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Assessment of climate change policies in the context of the European Semester

Country Report: Croatia



Ecologic Institute

Authors team: Andrew Eberle, Lena Donat, Eike Karola Velten

eclareon

Author: Saša Rajković

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Ecologic Institute

eclareon

Ecologic Institute, Berlin:

Pfalzburger Strasse 43/44
10717 Berlin
Germany
www.ecologic.eu

eclareon GmbH

Giesebrechtstraße 20
10629 Berlin
Germany
www.eclareon.eu

Contact:

Eike Karola Velten,
Fellow Climate and Energy
Tel. +49 (30) 86880-165
Fax +49 (30) 86880-100
eike.velten(at)ecologic.eu

Contact:

Saša Rajković
Researcher, Policy Department
Tel. +49 (30) 88 66 74 000
Fax +49 (30) 88 66 74 0010
policy(at)eclareon.com

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The report provides an overview of current emission trends and progress towards targets as well as policy developments that took place over the period from February 2013 to November 2013.

Please feel free to provide any comments or suggestions to the authors through the contacts listed above.

Short summary

Background: Due in part to the country's strained financial resources, climate change does not play a major role in Croatia's current political dialogue, however a number of policies have been implemented addressing financing for renewable energy producers and encouraging greater energy efficiency. Initial steps have also been made to transition to more sustainable transport and waste regimes.

Non-ETS emission reduction target: The 2020 target is +11% compared to 2005 emission. A change in non-ETS GHG emissions of +2% has been reported between 2005 and 2010. According to the latest national projections submitted to the Commission and when existing measures are taken into account, the target is expected to be met: -6% in 2020 compared to 2005 (with a margin of 17 percentage points).

Key indicators 2011:

GHG emissions	HR	EU
ESD EU 2020 GHG target (comp. 2005)	+11%	
ESD GHG emissions in 2011 (comp.2005)	+2%	-9%
Total GHG emissions 2012 (comp.2005)	-14%	-12%
GHG emissions/capita (tCO ₂ eq)	6.4	9.0

→ **29% lower** per capita emissions than EU average.

GHG emissions per sector	HR	EU
Energy/power industry sector	29%	33%
Transport	21%	20%
Industry (incl. industrial processes)	22%	20%
Agriculture (incl. forestry & fishery)	14%	12%
Residential & Commercial	9%	12%
Waste & others	4%	3%

→ **Energy/power industry** sector followed by Industry and Transport.

Energy	HR	EU
EU 2020 RES target	+20%	
Primary energy consumption/capita (toe)	1.9	3.4
Energy intensity (kgoe/1000 €)	232	144
Energy to trade balance (% of GDP)		-3.2%

→ Around **43% lower** per capita consumption and **61% higher** energy intensity than EU average.

Taxes	HR	EU
Share of environmental taxes (% of GDP)	3.3%	2.4%
Implicit tax rate on energy (€/toe)	<i>n.a.</i>	184

→ **Higher** share of environmental taxes than EU average.

Key policy development in 2013: To encourage greater fleet fuel efficiency, an additional “special duty” was added to the VAT for vehicle purchases. This duty is tied to the vehicle’s emissions, with more efficient vehicles being taxed less. Electricity fees were drastically increased to better fund renewable energy support programmes, while simultaneously strict caps were applied to the future renewable energy development. New waste regulations mandate residential recycling. Stricter rules were also passed for insulating new buildings, in addition to a programme to renovate numerous public buildings.

Key challenges: Transport accounts for over 20% of Croatia’s total GHG emissions, but fuel taxes remain among the lowest in the EU (see Chapter 4). Instituting a CO₂-based bonus/malus system for calculating total VAT in vehicle purchasing is a positive development, but more could be done to encourage emissions reductions in the transport sector at a faster pace by addressing areas beyond only new car purchasing, including amending vehicle registration and ownership taxes preferring more efficient vehicles. Additionally, agriculture represents over 10% of Croatia’s GHG emissions and this share is expected to increase in the coming years. However, no comprehensive strategy is in place to address emissions from this sector.

