

# Next Generation Energy Performance Certificates cluster

2019

QualDeEPC



U-CERT  
User-Centred Energy Performance Assessment and Certification



2020

D<sup>2</sup>EPC



ePANACEA  
Smart European Energy Performance Assessment & Certification

EPC RECAST  
ENERGY PERFORMANCE CERTIFICATE RECAST

2021

crossCert  
Next-generation of Energy Performance Assessment and Certification



iBRoad2EPC

TIMEPAC  
The new EPC for Europe

2022

Smart living  
EPC

CHRONICLE



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## Next Gen EPC cluster – Next Generation Energy Performance Certificates cluster

The Next Generation Energy Performance Certificates cluster of sister projects funded by the Horizon 2020 and Horizon Europe research and innovation programmes gathers 13 projects that started their activities in 4 successive generations:

- **2019:** QualDeEPC, U-CERT & X-tendo
- **2020:** D<sup>2</sup>EPC, E-DYCE, ePANACEA, EPC RECAST
- **2021:** crossCert, EUB Super Hub, iBRoad2EPC, TIMEPAC
- **2022:** CHRONICLE, SmartLivingEPC

The main mantra of the Next Gen EPC cluster is going farther together as opposed to going fast alone for

allowing an open co-creation process maximizing quality, relevance, utility and effectiveness while avoiding reinventing the wheel and ensure a coordinated and convergent approach. This approach empowers decision makers at both EU and Member State levels and the overall EPBD related stakeholder community to swiftly leverage the emerging results of this family of projects for the continuous EPBD transposition, implementation and monitoring process and the way the package of policy instruments are meaningfully weaved together.

Energy performance certificates (EPCs) are becoming the centre

piece of the EPBD being linked to all the other policy instruments (e.g. SRI, Digital Building Logbooks, Renovation Roadmaps & Passports, Level(s)...) and soon to be used as reference for financing building performance activities. Thus, they withhold the highest potential to ensure an EPB coherence framework for all instruments to flawlessly work together. Together the Next Gen EPC cluster sister projects greatly support the digital and green transformation of the EU's building stock which in turn will enable and facilitate to arrive by 2050 at healthy, safe, efficient, flexible and zero-emission buildings for the people. ●

## QualDeEPC – High-quality Energy Performance Assessment and Certification in Europe Accelerating Deep Energy Renovation

QualDeEPC stands for the high-quality energy performance assessment and certification in Europe accelerating deep energy renovation. The project partners work on the EU-wide convergence of the building assessment and the issuance, and verification of quality-enhanced EPCs as well as their recommendations for building renovation. The aim is to generate a coherent link between these recommendations and a deep energy renovation towards a nearly-zero energy building stock by 2050. To create consensus in the participating countries and EU-wide, and to implement as many

improvements as possible during the project period, an intensive dialogue involving the important stakeholders at all levels takes place. Together with national experts the partners defined seven priorities QualDeEPC develops further to improve the long-term reliability and utilisation of EPC schemes and to tackle the grand challenge of the harmonization of EPCs across the EU: Improving the recommendations for renovation, provided on the EPCs, towards deep energy renovation; Online tool for comparing EPC recommendations to deep energy renovation recommendations; Creating deep



renovation network platforms; Regular mandatory EPC assessor training; High user-friendliness of the EPC; Voluntary/mandatory advertising guidelines for EPCs; and Improving compliance with the mandatory use of EPCs in real estate advertisements. Visit QualDeEPC and have a look at results so far. ●

**Website:** <https://qualdeepc.eu/>

**Twitter:** @QualDeEPC

**LinkedIn:** QualDeEPC project

## U-CERT – Towards a new generation of user-centred Energy Performance Assessment and Certification; facilitated and empowered by the EPB Center

U-CERT is a Horizon 2020 Coordination and Support Action project (September 2019 – November 2022) with the main aim to introduce a next generation of user-centred Energy Performance Assessment and Certification Scheme to value buildings in a holistic and cost-effective manner.

- Facilitate convergence of quality and reliability, using the set of CEN/ISO EPB standards, enabling a technology neutral approach that is transparently presenting the national and regional choices on a comparable basis

- Encourage the development and application of holistic user-centred innovative solutions, including the Smart Readiness Indicator for buildings and Indoor Environmental Quality
- Encourage and support users in decision making (e.g. on deep renovation), nudge for better choices and instil trust by making visible added (building) value, using EPCs

U-CERT has a focus on strengthening actual implementation of the EPBD by providing and applying insights from a user



**U-CERT**  
User-Centred Energy Performance  
Assessment and Certification

perspective and creating a level playing field for sharing implementation experience to all involved stakeholders, facilitated and empowered by the EPB Center. ●

**Website:** <https://u-certproject.eu/>

**Twitter:** @cert\_u

**LinkedIn:** U-CERT PROJECT

**Facebook:** @ucertproject

## D<sup>2</sup>EPC – Next-generation Dynamic Digital EPCs for Enhanced Quality and User Awareness

D<sup>2</sup>EPC ambitiously aims to set the grounds for the next generation of dynamic Energy Performance Certificates (EPCs) for buildings. The proposed framework sets its foundations on the smart-readiness level of the buildings and the corresponding data collection infrastructure and management systems.

