



*advancing with ESIF financial instruments*



# The potential for investment in energy efficiency through financial instruments in the European Union

Croatia in-depth analysis

May 2020



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simulations has not been audited. The case studies and financial simulations are purely for theoretical and explanatory illustration purposes.

## Objective of the document

The objective of this report is to give an overview of the state and progress of energy efficiency developments in Croatia, and a preliminary assessment of investment needs and potential use of ESIF financial instruments to cover them. This report would serve as an input to the negotiations of operational programmes for the period 2021-2027.

This document is based on data and information released prior to the outbreak of the Coronavirus (COVID-19) pandemic. Although it is still not possible to properly estimate the impact of COVID-19, a severe economic recession is currently (May 2020) forecasted for year 2020 in the European Union (EU).

The recession may have deep repercussions in the years to come in the economic and financial systems of EU Member States (MS), therefore economic and financial context reported in the document may sharply deteriorate in the near future. Cohesion Policy resources, and public resources in general, are expected to play a crucial role to support the economic recovery in the next programming period.

Energy efficiency (EE) investments can play an important role to support the economic recovery, as (i) they have a considerable job creation effect; (ii) they contribute to reduce energy costs and greenhouse gas emissions; and (iii) they increase MS energy security.

There is a risk that, at least in the short run, the crisis will lead to lower energy costs due to a lower demand, thus can create lower incentives for EE investments. An appropriate use of financial instruments to support EE investments enables the use of Cohesion Policy resources in a revolving way and to generate leverage by crowding-in private co-financing in order to meet significant investment needs.

Information reported in the following sections is based on publicly available sources, in particular:

- Eurostat national statistics
- Odyssee database
- Draft version of the National Energy and Climate Plan (NECP) of Croatia
- Final version of the National Energy and Climate Plan (NECP) of Croatia
- EC assessment of the draft National Energy and Climate Plan of Croatia
- Proposal of the Long-Term Strategy for Mobilising Investment in Renovation of the National Building Stock of the Republic of Croatia. September 2017
- Assessing the potential future use of financial instruments in Croatia. A study in support of the ex-ante assessment for the deployment of EU resources during the 2014-2020. European Investment Bank. PwC. September 2015
- Proposal of the Long-Term Strategy for Mobilising Investment in Renovation of the National Building Stock of the Republic of Croatia. September 2017
- National Energy Efficiency Action Plan. 2017
- Creation of an investment platform for smart cities and islands in Croatia. European Advisory Investment Hub. EY. 2019
- EU Energy Poverty Observatory Member State Report Hungary;



- JRC Science for Policy Report, Accelerating energy renovation investments in buildings 2019;
- JRC Science for Policy Report, Synthesis report on the assessment of member states' building renovation strategies, 2016;
- JRC Science for Policy Report, Energy Service Companies in the EU 2017;
- Allocation of Cohesion policy funding to Member States for 2021-2027. European Court of Auditors. March 2019

Interviews were conducted with: the Croatia Ministry for Regional Development and EU Funds; the Croatian Bank for Reconstruction and Development; and the Regional energy agency of the City of Zagreb, Karlovac County, Krapina-Zagorje County and Zagreb County.



## 1. Context overview

As of January 2019, Croatia had 4,076,246 **inhabitants** (0.9% of the EU27) decreasing over time (-4.8% in the last 10 years)<sup>1</sup>. The development of Croatian regions and populations is uneven, with growing pressure on larger cities<sup>2</sup>. **Real Gross Domestic Product (GDP) per capita** in 2018 was **EUR 11 990** (43% of the EU27 average) and it increased by 4.5% in the last 10 years (2008 – 2018)<sup>3</sup>.

### Impact of the COVID-19 crisis

Based on the European Commission 'Spring 2020 Economic Forecast', released in May 2020, due to the COVID-19 outbreak, Croatia will suffer a sharp recession in 2020 with the gross domestic product (**GDP**) **expected to contract by about 9% in 2020, before partially recovering by 7.5% in 2021**.

The **unemployment rate** is expected to increase from 6.6% (2019) to 10.2% (2020) and it is expected to return to a slightly higher level than pre-crisis in 2021 (7.4%).

To support the national economy a strong public fiscal stimulus will be deployed, with the **Government deficit** expected to reach 7.1% of 2020 GDP and to reduce its impact in 2021 (2.2%).

Due to the combined impact of the decrease of the GDP and the increase in the government deficit, the **debt/GDP ratio is expected to reach 88.6% in 2020** (it was 73.2% in 2019) while it is expected to decline to 83.4% in 2021.

Based on the EC Spring 2020 economic forecast: 'assuming that suppression and moderation measures are slowly phased out in 2020, **Croatia's economy should rebound quickly in 2021** after a strong contraction in 2020'.

**The crisis could have a dual negative impact on EE investments**, by both **reducing the demand** (e.g. households and enterprises may decide/be forced to postpone investments) **and the financial supply** (e.g. financial intermediaries may become more selective in their lending activity) **therefore increasing the importance of EE related supporting schemes**.

**Final energy consumption (FEC)** in 2018 was 6.9Mtoe (0.7% of the EU27) and it has **decreased by 5.4% since 2005**, while at the EU27 level it decreased by 4.9%<sup>4</sup>.

**Consumption per capita** in 2018 (1.7toe/person) was 25% lower than the EU average (2.2 toe/person) and it decreased by 3% in the last 10 years (while at the EU27 level it decreased by 6%)<sup>5</sup>.

**Energy productivity** (GDP over the gross available energy) in 2018 was 5.6 Euro per Kg of oil equivalent (69% of the EU average), showing a strong reliance on energy to generate GDP (this index increased by 10% in the last 5 years)<sup>6</sup>.

**Sectors** contributing to FEC are: households (34% of total), transport (34%), industry (17%) and services (12%)<sup>7</sup>.

