

# EX-ANTE ASSESSMENT FOR THE IMPLEMENTATION OF FINANCIAL INSTRUMENTS IN THE INVESTMENT AREAS OF ENERGY EFFICIENCY AND USE OF RENEWABLE ENERGY SOURCES FOR THE ISTRIAN COUNTY

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EX-ANTE ASSESSMENT FOR THE IMPLEMENTATION OF FINANCIAL INSTRUMENTS IN THE INVESTMENT AREAS OF ENERGY EFFICIENCY AND USE OF RENEWABLE ENERGY SOURCES FOR THE ISTRIAN COUNTY

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# 1. Introduction

The purpose of this Ex-Ante assessment is to identify an innovative financial instrument that should have a positive effect on increasing the demand for financial instruments as a preferable way of financing projects dealing with investments in energy efficiency and/or renewable energy sources. However, the EU consists of 28 Member States, each with its own geographical, economic, social and other specificities. Given that financial instruments are one of the instruments of Cohesion Policy, aiming at the balanced development of all European regions, it is necessary to take into account all the specificities at the national (Republic of Croatia) and regional (Istrian county) levels when making the Ex-Ante assessment. The Republic of Croatia is the youngest EU Member State and formally became a member on 1.7.2013. In addition to being the youngest Member State, the Republic of Croatia, like the countries of the Eastern Bloc, has, since 1990, undergone painful, long-lasting and not-so-successful processes of transforming social ownership and adopting market economy concept. Namely, most large companies, which most often employed hundreds or even thousands of workers, failed to continue operating under market economy conditions. In addition, during the 1990s, the Republic of Croatia also suffered war devastation in its territory, which left a number of devastations and human and material damage. Positive economic and social development began to be recorded in the early 2000s, but the positive trend was stopped in 2008, due to the global financial crisis and recession. The recession lasted for 6 years in Croatia (until the end of 2014) and resulted in a fall in real GDP of 12,6% compared to 2008. In 2018, Croatia's GDP amounted to EUR 51,608 billion and GDP per capita to EUR 12.615, representing 63% of EU GDP per capita.<sup>1</sup> Cohesion policy instruments contributed significantly to the recovery of the Croatian economy, primarily grants from EU funds for various projects, which, through their multiplier effect (new investments, increased employment, etc.), contributed to strong growth in domestic demand.<sup>2</sup> Namely, from the beginning of 2015 to the end of November 2019, € 3,45 billion was paid to users in the Republic of Croatia out of the total planned € 12,65 billion for the current programming period.<sup>3</sup> With regard to progress towards the Europe 2020 targets, Croatia has achieved its national targets related to renewable energy (except transport), energy efficiency, employment rates, early school leaving and poverty and social exclusion. Croatia is also well on its way to achieve its goal of reducing greenhouse gas emissions. However, investment in transport, energy and environmental infrastructure, as well as in skills, research and innovation, is needed to boost the growth potential of the economy. Croatia's growth potential is influenced by the low level of capital investment in equipment and infrastructure. The quality of services and the connectivity of transport infrastructure are low, especially in the rail sector. Investments in infrastructure are also necessary to improve energy efficiency, water supply and facilitate the transition to a circular economy.<sup>4</sup> Nevertheless, the approach to the preparation of the Ex-Ante assessment of the financial instrument for the next programming period implies the application of the principle of coherence to the specificities of the Republic of Croatia and the achievement of the objectives of the next programming period cohesion policy in the field of energy efficiency, use of renewable energy sources and reduction of greenhouse gas emissions.

<sup>1</sup> Eurostat, 2019. ([http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama\\_10\\_gdp&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_10_gdp&lang=en))

<sup>2</sup> European Commission, Report for Croatia 2019 with a Detailed Review on the Prevention and Removal of Macroeconomic Imbalances, 2019.

<sup>3</sup> European Commission, 2019. (<https://cohesiondata.ec.europa.eu/countries/HR>)

<sup>4</sup> European Commission, Report for Croatia 2019 with a Detailed Review on the Prevention and Removal of Macroeconomic Imbalances, 2019.

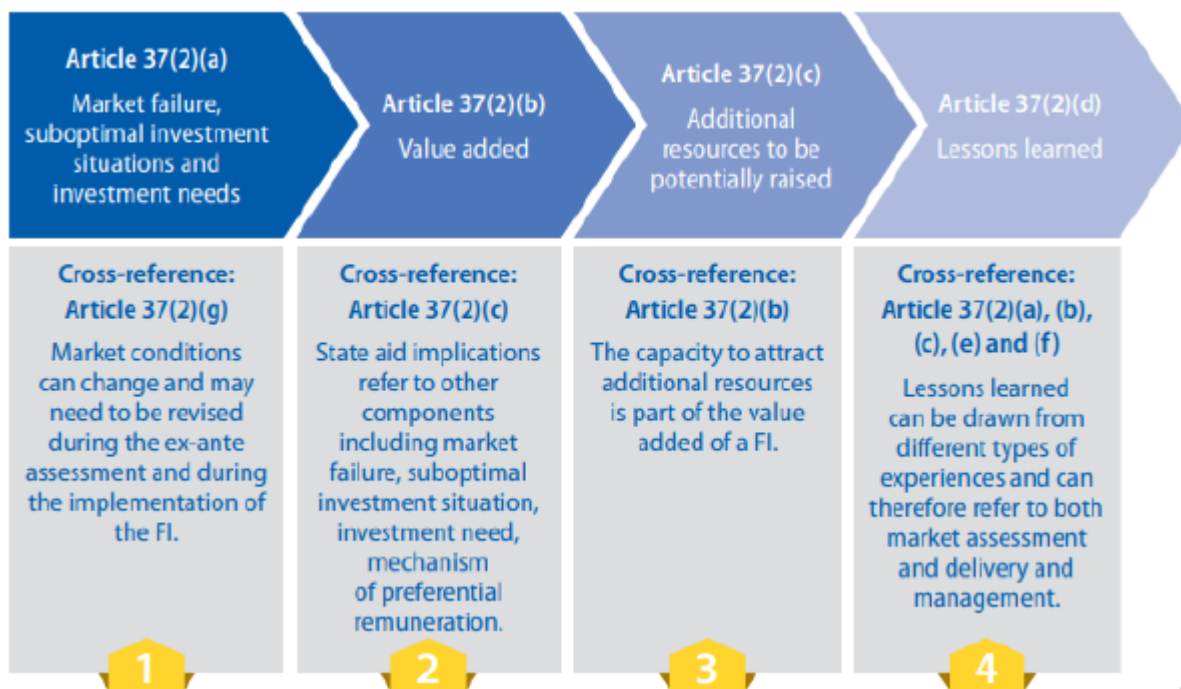
## 1.1. Methodology

The methodology of this Ex-Ante assessment is based on the guidance provided by the European Commission for the preparation of Ex-Ante assessment of financial instruments for Member States referred to the Article 37 (2) of the CPR - Ex-ante assessment. The Ex-Ante evaluation of an innovative financial instrument is divided into two basic chapters; Block 1 (Market Assessment) and Block 2 (Delivery and Management). The purposes of Block 1 are as follows:

- ✓ Identification of market failures and potentials from the perspective of an innovative financial instrument
- ✓ Assessment of the the added value of an innovative financial instrument, its consistency with other incentive models, and evaluation of its impact from the aspect of state aid regulation
- ✓ Identification of possible additional sources and models of financing (public and private), and the possibility of combining them with a financial instrument
- ✓ Presentation of at least two examples of good practice of using financial instruments in the scope of implementation of an innovative financial instrument<sup>5</sup>

Figure 1 shows the process for the development of the Block 1 with all its key features.

Figure 1: Development of the Block 1 (Market assessment)



Source: fi-compass; Ex-ante assessment for ESIF financial instruments - Quick reference guide, 2014.

<sup>5</sup> Due to the lack of implemented investments in Energy Efficiency and Renewable Energy Sources through the financing model of a financial instrument exclusively for SMEs in the Istrian County, it is not possible to identify examples of good practice. Therefore, in a thematic and substantive, comprehensive approach, an example of good practice is elaborated and presented in chapter 5, identification of lessons learned, according to the classic Ex-Ante assessment approach used to predict the effects of defined measures and activities, taking into account available and future resources, potentials and market trend.

Relevant and verified data from secondary (Istrian County, IRENA-Istrian Regional Energy Agency, Croatian bureau of statistics (DZS), Croatian National Bank (HNB), Ministry of Regional Development and EU Funds (MRRFEU), Croatian Bank for Reconstruction and Development (HBOR), etc.) and tertiary sources (fi-compass, EIB) were used to create Block 1. For the purpose of development of the Block 2, a survey was conducted among key stakeholder groups (Regional and local authorities, SMEs and Banks).

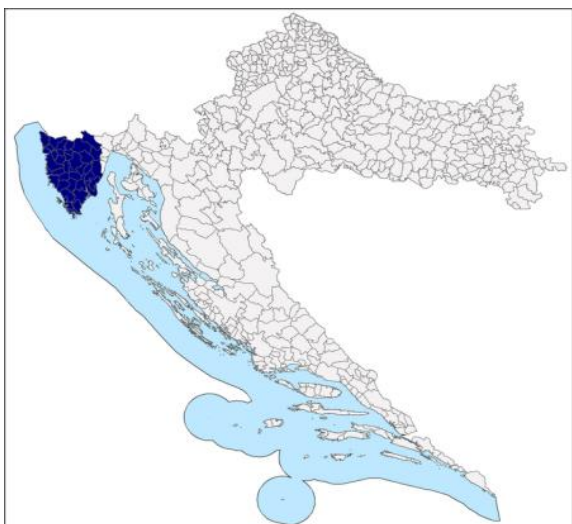
## 2. Analysis of market failures, suboptimal investment situations and investment needs

This chapter is based on a detailed analysis of all relevant factors of demand and current supply.

### 2.1. Istrian County - main information

The Istrian County covers most of Istria - the largest Adriatic peninsula. The westernmost point of the Republic of Croatia is in Istria County (Bašanija, Cape Lako) at 45° north latitude. Located in the northeastern part of the Adriatic Sea, Istria is surrounded on three sides by the sea, and the northern border to the mainland is the line between Muggia Bay in the immediate vicinity of Trieste and the Gulf of Preluk, near Rijeka. With such a favourable geographical position, almost in the heart of Europe, halfway between the Equator and the North Pole, Istria has always represented a bridge connecting the Central European continental space with the Mediterranean.

Figure 2: Geographical position of the Istrian County



Source: [www.istra-istria.hr/index.php?id=263](http://www.istra-istria.hr/index.php?id=263)

The Istrian peninsula covers an area of 3.476 square kilometres. The area is shared by three countries: Croatia, Slovenia and Italy. A very small part of Istria, just north of the Mile Peninsula, belongs to the Republic of Italy. The Slovenian coast with the bay of Koper and part of the bay of Piran to the river bay of the Dragonja River is part of the Republic of Slovenia. The largest part, or 3.130 square kilometers (90% of the area), belongs to the Republic of Croatia. Most of the Croatian part of the peninsula is located in the Istrian County, covering an area of 2.820 km<sup>2</sup>, which is 4,98% of the total area of the Republic of Croatia. The rest of the administrative-territorial part belongs to the Primorje-Gorski Kotar County.

Administratively, the Istrian County is divided into 41 local self-government units, ie 10 cities and 31 municipalities. The Istrian County has a population of 208,055, which makes 4.85% of the total population of the Republic of Croatia. The coastal area is 445.1 km long (the indented coast is twice as long as the road). The administrative center of the Istrian County is the City of Pazin (8,638 inhabitants); and the economic, social and cultural center is the City of Pula (57,460 inhabitants).

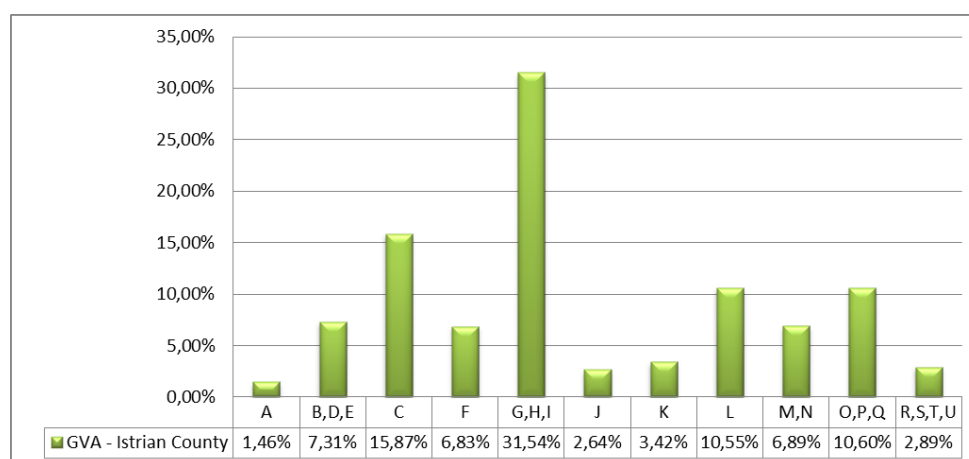
## 2.2. Identification of existing market failures

### 2.2.1. Demand side analysis

#### 2.2.1.1. Analysis of the Istrian County economy

According to the data from the Croatian bureau of statistics (DZS), the largest share in the Gross Value Added (GVA) structure of the Istrian County is made up of activities G, H, I (wholesale and retail trade, transport and storage, accommodation, preparation and serving of food) with 31,54%. This is followed by C (manufacturing) with 15,87%, O, P, Q (public administration and defense, education, health care and social work) with 10,60%, L (real estate business) with 10,55%. B, D, E (mining and quarrying, electricity, gas, steam and air conditioning supply, eater supply, sewage disposal, waste management and environmental remediation) with 7,31%, M, N (professional, scientific, technical, administrative) and support service activities) with 6,89% and F (construction) with 6,83%. Other activities generate a total of 10,40% of the GVA of the Istrian County.

