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Land of unfulfilled clean energy potential

**Climate action in EU Cohesion Policy
funding for Croatia, 2014-2020**

SUMMARY

- The National Renewable Energy Action Plan does not foresee new installations by 2020 for solar and wind RES, though financing opportunities would enable new installations if there were free quotas available.
- Croatia's 2020 energy targets contradict the current trend of a decrease in energy consumption and GHG emissions, while its planned fossil fuel installations block the decarbonisation pathway.
- The Partnership Agreement falls short on horizontal integration of climate considerations, neglecting legal requirements.
- Funding for transmission and road transport is not in line with the stated priorities.
- The EU funds' spending plans, however, do go beyond national ambitions. Efforts should be made in order to increase investments in transmission and distribution

lines for new RES sources and a more integrated strategic approach in order to match the existing and future RES investment interest from the private or business sector.

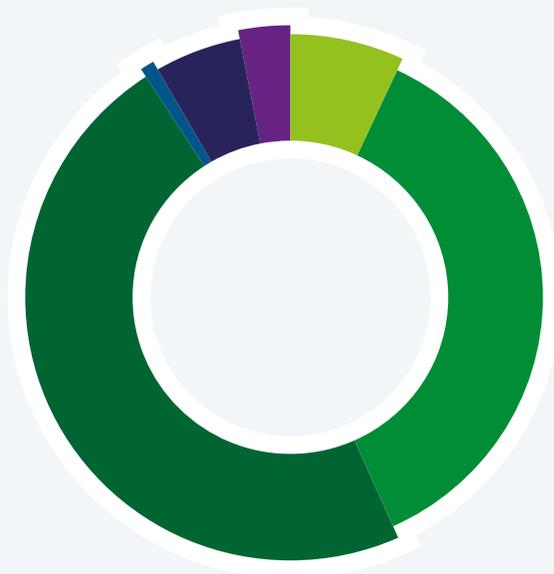
- There is a need for the development of a new national energy strategy which will take into account new RES market demand and lower energy consumption. The new strategy should also have a stronger vision towards 2030 and 2050, creating an energy efficient, renewable energy-based economy in Croatia.

BACK TO THE FUTURE: REALITY FAR MORE POSITIVE THAN 2009 PLANS, BUT CROATIA STILL LACKING AMBITIONS FOR SUSTAINABLE ENERGY

Energy production, consumption and transmission in Croatia (energy mix): leaking and unsustainable

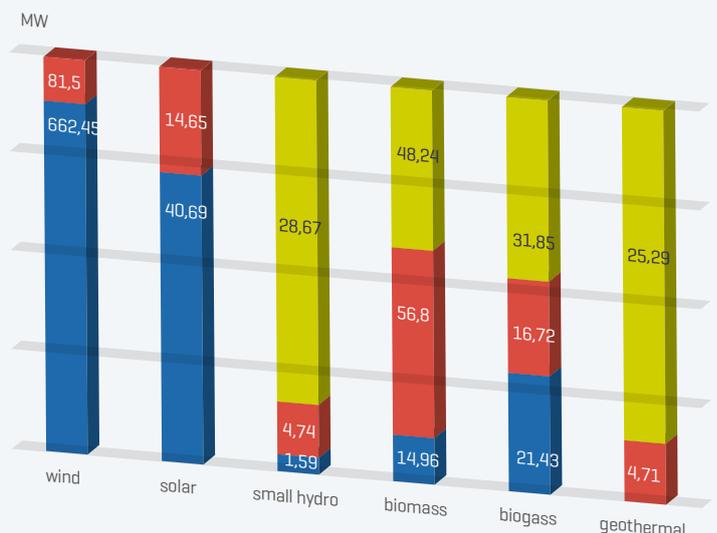
Regarding energy production from renewable sources, the Republic of Croatia is, according to the Partnership Agreement,

GRAPH 74: Electricity generation mix 2013 in Croatia. Source: Ministry of Economy (2014), Annual Energy Report, 'Energy in Croatia 2013'



- 47% Large hydro
- 36% Thermal power plant
- 7% Nuclear
- 5% Wind
- 3% Industrial plants
- 1% Biomass-biogass
- 0% Solar
- 0% Small hydro

GRAPH 75: Renewable energy capacities: Installed, contracted and free RES quotas in Croatia, MW, September 2015. Source: Current Agreements for REAS with HROTE - (Croatian Energy Market Operator – status 4th September 2015'



- signed projects under construction
- producers in the RES incentive system - plants signed or already in operation [MW]
- free capacities [MW]

above the EU average (total share of 16.8% in final energy consumption compared with 14.1% EU-28 average). In terms of the sectors from Directive 2009/28/EC (the so called 'non-ETS sectors' like transport and housing), in 2011, more than 34% of gross electric energy consumption was produced from renewable sources, while the share of RES in cooling/heating systems and transport was much lower (12.8% and 14%). However, the majority of renewable energy is from large hydropower plants (94%), and the other sources (small hydro, wind, solar, biomass, etc.) contribute only 6%.

The Croatian electrical energy distribution network was built between 1960 and 1970 and it is insufficient, unreliable and with energy losses up to 9.2% of total consumption, and there is an urgent need to improve the overall regulatory system and its management, as well as the introduction of smart grids.

