

DELIVERABLE D.T2.2.1

**D.T2.2.1 Downstreaming eCentral tools
and schemes for better management and
renovation of public buildings**

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A.T2.2 Downstreaming past ICT EE financial and decision support tools

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1. Introduction

The deliverable T2.2.1 belongs to the activity related to the downstreaming past ICT Downstreaming past ICT EE financial and decision support tools (A.T2.2). Downstreaming actions include, beside tools adjustment, also possible data collection in the Pilot Actions (PAs) interested in such tools.

The eCentral solutions (Step by step guide on how to turn public buildings into nZEB and Decision support tool - nZEB renovation with innovative financing schemes) are being adjusted and tailored in a way that they can be further rolled-out and used at other national, regional or local levels. They will be deployed and tested in the new-comer PAs of the project consortium (WPT4) and proposed on a wider range of public buildings (through the energy management plans - WPT4).

2. eCentral – Description


Step by step guide on how to turn public buildings into nZEB standard aims to support public authorities to identify and manage the renovation process. It identifies the main important phases of the renovation process, from the early stage of the project development, through the design and construction phase, up to the service life of the buildings. Moreover, it collects the most important EU regulation that establish the rules for the public tenders and for achieving the nZEB targets.

The guide also aims to boost the investments in a standardized process managed by the public know-how. In relation to the professional (technical) and economic know-how of the public authorities and final needs, different approaches can be chosen to (i) develop the project design, (ii) organize the construction phase, and (iii) manage the service life of the building. The level of involvement of each stakeholder from public authorities, building experts (architects, engineers, constructors) or energy/development agencies, ESCOs, SMEs - equipment manufacturers, financing institutions, can be different case by case. Public tenders are the crucial tools for the success of the project renovation and final target achievement: how they are defined and managed can have an impact on the later stages of the process.

The public tender include all the specification, the rules and the roles of each stakeholders and can cover from one to all phases of the renovation process (design, construction and operation phase). It is important that all requirements (energy saving, energy performance, RES, indoor quality, costs, ...) will be well defined in term of indicators, values, calculation method (tools) and verification process to facilitate a strong and robust investment.

You can find the Step by step guide here:

<https://www.interreg-central.eu/Content.Node/DT232-05112020.pdf>



Step by step guide on
**HOW TO TURN
PUBLIC BUILDINGS
INTO NZEB**

ABOUT THIS GUIDE

The present guide aims to support public authorities to identify and manage the renovation process, with a particular focus on eCentral project countries.

The guide identifies the main important phases of the renovation process, from the early stage of the project development, through the design and construction phase, up to the service life of the building.

Public tenders are crucial for the success of the project: how they are carefully defined and managed can have an impact on the later stages of the process.

EU REGULATION ON PUBLIC TENDERS

Public tenders and public procurement have a very strong impact on the economic performance in Europe. EU Commission developed harmonized tender procedure regulations to ensure a fair environment for all businesses across Europe.

MAIN REFERENCE REGULATION:

- Directive 2014/24/EU on public procurement
- Directive 2014/25/EU on procurement by entities operating in the water, energy, transport and postal service sector
- Directive 2014/33/EU on the award of concession contracts

DEFINITION FROM DIRECTIVE 2014/24/EU, ART. 2:

- (8) "public works contracts" means public contracts having as their object one of the following: the construction, or both the design and execution, of a work, or realization of a work specified by the contracting authority
- (9) "public service contracts" means public contracts having as their object the provision of services
- (10) "Design contract" means those procedures which enable the contracting authority to acquire, mainly in the field of town and country planning, architecture and engineering or data processing, a plan or design selected by a jury after being put out to competition with or without the award of prizes.

nZEB TARGET IN ECENTRAL PROJECT COUNTRIES

PROJECT PARTNER COUNTRIES MAIN REFERENCE REGULATION date/publication of the final document	RESIDENTIAL PE DEMAND without/ up		NON-RESIDENTIAL PE DEMAND without/ up		OTHER NZEB REQUIREMENTS
	new	existing	new	existing	
Austria OIB guidelines 6, National Plan 2016	41*	44*	84**	87**	Individual calculations: limits for heating demand and final energy demand (Energy Efficiency Factor). Non-Residential PE * for heating energy demand, ** for heating and lighting energy demand.
Croatia Technical Regulation on rational use of energy and thermal protection in buildings: OIB/2016	35-80	n/a	25-100	n/a	Minimum 50% of PE consumption must be generated from RES. Energy of PE are depending on climate zone and use of the building.
Hungary Approved decree 1/2006 (I/24)	90	n/a	Office: 90 Educational: 85	n/a	New buildings: limits for heat transfer coefficient of structures, and specific heat loss factors. Specific requirements to prevent summer overheating of buildings and for building engineering systems.
Italy Law 76/2011 Decreto DM 26 of June 2015	Individual calculations: limits according to comparable reference building. Fixed indicator: Minimum 50% of energy for DHW, heating and cooling provided by RES.				
Slovenia National Plan for nZEB in Slovenia approved in 2015	75-80	90-95	55	65	Minimum 50% of PE consumption must be generated from RES.