Chart 1: Structure of the GVA of the Istrian County, divided by the type of activity for the year 2016



Source: DZS, 2019, Author

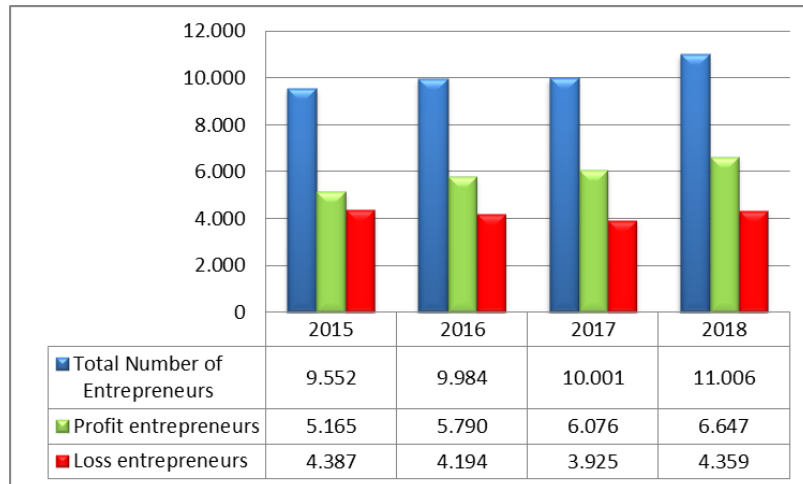
Istrian entrepreneurs in 2018 (11.006 of them) were employing 53.948 workers (by number of working hours). In the period from 2015 to 2018, there was a continuous increase in the number of entrepreneurs in the Istrian County. In 2018, there were 11.006 entrepreneurs operating in the Istrian County, with an increase of 15,22% compared to 2015. The number of entrepreneurs who have made an operating profit also had a positive trend over the observed period, so the share of profit-makers in 2018 was 60,39%, which is an increase of 6,32% compared to 2015 when 54,07% of entrepreneurs made an operating profit. In the observed period, a high proportion of non-profit-entrepreneurs was expressed, despite the





strengthening of economic activities and other positive economic trends; almost 40% of entrepreneurs didn't made an operating profit.<sup>6</sup>

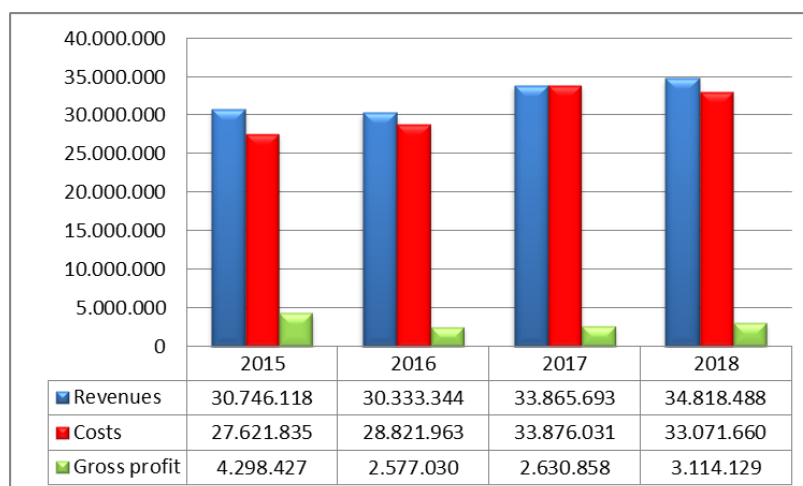
Chart 2: Number and structure of entrepreneurs (profits and losses) in the area of Istrian County from 2015 to 2018



Source: Financial Agency (FINA), 2019, Author

In 2018, Istrian entrepreneurs generated HRK 34,8 billion in revenue, which is an increase of 13,24% compared to the reference year 2015 (Chart 3). Despite the increase in operating income, there was a significantly higher increase in expenses (19,73%) and a decrease in gross profit (-27,55%) over the same period.

Chart 3: Revenues, costs and gross profit of Istrian entrepreneurs from 2015 to 2018



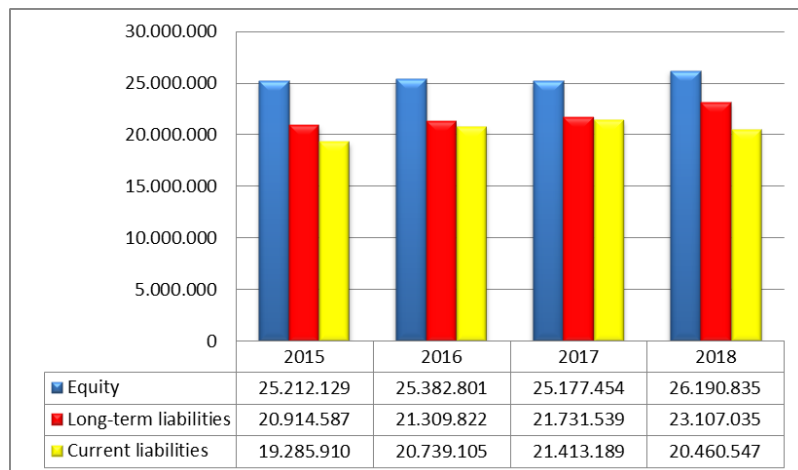
Source: Financial Agency (FINA), 2019, Author

In the balance sheets of Istrian entrepreneurs, during the observed period, there was a minimal increase in capital and reserves (+3,88%), with average amount of HRK 25,49 billion. Short-term liabilities of Istrian

<sup>1</sup> It refers to entrepreneurs who have submitted annual financial statements. Crafts and local family farms are not included.

entrepreneurs averaged HRK 20,47 billion annually and long-term liabilities averaged HRK 21,76 billion. We emphasize that the trend of increase in long-term liabilities amounted to HRK 23,1 billion in 2018, which represents an increase of 10,48% compared to 2015. The movement of the key liability position during the reference period is shown in figure 4.

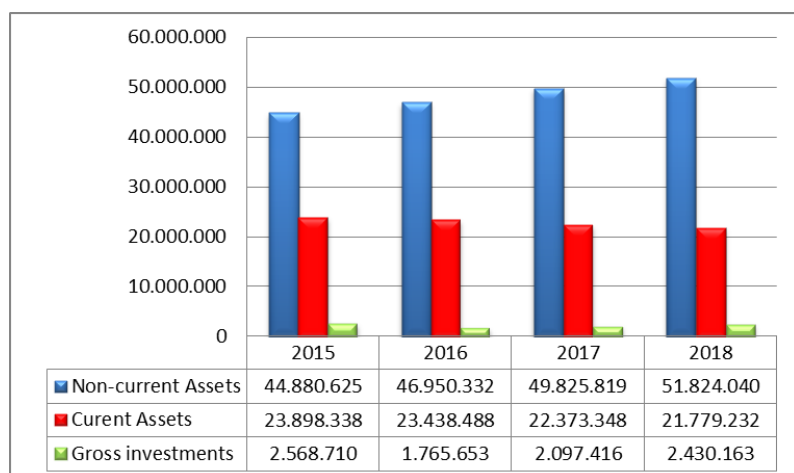
Chart 4: Key liabilities positions of Istrian entrepreneurs from 2015 to 2018



Source: Financial Agency (FINA), 2019, Author

In the observed period, there was a continuous increase in the value of non-current assets and a simultaneous decrease in the value of current assets of Istrian entrepreneurs (Chart 4). In 2018, the value of non-current assets was HRK 51,82 billion (+ 15,47% compared to 2015), and the value of current assets was HRK 21,78 billion (-8,87% compared to 2015). During the same period, Istrian entrepreneurs invested in total of HRK 8,86 billion, representing an annual average of HRK 2,21 billion in fixed assets. We emphasize that the realized HRK 2,43 billion in 2018 represents an increase of 15,86% compared to 2017, but also a decrease of 5,39% compared to the record year 2015 (recorded HRK 2,57 billion of investments).

Chart 5: The assets and investments of Istrian entrepreneurs from 2015 to 2018



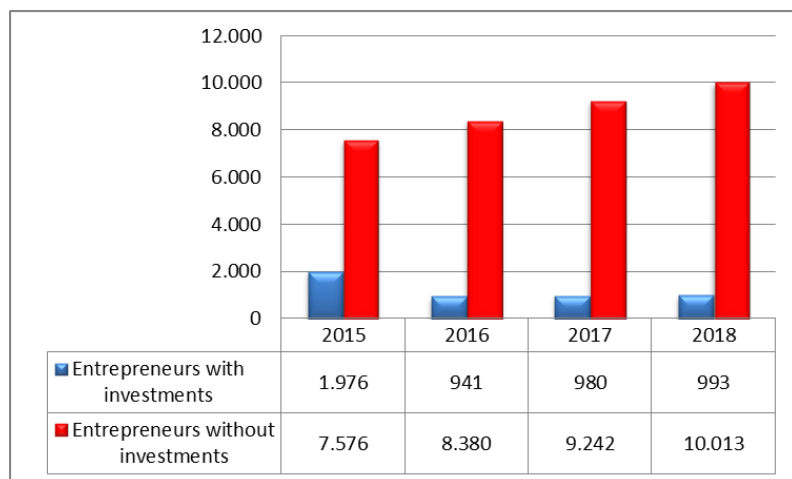
Source: Financial Agency (FINA), 2019, Author

The decrease in total investments compared to 2015 is correlated with the decrease in the number of entrepreneurs who have invested. Namely, if we look at the structure of entrepreneurs who invested during the observed period, it is evident that in 2015, 1.976 entrepreneurs, or 20,68% of Istrian



entrepreneurs, invested (Chart 6). The following year, the number of investors decreased by 52,38% and only 941 entrepreneurs invested. The next two years show a minimal increase in the number of investors (+52 entrepreneurs). However, in terms of share in the total number of entrepreneurs from 2016 to 2018, there is a trend of decreasing share of investors in the total number of entrepreneurs (in 2018 only 9,02% of entrepreneurs invested).

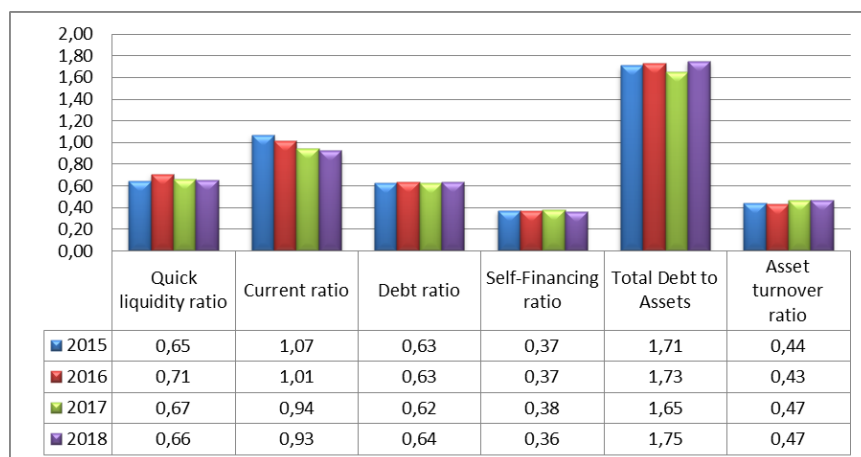
Chart 6: Trends in the number of investors in the Istria County from 2015 to 2018



Source: Financial Agency (FINA), 2019, Author

Chart 7 shows selected indicators of business performance of entrepreneurs in the Istria County in the period from 2015 to 2018.

Chart 7: Selected indicators of business performance of Istrian entrepreneurs from 2015 to 2018



Source: Financial Agency (FINA), 2019, Author

As shown in Chart 7, the value of the current ratio, which measures an entity's ability to settle its short-term liabilities over the observed period, continues to decline. The value of this coefficient should be 2 and not less than 1,5, therefore, taking into account the reported values of Istrian entrepreneurs whose average value in the observed period is 0,98 (with decreasing trend), it can be concluded that there is a significant risk of Istrian entrepreneurs inability to settle current liabilities. The value of the Quick Ratio indicates the ability of an entity to settle its liabilities without selling the stock and its value should not



be less than 0,9. Considering that the value of this coefficient averages 0,67 (with a downward trend in the observed period), it can be concluded that Istrian entrepreneurs are at high risk of the inability to settle their current liabilities with highly liquid assets. The trend of indebtedness of Istrian entrepreneurs has been shown previously, with a trend of increasing long-term liabilities. Therefore, the high value of the debt ratio of Istrian entrepreneurs is not surprising. Namely, in the observed period, the debt ratio averages 0,63 (the highest value is recorded in 2018) and should not exceed 0,5. The above value indicates that entrepreneurs in Istria have acquired a high proportion of their assets through borrowing and that there is a significant financial risk with possible future borrowings. In line with developments in high values of the debt ratio, the low value of the own financing coefficient, whose value should not be less than 0,5, is also recorded during the observed period. An average value of the own financing ratio of 0,37 indicates that less than 50,0% of the assets were financed from their own sources. Considering the two above indicators, it is evident that financial risk is higher than average for Istrian entrepreneurs, which will affect the availability and price of capital in the future for new investments and/or working capital. The financing ratio shows the ratio of debt to equity. The acceptable value of this coefficient ranges from 1 to 2, depending on the measure to which the entity uses financial leverage. However, even values not exceeding the upper limit of 2 but for example 1,7 or 1,8 indicate that there is a risk that the entrepreneur will not be able to service credit obligations on a regular basis. Especially if the liquidity ratios are below acceptable values. The average value of the financing ratio of 1,71 for Istrian entrepreneurs, and considering the low values of the liquidity indicators, indicate that there is a significant risk of inability to finance credit obligations in the future. Additional analysis of indebtedness indicators (indebtedness factors) revealed that the liabilities of Istrian entrepreneurs are significantly higher than the cash flows and acceptable values of the indebtedness factors. Namely, the value of the indebtedness factor in the observed period was 6,29, which is significantly higher than the recommended value of 3,5. This is another indicator that confirms the aforementioned assessment of the expressed financial risk of Istrian entrepreneurs.

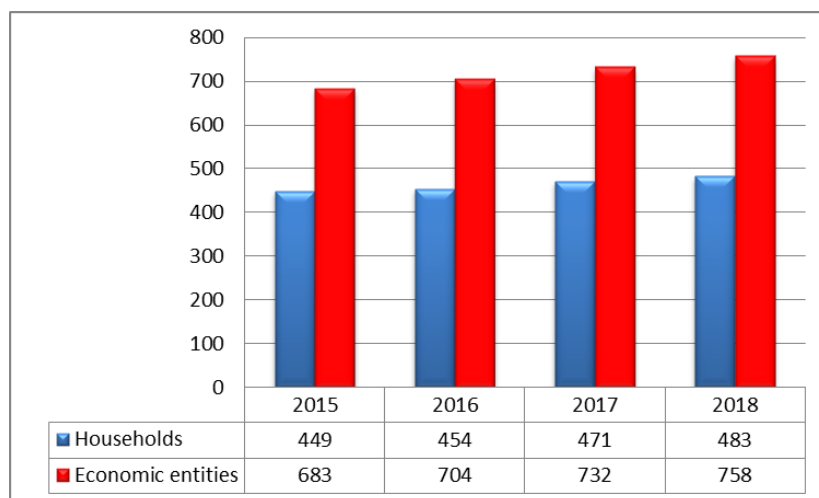
The coefficient of turnover of the total assets was selected to evaluate the activity/efficiency of the Istrian entrepreneurs. Its average value over the observed period was 0,45, which indicates that Istrian entrepreneurs create 0,45 units of money per unit of asset.

#### 2.2.1.2. Energy demand

Between 2015 and 2018, 4.734 GWh of electricity was consumed in the Istrian County. Observed by years, in 2015, 1.132 GWh was consumed, in the following 2016 1.158 GWh, in 2017 1.203 GWh, and in 2018 1.241 GWh of electricity. Thus, in 2018, there was an increase in electricity consumption of 9,63% compared to 2015, with an average annual increase in electricity consumption of 3,11%.



Chart 8: Electricity consumption in the Istrian County from 2015 to 2018 ( in GWh)



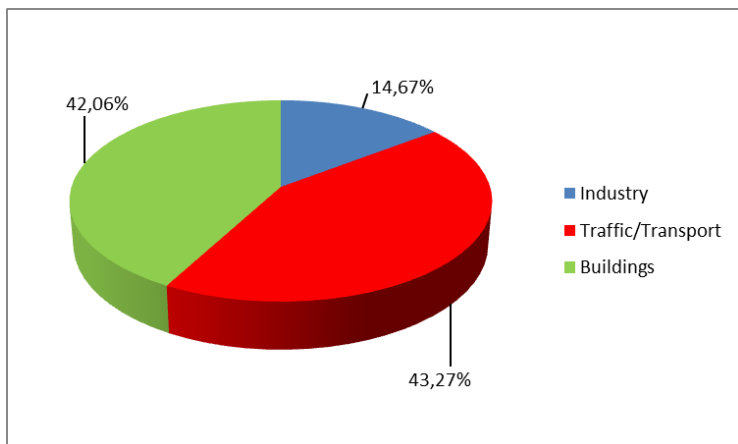
Source: HEP ODS, Elektroistra Pula, 2019, Author

According to the sources of consumption, from 2015 to 2018, the economy consumed 2.877 GWh of electricity (60,77% of total electricity consumed), while households consumed 1.857 GWh of electricity in the same period (39,23% of consumed electricity). The trend of increasing electricity consumption has been recorded both in the economy and in households. Electricity consumption in the observed period recorded faster growth in the economy than in households. The growth of electricity consumption in the economy averages 3,53% annually and in households 2,47% annually.

