JOINT STRATEGY FOR WIDER IMPLEMENTATION OF INNOVATIVE FINANCING SCHEMES IN CENTRAL EUROPE

Deliverable D.T2.4.4

Template

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The eCentral project summary

Addressing poor energy performances of public buildings is at the core of EU's Energy Efficiency Directive and Energy Performance Building Directive but also one of growing financial issues in Central European countries. To address that eCentral project will support key stakeholders to realize benefits of newly implemented building standard – nearly zero energy building (nZEB). eCentral project will prove that nZEB approach, although innovative, is optimal and cost-effective solution for renovation and construction of public buildings. Project aims to capitalise on results of previous and ongoing EU initiatives. Austria has a proven track record with nZEB renovation projects and will be leading other implementing partners (CRO, SLO, HUN) by example. Transnational cooperation will be used to receive maximum international visibility of selected pilot actions. Main outputs of the project are:

- energy performance certificate (EPC) Tool for public authorities
- deployment and promotion of innovative financing schemes
- training programme and project development assistance for nZEB projects
- building renovation strategies for selected regions
- state of the art pilot nZEB public buildings in selected regions
- established cooperation with scientific institutions and other nZEB initiatives

Transnational Assessment and Support Group, formed from project experts and scientific institutions will act as a support team and provide quality checks of each output. EPC Tool will be developed and used by public sector decision makers and project developers beyond eCentral project lifetime. Trained energy efficiency teams within the regional government will serve as a backbone for conducting future nZEB projects. The European Academy of Bolzano (EURAC), one of the leading centres of expertise on energy efficiency in the Central Europe region, will focus on policy analysis and dissemination of eCentral project results.

About this document

This document is part of workpackage T2, named D.T2.4.4 Joint strategy for wider implementation of innovative financing schemes in Central Europe. The strategy is the culmination of theoretical and practical assessments performed within the eCentral project with all key financial market stakeholders. The document provides a short status of policy frameworks in Central European countries for use of innovative financing schemes for nZEB projects (public private partnership, energy performance contracting and crowdfunding) and proposes clear recommendations for removal of barriers that hinder a wider uptake of these schemes.

The following Central European countries have been covered by the ASG members of the consortium:

- Croatia by REGEA (supported by Sveta Nedelja)
- Slovenia by KSSENA (supported by Velenje)
- Hungary by Energiaklub (supported by BP18)
- Austria by EASt
- Italy by EURAC
- Poland by REGEA
- Czech Republic by REGEA
- Slovakia by Energiaklub
- Germany by EASt

Key conclusions from this document will be presented, discussed and promoted during national roundtable events and the final project conference in February 2021.

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A. Executive summary

This joint strategy presents the implementation of three financial schemes (public private partnership, energy performance contracting and crowdfunding) in building market of Central Europe countries. Starting from the EU requirements and directive, the joint strategy shows the state of the art of the local building market and provides a short status of policy frameworks in Central European countries for use of innovative financing schemes for nZEB projects and proposes clear recommendations for removal of barriers that hinder a wider uptake of these schemes. In energy efficient term the results found are not so lagging behind more advanced EU regions. On the contrary, with several successful and replicable solutions for uptake of innovative financing schemes from Central European countries this region can be an example on how to establish self-sustainable financing schemes and unlock resources from both private and public sector to drive the energy transition towards zero carbon emission societies.

The strategy is the culmination of theoretical and practical assessments performed within the eCentral project with all key financial market stakeholders.

B. Introduction

1.1. EU building renovation policy

The high importance of an energy efficient building stock was already recognized several years ago.
The Energy Performance of Buildings Directive (EPBD) Directive together with the Energy Efficiency Directive (EED) and the Renewable Energy Directive (RED), provide a framework for long term improvements in the energy performance of Europe's building stock. Each member state was asked to develop their first renovation strategies and submit them by April 2014 to the European Commission. The strategies should show, how member states plan to foster investment in the renovation of residential and commercial buildings. A first assessment, performed by JRC showed, that, twenty-three out of the thirty-one submitted strategies (74.2%) satisfactorily addressed the main elements of EED Article 4. Ten strategies are fully compliant, with exemplary coverage of regulation requirements. Only six strategies were found to be not compliant. (Zangheri, 2021)

These strategies have been updated in 2017 (obligation of EED) and are available in native languages and English at the European Commission's webpage. With the revision of the EPBD in 2018, member states must establish a long-term renovation strategy, which ensures the transformation of the current building stock into a highly energy efficient and decarbonized building stock by 2050 (article 2a of EPBD). Besides a detailed status quo analysis, the strategies must include topics like policies and actions to stimulate cost-effective deep renovation of buildings, an overview on national initiatives, measures and measurable progress indicators as well as indicatives milestones for 2030, 2040 and 2050. In addition, these strategies need to be built on a solid financial component (effective use of public funding, aggregation, de-risking). These national strategies are available here, whereas not all members already delivered their long-term renovation strategy. (European Commission, 2021)

A comprehensive study of the building energy renovation activities and the uptake of nearly zero energy buildings in the EU (2012-2016), which was published in 2019 on behalf of the European Commission, shows that without major additional efforts, the building sector *"will clearly and significantly fail to deliver its share of the overall need for primary energy reduction and consequently a reduction in greenhouse gas emissions. Significant acceleration is needed."* The annual renovation rate (annual reduction of the total

building stock's primary energy consumption) was calculated to be about 1 % (0,4-1,2 % depending on member state). In practice, step-by-step renovations with little primary energy savings per step dominate the market, whereas the renovation rate for deep renovations is only 0,2-0,3 % (residential and non-residential sector). Due to this low deep renovation rate, the average relative annual primary energy saving per renovation (residential and non-residential buildings) is approx. 9-17 %. As most important renovation triggers for all types of consumers, the following factors were identified: necessary maintenance, replacement of a defective component, budget becoming available or the will to counteract shortcomings that lead to health issues, since there is a link between the quality of dwelling, energy poverty and health. Instruments such as Energy Performance Certificates (EPC) with recommendations and ratings have a limited function as triggers of energy renovations but become more important once the renovation decision has been taken. This means, that EPC recommendations help to *"justify the decision, to selector recommend the right solutions from different options, or to increase the ambition level"*. Other important factors for uptake of energy renovations and nZEB buildings are intensified promotion of EPCs and renovations among building stakeholders (e.g. architects, installers…), quality controls of energy efficiency measures (e.g. saving guarantees) as well as capacity building for the building sector as well as overcoming administrative and financial barriers. (Ipsos Belgium & Navigant, 2019)

In order to accelerate the renovation of the EU building stock, it became a major pillar of the current EU policy strategy. In October 2020, the Renovation Wave under the European Green Deal was announced. Buildings account for 40% of the energy consumed and emit 36% of energy related green-house gas emissions. To achieve the goal of reducing green-house gas emissions by at least 55% in 2030 compared to 1990, the European building stock needs to be improved. Therefore, the goal of the Green Deal Renovation Wave is to renovate 35 million inefficient buildings in Europe until 2030. The main priorities of this Green Deal strategy are:

- Tackling energy poverty and worst-performing buildings
- Renovate public buildings such as schools, hospitals and public administration.
- Decarbonize heating and cooling

The goals shall be reached by providing policy instruments, funding and technical assistance, such as extended services for owners and tenants, finance via NextGenerationEU and other EU and private funds, increased capacity for public authorities and training for workers, market development for sustainable construction products or neighborhood-based and community-led approaches. (European Union, 2020).

1.2. Financing

The European Green Deal's Investment Plan aims to mobilise public investment and help to unlock private funds through EU innovative financial instruments and alternative financing models which have seldomly been used in most Central European countries. Project developers from the energy sector still overly rely on availability of traditional instruments such as one-off ESIF/national grants and the supply for this kind of financing is not enough to meet the expected renovation targets. Grants are naturally more attractive than other financing sources as they present non-repayable instruments and public authorities are more experienced in applying and implementing projects under this traditional format. However, aside from their scarcity grants have rarely been used efficiently for energy renovation of public buildings as these projects also generate significant financial savings for final beneficiaries and high co-financing rates (up to 85% for less developed regions) have created grant-dependent and badly underperforming markets.

National energy renovation programmes which have transformed grants into financial instruments (loans, guarantees) or have used grants for financing of technical assistance and preparatory activities have shown much better performances and multiplier effects. Financial instruments have a number of benefits compared to grant-based funding, mixing public and private funds to stimulate investment. Financial instruments use public money to leverage investment from the private sector by de-risking investments and offering long-term orientation, while the revolving nature of the instruments ensures that funds, plus

interest, return to the instrument for re-investment. Since funds must be repaid, there is also an incentive for better performance than grant-based funding. Financial instruments are constantly available to project developers, they require projects of higher quality and bankability (cost-effectiveness) and they address specific market gaps (failures) by providing revolving financial resources which can be used for a larger number of projects. National policy makers do realize and admit their obligation to develop financial instruments in the next 2021-2027 Multi-annual Financial Framework (MFF) which should allow higher involvement of private investors in bankable energy renovation projects. Despite numerous benefits the uptake of financial instruments has been slow. This may be because of the preference for grants schemes, which have been traditionally used for ESIF distribution, or because Managing Authorities are intimidated by the complexity of establishing an instrument. The management of financial instruments is governed by the Common Provisions Regulation, and before one can be established, it must undergo an ex-ante, which involves a comprehensive and long assessment of the buildings renovation sector.

The eCentral in particular, focuses on three selected financing models which were extensively analysed and piloted in three Central European countries: public-private partnership (PPP), energy performance contracting (EPC) and various crowdfunding models. These models can be used with both traditional grant-based and financial instruments. Examples of successful implementation of all three models are available on country levels but wider replication is needed as they possess numerous advantages over traditional financing schemes.

Public-private partnerships are a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance. The definition of PPP is mostly different in each country, tailoring the definition to their institutional and legal particularities which mostly confuses the use of this term on international level. PPP models are differentiated based on levels of private sector engagement in PPP contracts. In the building sector, private partner can provide design, building, financing, maintaining and operation of the building while the public partner defines the required quality and quantity and allows the private partner to implement actions according to this framework (Corner, 2006). In public accounts, assets constructed under PPP contracts can be recorded on or off government balance sheet, depending on the risk allocation. The possibility of off-balance sheet recording makes the use of PPPs very attractive for undertaking investments while complying with the deficit threshold established in the Maastricht Treaty (Eurostat rules).

Energy Performance Contracting (EPC) is “a contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and monitored during the whole term of the contract, where investments (work, supply or service) in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion, such as financial savings” (Directive 2012/27/EU). This contractual arrangement creates the possibility for the public sector to overcome a series of financial and technical barriers to improve the energy performance of buildings and the energy efficiency of systems and technologies. The difference between other types of Energy Service Contracting is that EPC involves the transfer of technical and financial risks to the private partner. In EPC, the remuneration of the provider is directly linked to the performance of the contracted project which makes it similar to PPP models. The provider is therefore motivated to maximise projected and delivered savings. The performance guarantees generate liabilities on the side of the provider but the need for verification and monitoring usually increases the cost of intervention. The new Eurostat guidance note on treatment of EPCs has successfully solved out the confusion on the market due to unclear national interpretations of whether an EPC project is considered to be an increase of public debt or not.

Crowdfunding is an alternative method of financing, completely different to the common typical business process, used to raise capital through small collective efforts (amounts of money) of a large number of people, friends, family members, customers and individual investors, and finance a project. Currently, there are different financing scheme typologies used to define different approaches in relation to the reward,

benefits and services developed but the general division is made between crowdfunding (donation and reward-based models) and Crowdinvesting (loans, equity and profit sharing). In general, the benefits of crowdfunding models include transparency, openness to citizens, democratization of the overall project development and promotion of sustainable development. Crowdinvesting, as an alternative financing method is of particular interest to the energy sector since it generates money flows and therefore can be used for more investment-based approaches such as energy renovation of buildings. In the context of civic crowdfunding it brings citizens and communities together to address local concerns and allows citizens to invest into projects owned by their local authorities. These partnerships between crowdfunding platforms, citizens and public administrations can unlock private capital and have high impacts in terms of regional economic and social development.

Sub-optimal levels of investment in sustainable energy (energy efficiency in particular) are also linked to various market barriers such as lack of capacity from project developers, dedicated financial instruments and overall low levels of trust from investors and financiers in the viability of energy efficiency projects. These barriers for introduction of innovative financing models for sustainable energy projects were assessed on all Central European country levels and the purpose of this strategy is to provide realistic actions for removal of these barriers in order to achieve successful roll-out of innovative financing models.

1.3. Central Europe – region specifics

- Central Europe as a whole – general economic characteristics/specifics

Interreg Central Europe programme supports partnerships from 9 countries: Austria, Croatia, Czech Republic, Germany, Hungary, Italy, Poland, Slovakia and Slovenia. Each of these countries is unique when it comes to size, population, economic specifics, or policy aspects. The following table shows the size of each country in square-kilometres, the current population in million and the current gross domestic product (GDP) per capita in PPS (purchasing power standard). This key figure allows to compare the living standard among different countries by measuring the price of a range of goods and services relative to income in each country. The European average is 100. General objective of the European Union and funding programmes is to improve the living standard in all countries by creating job opportunities, reducing regional disparities, developing cross-border-infrastructure or protecting the environment. (European Union, 2021)

Table 1: overview on general characteristics of Central European countries (European Union, 2021)

	Size (km²)	Population (Mio)	GDP per capita in PPS
Austria	83 879	8,90	128
Croatia	56 594	4,06	64
Czechia	78 868	10,69	92
Germany (whole country)	357 376	83,17	123
Hungary	93 011	9,77	71
Italy (whole country)	302 073	59,64	97
Poland	312 679	17,41	71
Slovakia	49 035	5,46	71
Slovenia	20 273	2,09	87

Europe	100

Another important key figure is the total GDP per capita in Euro, which refers to the value of the total output of goods and services produced by an economy, less intermediate consumption, plus net taxes on products and imports. GDP per capita is calculated as the ratio of GDP to the average population in a specific year. (Eurostat, 2019) The GDP 2020 in Central European countries is shown in the map below.

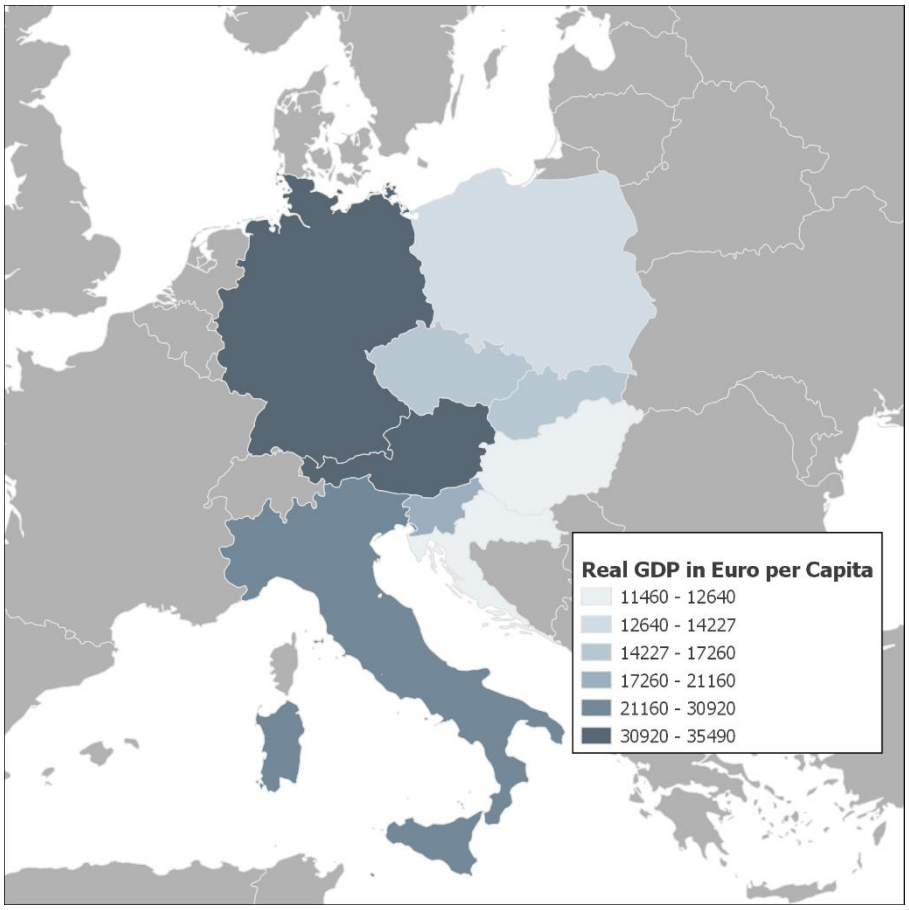

Figure 1: real GDP per capita (2020), own illustration based on (Eurostat, 2021); base map from thematicmapping.org

Within Central Europe, GDP 2020 ranges from EUR 11 460 – 35 490 per capita. The map shows the size of the GDP of the Central European country, indicating that Austria and Germany have the highest GDP per person, followed by Italy, Slovenia, Czechia, Slovakia, Poland, Hungary and Croatia. However, the GDP per capita suggests that the differences between the countries are maximum 70 % (e.g. comparing Austria and Croatia), whereas the GPD in PPS shows a maximum deviation of 50 % (e.g. comparing Austria and Croatia).

As already mentioned, each country has its own economic specifics. Following, the economic characteristics of each Central European country is described briefly according to (European Union, n.y.). The high import and exports rate to other European countries show the strong economic connections between the whole European Union.

- Austria:

- Austria is a federal parliamentary republic with a head of government and a head of state
- Most important economic sectors are wholesale and retail trade, transport, accommodation and food services (22,9 %), followed by industry (22 %). 71 % of Austria's exports are intra-EU trade, whereas 5 % go to the United States and 5 % to Switzerland. In terms of imports, 78 % come from EU member states (mainly Germany)

- Croatia:
  - Croatia is a parliamentary republic with a head of government and a head of state
  - Most important economic sectors are wholesale and retail trade, transport, accommodation and food services (23,1 %), followed by industry (20,4 %). 68 % of Croatia's exports are intra-EU trade, while 9 % go to Bosnia & Herzegovina and 4 % to Serbia. 78 % of imports come from EU member states (mostly Germany, Italy and Slovenia).
- Czechia:
  - Czechia is a parliamentary republic with a head of government and a head of state
  - Most important economic sectors are industry (30,2 %), followed by wholesale and retail trade, transport, accommodation and food services (19,2 %). 84 % of Czechia's exports go to European countries (mainly Germany) and 76 % of the imports come from EU member states (mainly Germany, Slovakia and Poland).
- Germany:
  - Germany is a federal parliamentary republic with a head of government and a head of state
  - Most important economic sectors are industry (25,8 %), followed by public administration, defence, education, human health and social work activities (18,2 %). 59 % of Germany's exports go to the European Union, while 9 % go to the United States and 7 % to China. 66 % of the imports come from European member states.
- Hungary:
  - Hungary is a parliamentary republic with a head of government and a head of state
  - Most important economic sectors are industry (25,9 %), followed by wholesale and retail trade, transport, accommodation and food services (18,5 %). Exports to other EU member states account for 82 %, whereas 75 % of the imports come from other European countries.
- Italy:
  - Italy is a parliamentary republic with a head of government and a head of state
  - The most important sectors are wholesale and retail trade, transport, accommodation and food services (21, 4 %), followed by industry (19,4 %). 56 % of Italy's exports go to other European member states, whereas 59 % of the imports come from the EU.
- Poland:
  - Poland is a parliamentary republic with a head of government and a head of state
  - Most important economic sectors are wholesale and retail trade, transport, accommodation and food services (26,2 %), followed by industry (25,6 %). 80 % of

Poland's exports go to the European Union, while 69 % of imports come from EU member states (primary Germany).

- Slovakia:
  - Slovakia is a parliamentary democratic republic
  - The most important sector were industry (27,3 %) and wholesale and retail trade, transport, accommodation and food services (21,6 %). 85 % of exports go to the European members (primary Germany, Czechia and Poland) and approx. 80 % of imports come from EU countries.
- Slovenia:
  - Slovenia is a parliamentary democratic republic
  - The most important sectors are industry (27,6 %), followed by wholesale and retail trade, transport, accommodation and food services (20,7 %). Exports to other European countries account for 75 % of all exports, whereas 71 % of imports come from the other EU member states.

The following figure provides an overview on the historical development of the real GDP per capita since 2010. All countries show a rising trend until 2020, which marks the beginning of the worldwide covid pandemic.

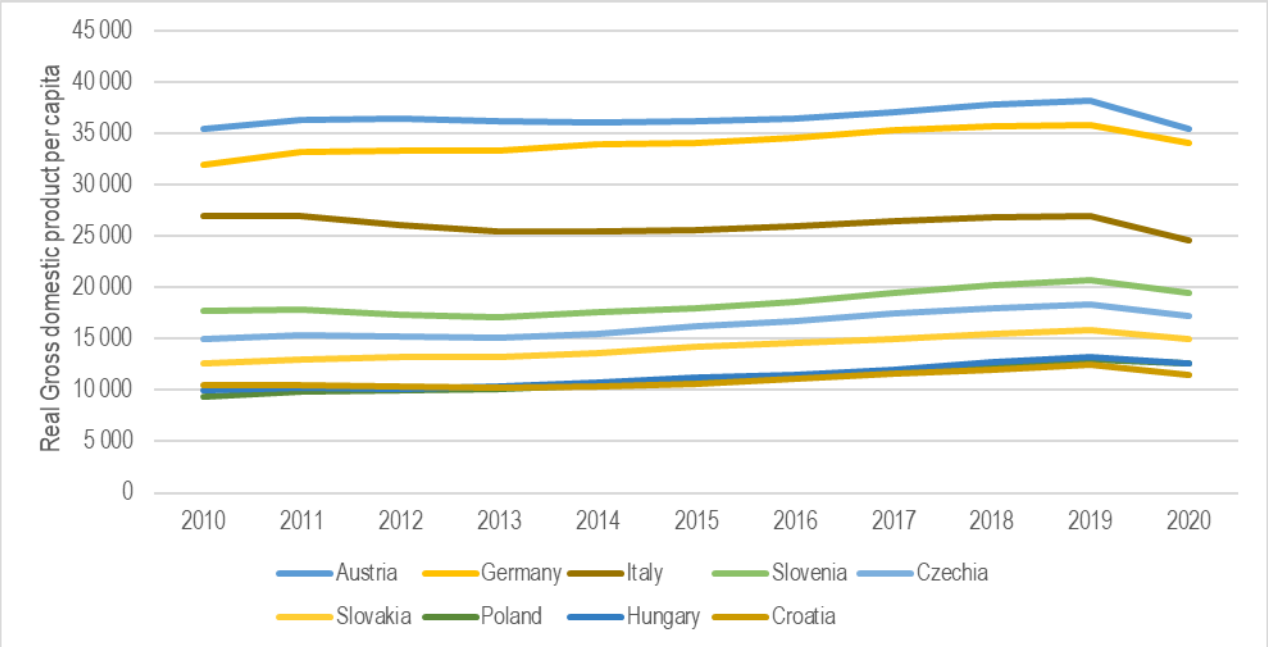

Figure 2: historical development of real GDP per capita, own illustration based on (Eurostat, 2021)

The covid pandemic had massive effects on all economies over the world, since different lockdown measures were implemented. The following figure shows the change of the real GDP growth in Central European countries and EU27, indicating that Italy, Croatia and Austria were affected the most compared to EU27 and Central Europe. A possible reason could be the decline in tourism in these countries.

According to (European Commission, 2021), the year 2021 will still be challenging, however, there is "light at the end of the tunnel". Economic forecasts for 2021 indicate that GPD growth in Central European Countries of 2-5 % is expected, depending on the country.