Most electricity generation capacity is in the ownership of the Croatian Electrical Utility, HEP Group (of 4,205.7 MW installed, 2,186 MW is hydro [50% of installed capacity, which requires reserve capacity during the summer period when the water level is low²²²], 1,671 MW thermal power plants and 348 MW in the Croatian part of the Krško nuclear power plant). Besides this, there are 150 MW installed in industrial power plants and 302.6 MW installed in private ownership, namely wind (254.3MW), biomass and biogas (24.7MW), solar powerplants (19.50 MW) and small hydro (4.1 MW).²²³

RENEWABLE ENERGY STATUS: POTENTIAL UNFULFILLED

The Croatian national energy strategy²²⁴ in 2009 set goals for energy production from RES which were included in the National Action Plan for Renewable Energy Sources to 2020²²⁵ prepared by the Croatian Ministry of the Economy in October 2013. The overview of goals set in the strategy is displayed in graph 75:

Once all the contracted sources are entered in the energy grid (total of 920.24 MW operational and/or already contracted), Croatia will have already achieved its initial plan for 2020 (688 MW) and overachieved it by 232.24 MW or 33%. The new action plan from September 2015 (or rather, addition to the existing plan) sets an additional 434 MW of quotas for geothermal, wind, biomass and biogas, while cutting 70 MW for hydro, which increases the NAP by a total of 364 MW compared to the Action Plan from 2010. However, these numbers reveal that no new wind-power or solar energy can be connected until 2020 as already, today, even the extended wind quota is fulfilled, while new capacities are

given to biomass, biogas and geothermal energy sources (perhaps due to their ability to provide constant energy).

The new summary of quotas for renewable energy could also provide scope for EU funding in Croatia – apart from solar and wind – by investments in free capacities, however this study reveals big disparities on the strategic level between national plans and EU funds' plans. In spite of Croatia progressing faster than its targets, there are still obstacles to additional installed capacities identified in the National Action Plan:

- Permits for small projects are the same as for large projects and should be awarded based on energy potential.
- Too low quotas for solar (photovoltaic) RES.
- Incorrect alignment of goals set in the legislative framework for RES and the National Energy Strategy.
- Technical limitation of the energy system for connection of new RES due to shortage of regulatory energy in conditions of intermittent functioning.
- Administrative barriers for usage of known and available quantities of biomass for constant operations of biomass powerplants.

EU funds could provide assistance in solving problems of technical limitation while technical assistance funds could provide support for easing the administrative barriers to the future development of the energy sector in Croatia.

NATIONAL FUNDING SUPPORT IN RES AND EE MEASURES

The National Fund for Environment Protection and Energy Efficiency has already for several years been taking an active approach in funding small-scale household programmes for energy efficiency and RES. Types of projects financed by the fund are: co-financing of energy audits, house insulation (including windows replacement), RES application (PV, solar water heating panels, biomass, etc.) and, from the beginning of 2015, also the purchase of new energy-efficient home appliances.

The latest measure of cofinancing of energy-efficient home appliances (A+++) has been funded with EUR 2 million and, in just eight days on two occasions, 20,000 home appliances were replaced, with an estimated impact of 938,189 kWh of saved electric energy and 219,535 tonnes of CO₂ emissions prevented. In 2014, the fund invested EUR 22.5 million into a total of 1,902 single projects.²²⁷ With a 7-year perspective (compared to the EU budget period), these funds could be summed up at EUR 157.5 million which is almost a third

222 Pašičko, R., Stanić, Z., Debrecin, N., [2010.] 'Modelling Sustainable Development Scenarios of Croatian Power System' Journal of Electrical Engineering, VOL. 61, NO. 3, 2010, 157–163

223 Ministry of Economy (2014) Annual Energy Report, „Energy in Croatia 2013,”

224 Croatian National Energy Strategy 2009

225 National Action Plan for RES until 2015

226 Current Agreements for REAS with HROTE - [Croatian Energy Market Operator – status 4th September 2015

227 http://fzoeu.hr/docs/izvjesce_o_ostvarenju_programa_rada_fonda_za_2014_v2.pdf

of total RES and EE funds allocated in the Operational Programme for Competitiveness and Cohesion.

ISSUES AROUND TARGETS: FAILED PREDICTIONS AND LACK OF VISION

The 2020 targets set by the Republic of Croatia are extremely unambitious:

- Increase of greenhouse gas emissions by 16.88% by 2020 (vs. European target: -20%)
- Increase of energy usage (primary and final).

consumption in the period 2005-2010 (18.41 TWh) shows 1.51 TWh reduction in absolute terms, while the Croatian National Energy Strategy estimated linear growth of 3.5% per year reaching an almost incredible 28 TWh by 2020 (in which the 2015 milestone of 23.7 TWh looks set to be missed by around 29% or 6.8 TWh).

implementation predicted in the period 2011-2015 was an additional 977.5 MW of installed power in hydro and additional 2830 MW of fossil fuel-powered plants²²⁹, which shows a real lack of strategic decarbonisation of the Croatian energy system.