The **building sector** (residential and non-residential buildings) accounts for 42.3% of national FEC: most buildings in Croatia are rated as E or F energy classes, but many are G-rated (which represents the worst option)<sup>8</sup>.

### Annual technical energy savings by sector (Mtoe)





Regarding energy efficiency (EE): during the 2001 - 2016 period, Croatia reported about 1.41 Mtoe of cumulative (technical) final energy savings<sup>1</sup> mainly related to the residential sector (39%), industry (36%), and transport (17%).

## 1.1. Overview of the residential sector

The **residential building stock** consists of 762,397 buildings (total floor area 142 m sqm)<sup>9</sup>:

- 290,689 are multi-residential buildings (floor area 55m sqm; 71% of it was built prior to 1987);
- 471,708 are family houses (floor area 87m sqm; 74% of it built prior to 1987);
- The majority of buildings was developed prior to 1981 (as reported in the following table)
- During 2000 – 2016, the residential stock increased consistently (about 96,960 dwellings or +6.8%).

**Residential buildings per type and year of construction**

Year of construction	Multi-apartment buildings			Single family homes		
	Number	%	Area	Number	%	Area
Before 1940	37 201	13%	5 830 983	64 391	14%	10 092 805
1941–1970	85 959	30%	13 473 337	151 507	32%	23 747 572
1971–1980	59 882	21%	10 398 113	93 109	20%	16 167 887
1981–1987	44 434	15%	9 401 527	68 348	14%	14 461 473
1988–2005	38 358	13%	8 177 401	75 615	16%	16 120 249
2006–2009	18 256	6%	6 199 252	13 762	3%	4 673 079
2010–2011	6 600	2%	1 957 449	4 976	1%	1 475 551
<b>Total</b>	<b>290 689</b>	<b>100%</b>	<b>55 438 063</b>	<b>471 708</b>	<b>100%</b>	<b>86 738 615</b>

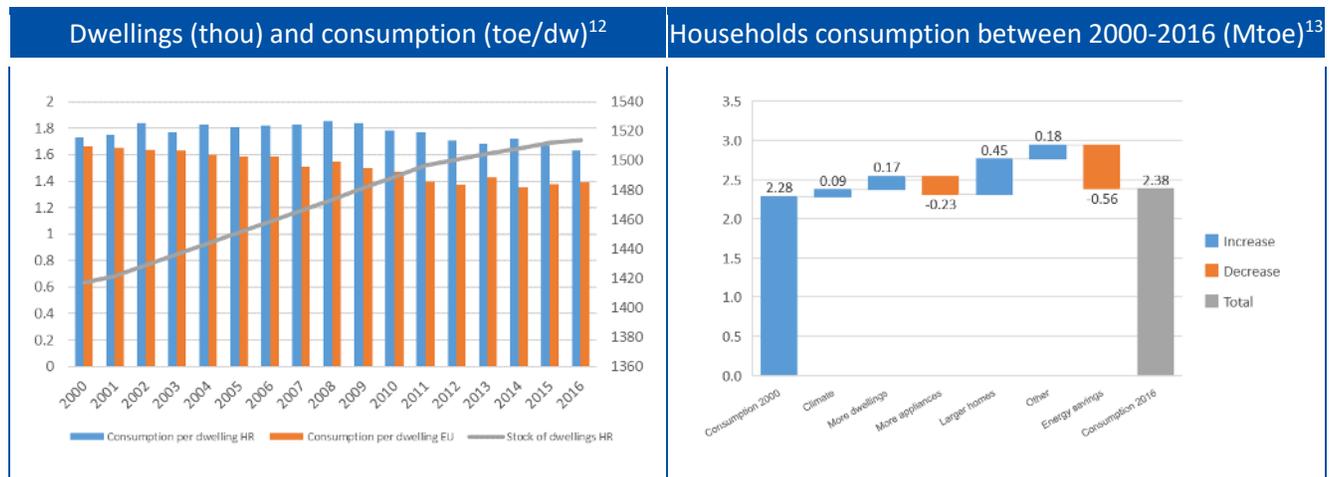
It is moreover important to highlight that circa two thirds of residential buildings are concentrated in the continental part of Croatia, while buildings in the coastal area are circa 35% of the overall stock.

**Energy consumption in the residential (households) sector:**

- In 2017 was 2.4Mtoe (0.8% of EU28)<sup>10</sup> decreasing by 8% over the last 10 years;
- Consumption per dwelling is 1.6toe (17% higher than EU average)<sup>11</sup> but decreasing by 11% over the last 10 years;
- Consumption is mainly driven by Space heating and electrical appliances and lighting.

Despite the strong increase of the stock of dwellings, consumption in the residential sector increased by only 0.1 Mtoe. This small increase was due to saving initiatives (0.56 Mtoe) and a reduction in appliances per dwelling (0.23 Mtoe).

<sup>1</sup> This data refers to technical final energy savings, which excludes savings achieved thanks to economic factors (e.g: a recession that reduces industry's production and therefore it lowers the energy consumption) or behavioural factors (e.g: higher temperature during that year).