Since HEP-Distribution System Operator d.o.o.(HEP ODS) doesn't have data on electricity consumption by economic activities available, the data from the Energy Efficiency Action Plan of the Istrian County 2017-2019 will be used for further analysis.<sup>7</sup> The Istrian County consumes on average about 13,63 PJ of energy per year, or 3.787 GWh of energy, which is 5,51% of direct energy consumption in the Republic of Croatia in 2012. The total energy consumption in Istria is higher in reality due to the consumed coal in thermal power plant (TPP) Plomin and by the producers of building materials Holcim Koromačno, Calucem Pula and the lime factory in Raša, which consumes about 29 PJ of coal per year on average. Chart 9 shows the shares of direct energy consumption by sectors in the Istrian County.

<sup>7</sup> The consumption methodology and the document are available at the following link: [https://www.istra-istria.hr/fileadmin/dokumenti/novosti/sjednice\\_skupstine\\_2013/38/38-25-En\\_ucinkovitost\\_IZ\\_2017\\_2019.pdf](https://www.istra-istria.hr/fileadmin/dokumenti/novosti/sjednice_skupstine_2013/38/38-25-En_ucinkovitost_IZ_2017_2019.pdf)

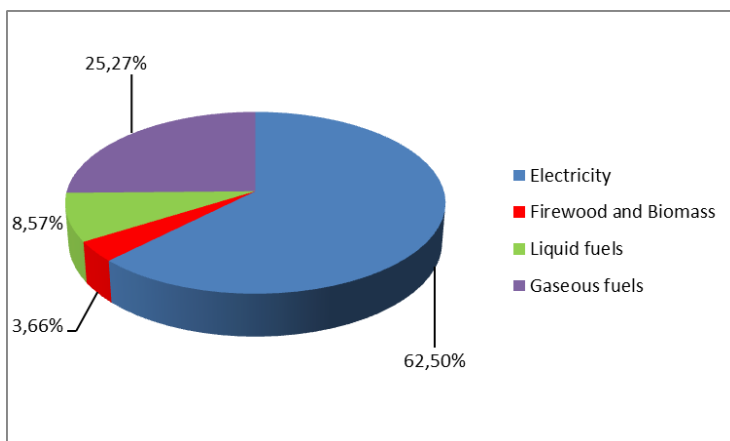
Chart 9: Direct energy consumption in Istrian County



Source: Energy Efficiency Action Plan of the Istrian County 2017-2019, Author

The highest energy consumption of 1.639 GWh is generated by traffic (43,27%), followed by the construction sector, which consumes 1.593 GWh. The industry has the lowest share of 14,67%, or 556 GWh. Chart 10 shows the share of energy consumption in the industrial sector by source.

Chart 10: Shares of energy consumption in industry by sources in the Istrian County

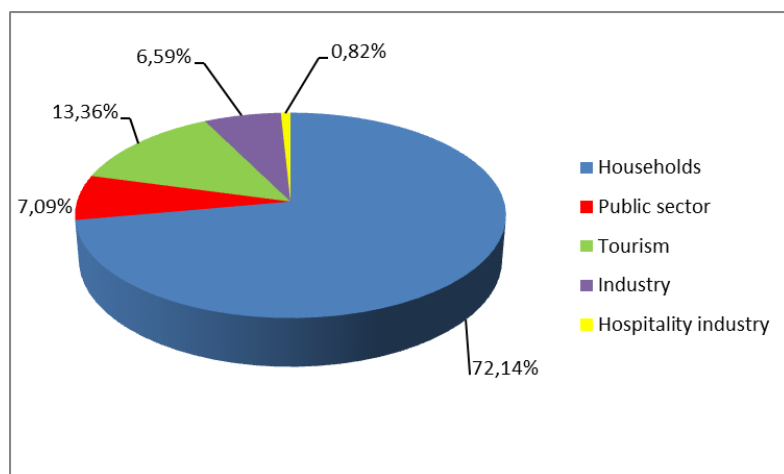


Source: Energy Efficiency Action Plan of the Istrian County 2017-2019, Author

Electricity consumption accounts for the largest share of industrial energy consumption with 62,50%, followed by gaseous fuels with 25,27%, liquid fuels with 8,57%, and firewood and biomass with 3,66%.

The total consumption of the building sector is 1.593 GWh, with the most consumed by subsectors in households (72,14%). The tourism sector is second in consumption with a share of 13,36% and its consumption is 212,85 GWh, followed by the public sector with consumption of 7,09% and industry and SMEs with consumption of 6,59%. The lowest energy consumption is recorded in the hospitality and commercial sectors and does not exceed 1% (Chart 11).

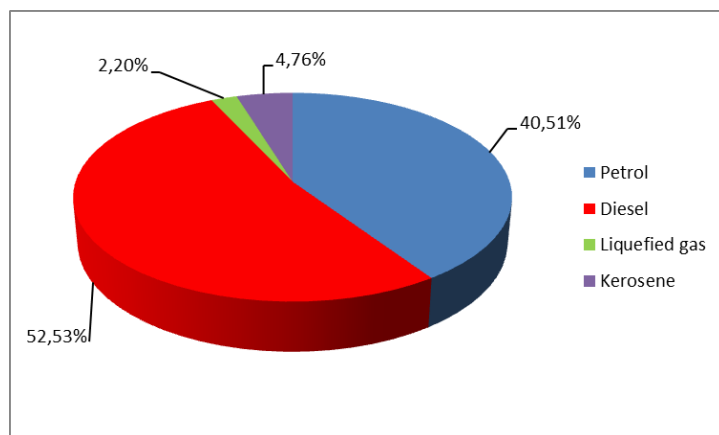
Chart 11: Energy consumption by subsectors in the building sector in the Istrian County



Source: Energy Efficiency Action Plan of the Istrian County 2017-2019, Author

In the transport sector, 5,9 PJ or 1.639 GWh is consumed annually. The sector is dominated by inland road transport, where about 95% of energy is consumed, and only 5% is consumed in the remaining modes of transport (air, sea and rail). Consumption in the transport sector by energy sources is shown in Chart 12.

Chart 12: Consumption in the transport sector by energy sources in the Istrian County



Source: Energy Efficiency Action Plan of the Istrian County 2017-2019, Author

### 2.2.1.3. Energy Efficiency Plans

In terms of content, Action and Annual energy efficiency plans of counties, cities and municipalities are a relevant indicator of energy demand in the Istrian County. Most of the measures defined in the Energy Efficiency Action and Annual Plans relate to:

- ✓ replacement of the joinery,
- ✓ buildings insulation,
- ✓ new installations and/or replacement of the heating/cooling system and preparation of hot water,



- ✓ replacement, improvement or installation of new lighting systems,
- ✓ transport sector (public),
- ✓ education of citizens, etc.

The implementation of these measures is carried out through the regular budget allocations of Local authorities, with a combination of grants from the Community and relevant institutions.

In 2016, the Istrian County spent HRK 11,37 million to implement energy efficiency measures. In 2017, HRK 6,55 million was planned for the implementation of energy efficiency measures, and HRK 9,39 million was spent or 43,46% more funds. In 2018, the Istrian County planned to spend HRK 8,92 million in energy efficiency measures, and by the end of the year HRK 5,76 million was spent. For 2019, the Istrian County planned to spend HRK 50,45 million, and by the end of November 2019, HRK 7,29 million was spent, or only 14,45% of the planned funds for energy efficiency measures. Table 1 shows the expected and achieved results of the annual energy efficiency plans in the Istrian County in the period 2016-2019.

Table 1: Expected and achieved results of annual energy efficiency plans in the Istrian County in the period 2016-2019

Year/Position	Planned	Achieved	Index(Achieved/Planned)
<b>2016.</b>			
Number of projects/measures implemented	/	48	/
Emission reduction CO2/t	/	289,17	/
Energy savings (KWh)	/	589.235,11	/
<b>2017.</b>			
Number of projects/measures implemented	17	44	2,588235
Emission reduction CO2/t	82,98	149,86	1,805977
Energy savings (KWh)	305.309,30	561.718,39	1,839834
<b>2018.</b>			
Number of projects/measures implemented	32	69	2,15625
Emission reduction CO2/t	177,6	75,20	0,423423
Energy savings (KWh)	655.802,87	226.209,00	0,344934
<b>2019.</b>			
Number of projects/measures implemented	80	33	0,4125
Emission reduction CO2/t	3.058,30	370,61	0,121182
Energy savings (KWh)	133.238	1.383.940,07	10,38698

Source: Annual Energy Efficiency plans of the Istrian County 2016.-2019.; Author





Table 1 shows that as from 2016, the Istrian County has implemented 194 energy efficiency projects/ measures, which resulted in energy savings of 2.761.102.57 KWh with an reduction in CO2 emissions of 884,84 t. Considering that HRK 34.338.495,52 was spent for the mentioned effects during the observed period, the average cost of reducing 1 t of CO2 in the territory of the Istrian County is HRK 38.807,58, and the cost of reducing 1 KWh of energy is an average of HRK 12,43. In addition, we emphasize the significant mismatch between the planned annual measures, the amount of implementation costs, energy savings and CO2 emissions, with the realized values. Better planning and forecasting can certainly contribute to a more efficient implementation of energy efficiency measures and the achievement of the desired energy, climate and environmental goals.

According to the current Action Plans for Sustainable Development of Cities and Municipalities in the Istrian County, significant investments are planned for the implementation of energy efficiency measures, i.e. energy savings, climate and environmental goals, by the end of 2020. Table 2 shows the expected values of investments and savings mentioned.<sup>8</sup>

*Table 2: Planned investments, expected energy savings, and climate and environmental impacts by 2020 according to measures from current local SEAPs*

Position	Period 2011/2013-2020
Energy Efficiency Investments (HRK)	466.427.489,37
Emission reduction CO2/t	182.645,33
Energy savings (KWh)	461.870,41

Source: Local SEAPs, IRENA d.o.o., Author

According to the table 2, in the period 2011/2013 till 2020, only in the area of 11 cities and municipalities in the Istrian County, energy efficiency investments were planned in the amount of HRK 466,43 million, which will result in energy savings of 461.870,41 MWh and reducing CO2 emissions by 182.645,33 tonnes.

Data for the remaining 30 local government units are not available, but it is estimated that they have planned at least HRK 500 million to increase energy efficiency by 2020. Therefore, the Istrian Local authorities plan to spend almost HRK 1 billion in energy efficiency measures in the mentioned period.

We point out that no data are currently available on the results of the implementation of the energy efficiency measure of the monitored local authorities from the applicable SEAPs. Therefore, for the purpose of making this Ex-Ante assessment, a thematic workshop was held on 27.11.2019. in Pula, attended by representatives of the Istrian County and several Istrian cities and municipalities. Representatives from counties, cities and municipalities stated that the implementation of measures under the current SEAPs were not implemented due to lack of funds, indicating that energy, climate and environmental goals related to energy efficiency increase will not be achieved by the end of 2020.

<sup>8</sup> The values relate to the cities of Pula, Buzet, Buje, Rovinj, Umag, Labin, Novigrad and Pazin, and the municipalities of Barban, Groznanj and Oprtalj.



## 2.2.2. Supply-side analysis

### 2.2.2.1. Financial instruments in the programming period 2014.-2020.

In the Republic of Croatia, currently, 10 financial instruments are in operation, within the OP "Competitiveness and Cohesion 2014-2020"(OPKK). The Financial Instruments are implemented by:

- ✓ Croatian Bank for Reconstruction and Development (HBOR),
- ✓ Croatian Agency for SMEs, Innovations and Investments (HAMAG-BICRO),
- ✓ European investment fund (EIF).

HBOR currently implements the following four financial instruments:

- ✓ ESIF Loans for growth and development under Priority Axis 3 "Business Competitiveness" of OPKK - larger investment loans with low interest rate and no regular charges charged for approval and use of loans
- ✓ ESIF loans for energy efficiency in public buildings under Priority Axis 4 "Promoting Energy Efficiency and Renewable Energy" by OPKK. These ESIF loans are intended to finance energy efficiency investments in public sector buildings for the purpose of achieving energy savings of at least 50% over annual heating/cooling energy consumption.
- ✓ ESIF loans for public lighting under Priority Axis 4 "Promoting Energy Efficiency and Renewable Energy" by OPKK. ESIF loans for public lighting have been formed to support the achievement of energy savings in public lighting systems that will result in a minimum 50% reduction in electricity consumption.
- ✓ ESIF loans for energy efficiency for entrepreneurs under Priority Axis 4 "Promotion of Energy Efficiency and Renewable Energy" by OPKK. The objective of this financial instrument is to reduce the consumption of supplied energy by at least 20% by increasing energy efficiency in manufacturing industries and in the service sector (tourism and trade), allowing equal amounts of results by using less input energy and reducing the share of conventional (fossil) fuels in total consumption energy by introducing renewable energy sources.

HAMAG-BICRO currently implements the following five financial instruments under Priority Axis 3 „Business Competitiveness“ OPKK:

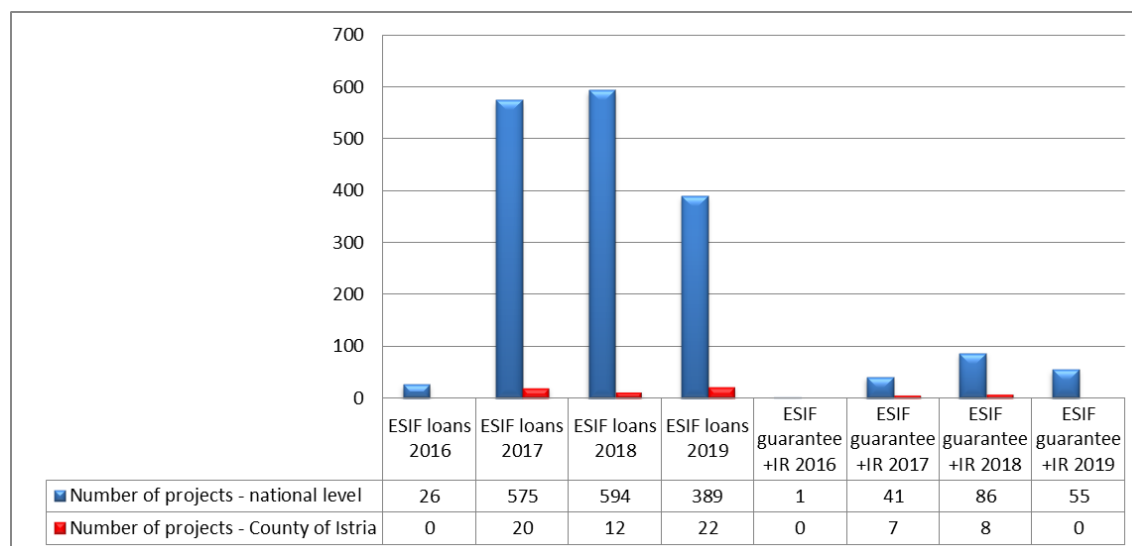
- ✓ ESIF Limited portfolio guarantee,
- ✓ ESIF Individual guarantee without interest rate subsidy,
- ✓ ESIF Individual guarantee with interest rate subsidy,
- ✓ ESIF Micro loans and
- ✓ ESIF Small loans.