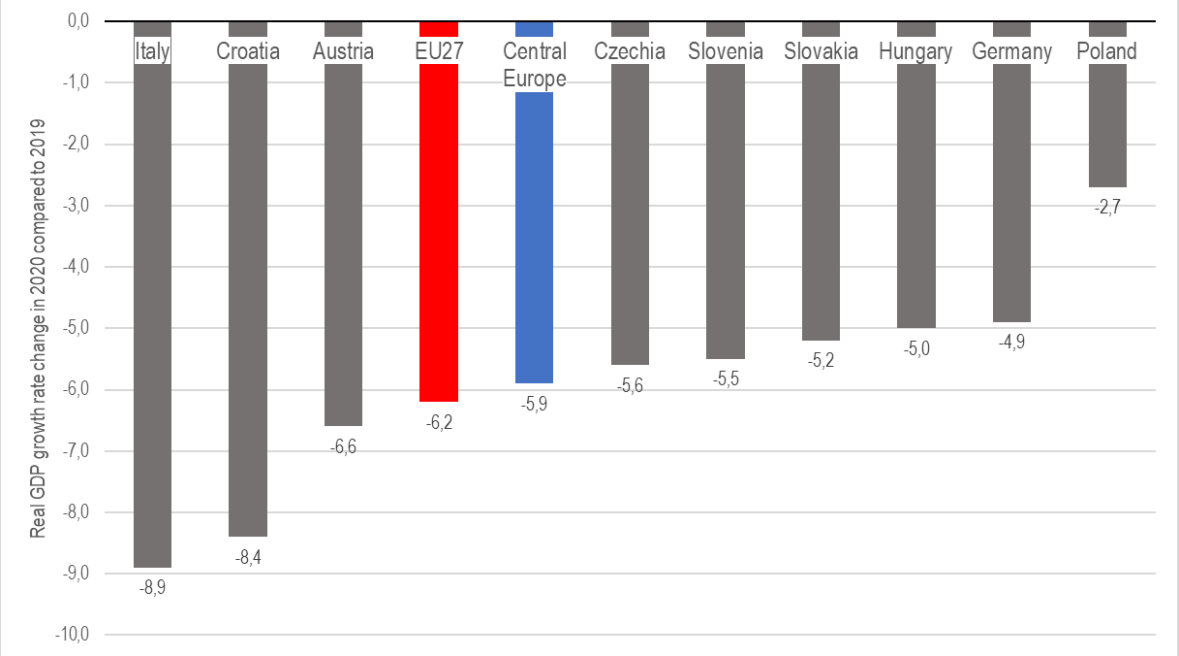

Figure 3: real GDP growth rate change in 2020 compared to 2019, own illustration based on (Eurostat, 2021)

C. Country overviews

2. Croatia

General overview of the financial market

Croatian financial market, in general, can be considered as stable but conservative and risk averse in terms of alternative investments and financial products. Financial sector that offers services and products for energy efficiency and renewable energy projects has undergone significant changes during the years. Accession to the European Union boosted national policy makers' credibility and lead to improvement of investors' perception. The increased presence of the European Investment Bank and the European Bank for Reconstruction and Development coupled with the funding from the European Structural and Investment Funds lowered the cost of capital and opened up new investment opportunities for public and private sector project developers. However, despite the gradual introduction of ESIF financial instruments the market is still overly dependent on traditional financing methods: grants and commercial loans with innovative financing models such as EPC, PPP and crowdfunding having just a minor market share.

The following figure gives an overview on the results of the evaluation of innovative financing schemes, based on different stakeholders' opinions. Detailed explanation of criteria and scores is available in the annex of this document.

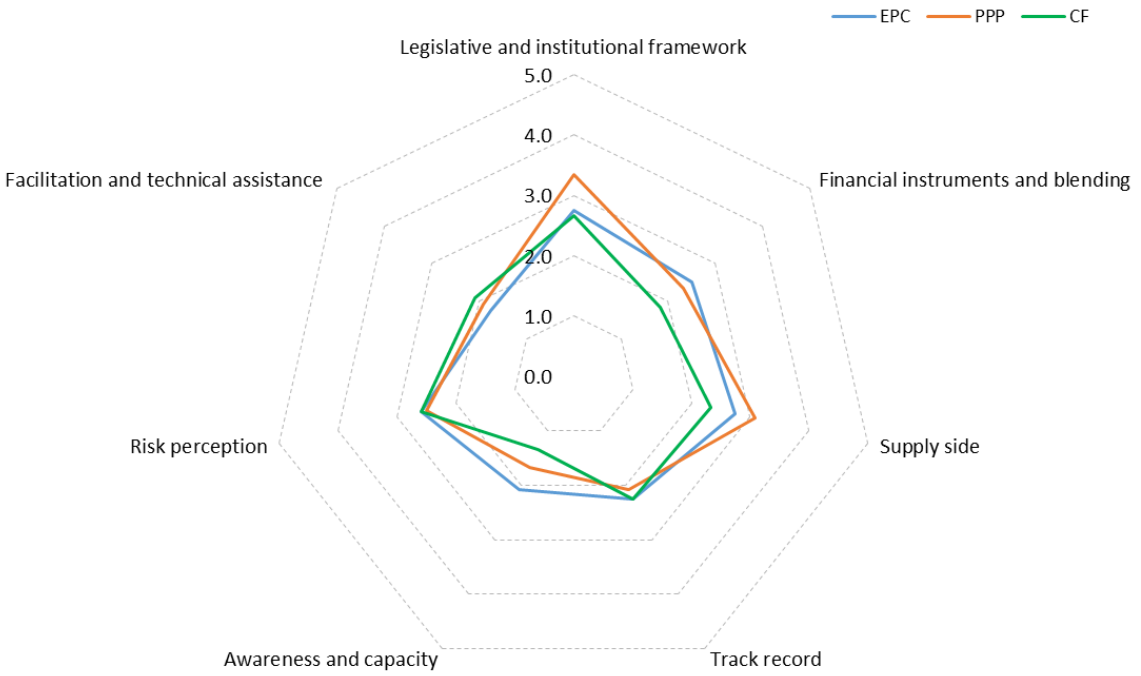

Figure 4: Croatian results of evaluation of innovative financing schemes (1 = low rating, 5 = high rating); full explanation of scores is attached in the annex. n=4

2.1. Public-Private Partnership

2.1.1. Legal, regulatory and administrative framework

First PPP projects in Croatia had been contracted well before the complete PPP legal framework was put in place and from 2008 a dedicated law, procedures and institutions in charge have finally been put in place.

Most PPP projects in Croatia so far have been implemented through PFI (Private Finance Initiative) and concession models, mainly in sectors such as education, healthcare, public administration, environment, culture, and sports. In recent years, public authorities have started to use contractual PPP models for energy efficiency projects that include a full range of services (e.g., design, build, finance, operation and maintenance of the street lighting systems). PPP projects are considered as off-balance sheet projects as all contracts must be in line with the new EIB-Eurostat guidance. Main issue with the national legislation is that it recognizes only several contractual models as PPP models, although international practice identifies a lot more PPP agreements.

Lack of affordable capital, risk sharing instruments and technical assistance for preparation of potential projects for public authorities are currently the main obstacles that hinder a wider uptake of PPP model. Domestic banks have very limited experience in financing PPPs either through corporate or project financing. Combining European Structural and Investment Funds (ESIF) with private financing resources in a PPP structure is recommended on the level of the European investment policy. Although national authorities have proposed the procedure for combining PPP with ESI Funds no steps have been made to provide dedicated financial instruments for PPP projects. Blending can be attractive from an ESI Funds perspective as the use of a PPP structure may bring additional disciplines in the deployment of funds and improve value for money (VfM).

2.1.2. Market status, trends and driving factors

Market wise, the supply side can also be seen as an issue with execution of larger PPP projects due to the lack of capable contractors, facility managers and operators in Croatia. To date, the large PPP contracts have been granted to consortia led by foreign international companies. Overall investment volume has varied immensely during the years as PPP projects take long time to be prepared and financed (Figure 2)

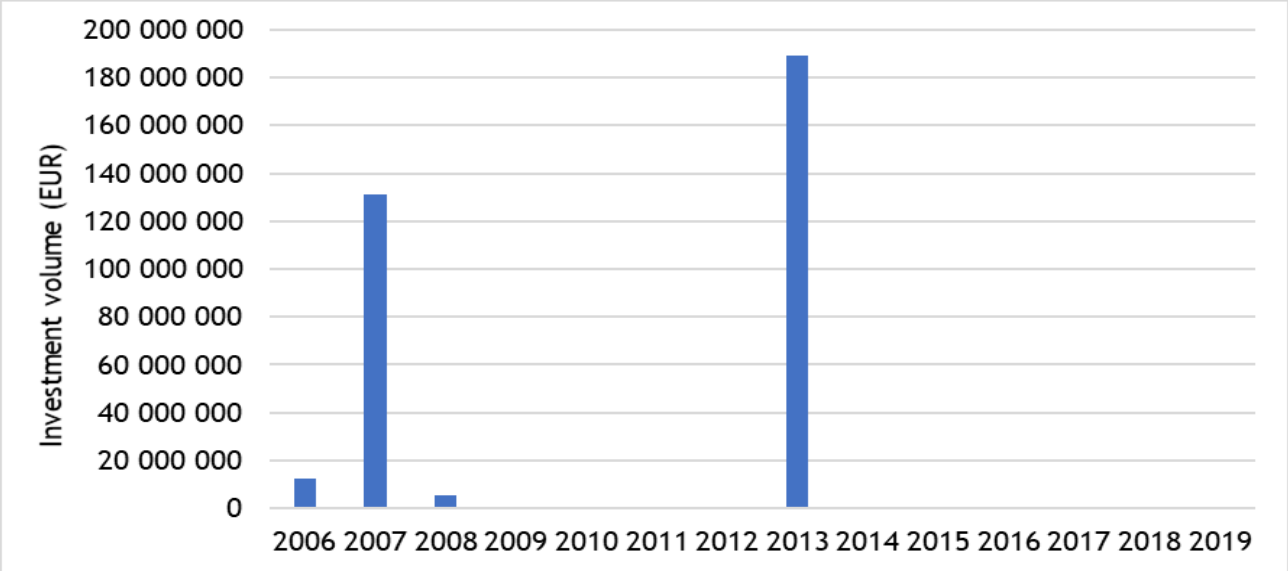

Figure 2: Investment volume of approved public-private projects in Croatia
Source: Registry of public-private partnership contract

Public authorities unfortunately do not have a very positive perception of PPP projects due to various success of previous PPP projects in Croatia. PPPs are long-term contractual arrangements and public authorities are not always aware of different forms that PPP can take place. Cost of capital for PPP projects has so far been on par with market conditions for standard sustainable energy projects.

Awareness levels among public authorities are remaining relatively low as PPP agreements are not clear to most project developers and are perceived as complex and expensive to prepare. Limited public sector capacity to manage the combination of grant funding and PPP preparation and procurement processes appears to be the single most important barrier.

Also, the supply of specialist PPP advisory services in Croatia is still relatively under-developed and grants for expensive preparatory activities are still not available. For large infrastructure projects, contracting authorities, project sponsors and financiers have tended to rely on international advisory companies with a local presence.

2.2. Energy Performance Contracting

2.2.1. Legal, regulatory and administrative framework

The procedure of implementation of energy services in the public sector in Croatia is strongly regulated by dedicated legal framework whose purpose is to ensure that implementation of measures to improve energy efficiency in public buildings is carried out with no additional spending of owners'/users' budgetary resources. This principle unfortunately also limits the possibilities for deep renovation of buildings which usually cannot be repaid with resulting financial savings. Eurostat's guidance note on the recording of energy performance contracts in government accounts applies to EPCs in Croatia as well and little to no buildings energy renovation projects have been realized since this guidance was put in place.

Dedicated financial instruments for EPC projects are currently non-existent. ESIF grant based schemes have been predominantly used by project developers as well as soft loans approved by the Croatian Bank for Reconstruction and Development (HBOR). However, some progress has recently been made with introduction of specialized ESIF financial instruments for SMEs and public lighting projects.

2.2.2. Market status, trends and driving factors

Financial institutions perceive EPC based projects as complex transactions that require longer than usual (financing) approval procedures bearing higher than usual transaction costs. Financial institutions are very much interested in entering the EPC market, as one of promising future investment areas, but under the assumption of introduction tangible risk mitigation tools and higher standardization at international or national level. These would bring transaction costs down and compensate the risk prevailing at the moment.

Aside from the HEP ESCO company and some 15 active ESCOs a number of small start-ups, characterized as "sleepers", can be found on the market, waiting for the market to fully open up. EPC cannot be considered as competitive compared to traditional financing models as EPC contracts cannot be combined with grants or other kinds of ESI financial instruments. Therefore, no significant pipeline of EPC projects currently exists but could be built with an initiation of national EPC scheme.

EPC contracts should be perceived as risk-free for public authorities as they do not bear any technical or financial risks and receive guaranteed energy savings. However, strong scepticism still remains due to bad track record of previous ESCO projects which were in fact not true EPC projects (they provided no guaranteed savings).

Facilitation and technical assistance are provided by energy agencies of which only several have concrete experience with actual implementation of EPC contracts in the building sector. Standardized EPC contracts for the buildings sector with harmonised approaches to metrics for baseline estimations of energy use as well as measurement, verification and reporting on energy savings achieved has not been developed and is a necessary prerequisite for further market development.

2.3. Crowdfunding

2.3.1. Legal, regulatory and administrative framework

Crowdfunding has so far been sparingly used for financing of energy projects in Croatia with no visible market or legislative improvements over the years. The government has not made any specific laws to either forbid or further regulate certain models of crowdfunding (donation, rewarding, lending and investing models) or regulate the work of crowdfunding platforms. Therefore, all models are regulated by existing laws which are mostly obsolete, not flexible enough and tailor made for traditional financing models and institutions. One of the most hindering factors for development of civic crowdfunding is the law that prohibits public authorities from lending capital from citizens.

2.3.2. Market status, trends and driving factors

Traditional financial institutions are mostly perceiving crowdfunding platforms as competition, as they can also provide financing for potential clients under better conditions, although mostly at early (risky) stages of project development. Banks have so far shown no interest to establish their own match-making crowdfunding platforms but are willing to co-finance projects that have raised capital on the market through crowdfunding campaigns. This interest from banks can be attributed to the nature of crowdfunding projects which use the campaigns as market validation and testing tools.

ESIF financial instruments have not officially recognized crowdfunding as a complementary funding source for EU projects and no mention of potential possibility for combining of these sources has been made.

Reward and lending models are the only models that have been so far used for financing of sustainable energy projects (energy renovation of public building, solar power plant and production of solar equipment) with assistance from domestic platforms (Croenergy, ZEZ Invest and Funderbeam SEE). Although regarded as small-scale projects, they have been a complete success and have garnered significant media attention. Unfortunately, little to no replication by other developers has happened ever since as perception of riskiness and complicated preparation remained.

ESIF instruments which offer low interest rates and availability of grants for sustainable energy projects have completely wiped out the interest for crowdfunding models from public authorities and SMEs. All these issues have factored into the overall modest growth of Croatian crowdfunding market (Figure 2).

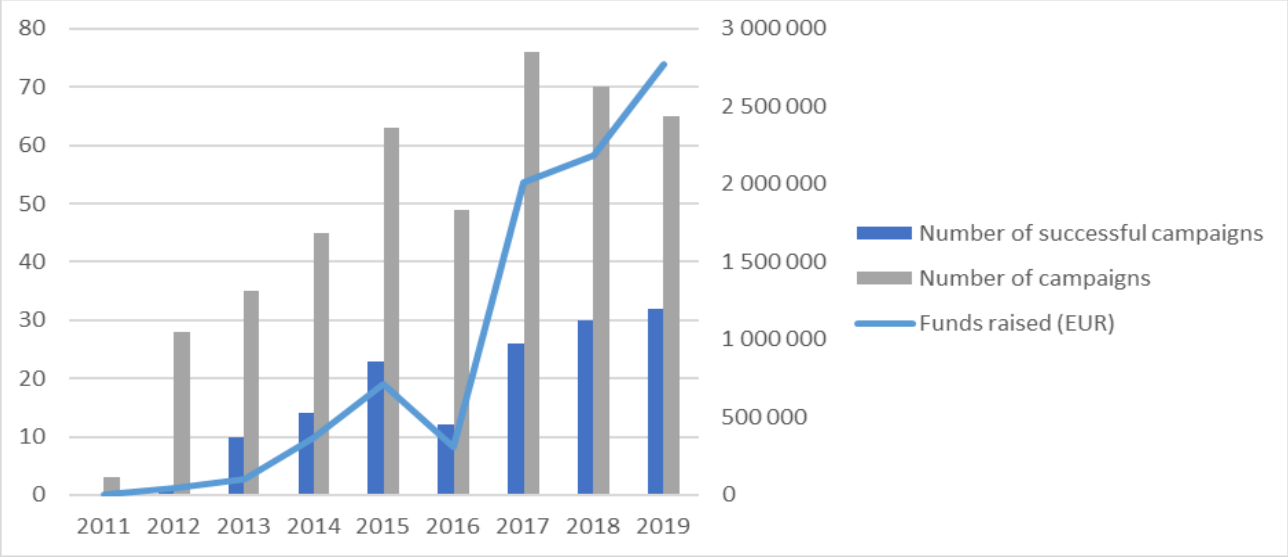

Figure 2: Investment volume of Croatian crowdfunding campaigns

Awareness levels about either crowdfunding model remains constantly low, especially within public sector. Situation with awareness of citizens is not significantly better and scepticism towards these projects is significant as citizens are risk averse towards investing in private projects. Citizens would be willing to invest in projects owned by public authorities, but prohibitive civic crowdfunding regulations have eliminated cities and municipalities from participating in this market.

Croatian fundraisers prefer to seek funding on foreign crowdfunding platforms due to the larger number of potential investors and the enhanced chances for successful financing. With the exception of Funderbeam SEE platform, most domestic platforms provide only simple donation and reward models or are not professional and commercial financial institutions. Crowdfunding models have significant competitive advantages to traditional financing models that project developers are not always aware of. Unfortunately, COVID-19 situation revealed that crowdfunding is also highly reactive to global crises due to investors' risky perception of these models. Due to the global crisis, it is hard to assess the actual pipeline of projects as most projects have been put on hold.

Market facilitators that provide technical assistance (e.g., energy/development agencies) are constantly present on the market and platform operators themselves sometimes provide TA services. Crowdfunding guidelines and methodology on how to prepare campaigns have been in circulation for a long time but grants for preparation costs of crowdfunding campaigns are unfortunately not yet available.

3. Hungary

General overview of the financial market

Based on Hungarian experiences it can be stated that the biggest barriers for wider uptake of innovative financing forms for EE/RES projects are the weak legislative framework and lack of supportive instruments and initiatives to boost these markets. In addition, concerning particularly PPP and EPC, low energy prices also prohibit to develop such projects with an acceptable payback-period. As 90-100% grant schemes were available for local public authorities for EE and RES developments of public buildings in the last programming period (2013-2020), no other business models were in scope. Failed public PPP projects in the early '2000 raised trustfulness.

PPP and EPC projects must be in line with the Hungarian procurement law including regulations on concessions and European competition law. This requires a deep know how, which is a major barrier, especially for smaller municipalities. Lack of know how in PPP/EPC tender process may result in higher project costs, lower quality, extended implementation time and delays of the project.

PPP/EPC can have relatively high project preparation costs, which may be made proportionately lower by bundling projects in groups of at least 3 buildings. This allows lower specific preparation and maintenance costs for the public body and a more favourable business for the 3rd party.

The Hungarian crowdfunding market is still unmature. Donation-based model is known and used – although rarely in the field of EE/RES developments, but crowd investing and crowd lending projects (eg. RES developments) are quasi prevented by financing regulation.

More information about each innovative financing scheme in Austria is provided in the chapters below and in deliverable DT1.5.2.

Figure 5 gives an overview on the results of the evaluation of innovative financing schemes.

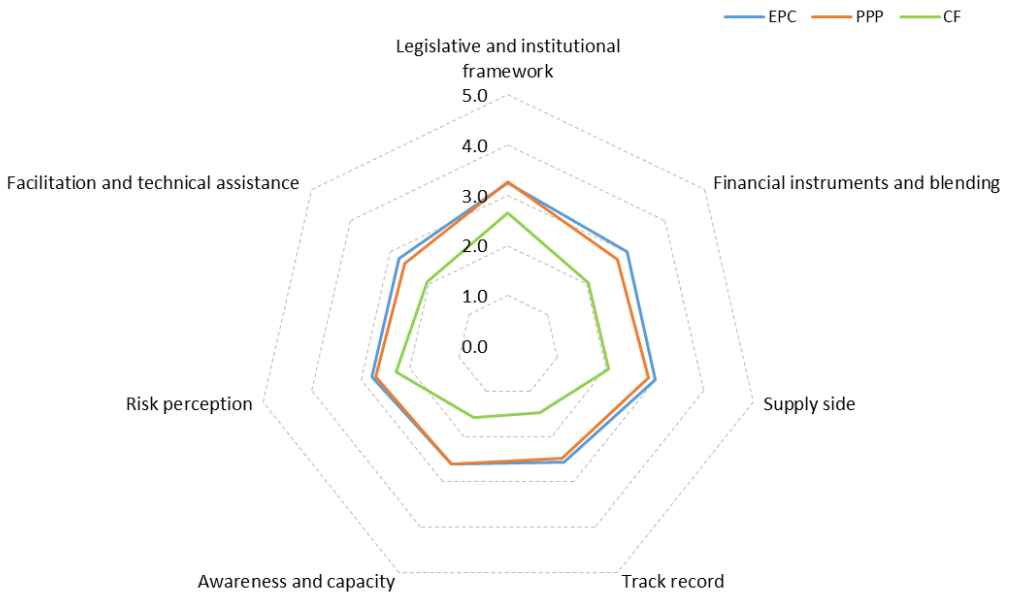

Figure 5. Hungary results of evaluation of innovative financing schemes (1 = low rating, 5 = high rating); full explanation of scores is attached in the annex. (n=4 for EPC, n=2 for the other models)

PPP and CF are so unknown and unused for EE and RES purposes that external stakeholders refused the ranking of these schemes. Detailed explanation of criteria's and scores is available in the annex of this document. Basically, 5 is the highest achievable score in different criteria, whereas 1 is the lowest score.

Legislative and institutional framework (rating results 2,3-3,2):

- the relevant legislation is quite poor and general for all financing schemes, at least covered within the public tender regulations.
- Accounting and regulatory treatment of alternative financing schemes are not always clear to public authorities.
- Markets are unmature and positive changes can not be registered from the last 2-3 years.

Facilitation and technical assistance (rating results 1,7-3,2):

- The results indicates that market facilitators and technical assistance are lacking.
- Possibilities for combining of crowdfunding with ESI Funds/other financial instruments and interest from financing institutes for co-financing such projects are very low/difficult.

Supply side (rating results 1,7-2,3):

- Existence of experienced/larger ESCOs on the market, competitiveness of model compared to traditional procurement and availability of pipeline of projects was perceived as good for EPC scheme (average rating 3,7)
- Competitiveness of models and availability of pipelines is perceived quite low concerning all models. Only EPC shows a bit higher competitiveness, but still less competitive that the traditional models.

Track record (rating results 1,7-2,0):

- The market share of all three financing schemes for energy efficiency measures is perceived as non-existent or very low.
- Some EE projects have been realised using PPP and EPC, however it is not common practice for project developers. Regarding crowdfunding, only a few examples exist.

Awareness and capacity (rating results 1,2-3,0):

- The awareness level of public authorities was rated low or extremely low for all three financing schemes.
- Awareness of financing institutions is the best on PPP model.
- The capacities of project developers are mainly perceived low or extremely low for all three financing schemes.

Risk perception (rating results 1,8-2,5):

- Among alternative financing schemes, PPP is perceived to be least risky and crowdfunding the riskiest.

Financial instruments and blending (rating results 2,0-2,2):

- Availability of guidelines and market facilitators is limited for all models.

3.1. Public-Private Partnership

3.1.1. Legal, regulatory and administrative framework

The Hungarian legal, regulatory and administrative framework does still not support PPP investments presently, neither regulation on PPP models is in force nor supporting institutions are available. The PPP Handbook, published by the Ministry of the Economy and Transport in 2004 gives guidance primarily to the professionals and decision makers of the public sector, furthermore it presents the experiences and research conclusions of other countries. Although a PPP law was planned to be launched around 2005, there is still no complex PPP legislation in Hungary. PPPs are usually classified as service or work concessions by Hungarian law.

