TRIPLE-A

# Enhancing at an Early Stage the Investment Value Chain of Energy Efficiency Projects

## Deliverable 6.1: Briefing Notes

April 2021

The Triple-A project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 846569.

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Enhancing at an Early Stage the Investment Value Chain of Energy Efficiency Projects

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| **Keywords** | **Summary of Findings; Lessons Learnt; Information Packages; Recommendations;** |

# Preface

Triple-A has a very practical result-oriented approach, seeking to provide reliable information answering on three questions:

- How to ***assess*** the financing instruments and risks at an early stage?
- How to ***agree*** on the Triple-A investments, based on selected key performance indicators?
- How to ***assign*** the identified investment ideas with possible financing schemes?

The Triple-A scheme comprises three critical steps:

- ***Step 1 - Assess:*** Based on Member States (MS) risk profiles and mitigation policies, including a Web based database, enabling national and sectoral comparability, market maturity identification, good practices experiences exchange, reducing thus uncertainty for investors.
- ***Step 2 - Agree:*** Based on standardised Triple-A tools, efficient benchmarks, and guidelines, translated in consortium partners' languages, accelerating and scaling up investments.
- ***Step 3 - Assign:*** Based on in-country demonstrations, replicability and overall exploitation, including recommendations on realistic and feasible investments in the national and sectoral context, as well as on short and medium term financing.

# Who We Are

| | Participant Name | Short Name | Country Code | Logo |
|---|---|---|---|---|
| **1** | National Technical University of Athens | NTUA | GR | |
| **2** | ABN AMRO Bank N.V. | ABN AMRO | NL | |
| **3** | Institute for European Energy and Climate Policy Stichting | IEECP | NL | |
| **4** | JRC Capital Management Consultancy & Research GmbH | JRC | DE | |
| **5** | GFT Italy srl | GFT Italy | IT | |
| **6** | CREARA Consulting SL | CREARA | ES | |
| **7** | Adelphi Research Gemeinnützige GMBH | adelphi | DE | |
| **8** | Piraeus Bank SA | PB | GR | |
| **9** | University of Piraeus Research Center | UPRC | GR | |
| **10** | SEVEn, The Energy Efficiency Center | SEVEn | CZ | |
| **11** | Public Investment Development Agency | VIPA | LT | |
| **12** | National Trust Ecofund | NTEF | BG | |

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## Disclaimer



## Copyright Message

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# Executive Summary

The first release of Triple-A Briefing Notes summarises the main directions and insights as derived from project outcomes for targeted stakeholder consultation. The scope of the Briefing Notes is to provide and share knowledge, communicate conclusions and lessons learnt through Triple-A activities. Knowledge gathered via the implementation of stakeholder engagement and consultation process served as the main source of input for the preparation of the Briefing Notes but other activities, such as synergies with sister projects, provided significant outcomes.

Four (4) Briefing Notes have been prepared up to date covering topics on buildings and energy transition, building sector condition in Greece and investors insights on energy efficiency investments.

Triple-A Briefing Notes will be finalised by the end of the project. Therefore, upcoming Briefing Notes will be published and presented in the final release of this report (D6.2 Final Briefing Notes).

# 1 Introduction

Triple-A project is publishing a series of Briefing Notes derived from actions undertaken throughout the project's implementation. Triple-A Briefing Notes aim to trigger cumulative actions on the field of energy efficiency investments by stakeholders in all levels (EU and national). They focus on increasing the financeability and attractiveness of energy efficiency investments and presenting societal views and benefits.

Up to date, four (4) Briefing Notes have been published covering different topics. Knowledge and results gained by processing input from WP2 Stakeholder Facilitative Dialogue and Capacity Building were used for the preparation of these first series of Briefing Notes. Table 1 presents the list of the Briefing Notes as well as the targeted groups envisioned to reach.

**Table 1: Briefing Notes List**

| # | Title | Responsible Triple-A partner | Targeted Stakeholders | Release Date |
|---|---|---|---|---|
| **1** | Seven Horizon 2020 projects advice EU leaders how to prepare buildings for the energy transition | NTUA[1] | Policymakers | December 2020 |
| **2** | Triple-A Survey on Building Sector: The case of Greece | NTUA | Bankers, Investors, real estate professionals, policy makers | February 2021 |
| **3** | Triple-A Survey on Investors Preferences on Energy Efficiency Investments | NTUA | Bankers, investors | March 2021 |
| **4** | Integration of two standardised approached for transparency improving energy efficiency investments and confidence between owner and investor in building sector | NTEF | Investors, real estate professionals, building managers and owners, policy makers | April 2021 |

## 1.1 Briefing Notes preparation process

Triple-A Briefing Notes follow a uniform format using a title, summary, keywords and authors followed by detailed description of summarised lessons learnt and conclusions. A specific template and logo have been prepared by Task 6.1 leader (NTUA) which follows Triple-A visual identity guidelines and envisions to present in an appealing way the summarised knowledge package.