EIF currently implements ESIF Risk capital fund - this financial instrument is focused on the early stages of investments for innovative entrepreneurs in technology sectors with high growth potential, especially in those sectors identified in the Smart Specialization Strategy of the Republic of Croatia.<sup>9</sup>

<sup>9</sup> <https://strukturnifondovi.hr/financijski-instrumenti/>

The biggest demand of entrepreneurs for financial instruments is recorded for the instruments implemented by HAMAG BICRO. Chart 13 shows the movement of demand for financial instruments intended for entrepreneurs in the period 2016-2020.

Chart 13: Demand for financial instruments targeted at entrepreneurs in the period 2016-2020



Source: HAMAG-BICRO, 2019, Author

Chart 13 shows that the highest demand is recorded in ESIF loans for the growth and development of entrepreneurs, in 2017 and 2018. At the end of 2019, there is a 34,51% decrease in the demand of entrepreneurs for this financial instrument compared to the previous year. A similar downward trend in demand is observed with interest-subsidized ESIF guarantees (-36,05% compared to 2018). If we look at the interest of Istrian entrepreneurs in financial instruments, it is evident that 69 entrepreneurs used these financial instruments during the observed period, which represents only 3,90% of the total number of users in Croatia. Compared to the total number of Istrian entrepreneurs (on average 10.135 entrepreneurs), only 0,68% of them used the mentioned financial instruments. Table 3 shows the number of users of financial instruments in the Istrian County and the value of loans/guarantees.

Table 3: Number of users of financial instruments in the Istrian County and the value of loans/guarantees in the period 2016-2019

Position	ESIF loans 2016	ESIF loans 2017	ESIF loans 2018	ESIF loans 2019	ESIF guarantee + interest rate 2016	ESIF guarantee + interest rate 2017	ESIF guarantee + interest rate 2018	ESIF guarantee + interest rate 2019
Number of projects-Istrian County	0	20	12	22	0	7	8	0
Total amount	0	5.284.842	3.281.600	5.189.806	0	38.952.074	27.938.239	0

Source: HAMAG-BICRO, 2019., Author

Table 3 shows that Istrian entrepreneurs were credited with a total of HRK 13.756.247,07, which represents an average of HRK 254.745,32 per entrepreneur. These are loans of relatively small value,

which were mainly used for the procurement of equipment and devices for micro and small enterprises (various activities; service, manufacturing, manufacturing). The financial instrument ESIF guarantee with interest rate subsidy was used by 15 Istrian entrepreneurs with a total value of HRK 66.890.313,60, representing an average amount of HRK 4.459.354,24 per company. This financial instrument has been used almost entirely for tourism investments.

It can be concluded that the interest of Istrian entrepreneurs in financial instruments, which are otherwise most wanted in Croatia, is extremely low (deviates from the county average by 0,86%).

#### 2.2.2.2. Financial instruments for energy efficiency and use of renewable energy sources

In the current programming period, the Republic of Croatia has not envisaged generous financing possibilities for energy efficiency projects with financial instruments, except for 3 measures/financial instruments implemented by HBOR:

1. „ESIF loans for energy efficiency“
2. „Environmental protection program“
3. „ESIF loans for public lightening “

“ESIF loans for energy efficiency” are funded by ESI funds through Operational Program "Competitiveness and Cohesion 2014-2020", Priority Axis 4 "Promoting Energy Efficiency and Renewable Energy Sources" - Specific Objective 4c1 "Reducing Energy Consumption" in public sector buildings". The objective of this financial instrument is to finance investments in energy efficiency and to encourage the use of renewable energy in public sector buildings for the purpose of achieving energy savings. This financial instrument supports energy efficiency measures that will result in a reduction in heating/cooling energy consumption of at least 50% annually. The financial instrument is intended exclusively for entities that have previously received a financing decision following the call for proposals "Energy Recovery and Use of Renewable Energy in Public Sector Buildings". Eligible beneficiaries of this financial instrument are:

- ✓ local and regional authorities,
- ✓ public institutions or institutions engaged in social activities,
- ✓ state bodies, ministries, central state offices, state administrative organizations and state administration offices in counties,
- ✓ religious communities engaged in social activities,
- ✓ associations engaged in social activities and have public authority regulated by special law.

The general conditions of this financial instrument are:

- ✓ Loan amount - the lowest is HRK 100.000,00 and the highest is HRK 60.000.000,00
- ✓ Disbursement - up to 36 months
- ✓ Grace period 12 months
- ✓ Repayment term - up to 14 years, including loan repayment period is repaid in monthly, quarterly or semi-annual rate
- ✓ Interest rate - It is determined by the degree of development of the area where the investment is carried out (from 0,1% to 0,5%)
- ✓ no usual extra credit costs (different fees)



From 1.1.2014. till 30.9.2019. in the Istrian County, only one loan was approved in the amount of HRK 2,8 million.

„Environmental protection program“ is a financial instrument intended for lending for environmental, energy efficiency and renewable energy projects, and the following projects may be funded:

- ✓ landfill remediation, encouraging the prevention and reduction of waste, waste management, waste treatment and use of valuable waste,
- ✓ promoting cleaner production by avoiding and reducing waste and emissions in the production process,
- ✓ protection and conservation of biological and landscape diversity,
- ✓ implementation of national energy programs,
- ✓ encouraging the use of renewable energy sources (sun, biomass, etc.),
- ✓ encouraging sustainable construction,
- ✓ promotion of cleaner transport,
- ✓ and other projects that protect the environment, achieve energy efficiency and introduce renewable energy.

The program is implemented by HBOR directly or through commercial banks, and the following users are eligible:

- ✓ local and regional authorities,
- ✓ utility companies,
- ✓ companies,
- ✓ crafts,
- ✓ obiteljska poljoprivredna gospodarstva,
- ✓ other legal entities.

The general conditions of this financial instrument are:

- ✓ Loan amount - the lowest is HRK 100.000,00 and the highest is not limited
- ✓ Disbursement - up to 12 months
- ✓ Grace period up to 36 months,
- ✓ Repayment term - up to 15 years, including grace period, loan repayments are repaid in monthly, quarterly or semi-annual rates,
- ✓ Interest rate - 4,0%,
- ✓ Credit processing and booking fees are payable.

From 1.1.2014. till 30.9.2019. in the Istrian County, only two loans were approved in the amount of HRK 9,5 million.

„ESIF loans for public lightening“ are dedicated only for local public authorities for the following purposes:

- ✓ Disassembly and disposal of lamps and changed equipment;
- ✓ installation of lighting and control equipment;

- ✓ relocation from the power station and/or new installation of control cabinets lighting control with measurement and protection equipment;
- ✓ installation of new electricity billing and control meters;
- ✓ updating of lighting sites, geometry correction and/or cable infrastructure of existing public lighting installations;
- ✓ preparation of studies and setup of temporary traffic regulation for the purpose of performing lighting measurements and implementation of energy renovation activities for public lighting;
- ✓ expert supervision, etc.

This Financial instrument is directly distributed by HBOR. The general conditions of this financial instrument are:

- ✓ Loan amount - the lowest is HRK 500.000,00 and the highest is HRK 15.000.000,00
- ✓ Disbursement - up to 12 months
- ✓ Grace period 6 months
- ✓ Repayment term - up to 10 years, including loan repayment period is repaid in monthly, quarterly or semi-annual rate
- ✓ Interest rate - It is determined by the degree of development of the area where the investment is carried out (from 0,1% to 0,5%)
- ✓ no usual extra credit costs (different fees)

From 1.1.2014. till 30.9.2019. in the Istrian County, only three loans were approved in the amount of HRK 8,8 million.

As with the HAMAG-BICRO financial instruments, there is a markedly low interest of users in the Istrian County for financial instruments.

### 2.2.2.3. Grants

#### Grants from ESI funds

In accordance with the Operational Programme for the current programming period, for the promotion of energy efficiency and renewable energy is primarily intended thematic objective 04 - Supporting the transition to the economy with low CO2 emissions in all sectors (4b - Promotion of energy efficiency and use of renewable sources of energy in enterprises ( for 4b1 and 4b2)); 4c - Supporting energy efficiency, smart energy management and use of RES in public infrastructure, including public buildings and in the housing sector (for 4c1 and 4c4)), under the Competitiveness and Cohesion Operational Program 2014-2020. With the stated thematic objective of the same OP energy efficiency measures and/or the use of renewable energy sources can be financed through the following thematic objectives:

- ✓ 01 - Strengthening research, technological development and innovation (1b - Promotion of business investments in innovation and research and developing links and synergies between enterprises, IR centres and higher education, in particular product and service development, technological integration, social innovation, eco-innovation, cultural and creative industries, public service, incentive requirements, networking, clusters and open innovation through smart



specialization, technological strengthening and applied research, pilot lines, pre-production validation, advanced manufacturing capabilities and initial production, especially in key technologies that drive development and innovation and dissemination of general-purpose technologies; 1b1 - New products and services as a result of research, development and innovation (R&D) activities; 1b2 - Strengthening the business sector's R&D (R&D) activities through the creation of a favourable innovation environment)

- ✓ 02 - Use of information and communication technology (2a - Expanding broadband availability and building high-speed networks and supporting the adoption of new technologies and networks for the digital economy; 2a1 - Developing next-generation broadband infrastructure in areas without next-generation broadband infrastructure and without sufficient commercial interest, to maximize social and economic well-being)
- ✓ 03 - Business competitiveness (3a - Promoting entrepreneurship, in particular by facilitating the economic exploitation of new ideas and encouraging the creation of new businesses, including through business incubators (3a1 Better access to finance for SMEs); 3d - Supporting the capacity of SMEs to grow at regional, national and international market and involvement in innovation processes (3d2 Improved Innovation of SMEs)
- ✓ 07 - Promoting sustainable transport and removing bottlenecks in key network infrastructure (7ii - Development and upgrading of environmentally friendly transport systems and low CO2 transport systems, including inland waterways and maritime transport, ports, multimodal links and airport infrastructure, to promote sustainable regional and local mobility)

From 1.1.2014. till 30.9.2019. a total of 47 Calls for proposals for the stated specific objectives were published. Table 4 shows the number of Calls published, the number of applications, the number of projects approved and the total eligible expenditure.

*Table 4: Number of Calls published, number of applications, number of projects approved and total eligible expenditure in the current programming period by specific objectives selected*

Specific objective	Number of Calls published	Number of applications	Number of signed contracts in force	Total eligible expenditure of signed awarded contracts in force
1b1	1	155	86	1.181.848.935,74
1b2	3	33	2	133.788.836,00
3a1	3	7	7	3.309.878.835,00
3d2	5	586	189	275.976.012,24
4b1	2	130	90	833.275.328,24
4b2	2	78	78	540.968.738,90
4c1	5	1.415	866	3.050.830.771,63
4c4	1	1	1	152.000.000,00
7ii1	3	21	13	455.615.595,18
7ii2	21	51	37	1.074.966.843,02



7ii3	1	1	1	1.165.671.327,00
<b>TOTAL</b>	47	2.478	1.370	12.174.821.222,95

Source: MRRFEU, 2019., Author

Of the total of 2.478 project applications that can be linked, to a greater or lesser extent, to increased energy efficiency and the use of renewable energy sources, 1.370 have been signed. The total value of eligible costs of approved projects was HRK 12,17 billion. We emphasize that the Call for Proposals for entrepreneurs was of great interest and as a rule the Calls were closed before the prescribed closing date of the Call. The reasons for early suspension are mainly contained in a large number of applications and values of applications that significantly exceed the amount of allocated funds. Extreme interest also prevailed in energy efficiency measures intended for the public sector and natural persons (as a rule for energy renovation of buildings in the public sector and buildings).

### Grants from other sources

In the current programming period, almost all local authorities in the Istrian County create annual incentive programs for entrepreneurs. As a rule, these are smaller non-refundable financial amounts from HRK 10.000,00 till HRK 30.000,00 or co-financing of interest rates on credit obligations. The measures are aimed at the growth and development of entrepreneurs, and primarily start-ups. During the market research or communication with local authorities, no programs for promoting energy efficiency and the use of renewable energy sources intended for Istrian entrepreneurs were recorded. In the period from 2013 to 2015, a significant number of local authorities in the Istrian County implemented, independently or in cooperation with the Environmental Protection and Energy Efficiency Fund (EPEEF), measures to promote energy efficiency and/or use of renewable energy sources. The measures were intended exclusively for households or single-family homes, and the following activities were funded:

- ✓ facade renovation and installation of thermal insulation,
- ✓ roof restoration,
- ✓ joinery replacement,
- ✓ installation of more energy efficient heating systems (use of biomass, gas),
- ✓ use of solar energy etc.

Table 5 shows the number of applications submitted, the number of approved projects and the value of energy efficiency and renewable energy projects in selected local authorities.

*Table 5: Number of applications submitted, number of approved projects and value of energy efficiency and renewable energy projects in selected IOLCA*

Local authority	Number of applications submitted	Number of approved projects	Value
Buje	14	14	702.641,57
Novigrad	222	148	3.357.937,17
Buzet	53	36	2.717.386,15





Poreč	62	28	1.340.389,61
Labin	23	17	1.405.294,72
Umag	65	65	3.263.449,76
Rovinj	21	21	1.000.000,00
Vodnjan	24	24	1.000.000,00
Fažana	23	23	1.085.000,00
Brtonigla	14	7	500.000,00
Medulin	19	14	812.114,64
Grožnjan	23	18	880.031,93
Svetvinčenat	18	18	700.000,00
Tinjan	19	19	500.000,00
<b>TOTAL</b>	<b>600</b>	<b>452</b>	<b>19.264.245,55</b>

Source: IRENA d.o.o., 2019., Author

As shown in Table 5, in 14 municipalities of Istrian County in the period from 2013 to 2015, 452 energy efficiency and/or renewable energy projects were implemented through grants. The total value of the implemented projects was HRK 19,26 million, which is an average of HRK 1.376.017,54 per unit of local authority. Assuming that 80% of cities and municipalities in the Istrian County implemented the above measures, 1.059 energy efficiency and/or renewable energy projects worth HRK 45,12 million were implemented in the Istrian County in the observed period (for households).

#### 2.2.2.4. ESCO model

The ESCO model is primarily in the function of developing, implementing and financing projects with the aim of improving energy efficiency and reducing energy costs. There is only one ESCO company operating in the Republic of Croatia; HEP ESCO Ltd. HEP ESCO supports projects:

- ✓ energy efficiency of public lighting,
- ✓ energy efficiency and use of renewable energy sources in industry,
- ✓ energy efficiency and use of renewable energy sources in the building sector
- ✓ energy efficiency and use of renewable energy sources in energy supply systems.