Index

Short summary.....	1
1 Background on climate and energy policies.....	4
2 GHG projections.....	5
Background information	5
Progress on GHG targets.....	5
3 Evaluation of National Reform Programme 2013 (NRP)	9
4 Policy development.....	10
Environmental Taxation	10
Energy Efficiency	10
Renewable Energy.....	11
Energy Networks.....	12
Transport	13
Agriculture.....	13
Waste	14
Land Use, Land Use Change and Forestry	14
5 Policy progress on past CSRs.....	15
6 References.....	16

I Background on climate and energy policies

Although climate policy does not play a major role in the broader public debate, positive developments can be observed in the specialist community. At conferences and consultations of experts, increasingly interested domestic industry and policy-makers are beginning a dialogue and pursuing the debate on climate and energy policy.

Croatia has adopted several climate change policies mainly due to their recent accession to the EU in July 2013. New policies are primarily focused on the usage of technologies such as nuclear power and CCS, but also include the promotion of renewable energy and increases in energy efficiency. In addition, new governmental institutions such as the Fund for Environmental Protection and the Environmental Information System have been introduced over the past 10 years.

In April 2013, the Economic Programme of Croatia (Government 2013) was presented, with the Government committing itself to promote investments in energy efficiency and energy renovation of buildings, renewable energy sources, and technologies with low greenhouse gas emissions (in particular for the development of heating systems, heat pumps, biomass, and gas generation plants). However, experts say that a recently published proposal for an RES Action Plan could undermine these ambitions at least in the field of the development of renewable energies (Poslovni dnevnik 2013). The Economic Programme also foresees the preparation of a Climate Change Adaptation Strategy and a related Action Plan in order to prevent adverse effects in sectors such as water resources, agriculture, forestry, biodiversity, fisheries, and human health. The Ministry of Agriculture, in cooperation with the Ministry for Environment and Natural Protection, is currently working on a Strategy for a Low Carbon Development for Croatia. In various sectors (e.g. waste, agriculture, transport, tourism, energy and industry, forestry), working groups have been established to debate new objectives and measures to be undertaken in order to achieve Croatia's 2020 goals and to draft projections for the year 2050 (Ministry for Environment and Nature Protection 2012a).

With regards to energy policies, the latest Energy Development Strategy of Croatia (Government of the Republic of Croatia 2009) was adopted in 2009. The strategy asserts Croatia's goal to continuously align its legislative and regulatory framework with the *acquis communautaire* in order to achieve its EU 2020 goals. The strategy outlines the following primary objectives:

- increasing energy supply security,
- securing a competitive economy with available and affordable energy services, and
- promoting environmental sustainability and combating climate change.

In addition, a Green Book on Energy, prepared in 2008 specifically for the aforementioned strategy, made projections through the year 2030 of three varying scenarios—each of them projecting either investments into nuclear energy, coal energy, natural gas, or a mix of these technologies (UNDP 2008).

Based on 2020 projections that are forecasting 8-10 billion € in investments in energy-efficient buildings, greater biomass utilisation, the installation of solar thermal systems, and wind energy, approximately 14,500 new jobs are expected to be directly created, in addition to 65,000 indirect or induced jobs (UNDP 2010). This is of great importance, as Croatia is facing a serious unemployment problem at the moment, with an unemployment rate of 18.5% and as many as 316,000 people jobless (HZZ August 2013).

2 GHG projections

Background information

In 2011, Croatia emitted 28.3 Mt CO₂eq (UNFCCC inventory 2011). Energy supply, energy use, and transport accounted for the biggest share of emissions, with approximately 20% each. The sharpest drop of emissions between 1990 and 2010 was observed in energy supply, due to the substitution of coal-fired production with hydropower. However, emissions slightly increased again in 2011. Industrial emissions were reduced in the same period, owing mainly to decreased production of cement, lime, ammonia, and steel. Decreasing livestock populations, reduced crop production, and a declining use of mineral fertilizers have resulted in emissions reductions of 23% in the agricultural sector between 1990 and 2010. In contrast, emissions from transport increased from 1990 to 2011 by more than a third, due to the growing number of vehicles and increased distances travelled (UNFCCC inventory 2011, EEA 2012, UNFCCC 2012). From 2011 to 2012, total GHG emissions are expected to decrease thanks to emission reductions in energy supply and use, as well as in the transport sector (EEA 2013c).

Progress on GHG targets

There are two sets of targets to evaluate: 1) the Kyoto Protocol targets for the period 2008-12 (which has just ended) and 2) the 2020 targets for emissions not covered by the EU ETS.