3.1.2. Market status, trends and driving factors

Similarly to international trends, the concept of PPP has emerged in Hungary in the early 2000s. But the solutions applied in Hungary cannot be considered as PPPs based on the strict interpretation of the concept. The purpose of PPP projects in Hungary from a theoretical point of view was unusual: the main driving force behind PPP projects was to fill financing gaps. Practical reading of added value of the projects that are usually the essence of the projects is distorted. For the public party, the value of the projects was focused on providing a quality service in the short term, with affordable funding that does not impair the creditworthiness of local governments; the sophisticated risk sharing of PPP did not materialize. The government lacked the appropriate methodological knowledge and business management approach for conscious management of value-adding[1].

Between 2003 and 2006, 133 PPP projects were contracted at national level, with a duration of 18-27 years and a NPV of app. 2,35 billion EUR. The net present value of PPP investments decided in 2007 exceeded 2,2 billion EUR.

The once flourishing (from 2000 c. 2008) Hungarian PPP market drastically declined into recession due to numerous factors. PPP construction was used mainly at national level.

At local level, some typical forms of PPP are in common use: management and operating agreements (eg. for waste disposal) and leases contracts, but regarding nZEB refurbishments, more complex, eg. Build Operate Transfer (BOT) and DBO (design-build-operate) models are needed. Besides the grants without or with only a minor own-contribution, PPP model is not competitive.

3.2. Energy Performance Contracting

3.2.1. Legal, regulatory and administrative framework

Besides the general rules concerning PPPs (see chapter 32.1), law on energy efficiency (LVII./2015) define energy performance contracting and energy service companies which together frame the EPC scheme in Hungary. The law engage public authorities to conclude for energy efficiency services in writing and to observe the rules of related Governance decree (122./2015) on the minimum contents of such contracts, eg:

[1] KOZMA Miklós: PPP in Hungary; Vezetéstudomány, XLVII. ÉVF. 2016. 2. SZÁM, pp19.-/ ISSN 0133-0179; http://unipub.lib.uni-corvinus.hu/2276/1/VT_2016n2p19.pdf

- description of the energy efficiency service subject to the contract and the ancillary service to be provided for its implementation and their costs; and the requirement of their fulfilment;
- guaranteed savings to be realized;
- the legal consequences applicable in the event of a breach of contract, in particular the legal consequences applicable to the failure to meet the guaranteed savings;
- the provision applicable to the eventuality of the contract performance conditions in respect of the amount of guaranteed savings;
- provisions for systematic measurement of savings achieved with energy efficiency services, for reference times of measurements and for monitoring;
- provisions for sharing the monetary value of the savings achieved between the parties.

General information on the conclusion of energy efficiency-based contract, the description of contents of the contracts is available on the Energy Efficiency website where a general contract template can also be downloaded.

3.2.2. Market status, trends and driving factors

National Energy Management Jsc. has been set up, with the intention of becoming a catalyst of EE investments with several financial products. In recent years, this plan appears to have been partially implemented, but the market is still quite narrow, and much effort is needed to revitalize it.

The once flourishing (from 1990 c. 2008) Hungarian ESCO market drastically declined into recession due to numerous factors. The possibilities narrowed, market volume shrank and the number of ESCO companies decreased from 20–30 to 6–8 by 2020. Lower energy prices on the global market and energy prices kept artificially low by government measures in Hungary result an unacceptable long payback period for the private sector. In addition, there is a mistrust of the ESCO market players on the market due to often unfavourable contracts for customers.

Lack of project-development resources and local expertise makes municipalities vulnerable to ESCO partners.

In Hungarian practice, there are no ESCO portfolios that have reached such a critical mass that they have been able to make significant use of the price-reducing factors of joint energy procurement, construction and / or financing volume.

There are still no dedicated financial instruments for ESCOs nor any initiatives supporting EPC project development.

3.3. Crowdfunding

3.3.1. Legal, regulatory and administrative framework

A dedicated national crowdfunding legislation has not been developed in the recent years in Hungary. Law on civil, non-profit organisations (CLXXV./2011) and the one on personal income tax (CXVII./1995) regulate the rules of donation. Regarding local public authorities (LPA), related law (CLXXXIX/2011) doesn’t name donation as a possible income for local public authorities, in turn it mention ’other special income’, under which donation can be classed. Local public authorities can so open a bank account and start to collect money for a given purpose. LPAs or certain institutions under their management have usually a non-profit foundation, which also can start a crowdfunding campaign, which is quite common in Hungary

However, equity crowdfunding – crowd investing and crowd lending projects are quasi prevented by financing regulation, as only dedicated and registered banks (firms with monetary activities) are allowed to gather and reallocate money.

In 2012, the Self-Regulatory Board of Fundraising Organizations (SRBFO) was established (the number of members has increased by 50% since 2018 to 46) and the Code of Ethics for Fundraising Organizations (CE) was also elaborated.

3.3.2. Market status, trends and driving factors

Only donation-based crowdfunding is common in the public sector of Hungary, mostly implemented locally, without specific platforms. Rewarded community funding is also present, but capital and lending models are not in use due to inadequate regulation.

Interesting case and maybe an example to follow is the municipality of Ajka, where a kindergarten has been renovated partly from crowdfunding (50% municipal and 50% private source).

An innovative example of community funding in Hungary is the Local Energy Saving Cooperation Assistance (HETES) Program, which aimed to find new funding models and structures to promote energy efficiency investments at the local, community level. According to the original idea (and Western European examples), in the form of a cooperative, members of a smaller community could start raising money along a local interest and then borrow in addition according to the defined goals. As fundraising in the form of cooperatives did not prove feasible in Hungary, a form of community financing for energy efficiency investments was created in cooperation with Magnet Bank (Hungary's first community bank). The counterparty puts his money in the bank and by making a deposit he can make the loan more favourable of a borrower of his choice.

In 2021 with the new regulations to be conform with the amended directives (e.g. RED II), it is expected to have a congenial legal environment to community projects, which may have an influence on the EE/RES investments as well.

4. Slovenia

General overview of the financial market

Slovenia has been an open market since its successful economic transition of the 2000s. As a member of the European Union since May 2004 and of the Eurozone since 2007, Slovenia is an advanced, independent and stable country. Slovenian financial market, in general, can be considered as stable but conservative and risk averse in terms of alternative investments and financial products. Financial sector that offers services and products for energy efficiency and renewable energy projects has undergone significant changes during the years. Accession to the European Union boosted national policy makers' credibility and lead to improvement of investors' perception. The increased presence of the European Investment Bank and the European Bank for Reconstruction and Development coupled with the funding from the European Structural and Investment Funds lowered the cost of capital and opened up new investment opportunities for public and private sector project developers. However, despite the gradual introduction of ESIF financial instruments the market is still overly dependent on traditional financing methods: grants and commercial loans with innovative financing models such as EPC, PPP and crowdfunding having just a minor market share.

The following figure gives an overview on the results of the evaluation of innovative financing schemes, based on different stakeholders' opinions. Detailed explanation of criteria and scores is available in the annex of this document.

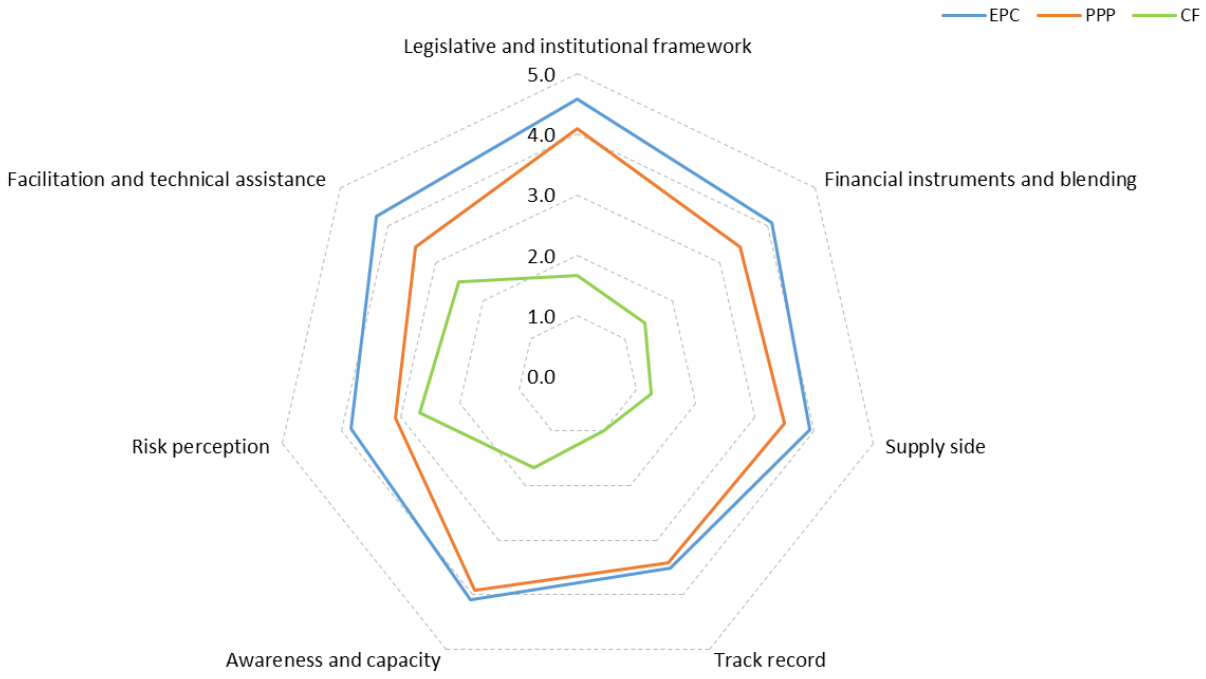

Figure 6. Slovenia results of evaluation of innovative financing schemes in Slovenia (1 = low rating, 5 = high rating); full explanation of scores is attached in the annex. n=4

4.1. Public-Private Partnership

4.1.1. Legal, regulatory and administrative framework

Public-private partnership in Slovenia is regulated by a Public-Private Partnership Act (Zakon o javno-zasebnem partnerstvu; ZJZP), that came in to effect with 7.3.2007. This Act regulates the purpose and

principles of private investment in public projects and/or of public co-financing of private projects that are in the public interest, the methods of encouraging public-private partnership and the institutions concerned with its encouragement and development, the conditions, procedure for creation and the forms and methods of operating public-private partnerships, the special features of works and service concessions and of public-private equity partnerships, the transformation of public companies, the system of law that applies to resolving disputes arising from public private partnerships and the jurisdiction of the courts and arbitration services to decide on disputes arising from such relationships.

This Act serves to transpose into Slovenian law the substance of points 3 and 4 of Article 1 and Articles 17, 23, 29, 48 and 56 – 65 of Directive 2004/18/EC of the European Parliament and the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts (OJ L 134 of 30 April 2004, p. 114) and Commission Directive 2005/51/EC of 7 September 2005 amending Annex XX to Directive 2004/17/EC and Annex VIII to Directive 2004/18/EC of the European Parliament and the Council on public procurement (OJ L 257 of 1 October 2005, p. 127).

Key institution that regulates PPP in Slovenia is Sector for Public-Private Partnership and Public Procurement System ("Sektor za javno-zasebno partnerstvo in sistem javnega naročanja") operating under Ministry of Finance. The main task of the mentioned sector is to develop, monitor, and help in the implementation of PPPs in Slovenia. In this capacity, the PPP sectors publishes manuals for operating PPPs, formulates expert proposals for amendments to regulations and the adoption of other measures that might improve practices and eliminate problems, and performs other tasks provided by the PPP Act.

Other relevant acts are:

- Services of General Economic Interest Act ((Uradni list RS, št. 32/93, 30/98 – ZZLPPO, 127/06 – ZJZP, 38/10 – ZUKN in 57/11 – ORZGJS40);
- Public Finance Act (Uradni list RS, št. 11/11 – uradno prečiščeno besedilo, 14/13 – popr., 101/13, 55/15 – ZFisP, 96/15 – ZIPRS1617 in 13/18));
- Institutes Act (Zakon o zavodih Uradni list RS, št. 12/91, 8/96, 36/00 – ZPDZC in 127/06 – ZJZP).

4.1.2. Market status, trends and driving factors

There are no special financial instruments for PPPs in Slovenia. In some cases, public partner can receive higher co-financing rate form EU and national founds if private partner is included in the project. For example: in call for tender for co-financing energy renovation of public buildings, issued by Ministry of Infrastructure, co-financing rate was 20 % higher for projects with private partners.

The biggest challenge still derives from the lack of knowledge regarding PPP, which often leads to poorly prepared and guided projects. There are no manuals for operating public private partnerships. Although the current law is very exact on all the procedures to form public private partnerships and although there is also a law on public procurement, the above-mentioned law does not cover all the possible types of public private partnerships (e.g. agency, service contracts, profit sharing contracts, etc. The draft law on public-private partnership that is more exact, up-to-date and in line with new EU directives is still in preparation.

The most common use of PPP model is with projects for new constructions of public buildings (like kindergartens, sports halls, schools, etc). This model is widely used across Slovenia.

Since 2016 PPP in connection with EPC was formulated in a specific mechanism for deep renovation of public buildings. In some cases, nZEB standard can be achieved through this PPP-EPC model. (Restaura Project Consortium, 2016) EPC, as part of PPP, is main financial instrument for building renovation Pure PPP project is more appropriate for new buildings and remains one of the main financial instruments for future project financing.

4.2. Energy Performance Contracting

4.2.1. Legal, regulatory and administrative framework

The most important EES policy document transposing the relevant Article 18 (Energy Services) and Article 19 (Other measures to promote energy efficiency) of the Directive 2012/27/EU (EED) is the National Energy Efficiency Action Plan – NEEAP (Ministry of Infrastructure, 2014, 2017). The key measures for achieving the objectives by 2020 include those aimed at encouraging the implementation of EPC projects. A stimulating support environment for the development of EPC and EES is established in the framework of the NEEAP.

Otherwise, the main legislation that indirectly outlines the implementation of EPC includes:

The Energy Act (Energetski zakon, EZ-1, Official Journal of the Republic of Slovenia – OJ RS, No 17/14, 81/15) transposes a number of EU directives concerning electricity and gas markets, energy efficiency (Directive 2012/27/EU) and renewable energy sources. This Act lays down the principles of energy policy, energy market operation rules, manners and forms of providing public services in the energy sector, principles and measures for achieving a secure energy supply, for increasing energy efficiency and energy saving and for increasing the use of energy generated from renewable energy sources, and lays down the conditions for the operation of energy installations, regulates the responsibilities, organisation and tasks of the Energy Agency and the competences of other authorities operating under the Act.

Public-Private Partnership Act (Zakon o javno-zasebnem partnerstvu /ZJZP/, OJ RS, No. 127/06): main legal framework for the implementation of EPC in public sector.

Beside national EES model documents and project implementation guidelines publicly available in the framework of several Intelligent Energy Europe and Horizon2020 projects (EESI, ChangeBest, Transparense, EPCinTrans, Streetlight-EPC, EPC+, GuarantEE), the Ministry of Infrastructure, i.e. the PBER PIU, has prepared the following EPC/EES model documents and project implementation guidelines:

- Instructions and technical guidelines for energy renovation of public buildings (http://www.energetika-portal.si/fileadmin/dokumenti/podrocja/energetika/javne_stavbe/ntueps_feb2018.pdf)
- Instructions for operation of intermediary bodies and beneficiaries implementing public buildings energy renovation programme (http://www.energetika-portal.si/fileadmin/dokumenti/podrocja/energetika/javne_stavbe/ndopeps_feb2018.pdf)
- Detailed guidelines for the public partners implementing public buildings energy renovation(http://www.energetika-portal.si/fileadmin/dokumenti/podrocja/energetika/javne_stavbe/pujpeps_feb2018.pdf)
- Call to public-private partnership promoters (http://www.energetika-portal.si/fileadmin/dokumenti/podrocja/energetika/javne_stavbe/01-oris_poziva_promotorjem.pdf)
- Decision on public-private partnership (http://www.energetika-portal.si/fileadmin/dokumenti/podrocja/energetika/javne_stavbe/02-oris_odlocitve_o_javno-zasebnem_partnerstvu.pdf)
- Concession act

In the Operational Programme for the Implementation of the EU Cohesion Policy in the period 2014-2020, the Republic of Slovenia has adopted a decision, in line with the Directive 2012/27/EU, that by the end of the programming period, in the year 2023, 1.8 million m^2 of useful area in the public sector will undergo energy renovation. To fulfil the target set, yearly investment needs in the period 2016 - 2023 are at the

level between EUR 51 million and EUR 53 million, resulting in the total investment of EUR 415 million (including VAT) in the period. Energy efficiency investments in deep renovation of public buildings is financed from the European Structural and Investment Funds (ESIF) – Cohesion Fund, using financial instruments and EPC, which enables adequate leverage factor to EU funds and public funding from the Republic of Slovenia. The OP ECP ensures exemplary role of public bodies' buildings and accelerates take-off of the EPC as a key mechanism by provision of EUR 147,5 million of Cohesion grants, EUR 25 million of EU funds in a loan facility (through Slovenian Investment Bank - SID bank loan fund financial engineering, adding EUR 12,5 million). In total, EUR 185 million of financial support will be available for energy renovation in the public sector, providing 40% grant financing for eligible projects.

4.2.2. Market status, trends and driving factors

According to Country Report on the Energy Efficiency Services Market and Quality in Slovenia (EU H2020 QualitEE Project[2]), there is no reliable data on EES providers in Slovenia and in-depth EES market analysis. Almost 660 companies in Slovenia are dealing with supply of electricity, gas and steam and more than 160 energy distributors or retail energy sales companies are identified as obligated parties in the framework of EED energy savings obligation scheme.

However, the EPC and ESC providers in Slovenia are easily identified due to very limited number of market players. Looking at the EPC market, 3 national EPC providers dominate the market which is therefore considered to be non-competitive. In the NEEAP there is a measure designed to underpin opening of the EPC market to new EPC providers establishing a guarantee scheme enabling SME EPC providers to get debt financing for EPC projects. The implementation of measure has not started yet.

Public sector
For almost 80% of EPC providers and facilitators in Slovenia most frequently clients come from public sector and municipality. Like in the other EU countries the EPC and ESC focus in Slovenia is on public buildings (office buildings, schools, kindergartens, elderly care homes, etc.) and street lighting, mainly due to public clients lack of own capital for EE investments and public buildings energy renovation programme deploying innovative business models to attract private finance. It is estimated that 90% of the EPC/ESC projects are implemented in the private sector.
Private sector (Industry, Commercial, Residential)
Private EPC and ESC clients are mostly clients from industry implementing lighting and combined heat and power (CHP) projects. The industry sector is a black box in terms of EPC developments. Some extremely successful energy efficient lighting projects were reported beside many ESC CHP projects supported through the feed-in tariff scheme, but there is no information on other type of projects, probably subject to confidentiality agreements. It is estimated that the sector's EPC market potential lies in horizontal energy efficiency measures and renewable energy sources (Green EPC) and not in specific technological processes.

Buildings in commercial sector have lower EPC implementing potential comparing to the public sector as the commercial clients don't consider energy costs a priority yet.

The current EPC market development in the public sector is underpinned by the OP ECP support scheme throughout the period 2016 -2020 and public clients are assisted by the Public Buildings Energy Renovation Projects Implementation Unit operating within the Ministry of Infrastructure. In order to reach higher energy cost baseline as a prerequisite to improve feasibility of EPC projects subject to high transactional cost, the OP EPC support scheme stimulates pooling of smaller buildings energy renovation projects. The minimum investment range of EPC project(s) in the framework of that scheme is set to EUR 750,000.

[2] https://qualitee.eu/

4.3. Crowdfunding

4.3.1. Legal, regulatory and administrative framework

Slovenia does not have a proper legislation that would regulate crowdfunding. Existing EU laws allow individual countries to implement national legislation for crowdfunding projects that are worth less than 5 million EU, which leads to the lack of transparency and inefficiency of crowdfunding processes. Crowdfunding in Slovenia has not been directly regulated and is for now related to 17 existing laws, mostly linked to contractual or investment law.

There is no institution, that would legally regulate crowdfunding in Slovenia. For now, institution that is considered relative for crowdfunding projects is Securities Market Agency, which is a legal entity of public law. Its basic mission is to maintain a safe, transparent and efficient market in financial instruments. Crowdfunding projects are also under control of Financial Administration of the Republic of Slovenia (under Ministry of Finance).

There are several institutes and initiatives in Slovenia, among them ZMAG Institute, which actively strives to reform the laws that would be friendlier to young entrepreneurs and would encourage the development of a small economy and regulate financing models such as crowdfunding. In the early years of crowdfunding Slovenia Coworking and Slovenia Crowdfunding initiatives were also established. All the above-mentioned initiatives are trying to prepare Slovenia for three possibilities of crowdfunding (donations/reward crowdfunding, loan crowdfunding and equity crowdfunding). Initiatives also greatly contributed to creation of first Slovenian crowdfunding platform Adrifund, which is a platform for donations/reward crowdfunding.

4.3.2. Market status, trends and driving factors

In the year 2017 start-ups in Slovenia have launched 60 campaigns across three crowdfunding platforms (Indiegogo, Kickstarter and Adriafund). The number of successful campaigns was 21, which is 35% success rate. Altogether start-ups have raised 743,500 EUR in the year 2017. None of the campaign have been connected to the Energy efficiency or implementation of RES, so we cannot say that market for specific crowdfunding/crowdsourcing exists.

The biggest obstacle is of course the lack of legislation in this area. Because specific national legislation directly regulating this area in Slovenia does not yet exist, this can lead to an unintentional violation of legislation. A big obstacle is also the complicated administration, which makes money collection far from a simple process. Often there is a lack of proper counselling and legal support.

Crowdfunding is also a subject of heavy taxation. In all EU countries it is a subject to value added tax, income tax and profit tax. In Slovenia, crowdfunding projects under existing legislation are taxed 22%, which makes us especially uncompetitive in comparison with other countries.
This area is still very much unexplored. The problem of course derives from having no actual legislation on this matter and no new mechanisms. In crowdfunding projects municipalities and cooperatives are not allowed by the law to be a member, which makes those kinds of projects very complex and have to be supported by a very good communication campaign to be successful. In donations model there is no payback option and there is only a “soft” obligation to give the savings for certain purposes.

5. Austria

General overview of the financial market

Based on Austrian experiences it can be stated that the biggest barriers for wider PPP uptake are the complex project preparation phase, which is only suitable for large-volume projects. The PPP project must be in line with the Austrian procurement law, contract law, tax law and European competition law. This requires a deep know how, which is a major barrier, especially for smaller municipalities. Lack of know how in PPP tender process may result in higher project costs, lower quality, extended implementation time and delays of the project. A big "PPP"-initiative currently takes place in the city of Vienna, where the city implements currently seven educational buildings with PPP scheme. A lack of know how in tender procedures were found as major barrier for wider EPC uptake, especially for small municipalities. Especially for smaller municipalities EPC can have relatively high specific project preparation costs. In this case, EPC experts recommend to bundle projects in groups of 5-20 buildings. This allows lower specific preparation and maintenance costs for the contractor. It is also comfortable for the building owner to have only one cooperation partner during the next 5-10 years. The Austrian crowdfunding market experienced a strong uptake since 2015 due to the introduction of the Alternative Financing Act and its amendment in 2018, which simplified the regulation again (higher thresholds, elimination of regulation that only SMEs are allowed to collect money….). Since crowdfunding is a quite risky form of investment for investors (they can lose up to 100% of investment sum, if project went wrong), public project must ensure that the failure risk is as low as possible. Failed public projects, at which investors (private persons….) lose all their money can cause major trust troubles for public institutions and should be avoided. More information about each innovative financing scheme in Austria is provided in the chapters below and in deliverable DT1.5.2.

The following figure gives an overview on the results of the evaluation of innovative financing schemes, based on different stakeholders' opinions. Detailed explanation of criteria's and scores is available in the annex of this document. Basically, 5 is the highest achievable score in different criteria, whereas 1 is the lowest score.