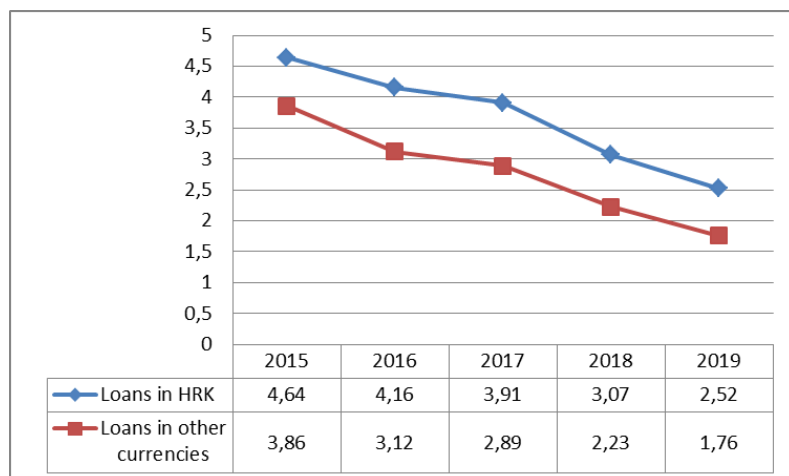
During the market analysis, it was identified that projects in Novigrad, Rovinj and Pula (public lighting) and several entrepreneurs were financed through ESCO models in the Istrian County. According to HEP ESCO data, the total value of projects in the Istrian County was HRK 8,5 million (excluding VAT).<sup>10</sup>

In terms of the use of the ESCO model, the County of Istria does not deviate from the national average as this model is rarely used in financing energy efficiency and RES projects.

#### 2.2.2.5. Characteristics of the financial market

There are 25 credit institutions operating in the Republic of Croatia. According to the Croatian National Bank (HNB) report, credit institutions are covered by quality instruments and resistant to possible market shocks.<sup>11</sup> The economic recovery, accompanied by continued GDP growth, as a result of boosting export, increasing investment and personal spending, has determined the stabilization of the financial market and the reduction of credit risks for the Republic of Croatia. Interest rates on corporate loans have certainly been reduced by historically low interest rates in the global financial market. Chart 14 shows the movement of interest rates for non-financial corporations in the period 2015-2019.

Chart 14: Interest rates for non-financial corporations in the Republic of Croatia from 2015 to 2019 (\* excluding foreign currency clause)



Source HNB, 2019, Author

Chart 14 shows that the credit market recorded a continuous decline in interest rates on kuna and foreign currency loans. Thus, in 2019, interest rates on kuna loans to the Croatian economy fell to the historically lowest level of 2,52%. Interest rates on foreign currency loans to the Croatian economy are even lower, with an average of 1,76% in 2019, which is also historically the lowest value of interest rates on foreign currency loans since Croatian independence.

The low interest rate in the credit market is one of the reasons for the low interest of Istrian entrepreneurs for the use of financial instruments, especially for those who have high quality collateral and high creditworthiness.

<sup>10</sup> Source: Interview with employees of HEP ESCO d.o.o.

<sup>11</sup> <https://www.hnb.hr/analize-i-publikacije>



## 2.3. Establishing the evidence of market failure and suboptimal investment situations

### 2.3.1. Demand-side market failures

The main factors of demand for financial instruments intended to increase energy efficiency and use of RES by entrepreneurs are the needs of the entrepreneurs, their investment and financial capacity, and the level of achieved competitiveness. The presented analysis of the economy of the Istrian County shows that there is an increase in the number of entrepreneurs, but at the same time, the share of entrepreneurs operating with loss is not reducing. In 2018, 39,60% of entrepreneurs were operating at a loss, which eliminates them as potential users of financial instruments right away and is instantly reducing the demand market for financial instruments. Considering that on average 10% of entrepreneurs, or about 1.000 entrepreneurs, have been investing on average over the last three years, they would represent the upper limit of demand.

The analysis of the performance indicators of Istrian entrepreneurs indicates the relatively poor liquidity, the trend of increasing long-term liabilities, the unfavourable ratio of the share of financing sources, the unfavourable debt-equity ratio, and the extremely long maturity of the assumed long-term liabilities. All of the above indicates that Istrian entrepreneurs are medium to high risk in terms of the use of financial instruments and that they have low credit potential.

The energy needs of the Istrian economy are constantly increasing. Consumption of the most used energy product, electricity, recorded a continuous growth, with no significant reduction in energy losses from other sources. Energy efficiency plans are made without clear consistency with other coherent plans, so the expected effects of energy savings are rarely achieved. The problem of the high price paid for energy savings and climate and environmental goals is also expressed.

Insufficient efficiency in the use of funds to achieve energy and other related objectives prevents local authorities from proactive promotion of energy efficiency and RES use, although given the amount of allocated budgetary resources there is an objective possibility.

Istrian entrepreneurs are insufficiently informed about the possibilities and benefits of using grants from ESI funds and especially financial instruments. A significant number of entrepreneurs are not at all familiar with the term financial instrument and what it represents, or how it can be used effectively to enhance competitiveness. The reason for the lack of information is the insufficient communication with the local authorities and the inefficient dissemination of information by the competent public bodies.

### 2.3.2. Supply-side market failures

Supply-side analysis has been considered from a broader perspective (including grants from ESI funds), due to the lack of relevant financial instruments for increase of energy efficiency and use of RES, but also to identify trends in the use of Cohesion Policy instruments in general. The only financial instrument for energy efficiency and RES that can be used by Istrian entrepreneurs, from 1.1.2014. was used only by two entrepreneurs.



Local authorities and other public bodies are not interested in the financial instruments in question. Only five beneficiaries took advantage of the three available financial instruments; two entrepreneurs above mentioned and three local government units, with only around HRK 20 million being used. Slightly higher interest is recorded in financial instruments intended for entrepreneurs for growth and development, but not close to the available capacity. It is important to emphasize that the Istrian entrepreneur's interest in financial instruments is lower than the national average, whether the type of instrument involved.

Compared to the financial instruments, much bigger demand is for the grants from ESI funds; at the national and county level.

ESCO model for financing energy efficiency projects and RES has not taken hold in line with expectations. In the Istrian County, only a few local authorities and enterprises used the model. The probable reason for the poor use of the ESCO model is the demand for collateral and the high level of risk.

The financial market in the Republic of Croatia is increasingly developing, with historically low values of interest rates on corporate loans. Therefore, Istrian entrepreneurs who are familiar with inefficient bureaucracy and lengthy process of preparation and evaluation of project proposals, and later demanding controls and reporting, prefer to take loans from commercial banks. On the other hand, commercial banks borrow from creditworthy and financially sound entrepreneurs, which further reduces the potential market for financial instruments placements.

### 2.3.3. Suboptimal investment situations

One of the negative factors contributing to suboptimal investment situations is the high level of centralization of the Public Calls management system, which should contribute more to the achievement of regional energy, climate and environmental objectives. The above mentioned is probably the biggest reason for unrealistic placed goals at the county and local level, and consequently the lack of input from entrepreneurs to achieve the expected effects of different energy efficiency measures and use of RES. However, more active involvement of local authorities requires the training of administrative staff.

The lengthy process of preparing project proposals, often accompanied by high costs, is also one of the significant negative factors. However, since these are primarily financial instruments intended for entrepreneurs, it is necessary to emphasize the lengthy processes of evaluation of project proposals, i.e. approval and contracting, which at the outset negatively affects the decision of the entrepreneur to use financial instruments.

Energy efficiency and/or RES projects are typically characterized by a low rate of return and a relatively long payback period, so entrepreneurs prefer to invest in modernizing and/or expanding production.

Entrepreneurs who decide to invest in increasing energy efficiency and/or use of RES have usually already modernized technology and upgraded business processes, so these investments are designed to reduce operating costs (energy costs) to further increase their level of competitiveness in the market. Assuming that their energy costs have a significant proportion of their total operating expenses.

The unfavourable financial capacities of Istrian entrepreneurs reduce the availability of capital and increase its price. This is especially pronounced for beginner entrepreneurs.



### 3. Assessment of the added value of the financial instrument

It was previously explained that in the current programming period, the Republic of Croatia implements only 3 types of financial instruments for energy efficiency improvement and use of RES, intended primarily for the public sector. In the current and previous pre-accession period, no typical financial instruments intended exclusively for SMEs were implemented. Therefore, the assessment of the added value of a financial instrument cannot be made on the basis of an analysis of specific qualitative and quantitative indicators of added value, based on the experience and effects of the implementation of these specific financial instruments. Against this background, the assessment of the added value of a financial instrument is conducted on the basis of the assumed future effects of the innovative financial instrument proposed in the Ex-Ante assessment in question. The needs and preferences of key stakeholders in the Istrian County (direct and indirect users) are also discussed.

In principle, the added value of an innovative financial instrument intended exclusively to improve energy efficiency and use of RES comes from:

- ✓ positive effects on improving the availability of capital for SMEs,
- ✓ improvements in the availability of capital for micro-entrepreneurs,
- ✓ increase in investments in energy efficiency and use of renewable energy sources,
- ✓ contributions to the realization of SEAP/SECAPs.
- ✓ contribution to the achievement of energy, climate and environmental objectives of the EU.

The proposed innovative financial instrument is determined by all supply and demand specificities identified through market analysis. In addition to a detailed qualitative and quantitative analysis of the supply and demand markets, surveys of all relevant stakeholders were conducted for the purpose of developing the Ex-Ante analysis in question;

- ✓ SMEs as main users,
- ✓ Local authorities in the Istrian County area.

In addition to the survey conducted, direct interviews were conducted with representatives of three commercial banks and Croatian Bank for Reconstruction and Development.

The goals of the survey and interview conducted were to:

- ✓ identify investment potential in the next programming period,
- ✓ identify preferred sources of financing for new investments,
- ✓ identify preferred financing models for new investments,
- ✓ identify the optimal model for an innovative financial instrument,
- ✓ identify the relevant factors for the implementation strategy of an innovative financial instrument.

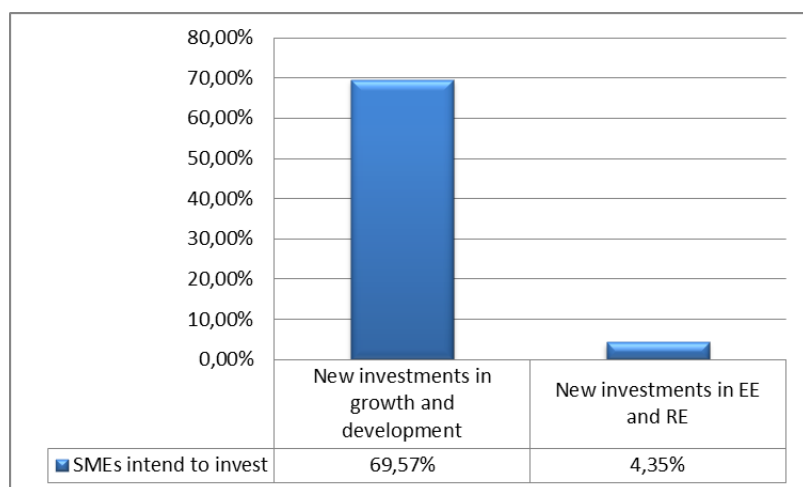
A survey of Istrian entrepreneurs was conducted on a sample of 23 entrepreneurs. Response rate was below the satisfactory level. The survey was conducted for 35 days, and more than 180 entrepreneurs were contacted directly and indirectly (through associations of entrepreneurs and craftsmen, cities, municipalities and other institutions), with a response rate of only 12,78%. The reasons for the low response may be:



- ✓ lack of time,
- ✓ lack of interest for participation in the survey,
- ✓ lack of good communication with the public sector,
- ✓ unbelief of public institutions, etc.

In the area of Istrian County, in the next period most entrepreneurs intend to implement new investment projects. 69,57% of them intend to invest or would invest in growth and development, and 4,35% in EE and RES. The implementation of investments is determined by the availability of capital and financing models (EU funds, financial instruments, co-investment funds, etc.)

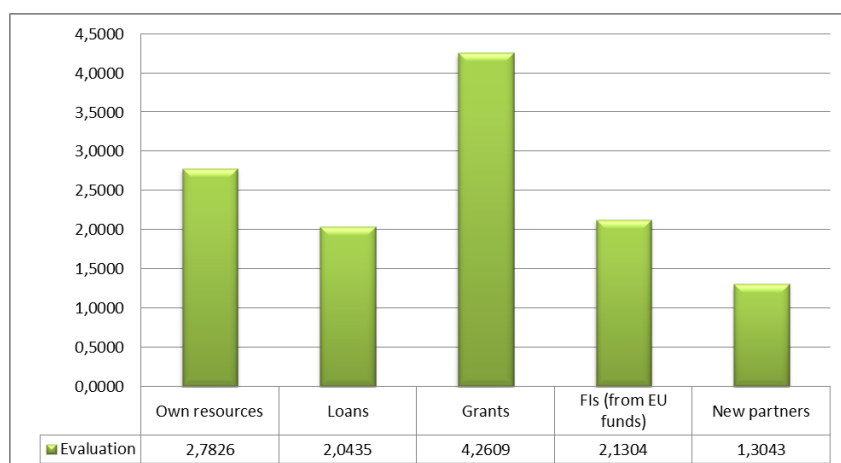
Chart 15: Planned investments in the next programming period (in the %)



Source: Survey, 2019., Author

Most of Istrian entrepreneurs as the primary source of funding would like to use grants from EU funds.

Chart 16: Preferred sources of financing for investment projects



Source: Survey, 2019., Author

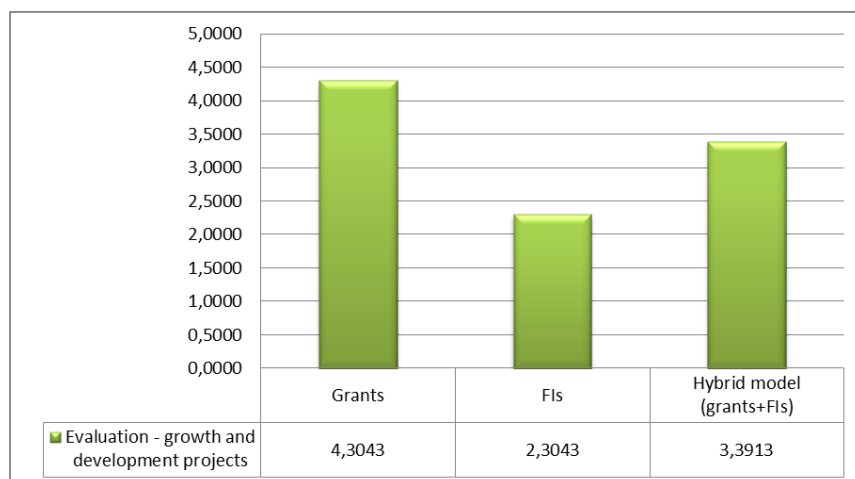
According to the ratings, Istrian entrepreneurs prefer to use their own funds in relation to credit and/or financial instruments. As a source of financing at least preferred are sources from new partners and/or investors.



Given that most entrepreneurs see Community grants as a most desirable source of funding, additional questions focus on expressing the preferences of the Community assistance model.

For investment projects for growth and development, grants from EU funds were selected as the preferred financing model. Then, with an average rating of 3,39, a hybrid model is presented, which is a combination of grants from EU funds and a financial instrument and the least preference being recorded is for a financial instrument financing model (average rating 2,30).