TABLE 18: GHG emissions by sectors for the period 1990-2012 (kg CO₂-eq)²³⁰

GHG source and sink categories	Emissions and removals 1990-2012 (GgCO ₂ -eq)								
	1990	1995	2000	2005	2008	2009	2010	2011	2012
Energy	22,797,11	17,264,19	19,482,23	22,675,67	22,902,11	21,649,26	21,039,69	20,749,87	18,923,16
Industrial Processes	3,769,49	2,008,26	2,849,02	3,295,62	3,590,93	2,979,76	3,204,93	3,004,19	2,850,61
Solvent and Other Product Use	116,98	108,34	109,22	193,61	238,17	151,76	151,32	143,05	155,57
Agriculture	4,682,71	3,496,04	3,478,00	3,699,53	3,646,52	3,552,98	3,446,17	3,563,15	3,394,67
Waste	610,76	667,44	759,83	861,15	1,054,53	1,095,75	1,087,98	1,118,42	1,125,61
Total emission (excluding net CO ₂ from LULUCF)	31,977,05	23,544,28	26,678,30	30,725,58	31,432,27	29,429,51	28,930,09	28,578,67	26,449,62
LULUCF	-7,181,12	+9,832,95	-7,722,03	-8,630,06	-8,080,60	-8,304,30	-8,069,52	-6,996,35	-6,544,44
Total emission (including LULUCF)	24,795,93	13,711,33	18,956,28	22,095,52	23,351,67	21,125,21	20,860,57	21,582,32	19,905,18

- Increase of renewable energy (increased share from 16.8 to 20% of total).

Although such goals for GHG emissions might be partially justified with the slow development and sudden loss of productive industries during the 1990s, it is hard to understand the lack of commitment for more significant results of RES in the 2014-2020 period.

In terms of energy consumption, the total consumption in 2014 was 16.9 TWh, that represents 2.6% less energy compared to 2013 and the continuation of a five year decreasing trend²²⁸ (17.9 TWh in 2010 -5.5% reduction 2010 - 2014). Comparing the current consumption with average

Instead of putting energy efficiency and RES at the centre of the strategy, the national government put the focus on projects such as the coal-fired powerplants Plomin C (500 MW) and TE Ploče (1,600 MW), and the Zagreb, Sisak and Slavonia gas fired powerplants, showing no real vision for the future, but just shifting energy imports from electricity to imported coal or gas.

The Europe 2020 national energy targets for Croatia are likely to be achieved, mainly due to the lack of ambition of the targets. As already stated above, the energy consumption has been in constant decline since the adoption of the targets in 2009 (an increase was expected), GHG emissions are lower since the adoption of the targets, and the share of RES has been increased above the strategically-set goals.

²²⁸ Yearly Report of the Croatian National Energy Regulation Agency <https://vlada.gov.hr/UserDocsImages//Sjednice/2015/243%20sjednica%20Vlade//243%20-%204.4..pdf>

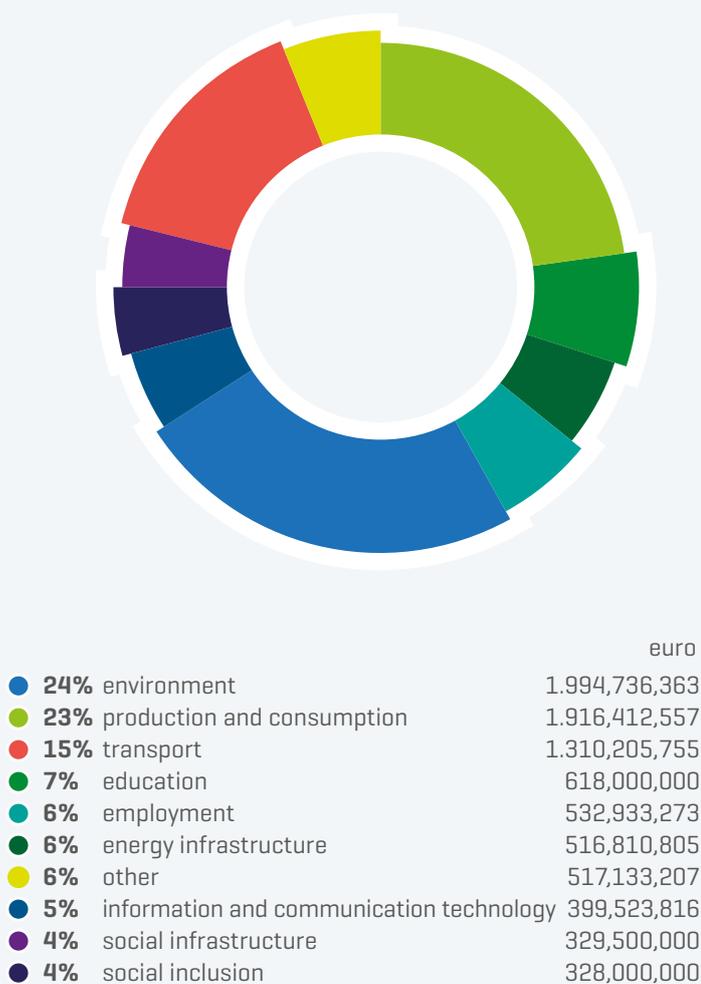
²²⁹ Boromisa, A., [2012.], 'prema progresivnoj energetskej politici i sustavima u hrvatskoj' Friedrich Ebert Stiftung, Zagreb

²³⁰ Croatian Greenhouse Gas Inventory For The Period 1990-2012, Croatian Environmental Agency, January 2015

Although these developments are positive for the climate, they show a lack of vision for Croatia's sustainable future and an unfortunately bad economic period.