Under the Kyoto Protocol, the emission reduction target for the period 2008-2012 has been set at 5 % below 1990 levels. An evaluation of the latest complete set of greenhouse gas data (for the year 2011; there is only preliminary data for 2012) shows that Croatia's emissions have decreased on average by 9.8% compared to the Kyoto base year (EEA 2013). Croatia is thus expected to meet its commitment by a comfortable margin through direct domestic emission reductions.

By 2020, Croatia can increase its emissions not covered by the EU ETS by 11% compared to 2005 according to Annex III of Croatia's Accession Treaty, which stipulates that the Effort Sharing Decision (ESD) ⁽¹⁾ shall be amended to include this target ⁽²⁾. The methodology used to determine this figure is in principle the same as that used to calculate the respective targets for other Member States.

According to the Annual Emissions Allocation ⁽³⁾ for the year 2013, Croatia can increase its non-ETS emissions by 5% from 2005 to 2013; however, the latest data for 2012 does not outline non-ETS emissions for Croatia as they do not yet participate in the ETS. By 2020, national projections (EEA 2013b) show that Croatia is on track and is expected to

¹ Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.

² See page 55 of Annex III, available at <http://register.consilium.europa.eu/pdf/en/11/st14/st14409.en11.pdf>

³ Commission decision of 26 March 2013 on determining Member States' annual emission allocations for the period from 2013 to 2020 pursuant to Decision No 406/2009/EC of the European Parliament and of the Council. Available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:090:0106:0110:EN:PDF>

exceed its target by 17 percentage points with existing measures (see Fehler! Verweisquelle konnte nicht gefunden werden.).

Table I: GHG emission developments, ESD-targets and projections (in Mt CO₂eq)

	1990	2005	2010	2011	2012*	ESD target**		2020 Projections***	
						2013	2020	WEM	WAM
Total	31.6	30.5	28.6	28.3	26.2				
Non-ETS (% from 2005)		19.6	20.0	n.a.	n.a.	20.6 5%	20 11%	17 -6%	17 -6%
Energy supply (% share of total)	7.1 23%	6.8 22%	5.9 21%	6.3 22%					
Energy use (w/o transport) (% share of total)	9.7 31%	8.1 27%	7.0 24%	6.5 23%					
Transport (% share of total)	4.1 13%	5.7 19%	6.0 21%	5.9 21%					
Industrial processes (% share of total)	3.8 12%	3.3 11%	3.2 11%	3.0 11%					
Agriculture (% share of total)	4.4 14%	3.5 11%	3.2 11%	3.3 12%					

Source: UNFCCC inventories; EEA (2013b); Calculations provided by the EEA and own calculations.

* proxies for 2012

** The ESD target for 2013 and for 2020 refer to different scopes of the ETS: the 2013 target is compared with 2012 data and is therefore consistent with the scope of the ETS from 2008-2012; the 2020 target is compared to 2020 projections and is therefore consistent with the adjusted scope of the ETS from 2013-2020. 2005 non-ETS emissions for the scope of the ETS from 2013-2020 amounted to 18 Mt CO₂eq.

*** Projections with existing measures (WEM) or with additional measures (WAM).

Legend for colour coding: green = target is being (over)achieved; orange = not on track to meet the target

Total greenhouse gas emissions (GHG) and shares of GHG do not include emissions and removals from LULUCF (carbon sinks) and emissions from international aviation and international maritime transport.

National projections of GHG emissions through 2020 need to be prepared by the Member States every two years, in accordance with the EU Monitoring Mechanism ⁽⁴⁾, and the latest submission was due in 2013. However, Croatia did not submit new projections.

The projections need to be prepared reflecting a scenario that estimates total GHG emissions reductions in line with policies and measures that have already been implemented (with existing measures, WEM), and an additional scenario that reflects developments with measures and policies that are in the planning phase (with additional measures, WAM) may also be submitted.

In the following two tables, the measures outlined in the 2011 projections have been summarised with a focus on national measures and those EU instruments expected to reduce emissions the most. Please note that the table also includes measures that address GHG emissions covered under the ETS, such as measures reducing emissions from electricity generation (e.g. feed-in tariffs). An update on the status of the policies and

⁴ Decision No 280/2004/EC of the European Parliament and of the Council of 11 February 2004 concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol.

measures is included in order to assess the validity of the scenarios, although it must be noted that the above projections are estimates from the EEA, so the measures listed in the table below are not necessarily consistent with the data above.