[1] The contributing H2020 projects are SENSEI, Triple-A, NOVICE, QUEST, U-CERT, AmBIENCe and LAUNCH.

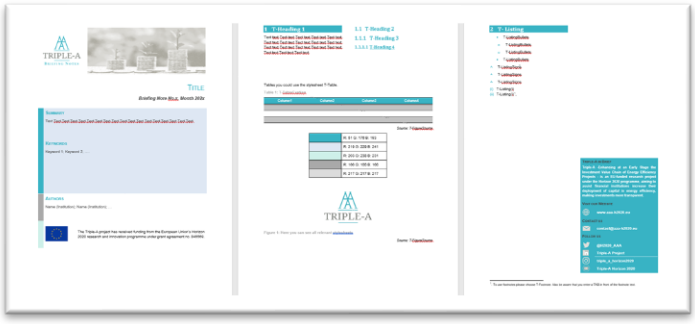

Figure 1: Triple-A Briefing Notes template

All Briefing Notes have been disseminated trough the Triple-A dedicated press releases, as well as posts at the project website and social media, so as to enlarge their outreach and enhance further their impact.

## 1.2 Briefing Notes series

The **1st Triple-A Briefing Note** is an outcome from a very fruitful synergy among 7 Horizon 2020 projects (SENSEI, Triple-A, NOVICE, QUEST, AmBIENCE and LAUNCH) and includes recommendations to policymakers and all interested stakeholders, based on these projects' findings and objectives, investigating ways to enable the mass adoption of energy efficiency measures and smart technologies supporting the uptake of more renewable energy sources. In particular, this Briefing Note aims at communicating to EU leaders at the EU, MS and sub-national levels the essential policy recommendations that will prepare buildings for the energy transition.

The **2nd Triple-A Briefing Note** analyses the results of the stakeholder consultation activities in Greece within the Triple-A context. The building sector was scrutinised and significant information for the current condition of the Greek building stock, its value in market, evaluation of the added value of implementing energy efficiency investments were presented. This information was gathered by a questionnaire developed and 77 responses concluded not only with useful insights but fine-tuning of Triple-A Standardised Tools as well.

The **3rd Triple-A Briefing Note** presents and analyses the results emerged from the Triple-A stakeholder consultation on the investors' preferences on energy efficiency investments. In particular, a dedicated questionnaire was developed, in view of estimating the Cost of Capital of energy efficiency projects from the investor's point of view. Sixty-eight (68) responses were provided by bankers, investors and energy efficiency experts across the eight Triple-A case study countries, namely Bulgaria, Czech Republic, Germany, Greece, Italy, Lithuania, Spain and the Netherlands.

The **4th Triple-A Briefing Note** focuses on the potential and benefits of integrating two or more standardised approached for the implementation of EE investments. The Investor Confidence Project protocols and Triple-A project are presented by highlighting their potential so as to identify similarities and complementary functionalities. It was observed that ICP and Triple-A can cover the assessment of all life cycle phases of an EE investment in a project in building sector. To this end, several EE investments already implemented were presented depicting issues arisen and how the abovementioned standardised approached could help to mitigate possible risks during the whole lifecycle of the project.

# 2 1st Briefing Note: *How to prepare buildings for the energy transition*

## 2.1 Introduction

Seven Horizon 2020 projects worked together for the preparation of an inclusive briefing on how to prepare buildings for the energy transition. The contributing projects apart from Triple-A[2] are SENSEI[3], NOVICE[4], QUEST[5], U-CERT[6], AmBIENCe[7] and LAUNCH[8]. They have been investigating ways to enable the mass adoption of energy efficiency measures and smartness, supporting the uptake of more renewable energy sources. This is done through the development of tools and methodologies such as: enabling ESCOs to develop demand response functionalities, improving and standardizing measurement and verification methods, de-risking and attracting private investments, creating new business models and expanding markets, and transforming energy efficiency and demand response into energy resources for TSOs and DSOs.

Behind the represented Horizon 2020 projects are over 240 experts from 22 research centres, 2 local authorities, 4 ESCOs, 2 technology development SMEs, 1 demand response aggregator, 3 financing institutions and investors, 3 asset management companies, 11 energy consultancies, 7 building professional associations and knowledge centres, and 39 Advisory Board Members. The represented projects and their goals are supported by over 93 letters of support and have collectively engaged, so far, directly more than 1585 stakeholders, out of which 405 are project developers, 32 investors, 99 financial institutions, 173 buildings professionals, 167 policymakers or national authorities, and 38 researchers in business and techno-economic fields. Project topics are highlighted below.