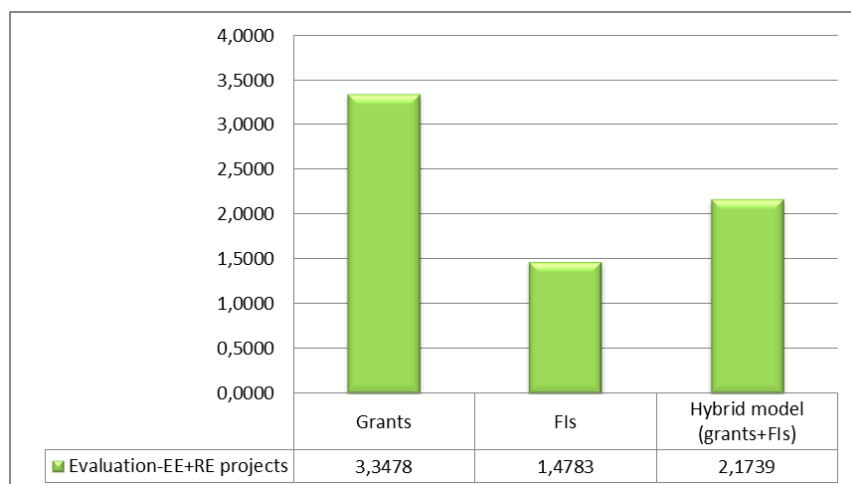
Chart 17: Preferred financing model for growth and development (from EU funds)



Source: Survey, 2019., Author

Chart 18 shows the preferred financing model for investments in improvement of energy efficiency and use of renewable energy sources, financed from EU funds.

Chart 18: Preferred financing model for EE and RE projects (from EU funds)



Source: Survey, 2019, Author

Compared to the ratings shown for the preferred financing model for R&D projects, the investment projects for EE and RES have lower average ratings for all models, which is correlated with the low interest of entrepreneurs for investing in improving EE and use of RES. However, the highest average rating remains for the grants from EU funds (average rating 3,35). This is followed by a hybrid model of EU

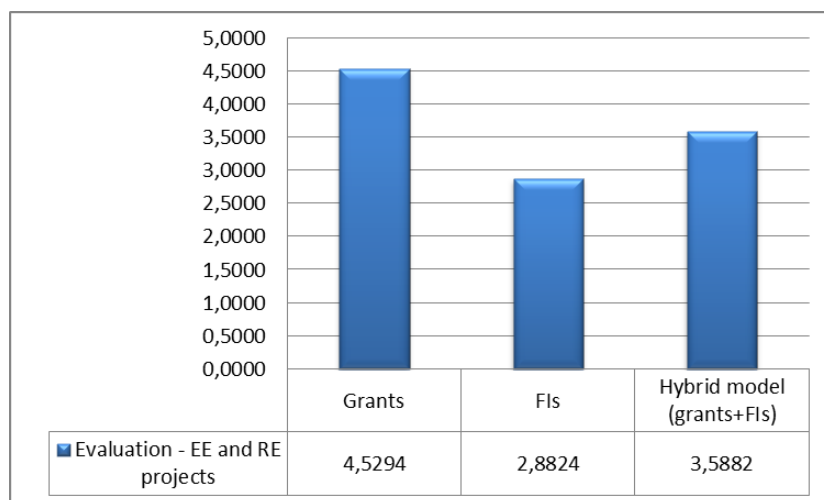


funded grant and a financial instrument (average rating 2,17), and the model that records the lowest rating or preferences is the financing model of an financial instrument (average rating 1,48).

The survey for public sector was conducted on a sample of 17 local authorities in the Istrian County. Response rate was above average (85%). Part of the questions referred to Block 2, so this section of the document will only show the answers to the questions relevant to the Block 1.

Compared to the entrepreneurs ratings, the financing models for EE improvement projects and the use of RES in public sector, significantly higher average scores across all models were detected.

Chart 19: Preferred financing model for EE and RES projects (from EU funds) in public sector



Source: Survey, 2019, Author

The preferred financing model is still the one related to grants from EU funds (average rating 4,53). This is followed by the hybrid model of EU funded grants and a financial instrument (average rating 3,59), and the model that records the lowest rating or preferences is the financing model of an financial instrument (average rating 2,88). The reasons for the higher average ratings of the presented financing models for EE and RES improvement projects related to the ratings from private sector are the business objectives. The public sector does not aim to generate business profits but to provide public goods and services. Entrepreneurs, on the other hand, operate on the free market, are exposed to numerous business risks, cost increases, increased competition, etc., and with all this mentioned, they must earn a sufficient level of business income that will result with an acceptable/desired rate of return.

Taking into account all the presented features of the supply and demand side of market in the Istrian County, as well as the preferences of Istrian entrepreneurs for financing investment projects for the improvement of EE and use of RES, it is evident that in order to increase their number, it is necessary to create an innovative financial instrument. With a classical financial instrument, which would represent a more affordable and cheaper credit arrangement, no significant progress can be made in increasing the number and amount of investments in improving the EE and use of RES in the Istrian County. As already stated, the reasons are numerous and arguable, and again we point out that interest rates in Croatia are at historically low levels (from 1,76% for loans in foreign currency, to 2,52% for loans in Croatian kuna). One of the problems of reduced demand is also low share of manufacturing and processing activities in the total economy, which, as a rule for the implementation of projects in this area can significantly reduce operating costs.



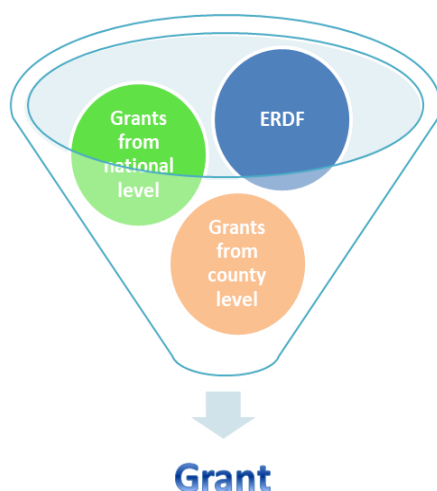
We emphasize that every investment project related to the improvement of EE and use of RES do not only contributes to reducing the entrepreneur's costs and enhancing its competitiveness, but is directly and multiplicative in the function of contributing to EU objectives;

- ✓ increasing the competitiveness of the European economy,
- ✓ achieving energy, climate and environmental objectives.

Therefore, it can be concluded that for projects related to EE improvement and use of RES it is justified and desirable to create innovative financial instruments, namely a hybrid model, which in addition to low interest rates and/or collateral provides additional measures to encourage entrepreneurs to invest (especially micro and small enterprises). According to the results of the statistical analysis of the use of Community financial instruments and grants, as well as the results of surveys, the right measure or the trigger that would increase the investments of SMEs in improving the EE and the use of RES in the Istrian County, are grants combined with a financial instrument. Therefore, a reasonable percentage of the grant would encourage the use and increase of absorption of financial instruments, which would directly result with an increase in the number and amount of investments, the achievement of local SEAP targets and relevant EU-level targets. Considering that each County has its own energy strategies and action plans, it is possible to allocate part of the budget to enhance improvements in EE and use of RES by SMEs, ie co-financing the grant amount. This would reduce the share of EU co-financing of the grant and it would increase the national one, while reducing the burden on the central government budget. On the other hand, subdividing the powers and responsibilities of implementing an innovative financial instrument into lower, county level, would result in greater efficiency of the financial instrument and consequent positive effects. This proactive approach of involving counties in the preparation and implementation of the hybrid financing model would also have a positive impact on the burden on senior management levels and, in addition, on the overall absorption capacity of the Republic of Croatia in terms of utilization of all forms of Community assistance that serve the Cohesion Policy objectives.

Grant sources would be:

- ✓ grants from ERDF,
- ✓ national contribution I (central government funds),
- ✓ national contribution II (local and regional authorities funds).



The amount of the contribution from regional (counties) and local authorities to the grant amount would be funded from the budgets of the counties and their local authorities under a joint agreement for funding EE and RES improvement projects.

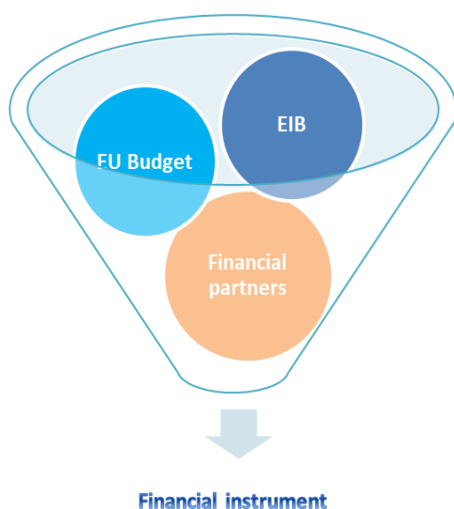
The share of the grant in the hybrid financing model for SMEs investments in improvement of EE and use of RES would be at least 10.00% and at most 30.00%, depending on the size of the company and the type of project (project effects). The share of Community grants would be 70.00%, the share of national co-financing by the central government 20.00% and the share of local co-financing 10.00%.

The minimum eligible cost of the EE improvement projects and the for use of RES would be HRK 75.000,00 and the maximum eligible cost HRK 3.750.000,00.

The source of financing for a pure financial instrument (in this context of the loan) is in the InvestEU program (after termination of use of the EFSI). From Croatian Bank for Reconstruction and Development is expected to provide at least 30.00% of the funding for the implementation of the financial instrument, while the remaining 70.00% will be provided through Community Assistance Instruments (ESIF). An optimal financial instrument that is an integral part of a hybrid model or an innovative financial instrument would be defined by the following features:

- ✓ Loan amount - the lowest is HRK 52.500,00 and the highest HRK 3.375.000,00
- ✓ Disbursement - up to 24 months
- ✓ Grace period up to 24 months,
- ✓ Repayment term - up to 12 years, including grace period, loan repayments are repaid in monthly, quarterly or semi-annual rates,
- ✓ Interest rate - It is determined by the size of the entrepreneur (from 0,05% to 0,75%)
- ✓ no usual extra credit costs (different fees)

For the implementation of the hybrid financing model, the regulation for financial instruments would apply.<sup>12</sup>



<sup>12</sup> Application based on: Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU.

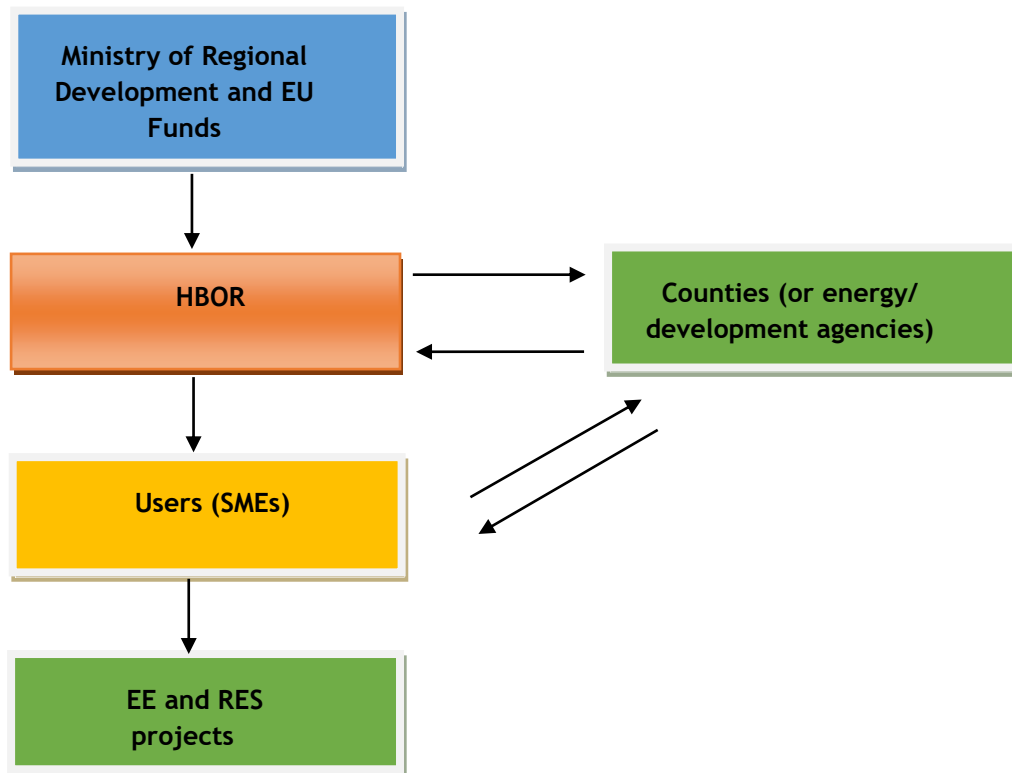
The Managing Authority of the financial instrument would be the Ministry of Regional Development and EU Funds, as the Managing Authority of the Operational Program Competitiveness and Cohesion 2014-2020, and probably of the future operational program under which this type of financial instrument would be implemented.

The Croatian Bank for Reconstruction and Development (HBOR) would be the intermediary body for the preparation and implementation of the financial instrument.

Since the implementation of the hybrid model in question in accordance with Article 52 (5), it could only be operationally implemented as a financial instrument or a single operation, the intermediary body (in this case HBOR) makes payment of the financial instrument and the grant. HBOR covers the entire territory of the Republic of Croatia with regional offices by region, so it is possible to easily and effectively establish operational cooperation with counties throughout regional offices. Counties or/and their energy(development) agencies would be proactively involved in the implementation of the financial instrument with HBOR as a second level intermediate body.

Figure 3 shows the hybrid model of a grant and financial instrument for EE enhancement and use of RES.

*Figure 3: Hybrid model of a grant and financial instrument for EE enhancement and use of RES*



Source: Author, 2019.

Possible other models and sources of financing for financial instruments will be explained in the following sections.



### 3.1. Analysis of the quantitative and qualitative dimensions of the value added for the financial instrument

In terms of quality, innovative financial instrument that is actually a hybrid model funded by grants and financial instruments will result with an increase in the number of investments, the amount of investment in the sector, reducing CO2 emissions, reducing energy losses, increasing the share of renewable energy resources, realization of energy action plans, increasing the absorption capacity of the Republic of Croatia in terms of using Community assistance (grants and financial instruments), new jobs, reducing unemployment, increasing employment, reducing the SMEs operating costs, increasing the competitiveness of SMEs, etc.

In order to effectively measure and analyse quantitative indicators of the added value of an innovative financial instrument, it is necessary to identify optimal indicators. The identification of easily measurable value-added indicators enables the continuous evaluation of the implementation of the financial instrument and the timely change and / or adjustment of the measures envisaged, target beneficiaries and priority investments.

Table 6 shows the indicators that enable an efficient evaluation of the performance of an innovative financial instrument and the consequent quantitative measurement of the added value of a financial instrument.