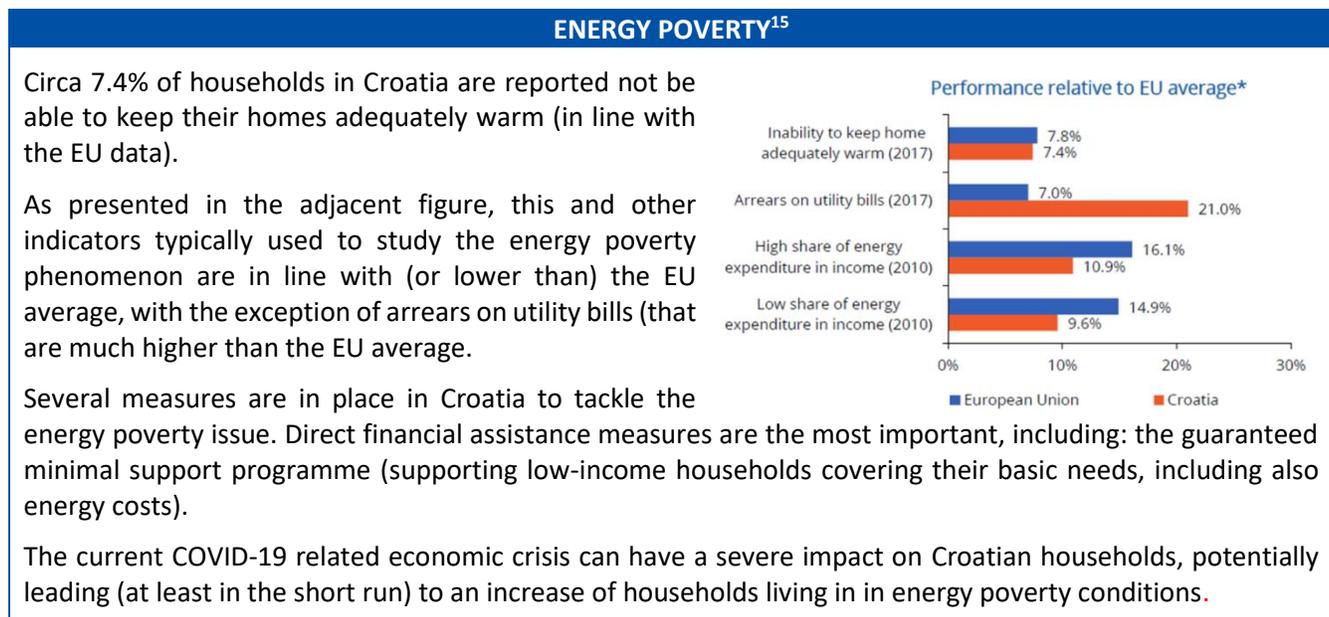


During the 2014 – 2016 period, 2,1m sqm<sup>14</sup> (total floor area) of residential and non-residential buildings were renovated. EE investments undertaken in the residential sector was estimated at HRK 1bn (circa EUR 138m).

In the **coming years**, the activity in the construction sector is expected to be heavily influenced by the obligation (since 2021) that **all newly constructed buildings will be nearly-zero energy (nZEB)**.

Based on the NECP, it is expected that the **total residential stock will grow at an average rate of approximately, 6,300 from 2031 to 2040 and 6,050 units from 2041 to 2050.**

In order to achieve this growth of the total stock, **10,930,698sqm of new buildings and 8,630,863sqm of renovated buildings are expected in the period from 2021 to 2030 (around 30,000 new and renovated housing units per year)** with a very **high rate of abandonment and demolition of old poor-quality units (11,200 units per year)**.



## 1.2. Overview of the public sector

There are **80 196 public buildings** in Croatia, with a total floor area of 13,801,902 sqm (61% of the total floor area was built prior to 1987)<sup>16</sup> and they are mainly located in continental Croatia (67%).



### Public buildings per year of construction

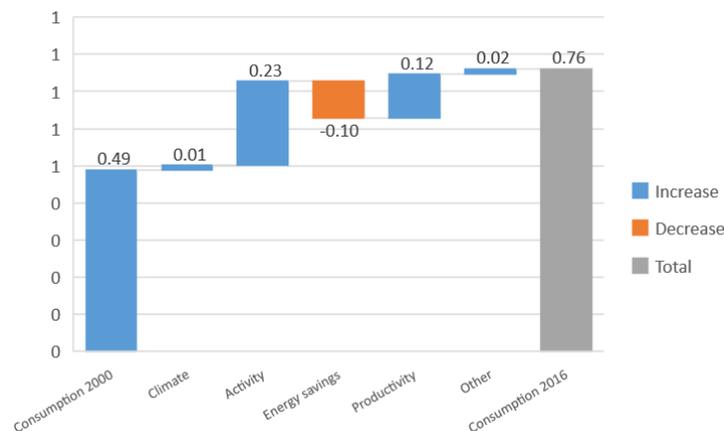
Year of construction	Number	%	Area
Before 1940	12 365	15%	1 545 813
1941–1970	22 525	28%	2 815 845
1971–1980	19 021	24%	1 882 000
1981–1987	10 158	13%	2 152 000
1988–2005	11 059	14%	2 722 497
2006–2009	3 673	5%	2 073 747
2010–2011	1 395	2%	610 000
<b>Total</b>	<b>80 196</b>	<b>100%</b>	<b>13 801 902</b>

During the **2014 – 2016** period, 2,1m sqm<sup>17</sup> (total floor area) of residential and non-residential buildings were renovated. EE investments undertaken in public buildings was estimated in HRK 344m (circa EUR 44m)<sup>18</sup>. As of 2017, the area of the national building stock that is still subject to EE renovation was 190.3m sqm<sup>19</sup>.

### 1.3. Overview of services and industry sectors

The **services sector** account for 70% of the national GDP (in 2017)<sup>20</sup> while its energy consumption in 2017 was 0.8Mtoe (0.5% of EU28) increasing over time (12.1% last 5 years VS +2.3% in EU28). Although the service sector sharply increased over time, during the 2000 – 2016 period, the final energy consumption increase was limited due to an important EE activity, worth circa 0.1Mtoe (or circa 20% of 2000s consumption).

#### Variation services consumption Mtoe (2000-2016)

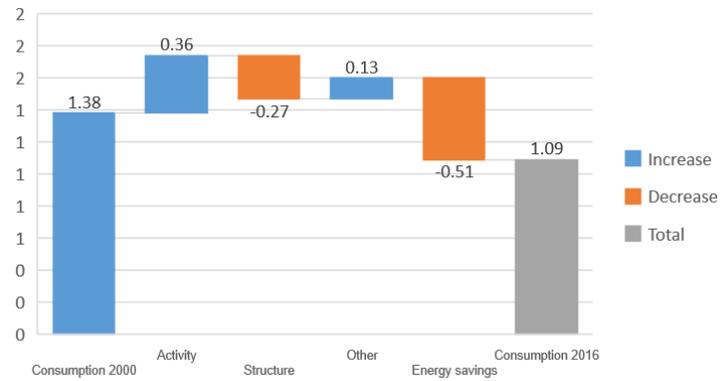


The **industrial sector** accounts for 26% of the national GDP (in 2017) and in 2017, industry consumed 1.8Mtoe (0.5% of EU28) with a decrease by 30% in the last 10 years<sup>21</sup>.