The conclusion of this short analysis of Croatia's 2020 objectives and the progress towards their achievement

GRAPH 76: Investment areas of Cohesion Policy funds in Croatia. Source: our own calculations based on approved Operational Programmes according to categories of intervention



points to a need for the development of a new energy strategy, which will take into account new RES market demand developments and lower energy consumption. The new strategy should also have a stronger vision towards 2030 and 2050 creating an energy efficient, renewables-based economy in Croatia.

ALTERNATIVE SCENARIOS, TARGETS

According to the study 'Towards Progressive Energy Policy and Systems in Croatia' (Boromisa, 2012) Croatia should

invest EUR 477 million in transmission lines and including additional capacities of wind turbines, these costs could additionally rise. For an additional 1,200 MW of wind power, an additional EUR 24 million investment in transmission should be planned. This investment is significantly lower than investment in productive capacities [for example the Plomin C investment is estimated at around EUR 820 million²³¹].

However, none of the alternative scenarios took into account that consumption would fall five years in a row, currently stagnating under the 2005 baseline. This consumption trend indicates in fact that RES could gradually be easily replacing fossil-fuelled energy sources by 2050, especially in the current liberal energy market position and development of smart energy storage technology.

As stated above, reality has seriously undermined the National Energy Strategy as none of the indicators were planned properly: RESs have increased and final consumption has fallen. Considering that yearly quotas for small RES plants are set at 12 MW per year and, by 9th January, 2014 (only eight days after the opening of the tender), 2,079 single bids were submitted with a total of 87,991.36 kW proposed capacities,²³² it is obvious that there is much higher demand. It has to be reported that even with the constant fall of subsidies for RES the market demand has not decreased, and such facts, in a country which is striving for investment and new job openings, should open everyone's eyes regarding the direction in which the Croatian energy system should be developed. Instead of learning from the experiences in 2014, the Croatian government decided not to contract new RES in 2015 which is disappointing and shows no understanding of current trends in the energy sector.

EU FUNDS IN CROATIA

The purpose of this study in brief is to analyse whether the usage of EU funds is fully in line with the EU concept of horizontally integrating climate concerns across all interventions under the Cohesion Policy. In the financial period 2014–2020, the Republic of Croatia has at its disposal a total of EUR 10,676 billion. Of that amount, EUR 8,397 billion is planned for activities covered by the Cohesion Policy (EFRD, CF and ESF), EUR 2,026 billion for rural development and EUR 253 million for fisheries.

Integration of climate considerations of the Europe 2020 strategy and the Partnership Agreement, and their operationalisation

The Regional Development, European Social and Cohesion funds in Croatia for the budget period 2014 – 2020, besides regular Thematic Objectives, can be clustered according to the subject of investment. The most significant cluster is

²³¹ <https://vlada.gov.hr/UserDocsImages/sjednice/Arhiva/999156%20-%204.pdf>

²³² <http://www.obnovljivi.com/aktualno/2575-hrote-kvote-i-suncane-elektrane>

Environment (24%) followed by Production and Consumption (23%) and Transport (15%).

The application of horizontal principles in the Partnership Agreement was made according to business as usual in terms of fulfilling the basic requirements from the Common Provisions Regulations and going very little beyond the year 2020. The focus of the sustainable development horizontal principle was very much focused on justification of green jobs and the green economy (focus on 'sustainable growth' in terms of sustained GDP growth instead of environmental pillar development). As already briefly mentioned above, integration of climate considerations in the horizontal principles in the Partnership Agreement (reference to Article 8 of the CPR) was prepared with a certain misunderstanding of Article 8 of the Cohesion Policy Regulation and more weighted references to climate change objectives and climate change adaptation and mitigation measures should have been given.

The Partnership Agreement between the EC and the Republic of Croatia does not even mention the 2030 targets or beyond, while even the 2020 targets are only mentioned in the context of thematic objectives related to energy, climate change and forestry in terms of available biomass. Such an approach in mainstreaming one of the five Europe 2020 strategy targets is not progressive because, by the time the Partnership Agreement was adopted, the National Energy Strategy was already proved to be outdated and the goals were miscalculated. Under Thematic Objective 4 – supporting the shift towards a low carbon economy in all sectors, the list of strategic objectives is presented:

- Promotion of energy efficiency and energy consumption savings in the buildings and industrial sectors.
- Reduction of traffic congestion in urban areas coupled with a corresponding decrease in the energy consumption and GHG emissions of the transport sector.
- Promoting the use of locally-available resources and technologies in order to increase the share of RES in final energy consumption.
- Stimulating local economies and employment in relation to energy renovation and localised generation of energy from RES.
- Reduction of GHG emissions and increasing the level of security of energy supply.
- Reduction of final energy consumption by 22.76 PJ in 2020.