It is fed by operational data and adopts the 'digital twin' concept to advance Building Information Modelling, calculate a novel set of energy, environmental, financial, and human comfort/ wellbeing indicators, and through them the EPC

classification of the building in question. Under the project vision, the proposed indicators will render dynamic EPCs a realistic, accurate and comprehensive tool that can lead the transformation of the European building stock into zero-energy buildings and stimulate an energy-efficient behavioural change in the building occupants. D<sup>2</sup>EPC proposes a digital platform that will enable the issuance and update of new EPCs on a regular basis, integrate a GIS environment and provide services including user-centered recommendations for energy renovation, benchmarking and forecasting of buildings'



performance as well as performance verification services. The proposed scheme will contribute to the redefinition of EPC-related policies and to the update of current standards, along with guidance for their implementation. ●

**Website:** <https://www.d2epc.eu/en>

**Twitter:** @D2Epc

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## ePANACEA – Smart European Energy Performance Assessment and Certification



After 10 years of track record, the current EPC schemes across the EU face several challenges which have led to a not full accomplishment of their initial objectives: lack of accuracy, a gap between theoretical and real consumption patterns, absence of proper protocols for inclusion of smart and novel technologies, little convergence across Europe, lack of trust in the market and very little user awareness related to energy efficiency.

The objective of the ePANACEA project is to develop a holistic methodology for energy performance assessment and certification of buildings that can overcome the above-mentioned challenges. The vision of ePANACEA is to become a relevant instrument in the

European energy transition through the building sector.

ePANACEA comprises the creation of a prototype (the Smart Energy Performance Assessment Platform) making use of the most advanced techniques in dynamic and automated simulation modelling, big data analysis and machine learning, inverse modelling or the estimation of potential energy savings and economic viability check.

A relevant part of the project is to have a fluent dialogue with European policy makers, certification bodies, end-users and other stakeholders through two types of participatory actions: a feedback loop with policy makers, carried out through the so-called Regional Exploitation Boards

(REBs) covering EU-27+UK+Norway on the one hand, and dialogue with end-users, established by means of specific thematic workshops, on the other.

Thanks to these participatory actions, the acceptance of the ePANACEA approach will be tested and validated in order to become aligned with and meet the needs of national public bodies, end-users and other stakeholders.

ePANACEA will demonstrate and validate reliability, accuracy, user-friendliness and cost-effectiveness of its methodology through 15 case studies in 5 European countries. ●

**Website:** <https://epanacea.eu>

**Twitter:** @H2020ePANACEA

**LinkedIn:** H2020 ePANACEA project

## EPC RECAST – Next Generation of Energy Performance Assessment & Certification

EPC RECAST aims to engage buildings owners towards deep renovation by making EPCs more user-friendly, reliable and accurate. One of the key elements identified by the European Commission to trigger investments into retrofitting was the improvement of Energy Performance Certificates (EPCs).

To turn them into a robust market tool that can both be trusted and useful for users, a next generation of EPCs is needed. To engage building owners towards deep renovation, structured and

tangible pathways need to be provided to reach an energy efficient building.

When it comes to reliability there is still a large variance between EPC assessors in terms of input data and calculation tools, as well as a general lack of understanding on predicted and real energy performance. The EPC RECAST toolbox aims to tackle both issues by providing innovative on-site data collection solutions for assessors, develop a cloud system to improve data interoperability and establish input/output links between EPCs, digital logbooks,



renovation passports. This will include information on smart technologies in EPCs with recommendations for control & monitoring systems based on SRI. ●

**Website:** <https://epc-recast.eu/>

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**LinkedIn:** EPC-RECAST

## iBRoad2EPC – Integrating Building Renovation Passports into Energy Performance Certification schemes for a decarbonised building stock