During 2000-2016, energy savings achieved in industry were worth 0.5Mtoe or 37% of 2000 consumption. Most of these savings were achieved in the beginning of 2000s (55% of 2000-16 savings were made before 2006).

Variation industry consumption Mtoe (2000-2016)





## 2. EE targets, measures in place and proposed

Several policy measures are in place<sup>22</sup> to support EE in Croatia, relying both on EU (ERDF) and national resources (e.g. Croatian Environmental Protection and Energy Efficiency Fund or 'EPEEF').

For the **2020 - 2030 period**, the National Energy and Climate Plan (NECP) envisages the continuation of some existing measures and the implementation of new measures, to reach the targets reported in the following table.

NECP overall targets	EE targets (Mtoe)	2017 data	Target 2020	Target 2030
	Primary energy consumption	8.3	10.7	8.23
	Final energy consumption	6.9	7.0	6.58

Among the **main measures** for EE for the post 2020 period, it is important to mention:

- the continuation of the **EE obligation scheme** for energy suppliers which started in 2019; through which Croatia intends to achieve circa 50% of the energy savings required by Art.7 of the EU Directive for EE. Energy suppliers (larger than a certain threshold) will be obliged to invest in EE or to pay certain amounts to the EPEEF. Resources collected by EPEEF are expected to support EE interventions in the building sector;
- the continuation the existing support schemes (financed by ESIF and by resources of EPEEF) to promote the renovation of (i) **multi-apartment buildings**; (ii) **single family houses**; (iii) **public buildings**; (iv) **public lighting**;
- a new programme to support energy renovation for **heritage buildings**.

In the following table more details of current and planned measures are reported, based on the NECP.

	Context/targets	Existing and planned actions/priority objectives
<b>Residential Sector</b>	<ul style="list-style-type: none"> <li>• After 2020 all new buildings to be nZEB<sup>23</sup></li> </ul> <p><u>In 2021 – 2030 is expected:</u></p> <ul style="list-style-type: none"> <li>• 6,000 new buildings to be constructed</li> <li>• 10.9m sqm of new buildings and 8.6m sqm of renovated buildings</li> <li>• 30.000 new and renovated housing units per year (1.6% annual renovation rate)</li> <li>• A programme to address energy poverty to be developed</li> </ul>	<p><u>Existing measures (list of):</u></p> <ul style="list-style-type: none"> <li>• <b>EPEEF</b> is funding and providing <b>grants</b> for EE renovations in multi-apartment buildings (EUR 73m for 586 buildings – the measure started in 2014 and projects are expected to be completed by 2019) and single family houses (EUR 30m – the measure started in 2019 and projects are expected to be completed by 2023);</li> <li>• The Ministry for Construction (MPCC) is providing <b>OP backed grants</b> (EUR 100m) for EE in residential buildings (multi apartment buildings and family houses)<sup>24</sup>;</li> <li>• Various <b>revolving solutions</b> are active, such as the Green for Growth fund (providing dedicated resources through financial intermediaries), RENOVA + (EUR 60m credit line facility, provided by EBRD, for EE in the residential sector).</li> </ul> <p><u>New planned measures/priority objectives as presented in the NECP</u></p> <ul style="list-style-type: none"> <li>• <b>EE in Multi apartment buildings:</b> the existing ESIF scheme (managed by MPCC) is expected to be continued in the 2021 – 2030 period. Procedures are expected to be simplified especially regarding the procurement process; a dedicated fund will be created to support energy poor households (to avoid the risk of blocking the multi-apartment building renovation approval</li> </ul>



		<p>process) and a strong technical assistance facility will be provided. Under the programme, 520,000 sqm is expected to be renovated every year, with an investment of circa <b>EUR 110m annually</b> (EUR 1.1bn during the 2021 - 2030 period). The support programme is expected to be a <b>grant</b> covering up to 60% of investment costs;</p> <ul style="list-style-type: none"> <li>• <b>EE in single family houses:</b> it will be a continuation of the EPEEF program, therefore resources should come from national resources (revenues from sales of GHG emission allowances). The programme is expected to renovate circa 350,000sqm annually, with an investment of circa <b>EUR 68m annually</b> (EUR 682m during the 2021 – 2030 period). The support programme is expected to be a <b>grant</b> covering up to 60% of investment costs.</li> </ul>
<p><b>Public Sector</b></p>	<ul style="list-style-type: none"> <li>• Obligation to renovate (every year) 3% of the total floor area of central government buildings</li> <li>• As done in the 2014 – 2020 period, also in the post 2020 period Croatia will follow an alternative approach (to reach the same targets)</li> </ul>	<p><u>Existing measures:</u></p> <ul style="list-style-type: none"> <li>• OP backed <b>grants combined with soft loans</b> (EUR 211m) for EE in public buildings;</li> <li>• The Croatian Government Real Estate Agency (APN) managed an <b>ESCO based programme for EE on public buildings</b>, with the support of EPEEF that was providing grants covering up to 40% of investment needs;</li> <li>• <b>Revolving schemes</b> are in place, such as the Western Balkans Sustainable Energy Financing Facility (WBSEFF); and <b>financial instruments</b> managed by HBOR to support EE in public buildings (financial instrument combined with grant) and for public lighting.</li> </ul> <p><u>New planned measures/priority objectives as presented in the NECP</u></p> <ul style="list-style-type: none"> <li>• <b>EE in public buildings:</b> the support program is expected to build upon the ESIF backed renovation programme of the current programming period, however the involvement of private capitals and ESCOs will be sought (in particular in energy intensive buildings, such as hospitals, penitentiaries, elderly homes, etc.). The programme is expected to renovate circa 350,000sqm annually, with an investment of circa <b>EUR 113m annually</b> (EUR 1.1bn during 2021 – 2030);</li> <li>• <b>EE for heritage buildings:</b> the program will support buildings with the status of cultural properties. The investment foreseen during the 2021 – 2030 period under this program is of circa <b>EUR 1.7bn</b> for EE renovations and EUR 660m for maintenance costs;</li> <li>• <b>EE of public lighting:</b> the program is expected to build upon the ESIF financial instrument implemented by HBOR in the current programming period. Moreover it is expected to also support initiatives deployed via Energy Performing Contracts (EPC) or Public Private Partnerships (PPP). The investment foreseen during the 2021 – 2030 period under this program is of circa <b>EUR 374m</b>.</li> </ul>