This list indicates strategic objectives within Thematic Objective 4, however, the OPs still show a lack of strategic thinking in achieving the 2020 targets and creating the preconditions for achieving 2030 or 2050 targets already agreed at the EU level. At the general level, the allocations in the Operational Programmes do lead to the achievement of the strategic objectives, but due to lack of measurable indicators, it is hard to estimate how much.

In order to comply with the EU 2020 headline targets, the National RES Action Plan for 2013-2020 sets the goals of RES share in electricity as 35%, transport as 10% and in heating/cooling as 20%. The National Energy Efficiency Programme states that the overall energy saving target should be contributed 34% by households, 19% by services, 17% by industries (excluding ETS) and 30% by transport. As for the reduction of GHGs, the headline target of the Europe 2020 Strategy, the investments in the EE and RES will allow for a reduction of GHG emissions, since the energy sector is the biggest contributor to the overall GHG emissions level. The indicated allocations in the PA are likely to reach the national objectives, but mostly not due to the progressiveness of the planned documents, but due to the fact that the indicators were already distorted by lower energy consumption and higher share of RES due to the economic crisis and market activities.

Chapter 1.5.3. (Sustainable Development) mentions the 'polluter pays principle' and 'SEA' and 'EIA' as main principles. These principles, set by the PA, and which will be respected horizontally, have very little in common with climate change objectives. The additional points which are mentioned in the chapter are energy saving targets and a focus on minimising consumption of primary energy sources and contribution to the mitigation of climate change in the transport sector.

Integration of climate considerations of the Europe 2020 strategy and the Operational Programmes and their operationalisation

Integration of climate considerations of the Europe 2020 strategy and the Operational Programmes and their operationalisation

The Operational Programme for Competitiveness and Cohesion (OPCC) does link the Europe 2020 strategy climate change goals with Thematic Objective 4, justifying the investment priorities as: increasing the share of RES in total consumption, improvements of district heating systems, but also uses arguments such as energy security. At the same time, there is little evidence that a serious approach towards describing horizontal principles

was taken when developing the Operational Programme which name-drops resource efficiency, climate change mitigation and adaptation, disaster resilience and risk prevention and management in the selection of operations, but does not explain them or apply them.

The sustainable development principle will be horizontally integrated into the management documentation for the OPCC. To ensure that sustainable development principles are taken into account at all levels of implementation, the following procedures will be adopted:

‘Selection: Sustainable development principles will be reflected in the selection procedures. Applicants will be expected to prove that their project will not have a harmful environmental impact, to certify that it is environmentally neutral and/or to present how the project will make a positive contribution to sustainable development.’

Such an approach would be welcomed if the right principles were taken into account such as: lifecycle analyses, measurable decrease of GHGs and/or air pollutant emissions, assessment of climate change adaptation, improved resilience and adaptability. Just not having a harmful impact (easy to claim) does not mean that the project is beneficial towards climate change adaptation or mitigation, thus this will fail to mainstream the climate change objectives.

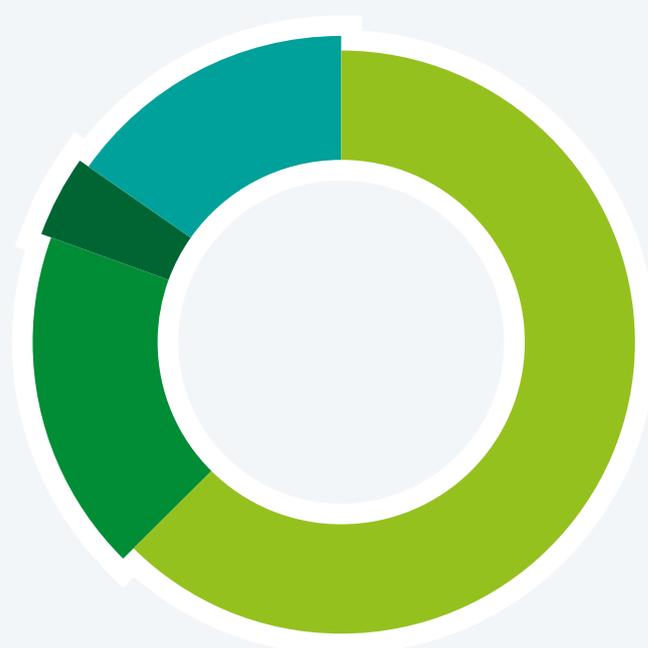
Thematic Objective 6 mostly emphasises references to the Resource Efficiency Flagship policy, while the only reference to climate considerations is a description of the lack of capacities and knowledge for climate change adaptation investments. The other Thematic Objectives have very little or no climate-related EU2020 references.

The only serious consideration at the operational level is that ‘a detailed analysis in the form of project level environmental impact assessment will be required in order to specify all types of potential influences and list measures for their avoidance’. This principle, along with the polluter-pays principle, does not mainstream climate change but only ensures the legality of the projects (which is an obligation whether those are or are not financed by ESI funds).