- Legislative and institutional framework (rating results 3,1-3,5):
  - the quality of relevant legislation is widely developed for all financing schemes and at least covered within the public tender regulations, which leads to stable regulatory market conditions.
  - Accounting and regulatory treatment of alternative financing schemes are not always clear to public authorities, which resulted in a lower rating.
- Facilitation and technical assistance (rating results 1,8-2,5):
  - The results indicates that market facilitators and technical assistance is only provided for EPC projects, but not for PPP and CF
  - Very limited availability of grant funding for costs of project preparation, only one Federal State (Upper Austria) provides grants for EPC projects
  - Standardized documents (contracts, guidelines, etc.) are available for EPC projects but missing for PPPs and CFs
- Risk perception (rating results 2,1-3,0):
  - Among alternative financing schemes, EPC is perceived to be least risky
  - Especially CF has extremely risky perception from public authorities
- Awareness and capacity (rating results 2,0-2,8):

- The awareness level of public authorities was rated quite low for all three financing schemes (lowest rating for crowdfunding)
- The capacities of project developers as well as awareness of financing institutions are mainly perceived as good for all three financing schemes.

- Track record (rating results 1,9-2,7):
  - The market share of all three financing schemes for energy efficiency measures is perceived as non-existent or very low.
  - Some EE projects have been realised using PPP and EPC, however it is not common practice for project developers.
- Supply side (rating results 2,4-3,0):
  - Existence of experienced/larger ESCOs on the market, competitiveness of model compared to traditional procurement and availability of pipeline of projects was perceived as good for EPC scheme (average rating 3,7)
  - There is a high availability of CF platforms, however this financing scheme is perceived as not really competitive compared to traditional procurement. A reason could be higher interest rates compared to traditional loans, since public authorities usually get good financing conditions from banks
- Financial instruments and blending (rating results 2,5-3,1):
  - Crowdfunding achieved the lowest rating of 2,5 compared to the other financing schemes, because the interest of financing institutions in CF was rated as quite low

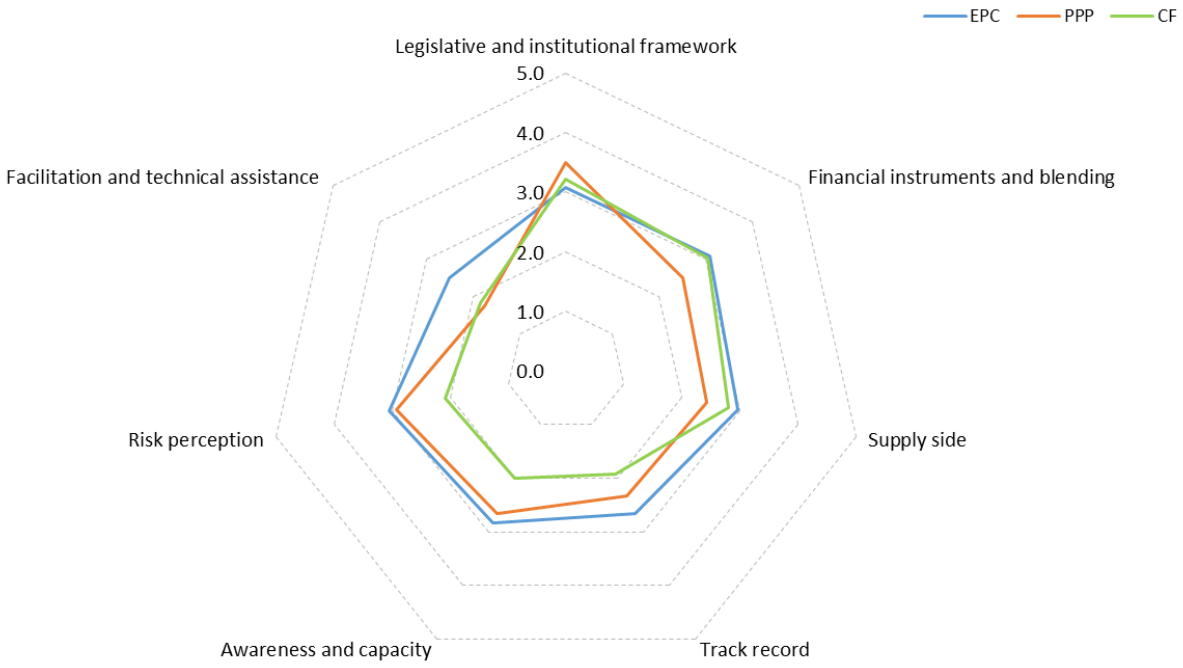

Figure 7: Austria results of evaluation of innovative financing schemes (1 = low rating, 5 = high rating); full explanation of scores is attached in the annex. n=4

5.1. Public-Private Partnership

5.1.1. Legal, regulatory and administrative framework

In Austria, there is no explicit legislation regarding PPPs, whereas currently are no plans to pass such legislation. The contractual frame for PPP is based on general civil and commercial law and procurement of PPP must usually follow the Federal procurement act. However, PPPs are usually classified as service or work concessions by Austrian law (Mickel & Pointner, 2014).

5.1.2. Market status, trends and driving factors

In general, it must be said that there is no joint Austrian database for PPP projects, which significantly complicates a status quo analysis of the market in terms of "number/size of previous projects and types of implemented PPP models".

Nevertheless, the Austrian Administration tries to facilitate PPP since the early 2000s and there is already some literature available which tries to summarize current trends and reviews already implemented PPP projects. Main sources for these market analyses are "WIFO" – the Austrian institute of economic research and reports of the Federal Audit office. In addition, each European member state is obliged to publish annual data on contingent liabilities, which may indicate potential impact on the general government deficit and/or debt. This is specified in the Enhanced Economic Governance package (the so-called "Six-Pack" composed of five regulations and one directive). Annual data include guarantees, liabilities of public corporations, public private partnerships, non-performing loans and participation of government in the capital of corporations. (Statistik Austria, 2021)

The table shows that state governmental liabilities related to off-balance-PPP are constantly decreasing since 2014, whereas the latest investment has been between 2013 and 2014. In 2019, an adjusted capital value off approx. 156 mio. € was reported. In comparison to this, the local governmental liabilities (cities, municipalities…) increased constantly since 2014 from 18 mio. € to 334 mio € in 2019, which means that new PPP projects have been commenced.

Table 2: Overview on Austrian PPP off-balance-sheet liabilities; 1) Adjusted capital value is the currently estimated liability, which effects the public budget in case of debt projection from state government or local government. (Statistik Austria, 2021)

	year	unit	Total	Sectors			
				Central Government	State Government	Local government (including Vienna)	Social Security funds
Adjusted capital value [1)]	2019	% of GDP	0,137	L	0,044	0,093	0
		mio €	489,9	L	155,658	334,248	0
	2018	% of GDP	0,104	L	0,042	0,061	0
		mio €	400,2	L	162,926	237,242	0
	2017	% of GDP	0,099	L	0,046	0,053	0
		mio €	367,8	L	170,194	197,609	0
	2016	% of GDP	0,069	L	0,049	0,020	0
		mio €	246,7	L	173,9	72,88	0
	2015	% of GDP	0,066	L	0,052	0,015	0
		mio €	228,6	L	177,6	51,09	0
	2014	% of GDP	0,060	L	0,054	0,005	0
		mio €	199,4	L	181,2	18,22	0
	2013	% of GDP	0,035	L	0,029	0,006	0
		mio €	112,1	L	92,9	19,23	0

One major reason for increased off-balance-sheet liabilities are the PPP projects in the building sector in Vienna. The city of Vienna is currently working on a series of educational buildings, which will be all built using PPP model **Invalid source specified.**. The city will invest more than € 700 million **Invalid source specified.** in 7 buildings:

- Bildungscampus Christine Nöstlinger: start of operation 2020
- Bildungscampus Aron Menczer: start of operation 2021
- Bildungscampus Inner-Favoriten: start of operation 2023
- Bildungscampus Gasometer-Umfeld: start of operation 2023
- Bildungscampus Wien West: start of operation 2022
- Bildungscampus Liselotte-Hansen-Schmidt: start of operation 2021
- Bildungscampus Atzgersdorf: start of operation 2022

In 2010, (Puwein & Weingärtler, 2010) developed a comprehensive survey among Austrian public authorities. The results are still valid today. The authors concluded that Austrian municipalities are quite interested in PPP. However, there are only a few PPPs in Austria. PPPs are primary considered because they promise greater efficiency. Municipalities that were new to PPPs gave their demand for know-how as main reason for considering PPPs, while those with experience considered faster project realisation and higher effectivity as biggest advantage. Most Austrian PPP projects failed to incorporate the lifecycle approach. It is therefore not possible to optimise costs, nor to utilise the full cost savings potential of PPPs. Generally, it was observed that those municipalities that run PPP projects have a much higher level of public debt. Thus, PPP projects are often chosen to overcome financial restrictions in the municipality's budget.

5.2. Energy Performance Contracting

5.2.1. Legal, regulatory and administrative framework

Energy Performance Contracting (EPC) itself is yet not regulated directly. However, the Federal Public Procurement Law (Bundesvergabegesetz) is providing the legal framework for EPC and PPP and the legal framework is generally seen as sufficient. (SEFIPA, 2018) see contracting and leasing as traditional financing instruments in Austria, but especially the accounting of EPC (EUROstat Guidance Note 07/08/2015) is not completely clear to public authorities.

According to (QualitEE, Country report on the energy efficiency service markets and Quality, Austria, 2018), the Austrian EPC market is highly influenced by the general policy framework on energy efficiency investments, such as the implementation of the European Energy Efficiency Directive.

5.2.2. Market status, trends and driving factors

Austria already has a long tradition when it comes to the implementation of contracting projects. The Federal State closed the first contracts in 1999, 2004 and 2005 and runs a long-term project called “Bundescontracting-Offensive”. Currently, approx. 276 public buildings are in contracting processes of 10 years with average guaranteed energy savings of 19,6 %. This accounts for annual cost savings of 3,6 Mio. € and 13250 tons CO2 per year. It is one of the biggest projects of its kind in Europe. (BMDW, 2021)

According to (Boza-Kiss, B., Toleikyté, A., Bertoldi, P. , 2019), the Austrian EPC market is well developed and stable with a little growth in some regions. The energy service market size in the building sector is estimated between EUR 30 and 40 million in 2018 (street lighting, supply contracting, and other energy services such as auditing are not included).

The energy savings typically achieved by an ESCOs project vary from 15% to 25%. Average size of investments in ESCO/EPC projects varies from less than 200 000€ to 5 000 000€. The typical project duration is 5 to 10 years. It varies depending on the type of the project; private (appr. 2-4 years) and public (appr. 10 years). There are several facilitators help the market, the market is largely demand-driven, and trust is supported with quality labels such as DECA quality label. (Boza-Kiss, B., Toleikyté, A., Bertoldi, P. , 2019)

In Austria, there is an ESCO association (DECA, the Association of 'Austrian Energy Efficiency and Performance Contractors), which developed templates for contracts and provides several services for contractors and possible clients.

Since 2006, Federal State of Upper Austria offers funding scheme for EPC projects, which have been prolonged until the end of 2022. The maximum funding amount is 75 000 € per project, depending on type of project, contracting duration and other fundings applicable. (Amt der Oö. Landesregierung, 2021)

According to the QualitEE country report for Austria the main market drivers for EPC are limited budget in the public sector, external expertise and turnkey services as well as energy savings guarantee. Public subsidies, availability of affordable finance or government policy are only perceived of secondary importance. Success factors for the Austrian market have been the implementation of best practice examples with public contracting partners as well as bundling several buildings for one contracting project in order to reach a critical mass. (QualitEE, Country report on the energy efficiency service markets and Quality, Austria, 2018)

5.3. Crowdfunding

5.3.1. Legal, regulatory and administrative framework

In Austria, the crowdfunding approach for companies is legal since 1st September 2015 (Alternative Financing Law). The law only applies to "lending based crowdfunding" and "equity based crowdfunding". The other forms with no monetary rewards (donation based and reward based (goods, pre-sales..) are not affected.

The execution of this law is done by district authorities. (Wirtschaftskammer Österreich, 2018) (Alternativfinanzierungsgesetz – AltFG, 2018)

5.3.2. Market status, trends and driving factors

Short summary from D.T1.5.2 2020 report + market forecast

The Austrian crowdfunding market is very well documented. Actual data and statistics are available at crowdcircus.com, which is an service provider for Austrian crowdfunding platforms. Currently, 23 Austrian crowdfunding platforms generate money for projects. The used crowdfunding types are donation-based, reward-based, crowdinvesting and crowdlending as well as mixed forms.

Austrian activities in the crowdfunding sector keep growing. The first Austrian crowdfunding project was implemented in 2012. Since then the annual investment volumes are constantly rising. In 2017, an investment volume of € 32 million increased to € 38,2 million in 2018 and reached € 67 million in 2019. **Invalid source specified.Invalid source specified.**

The financed building types are mainly private residential buildings or office buildings. An example for an Austrian crowdfunded public building was not found.

The majority of the implemented crowdfunding projects is based on investing or lending. E.g. in 2017, only 10 % of the total investment volume was generated by donation-based or lending-based projects. (CrowdCircus, 2018)

The average project volume in 2019 was € 450.000 compared to 2018 with approx. € 334.000. The average investment sum is currently € 1.440 per investor.

6. Italy

General overview of the financial market

In Italy, PPP is an important instrument commonly used by public authorities to finance public investments in infrastructure and building sectors. In particular, the 67% of the Italian municipalities have used at least one time the PPP procedure to finance the public work, with a total range of 80% of PPP procedures elaborated by municipalities, as result of a continuous reduction of the economic resources.

The use of EPC, as energy efficiency contracts, is growing. It results a common contract used in the industrial and civil sectors. (V.Chiesa, D: CHiaroni, S. Franzò, F. Frattini, E. Bosco, Luglio 2020)

In the building sector, Crowdfunding is an innovative method to collect money and support several projects in several sectors. The crowdfunding trend in Italy is not usually used, but when applied it has obtained positive results, with a continuously grown in terms of projects financed and money invested.

In eCentral project we have investigated though a survey to building stakeholders, the implementation of these three financing schemes in the building market, considering different criteria.

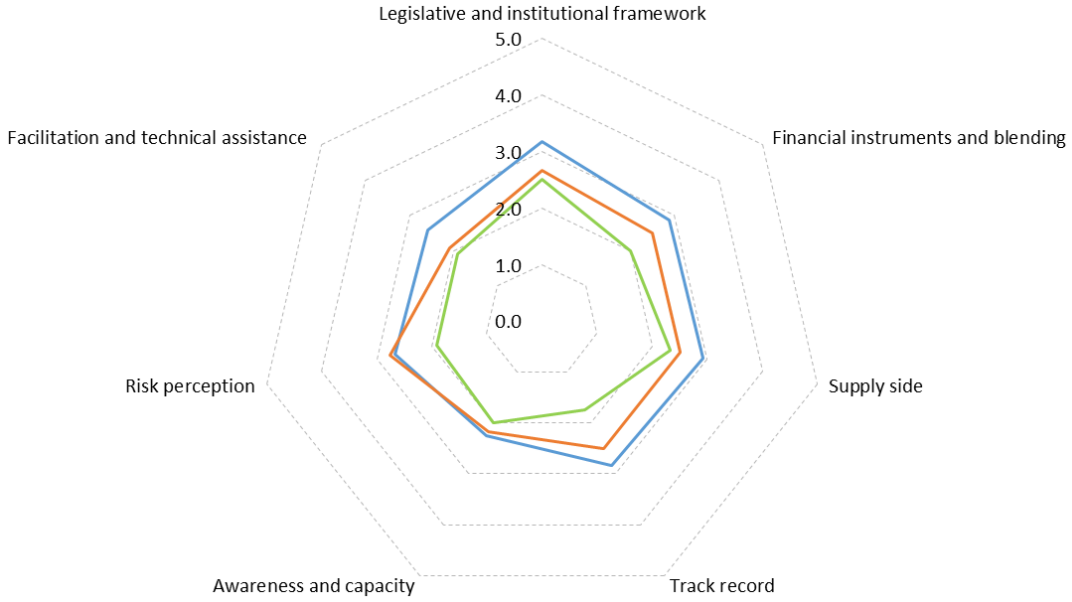

Figure 8. Italian results of evaluation of innovative financing schemes (1 = low rating, 5 = high rating); full explanation of scores is attached in the annex. n=5

Figure 8 gives an overview on the results of the evaluation of innovative financing schemes, based on different stakeholders' opinions. Detailed explanation of criteria and scores is available in the annex of this document. Basically, 5 is the highest achievable score in different criteria, whereas 1 is the lowest score.

Model/ Indicator	Legislative and institutional framework	Financial instruments and blending	Supply side	Track record	Awareness and capacity	Risk perception	Facilitation and technical assistance
EPC	3.2	2.9	2.9	2.8	2.3	2.7	2.6
PPP	2.7	2.5	2.5	2.5	2.2	2.8	2.1
CF	2.5	2.0	2.3	1.8	2.0	1.9	1.9

- Legislative and institutional framework (rating results 2,5-3,2):
    - In PPP and EPC the quality of relevant legislation is widely developed for all financing schemes and at least covered within the public tender regulations, which leads to stable regulatory market conditions.
    - crowdfunding legislation is not quite clear and in some cases results inadequate or too complicated to boost the application of the crowdfunding model.
- Facilitation and technical assistance (rating results 2,9-2,0):
    - The availability of guarantee schemes/factoring funds/financial instruments/supply of long-term financing for ESCOs or public authorities developing EPC projects results very clear for EPC and PPP. While CF institutions very unlikely to treat CF as a valid funding source.
    - Interest from financial institutions for financing of PPP is medium, and quite reduced to finance EPC and low to CF projects.
    - Possibilities for combining of EPC, PPP or CF with ESI Funds/other financial instruments is not impossible but very difficult.
- Supply side (rating results 2,9-2,3):
    - Existence of several experienced/larger ESCOs on the market and EPC models are available for all project initiators. EPCs are equally competitive to traditional model and their dimension is small, 1-2 projects of 5-10 mil. EUR of investment volume.
    - In the building market the number of companies capable of conducting PPP projects is quite limited, with only basic models and not for all sectors. Respect to traditional model, PPPs result more expensive and less adequate for most types of EE projects. Usually, PPP is used for low/medium investment, around 10 mil. of investment volume.
    - In Italy there are few CF platforms, available with basic models and not for all project initiators (private sector only). Respect to the traditional model CF results more expensive and less adequate for most types of EE projects, with only several small EE scale projects are in preparation.
- Track record (rating results 2,8-1,8):
    - Some EPC models have been used for EE projects, but it is not that common, Projects have not been very successful/negative reputation among project developers. Investment volume/market share occupied by EPC model is between 10-20%.
    - PPP is considered a rarely model for energy renovation projects, even though PPPs have averagely a successful/solid reputation, with an investment volume/market share between 10-20%.
    - Crowdfunding is not an established model and is not used for energy renovation of buildings and EE projects in general.
- Awareness and capacity (rating results 2,3-2,0):
    - The awareness level of public authorities and financial institutions on EPC and PPP model and how it works is medium low, together the capacities of project developers for realization of large number of EE projects with both financing models.

- The awareness level of CF model results low for public authorities and financial institutions. of Project developers' capacities on CF model, result very low for realization of large number of EE projects.

- Risk perception (rating results 1,9-2,7):
  - The level of risk perception of EPC and PPP model from public authorities is quite high (risky), public authorities are sceptical due to low knowledge or past projects/low trust respectively towards ESCOs and PPP partners. On the other side, the risk perception of EPC and PPP model from financial institutions - level of trust respectively towards ESCOs and PPP partners – is average or mixed risk perception/some have good relationships or past experiences with ESCOs and PPP partners. Cost of capital for ESCOs and PPP partners is an average interest rates for the sector and type of project.
  - The level of risk perception of crowdfunding models from public authorities and financial institutions - level of trust towards crowdfunding platforms is very high, with an extremely risky perception/no trust towards platforms. Cost of capital for crowdfunding projects above typical market interests due to risky perception from investors.
- Financial instruments and blending (rating results 1,9-2,6):
  - Availability of EPC market facilitators that provide technical assistance (e.g. energy/development agencies) is moderate. Availability of grant funding for project preparation costs is very limited and available only for certain types of investments/sectors/applicants. The existence and availability of standardized EPC contracts with harmonised approaches to metrics for baseline estimations of energy use as well as measurement, verification and reporting on energy savings achieved is confirmed, but is not widely available on national level - made for some specific one-off project.
  - Availability of PPP market facilitators that provide technical assistance (e.g. energy/development agencies) is quite reduced. Availability of grant funding for costs of project preparation very limited and available only for certain types of investments/sectors/applicants. Existence and availability of standardized PPP contracts is not widely available on national level - made for some specific one-off project.
  - Few technical assistance providers (market facilitators) are available to provide technical assistance (e.g. energy/development agencies) in terms of number, quality and track record of TA providers. Availability of grant funding for costs of project preparation very limited and available only for certain types of investments/sectors/applicants. Existence and availability of crowdfunding guidelines and methodology on how to prepare campaigns is very limited or obsolete/not up to date with legal framework.

6.1. Public-Private Partnership

6.1.1. Legal, regulatory and administrative framework

Public-private partnership contracts, in Italy, are regulated by the Code of Public Contracts - Legislative Decree n.50/2016, that adopt the Directive 2014/23/EU. It is the regulation base of the contracts, from assignment procedures to contract duration or contingencies in progress and extinguishing events. At national level, there a guideline for public administration *"Concession contract for the design, construction and management of public works for direct use by the Public Administration, to be carried out in public-*

private partnership"[3], completed of necessary information on PPP contract, from general condition to the documentation and contract guarantees (MEF, 2018). Futehrmore, the Legge di Bilancio 2020, requires to public administrations to communicate to the General Accounting Office of the State information and data relating to public-private partnership contracts.

6.1.2. Market status, trends and driving factors

PPP is an important instrument commonly used by public authorities to finance public investments in infrastructure and building sectors. In particular, the 67% of the Italian municipalities have used at least one time the PPP procedure to finance the public work, with a total range of 80% of PPP procedures elaborated by municipalities, as result of a continuous reduction of the economic resources.

PPP are more frequently used in four sectors as (i) public residential buildings, (ii) sports facilities, (iii) urban context and (iv) energy and telecommunications. These last, telecommunication and transport sectors are the most relevant from the economic point of view (in euro invested).

In Italy Public works concession and service concession contracts represent the most widely used forms of PPP contract. Between 2012-2018 over 35.000 PPP contracts have been published in the public construction market, with an amount investment in terms of money of around 95 Billion Euro. At the end, the PPP, in terms of number and millions of euro involved, results a very important financing scheme for public authorities, who for first are continuously involved in the PPP contracts writing, planning and management, improving their know how and knowledge about it.

6.2. Energy Performance Contracting

6.2.1. Legal, regulatory and administrative framework

The energy performance contract is a financing scheme based on energy saving produced by the renovation of the building and involves private partners (as ESCO) to participate in first person in the renovation process.

At Italian level, the last updates on law regulations on EPCs is the legislative decree 141/2016, that modifies the legislative decree 102/2014, implementing of Directive 2012/27/EU on energy efficiency, reporting: "**performance contract (EPC)** is a contractual agreement between the beneficiary or the person exercising the power of negotiation and the supplier of **an energy efficiency improvement measure, verified and monitored** throughout the duration of the contract, where the investments (works, supplies or services) realized are paid according to the level of energy efficiency improvement established by contract or other agreed energy performance criteria, such as financial savings".

At the same time, Legislative decree n. 102/2014 "Attuazione della direttiva 2012/27/UE sull'efficienza energetica, che modifica le direttive 2009/125/CE e 2010/30/UE e abroga le direttive 2004/8/CE e 2006/32/CE" defined a set of actions to improve the energy efficiency in all sectors in order to achieve the national energy saving target in 2020, as required (i) an energy renovation of 3% minimum of the covered roof area of the public buildings, (ii) the introduction in public tenders the Green Public Procurement "Minimum environmental criteria (CAM)" for all sectors, (iii) energy diagnosis and energy management systems for big enterprises – this one conducted by energy service companies (ESS), energy management experts (EGE) or energy auditors, after the 2016 they need to be certified according to UNI CEI 11352 (ESCO), UNI CEI 11339 (EGE) standards or by certified energy auditors according to technical standards to be developed.