The Horizon 2020 iBRoad2EPC project concept represents a practical next step in energy performance assessment schemes and certification practices, showcasing the integration of Building Renovation Passport (BRP) elements into Energy Performance Certificates (EPC) and related schemes. iBRoad2EPC builds on the results of the Horizon 2020 iBRoad project (2017-2020) which developed, tested and delivered a model for the BRP supporting single-family home-owners with personalised advice to facilitate stepwise deep renovation. iBRoad2EPC aims to bridge the BRP with the EPC, and expand, improve and broaden their format and joint scope

with additional features and application to multi-family and public buildings as well. Improving reliability, usefulness and effectiveness, the next generation of EPCs will support Europe's decarbonisation ambitions while improving conditions for building occupants.

iBRoad2EPC project's activities are clustered around four main pillars: (1) assess the needs, potential and practicability of merging the EPC with the BRP; (2) adapt the iBRoad concept to become part of EPCs; (3) test and evaluate the applicability of iBRoad2EPC in six countries (Bulgaria, Greece, Poland,



Portugal, Romania and Spain), including training for energy auditors and EPC issuers and (4) facilitate the adoption and exploitation of the iBRoad2EPC model across Europe. ●

**Website:** <https://ibroad2epc.eu/>

**Twitter:** @H2020iBRoad2EPC

**LinkedIn:** Horizon 2020 iBRoad2EPC

## SmartLivingEPC – Advanced Energy Performance Assessment towards Smart Living in Building & District Level

SmartLivingEPC aims to deliver a dynamic certificate that will be issued with the use of digitized tools and retrieve the necessary assessment information for the building shell and building systems building on BIM literacy, including enriched energy and sustainability-related information for the as designed and the actual performance of the building.

This new generation of EPC will provide information in relation to the operational behaviour of the building, by introducing a new rating scale, based on a weighted approach of life cycle performance

aspects, building smartness assessment, and information on the actual performance of the technical systems of buildings provided by technical audits.

The new methodologies to be developed will be based on existing European standards, whereas at the same time, they will trigger the development of new technical standards for smart energy performance certificates. The new certification scheme will also expand its scope, covering aspects related to water consumption, as well as noise pollution and acoustics.



SmartLivingEPC certificate will be fully compatible with digital logbooks, as well as with building renovation passports to allow the integration of the building energy performance information in digital databases. A special aspect of SmartLivingEPC will be its application in building complexes, with the aim of energy certification at the neighbourhood scale. ●

**Twitter:** @SmartLivingEPC

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## TIMEPAC Towards Innovative Methods for Energy Performance Assessment and Certification of Buildings

TIMEPAC will improve building energy performance certification processes by developing a holistic approach that considers buildings as dynamic structures integrated in the urban environment. TIMEPAC's approach focuses on the seamless flow of data throughout all the stages of energy performance certification: generation, storage, analysis and exploitation of the EPC.

We have envisaged five future scenarios in which improved EPCs could be used as effective tools to improve the energy efficiency of buildings:

1. Generating EPCs enhanced with BIM data.

2. Enhancing EPC schemes by integrating operational data.
3. Integrating smart readiness indicators and sustainability indicators into EPCs.
4. Creation of building renovation passports from data repositories.
5. Large-scale statistical analysis of EPC databases.

New methods and tools to improve current certification practices will be validated in six European countries: Austria, Croatia, Cyprus, Italy, Slovenia and Spain. The results of these trials will help lay the foundation for new standards and training programmes on energy certification processes across Europe.



The TIMEPAC Academy will provide specific users such as professional certifiers, energy auditors, energy agencies, ESCOs, architects, building managers, owners, tenants and local, regional and national government bodies with training materials to enable them to apply the new methods developed in TIMEPAC to the energy certification of buildings. ●

**Website:** <https://timepac.eu/>

**Twitter:** @timepac

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## MODERATE – Marketable Open Data Solutions for Optimized Building-Related Energy Services

MODERATE is a Horizon Europe funded project with the aim to create an open marketplace for building data, connecting data producers with researchers, developers and building stakeholders. Improving the interoperability of building datasets is a key challenge that the project is aiming to tackle.

With the uptake of building monitoring & control systems there has been a rising complexity and variety of building performance data, creating the need for improved interoperability for different stakeholders to be able to share and use each other's data.

For this purpose, the MODERATE marketplace will allow building stakeholders – such as policymakers, building owners, facility managers, service companies – to openly share their data, obtain insights and facilitate their decision-making process.

There's a fine balance for data owners to reliably share this with others while staying line with the privacy regulations. A key component of MODERATE is the use of synthetic data generation techniques, that are not widely applied yet in the construction sector, to allow open better data sharing and enable reliable building



services and creating more economic opportunities.

With the use of artificial intelligence, machine learning, blockchain/distributed ledger and the Internet of Things (IoT) the platform will enable users to analyse real-time data from various building systems and provide information on different indicators of the performance of a building. ●

**Website:** <https://moderate-project.eu/>

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