Table 2: Existing and additional measures as stated in the 2011 GHG projections

Existing Measures (only important national measures)		Status of policy in November 2013
Energy	Regulation of Financial Incentives to Encourage Electricity Generation by Renewable Energy Sources and Cogeneration (OG 33/07, 133/07, 155/08): Feed-in tariffs for electricity generated from renewable energy sources and cogeneration	System for getting the revenues for the feed-in tariff still in place
	Ordinance on Utilization of Renewable Energy Sources and Cogeneration (OG 67/07). The regulation sets out which renewables are promoted in Croatia.	The regulation was updated in the second half of 2012.
	Loan programme for the preparation of RES projects through the Croatian Bank for Reconstruction and Development (HBOR)	No recent developments in this field. There is no volume cap. The HBOR bank and other commercial banks decide on the amount of credit they are willing to grant.
	Promoting the use of renewable energy sources through the Environmental Protection and Energy Efficiency Fund (OG 107/03, 144/12).	The act was changed in 2012 (Government 2007) in minor technical points (with regards to objections and fees issued by the Fund).
	CO ₂ emission charges for all stationary sources emitting more than 30 t CO ₂ /yr (Regulation on Unit Charges, Corrective Coefficients and Detailed Criteria and Benchmarks for Determination of the Charge for Carbon Dioxide Emissions into Environment (OG 73/07, 48/09))	The latest change was in 2009, with respect to the CO ₂ charge coefficients needed to calculate the exact charge.
Energy Efficiency	Promoting the use of energy efficiency through the Environmental Protection and Energy Efficiency Fund (OG 107/03).	The act was changed in 2012 (see above) in minor technical points (with regards to objections and fees issued by the Fund).
	Promoting energy efficiency through implementation of the project "Promoting energy efficiency in Croatia" in the household and service sector	These projects are renewed and evaluated on a yearly basis. The last public calls were in December 2012.
	HEP ESCO (executive agency for the Energy Efficiency Project) Energy Efficiency Programme: Development, execution and financing of energy efficiency projects, incl. modernisation, reconstruction, and refurbishment of existing plants and facilities for the public and private sectors	Implemented in the year 2010 and not updated since then

	Physical Planning and Building Act (OG 76/07, 38/09, 55/11, 90/11, 50/12, 55/12) and regulations transposing the EU Directive 2002/91/EZ on Energy Performance of Buildings	The act was implemented and in the sequence updated several times in the years 2011 and 2012 ⁽⁵⁾ .
Transport	Raising attractiveness of rail transport: development of suburban passenger rail transport, terminals at city entrances, truck transport terminals, railways electrification	This policy is being discussed in the transportation working group of Croatia's low carbon development strategy (Ministry for Environment and Nature Protection 2012a).
	Act on Biofuels for Transport (OG 65/09, 145/10, 26/11, 144/12): Production, trade, use and storage of biofuels; decision on the percentage of biofuels in total share of fuel (OG 52/08) setting up a percentage of biofuels in total fuel energy consumption.	The Energy Action Plan has set specific quotes per year (revised if needed by the minister responsible for energy) starting with 1.58 % share of biofuels in 2012 to 10.05 % share of biofuels in 2020 ⁽⁶⁾ .
	Programme of decreasing the negative traffic impact on the environment: The Programme covers number of measures with aim to reduce the harmful gases emission from traffic sector and, amongst other, grant funds for replacement of non-ecological vehicles for passenger and goods with new vehicles with EURO 4 and EURO 5 standard.	The programme received financial resources from the government equal to 50 million HRK in 2010 (app. € 6.5 million) (See EIHP).
Other non-ETS sectors	Utilisation of biodegradable municipal wastes in district heating plants or landfill biogas (in accordance with the Waste Management Plan of the Republic of Croatia (OG 85/07): Collected gas which could not be used for energy generation must be burnt at the flare. Landfills need to be equipped with the systems for collection and treatment of landfill gas.	The waste management plan is scheduled to run up to 2015. The majority of local municipalities have adopted their waste management plans depending on their local circumstances.
	Efficient management of organic manure: Implementation and encouraging sustainable agricultural practices (in accordance with the Nitrate Directive), and adopting best procedures in agricultural production. Co-financing for investments in constructions and equipment for storage and distribution of fertilizers and promotion of agri-environmental measures.	Upon implementation of the Nitrate Directive the following acts were changed: Regulation to protect agricultural land from contamination with harmful substances Regulation on Environmental Impact Assessment Plant Protection Act Law on Agricultural Land An investment fund for lowering nitrate pollution was also created.