[3] http://www.mef.gov.it/documenti-allegati/2018/Contratto_PPP_21_settembre_2018-C.pdf

The Legislative decree 115/08 article 2 defines: (i) ESCo as “a natural or legal person providing energy services or other measures to improve the energy efficiency”, and (ii) TTF as “third-party financing' means a contractual arrangement with a third part, which provides the capital for the investment and charges the beneficiary with a fee equal to part of the energy saving achieved”.

UNI CEI 11352: 2014 standard defines the requirements for companies that provide energy services (ESCo).

D.M. March 7th, 2012 provides for Energy Services companies that operate with Public Administrations to be certificated with the UNI CEI 11352 Standard, and Legislative Decree 102/2014 provides for the ESCo that offer the diagnostic service energy efficiency or TEE a mandatory certification with UNI CEI 113524.

ENEA (the national agency for the new technologies, energy and sustainable economic development) has published “Guidelines on energy performance contract” (G. Fasano, G. Centi, M. G. Landi, F. Margiotta, Settebre 2015) following the legislative Decree n. 102 of 2014. The guidelines aim to support public authorities to elaborate the EPCs. Unfortunately, this guideline included the EPC requirements identified in the Annex XIII of the Directive 2012/27/EU, but no with the last information included (modified) in the Annex B of the UNI CEI 11352:2014.

At national level, on 6th March 2018the Ministry of Economic Development funded the "*National Fund for Energy Efficiency*", to finance the energy efficiency measures, also through the ESCOs, and/or other forms of public-private partnerships.[5]

6.2.2. Market status, trends and driving factors

In the Italian market of the energy efficiency in 2020 there were 1025 ESCo certificated UNI CEI 11352 of which, more than a third certificated in the 2018.

The number of energy efficiency contracts in Italy is in slight grown. EPC results the contract commonly used in the industrial and civil sectors. In the building sector ESCo usually work installing more efficient lighting for public spaces, new heating pumps and building energy management system (BEMS). A quite different overview respect to the data found in the period between 2014-2016, where the building energy efficiency renovation sector was driven by the national tax financing scheme, that supported substitutions of windows and heating generations, and solar shadings. (V. Chiesa, D. Chiaroni, F. Frattini, L. Casolo Ginelli, G. Besozzi, C. Pilitano, M. Bonalumi, F. Capella, D. Cavallaro, A. Di Lieto, S. Franzò, M. Guiducci, L. Manelli, V. M. Manfredi Latilla, D. Perego, A. Temporin, A. Urbati, Giugno 2018)

6.3. Crowdfunding

6.3.1. Legal, regulatory and administrative framework

In July 2013, Italy was the first country in the world to enact comprehensive regulation for the collection of capital through equity crowdfunding authorised online portals. On the way of the Jobs Act adopted in the USA in the 2011, and in order to go over to the economic crisis of these years Italy decided to invest in innovative business innovations, processes and ideas, as:

- Simplification of the enrolment procedures in the “business register”, with lower annual costs
- Labor reform and works contracts (with “Renzi government”)

[4] https://www.esco.one/en/notizie/first-periodic-checking-maintenance-uni-cei-11352-2014-certification/

[5] http://www.poloenergia.com/news/news-pte/20-news-efficienza/114-news-decreto-102-2014#.W8WcJfZoSUk

- Introduction of exceptions to the bankruptcy law
- Introduction of a specific regulations for innovative startup, Legislative Decree 179/2012, successively modified by the Law 221/2012
- Definition of incentives to finance innovative new start-up.

The law n.232 of 2016 called “Legge di stabilità”, successively updated by Legislative Decree n. 50 of 24 April 2017 called “Decreto Correttivo”, enlarged the applicability of collect money online to all Italian SME.

Reward crowdfunding It consists in a financing model that permits to pre-sell or pre-order a product or a service. It rules by the Civil Code, VAT is applied and an invoice emitted.

*Equity crowdfunding I*t consists of capital collection direct on the web through the subscription of participative titles of the capital of a company with an economic return. Law 221/2012, “Crescita bis/Crescita 2.0”, introduces innovative dispositions for the Finance Code (Consolidated Law on Finance, Legislative Decree 24 February 1998, n. 58 called "TUF") and defines what an equity crowdfunding portal is, defines and regulates the activity of portal operators, and regulates the public offers of financial instruments conducted through the portals.” In 2013, CONSOB6 (Commissione Nazionale per le Società e la Borsa - Italian Companies and Exchange Commission) published a resolution n. 18592 on “Regulation on raising risk capital through online portals”.

In Italy, the Italian Association Equity crowdfunding (Associazione Italiana Equity Crowdfunding, AIEC) that represents the online equity CF platforms, the supervised intermediaries who take care of online investment transactions (http://www.equitycrowdfundingitalia.org/).

Lending crowdfunding Investors can lend money to individuals (consumers) or businesses over the Internet with interest and repayment of capital. In Italy, the first lending crowdfunding operators were initially authorized to operate from the Bank of Italy as financial intermediaries, as reported in the ex-art. 106 of the “Testo Unico Bancario” D.Lgs 385/1993. Afterward, in 2016, implemented the European Directive 2007/64/EC (Payment Service Directive) the Bank of Italy published the Resolution 584/2016, about regulations of subjects different from the bank who can collect money. Section IX defines “social lending” (lending-based crowdfunding) financed by a wide number of private lenders (small savers or institutional investors). The relation between the lender and the financed subject is ruled by Civil Code article 1813 is a loan contract.

Unfortunately, the high taxation of the incoming obtained from the lending crowdfunding reduces investments.

Invoice trading crowdfunding Invoice trading crowdfunding businesses allows to sell individual invoices and receive to free up cash, though an online community of investors (dedicated crowdfunding platforms). The concept takes the principle of peer-to-peer lending and applies it to invoice finance.

This business model is ruled by the Civil Code article 1260 and successively that rules the transfer operations of the credits. (Politecnico of Milan, 2017).

6.3.2. Market status, trends and driving factors

In the building sector, Crowdfunding is an innovative method to collect money and support several projects in several sectors. The crowdfunding trend in Italy has obtained quite positive results, with a continuously grown in terms of projects financed and money invested. Crowdfunding is usually used between private, but there same positive experiences in its application to collect money and finance public works, as in the renovation of the Porticos of S. Luca in Bologna.

[6] http://www.consob.it/

7. Poland

General overview of the financial market

The financial system in Poland consists of Banks, Cooperative savings and credit unions, insurance, companies, investment funds, open pension funds and brokerage entities. The banking sector is the largest part of the financial system in Poland - assets of the banking sector are over two-thirds of the financial system assets, which only emphasises their role within the market. Poland is the biggest recipient of ESI funds in the 2014-220 period. In the previous programme period, grants were the main mechanism used to disburse funds, but in the 2014-2020 period, some financial instruments, plus repayable assistance (blended loans and grants) are being deployed. Overall, 4.3 billion EUR of European funds were allocated for energy efficiency measures in Poland. Within the 16 Regional Operational Programmes 1,886 mil. EUR was allocated for energy efficiency projects, of which 312 mil. EUR are dedicated to financial instruments. There is a wish for increased use of innovative financing models and financial instruments, but the procedures are found to be overregulated and administratively overly complicated (Figure 9).

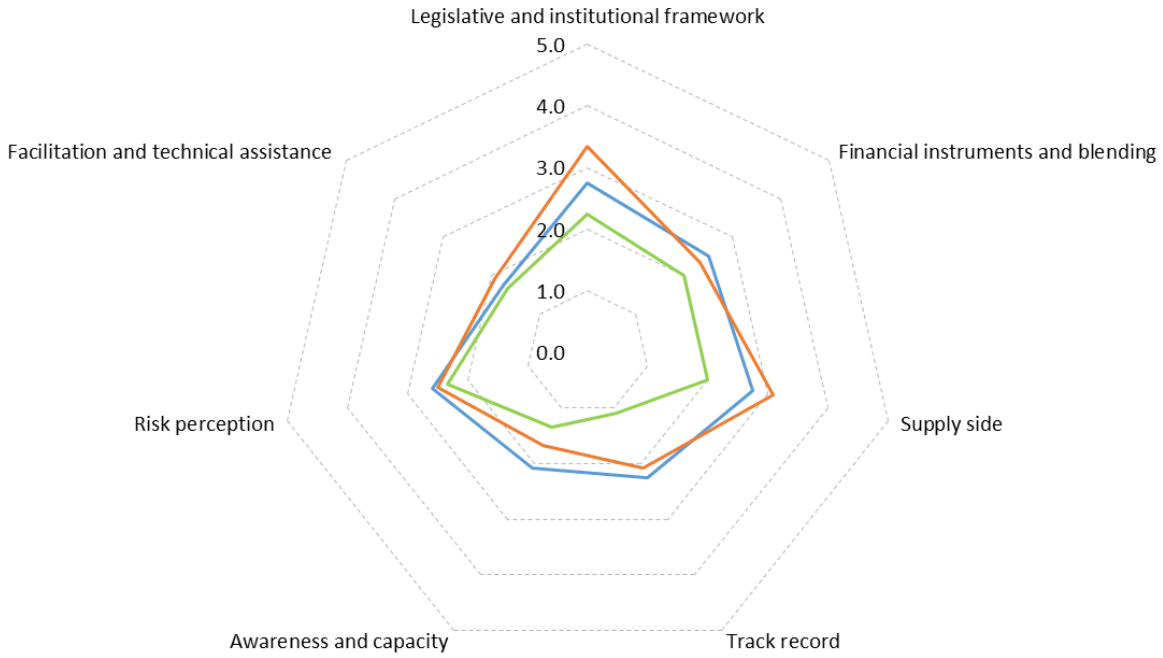

Figure 9. Polish results of evaluation of innovative financing schemes (1 = low rating, 5 = high rating); full explanation of scores is attached in the annex. n=5

7.1. Public-Private Partnership

7.1.1. Legal, regulatory and administrative framework

Public-private partnership in Poland is primarily regulated by the Act on Public-Private Partnership which determines principles of cooperation between the public entity and the private partner within PPP contractual agreement. Institution which regulates and supports development of PPP in Poland is the Ministry of Investment and Economic Development. Although there is no central governmental institution to support and coordinate operations for development of PPP in Poland the Ministry runs a PPP Platform which provides all know-how related to PPP model and enables a cooperation between representatives of public sector and PPP experts and investors. Trainings for potential project developers from the public sector are

regularly organized and if preliminary analysis grades these potential projects as bankable, the Ministry also finances the expensive project preparation costs.

7.1.2. Market status, trends and driving factors

By 2020, a pipeline of around 150 PPP projects in Poland has been built, of which some 25 have signed PPP contracts for projects in the field of energy efficiency improvement of public utilities. The contracts represent an investment volume of around 100 mil. EUR and all projects are being implemented by local governments with an average contract duration from 8 to 15 years. Moreover, there is a pipeline of 35 projects in the field of energy efficiency improvement of public buildings and modernization of street lighting - currently in various stages of preparation - with an investment volume of approximately 115 mil. EUR. The Ministries work hard to promote the PPP concept and a strategic document in this regard was adopted, including measures on how to overcome the quite large reluctance towards PPP models. These measures include free trainings for potential public entities and free consultancy services. Moreover, the Ministry encourages public entities to submit projects with a volume more than 4 mil. EUR in open recruitment. Most of the projects are either not able to complete their initial analysis and modelling stages or are held off at the tender stage. This is mainly due to the fact that the projects are either not suitable for PPP models (being too small) or were deemed as too risky by private partners.

No financial instruments have been specifically designed for PPP projects, although financing resources as preferential loans and conventional grants are available. Hybrid PPP models were used, with the partial capital contribution (app. 50% of the eligible costs) from ESIF grants, and the remainder were be covered from private sector resources (equity and debt).

Representatives of the banking community assess the prospects for further development of PPP market in Poland as being subject to relatively high risk. The main problem is, above all, the relative instability of the national regulatory environment as State Treasury has been known to completely withdraw from the execution of the long-term contractual agreements that were the basis for financing of projects. Financial institutions also stress the need for the Polish state to rebuild confidence among investors and financial institutions. Lack of this confidence will cause reluctance to finance the energy sector as a whole.

7.2. Energy Performance Contracting

7.2.1. Legal, regulatory and administrative framework

Legislation relevant to ESCOs is contained within the Energy Efficiency Act which specifies requirements that have to be met by entities (ESCOs) delivering energy efficiency projects focusing on final energy users and Act on public-private partnership as EPC is considered as a form of public-private arrangement. Lack of the proper and tailor-made legislation and related coherent terminology is believed to be the first and crucial barrier in developing an EPC and ESCO market in Poland.

Some positive changes have been implemented by the Polish government in order to support the development of the energy services market, including a guide on energy efficiency funding related to the public sector together with guidance on EPC. The website of the Ministry of Energy also includes a list of ESCOs active on the Polish market.

7.2.2. Market status, trends and driving factors

Polish ESCO market can be considered as underdeveloped in relation to its overall potential. Aside from the low number of operating ESCOs, the scale of energy renovation projects in relation to low energy prices (and potential savings) makes them unattractive combined with the payback period for financial institutions (they are either below the minimum investment threshold for the financial institutions or they do not meet the economic feasibility criteria).

EPC mechanism has been developed as the solution for the problem of public budget restrictions and non-existence of collateral of the potential project beneficiaries. However, this mechanism still suffers from several barriers on the Polish market making it difficult for the companies not backed by large capital groups to perform successfully on a wider scale. Lack of the supply of potential contractors curbs the number of EPC formula projects realized in Poland. As a result, the size of the ESCO market in Poland is relatively small – according to DB Energy estimates, the market in Poland in 2018 was 30 mil. EUR compared to 27 bn EUR of the global market, which implies the share of the Polish market at the level of 0.1%.

The European Commission has recommended an increased use of financial instruments, such as loans, guarantees and Energy Service Company (ESCO) services. The main objective is to move from grant mechanisms towards instruments that would leverage private sector resources. Despite this, Poland uses non-repayable grants as almost the only form of finance for energy efficiency improvement in buildings. The use of non-repayable grants can be explained by their easier management, less administrative preparation and continuous maintenance and lack of experience and expertise on how to set up more elaborate financial schemes by the government. Financial instruments are considered risky due to economic and political instabilities and with a lack of long-term trust in the political and financial system these factors hamper establishment of long-standing financial schemes.

Lack of standardization in energy efficiency projects results in increased transaction costs and higher performance risks. Non-standardised underwriting procedures, project complexity and heterogeneity increase the associated risk perceived by investors and banks and may prevent financial institutions to enter this sector all together. Lack of own funds and adequate collateral is also a common problem for potential ESCOs.

Polish ESCO market still operates to a large extent as a market that is created by ESCO companies rather than as a response to demand created by project developers and not the other way around. This requires significant involvement of ESCOs and other institutions that support this market through information, education and awareness-raising activities.

7.3. Crowdfunding

7.3.1. Legal, regulatory and administrative framework

There is no clear and explicit regulation of Crowdfunding in Poland meaning that existing laws apply for application of different crowdfunding models and operation of crowdfunding platforms. The framework for Crowdfunding transactions in Poland is still the Polish Civil Code and several other acts. Certain types of Crowdfunding-related activities may trigger the application of financial regulations. Polish government has initiated creation of working groups for enhancement of legal framework for application of crowdfunding models, especially for those who support projects with high social added values. The development of Crowdfunding in Poland is limited, due to capital market regulations and administrative barriers primarily having to do with public fund raising. Financial instruments, grants, state aid or tax benefits for crowdfunding are also not available in Poland.

7.3.2. Market status, trends and driving factors

According to data from the latest report by Cambridge Centre for Alternative Finance (CCAF) on the global market of alternative finance and crowdfunding, Poland had a total funding volume of 297.6 mil. EUR in 2018 which places Poland's crowdfunding market as 8th largest in Europe and as 19th in the worldwide crowdfunding statistics.

21 platforms are currently operating in Poland and all international platforms can be used by Polish project initiators. The Polish platforms address different types of public and have different features: six platforms are equity-based crowdfunding, while the rest of them support only donation or reward base models.

High-tech companies and innovators are the primary initiators of crowdfunding campaigns while energy sector has so far not used crowdfunding models, let alone been initiated by the public sector actors.

Aside from certain energy agencies an institution called Polish Society of Crowdfunding provides legal and technical support to all interested market actors.

Capital market regulations and administrative barriers coupled with low number of platforms are limiting the development of crowdfunding in Poland.

8. Czech Republic

General overview of the financial market

Financial market of Czech Republic is considered as stable and comparable to most similar-sized economies in Western Europe, with banks as most common sources of financing for the energy sector. Czech Republic has well developed financing mechanisms for energy renovation of public buildings. Traditional financing is still predominant with grants and preferential loans as most common funding sources. Grant co-financing rates range from 35 to 50% for reconstruction projects (up to 70% for project preparation) and there is a trend of decreasing grant rates, due to which this mechanism is becoming less and less utilised.

The innovative area of financial technology has become popular in recent years due to high standard of financial and IT literacy. Aside from fintechs, traditional financing institutions are also very active in terms of innovation. ESCO market is well developed and EPCs are usually contracted for bundled public buildings as smaller projects are usually not economically feasible. PPP market is also considered as developed, but this type of financing has so far not been used for energy renovation projects but rather for large infrastructural projects, mostly initiated by the national government.

The government is strongly pushing for increased use of innovative financing models in combination with financial instruments in the new programming period (2021-2027) as larger use of private capital is needed to achieve more ambitious energy efficiency targets. At the moment an overall market status regarding use of innovative financing models puts Czech Republic above the average in the context of Central European region (

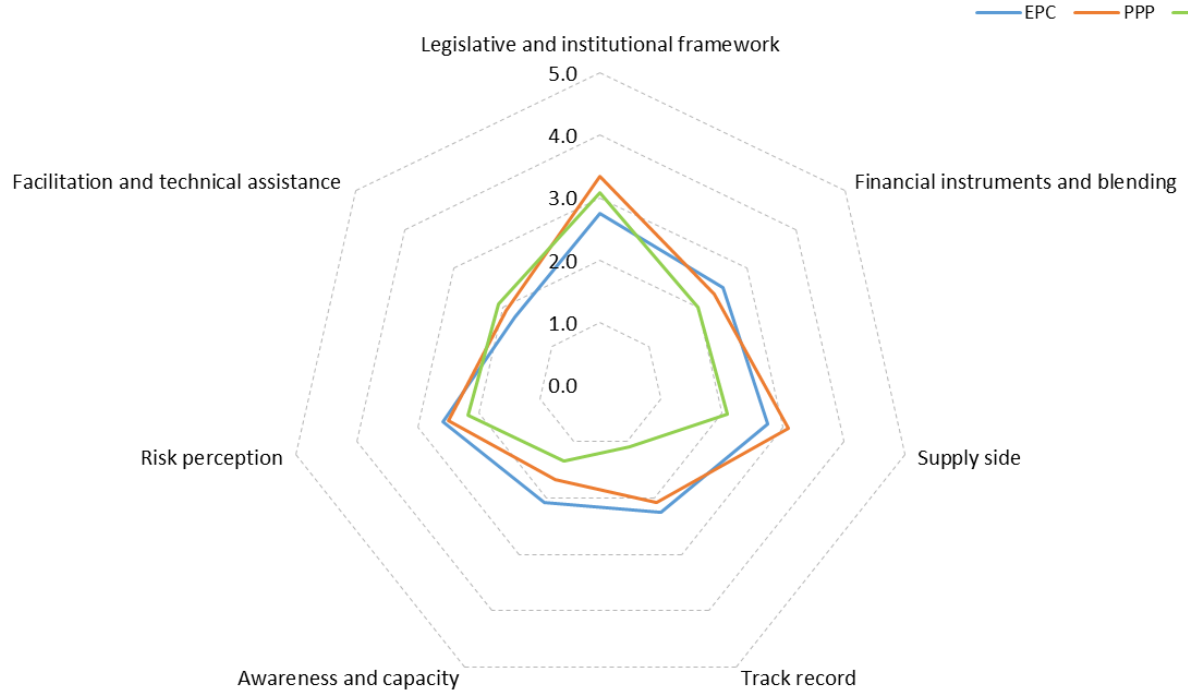

Figure 10).

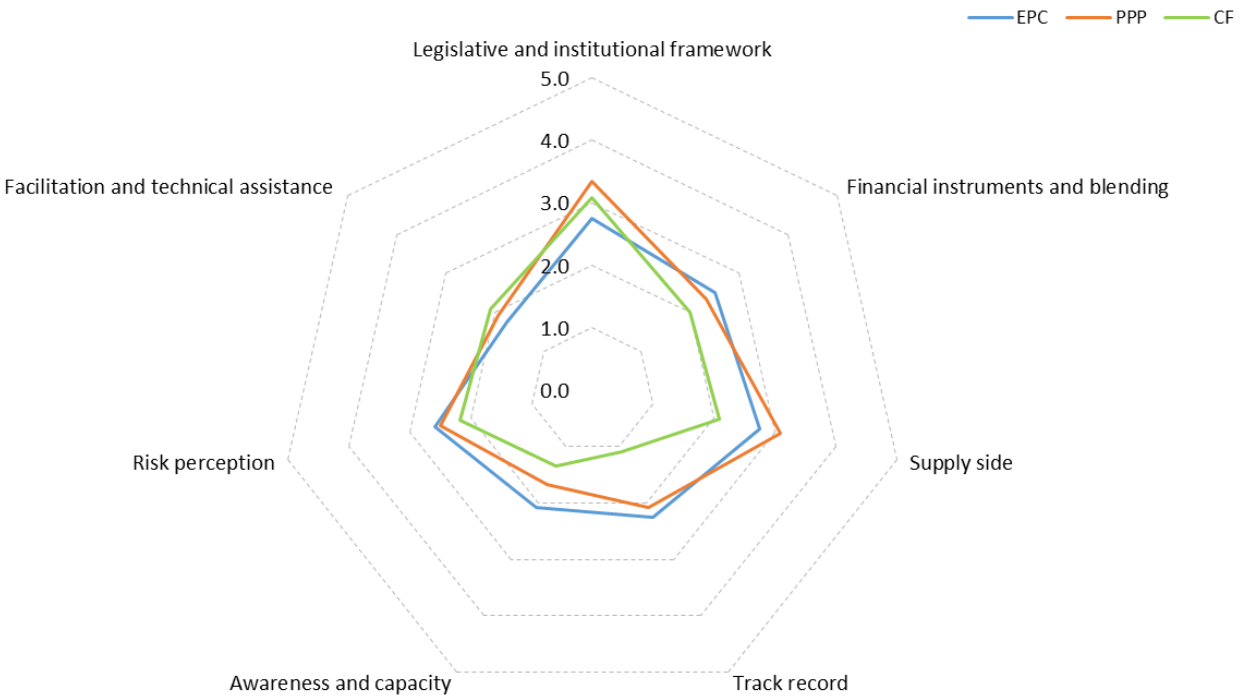

Figure 10. Czech results of evaluation of innovative financing schemes (1 = low rating, 5 = high rating); full explanation of scores is attached in the annex. n=5

8.1. Public-Private Partnership

8.1.1. Legal, regulatory and administrative framework

Currently there are two separate acts regulating PPP related issues, the Concession Act and the Public Procurement Act. Granting of PPP contracts are generally awarded through a competitive tender process with principles of transparency, non-discrimination and equal treatment clearly stipulated in the PPP Laws. There is a joint-stock company owned by the State, called PPP Centrum, which was established to promote and provide professional support to Contracting Authorities in respect of PPP projects. Generally, although the legislation could be improved the legal framework is not the biggest issue for PPPs in the Czech Republic.

PPP projects are considered as off-balance sheet projects if they are in line with the new EIB-Eurostat guidance. The PPP Law does not prevent foreigners to participate in PPP projects. As a matter of practice, however, in order to effectively perform PPP activities, it is practical to set up a local company or a branch of the foreign entity. There is no exhaustive list of sectors where PPPs may be used and where PPPs may not be used.