INDICATIVE AMOUNT OF SUPPORT FOR THE CLIMATE CHANGE OBJECTIVE

An analysis of climate-related allocations in the Operational Programme Competitiveness and Cohesion 2014-2020

GRAPH 77: The different types of energy infrastructure investments. Source: our own calculations based on approved Operational Programmes according to categories of intervention



	euro
62% Energy Efficiency	321,810,805
18% Renewable Energy Sources	95,000,000
15% Co-generation, district heating	80,000,000
4% Smart Grid	20,000,000
0% Electricity transmission, storage	0
0% Gas	0

reveals that Croatia plans to spend approximately EUR 1.23 billion on climate-related activities which represents 17.88% of the Operational Programme for Competitiveness and Cohesion funds available for the budget period.

The calculation made on the basis of the climate tracking methodology shows that EUR 1.21 billion is to be invested in climate change-related activities from a total of EUR 8.463 billion, which represents 14.40% of total Cohesion Funds (including the European Social Funds allocations).

ASSESSMENT OF MAJOR THEMATIC OBJECTIVES

Integration of climate considerations in energy infrastructure development

Under Priority Axis 4, 12.3% of total financing from the ERDF will be allocated to investment priorities 4b, 4c and 4d and this complies with the allocation requirement for allocating at least 12% of funds to Thematic Objective 4 (for less developed regions) with a total allocation of EUR 531.8 million.

The structure of financing divided per investment characteristics is:

In terms of creating preconditions for implementation of these investments, Croatia should firstly meet the conditionalities identified in the OPCC (ex-ante conditionalities) which are:

- Support for cogeneration is based on useful heat demand and primary energy savings.
- Member States or their competent bodies have evaluated the existing legislative and regulatory framework with regard to authorisation procedures

or other procedures in order to: a) encourage the design of cogeneration units to match economically justifiable demands for useful heat output and avoid production of more heat than useful heat; and b) reduce the regulatory and non-regulatory barriers to an increase in cogeneration.

The latter ex-ante conditionality is especially interesting in terms of the Croatian National Energy strategy as two major planned thermal power plant projects (Plomin C and Ploče thermal power plants²³³) account for an additional 2,100 MW of installed capacities on the seashore where the cogeneration is not possible and high amounts of thermal energy would be lost. Although Plomin C and the Ploče power plants are not directly financed by EU funds, in cases where there is a failure to fulfil an applicable ex-ante conditionality within the deadline laid down, the Commission has the power to suspend interim payments to the relevant priorities of the programme under precisely defined conditions. In conclusion, the Croatian energy strategy and its energy infrastructure projects are not aligned with the conditionalities set out in the Common Provisions Regulation.

Investment priority 4b Promoting energy efficiency and renewable energy use in enterprises consists of activities increasing energy efficiency and use of RES in manufacturing industries (4b1) and in the private sector (4b2). There are no major projects predicted and both measures include the development of infrastructure for renewable energy sources in manufacturing industries and the service sector (tourism and trade) including switching from conventional (RES) energy such as: installation of solar collectors, heat pumps and highly efficient cogeneration. The threat under this priority is unsustainable usage of biomass originating from natural forests as there are currently no

GRAPH 78: Energy efficiency allocations by type of beneficiary.

Source: our own calculations based on approved Operational Programmes according to categories of intervention



	euro
56% EE public infrastructure	181,810,805
28% EE in housing	90,000,000
9% EE large enterprises	30,000,000
6% EE SMEs	20,000,000

²³³ It is, however, questionable whether either will go ahead – Ploče power plant was dealt a massive blow in a January 2015 referendum after which politicians claimed they would not impose the project against the will of the local population, while Plomin C has suffered from multiple issues including legal challenges, and strong local opposition and is, at the time of writing, awaiting an EC decision on the legality of a planned long-term power purchase agreement.

significant biomass growing fields. Project selection criteria have not been adopted yet.

Investment priority 4c Supporting energy efficiency, smart energy management and renewable energy use in public infrastructure, including in public buildings, and in the housing sector consists of the following activities:

Reduction of energy consumption of public sector buildings [4c1], residential buildings [multi-apartment buildings and family houses] [4c2] and improvement of the efficiency of the district heating system [4c3] and public lighting system [4c4]. No major projects are predicted under this priority either, and the list of eligible projects comprises energy refits of public and residential buildings, reconstruction of heating/cooling systems, introduction of heat pumps, biomass systems for heating and also activities connected with energy management, education and communication. The project selection criteria for 4c1 are defined as contribution to reduction of energy consumption [63%], contribution to RES usage [13%], contribution to entrepreneurship development [8%] and balanced regional development [5%]. The rest of the selection criteria have not been adopted at this point.