Source: Republic of Croatia (2010).

⁵ The Law on Spatial Planning is available at: <http://narodne-novine.nn.hr/clanci/sluzbeni/298830.html>. Amendments to the Law on Spatial Planning are available at: http://narodne-novine.nn.hr/clanci/sluzbeni/2011_08_90_1923.html.

⁶ The Act on Biofuels is available at <http://www.mingo.hr/userdocsimages/energetika/Nacionalni%20akcijski%20plan%20poticanja%20proizvodnje%20i%20kori%C5%A1tenja%20biogoriva%20u%20prijevozu%20za%20razdoblje%202011.-2020.pdf>.

Additional Measures (only important national measures)		Status of policy in November 2013
Energy	Construction of a 1,000 MW nuclear power plant in 2024; Decision in 2012	No final decision yet; current plans are more a political aspiration than a formally introduced plan.
	Construction of Carbon Capture and Storage system on new coal-fired power plants (commercially available, in assumptions, in 2020).	No final decisions yet, but discussions about Croatia's CCS potential are ongoing
	Implementation of technology for enhanced oil recovery (EOR) by CO ₂ injection (if oil price is high enough)	No progress.
Other non-ETS sectors	Thermal treatment of municipal waste in power plant in Zagreb	No progress.

Source: Republic of Croatia (2010).

According to the current state of implementation, some of the existing measures may not have been (or are no longer) implemented to the full extent assumed under the scenario. However, a detailed quantitative evaluation is not available at this time. Progress on additional measures is small, as they include the usage of large scale technological approaches. In sum, the assessment of the WEM/WAM scenarios indicates a risk that emissions may be higher than anticipated.

3 Evaluation of National Reform Programme 2013 (NRP)

In April of each year, Member States are required to prepare their National Reform Programmes (NRPs), which outline the country's progress regarding the targets of the EU 2020 Strategy. The NRPs describe the country's national targets under the strategy and contain a description of how the country intends to meet these targets. For climate change and energy, three headline targets exist: 1) the reduction of GHG emissions, 2) the increase of renewable energy generation, and 3) an increase in energy efficiency (⁷).

The Republic of Croatia did not submit a National Reform Programme in 2013, as the country entered the EU only in July 2013.

⁷ There are specific targets for all MS by 2020 for non-ETS GHG emission reductions (see section 2) as well as for the renewable energy share in the energy mix by 2020 (see section 4, renewable energies). Specific energy efficiency targets will be defined (or revised) by the MS until the end of April 2014 in line with the methodology laid out in Article 3 (3) of the Energy Efficiency Directive (Directive 2012/27/EU).

4 Policy development

This section covers significant developments made in key policy areas between February 2013 and November 2013. It does not attempt to describe every instrument in the given thematic area.

Environmental Taxation

Croatia has instituted excise taxes and charges in a variety of environmental areas, including on energy products, water use and waste water treatment, transport, pollutant emissions, and waste management (OECD 2013). A Payment for Ecosystem Services scheme for the forestry sector was implemented in 1991 (Vuletic et al. 2010). After an amendment of the Law on Excise duty (⁸) in April 2013, which came into force the first of July, Croatian energy taxes are in line with the EU set minimum standards (Ministry of Finance 2013).

The energy intensity of Croatia's economy is close to the EU average. In 2010, Croatia had the 12th most energy-intensive economy of all EU member states.

Croatia reformed its Value Added Tax at the beginning of January 2013 (Government 2009). This amendment levies a "special" duty tax on cars for their CO₂ emissions. If the vehicle emits less than 120 g CO₂/km, taxes decrease significantly, while those with emissions above 130 g CO₂/km are subject to a higher tax. For cars emitting between 120 and 130 g CO₂/km the tax level does not change.

Energy Efficiency

The energy intensity of the Croatian economy declined at a rate of 7% between 2005 and 2011. In the same time span this decline was accompanied by a consistent decrease of the overall energy consumption by 2%. Despite these positive developments, Croatia's reductions in energy consumption were still smaller than the EU average (Eurostat 2013a).