<p><b>Industry</b></p>	<ul style="list-style-type: none"> <li>• In 2021 - 2030, ETS (Emission Trading System) remains the main policy instrument for reducing industrial sector emissions</li> <li>• In addition, it is expected that the EE obligation scheme will be extended to smaller energy suppliers</li> </ul>	<p><u>Existing measures:</u></p> <ul style="list-style-type: none"> <li>• <b>OP grants and soft loans</b> (EUR 40m) for EE and RES in commercial sector/tourism;</li> <li>• <b>OP grants and soft loans</b> (EUR 60m) for EE and renewables in industry;</li> <li>• Dedicated fiscal measures (e.g. emission tax);</li> <li>• Various <b>revolving solutions</b> are in place, such as the Green for Growth fund, RENOVA + (EUR 60m credit line facility, provided by EBRD, for EE in the residential sector), the Western Balkans Sustainable Energy Financing Facility (WBSEFF); and the recently established <b>financial instrument</b>, managed by <b>HBOR providing loans to EE projects</b> developed by the business sector.</li> </ul> <p><u>New planned measures/priority objectives as presented in the NECP</u></p> <ul style="list-style-type: none"> <li>• As presented above, the <b>EE obligation scheme</b> is expected to be the most relevant programme to achieve energy savings on energy suppliers (the amount of energy savings obligation has not been reported in the NECP);</li> <li>• Based on the NECP <i>new financial incentives from public sources [to industry] are not foreseen.</i></li> </ul>
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### 3. Market failures, main issues and barriers to investment

In the following table some information about the main (financial and non-financial) barriers preventing EE investments are reported per each sector. To the extent possible, the main potential implications of the COVID-19 crisis on barriers to EE investments have been considered.

	Financial issues and gaps	Non-financial issues
Residential Sector	<ul style="list-style-type: none"> <li>▪ Based on Croatian policy documents<sup>25</sup> the main barriers to EE renovations in buildings are financial in nature (e.g. long payback period, insufficient financial incentives, and a lack of successful financial models, etc.);</li> <li>▪ The <b>socially-determined price of energy-generating products</b> in Croatia is de-stimulating the implementation of EE measures (reducing financial return of EE and increasing the payback period);</li> <li>▪ Based on (pre-crisis) discussions with local banks, it is reported that <b>credit institutions are liquid</b> and lending activities (including to households) are well developed. This context may change due to the COVID-19 crisis, and banks may become more selective in their lending activities to households. There are areas where <b>financing gaps</b> have been reported by local banks, in particular: <ul style="list-style-type: none"> <li>– <b>Lending to multi-apartment buildings</b>, as banks are reported to be reluctant (in general) to lend to <b>home-owner-associations</b> when less than 100% of owners agree on the EE renovation (while according to the national regulation it is sufficient the approval of the majority of owners to undertake these works);</li> <li>– Financing EE initiatives with <b>innovative schemes</b> (such as the <b>ESCO model</b>) due the reluctance of banks to lend via limited/no recourse solutions and to the lack of equity.</li> </ul> </li> </ul>	<p>Based on Croatian policy documents<sup>26</sup> non-financial issues are mainly related to:</p> <ul style="list-style-type: none"> <li>▪ <b>Lack of information and motivation</b> on the part of investors, the public and stakeholders (insufficient awareness of the positive effects for individuals and the society as a whole);</li> <li>▪ Complex ownership relations of <b>multi-residential buildings</b> (EE renovation investment decisions require a 51% majority);</li> <li>▪ <b>Demographic and migration trends</b>, as well as changes in housing culture and living habits are also an important barrier to successful implementation EE renovations;</li> <li>▪ The crisis that started in 2009, caused the shutdown or bankruptcy of a large number of construction companies thus further strengthened the existing barrier of inadequate capacity, <b>knowledge, abilities, and skills to perform EE renovations</b>.</li> </ul>
Industry	<ul style="list-style-type: none"> <li>▪ A combination of low profitability, low attractiveness of bank loans, and limited own resources have resulted in companies being largely unwilling to implement EE improvements in their production processes<sup>27</sup>;</li> </ul>	<p>Based on the ex-ante assessment, inefficient production processes account for a large part of energy consumption however projects in this market segment are typically capital intensive, with limited positive impact on the</p>