EU REGULATION ON NZEB

Achieving the nZEB target means bringing additional benefits to the economy and the society. The EU Commission boosts the building market to increase energy renovation, gain significant saving and improve the citizen health.

MAIN REFERENCE REGULATION:

- Directive 2010/31/EU (EPBD) and 2018/844/EU on energy performance of buildings
- Directive 2012/27/EU (EED) on energy efficiency
- Directive 2018/2001/EU on renewable energy



Concerning the **decision support tool**, the aim is to facilitate the decision on the type of financing schemes to implement during the renovation project. The first point to consider is to estimate the level of equity rate for the project. It is suggested to have major public monetary resources before commencing a PPP model to keep financial part of the project in public responsibility. If public resources are not enough to implement the project, crowdfunding or subsidies can be used to increase equity. Then, the technical and economic know-how, the number of human resources, and the risk spread must be assessed.

You can find the decision support tool here:

<https://www.interreg-central.eu/Content.Node/DT153.pdf>



2.1 eCentral tools – Adaptation to new pilot areas

The Step by step guide and Decision support tool – nZEB was used in parallel with the Living EPC tool. The tools that were developed within the eCentral project will be adapted and reused in 4 new pilot areas, one in each country: Slovenia, Austria, Poland and Croatia. Existing tools have been developed with the aim to support public authorities in identifying and managing renovation processes and providing information about innovative financing schemes for nZEB renovation with the focus on the concerned countries. Therefore, as part of this activity, we reviewed the adequacy of the presented legislation and information's for the countries in question. As an improvement of the tool, we updated the existing documents and improve the tools with added Polish legislation for nZEB and what are their specification of innovative financing schemes.

2.2 eCentral tools – Problems occurred in capitalization

During the capitalization of the eCentral tools for better management and renovation of public buildings didn't encounter any major problems. We have successfully updated and improve the tools for TARGET-CE partners needs.



3. Results and examples of tailored tool in new PAs

We have upgraded the exiting tools with Poland legislations for nZEB and specifications of Innovative financing schemes.

Public Private Partnership (PPP)
Legal, regulatory and administrative framework
The principles of cooperation between the public entity and the private partner within the framework of public-private partnership are regulated by the Act of 19 December 2008 on public-private partnership (Journal of Laws of 2015, item 696). According to its wording, the subject of PPP is the joint implementation of an undertaking based on the division of tasks and risks between the public entity and the private partner. By concluding a public-private partnership agreement, the private partner undertakes to implement the project for remuneration and to bear all or part of the expenses for its implementation. On the other hand, the public entity undertakes to cooperate in achieving the goal of this undertaking. PPP is not, however, a delegation of governmental responsibilities to the private sector.
Market assessment
In Poland is more popular than EPC or Crowdfunding – many cases of PPP in energy efficiency projects. Real and proper risk distribution, taking into account the changing criteria for classifying transactions on or off the balance sheet of the public finance sector, is the most difficult task. Properly identified and reliably assessed risk allows for the analysis of the impact of risk distribution on costs and benefits and the classification of transactions. Public-private partnership also defines the type of contractual relationship between the owner of the public property and the contractual counterparty that is remunerated from operating savings upon refurbishment.
Conclusions and Recommendations
The most important element of the implementation of projects under PPP is the selection of a private partner for the implementation of the thermomodernization project - as part of the dialogue with contractors (private partners), any issues relevant to the implementation of the project may be discussed. In the course of the dialogue, private partners first perform a local vision of the facilities and carry out their research and measurements. On this basis, they propose to the public side the best possible solutions to achieve a certain level of energy efficiency.
Energy Performance Contracting (EPC)
Legal, regulatory and administrative framework
The EPC is not currently a legally defined financial mechanism in Poland, but it has been used for over a decade. All arrangements and framework for action are carried out on an arm's length basis.
Market assessment
The first implementations were made in the heating and chemical industries. Later, this type of contracting was rarely used due to the relatively high risk of implementation and low energy prices from hard coal power generation installations. The EPC issue resurfaced in early 2007 after Eastern and Central European countries joined the European Union, when the first 7-year period of EU energy efficiency programs and EU-funded renewable and low-carbon programs were launched. Energy Performance Contracts (EPCs) mainly aim to improve energy efficiency by reducing energy demand and consumption in buildings, urban neighborhoods and industrial installations. This type of contracting is generally applicable to retrofit processes: <ul style="list-style-type: none"> • external partitions by improving their thermal insulation; • reduction of losses in energy distribution to buildings; • the use of efficient, combined heat and electricity generation in buildings and industry. The above-mentioned modernization processes also improve the operational economics of real estate, leading to financial gains.