The Croatian industrial sector's energy efficiency increased over 20% from 1995 to 2010. While efficiency improved in the steel, textile, and wood industries, an opposite trend can be reported for the construction, chemicals, and paper industries. Compared to the industrial sector, efficiency in the household sector increased over the same period of time by only 4%. Improvements in space heating and large electric appliances were the driving forces behind this trend (Odyssee 2012).

The main support schemes in terms of promoting energy efficiency are financial incentives for investments into energy-efficient products. Financial support is provided through the Fund for Environment Protection and Energy Efficiency, which has been in operation for quite some time and has contributed to national energy efficiency gains in the past. The fund is mainly financed through diverse environmental taxes, including pollution fees, environmental user fees, etc. The fund publishes new public calls on a yearly basis depending on the amount of allocated funds (⁹). Currently, public calls for the

⁸ The Law on Excise duty (Zakona o trošarinama NN, br. 22/2013 i 32/2013) is available at <http://www.carina.hr/Dokumenti/Propisi.aspx?i=3>

⁹ Information on public calls is available on the website of the Fund for Environment Protection and Energy Efficiency at <http://www.fzoeu.hr/hrv/index.asp>.

energy sector and for environmental protection are open. All citizens and entrepreneurs, as well as municipalities and civil society groups, are eligible for support under the given terms. Some public calls are sector-specific (only for touristic buildings).

Particularly in the context of its accession to the EU, the Government is gradually changing the legal framework concerning energy efficiency. In April 2013, the Second National Action Plan for Energy Efficiency (as provided in 2006/32/EC) was published in order to present the activities carried out in the previous period and to allow an assessment of actual energy savings in relation to the objectives set out in the first Action Plan (Ministry of Economy/ Ministry of Construction and Physical Planning 2013). In October 2013 the government adopted the “Program for Energy Renovation of Buildings in the Public Sector” for the years 2013-2014 (Program Energetske Obnove Zgrada Javnog Sektora) (Ministry of Construction and construction Planning 2013), which is expected to result in around 200 tenders for energy efficiency renovations of public buildings across the country. The estimated investments amount to approximately 400 million HRK (52.4 million EUR) and GHG reductions could reach 20,500 t per year. Furthermore the law on construction, spatial planning and building inspection will be changed by the end of 2013, introducing a 5- to 10-year window for owners of a newly constructed building to insulate the exterior in order to reduce their energy consumption (croenergo 2013a).

Renewable Energy

The share of renewable energy in total energy consumption increased in Croatia between 2005 and 2011, albeit slowly, from 14.1% to 15.7%. Croatia thus finds itself in a good position to meet its 2020 goal of 20%, but the pace of improvement must increase. The electricity sector in general shows promise, but is fluctuating: the percentage of electricity consumption covered by renewable sources continuously declined in the years after 2005 from 38.8% to approximately 31% in 2008. Thereafter it increased again to 35.6% in 2010 and only dropped slightly to 35.5% in 2011 (Eurostat 2013b).

Renewable energies are mainly promoted through a support scheme (feed-in tariffs for renewable electricity generation ⁽¹⁰⁾) and loans or non-reimbursement incentives allocated to renewable energy projects under the Fund for Environment Protection and Energy Efficiency. These incentives have been in place since 2004 and are renewed every December, building on the experiences and results of the previous year.

The Fee to Encourage the Production of Electricity from Renewable Energy Sources and CHP (“Naknada za poticanje električne energije iz obnovljivih izvora energije i kogeneracije”) for final consumers, who finance the feed-in tariff, was increased sevenfold in October 2013 so that, beginning in November 2013, it amounts to 3.5 Lipa/kWh (0.46 €ct/kWh) ⁽¹¹⁾. The RES contribution is a fee collected by all electric utilities and passed on to the Croatian Energy Market Operator (HROTE). After that HROTE pays the contribution to “qualified producers” for the electricity that was fed into the network from renewable energy sources.