*Table 6: Indicators for the implementation of an innovative financial instrument*

Energy Efficiency projects	
DESCRIPTION AND PURPOSE OF THE MEASURE	<p>The purpose of improving energy efficiency by the Istrian SMEs is the efficient use of energy and energy products.</p> <p>With the renovation of business facilities and the installation of technologies that reduce wastage and/or consume less energy, it is necessary to educate entrepreneurs about the importance and benefits of increasing energy efficiency and the possibilities of using an innovative financial instrument that enables them to implement typical projects. It is also important to highlight the direct long-term benefits for their business, which are reflected in the reduction of operating costs of the business to increase the comfort for the workers, which results in increased work efficiency and effectiveness.</p>
USERS	<ul style="list-style-type: none"> <li>- Entrepreneurs</li> <li>- Craftsmen</li> </ul>
INDICATORS	<ul style="list-style-type: none"> <li>✓ Number of approved projects/investments,</li> <li>✓ Number of implemented project/investments,</li> <li>✓ Number and surface area of facilities that have increased energy efficiency,</li> <li>✓ Total amount of investments,</li> <li>✓ Number of entrepreneurs and craftsman,</li> <li>✓ Number of employees,</li> </ul>



	<ul style="list-style-type: none"> <li>✓ Operating results of Istrian entrepreneurs (primarily by economic activities in which most projects were funded)</li> <li>✓ Energy consumption in the observed period,</li> <li>✓ Energy consumption by economic activities,</li> <li>✓ The amount of CO2 and other emissions of harmful gases,</li> <li>✓ Percentage of realization of energy action plans.</li> </ul>
<p><b>Fostering the use of Renewable Energy Sources</b></p>	
DESCRIPTION AND PURPOSE OF THE MEASURE	<p>The use of renewable energy sources is negligible in relation to the available possibilities and potentials in the Istrian County. Especially in the economy sector. Innovative financial instrument is focused on the Istrian entrepreneurs and craftsmen to use renewable energy sources; particularly solar energy, wind energy, biomass and geothermal energy. By using renewable energy, entrepreneurs are contributing to reduction of the operating costs, increase of energy independence, and to whole society with lots of environmental and climate benefits. As with EE improvements, it is necessary to educate entrepreneurs about the importance and benefits of using renewable energy sources, and about the availability of the innovative financial instrument that enables them to implement type projects.</p>
USERS	<ul style="list-style-type: none"> <li>- Entrepreneurs,</li> <li>- Craftsmen</li> </ul>
INDICATORS	<ul style="list-style-type: none"> <li>✓ Number of approved RES projects,</li> <li>✓ Number of implemented RES projects,</li> <li>✓ Number of users of renewable energy sources,</li> <li>✓ Total amount of investments,</li> <li>✓ Number of entrepreneurs and craftsman,</li> <li>✓ Number of employees,</li> <li>✓ Operating results of Istrian entrepreneurs (primarily by economic activities in which most projects were funded)</li> <li>✓ Energy consumption in the observed period,</li> <li>✓ Energy consumption by economic activities,</li> <li>✓ Share of renewable energy sources in the total energy system,</li> <li>✓ The amount of CO2 and other emissions of harmful gases,</li> <li>✓ Percentage of realization of energy action plans.</li> </ul>



Regular annual evaluations of the effects of using the innovative financial instrument would be carried out operationally by counties (and/or their energy development agencies) and reported to the intermediary body and Managing Authority.

This approach provides an efficient system of monitoring and evaluation of the implementation and effects of the financial instrument, and provides the necessary relevant information for policy-makers for possible adjustments of the proposed financing models.

### 3.2. Assessing the consistency with other forms of public intervention addressing the same market

The innovative financial instrument is fully coherent with other forms of public intervention to improve energy efficiency and use of renewable energy in the current programming period. Considering the long-term defined energy and environmental objectives of the EU (2030 and 2050), and the inevitable process of decarbonization of the European economy and society, in the next period high level of compliance of the financial instrument with other forms of public intervention is also expected. In fact, energy sufficiency and independence are one of the key prerequisites for strengthening the EU's economic competitiveness. Strategic approach of energy development ensures the reliable energy supply for economy and households, at affordable and competitive prices. Further energy development of the EU is based on the 2030 Energy Strategy, which sets out the expected results of reducing the capacity of nuclear and carbon sources, increasing RES usage, improving energy efficiency and building the Trans-European Energy Network (1. at least 40% cuts in greenhouse gas emissions (from 1990 levels), 2. at least 32% share for renewable energy, 3. at least 32.5% improvement in energy efficiency). Energy strategy in addition to being aimed at the gradual transition from carbon sources to renewable energy, it is closely related to smart growth because the projected economic growth is based on the production of advanced RES technology (more efficient and less expensive wind turbines, photovoltaic cells, magnesium-ion batteries, etc.).<sup>13</sup> At the end of 2018, with the aforementioned energy strategy, the results of analyses and simulations of possible energy scenarios by 2050 were presented to ensure long-term energy stability and economic growth.<sup>14</sup>

Whether it is public intervention in the form of Community grants, financial instruments or grants at national and local level, they are all in the pursuit of the aforementioned objectives and are, in essence, absolutely coherent. Also, regulations allow the combined financing of type projects with grants and financial instruments.

Regarding the model for financing type projects with commercial banks credits, it is important to emphasize that banks finance only highly profitable projects, which are characterized by low level of risk, which is often not the case for type projects in the Istrian County. The results of Istrian entrepreneurs show that most of them belong to risk groups (high debt ratio, low liquidity, etc.) and probably they do not meet the necessary criteria for loan approval, further confirm that the implementation of the proposed innovative financial instrument does not lead to a collision between the proposed innovative financial instrument and commercial bank loans for type projects. Which confirms that the financial market will not result in unwanted distortion and disruption of the balance between market participants. Moreover, for banks as a target group remain SME's with positive business performance, which reduces their overall risk of high-risk investments and an increase in non-performing loans. Thus, the

<sup>13</sup> Available at: <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/national-energy-climate-plans>

<sup>14</sup> Available at: <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/2050-long-term-strategy>



implementation of an innovative financial instrument also indirectly contributes to strengthening the stability of the EU financial market.

### 3.3. Identifying possible State aid implications

In order to prevent that State aid leads to distortions of competition in the internal market and affects trade between Member States in a manner contrary to the common interest, Article 107, paragraph 1 of the Treaty on the Functioning of the European Union (the "Agreement") sets out the principle that state aid is prohibited. However, in certain cases State aid may be compatible with the internal market under Article 107 (2) and (3) of the Agreement. Under Article 107 (3) (c) of the Agreement, the Commission may consider that State aid to facilitate the development of certain economic activities in the European Union is compatible with the internal market if such aid does not adversely affect trading conditions in a manner contrary to the common interest.<sup>15</sup>

It is assumed that in the next programming period, the innovative financial instrument will be implemented within a similar or equivalent to *Operational Programme „Competitiveness and Cohesion 2014 - 2020.“, priority axis 4 - Promotion of energy efficiency and renewable energy sources, Investment priority 4b - Promoting energy efficiency and the use of renewable energy in enterprises*. In this case, regulations and conditions would apply in accordance with the provisions of *the State Aid Program for the promotion of energy efficiency and renewable energy in enterprises and the de minimis aid Program for the promotion of energy efficiency and renewable energy in enterprises*.

This innovative financial instrument is intended primarily for SMEs, ie micro, small and medium-sized enterprises in the Istrian County so the proposed hybrid financing model in which the grant ratio is between 10,00% and 30,00% and the rest of the amount is financed through a pure financial instrument (credit/loan), should not be in collision with the State Aid Program for the promotion of energy efficiency and renewable energy in enterprises and the de minimis aid Program for the promotion of energy efficiency and renewable energy in enterprises. Predicted lowest amount of eligible projects costs is HRK 75.000,00 and maximum HRK 3.750.000,00. Considering the State Aid Program for the promotion of energy efficiency and renewable energy in enterprises, Article 8 states that (5) The aid intensity for energy efficiency measures that may be awarded to large companies under this Program may not exceed 30% of the eligible costs referred to paragraph 4 of this article. (6) The aid intensity for energy efficiency measures referred to paragraph 5 of this Article may be increased as follows: a) for 20 percentage points for aid awarded to small businesses, b) for 10 percentage points for aid awarded to medium-sized enterprises, the implementation of an innovative financial instrument for EE improvement projects is not in conflict with the state aid regulation. The same applies to projects encouraging the use of RES. In Article 10, which relates to investment aid for the promotion of energy from renewable energy sources states that (7) The aid intensity must not exceed: a) 45% of eligible costs for large enterprises if the eligible costs are calculated on the basis of paragraph 6, point a) or paragraph 6(b); b) 30% of the eligible costs for large enterprises if the eligible costs are calculated on the basis of paragraph 6(c). (8) The aid

<sup>15</sup> EC, Guidelines on State aid for environmental protection and energy 2014-2020. (2014/C 200/01), 2014.



intensity referred to the paragraph 7 of this Article may be increased in the case of SMEs as follows: a) by 20 percentage points for aid granted to small businesses, b) by 10 percentage points for aid awarded to medium-sized enterprises.





## 4. Additional public and private resources to be potentially raised by the financial instrument

### 4.1. Estimating additional public and private resources

#### ESI Funds (European Structural and Investment Funds)

In the current programming period, the most represented public intervention in the energy market is operationally represented by grants from ESI funds, financial instruments, Union and Cross-border cooperation programs. The largest contribution is made by ESI funds.

The Partnership Agreement represents the fundamental strategic document of the Republic of Croatia (like any other Member State) for the use of cohesion policy instruments and is adopted for the period covered by the current development strategy (current 'Europe 2020' strategy). As laid down in Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17th December 2013. establishing common directives on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund and decommissioning Council (EC) directives no.1083/2006, every Member State of the European Union is obliged to submit a Partnership Agreement. The European Commission adopted a Partnership Agreement with the Republic of Croatia on 30th October 2014. The structure of the Partnership Agreement is set out in the Funds Regulation. The Regulation establishes 11 thematic units from which a Member State can select its national investment areas. One of the most important results of the Partnership Agreement is the selection of thematic units to which the Member State will channel the ESI Funds allocation, as well as the determination of specific financial amounts for each thematic unit selected. At the same time, the Regulations dealing with individual funds define thematic units that can be financed from an individual fund.

**KF - Cohesion Fund** - is intended for the less developed Member States of the European Union whose GDP per capita is less than 90% of the average GDP per capita. The purpose of its use is to reduce social and economic disparities and to promote sustainable development. It mainly finances large infrastructure projects (roads, railways, ports, sewage systems, etc.) where eligible applicants are public bodies. Investments in large infrastructure projects, as a rule, result in immediate strengthening of economic activities (through the involvement of a larger workforce, public procurement of materials, appliances and equipment, etc.), and long-term positive social and economic effects through improving mobility and improving the availability and quality of public goods and services. Any project funded by the Cohesion Fund, in addition to demonstrating financial viability, must demonstrate socio-economic viability in the context of the social cost-benefit ratio. For the period 2014 to 2020, Cohesion Fund resources are channelled to EU Member States whose average GDP per capita is less than 90% of the Union average; to Bulgaria, Cyprus, Czech Republic, Estonia, Greece, Croatia, Latvia, Lithuania, Hungary, Malta, Poland, Portugal, Romania, Slovakia and Slovenia.

**The European Regional Development Fund (ERDF)** - aims to strengthen economic and social cohesion in the European Union by correcting imbalances between regions. ERDF is focused on stimulating and co-financing investments in the public and private sectors with the aim of job creation, enhancing the competitiveness of micro, small and medium-sized enterprises and various infrastructure projects (eg strengthening entrepreneurial infrastructure through co-financing the construction of an entrepreneurial



incubator, infrastructure of entrepreneurial zones, strengthening of educational infrastructure, construction and improvement of tourist infrastructure, etc.).

**ESF - European Social Fund** - is in the function of achieving social and indirect economic cohesion. The grants are available to the public sector public administration for strengthening their own administrative capacities, for programs to promote employment, social inclusion, promotion and implementation of lifelong learning, environmental protection, etc.

These funds need to be associated with two other important sources of cohesion policy funding;

**The EAFRD - European Agricultural Fund for Rural Development** - aims to strengthen Europe's rural development policy and to implement it more effectively. As already mentioned, it is one of the two pillars of the Common Agricultural Policy of the European Union. It is used by rural areas in European regions for:

- ✓ improving the competitiveness of the agriculture and forestry sectors,
- ✓ preserving the environment and the landscape,
- ✓ improving the quality of life and diversifying the economy in rural areas,
- ✓ Leader approach.

Available resources are available to local public administration, agricultural holdings, agricultural organizations, civil society organizations, etc.

**EFPR - European Maritime and Fisheries Fund** - is primarily aimed at achieving the objectives of the new Common Fisheries Policy and promoting the European Union's Integrated Maritime Policy. By promoting environmentally sustainable, resource-efficient, innovative, competitive and knowledge-based fisheries and aquaculture, and strengthening the administrative capacity of public bodies and institutions in the thematic area, it significantly contributes to the achievement of the objectives of cohesion policy.

Table 7 shows the list of thematic units and the funds from which each thematic unit can be funded.

*Table 7: List of thematic units and sources of financing*

Thematic goal	Source of financing	CF	ESF	ERDF	EAFRD	EMFF
1.	Strengthening research, technological development and innovation			X	X	
2.	Strengthening access toward use of information and communication technologies			X	X	
3.	Strengthening the competitiveness of small and medium-sized enterprises, the agricultural sector			X	X	X
4.	Support for moving towards an economy based on low CO2 emissions across all Sectors	X		X	X	X
5.	Promoting climate change adaptation, prevention and risk management	X		X	X	



6.	Protecting the environment and promoting resource efficiency	X		X	X	X
7.	Promoting sustainable transport and removing bottlenecks on key transport network infrastructure	X		X	X	
8.	Promoting employment and supporting labor mobility		X	X	X	X
9.	Promoting social inclusion and combating poverty		X	X	X	
10.	Investing in education, skills and lifelong learning		X	X	X	
11.	Institutional capacity building and effective public administration	X	X	X		
Technical support		X	X	X	X	X

Source: EU Directives 1303/2013; EU 1301/2013; EU 1304/2013; 1305/2013, Author

The thematic units presented, as defined by the directives, have been transferred to the priority axes of the national operational programs. As shown, individual thematic units can be funded from several sources or funds. Technical assistance does not have a formal status as a thematic unit, but can be programmed as a separate priority axis under the provisions of the Funds Regulation. Republic of Croatia has decided to use the funds for projects from all available thematic units through their elaboration through national operational programs. Operational programs indicate the detailed plans and ways in which the Member State intends to use the appropriations and a detailed account of the financial amounts and priorities in which these amounts will be channelled. The Funds Regulation defined the structure of the operational programs themselves, however their number is determined by the Member State itself. Croatia has drafted, and the European Commission has approved four national operational programs. Operational Program Competitiveness and Cohesion 2014-2020 is funded by the European Regional Development Fund and the Cohesion Fund, and is also the largest operational program. The Operational Program is divided into thematic areas: Environmental protection (water and municipal infrastructure and waste management), transport infrastructure and adaptation to climate change; Competitiveness, research and innovation, information and telecommunications technologies, SME development, low carbon economy and education; SME support and investment in research, development and innovation, which are broken down into priority axes and later into investment priorities, within which specific objectives and actions can be financed. Under the Competitiveness and Cohesion Operational Program 2014-2020, 6,88 billion Euros are available to the Republic of Croatia, of which 4,32 billion Euros from the European Regional Development Fund and 2,56 billion Euros from the Cohesion Fund. From the Operational Program Competitiveness and Cohesion 2014-2020. the projects of the market in question are financed to the greatest extent.

#### EFSU (European Fund for Strategic Investments)

The European Fund for Strategic Investments (EFSI) is a key element of the Investment Plan for Europe, whose primary objective is to foster long-term economic growth and competitiveness in the European Union. The EFSI is part of a comprehensive strategy designed to address the uncertainties



associated with public and private investment and to reduce the investment gap in the Union. The strategy consists of three pillars:

- ✓ mobilization of investment funds - EFSI,
- ✓ ensuring investment flow to the real economy (ESCU + EPPU)
- ✓ improvements to the investment environment in the Union (simplification of legal and other regulations, and necessary structural reforms).