Investment priority 4d Developing and implementing smart distribution systems that operate at low and medium voltage levels should contribute to increased security of supply, but also to the more efficient management of [energy] resources and thereby reduced costs and GHG emissions, thus contributing to the objectives set up under the Resource Efficient Europe flagship. The activities under this IP are designed as pilot projects which will be implemented in larger cities [for example, Zagreb and Split] and medium-sized cities [for example, Varaždin

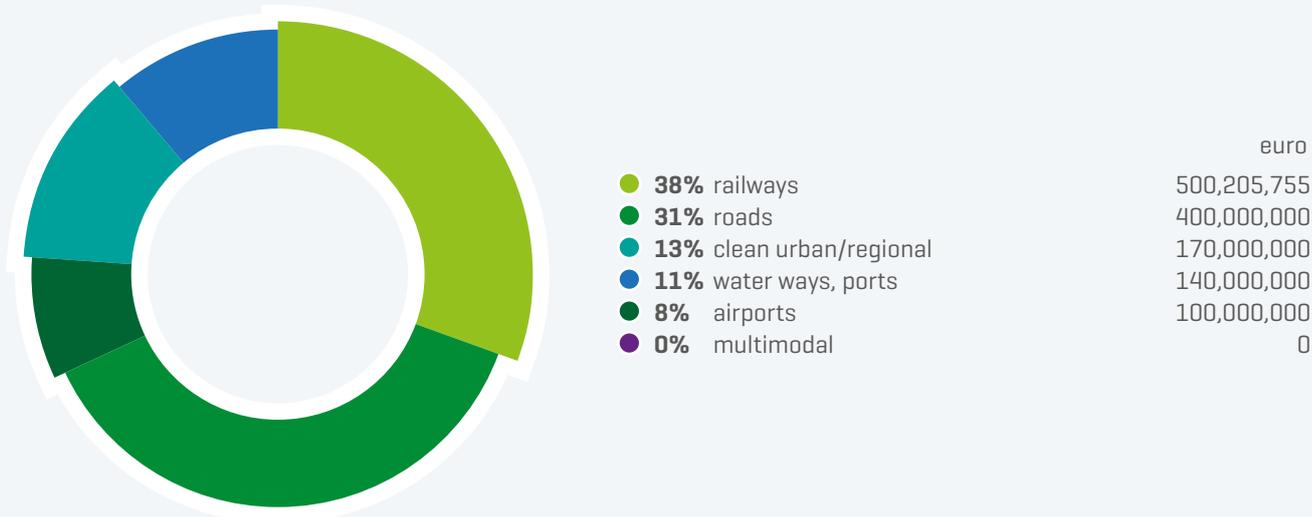
and Dubrovnik]. The investments into these measures are highly underfunded, as reported in the initial analysis of the current Croatian energy system. The Croatian market demand for new RES requires investments in distribution and transmission upgrade in order that the new capacities could be connected to the grid.

The indicators under this thematic objective shows that energy efficiency measures will contribute with savings of 55,100 MWh/year in the public sector [which is equivalent to 6,887 MW of installed and operating power generation] and 167,000 MWh/year in the private sector [which is equivalent to 20,875 MW of installed and operating power generation]. The energy efficiency measures represent 1.3% of total electric energy consumption in Croatia. We can conclude that the descriptions and allocations for Priority Axes 4 and 5 are directly and unquestionably contributing to the fulfilment of the Europe 2020 strategy objectives, however, very little long term investment perspective is presented. The OPCC failed to include any perspective for establishing and monitoring the progress towards 2030 targets or structuring the financing priorities towards the 2050 goals of 80-95% GHG reduction and the OP shows a lack of long-term investment security in achieving these important goals.

As there are no large infrastructure projects mentioned, the only possible 'false solutions' can be identified in investment code 011. RES – biomass with EUR 60 million and 016. High efficiency cogeneration and district heating [EUR 80 million]. However, at this point, definite conclusions are not possible as both the identified allocations could also be beneficial [for example using farm manure for production of biogas or expansion of district heating networks]. Additionally, based on the analysis of the current energy system in Croatia, it is questionable how to finance additional solar RES as the

GRAPH 79: Share of transport modes in total transport funding in Croatia.

Source: our own calculations based on approved Operational Programmes according to categories of intervention



quotas until 2020 are already used, while for biomass, there is only 43 MW available for new projects.

After analysing the planned investments through the European Structural Investment Funds and comparing them with the obstacles for additional installed capacities identified by the National Action Plan, it can be stated that low quotas for solar RES are still an obstacle even though only EUR 35 million is allocated for financing.

The legislative framework for RES and the National Energy Strategy should be revised according to new developments and market demand.

EUR 80 million for CHP is too little to solve the technical limitations of the energy system for connection of new RES due to a shortage of balancing energy sources in conditions of intermittent functioning, but it is too much for adjustments to existing heating systems.

Assessment of Priority Axis 7 (Integration of climate considerations in transport infrastructure development)

References to the Europe 2020 strategy in the transport sector description state that the financial distribution reflects the priority of decreasing greenhouse gas emissions in line with Europe 2020 and the Commission's recommendations. The majority of financial resources under this Thematic Objective will be allocated to a priority action called 'investments in railways, clean public and urban transport and roads' which includes everything and is not at all contributing to the priority of decreasing GHGs, although the official name implies the sustainability of the allocation.

Under Priority Axis 7 Connectivity and Mobility EUR 1.3 billion is allocated out of which only EUR 333 million (just above a quarter) is related to climate change measures.

The positive projects under this investment category are the investments in railways, seaports and intelligent transport systems which directly contribute to reductions in GHGs. The Operational Programme Cohesion and Competitiveness states in the justification section "The White Paper on Transport" and its recommendations that Cohesion

Policy support should be focused on sustainable forms of transport with a reduction of 60% of greenhouse gases by 2050 required by the transport sector (this is also the only 2050 climate reference in the entire document). However, as expected, this was ignored: Croatia will finance new highways as part of TEN-T corridors and reconstruction and improvement of existing roads, and its contribution to GHG reductions cannot be proved.