<p>Recently, investors / owners have been forced to reduce CO2 emissions in energy production processes, which leads to the use of renewable energy sources - RES and low-emission fuels, e.g. natural gas in energy cogeneration processes (electricity and heat). The use of renewable energy sources (RES) was rewarded with colored certificates (green, yellow, red, etc. - currently also auctions with a price guarantee) to cover additional investment costs.</p>
<p>Conclusions and Recommendations</p>
<p>At this time, EPC is used in large scale investments and using these mechanisms is not usual for thermomodernization actions (within lower budget, only e.g. for insulation of walls – there are no cases of EPC). At this time, mostly it's used to develop photovoltaic farms in Poland or modernization of street lighting.</p>
<p>Crowdfunding (CF)</p>
<p>Legal, regulatory and administrative framework</p>
<p>Similar situation to the EPC. Possible is application of European law (in the case of SMEs)</p>
<p>Market assessment</p>
<p>In energy market, crowdfunding recently, it has been used by companies that finance the execution of a large number of solar farms by crowdfunding holdings. In the case of building modernization activities, there are no crowdfunding campaigns.</p>
<p>Conclusions and Recommendations</p>
<p>Crowdfunding in case of energy efficiency actions in public or private buildings is basically unparalleled. In this case, we cannot see any possibilities to run actions by using crowdfunding (people who decide to take such actions do not believe in the effectiveness of this action due to the lack of crowdfunding legal sanctioning).</p>

nZEB target in project partners countries

PROJECT PARTNER COUNTRIES MAIN REFERENCE REGULATION (application of the EPBD directive)	RESIDENTIAL PE DEMAND (kWh/m ² ·a)		NON-RESIDENTIAL PE DEMAND (kWh/m ² ·a)		OTHER NZEB REQUIREMENTS
	New	Existing	New	Existing	
Austria OIB guidelines 6, National Plan 2018	41*	44*	84**	87**	Individual calculations: limits for heating demand and final energy demand (Energy Efficiency factor). Non-Renewable PE * for heating energy demand, ** for heating and lighting energy demand.
Croatia Technical Regulation on rational use of energy and thermal protection in buildings OG128/15	35-80	n/a	25-250	n/a	Minimum 30% of PE consumption must be generated from RES. Ranges of PE are depending on climate zone and use of the building.
Hungary Amended Decree 7/2006 (V.24.)	100	n/a	Office: 90	n/a	New buildings: limits for heat transfer coefficient of structures, and specific heat loss factors. Specific requirements to prevent summer overheating of buildings and for building engineering systems.
			Educational: 85		
Italy Law 90/2013 Decree DM 26 of June 2015	Individual calculations: limits according to comparable reference building. Fixed indicator: Minimum 50% of energy for DHW, heating and cooling provided by RES.				
Slovenia National Plan for nZEB in Slovenia approved in 2015	75-80	90-95	55	65	Minimum 50% of PE consumption must be generated from RES.
Poland National Plan to increase the number of low-energy buildings	Single-family house: 70	Building built after 1970: 50-75	Medical public building: 190	Building built after 1970: 50-75	When modernized or built, buildings external envelopes have to be in line with standards specified in the ordinance on technical conditions and these partitions must be characterized by an appropriate heat transfer coefficient.
	Multi-family house: 65	Building built before 1970: 75-100	Other that medical public building: 45	Building built before 1970: 75-100	
	Collective residence building: 75			Utility, warehouse and production buildings: 70	

4. Conclusions

The eCentral tools will be capitalized by TARGET-CE partners in 4 different pilot areas. We have upgraded and improved the tool with the Polish legislations and specification. It has turned out that tools are a great support to public authorities to identify and manage the renovation process. The step by step guide identifies the main important phases of the renovation process, from the early stage of the project development, through the design and construction phase, up to the service life of the buildings. To reach the maximum success of the project the public tenders are crucial: how they are carefully defined and managed can have an impact on the later stages of the process. The adapted decision support tool provides information about nZEB renovation with innovative financing schemes such as Public Private Partnership (PPP), Energy Performance Contracting (EPC) and Crowdfunding (CF).