¹⁰ The Tariff System for Electricity Production from Renewable Energy Sources and CHP is available at http://narodne-novine.nn.hr/clanci/sluzbeni/2012_06_63_1508.html

¹¹ Regulation about Incentives for Electricity from Renewable Energy Sources and Cogeneration is available at http://narodne-novine.nn.hr/clanci/sluzbeni/2013_10_128_2778.html

On 31 October 2012, the cap for PV installations was raised to 15 MW for integrated PV and 10 MW for non-integrated PV (from 10MW and 5MW, respectively) ⁽¹²⁾. Certain limitations have also been applied to wind power plants - such as the need to register and wait for approval before connecting to the grid - and are hindering a greater deployment of renewable generation capacity.

While the demand for Purchase Agreements for RES has surpassed all expectations, in October 2013, the Government adopted the National Action Plan for RES (“Nacionalni Akcijski Plan za Obnovljive Izvore Energije”, short: “NAP OIE”) (Ministry of Economy 2013), which according to experts would significantly restrict development through a cap on capacities for RES (in particular for wind and solar power) (Obnovljivi 2013). The proposal foresees by 2020 a limit of 20.1% on the share of renewable sources and final energy consumption. It also provides that, in the years from 2015 to 2020, the installed capacities of solar and wind power shall not increase. Hence, they would remain at their current levels (PV systems 52 MW; wind power 400 MW). A relatively small amount of growth is planned in hydro power (373 MW), geothermal (10 MW) and biomass energy (125 MW). According to the National Acton Plan in October 2013, a new “Tariff System for Electricity Production from Renewable Energy Sources and CHP” (Tarifni sustav za proizvodnju električne energije iz obnovljivih izvora energije i kogeneracije - NN 133/2013) ⁽¹³⁾ was adopted and comes into effect on 1 January 2014. It requires several changes to the system of the calculation and amount of the feed-in tariff, it clarifies a number of legal terms, and it defines requirements for skilled workers in the field of RES installations and maintenance. Moreover, the changes aim to accelerate the administrative procedure and remove barriers for concluding a contract with the Croatian Energy Market Operator (HROTE) in order to become a “qualified producer.”

By the end of 2013, a Renewable Energy Sources Act (*Zakon o obnovljivim izvorima energije*) is expected to be adopted in order to summarise the hitherto isolated laws and to provide a more specific regulation of this sector than in the Energy Act (*Zakon o energiji*) (energetika-net 2013a).

Energy Networks

In the Energy Development Strategy of Croatia adopted in 2009, smart grids are mentioned as being one of the tools for the development of a more localised, sustainable grid ⁽¹⁴⁾. Emphasis was also put on building more local heating distribution grids (see chapter 7 of the Energy Development Strategy).

With the on-going construction of RES power plants, the power grid threatens to be overloaded in the long-run. For example, nine additional wind farms are currently under construction and will produce a total additional 260 MW. However, it is not clear yet how the Croatian Grid Operator (HEP-OPS) will address this issue (energetika-net 2013b).

¹² Amendments to the Tariff System for Electricity Production from Renewable Energy Sources and CHP is available at http://hidra.srce.hr/arhiva/263/94054/narodne-novine.nn.hr/clanci/sluzbeni/2012_11_121_2634.html

¹³ The Tariff System for Electricity Production from Renewable Energy Sources and CHP is available at http://narodne-novine.nn.hr/clanci/sluzbeni/2013_11_133_2888.html

¹⁴ Energy Development Strategy is available at http://narodne-novine.nn.hr/clanci/sluzbeni/2009_10_130_3192.html

Transport

Emissions from transport increased between 1990 and 2010, but a downward trend can be reported for 2011. However, their proportion among Croatia's total emissions increased to 21% in 2011. Therefore, these emissions should also be addressed in the future (Table 1).

Croatia is levying a registration tax on vehicles, based on their market value. Additionally, an ownership tax on passenger cars is in place, based on the engine power and the age of the vehicle (ACEA 2012).

Taxes levied on petrol and diesel are among the lowest in the EU, and diesel is taxed at lower rates than petrol (Ministry of Finance Croatia 2013).

The transport sector is extremely challenging due to the large volume of traffic that goes through Croatia without originating or terminating there, and due to increasing personal car ownership and their associated GHG emissions. In the past 20 years, highways have been given priority over other means of transportation; this has left railroads and maritime transport fairly neglected. The government has on numerous occasions stated that investment in railroads, as well as in river transportation would increase (Ministry for Environment and Nature Protection 2012b). Most of the investment projects rely on EU funds ⁽¹⁵⁾.

