRK]
RESIDENTIAL BUILDINGS					
Programme of energy renovation of family homes 2014 - ZOIe.-reconstruction of outer layer	7	0.019	660.449	15,605,618,980	5,837,295,089
Programme of energy renovation of family homes 2014 - 2016,-installtion of OIE system	3	0.004	226.450	6,798,349.804	2,414,288.012
Programme of energy renovation of family homes 2014 - 2016,-Total	10	0.0230	886.90	22,403,968.78	8,251,583.10
Programme of energy renovation of multifamily housing					
Introduction of the individual metering system of heat energy consumption	5	0.021	1,765/476	12,163,068,000 and	4,805,096.237
PUBLIC SECTOR BUILDINGS					
Programme of energy renovation of public sector buildings (2014 -2015)					
Programme of energy renovation of public sector buildings (2016 2020					
COMMERCIAL NON-RESIDENTIAL BUILDINGS					
Programme of energy renovation of commercial non-residential housing					
PUBLIC LIGHTING					
Programme of energy renovation of public lighting	76	0.040	4,176.211	75,491,781.400	38,307,772,286
TRANSPORT					
Financial incentives for energy-efficient vehicles	296	0.005	353.027	48,008,848.961	10,530,000.000
Environmentally-friendly vehicles incentives	20	0.017	1,291.083	1,478,060.370	517.579^400
Introduction of a special motor vehicle tax based on CO2 emissions					
TOTAL	407	0.107	8,472.696	159,545,727.515	62,412,031.024

Source: Environmental Protection and Energy Efficiency Fund

Table 19 shows the alternative policy measures that have been realized using resources from the Environmental Protection and Energy Efficiency Fund. Table 19 is not final for 2014 because the Fund is currently verifying all projects from 2014. In addition, the Republic of Croatia is introducing an Internet application for monitoring, measuring and verifying energy savings. The feeding into the system of all energy efficiency measures at a national level shall commence in the first half of 2015. Entering the measures implemented since 2014 will result in a quality register of implemented energy efficiency measures that have been verified using the national methodology for monitoring, measuring and verification. It is expected that for the 2014 report, all data will be accessible through the system for monitoring, measuring and verifying energy savings.