	<ul style="list-style-type: none"> <li>▪ As EE investments are not the core budgeting priority for many companies, there are no sufficiently-developed projects or long-term project portfolios<sup>28</sup>;</li> <li>▪ Due to the limited experience in EE investment, banks tend to consider them high risk and are either not willing to provide project finance or offer it at high interest rates, limited maturity of loans, and high collateral requirements. This hampers the ESCO market development, and makes it difficult to finance projects<sup>29</sup>.</li> </ul>	<p>core business of enterprises and limited economic benefits (energy savings) in the medium term.</p>
<p>Public Sector</p>	<ul style="list-style-type: none"> <li>▪ Public Authorities tend to rely on grants to finance EE investments and, although regulatory limits to borrowing capacity of public entities don't apply for EE investments, local authorities (in particular the small ones) have difficulties borrowing to provide co-financing (due to limited fiscal capacity)<sup>30</sup>;</li> <li>▪ Most of buildings require deep, capital intensive renovations. This requires considerable investments, characterised by long-term return and low profitability, which makes them unattractive to potential funders<sup>31</sup>;</li> <li>▪ Based on discussions with local banks, it is reported that <b>credit institutions are eager to lend to Public Authorities</b> as these are perceived to be low risk. Competition in municipal lending is reported to be fierce, leading to low rates offered to public entities. <b>Financing gaps</b> are reported to be linked to <b>innovative schemes</b> (such as the <b>ESCO model</b>) due the reluctance of banks to lend via limited/no recourse solutions and to the lack of equity.</li> <li>▪ Debt capacity of Public entities could become an even more relevant issue, as the Croat debt to GDP ratio is expected to sharply increase to support the economy during the COVID-19 triggered recession.</li> </ul>	<p>Based on Croatian policy documents<sup>32</sup>:</p> <ul style="list-style-type: none"> <li>▪ A typical obstacle to the process of energy renovation of public buildings is the public <b>procurement process</b> (based on the most financially favourable selection criteria), which is always time consuming, and in many cases unsatisfactory results;</li> <li>▪ <b>Lack of awareness of alternative procurement solutions</b> (e.g. EPC);</li> <li>▪ <b>The preparation of sound EE projects</b> is also typically reported as an important non-financial obstacle to consider.</li> </ul>



## 4. Investment needs, gaps and implications for financial instruments

The NECP includes estimates for investment needs, summarised in the following table.

Investment needs (EUR bn)	2021 - 2030	2031 - 2050
Building sector (energy renovation)	1.70	3.63
Building sector (nZEB new construction)	4.97	13.57
Electricity generation	2.12	4.79
Transmission of electricity	1.03	1.29
Electricity distribution	1.30	2.60
Heating	0.08	0.16
Solar thermal systems	0.40	0.79
Natural gas transportation and distribution	1.39	0.36
Oil sector	1.69	1.29
Hydrocarbon prospecting	3.16	1.86
Infrastructure of alternative energy forms in transport	0.07	0.43
Production of advanced biofuels	0.48	0.09
<b>Total</b>	<b>18.39</b>	<b>30.87</b>

As reported in the table, **buildings related investments** are the single largest investment cost of the NECP (over the 2021 – 2050 period, buildings related investments account for **48% of total investments**).

The amount of investment that will be needed to support **nZEBs**, that will become the standard required for new buildings from 2021 (it is already the standard for public buildings), is particularly considerable.

Although a quantitative gap analysis was not performed (neither in the NECP and nor in the ex-ante assessment), based on barriers and financing gaps reported in the previous section, the possible **implications for financial instrument** have been summarised in the following table.

### Horizontal implications for financial instruments

- Financial instruments need to include (or to be supported by) a **technical assistance component** (to promote EE benefits, to facilitate the decision making process, and to prepare/monitor EE projects);
- The organisation of grant and financial instrument schemes need to be properly planned, in order **to avoid an excessive use of grants, and to make sure a larger allocation and deployment of financial instruments**;
- Considering the lack of EE skilled workers, specific **training** programmes could be supported.



Residential sector	Public sector	Industry
<ul style="list-style-type: none"> <li>• Financial instruments could support bridging the financing gap reported in <b>multi-apartment-buildings</b> (where banks tend to be reluctant to lend to <b>Home-Owner-Associations</b>);</li> <li>• Financial instruments could support innovative financing solutions (e.g. <b>ESCO model</b>), not developed in the residential sector also due to the reluctance of banks to finance them (mainly due to risk).</li> </ul>	<ul style="list-style-type: none"> <li>• Financial instruments could support the <b>development of the EPC model</b> in the public sector, providing <b>technical support and financial support</b> both directly to Public Sector Entities (e.g. municipal lending) and to private or public-private entities (loans and/or equity financing).</li> </ul>	<ul style="list-style-type: none"> <li>• Financial instruments could be able to incentivise enterprises, in order to make EE investments a priority for them;</li> <li>• Financial instruments could also support the development of the EPC model in the industry sector and in the business sector at large.</li> </ul>



## 5. ESIF resource, existing financial instruments and main grant programmes

Croatia, through 4 national programmes, benefits from **ESIF funding of EUR 10.7 billion** (circa EUR 2 529 per person, one of the highest in EU). For the **low carbon economy**, **EUR 875m** has been allocated (EUR 625m from ERDF; EUR 237m from EAFRD; EUR 11.8m from EMFF)<sup>33</sup> while the overall (ESIF) **EE related support** is estimated in **EUR 471m**<sup>34</sup>.

### 5.1. Financial Instruments

In the 2014 – 2020 period, Croatia contributed **EUR 410m**<sup>35</sup> of its ESIF (circa 4% of its budget) to **financial instruments** (ERDF), that are mainly managed by the National Promotional Bank and Institution (HBOR and HAMAG BICRO).

Based on information provided by the Managing Authority (MA) **EE related financial instruments** received an ESIF endowment of **EUR 80m**, equal to circa 16% of (ESIF backed) EE related support.

Based on information provided by the MA, there are three financial instruments in areas related to EE, with an overall ESIF allocated amount of EUR 80m as presented in the following table (and in more details in the following bullet points).