8.1.2. Market status, trends and driving factors

Even though deep retrofits (e.g. in accordance with nZEB standard) of public buildings may seem more adequate for PPP models than other models PPP which require energy savings large enough to repay the whole investment, PPP models have seldomly been used for energy renovation of buildings due to their complexity and unavailability of standardized tender documentation or successful track record. Therefore, a significant pipeline of projects does not exist as EPC model is more frequently used for this purpose. Dedicated financial instruments are also not available although combining of ESIF funds is not strictly prohibited.

Technical assistance for preparation of potential projects for public authorities are available through EU programmes (ELENA), with a number of market facilitators having experience with development of large PPP projects in other sectors (transportation, infrastructure). Banks have certain experience in financing PPPs either through corporate or project financing and deem these projects as low risk investments due to involvement of public sector.

8.2. Energy Performance Contracting

8.2.1. Legal, regulatory and administrative framework

In the Czech Republic, the Ministry of Industry and Trade is a key governmental institution responsible for the whole energy sector and thus also for the support of energy efficiency and energy efficiency services. This institution is in charge of preparation and implementation of national energy efficiency action plans - NEEAP and state energy policies. It also develops energy efficiency services model documentation, provides project implementation guidelines and establishes support schemes for EPC models.

In terms of standardisation, EPC tender documentation for public buildings was developed in back in 2012 and was updated several times to reflect the market and regulatory changes on both national and EU level. Several support programmes currently can be used to co-finance the preparation and/or implementation of EPC projects. Grants were primarily provided for measures with a longer payback period in order to enhance their cost-effectiveness.

The Association of Energy Service providers is the key institution dedicated to remove existing market barriers through standardisation of EPC model documents, introduction of code of conduct, capacity building programmes, technical advisory service and organization of promo events.

8.2.2. Market status, trends and driving factors

The EPC market in the Czech Republic can be considered as well-developed, with high levels of know-how among EPC providers and acceptance of EPC by several banks, providing substantial financing opportunities for current EPC projects. Although the market is stagnating in the past few years more than 250 EPC projects have been implemented by 2020 worth more than 100 mil. EUR. Regarding EPC models, guaranteed savings model dominates the Czech EPC market.

Typical market barriers include lack of know-how by the public sector stakeholders due to complexity of the model, mistrust in ESCOs and comparatively low energy prices. Unlike other ESCO markets Czech ESCOs do not stress obtaining financing for EPC projects as a major barrier since the banking sector regularly provides refinancing/forfaiting services to them.

8.3. Crowdfunding

8.3.1. Legal, regulatory and administrative framework

As in many other Central European countries Czech Republic also does not possess a dedicated legal framework which regulates specific crowdfunding models. Crowdinvesting platforms, most notably equity platforms fit the definition of an "investment fund" and therefore are subject to Act on management companies and investment funds (AMCIF). Furthermore, they would have to be properly licensed by the Czech regulator (Czech National Bank), according to Capital Markets Act. Lending platforms have to obtain a trade licence, in order to be entitled to organise collective lending and borrowing. Crowdfunding platforms which provide donation or reward-based models are exempted under AMCIF and are not characterized as an Investment Fund and therefore require no licence to operate on local market.

8.3.2. Market status, trends and driving factors

The crowdfunding market is still in developing phase regarding project size and overall investment volume even though it has shown a steady increase over the years. Crowdfunding is generally perceived as a new and easy way to finance innovative projects and is becoming more and more popular in recent years. Around 10 local platforms are operating on the market with donation-based model being the most common one offered to the clients. There is a need for reducing bureaucracy, simplifying the administration, and increasing transparency of allocation of funds process.

While national crowdfunding programmes are perceived as effective alternative finance mechanisms for small-scale projects, developers of larger projects typically turn to international crowdfunding platforms with a potential to fund large-scale ventures.

The investment volume of the crowdfunding market is rather modest: around 10 mil. EUR and no known energy efficiency investment were realized with this model.

9. Germany

General overview of the financial market

According to (Novikova, Stelmakh, & Emmrich, 2018) approx. € 31.6 billion were invested in 2016 in climate-specific investments in the German building sector (Renewable energy, thermal efficiency, electric efficiency). Thereof, approx. € 1.4 billion were invested in public buildings, € 3,6 billion in corporate buildings and the majority of € 25,6 billion were used to upgrade residential buildings. In contrast to the large investment flows of EUR 21 billion in the construction sector, the existing building stock received far less investments with only EUR 10 billion. Due to lack of concise data, investments from alternative financing sources (e.g. PPP, etc.) weren't tracket within the study of (Novikova, Stelmakh, & Emmrich, 2018).

However, the following chapters provide a rough overview on the alternative financing markets and the regulatory framework in Germany. It can be concluded, that PPP and EPC have a long history in Germany and many experts see a future market growth. In addition, Crowdfunding is also on the rise and a future market growth is expected as well.

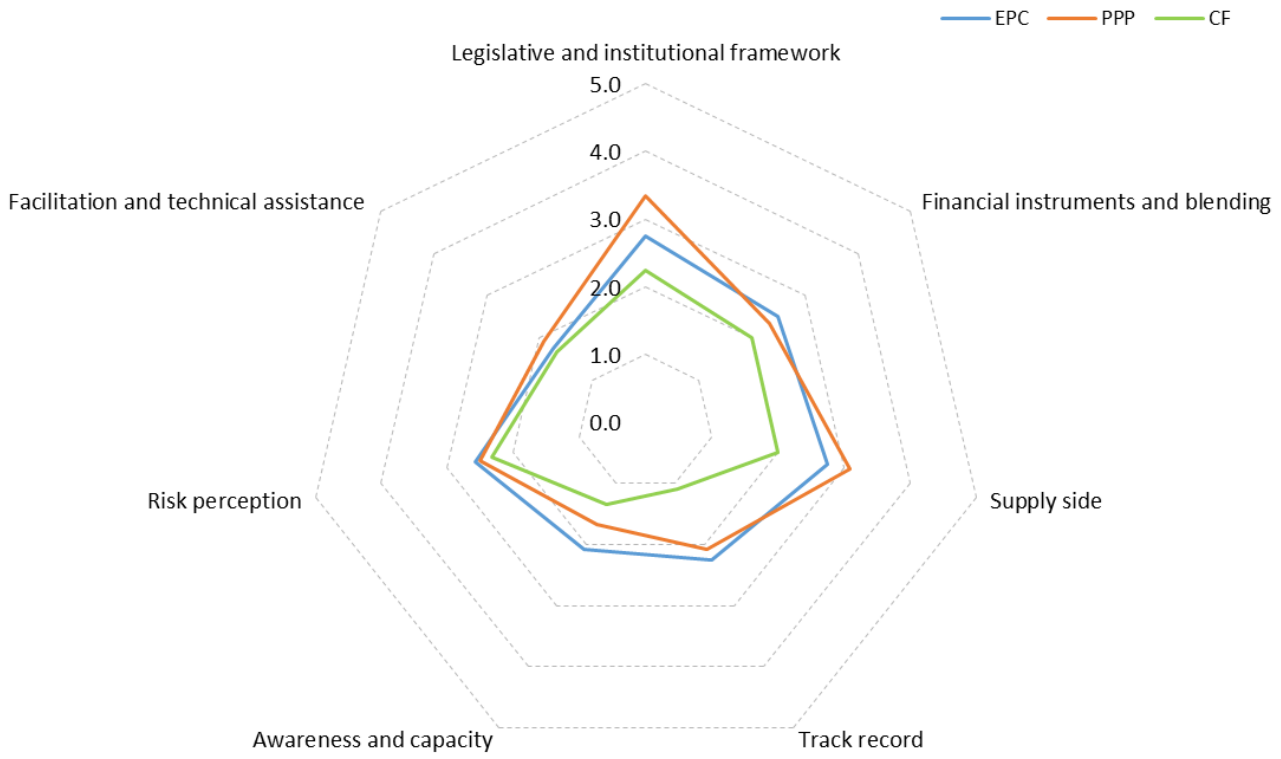

Figure 11. German results of evaluation of innovative financing schemes (1 = low rating, 5 = high rating); full explanation of scores is attached in the annex. n=5.

9.1. Public-Private Partnership

9.1.1. Legal, regulatory and administrative framework

The term Public Private Private Partnership has been used in the Federal Constitution since 2017 under Article 90 (2), but it is not clearly defined. It includes forms of long-term cooperation between government and private partners and is widely used for large infrastructure projects. In July 2017, the German parliament passed a reform of the motorway administration that may lead to more PPP projects for the

construction and operation of German motorways. The reform entered into force in January 2021. (Bonhage, 2020)

There are different possibilities for structuring PPP projects in Germany (Bonhage, 2020):

- PPP with different forms (e.g. private partner implements the construction project of a building, but public partner owns the built infrastructure…)
- Awarding of concessions, where a private partner obtains the right to use or market a certain service or good to third parties (e.g. electricity or gas grids, public transportation services, etc.)
- Joint ventures, which are somehow considered as institutional PPPs, where a public and private partner establish something like a corporate structure of a limited liability company. Public law restrictions generally require that the public authority holds a majority of voting rights in the joint venture.

In Germany, there is no specific act on PPP projects or contracts, apart from the constitutional provision on the administration of motorways. The civil law framework and regulatory requirements apply to PPP projects (e.g., laws on taxes, social security, minimum wage, trade unions and health and safety). Other specific requirements can derive from budgetary provisions, public procurement law and provisions on specific sectors, such as energy. (Bonhage, 2020)

PPP projects are often financed from private and public funding. Most PPP projects in Germany are at least partially funded by bank loans. Since public authorities will have a better credit rating than the private investor and to ensure the lowest interest rate possible, the private investor will have the right to sell its claims against the public authority to the banks in order to finance the project. The public authority will waive its rights to certain or all objections against the payment claim (forfeiting with objection waiver). (Bonhage, 2020)

9.1.2. Market status, trends and driving factors

The German PPP market is very well documented. Since 2002 the German PPP market increased steadily. An overview on German PPP projects is provided in an online database, hosted by PD-Partnerschaft Deutschland, which serves as best practice example. Currently, 204 closed projects are listed in this database, with project volumes (buildings, transportation sector..) ranging from several million euro to several hundred million euros. According to (Bonhage, 2020), PPP projects in Germany are often used to implement projects in the construction, maintenance or operation of public roads and buildings. In addition, joint ventures for airports (e.g. Frankfurt, Düsseldorf or Hamburg) as well as granting concessions to private companies for the refurbishment and operation of electricity grids in cities have a long tradition in Germany (approx. 20 000 agreements).

The following table provides an overview on German PPP projects with high volumes, mainly in the transportation sector and partially financed by EIB since 1997.

Table 3: overview on German PPP projects, financed by EIB ((EPEC, 2020)

Year	Project	Sector	Volume in Million €
1997	THE FOURTH TUBE ELBE TUNNEL 1&2 - PPP	Transport	€ 355 (lending commitment of EIB)
1999	WESER TUNNEL - PPP	Transport	€ 98 (lending commitment of EIB)
1999	ENGELBERGBASISTUNNEL PPP	Transport	€ 173 (lending commitment of EIB)
2001	TRAVEQUERUNG LüBECK	Transport	€ 80 (lending commitment of EIB)
2002	Road Tunnel ROSTOCK	Transport	€ 105 (lending commitment of EIB)
2007	Motorway A4	Transport	€ 89 (lending commitment of EIB)

2009	A5 Motorway Widening	Transport	€ 200 (lending commitment of EIB)
2011	A8 Motorway Augsburg-Ulm	Transport	€ 208 (lending commitment of EIB)
2013	Hospitals Hochtaunus	Healthcare	€ 300 (estimated project volume)
2014	A7 Motorway	Transport	€ 657 (estimated project volume)
2014	University Hospital Schleswig-Holstein	Healthcare	€ 520 (estimated project volume)
2016	A6 Motorway	Transport	€ 250 (lending commitment of EIB)
2016	A94 Motorway	Transport	€ 504 (estimated project volume)
2017	A7 – Salzgitter Motorway	Transport	€ 213 (lending commitment of EIB)
2018	Motorway A10	Transport	€ 652 (estimated project volume)
2019	Netz Elbe Spree Rolling Stock	Tranport	€ 1300 (estimated project volume)

According to (Bonhage, 2020) it is expected that volume of PPP rail projects will increase substantially in the current decade and PPP will have an important role in urban mobility initiatives. Besides PPP projects and investments in the traditional sectors (transportation, healthcare..), there is potential for future PPP projects, particularly in the IT.

9.2. Energy Performance Contracting

9.2.1. Legal, regulatory and administrative framework

German Federal Ministry of Economics and Energy plans to implement competence centres for contracting in the German federal states to support the development of 10 examples of the EPC projects in municipalities. A dialogue between the Federal ministry and ten states is performed by The German Energy Agency since 2015. The dialogue is aiming at the improvement of legal frameworks for EPC in municipalities and the federal states. Model contracts provided by DENA is used in some federal states (e.g. Hessen, Bavaria). (Boza-Kiss, B., Toleikyté, A., Bertoldi, P. , 2019)

According to (QualitEE, Country report on the energy efficiency services market and quality, Germany, 2018), *"one of the movers of the market in recent years was the Energy Service Directive (2006/32/EC) because of the expectations raised by utilities that offering ESCO services would become obligatory, and later the subsequent obligations under the Energy Efficiency Directive (2012/27/EU)"*. Besides this, the German government has established several acts, programs and regulations for EPC, such as Renewable Energy Sources Act, Renewable Energies Heat Act, Energy Saving Act or Energy Saving Ordinance. More information on regulation and standardization is available in the QualitEE country report for Germany.

9.2.2. Market status, trends and driving factors

The German EPC market is very well documented. Since several years, the Feder Energy Efficiency Center provides empirical analysis of the market for energy services, energy audits and energy efficiency measures. The following table provides an overview on the market volume for energy contracting (Bundesstelle für Energieeffizienz (BfEE), 2020). It can be seen that the annual market volume is several billion euros. It is estimated that there are currently 530 providers for energy contracting. A list with service providers is managed by BfEE.

Table 4: market volumes for energy contracting in Germany (Bundesstelle für Energieeffizienz (BfEE), 2020)

2019	2018	2017	2016
€ 6,7-9,7 bn	€ 7,2-8,6 bn	€ 7,7 bn	€ 7,2-8,4 bn

The future market development is perceived quite positive. For energy performance contracting, many energy service providers see a very strong, strong or at least positive growth in the upcoming years, whereas the most important target group is the real estate industry. The public sector is considered as second most important target group for energy service providers. (Bundesstelle für Energieeffizienz (BfEE), 2020)

According to the QualitEE country report for Germany the main market drivers for EPC are limited budget in the public sector together with energy savings guarantee, increasing energy prices and public subsidies. Availability of affordable finance or external expertise are only perceived of secondary importance. Supporting trends and measures for a positive market uptake are demonstration of turnkey-solutions for industries with short return on investment, stronger focus on the private sector and an increase in the implementation of extensive measures on the building envelope. (QualitEE, Country report on the energy efficiency services market and quality, Germany, 2018)

9.3. Crowdfunding

9.3.1. Legal, regulatory and administrative framework

According to (ECN, 2018) the following recent regulations provide a legal framework for crowdfunding activities in Germany:

- First Crowdfunding regulation (Retail Investors' Protection Act -Kleinanlegerschutzgesetz) entered into force on 10 July 2015
- Revised Investment Products Act (Vermögensanlagengesetz) centrepiece of the new regulation and subject to the most changes
- Evaluation of German Crowdfunding exception does (likely) not lead to facilitation of German Crowdfunding regulation (especially the Crowdfunding exception)
- New amendments to the Crowdfunding regulation of the Investment Products Act (Vermögensanlagengesetz) entered into force in August 2017

In general, crowdfunding platforms need official authorisation by "German Federal Financial Supervisory Authority Bundesanstalt für Finanzdienstleistungsaufsicht – BaFin", if they want to offer securities, investment products or shares in collective investment undertakings. In general, a prospectus is required for offering of securities or investment, except if the total offering is below EUR 2.5 million. Further applicable regulations are German Trade, Commerce and Industry Regulation Act (Gewerbeordnung), German Act on Money Laundering (Geldwäschegesetz) and German Securities Trading Act (Wertpapierhandelsgesetz). (ECN, 2018)

The Munich Chamber of Commerce offers a Crowdfunding Canvas and relevant information for preparing Crowdfunding campaigns. In addition, crowdfunding.de offers information to Crowdfunding Platforms.

9.3.2. Market status, trends and driving factors

The German crowdfunding market is very well documented. Webpages such as crowdinvest.de offer comprehensive materials on market statistics, platforms, investment volumes, project types, etc. According to (Crowdinvest.de, 2020), more than one billion euros have been invested in the German crowdfunding market between 2011-2019. This corresponds to an annual average growth rate of 103 %. In 2019, the estimated funding volume was EUR 442 million (76,2 % real estate, 20,0 % companies, 2,2 % energy investments..). Compared to 2018, the market growth rate was 5,1 %.

According to (DS, 2020), there are currently these major trends at the German crowdfunding market:

- Increased collaboration between different crowdinvesting platforms: the same project is presented on several platforms, which allows to reach a wide audience
- Financial institute are interested in crowdfunding: recently financing institutes are collecting money using digital channels. This leads to a professionalization of the crowd investing market, which will get more and more attractive for additional investors and emitters.
- Sustainable projects on the rise: recently, sustainable energy projects have been the sector with the highest growth, compared to the other market segments.
- Besides sustainable projects, sectors like digitalisation can also benefit from the emerging crowdinvesting market.

The market in Germany shows strong and continuous growth. This alternative form of financing has become firmly established. This still applies, in particular, to start-ups, which may not receive initial funding in any other way. Increasingly, established companies and are also interested in the possibilities of crowdfunding in Germany. (Deloitte, 2021)

10. Slovakia

General overview of the financial market

Slovakia contents is based on desktop research from national literature (publications and studies, legislation documents, etc.).

Currently, PPP market volume in Slovakia was around 1 billion EUR between 2015-2019.[7] PPP projects are legally regulated in Slovakia by Act no. 25/2006 Coll. on Public Procurement and on Amendments to certain laws. The first pilot PPP project was developed at the Ministry of Transport, Post and Telecommunications of Slovak Republic aiming to develop a highway section, 29 km long, between the towns of Zilina and Martin. Then some others have pursued on other highways, one between 2009-2016 and another from 2016. To cover a lack of skills and experience on PPP contracts a 'Manual for right use of PPP projects' is available[8] in Slovakia.

EPC market started in the 90's in Slovakia, 20-30 projects were implemented in the public sector until 2006. The EPC market volume in Slovakia was estimated on level of approximately 5 million EUR/year, in turn, the potential at level of 25 million EUR/year by the QualitEE country report in 2018. Year-on-year number of EPC orders is almost constant or only slightly growing. There is a lot of ongoing projects in public sector, and the majority of EPC clients in Slovakia come from municipalities and health-related public sector, mainly in buildings and in street lighting systems.

The Slovakian crowdfunding market is quite new and expanding. More and more local Crowdfunding Platforms are available since mainly the mid-2010'. There are approximately 6-8 local platforms besides the international ones, partly focusing on donation-based projects, partly serving mostly for-profit projects. The potential of crowdfunding in public sector is not yet exploited. Currently the legislative and institutional framework of PPP, EPC and CF results quite sufficient, on the other side further efforts are necessary to improve the awareness and capacity on innovative financing models and financial instruments, Figure 12.

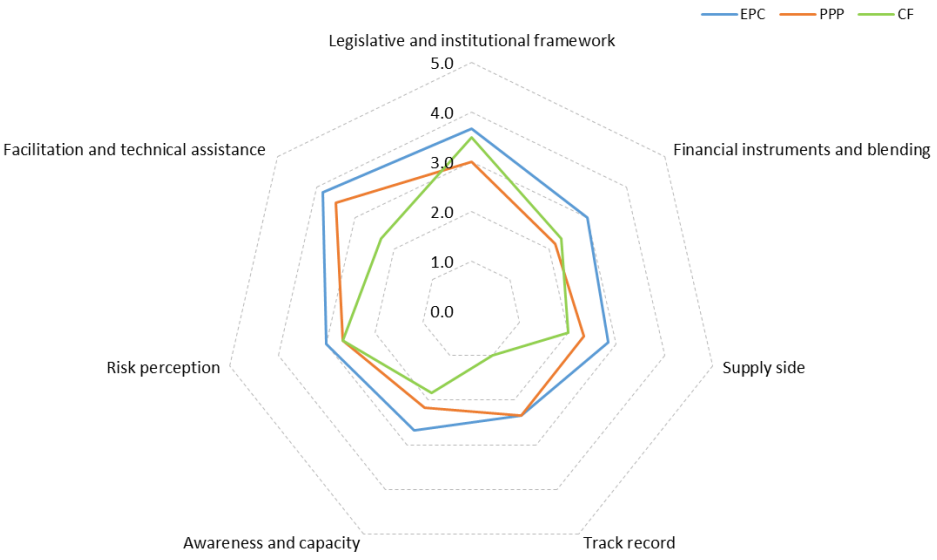

Figure 12. Slovakia results of evaluation of innovative financing schemes (1 = low rating, 5 = high rating); full explanation of scores is attached in the annex. n=5

[7] Review of the European PPP Market in 2019, European PPP Expertise Centre, EIB

[8] http://transparency.sk/wp-content/uploads/2010/01/PriruckaPPP.pdf

10.1. Public-Private Partnership

PPP projects are legally regulated in Slovakia by Act no. 25/2006 Coll. on Public Procurement and on Amendments to certain laws. This act also regulates the concession for public works, which is one of the PPP forms.

The webpage of the Ministry of Finance of the Slovak Republic presents the PPP construction and define the role of the Ministry to assist public authorities in preparation of PPP projects according to the best market practice which is incorporated into guidance issued by the Ministry of Finance.

In relation to the construction of PPPs, Ministry of Finance has the following functions to support stakeholders (mainly public authorities) in implementing PPP projects:

- regulative function: the Ministry of Finance in cooperation with the Slovak Statistical Office issues opinions on the drafts of PPP contracts (only work concessions). In these opinions Ministry evaluates impacts of PPP contracts on the debt of public sector and secures correct recording of these impacts on the public sector deficit and debt in compliance with the methodology ESA 95 valid for EU countries.
- methodological, supportive and supervisory function carried out through the Technical Assistance Scheme for PPP.
    - methodological guidance for contracting authorities – i.e. the Ministry of Finance provides methodological documents for public sector
    - arrangement of advisory services for preparation phase of PPP projects – arrangement of procurement and financing of advisory services for the contracting authorities of selected PPP projects to elaborate feasibility study (i.e. provision of consultation and financial support)
    - supervision of compliance with methodology issued by the Ministry of Finance – the representatives of the Ministry of Finance take part in the steering committees of the PPP projects implemented by the central government bodies and PPP projects of contracting authorities receiving consultation and financial support
- function of knowledge and communication centre: within the administration of the Technical Assistance Scheme the Ministry of Finance will also perform the function of knowledge and communication centre. Funds from the scheme will be used activities such as workshops and seminars to improve the knowledge and understanding of the public sector in PPPs and to support the transfer of experience among PPP stakeholders and development of PPP in Slovakia.

PPPs are also supported by PPP Association which on the contrary to Ministry of Finance acts on private sector side. The association affiliates construction companies, financial institutions, law firms, financial advisors, etc. engaged in PPPs. When carrying out its tasks, PPP the Association cooperates with the public sector.

The Ministry also publishes a summary of its PPP policy, explaining the proven benefits of PPP construction, its definition and types of risks to be assessed. The document also defines and explain preconditions to be met to avoid mistakes occurred in the past (in other countries) and give a list of important provisions to include in the concession contracts.

Based on this paper, PPP contracts shall be procured and handled as concessions and therefore the new Act on Public Procurement that was approved by the Government by the Resolution of the Government No. 735 dated 28th September 2005 applies.