To address rising GHG emissions, in 2010 the government implemented a biofuel mixing obligation (Pravilnik o mjerama za poticanje korištenja biogoriva u prijevozu ⁽¹⁶⁾), which requires an increasing amount of biofuel to be mixed into petrol and diesel from the current level of 1.45% to 9.18% by 2020. Furthermore, a programme to reduce the negative environmental impacts of traffic, which including grants for exchanging highly polluting vehicles for new, cleaner ones, was introduced in 2010. In addition, a "special" Value Added Tax on cars based on their CO₂ emissions will be implemented this year (see also the section Environmental Taxation).

In September 2013, the government adopted a draft proposal on the promotion of clean and energy efficient vehicles in road transport within the framework of public procurement. The buyer of public transport vehicles must now take into consideration the energy consumption and the environmental impacts of the vehicles to be purchased (croenergo 2013b).

Agriculture

GHG emissions from agriculture are an important source of non-ETS GHG emissions. They amounted to approximately 3.3 t CO₂eq in 2010, representing about 11% of total emissions. From 1990 to 2010, GHG emissions dropped in the agricultural sector mainly as a result of the broader Balkan conflict and due to optimisation of production processes and techniques. However, GHG emissions are projected to increase by 2020, due to an expected increase of agricultural land and associated mineral fertilizer outputs, as well as increased animal breeding.

¹⁵ See for more information: www.vecernji.hr/vijesti/velika-ulaganja-zeljeznicu-luke-clanak-459163

¹⁶ Ordinance on Measures for Promotion of Use of Biofuels in Transport is available at http://narodne-novine.nn.hr/clanci/sluzbeni/2010_04_42_1066.html

Some measures are in place to reduce GHG emissions from agriculture, such as a prohibition on agricultural burning and the co-financing of agro-environmental measures. In addition, the Croatian state is promoting the objectives of its agricultural climate policies through the Croatian Bank for Reconstruction and Development (HBOR), which supports measures that aim to protect the environment (Ministry of Environmental and Nature Protection 2012). However, there have been no major developments in the recent past to address expected GHG emission increases.

Waste

In the waste sector, the government has implemented certain measures to avoid waste generation and reduce its hazardous properties, which would indirectly have a positive effect on the carbon footprint. These objectives are defined in the Waste Management Strategy and Waste Management Plan (Government of the Republic of Croatia 2007). A focus is on landfill management and the reduction of GHG emissions through landfill gas capture and use.

In July 2013, a new law on sustainable waste management (Zakon o održivom gospodarenju otpadom - National Gazette 94/13) was passed, which will come into effect in January 2014 (¹⁷). It provides for significant changes in the Croatian waste management system, such as the introduction of separated waste collection for households, the regulation of bulky waste, and a clear control mechanism (e.g. fines for noncompliance). Currently, 92% of municipal waste in Croatia is thrown unsorted into a single bin. Through recycling, the use of raw materials can be reduced, thus assisting efforts to reduce GHG emissions.

Land Use, Land Use Change and Forestry

The Croatian government has adopted an ambitious plan to achieve 100% sustainable forest management of state-owned forests. The protection, use, and management of forests and forest land is managed by the Forest Act (¹⁸) and the Forest Management Area Plan (FMAP) for the Republic of Croatia from 2006. According to the Forest Management Area Plan (for the period 2006 - 2015), forests and forest land cover 47.5% of the country's total surface area. Approximately 95% of the forests in Croatia were formed by natural growth, and 5% of the forests were planted artificially. As of today, the Management Plan addresses the goal of "business as usual", but this may be affected by energy policies, for example, if biomass were to become a more central element of the strategy (UNFCCC 2011).

¹⁷ Decision on the Promulgation of Sustainable Waste Management is available at http://narodne-novine.nn.hr/clanci/sluzbeni/2013_07_94_2123.html

¹⁸ The Forest Act (Zakon o Šumama, NN 140'05) is available at <http://www.propisi.hr/print.php?id=1000>

5 Policy progress on past CSRs

As part of the European Semester, Country Specific Recommendations (CSRs) for each MS are provided by the EU Commission in June of each year for consideration and endorsement by the European Council. The recommendations are designed to address the major challenges facing each country in relation to the targets outlined in the EU 2020 Strategy.

The Republic of Croatia has received no country specific recommendations so far.

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