Instrument	(ESIF) allocated/ committed	(non ESIF) allocated/ committed	(ESIF) paid
<b>Financial instrument for EE in enterprises</b>	EUR 35m	EUR 32.24 (national and private)	Not yet started
<b>Financial instrument for EE for public buildings</b>	EUR 25m*	0	EUR 6.25m
<b>Financial instrument for EE for public lighting</b>	EUR 20m	0	EUR 5m
<b>Total</b>	<b>EUR 80m</b>	<b>EUR 32.24m</b>	<b>EUR 11.25m</b>

\* additional EUR 28m will be allocated, since 100% is contracted with final recipients

#### Financial instrument for EE in enterprises

The instrument is managed by HBOR, which received an ESIF contribution of EUR 35m and it takes the form of a risk sharing loan instrument, where ESIF will contribute to 50% of the portfolio (charging a zero percent interest rate) and commercial banks, that will deploy the instrument, will contribute to the remaining 50%, charging an interest rate defined during the public procurement process.

HBOR has recently closed the call for the selection of financial intermediaries and it plans to be ready with the financial product by the end of the second quarter 2020.

Final recipients include enterprises (of all size and sector) performing EE projects generating at least 20% of energy savings compared with the 'pre-project' situation.



Final recipients are also expected to benefit from technical assistance (provided under the ELENA scheme) from consultants that are currently being selected by HBOR that will support with both the technical preparation of the projects and with the project submission to the financial intermediaries.

Based on information provided by the MA, the financial instrument is expected that 70 companies will generate 69.5 GWh of energy savings, and 17.5 GWh of energy from renewable sources.

### **Financial instrument for EE in public buildings<sup>36</sup>**

The financial instrument is managed by HBOR and it was launched in 2018 (first loan signed in Autumn 2018) it is developed in combination with a grant scheme funded under the SO 4c1 *'Reducing energy consumption in public sector buildings'* of the OP Competitiveness and Cohesion (managed by the Ministry of Construction and Physical Planning). Based on information provided by the MA, the grant contributes to 35% - 60% of the investment, while the financial instrument to 35% - 65% (depending to the development index and climate conditions).

Public sector entities (e.g. cities, counties, schools, kindergartens, hospitals, etc.) can apply to a grant call (managed by the Ministry) demonstrating that at least 50% of energy for heating will be saved after the renovation. Before the official submission of the documentation, the applicant may require TA (mainly administrative support, but also informal advice on the specific EE intervention) from the Environmental Protection and EE Fund.

Projects which have approved grant decision can apply for the financial instrument to cover capital expenditure not covered by the grant. Financial instrument provides loans (without leverage) at favourable conditions such as low interest rates (0.1% to 0.5%) and longer tenors compared with commercial banks (14 years maximum).

EE projects financed through this financial instrument are procured through traditional public procurement procedure, therefore final recipients are always public authorities that in Croatia are allowed to exceed their debt capacity threshold when developing EE projects (or projects supported by EU resources).

Based on the latest information provided by the MA (second half of 2019) the total allocation has been contracted. In terms of non-financing results, the financial instrument (that is operating in conjunction with a grant scheme), 22 GWh of energy savings (while the entire programme is expected to generate 62GWh).

The financial instrument reported very good performances as in less than 1 year, the allocated endowment was fully deployed, and recently the MA has increased the allocation with an additional EUR 28mIn, that is expected to be used to co-finance the pipeline of EE projects supported by the last grant call.

As described before, final recipients of this financial instrument will also be able to benefit from technical assistance (provided under the ELENA scheme) for the projects preparation.

### **Financial instrument for EE in public lighting<sup>37</sup>**

The financial instrument is managed by HBOR and it was launched in the beginning of 2018, while the first loan was signed in autumn 2018. Under this instrument, HBOR is managing EUR 20m of ESIF by mean of loans (without leverage) to public sector entities (e.g. municipalities) performing EE renovations in public lighting (as mentioned above, local authorities can exceed their debt capacity when borrowing for these type of projects).

This financial instrument is not combined with grants, therefore it had a slower uptake compared to the financial instrument for EE in public buildings, nevertheless, as of January 2020, circa 61% of resources under management have been already allocated: signed loans represent 22% of resources under management; approved loans represent 19% of resources; projects under assessment represent another 13% of resources and the so called 'strong pipeline' accounts for the remaining 7%.

According to HBOR expectations (communicated in January 2020), in the next twelve months, all resources are expected to be allocated and spent. In non-financial terms, the financial instrument is expected (as of 2023) to



generate savings worth 15GWh. As already reported in the previous bullet points, this financial instrument will also benefit from the TA support provided under the ELENA facility.

Besides ESIF funded financial instruments, **HBOR has reported an interest to be involved**, post 2020, in the management of the **InvestEU fund**, although the MA did not report an interest to contribute its OP endowment to the MS compartment.

In the following table, the main lessons learnt and opportunities for the next period for financial instruments are reported.

Lessons learnt	Opportunities for the post 2020
<ul style="list-style-type: none"> <li>There is a <b>strong interest for EE investments</b>, at least in the public sector, also due to the less stringent constraints linked to the debt capacity of public authorities</li> <li>The <b>combination with grant</b> is an very important element (comparing the financial instrument for EE in buildings and the financial instrument for public lighting) and it helps the use/absorption of resources</li> <li>The <b>TA component</b> is also a key element to incorporate in the FI, thus the recent financial instrument for EE in enterprises has been developed with the TA support of the ELENA programme</li> </ul>	<ul style="list-style-type: none"> <li>The use of financial instruments could be extended also to the <b>residential sector</b> and also in EE investments undertaken with the <b>ESCO model</b> (e.g. EPC)</li> <li>New, financial products could be developed, focusing on risk enhancement or on the provision of equity/subordinated debt, thus increasing the leverage effect (HBOR reported a strong interest in this respect, however they are aware this will imply more complex discussions related in particular to the State Aid regulation)</li> </ul>

## 5.2. Main ESIF grant programmes

Based on information provided by the MA, OP resources allocated for EE are EUR 531m of which (i) grants account for 75% of the total or EUR 396.8m; (ii) financial instruments account for EUR 55m; and (iii) resource for integrated territorial investments account for EUR 80m.

In the following table, the allocation for grants (EUR 396.8m) and the disbursement (EUR 124.5m) is reported.