‘The current legislative framework, including the budget rules or rules for concession procurement, whilst not representing a crucial problem for PPP project preparation, does not necessarily ensure that adequate attention is given to the approval of such projects. […] The improvement of PPP regulation will require the revision of laws amending budgetary rules. As the regulation is approved, the entities of public administration, with the exception of self-governing region entities, will be authorised to conclude a concession contract in compliance with the law on public procurement only after its prior approval by the Government. Self-governing regions will be obliged to deliver a notification prior to launching a concession procurement to the Ministry of Finance of SR for PPP registering purposes. After concluding the concession procurement procedure, but before concluding a concession contract, the self-governing region is obliged to request the opinion of the Ministry of Finance of SR on the impact of the prepared concession contract on public administration debt.’ These obligations will depend on the financial value of the planned investment project which limits are depending on the number of inhabitants of the given municipality.

The Country report on the legal framework on Public-Private Partnership (PPP) developed by INTERREG RESTAURA[9] declares that ‘Absence of a special law for PPP projects in Slovakia is not a barrier for their feasibility’ in Slovakia. The report underline in turn, that ‘The special law is not as important as comprehensive and conceptual removal of legislation obstacles and problems that hinder the effective application of PPP projects in practice. The legislation should support the pragmatism during the process of choosing the private partner in including the private law principles, mainly contractual freedom, in contrast to the strict procedure according to the law on public procurement.’

The report also informs about the Association for the Support of Public-Private Partnership Projects (the PPP Association) founded in 2007, joining companies interested in PPP with the aim of to support and develop the PPP projects in the Slovak Republic as well as to raise public awareness of the PPP projects, their specification and possibilities of their use for securing public needs. The webpage of PPP Association doesn’t available currently.

A ‘Manual for right use of PPP projects’ is available[10] in Slovakia. Besides possible contracting authorities, it is intended also for applicants and representatives of public authorities responsible for regulation of public procurement and PPP projects in Slovakia. The manual contains basic information about PPP concept and highlights its benefits and risks. The aim of the manual is to decrease the possibility of implementation of a PPP project which would not be the best solution for securing a certain public service.

10.1.1. Market assessment

The PPP Policy document of the Ministry of Finance of the Republic of Slovakia underline, that currently there is a lack of skills and experience in Slovakia, therefore ‘a small number of pilot projects will first be implemented and will be placed under detailed observation. Developments in this area will be closely monitored and, where required, adjustments to legislative conditions as well as the institutional framework can be made.’

The first pilot PPP project was developed at the Ministry of Transport, Post and Telecommunications of Slovak Republic aiming to develop a highway section, 29 km long, between the towns of Zilina and Martin. Then some others have pursued on other highways, one between 2009-2016 and another from 2016.

In smaller cases, parking and hospital projects were also implemented by PPP in Slovakia, as well as projects in revitalization and heritage protection as presented by the Country report of Restaura project.

In case of greater interest in using PPP in the future the Ministry find necessary to ‘come back to revise the organisational and institutional challenges of PPP and evaluate, whether or not to establish a central PPP institution, whose main task would be the employment of experiences with PPP.’

[9] https://www.interreg-central.eu/Content.Node/T1.1.4-.pdf, (2017)

[10] http://transparency.sk/wp-content/uploads/2010/01/PriruckaPPP.pdf

In the future it is expected that PPP will be applied (besides highway constructions) at national level also 'in the field of health services, sport and cultural facilities, railways, public administration buildings, social housing, reconstruction of cultural and historic sights, prisons, accommodation facilities for university students or E-government.

At the level of the self-governing region, it is possible to apply PPP in the following areas: local roads / illumination of streets, city public transport, water supply / sewage water management, processing of solid municipal waste and projects related to gaining energy from waste, reconstruction of the centralised heat supply, social services facilities, and the development of infrastructure for tourism.'

PPP market volume in Slovakia was around 1 billion EUR between 2015-2019.[11]

10.2. Energy Performance Contracting

This chapter is based on the Country Report on the Energy Efficiency Services Market and Quality developed in the frame of EU H2020 QualitEE project.[12]

10.2.1. Legal, regulatory and administrative framework

The EU Energy Efficiency Directive (2012) is being implemented in Slovakia through Act No 321/2014 Coll. on energy efficiency.

Act No 321/2014 Coll. on energy efficiency provides regulation on:

- definition and evaluation of energy efficiency targets,
- refurbishment of buildings,
- energy audits and
- energy services.

Details on the Energy Efficiency Act implementation are provided in Regulations issued by the Ministry of Economy of the Slovak Republic. Specific regulations cover details of energy audits elaboration, accreditation of energy auditors and certified persons for providing energy services. Specifically, details of Support Energy Services and Guaranteed Energy Services providing are described in Regulation of MoE No.99/2015 Coll.

There are energy service project facilitators in Slovakia: advisory companies working on behalf of the client to procure and/or implement an energy service project. This means that the know-how can be easily ensured, there is no need to have such expertise and capacities at public authorities. This is especially important at lower territorial levels, where smaller administrative bodies usually lack knowledge on this field.

European standard EN 16212 (about Energy Efficiency and Savings Calculation) was transposed into Slovak standard system as STN EN 16212 (without translation to Slovak) and provides a general approach for energy efficiency and energy savings calculations with top-down and bottom-up methods.

In Slovak Republic, the European Code of Conduct for EPC was officially approved and accepted by Slovak Association of energy providers (APES-SK[13]). Members of the Association have committed themselves to support and comply with the European Code of Conduct for EPC including Rules for utilization of the European Code of Conduct for Energy Performance Contracting in Slovakia. This commitment is a part of an EPC contract templates used by APES members. The APES-SK also provides contract templates and

[11] Review of the European PPP Market in 2019, European PPP Expertise Centre, EIB

[12] M. Lauko and M. Rothová: Country Report on the Energy Efficiency Services Market and Quality, 2018

[13] http://www.apes-sk.eu/

comprehensive information on the legislative framework, the design, the financing and risks of EPC projects, and can be considered as a 'pipeline'.

According to Slovak legislation (Act on Energy Efficiency 321/2014) Energy performance contracting can be provided by energy auditor or holder of certificate of professional competence for EPC providing.

The webpage of the Ministry of economy of the Republic of Slovakia provides the following supporting materials for public administrations developing EPC projects:

1. Model contract on energy efficiency for the public sector

2. Methodology for the preparation and implementation of a guaranteed energy service for the public sector consisting of the following documents:

    a. Procedure for the preparation and implementation of guaranteed energy services,

    b. Energy efficiency contract for the public sector - payment mechanism,

    c. An example for guaranteed energy services in public administration

10.2.2. Market assessment

EPC market started in the 90's in Slovakia, 20-30 projects were implemented in the public sector until 2006. Between 2006-2011 an interruption could be detected due to the EU Structural Funds which made EPC a less competitive financing form. Since 2012, the revival of the market is perceptible with 50-80 projects in various fields although from 2015, EPC projects have shifted to the private sector (again due to the SFs).[14]

The EPC market volume in Slovakia was estimated on level of approximately 5 million EUR/year, in turn, the potential at level of 25 million EUR/year by the QualitEE country report in 2018. Year-on-year number of EPC orders is almost constant or only slightly growing.

Although the share of EPC projects in private sectors has increased rapidly in year 2016, historically there is a lot of ongoing projects in public sector (majority of EPC clients in Slovakia come from municipalities and health-related public sector).

Ministry of economy of the Republic of Slovakia administers on its website the list of EPC providers, with approximately 70 companies at present[15] which represents an increase of 50% over the numbers reported in QualitEE country report published in 2018. List of energy support service providers is also published at this page, enumerating more than 110 companies in 02.2021.

EPC business is usually treated as complementary to the core business for majority of the companies. These companies are of different backgrounds – technology manufacturers, utilities, system integrators, facility managers, and different sizes – from branches of large international companies to SMEs.

The EPC projects in Slovak public sector are implemented mainly in buildings and in street lighting systems. The projects in buildings are usually focused on building technologies although some examples of combination with construction measures exist. It is possible to expect that this target group will remain an important source of EPC clients in future. The main potential lies within local and regional administration according to the authors of the QualitEE country report.

Unfortunately, EPC facilitators are unexploited due to the prevailing weak financial situation in public sector. This leaded to failure of several projects, prepared by not adequately experienced in-house staff of

[14] presentation of M. Lauko at SEI Forum, 15.05.2018, Warsaw, available at https://ec.europa.eu/energy/sites/ener/files/documents/1.3_mlauko_epc_market_development_in_slovakia.pdf

[15] https://www.economy.gov.sk/uploads/files/3A40q6j4.pdf

the clients, in the stage of development or procurement. Despite this situation, several EPC facilitators are active at the Slovak market and usually provide good results.

Based on the QualitEE survey (2017), the complexity of EPC concept and lack of trust in ESCOs is not considered as the remarkable obstacle for market anymore. While Subsidies / Policy uncertainty is still considered as the main problem for EPC market development by EPC providers and facilitators. The availability of grants for implementation of energy efficient measures demotivates potential clients mainly from public sector from using traditional ways of financing. Administrative barriers in public sector and lack of support from the government were identified as the next major barriers.

The Operational Programme Quality of Environment (funded by ESIF) supported the preparation of low-carbon strategies in municipalities and preparation of EPC projects in public buildings in the programming period 2013-2020 in form of non-recurring grant financing.

Sustainable Energy Financing Facility schemes involving EBRD funds (SlovSEFF targeted on industries and residential sector and MunSEFF targeted on municipalities) provided support in form of loans combined with grant (up to 20% of the loan principal) in case that the energy efficiency targets of projects have been met. These schemes are now suspended but a resumption is expected.

In Slovakia, the financing institutions are able and willing to finance this kind of projects especially in public sector.

Barriers identified by EU H2020 QualitEE team affecting EPCs are:

- Subsidy / Policy uncertainty
- Administrative barriers in public sector
- Lack of support from the government
- Lack of information
- Raising affordable finance
- Limited staff capacity on the client side
- Customer demand

Low awareness about guaranteed energy services, mistrust towards providers of guaranteed energy services, and insufficient regulatory framework were the barriers identified by Boza-Kiss, B. et al in 2019.[16]

10.3. Crowdfunding

This chapter is mainly based on the following two studies:

- Regional Market Analysis on the Crowdfunding – Slovakia (Technical University of KoŠice), developed in the frame of INTERREG Danube Trasnational Project (DTP) CROWDSTREAM project[17]
- Country Crowdfunding Factsheet - Slovakia (ECN, 2018)[18]

[16] Energy Service Market in the EU, Boza-Kiss B. et al (EC-JRC, 2019)

[17] http://www.interreg-danube.eu/uploads/media/approved_project_output/0001/11/c8b20dc70ca3e041c6aba1eacbe06ca2b64a1fec.pdf

[18] https://eurocrowd.org/wp-content/blogs.dir/sites/85/2018/06/CF_FactSheet_Slovakia_June2018.pdf

10.3.1. Legal, regulatory and administrative framework

General regulation for crowdfunding is the Securities and Investment Services Act, while the Collective Investment Act gives possible exception of financing regular business activity with half of the funds being collected from own resources.

For donation and rewards-based crowdfunding, the new Public Collections Act applies – an easy regulatory framework for crowdfunding with publicly beneficial purposes. However, with regard to investment, no specific public activities supporting the development of crowdfunding as an alternative tool for finance have been implemented.

10.3.2. Market assessment

The Slovakian crowdfunding market is quite new and expanding. Most of the projects from Slovakia have been hosted on international Crowdfunding Platforms. More and more local Crowdfunding Platforms are available since mainly the mid-2010'.

There are approximately 6-8 local platforms besides the international ones, partly focusing on donation-based projects, partly serving mostly for-profit projects. Local example of platforms is Crowdberry[19] (mainly for private businesses), the previously working Dobrakrajina is not available so far. As Country CF Factsheet of ECN informed in 2018 "There are at least 2 platforms offering equity Crowdfunding projects".

The main local platform targeting directly citizens is "Yellow melon" https://www.zltymelon.sk/, constructed in 2012, offering loan-based crowdfunding possibilities.

Donation based local platforms for social projects are https://www.ludialudom.sk/ and https://darujme.sk/.

There isn't a professional industry association in Slovakia to support CF. To foster the professional and transparent development of the local market, it might be advisable for a national Crowdfunding association to establish a Code of Conduct with which platforms should be obliged to comply.

Based on the report of INTERREG DTP CROWDSTREAM project, the following particularities characterize Slovakian crowdfunding market:

- Growing supply and demand for different types of CF, although SK represents a small CF market
- Low level of knowledge about CF
- Lack of skilled staff for preparing good campaigns
- Low level of trust by investors, especially local people consider CF as very risky

There are no reported experiences about crowdfunding energy efficiency projects in public sector.

[19] https://www.crowdberry.eu/en/

D. Vision, proposed actions and replicable solutions

This Joint strategy has a vision of a sustainable, energy efficient Central Europe which is not lagging behind more advanced EU regions. On the contrary, with a number of successful and replicable solutions for uptake of innovative financing schemes from Central European countries this region can be an example on how to establish self-sustainable financing schemes and unlock resources from both private and public sector in order to drive the energy transition towards zero carbon emission societies.

As the individual country analyses have shown, sub-optimal levels of investment in energy renovation of public buildings realized with three innovative financing models have been recorded on Central European level (Figure 13). Such average indicators have been linked to various market barriers such as lack of capacity from project developers, dedicated financial instruments and overall low levels of trust from investors and financiers in the viability of energy efficiency projects. At Central European level the EPC and PPP models often do not have clear and stable legislation which would make them competitive to traditional models and used as mainstream solutions for realization of larger sustainable energy projects. Facilitation and technical assistance in form of experienced energy agencies is available but risk perception due to uneven track record in many countries still presents a serious problem in building of significant project pipelines for these models. Civic crowdfunding and crowdinvesting are seen as an innovative financing models due to their democratic and disruptive approach which actively engages citizens and local communities. However, civic crowdfunding in Central Europe is hampered with often inadequate or complicated legislation which limits participation of public authorities in the role of project initiators and low awareness levels from all relevant stakeholders. With current legal and market obstacles, crowdfunding model is unfortunately rarely used as a mainstream model for energy efficiency projects, although good examples from Central Europe do exist and can be replicated.

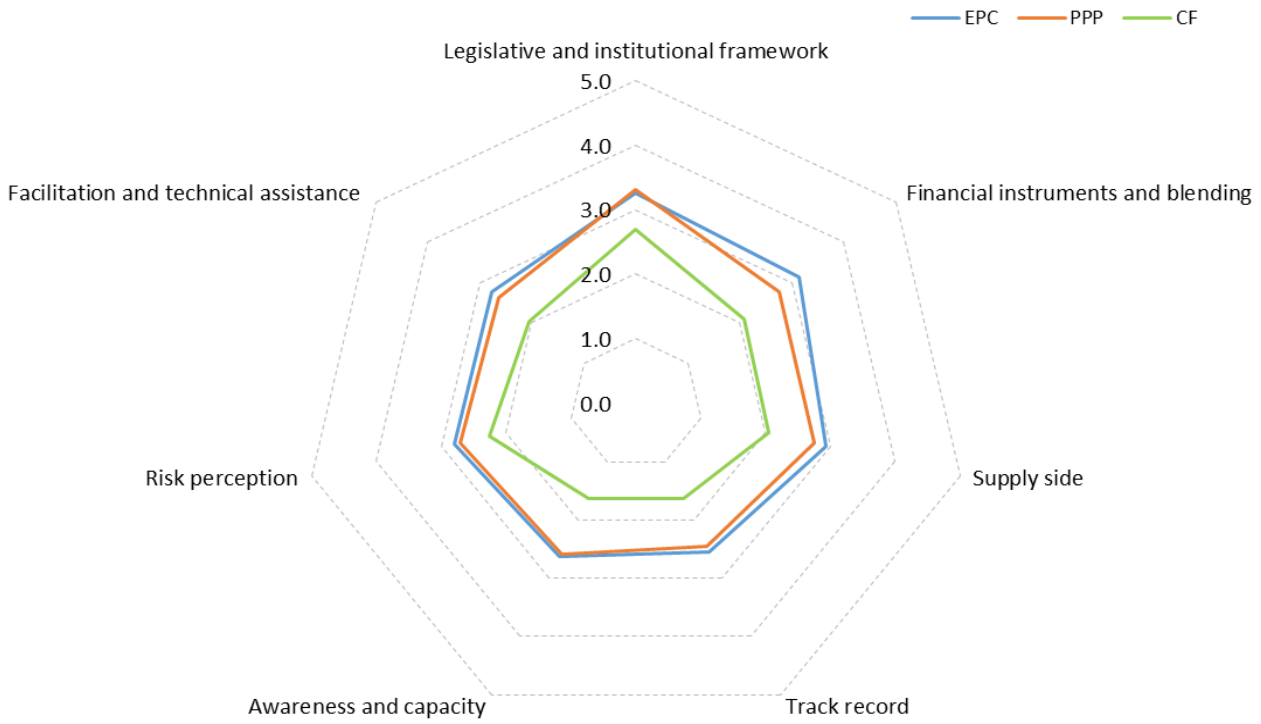

Figure 13. Results of evaluation of innovative financing schemes on Central European level (1 = low rating, 5 = high rating); full explanation of scores is attached in the annex. n=5.

A shift towards more sustainable public financing which can leverage higher levels of private funds is needed to meet the investment scalability needs, together with limiting access to grants to highly ambitious nZEB renovation projects which cannot be repaid solely from financial savings. The challenge all EU Member States are facing is the harmonisation of all available sources of financing, strategic documents and increasing the level of readiness of projects for financing. Involving experts from the research and business sector, as well as raising awareness of the opportunities provided by EU programmes should be a priority when planning and implementing projects in the coming period. Most Central European countries have a good starting position to use innovative financing models. However, it is crucial to identify all necessary measures for buildings as well as to combine sources of EU funds to enable the financing of deep renovation of buildings in future programmes.

Therefore, the purpose of this strategy is to provide realistic actions for removal of existing barriers for each financing models to achieve their successful replication and roll-out to other markets of the Central European region. Actions were systemized in accordance with seven aspects under which the assessment of Central European country markets were made and included good, replicable solutions from various countries from within the region.

Energy Performance Contracting and Public-Private Partnership

1. Legislative and institutional framework
    - Action:
        - Development and enforcement of national programmes for deep energy renovation of buildings with EPC/PPP schemes which would be Maastricht neutral for public authorities.
        - Development and introduction of standardized model contracts for EPC and PPP on country levels in order to simplify the process, make projects more bankable and lower its preparation costs.
    - Good practice example from Central European countries:
        - Slovenia introduced its National programme for energy renovation of public buildings with EPC model for 2014-2020 period which used ESIF financial instruments as a support mechanism. The programme was a great success with 28 projects worth EUR 69 million being launched by 2020.
2. Financial instruments and blending
    - Action:
        - Development of national ESIF and EFSI financial instruments for EPC and PPP energy renovation schemes in order to leverage large private sector (ESCOs) investments. Development of financial instruments is a process which is done in parallel with the development of standardised EPC documentation.
        - Introduction and promotion of national EPC forfeiting schemes in cooperation with financial institutions in order for ESCOs to overcome their balance sheet limitations.
    - Good practice example from Central European countries:
        - The sale of receivables - forfeiting is the most common way of financing EPC projects in the Czech Republic. This method was used to finance most EPC projects completed since 2005 in the public sector and currently six commercial banks are providing EPC forfeiting schemes for ESCOs.
3. Awareness and capacity
    - Action:
        - Introduction of national and transnational programmes with specialized training curriculums for capacity building of EPC/PPP project developers in order to improve skills, competences and quality of projects.

- Organization of high-level events (e.g., Sustainable energy investment forums) for promotion of successful EPC/PPP schemes, one-stop shops and good practice examples from own and foreign countries in order to motivate project developers from the public sector.

  - Good practice example from Central European countries:
    - Polish Ministry of Investment and Development introduced a training cycle on development of PPP projects in 2018 which was co-financed by the European Social Fund. The aim of the trainings which involved more than 450 people from almost 100 public and private institutions was to raise awareness of PPP models, investment potentials and barriers.

4. Risk perception
   - Action:
     - Development and introduction of national quality labels for ESCOs, mandatory measurement and verification mechanisms and overall quality assurance of EPC projects, particularly in relation to receiving ESIF funding.
     - Development of EU or national ESIF guarantee schemes which can cover performance or credit risks of EPC/PPP projects and thus enable financial intermediaries to provide financing for EPC/PPP providers at more affordable rates or with a longer tenure, with this benefit being passed on to the EPC/PPP client resulting in a lower EPC fee component.
   - Good practice example from Central European countries:
     - A quality assurance label for Energy Efficiency Services was developed by the Austrian ESCO association DECA and was implemented in five Central European countries with an aim to increase trust in energy efficiency services (EES) and providers, better inform potential investors and standardise the quality aspects of EES.

5. Facilitation and technical assistance
   - Action:
     - Introduction of additional technical assistance programmes on EU and (trans)national levels which would provide both know-how and grant funding for preparation of EPC/PPP projects.
     - National initiatives which would encourage the development or transformation of energy agencies into local/regional One-Stop Shops for energy efficiency and financial advisory services for public authorities.
   - Good practice example from Central European countries:
     - In 2008 German government instituted a public sector's in-house consulting agency ("Partnerschaft Deutschland"), which is a 100 % state-owned consultant company that provides expert advice on public-private partnerships on projects aimed at innovative and sustainable infrastructure and modernisation of administrative processes.

6. Track record and supply side
   - Action:
     - Development of an EU database for EPC and PPP projects with special regard to public infrastructure in order to make these models more visible and to build a good track record.
     - Promotion of regional investment programmes for mobilisation and aggregation of smaller investments into larger, more bankable ones. A larger pipeline of similar

energy renovation projects would reduce transaction costs and become adequate for application of EPC/PPP models.

- Good practice example from Central European countries:
  - Under the leadership of Goriška Local Energy Agency 33 local authorities from Slovenia aggregated smaller sustainable energy projects and applied and received funding from European Local Energy Assistance (ELENA) for preparatory activities. The project worth EUR 49.5 million was successfully implemented by 2020.

Crowdfunding:

1. Legislative and institutional framework
   - Actions:
     - Enhancement of regulatory frameworks for civic crowdfunding – Dedicated and clear national legal frameworks for implementation of different crowdinvesting models and rules of operation of crowdfunding platforms on the market have to be developed for stronger uptake of these financing models and removal of limitations for public sector's participation in civic crowdfunding projects.
     - Adaptation of national regulatory frameworks to new EU Regulation on European Crowdfunding Service Providers for Business, which would enable crowdfunding platforms to offer their services across the EU.
   - Good practice example from Central European countries:
     - Austrian Alternative Financing Act and general legal framework regarding crowdfunding set standards for crowdfunding platforms, allowed public authorities to use crowdinvesting models and simplified overall access to the capital market.
2. Financial instruments and blending
   - Actions:
     - Development and implementation of civic match-funding mechanisms and blending schemes for the allocation of ESIF grants on national levels – Enhanced cooperation between Managing authorities, National Promotional Banks and Institutions (NPBIs) and other stakeholders must be explored in order to enable use of grants and ESIF financial instruments in combination with crowdfunding platforms over the next programming period (2021-2027). Public sector (either managing or regional/local authorities) could potentially engage with crowdfunding platforms as sponsors, managers, curators or facilitators.
     - Introduction of fiscal policies (e.g., tax benefits) on local/regional/national levels for investors and donors in civic crowdfunding projects.
   - Good practice example from Central European countries:
     - In 2014, the City of Sveta Nedelja (Croatia) launched a campaign on Croenergy.eu crowdfunding platform to co-finance energy renovation of its kindergarten "Naša radost". The costs of renovation were estimated at 70.000 EUR and the campaign aimed at collecting EUR 10.000, while the City committed to match crowdfunded resources with 50%. The campaign was successful, and the rest of the funds were secured from the national energy efficiency fund.
     - In 2016, the City of Milan supported a bottom-up crowdfunding initiative by allocating EUR 400,000 as co-funding for projects of public interest with a high social impact. The purpose was to foster the implementation of innovative ideas that would increase the quality of urban life, making Milan a more inclusive and

sustainable city. https://innovationinpolitics.eu/showroom/project/civic-crowdfunding/

3. Awareness and capacity
    - Actions:
        - Introduction of national and transnational programmes and projects for capacity building of crowdfunding project developers in order to improve skills and competences of all campaign initiators.
        - Piloting and promotion of civic crowdfunding for sustainable energy projects in order to increase knowledge and general visibility among cities, citizens, companies and investors about investing opportunities and model's benefits for local economies.
    - Good practice example from Central Europe:
        - Project CROWD-FUND-PORT[20] was an Interreg Central Europe project that helped project developers, citizens, crowdfunding platforms and policy makers to learn more about this innovative financing model. The project ran successfully in 2016-2019 period and established national crowdfunding hubs, provided trainings and recommendations for policy improvements in Central European countries.