Investment Priority 7a Supporting a multimodal Single European Transport Area by investing in the TEN-T is based on new road construction. The selection criteria mention 'must include climate change resilience features, where relevant' which is rather vague and easy to manipulate. The justifications for selection of road investments (TEN-T) are mostly vaguely mentioned as improving regional accessibility by improving road safety, but are still supporting a business as usual scenario by funding a GHG intensive sector. EUR 400 million is allocated to road projects, mainly for new construction of the core network (EUR 330 million).

Investment Priority 7b, worth EUR 35 million, is Enhancing regional mobility by connecting secondary and tertiary nodes to TEN-T infrastructure, including multimodal nodes, and consists of projects such as: crossroads reconstruction, reconstruction of critical points of road sections and bypassing black spots. It also encourages inclusion and enhancement of pedestrian and bicycle lanes/ passes, improving signalling, road markings and visibility, introduction of physical measures for slowing down traffic and preparation of project documentation. Climate change selection criteria is included in the official documents, however, it is not currently possible to assess whether those would give any priority to pedestrian/bicycle projects compared to other additional road projects hidden under reconstruction of critical road sections.

The next investment priority has the indicative name '7ii Developing and improving environmentally-friendly (including low-noise) and low-carbon transport systems, including inland waterways and maritime transport, ports, multi-modal links and airport infrastructure, in order to promote sustainable regional and local mobility'. Eligible projects can be identified through performance indicators and those include: purchase of new vessels, construction of ports, upgrading of existing

ports [EUR 140 million], new and improved tram lines, new and upgraded bicycle lanes, electric vehicle charging stations [EUR 170 million] and reconstruction of the Dubrovnik Airport runway and sewage connection for Dubrovnik Airport. The last two [with an allocation of EUR 100 million] cannot be labelled as environmentally-friendly or low-carbon projects and this is the major objection to this investment priority. The OP managed to label the airport infrastructure as improving environmentally-friendly [including low-noise] and low-carbon transport systems, which is utterly unacceptable. The EUR 100 million investment in airports [namely the airport in Dubrovnik] is the opposite of climate change mainstreaming [investment in the sewerage system is allowed while investments in upgrading and extension of runways should not be a part of the Operational Programme, as this does not mitigate or reduce its negative environmental impact].

The final investment priority in the transport section includes 'Development and rehabilitation of comprehensive, high quality and interoperable railway systems, and promotion of noise reduction measures with activities to increase use and relevance of the rail network'. This investment priority is progressive compared to the other priorities in the OP and the elaborated selection criteria have included a series of requirements such as CO₂ emissions when purchasing equipment. The total allocation for the railway sector is EUR 500.2 million out of which EUR 400 million is for the TEN-T network, EUR 50 million for other lines and EUR 50.2 million for mobile rail assets.

The transport section [T07] therefore includes a total investment of EUR 1.31 billion, out of which only EUR 333 million [just above a quarter] is related to climate change measures due to the heavy investments in the road sector and Dubrovnik Airport. The projects which really are positive show a certain vision for improvement, however, the overall assessment is that significant opportunities for more efficient transition towards decarbonisation have been missed.

CONCLUSION

The Partnership Agreement and Operational Programme for Competitiveness and Cohesion have both presented different total indicative amounts of EU support for climate change objectives [EUR]. In absolute terms, according to the Partnership

Agreement, the EAFRD funds will increase allocations for climate change objectives by an additional EUR 1 billion.

Although the national energy efficiency fund is already doing significant work on energy efficiency and RES on the local level by investing more than EUR 20 million per year in energy efficiency and RES, its direct impact on overall results is rather unknown to the general public. When adding those funds and efforts to the already allocated funds through investments planned through the Operational Programme for Competitiveness and Cohesion, we can conclude that Croatia is indeed seriously working on strengthening its position towards Croatia's Europe 2020 energy targets fulfilment at an operational level. However, as stated in the analyses, this change has not been strategically driven as the higher RES share is a result of market interest, reduction of GHG and energy consumption due to the economic crisis and other market-related investments.

However, the national strategies and developments of major fossil fuel projects on the ground somewhat stomp on these efforts by showing inconsistencies towards the ever-growing energy efficiency and RES potentials and plans for 2030 or 2050 GHG reduction and clean energy requirements. Already today, all the overall goals from the national energy strategy have been achieved, even after increasing the quotas in 2015. The current quotas show that no new solar and wind capacities are legally capable of being connected to the system and insertion of new quotas is needed along with investments in the energy network in order to increase the RES connectivity capacity. This market-driven demand also supports the need for developing a new energy strategy which has proven to be inaccurate.

In the Croatian case, we can also conclude that EU funds' allocations and other local activities are far more progressive than national energy policy and efforts should be made to increase the transmission and distribution lines for new RES sources and take a more integrated strategic approach in order to match the existing and future RES investment demands from the private or business sector.

This, however, does not mean that the allocations are perfect, but shows a lack of vision originating from the obsolete and unambitious energy strategy and this is replicated to other strategic documents.