Main allocation (EUR m)	Number of lunched grant calls	Grant in lunched calls (EUR m)	% of lunched calls in main allocation	Number of signed contracts	Grant in signed contracts (EUR m)	% of grant in main allocation	Disbursed Grant (EUR m)	% of disbursed Grant in main allocation
531,8	8	396,8	75%	1,623	343,5	64.59	124,5	23.4%

The main EE ESIF grant schemes are reported to be the ones focused on the residential sector (multi-apartment buildings and single houses), public sector (public buildings) and industry.

As reported below, all the three grant schemes have been successful in terms of resource allocation so that they have been reinforced with additional resources (i.e. from an overall initial allocation of EUR 85m to an increased overall allocation of EUR 262m).

- Energy renovation and use renewable energy sources in public buildings**



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The initial allocation was EUR 50.7m however, due to huge interest (financial demands over 200%) allocation has been increased for additional EUR 97.3m meaning that total allocation amounts EUR 148m.

- **Energy renovation of multi-apartment buildings**

The grant call had an allocation of EUR 20m, however the allocation has been increased for additional EUR 54.4 m (total allocation EUR 74.4m) due the high demand.

- **Promoting the Energy Efficiency and use RES in Manufacturing Industries**

The grant call had an allocation of EUR15m but it was increased of additional EUR25m (total allocation EUR 40m) due to the high demand.



## NOTES

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- <sup>1</sup> EUROSTAT; Population on 1 January by age and sex [demo\_pjan]; extracted on 13/02/2020
- <sup>2</sup> National Energy and Climate Plan
- <sup>3</sup> EUROSTAT; Real GDP per capita [SDG\_08\_10]; extracted on 13/02/2020
- <sup>4</sup> EUROSTAT; Final energy consumption (Europe 2020-2030); Energy efficiency [nrg\_ind\_eff]; extracted on 13/02/2020
- <sup>5</sup> Ratio between: EUROSTAT; Final energy consumption (Europe 2020-2030); Energy efficiency [nrg\_ind\_eff] and EUROSTAT; Population on 1 January by age and sex [demo\_pjan]; extracted on 13/02/2020
- <sup>6</sup> EUROSTAT; Energy productivity [T2020\_RD310]; data in Euro per kilogram of oil equivalent (KGOE); extracted on 13/02/2020
- <sup>7</sup> EUROSTAT
- <sup>8</sup> Croatian National Energy Efficiency Portal ([www.enu.hr](http://www.enu.hr))
- <sup>9</sup> Proposal of the Long-Term Strategy for Mobilising Investment in Renovation of the National Building Stock of Croatia. 2017
- <sup>10</sup> EUROSTAT
- <sup>11</sup> Odyssee database, Consumption per dwelling with climatic corrections, year 2016
- <sup>12</sup> Odyssee database
- <sup>13</sup> Odyssee database
- <sup>14</sup> Proposal of the Long-Term Strategy for Mobilising Investment in Renovation of the National Building Stock of Croatia. 2017
- <sup>15</sup> EU Energy Poverty Observatory; Member State Report; Croatia. June 2020
- <sup>16</sup> Proposal of the Long-Term Strategy for Mobilising Investment in Renovation of the National Building Stock of Croatia. 2017
- <sup>17</sup> Proposal of the Long-Term Strategy for Mobilising Investment in Renovation of the National Building Stock of Croatia. 2017
- <sup>18</sup> The conversion rate used is 7.6HRK per 1EUR
- <sup>19</sup> Proposal of the Long-Term Strategy for Mobilising Investment in Renovation of the National Building Stock of Croatia. 2017
- <sup>20</sup> Central Intelligence Agency, the world fact book
- <sup>21</sup> EUROSTAT
- <sup>22</sup> Information reported in this section is based on the NECP (if not differently specified)
- <sup>23</sup> This is a requirement coming from the Energy Performance in Buildings Directive (EPBD)
- <sup>24</sup> Croatian Ministry of Construction and Physical Planning
- <sup>25</sup> Proposal of the Long-Term Strategy for Mobilising Investment in Renovation of the National Building Stock of Croatia. 2017
- <sup>26</sup> Proposal of the Long-Term Strategy for Mobilising Investment in Renovation of the National Building Stock of Croatia. 2017
- <sup>27</sup> Assessing the potential future use of financial instruments in Croatia. A study in support of the ex-ante assessment for the deployment of EU resources during the 2014-2020. EIB. PwC. Final Report September 2015
- <sup>28</sup> Assessing the potential future use of financial instruments in Croatia. A study in support of the ex-ante assessment for the deployment of EU resources during the 2014-2020. EIB. PwC. Final Report September 2015
- <sup>29</sup> Assessing the potential future use of financial instruments in Croatia. A study in support of the ex-ante assessment for the deployment of EU resources during the 2014-2020. EIB. PwC. Final Report September 2015
- <sup>30</sup> Creation of an investment platform for smart cities and islands initiatives in Croatia. European Advisory Investment Hub. EY. 2019
- <sup>31</sup> Assessing the potential future use of financial instruments in Croatia. A study in support of the ex-ante assessment for the deployment of EU resources during the 2014-2020. EIB. PwC. Final Report September 2015
- <sup>32</sup> Proposal of the Long-Term Strategy for Mobilising Investment in Renovation of the National Building Stock of Croatia. 2017
- <sup>33</sup> <https://cohesiondata.ec.europa.eu>
- <sup>34</sup> Data provided by DG Regio based on an analysis of fields of intervention
- <sup>35</sup> [www.fi-compass.eu/financial-instruments/Croatia](http://www.fi-compass.eu/financial-instruments/Croatia)
- <sup>36</sup> Creation of an investment platform for smart cities and islands initiatives in Croatia. European Advisory Investment Hub. EY. 2019
- <sup>37</sup> Creation of an investment platform for smart cities and islands initiatives in Croatia. European Advisory Investment Hub. EY. 2019

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