4. Risk perception
    - Actions:
        - Establishment of (trans)national cooperation schemes between public bodies and crowdfunding platforms in which the public body acts as a curator in providing additional financial support to projects that have been already screened, validated, and successfully funded.
        - Development of (trans)national ESIF/EFSI guarantee funds for larger sustainable energy projects which use crowdfunding models in order to mitigate investors' risks.
        - Promotion of successful civic crowdfunding projects and new EU ECSP regulation on investors' protection.
    - Good practice example from Central Europe:
        - The German Small Investor Protection Act Capital Investment Act directly addresses crowdfunding projects and requires complete technical and financial transparency from project owners, including preparation and publication of annual financial statements, management reports and confirmation from investors that they have understood potential risks of their investment.

5. Facilitation and technical assistance
    - Actions:
        - Introduction of (trans)national support for establishment or transformation of existing energy agencies into one-stop-shops for crowdfunding. These institutions would provide technical assistance to potential project developers in all phases of their campaigns and would establish a partnership scheme with crowdfunding platforms.
        - Introduction of national assistance from financial regulators to existing and potential crowdfunding platforms with an aim to make smooth adaptation to new ESCP regulation and/or to provide new civic crowdfunding services/models.
    - Good practice example from Central Europe:

[20] https://www.crowdfundport.eu/for-starters/page/2/

- KICK-ER, implemented by the Emilia-Romagna Regional Agency, ART-ER (Italy) is a guidance and first support service for the realisation of crowdfunding campaigns, whose mission consists in the support for business creation and finance for innovation. It Public resources have been allocated to the establishment of an on-demand, permanent service dedicated to crowdfunding promotion and advisory activities, within the framework of the regional agency's activities.

6. Track record and supply side
    - Actions:
        - Introduction of national grant support schemes for preparation of civic crowdfunding projects and quality review programmes which would improve the quality of their projects and decrease the overall costs of running a crowdfunding campaign.
        - Development of educational programmes with promotional materials and specialized guidelines for project developers who wish to use crowdfuding models. Potential developers would have the opportunity to learn about the whole step-by-step process on how to set-up a project, including examples of different case studies.
    - Good practice example from Central Europe:
        - The International Crowdfunding Center was established in Croatia in 2019 and introduced an accelerator programme on crowdfunding. In cooperation with Croinvest.eu platform it provides mentorship services for different stakeholder groups (public authorities, SMEs, students) and has so far trained more than 1,000 people.

E. Annex: Evaluation of innovative financing schemes with spider diagram

The following tables provide an overview on the rating criteria and scores for Public Private Partnership, Energy Performance Contracting and Crowdfunding, which were used to collect feedback about innovative financing schemes from stakeholders in the CE countries.

11. Public-Private-Partnership

Criteria Legislative and institutional framework criteria	Ranking (from lower to higher grades)	Stakeholder 1 Ranking (1-5)
Quality of relevant legislation/procedures, work of regulatory bodies	1 - Non-existant/completely restricted legislation for PPP 2 - Indequate/complicated legislation for application of PPP models, quite restrictive 3 - Legislation is not quite clear, existing laws are applied, possible use of some PPP models 4 - Legislation defines PPP well, all sectors can use it in accordance with existing regulations 5 - A tailor made legislation for PPP models, regulatory bodies assess each project and monitor its execution	
Accounting and regulatory treatment of PPP	1 - Accounting rules and market regulators prohibit the use of PPP 2 - No accounting rules or regulatory treatment of PPP contracts 3 - Allowed but regulatory institutions are not always clear on treatment of PPP contracts (debt or not) 4 - Regulated for most types of PPP contracts 5 - Completely regulated with clear rules on taxation and accounting treatment of all types of PPP contracts	
Legal certainty/stability of PPP market	1 - Very unstable regulation and market or it does not show any sign of positive changes 2 - Legal treatment changes rather frequently, investors do not trust it and market fluctuates accordingly 3 - Relatively stable legal framework and market, does not oscillate much 4 - Stable, market shows consistent positive trends for longer period (+5 years) 5 - Highly stable, market does not fluctuate due to legal changes	
Financial instruments and blending		**Ranking (1-5)**
Availability of guarantee schemes/factoring funds/financial instruments/supply of long-term financing	1 - Not available 2 - Very limited/financing terms are not good 3 - Average/certain instruments exist 4 - Good/market has recognized PPP projects and various instruments are available 5 - Excellent/PPP has been recognized by all (financing) institutions with different kinds of financing schemes	
Interest from financial institutions for financing of PPP projects	1 - No interest 2 - Low interest 3 - Medium interest 4 - Good interest 5 - Excellent, banks cooperate regularly with PPP private partners and public project initiators	

Possibilities for combining of PPP with ESI Funds/other financial instruments	1 - No possibilities, prohibited 2 - Not impossible but very difficult 3 - Possible but with certain limitations (amount/percentage of investment) 4 - Blending schemes have been developed for some sectors only (e.g. public lighting) 5 - Excellent, blending mechanism exists for all sectors	

Supply side		**Ranking (1-5)**
Existence of experienced/larger companies on the market capable of undertaking PPP projects	1 - No domestic private companies capable of conducting PPP projects, foreign companies are not interested 2 - No domestic companies available, foreign companies can be contracted 3 - Few companies are capable of conducting PPP projects with only basic models and not for all sectors 4 - Several private companies exist, models are available for all types of projects and sectors 5 - A large number of private companies capable of conducting different PPP models for various sectors exist	
Competitiveness of PPP model vs traditional model	1 - Not competitive at all 2 - More expensive and less adequate for most types of EE projects 3 - Equally competitive to traditional model 4 - EPC is more adequate financing model for most types of EE projects 5 - Very competitive as various EPC models are available and provide terms better than traditional models	
Availability of pipeline of PPP projects	1 - Pipeline does not exist 2 - Only several small EE scale projects are in preparation 3 - Pipeline consists of mostly smaller EE projects 4 - Both smaller and larger EE scale projects are in preparation 5 - Very large EE projects regarding investment volume and number are in preparation phase	

Track record		**Ranking (1-5)**
PPP is an established model and is used as a mainstream solution for energy renovation of buildings	1 - Not at all 2 - Not really/very rarely - only few project examples exist 3 - Some PPP models have been used for EE projects but it is not that common 4 - Most PPP models have been tested and used so far and it is a common practice for project developers 5 - PPP is an established model and used extensively for EE projects	
Track record/accomplishment/overall reputation of companies behind PPP projects	1 - No record/terrible record, projects have not been able to deliver their targets/fulfill financial obligations 2 - Projects have not been very successful/negative reputation among project developers 3 - Averagely successful/solid reputation 4 - Very good track record/good reputation among project developers 5 - Excellent track record and reputation	
Investment volume/market share occupied by PPP model	1 - None 2 - Very low, less than 10% 3 - Average, between 10-20% 4 - Very good, from 20-50% 5 - Excellent, above 50%	

Awareness and capacity		**Ranking (1-5)**

Awareness level of public authorities on PPP model and how it works	1 - Extremely low 2 - Low 3 - Average 4 - Good 5 - High	
Awareness level of financial institutions on PPP model and how it works	1 - Extremely low 2 - Low 3 - Average 4 - Good 5 - High	
Capacities of project developers for realization of large number of EE projects with PPP model	1 - Extremely low 2 - Low 3 - Average 4 - Good 5 - High	

Risk perception		**Ranking (1-5)**
Risk perception of PPP model from public authorities - level of trust towards companies behind PPPs	1 - Extremely risky perception/no trust towards PPP private partners 2 - Risky, public authorities sceptical due to low knowledge or past projects/low trust towards PPP partners 3 - Average or mixed risk perception/some have good relationships or past experiences with PPP partners 4 - Mostly positive experiences and risk perceptions 5 - Low risk perception even by those public authorities that have not conducted any PPP projects	
Risk perception of PPP model from financial institutions - level of trust towards companies behind PPPs	1 - Extremely risky perception/no trust towards PPP private partners 2 - Risky, financial institutions sceptical due to low knowledge or past projects/low trust towards PPP partners 3 - Average or mixed risk perception/some have good relationships or past experiences with PPP partners 4 - Mostly positive experiences and risk perceptions 5 - Low risk perception even by those financial institutions that have not financed any PPP projects	
Cost of capital for PPP projects	1 - Extremely high - equal to junk bond interests 2 - Above typical market interests due to risky perception from financing institutions 3 - Average interest rates for the sector and type of project 4 - Below average market interest rates 5 - Very low cost of capital due to safe perception from lenders - treated as project financing	

Facilitation and technical assistance		**Ranking (1-5)**
Availability of market facilitators that provide technical assistance (e.g. energy/development agencies)	1 - None available 2 - Few technical assistance providers are available 3 - Average availability 4 - Good availability 5 - High availability	

Availability of grant funding for costs of project preparation	1 - None 2 - Very limited and available only for certain types of investments/sectors/applicants 3 - Obtainable but amounts are not always sufficient and only occasionally available due to high demand 4 - Available almost constantly and sufficiently budgeted 5 - Excellent in terms of amounts, availability and types of investments/sectors supported	
Existence and availability of standardized PPP contracts	1 - Does not exist 2 - Exists but is not widely available on national level - made for some specific one-off project 3 - Exists, is available but not tailor made for different sectors or not in line with Eurostat/EIB methodology 4 - Exists, is available, made for all sectors (e.g. buildings, lighting), but not fully in line with Eurostat/EIB rules 5 - Tailor made for specific sectors, in line with Eurostat/EIB methodology, available and widely used	

12. Energy Performance Contracting

Criteria **Legislative and institutional framework criteria**	**Ranking (from lower to higher grades)**	**Stakeholder 1** **Ranking (1-5)**
Quality of relevant legislation/procedures, work of regulatory bodies	1 - Non-existant/completely restricted legislation for EPC in private and public sector 2 - Indequate/complicated legislation for application of EPC models, quite restrictive 3 - Legislation is not quite clear, existing laws are applied, possible use of some EPC models 4 - Legislation defines EPC, public/private sector can use it in accordance with existing regulations 5 - Tailor made legislation for EPC models exists, regulatory bodies assess and monitor projects and market	
Accounting and regulatory treatment of EPC	1 - Accounting rules and market regulators prohibit the use of EPC (mostly public sector) 2 - No accounting rules or regulatory treatment of EPC contracts 3 - Allowed but regulatory institutions are not always clear on treatment of EPC contracts (debt or not) 4 - Regulated for most types of EPC contracts 5 - Completely regulated with clear rules on taxation and accounting treatment of all types of EPC contracts	
Legal certainty/stability of ESCO market	1 - Very unstable regulation and market or it does not show any sign of positive changes 2 - Legal treatment changes rather frequently, investors do not trust it and market fluctuates accordingly 3 - Relatively stable legal framework and market, does not oscillate much 4 - Stable, market shows consistent positive trends for longer period (+5 years) 5 - Highly stable, market does not fluctuate due to legal changes	
Financial instruments and blending		**Ranking (1-5)**
Availability of guarantee schemes/factoring funds/financial instruments/supply of long-term financing for ESCOs or public authorities developing EPC projects	1 - Not available 2 - Very limited/financing terms are not good 3 - Average/certain instruments exist 4 - Good/market has recognized EPC projects and various instruments are available 5 - Excellent/EPC has been recognized by all (financing) institutions with different kinds of (re)financing schemes	

Interest from financial institutions for financing of EPC projects	1 - No interest 2 - Low interest 3 - Medium interest 4 - Good interest 5 - Excellent, banks cooperate regularly with ESCOs and project initiators	
Possibilities for combining of EPC with ESI Funds/other financial instruments	1 - No possibilities, prohibited 2 - Not impossible but very difficult 3 - Possible but with certain limitations (amount/percentage of investment) 4 - Blending schemes have been developed for some sectors only (e.g. public lighting) 5 - Excellent, blending mechanism exists in all sectors	

Supply side		**Ranking (1-5)**
Existence of experienced/larger ESCOs on the market	1 - No domestic ESCOs, foreign ESCOs are not interested 2 - No domestic ESCOs, foreign companies can be contracted 3 - Few ESCOs are available with only basic models and not for all project initiators (private sector only) 4 - Several capable ESCOs exist, EPC models are available for all project initiators 5 - A large number of ESCOs and EPC models are available in your country	
Competitiveness of EPC model vs traditional model	1 - Not competitive at all 2 - More expensive and less adequate for most types of EE projects 3 - Equally competitive to traditional model 4 - EPC is more adequate financing model for most types of EE projects 5 - Very competitive as various EPC models are available and provide terms better than traditional models	
Availability of pipeline of EPC projects	1 - Pipeline does not exist 2 - Only several small EE scale projects are in preparation 3 - Pipeline consists of mostly smaller EE projects 4 - Both smaller and larger EE scale projects are in preparation 5 - Very large EE projects regarding investment volume and number are in preparation phase	

Track record		**Ranking (1-5)**
EPC is an established model and is used as a mainstream solution for energy renovation of buildings	1 - Not at all 2 - Not really/very rarely - only few project examples exist 3 - Some EPC models have been used for EE projects but it is not that common 4 - Most EPC models have been tested and used so far and it is a common practice for project developers 5 - EPC is an established model and used extensively for EE projects	
Track record/accomplishment/overall reputation of ESCOs	1 - No record/terrible record, projects have not been able to deliver their targets/fulfill financial obligations 2 - Projects have not been very successful/negative reputation among project developers 3 - Averagely successful/solid reputation 4 - Very good track record/good reputation among project developers 5 - Excellent track record and reputation	

Investment volume/market share occupied by EPC model	1 - None 2 - Very low, less than 10% 3 - Average, between 10-20% 4 - Very good, from 20-50% 5 - Excellent, above 50%	

Awareness and capacity		**Ranking (1-5)**
Awareness level of public authorities on EPC model and how it works	1 - Extremely low 2 - Low 3 - Average 4 - Good 5 - High	
Awareness level of financial institutions on EPC model and how it works	1 - Extremely low 2 - Low 3 - Average 4 - Good 5 - High	
Capacities of project developers for realization of large number of EE projects with EPC model	1 - Extremely low 2 - Low 3 - Average 4 - Good 5 - High	

Risk perception		**Ranking (1-5)**
Risk perception of EPC model from public authorities - level of trust towards ESCOs	1 - Extremely risky perception/no trust towards ESCOs 2 - Risky, public authorities sceptical due to low knowledge or past projects/low trust towards ESCOs 3 - Average or mixed risk perception/some have good relationships or past experiences with ESCOs 4 - Mostly positive experiences and risk perceptions 5 - Low risk perception even by those public authorities that have not conducted any EPC projects	
Risk perception of EPC model from financial institutions - level of trust towards ESCOs	1 - Extremely risky perception/no trust towards ESCOs 2 - Risky, financial institutions sceptical due to low knowledge or past projects/low trust towards ESCOs 3 - Average or mixed risk perception/some have good relationships or past experiences with ESCOs 4 - Mostly positive experiences and risk perceptions 5 - Low risk perception even by those financial institutions that have not financed any EPC projects	
Cost of capital for ESCOs	1 - Extremely high - equal to junk bond interests 2 - Above typical market interests due to risky perception from financing institutions 3 - Average interest rates for the sector and type of project 4 - Below average market interest rates 5 - Very low cost of capital due to safe perception from lenders	

Facilitation and technical assistance		**Ranking (1-5)**

Availability of market facilitators that provide technical assistance (e.g. energy/development agencies)	1 - None available 2 - Few technical assistance providers are available 3 - Average availability 4 - Good availability 5 - High availability	
Availability of grant funding for project preparation costs	1 - None 2 - Very limited and available only for certain types of investments/sectors/applicants 3 - Obtainable but amounts are not always sufficient and only occasionally available due to high demand 4 - Available almost constantly and sufficiently budgeted 5 - Excellent in terms of amounts, availability and types of investments/sectors supported	
Existence and availability of standardized EPC contracts with harmonised approaches to metrics for baseline estimations of energy use as well as measurement, verification and reporting on energy savings achieved	1 - Does not exist 2 - Exists but is not widely available on national level - made for some specific one-off project 3 - Exists, is available but not tailor made for different sectors or not in line with Eurostat/EIB methodology 4 - Exists, is available, made for all sectors (e.g. buildings, lighting), but not fully in line with Eurostat/EIB rules 5 - Tailor made for specific sectors, in line with Eurostat/EIB methodology, available and widely used	

13. Crowdfunding

Criteria **Legislative and institutional framework criteria**	**Ranking (from lower to higher grades)**	**Stakeholder 1** **Ranking (1-5)**
Quality of relevant legislation/procedures, work of regulatory bodies	1 - Non-existant/completely restricted legislation for crowdfunding in private and public sector 2 - Indequate/complicated legislation for application of crowdfunding models, very restrictive 3 - Legislation is not quite clear, existing laws are applied, possible use of some models 4 - Legislation defines crowdfunding, public/private sector can use it in accordance with existing regulations 5 - A tailor made legislation for crowdfunding addresses all CF models, regulatory bodies monitor the market	
Accounting and regulatory treatment of crowdfunding	1 - Accounting rules and market regulators prohibit the use of crowdfunding for all platforms and campaing owners 2 - No clear accounting or regulatory treatment of crowdfunding 3 - Allowed but regulatory institutions are not always clear on treatment of crowdfunding 4 - Regulated for most crowdfunding models 5 - Completely regulated with clear rules on taxation and treatment of platforms	
Legal certainty/stability of crowdfunding market	1 - Very unstable regulation/market does not show any sign of positive changes 2 - Legal treatment changes rather frequently, investors do not trust it and market fluctuates accordingly 3 - Relatively stable legal framework and market, does not oscillate much 4 - Stable, market shows consistent positive trends for a longer period (+5 years) 5 - Highly stable, market does not fluctuate due to legal changes	
Financial instruments and blending		**Ranking (1-5)**

Recognition by financial institutions/ESIF institutions as co-funding source	1 - None/not recognized as a funding source by financial institutions of ESIF bodies 2 - Institutions very unlikely to treat it as a valid funding source 3 - Average, institutions recognize it but do not see it as a serious funding source 4 - Good, crowdfunding is recognized by most financial institutions as a valid funding source 5 - Excellent, crowdfunding is recognized by all institutions as a funding source	
Interest from financial institutions for co-financing of crowdfunding projects	1 - No interest 2 - Low interest 3 - Medium interest 4 - Good interest 5 - Excellent, banks cooperate with crowdfunding platforms and project initiators	
Possibilities for combining of crowdfunding with ESI Funds/other financial instruments	1 - No possibilities, prohibitive 2 - Not impossible but very difficult 3 - Possible but with certain limitations (amount/percentage of investment) 4 - Match-funding and blending schemes have been developed for some sectors only 5 - Excellent, blending and match-funding mechanism exists in all sectors (public and private)	

Supply side		**Ranking (1-5)**
Availability of crowdfunding platforms	1 - No domestic platforms, foreign platforms cannot be used - country is excluded from platform's list 2 - No domestic platforms, foreign flatforms can be used 3 - Few platforms are available with only basic models and not for all project initiators (private sector only) 4 - Several platforms exist, models are available for all project initiators 5 - A large number of platforms and models are available in your country	
Competitiveness of crowdfunding models vs traditional model	1 - Not competitive at all 2 - More expensive and less adequate for most types of EE projects 3 - Equally competitive to traditional model 4 - Crowdfunding is more adequate financing model for most types of EE projects 5 - Very competitive as capital/funding is easily obtainable and terms are better than for traditional model	
Availability of pipeline of crowdfunding projects	1 - Pipeline does not exist 2 - Only several small EE scale projects are in preparation 3 - Pipeline consists of mostly smaller EE projects 4 - Both smaller and larger EE scale projects are in preparation 5 - Very large EE projects regarding investment volume and number are in preparation phase	

Track record		**Ranking (1-5)**
Crowdfunding is an established model and is used for energy renovation of buildings and EE projects in general	1 - Not at all 2 - Not really/very rarely - only few project examples exist 3 - Some crowdfunding models have been used for EE projects but it is not that common 4 - Most crowdfunding models have been tested and used so far and it is a common practice for project developers 5 - Crowdfunding is an established model and used extensively for EE projects	

Track record/accomplishment/overall reputation of crowdfunding projects and platforms	1 - No record/terrible record, projects have not been able to deliver their targets/fulfill financial obligations 2 - Projects have not been very successful/negative reputation among project developers 3 - Averagely successful/solid reputation 4 - Very good track record/good reputation among project developers 5 - Excellent track record and reputation	
Investment volume/market share of EE projects financed with crowdfunding models	1 - None 2 - Very low, less than 2% 3 - Average, between 2-10% 4 - Very good, from 10-20% 5 - Excellent, above 20%	

Awareness and capacity		**Ranking (1-5)**
Awareness level of public authorities on crowdfunding models and how they work	1 - Extremely low 2 - Low 3 - Average 4 - Good 5 - High	
Awareness level of financial institutions on crowdfunding models and how they work	1 - Extremely low 2 - Low 3 - Average 4 - Good 5 - High	
Capacities of project developers for realization of large number of EE projects with crowdfunding models	1 - Extremely low 2 - Low 3 - Average 4 - Good 5 - High	

Risk perception		**Ranking (1-5)**
Risk perception of crowdfunding models from public authorities - level of trust towards crowdfunding platforms	1 - Extremely risky perception/no trust towards platforms 2 - Risky, public authorities sceptically see it as a mechanism for startups-venture projects/low trust to platforms 3 - Average or mixed risk perception/some have good relationships or past experiences with platforms 4 - Mostly positive experiences and risk perceptions 5 - Low risk perception even by those public authorities that have not conducted any crowdfunding projects	
Risk perception of crowdfunding models from financial institutions - level of trust towards crowdfunding platforms	1 - Extremely risky perception/no trust towards platforms 2 - Risky, financial institutions sceptically see it as a mechanism for startups-venture projects/low trust to platforms 3 - Average or mixed risk perception/some have good relationships or past experiences with platforms 4 - Mostly positive experiences and risk perceptions - have good cooperation with them 5 - Low risk perception - banks have established business cooperation/match making model with CF platforms	

Cost of capital for crowdfunding projects	1 - Extremely high - equal to junk bond interests 2 - Above typical market interests due to risky perception from investors 3 - Average interest rates for the sector and type of project 4 - Below average market interest rates 5 - Very low cost of capital due to safe perception from lenders	

Facilitation and technical assistance		**Ranking (1-5)**
Availability of market facilitators that provide technical assistance (e.g. energy/development agencies) in terms of number, quality and track record of TA providers	1 - None available 2 - Few technical assistance providers are available 3 - Average availability 4 - Good availability 5 - High availability	
Availability of grant funding for costs of project preparation	1 - None 2 - Very limited and available only for certain types of investments/sectors/applicants 3 - Obtainable but amounts are not always sufficient and only occasionally available due to high demand 4 - Available almost constantly and sufficiently budgeted 5 - Excellent in terms of amounts, availability and types of investments supported	
Existence and availability of crowdfunding guidelines and methodology on how to prepare campaigns	1 - None are available on national language or for your market 2 - Very limited guidelines or obsolete/not up to date with legal framework 3 - Available but not very exhaustive or tailor made for different sectors and target groups 4 - Available as general guidelines and for some specific sectors and target groups 5 - Excellent, tailor made for specific sectors and target groups (citizens, project initiators, SMEs, public authorities)	

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