The strategy should foster competitiveness and economic recovery and complement each other with the objective of economic, social and territorial cohesion across the Union. Therefore, the EFSI should be seen as complementary to all other actions needed to reduce the investment gap in the Union and, given that it acts as a guarantee fund, as an incentive for new investments.

The specific purpose of the EFSI is to help solve difficulties in financing and implementing strategic, transformative and productive investments with high economic, environmental and social added value that contribute to the achievement of Union policy objectives as set out in Regulation (EU) No 1287/2013 of the European Parliament and of the Council (3), Regulation (EU) No 1291/2013 of the European Parliament and of the Council (4), Regulation (EU) No 1315/2013 of the European Parliament and of the Council (5) and Regulation (EU) No 1316/2013 of the European Parliament and of the Council (6). It is intended to provide an immediate boost to the Union economy and to improve access to finance and competitiveness for enterprises and other entities, with particular emphasis on small and medium-sized enterprises (SMEs) and small mid-cap companies, in order to reduce unemployment and stimulate growth in the Union. The EFSI is therefore given support for strategic investments such as, among others, projects of common interest aimed at completing the internal market in the transport, telecommunications and energy sectors, including traffic and energy interconnectivity and digital infrastructure, the diffusion of renewable energy sources, and energy and resource efficiency, developing and modernizing the energy sector in line with the priorities of the energy union, including security of energy supply, and contributing to the sustainable development of these sectors and harnessing potential synergies between them. The European Commission's strategic partner in implementing the EFSI through which the instruments are implemented is the EIB (European Investment Bank). In addition to the EIB, the EIF (European Investment Fund) plays a significant role in the implementation of the EFSI through the provision of venture capital and guarantees to financial institutions for loans to SMEs. The EFSI offers a wide range of financial instruments to the public and private sectors;

- ✓ loans,
- ✓ guarantees,
- ✓ instruments to stimulate capital market development and to increase credit capacity, etc.

By December 2019, an investment of € 458,8 billion had been mobilized at Union level through the EFSI, € 84,6 billion had been approved for financing (of which € 61,0 billion through EIB financing and 23,6 through EIF instruments) while € 65,6 billion was signed. More than 31.00% of the appropriations were allocated to SMEs and 17.00% to the energy sector. In the same period, € 284 million was approved to Croatia through the EIB and the EIF, which will mobilize investments of € 1.134 billion. In Croatia, the EFSI is operationally implemented by HBOR.

In addition to ESI funds, the EFSI can and should be combined with the following EU funds:

- ✓ CEF (Connecting Europe Facility),

- ✓ Horizon 2020,
- ✓ EaSI (EU Employment and Social Innovation Program)

## 4.2. Estimating the leverage of the envisaged financial instrument

To assess the leverage effect of an innovative financial instrument, it is necessary to take into account the performance and business characteristics of Istrian entrepreneurs. In the previous chapters, all relevant indicators of their business are explained in detail, so it is worth pointing out here that Istrian entrepreneurs are over-indebted and accompanied by a high risk of illiquidity. Thus, in the observed period, the debt ratio averaged 0,63, the own financing ratio was 0,37, the financing ratio was 1,71, and the value of the debt factor was 6,29. The above indicators indicate a low absorption capacity of financial instruments, as leverage financing loses all meaning and is absolutely unacceptable if it approaches the level of corporate debt of 100.00%.

By incorporating part of the grant into innovative financial instruments, the effect of partially neutralizing the negative effect of increasing leverage on Istrian entrepreneurs (through a reduction in the debt-to-equity ratio of the net loan) is achieved.

To assess the relevant needs and, consequently, the leverage effect, FINA's business data for Istrian entrepreneurs and the surveys conducted are used.

In 2018, 993 entrepreneurs realized HRK 2,43 billion in investments in the County of Istria. According to the survey, in the next programming period, investments in growth and development are planned to be realized by 69,56% of entrepreneurs (approximately 10,00% of entrepreneurs per year, which is correlated with the current trends in the region of Istria - in the period from 2016 to 2018. 9,57% of entrepreneurs invested on average) and 4,35% plan to invest in EE improvement and RES utilization projects. It is estimated that EE and RES improvement projects can amount to an average of 20,00% of the value of an average entrepreneurial investment. By applying the percentage of entrepreneurs who intend to invest in improving the EE and using RES, it is possible to make a relevant assessment of the central value of Istrian entrepreneurs' demand for an innovative financial instrument. Table 8 shows the calculation of the central value of Istrian entrepreneurs' demand for an innovative financial instrument in the next programming period.

*Table 8: Total amount of Istrian entrepreneurs' demand for an innovative financial instrument in the next programming period (in 000 HRK)*

Position	2021	2022	2023	2024	2025	2026	2027	UKUPNO
Number of entrepreneurs investing (2018)	993	993	993	993	993	993	993	6.951
Total investment value (2018)	2.430.163	2.430.163	2.430.163	2.430.163	2.430.163	2.430.163	2.430.163	17.011.141
The average value of the EE and RES project	486.033	486.033	486.033	486.033	486.033	486.033	486.033	3.402.228
Central demand value	21.142	21.142	21.142	21.142	21.142	21.142	21.142	147.997

Izvor: Author, 2019

According to the calculation shown in Table 8 for the next programming period, assuming ceteris paribus, it is sufficient to provide approximately HRK 148 million for Istrian entrepreneurs with the aim of implementing EE and RES improvement projects.



The net leverage effect of an innovative financial instrument is calculated in accordance with the recommended methodology of the Member States Guide under Article 46 and Article 37 (2) (c). The model of an innovative financial instrument has been elaborated and the calculations of the mean value of expected demand in the Istria County in the next programming period are presented. Table 9 shows the calculation of the net leverage effect of an innovative financial instrument.

Table 9: Calculation of the net effect of an innovative financial instrument for improving the EE and RES (in 000 HRK)

Position	Contribution ESIF (FI)	Contribution ESIF (grant)	National contribution (grant)	Contribution LRGU (grant)	National contribution of mediator	TOTAL
Innovative financial instrument	72.518	31.079	8.880	4.440	31.079	147.997
MCF			8.288			
<b>TOTAL</b>	72.518	31.079	8.880	4.440	31.079	147.997

Source: Author, 2019

The net leverage effect of an innovative financial instrument is 74,15%. We emphasize that this is a strictly conservative estimate of the net leverage effect, so it does not include the possible participation of private resources. The possibility of attracting private resources is explained below. Their participation would determine an increase in the net leverage effect, whereby the inclusion of commercial bank resources (or an increase in HBOR's share) would result in a significant increase in this effect.

### 4.3. Attracting additional private resources

Attracting additional private resource interests is possible through two models. The first is the involvement of private financial institutions and the second is crowdfunding. After conducting direct interviews with representatives of commercial banks, we concluded that there was no significant interest in the implementation of a financial instrument aimed exclusively at improving the EE and RES of Istrian SMEs. In the current period, commercial banks offered several financial products on the market, but after some time they were de facto withdrawn from supply due to low interest and low demand. Therefore, if commercial banks are to be involved in the implementation of an innovative financial instrument, it must be made more attractive and more significant resources and efforts must be made to disseminate information on the opportunities and benefits of using an innovative financial instrument. Against this background, in order to attract the resources of commercial banks, it is suggested that an additional analysis be made of the possibility of their involvement and the consequent increase in the net leverage effect.

As far as crowdfunding is concerned, for Istrian entrepreneurs this is an insufficiently recognized alternative source of financing. In principle, crowdfunding is a way of financing a project or venture by



raising money from a large number of people, each of whom, usually online, contributes with a relatively small amount (Oxford Dictionaries, 2016).<sup>16</sup> This usually involves the project owner (entrepreneur, fundraiser), an online platform that acts as a type of intermediary through which a third party, ie mass individuals, donates their money to enable financing for a particular project developed by the project owner. Although initially considered a marginal way to raise smaller amounts of money for art projects, some of the most successful crowdfunding campaigns have shown that it can be an effective way of financing even more significant amounts. One of the first such examples is certainly the Pebble smartphone campaign, which connects wirelessly to a smartphone and serves as a handheld intelligence center.<sup>17</sup> According to recent research by the Massolution Research Society (2015), there are currently 1.250 active crowdfunding platforms in the world. It is important to note that there are four major categories of crowdfunding platforms according to investor benefits;

1. Donation based platforms
2. Prize-based platforms
3. Loan-based platforms
4. Equity-based platforms.

In 2014, the crowdfunding industry raised 16,2 billion USD, more than double compared to 2013 when \$ 6,1 billion was raised. The upward trend continued in 2015 when 34,4 billion was collected. Compared to the world, Croatian amounts are quite small. Although there are several Croatian crowdfunding platforms ([www.doniralica.hr](http://www.doniralica.hr), [www.croinvest.eu](http://www.croinvest.eu), [www.croenergy.eu](http://www.croenergy.eu)), statistics from foreign platforms show that Croatian entrepreneurs prefer to seek financing from foreign crowdfunding platforms given the larger number of potential investors and higher chances of successful financing. By monitoring Croatian projects on foreign crowdfunding platforms, it can be concluded that in 2015, 63 Croatian projects were presented, of which only 23 were able to raise the necessary funds. A total of 7.673 investors raised more than \$ 750.000. The most popular international internet platform among Croats is Indiegogo with 47 Croatian projects in 2015, while the average amount of a Croatian campaign is \$ 10.000 (Hafner, 2016).<sup>18</sup>

<sup>16</sup> Đurđenić, K., Crowdfunding - Hrvatska pravna perspektiva i usporedba s drugim izvorima financiranja, IJF, Zagreb, 2017.

<sup>17</sup> Đurđenić, K., Crowdfunding - Hrvatska pravna perspektiva i usporedba s drugim izvorima financiranja, IJF, Zagreb, 2017.

<sup>18</sup> Đurđenić, K., Crowdfunding - Hrvatska pravna perspektiva i usporedba s drugim izvorima financiranja, IJF, Zagreb, 2017.

Croenergy is one of Croatia's most famous crowdfunding platforms and is focused on raising funds for financing socially useful projects in the energy and environmental sectors. The founder of the platform is the Regional Energy Agency of Northwestern Croatia (REGEA), founded in 2008 by three counties - Zagreb, Karlovac and Krapina-Zagorje and the City of Zagreb as part of the EU Intelligent Energy Europe program. Since 2017, it has raised funds for the implementation of 9 projects of individual value from HRK 10.000,00 to HRK 425.000,00. Throughout the campaigns so far, approximately HRK 730.000,00 has been raised, which enabled the implementation of 6 socially beneficial projects.

Figure 4: Crowdfunding platform Croenergy



The screenshot shows the Croenergy website interface. At the top, there is a navigation bar with links for 'Naslovnica', 'O nama', 'Podrži kampanju', 'Prijava', and 'Registracija'. The main content area is titled 'PROJEKTI' and 'Najnoviji projekti na croenergy.eu'. Three project cards are displayed:

- Project 1: 'Za bezbrižan korak naših školaraca!'** (100% funded). Goal: 10000 kn, End date: 30.06.2017, Amount raised: 10025,00 kn. Description: Osnovna škola Donja Stubica želi obnoviti interijer svojih učionica te učenicima omogućiti ugodniji i sigurniji boravak u školi!
- Project 2: 'Zdraviji školski obroci za naše đake!'** (185% funded). Goal: 40000 kn, End date: 30.04.2017, Amount raised: 41005,00 kn. Description: Osnovna škola želi potaknuti učenike da se hrane zdravo i raznoliko koristeći energetske učinkovite opreme.
- Project 3: 'Ti i ja, zajedno za vrtić u Pregradi'** (121% funded). Goal: 80000 kn, End date: 07.06.2019, Amount raised: 97102,00 kn. Description: Dječji vrtić Naša radost u Pregradi želi postati energetske neovisni i pružiti djeci mjesto za igru i učenje kakvo zaslužuju!

Source: <http://www.croenergy.eu/projekti?page=2> (Accessed 29.11.2019.)

According to the realization of the goals and values of the campaigns, it is evident that crowdfunding in Croatia has not yet emerged as a recognizable alternative model of project financing. On the other hand, Croatian entrepreneurs do not have any preferences for establishing partnerships, which through crowdfunding campaigns would result in the division of equity or the payment of high interest rates on loans.

The above statement is confirmed by the result of a survey of SMEs according to which the financing model of the new partners / co-investors is rated at an average score of 1,30 and is the last in the list of preferred models of financing investment projects. Therefore, we believe that crowdfunding campaigns for EE improvement projects and the use of RES by Istrian entrepreneurs cannot attract significant funding.





## 5. Lessons learnt

### 5.1. Gathering relevant information

For the purpose of making the Ex-Ante assessment in question, analyses were made of available data and information on the use of financial instruments to improve EE and use of RES. Interviews were also conducted with representatives of commercial banks and HBOR. As only 3 financial instruments are available in the Republic of Croatia for the improvement of the EE and the use of RES, with limited access to SMEs, there is insufficient data and information available to determine which factors could increase the demand for this type of financial instruments. Therefore, additional surveys were carried out by SMEs and LSGs in the County of Istria in order to perform a relevant simulation of the effects of offering financial instruments for this type of projects in the Istrian County.

### 5.2. Identifying success factors and pitfalls of past experiences

In the Republic of Croatia, as well as in the territory of the County of Istria, in the current programming period, 3 financial instruments are available for EE improvement and use of RES. They are implemented by HBOR and are characterized by low levels of demand and utilization (only a few loans have been placed, namely to the public sector). Key reasons for low demand are contained in:

- ✓ non-refundable grants offer in the market,
- ✓ favourable commercial bank loans offer to the economy,
- ✓ complexity and duration of preparation, implementation and reporting of projects financed by a financial instrument,
- ✓ low rate of return of EE and RES projects,
- ✓ relatively weak financial indicators of the entrepreneurs' business or their credit rating,
- ✓ insufficient awareness of SMEs about the opportunities and benefits of implementing the EE Enhancement Project and using RES,
- ✓ mistrust of entrepreneurs towards financial and public sector institutions, etc.

### 5.3. Applying lessons learnt to enhance the performance of the financial instrumen

All the above factors indicate that in order to increase the demand for financial instruments intended to improve EE and RES, it is necessary to fully implement an innovative financial instrument that would include a certain amount of grants as "rewards" to SMEs for contributing to the achievement of local, regional, national and EU energy, climate and environmental goals. Namely, Istrian SMEs have expressed high preference for a financing model which involves the use of grants. Apart from the use of non-refundable grants, combined non-refundable funding grants + financial instrument are also acceptable to Istrian SMEs. For all other financing models, a low level of preference is expressed. The aforementioned



further confirms the expressed great interest of Istrian entrepreneurs in the relevant Calls for Proposals under OP "Competitiveness and Cohesion 2014-2020" in the current program period based on non-refundable grants. High demand was also noted for the financing of EE improvement projects and the use of RES grants, jointly implemented by EPEEF and LGUs in the Istria County.

We believe, and in the Ex-Ante assessment in question, we argue that the proposed innovative financial instrument would significantly increase the demand of Istrian SMEs, increase the number of investments and make a significant contribution to the achievement of general energy, climate and environmental goals. It would also contribute to strengthening the competitiveness of the local economy through the effect of leverage and reducing the business costs for SMEs. However, in addition to the innovative financial instrument for achieving the desired effects, it is necessary to create and implement a complete set of technical implementation and quality dissemination measures.

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