**Table 2: 7 Horizon 2020 projects topics**

| | SENSEI | Triple-A | NOVICE | QUEST | U-CERT | AmBIENCE | LAUNCH |
|---|---|---|---|---|---|---|---|
| **Energy Efficiency** | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Renewables** | | ■ | | | ■ | ■ | |
| **Demand Response** | ■ | | ■ | | | ■ | |
| **Business Models** | ■ | | ■ | | ■ | ■ | |
| **Financing** | | ■ | ■ | ■ | | ■ | ■ |
| **Standardisation** | | ■ | | | ■ | | ■ |
| **Digitalisation** | | | | | ■ | ■ | |
| **Measurement and Verification** | ■ | | | ■ | ■ | ■ | |
| **Energy Performance Contracts** | ■ | | ■ | | | ■ | ■ |
| **Building Renovation** | ■ | ■ | ■ | | ■ | | |
| **Project Development** | | ■ | | | ■ | ■ | ■ |
| **Smart Readiness** | ■ | | | | ■ | | |
| **Operational performance** | ■ | | | | ■ | ■ | |

[2] https://aaa-h2020.eu/
[3] https://senseih2020.eu/
[4] http://novice-project.eu/
[5] https://project-quest.eu/
[6] https://u-certproject.eu/
[7] https://ambience-project.eu/
[8] https://www.launch2020.eu/

## 2.2 Key policy recommendations

The transition to a forward-looking climate-neutral economy, announced in the European Green Deal, demands an action plan where public and private sector investments can be channelled towards climate-friendly technologies and business models.

The following recommendations are derived through in-depth understanding of the social, technical, economic and environmental dimensions of the energy transition, as viewed from the academic, business and policy perspectives of beneficiaries of Horizon2020 Grants.

While these recommendations are authoritative, they need to be complemented by the democratic and effective engagement of all actors involved in the value chain, such as local authorities, institutional bodies, stakeholders in the property and construction market, utilities, energy service companies (ESCOs), financing institutions, NGOs and citizens groups, in order to realize the intended results.

### 2.2.1 Electricity market reform

**Design capacity markets so that energy efficiency can practically compete with supply side options.** Energy efficiency is automatically dispatched, reducing the need for more expensive supply side capacity and lowering the costs of ensuring system adequacy to all bill payers. Capacity mechanisms should be designed to reward energy efficiency projects for this energy system service, drawing upon lessons from New England and PJM systems in the United States.

**The development of Demand Response (DR) programmes that fairly compensate all stakeholders (supplier, customer, BRP, aggregator) and do not favour additional generation capacity over DR capacity.** Some Member States allow aggregation but still have low participation in Demand Response programmes because the rules around participation are so complex and involve gaining consent from several competing parties. This leads to a preference for additional generation capacity rather than promoting demand side response opportunities. Making the rules around participation simpler will encourage more demand response aggregators to participate and help grow the market.

**Aggregation of loads is allowed for both generation and demand side response.** Electricity markets regulations differ between Member States. Aggregation is not allowable in all countries and tends to favour aggregated energy generators rather than aggregated demand side response loads because system operators are more experienced at handling flexible generation capacity. To encourage greater participation at the demand side, generators and demand side units must be able to compete on a level playing field.

**Fair yet straightforward pre-qualification requirements to allow participation from new market entrants and aggregated loads.** Pre-qualification requirements are often stringent which prevents new market entrants from participating. An example is that many companies require each unit in an aggregated pool to be prequalified. This prevents participation from smaller clients and limits the market for demand response aggregators to very large or industrial sites.

**Incentivize network operators to pilot ambitious pay-for-performance programmes.** Drawing on US examples[9] , policymakers in the EU can require utilities participating in Energy Efficiency Obligation

[9] Pay-for-Performance programmes in North America are mostly driven by regulation, in particular utility energy efficiency obligations. In many cases, for example in California, state energy laws and obligations (e.g., Energy Efficiency Resource)

Schemes (EEOs) to deliver some of their targets using the pay-for-performance approach, thus increasing access to novel financing options to mitigate the upfront cost burden to customers and to create new and compelling value propositions for customers, utilities, network operators and financing institutions. In Member States where there are capacity mechanisms, policymakers could pilot pay-for-performance schemes in the context of applying the Efficiency First principle. Distribution System Operators are well positioned to pilot pay-for-performance approaches as part of performance-based regulatory changes.

**Accelerate the roll out of smart meters**. To facilitate the large-scale roll-out of smart electricity metering across EU Member States, as foreseen by the 2009 Electricity Directive, policymakers are encouraged to drive a clear regulatory push, including mandatory measures, provision of financial incentives and strong policies on data privacy and security issues to enhance public acceptance that will facilitate smart meter deployment.

**Incentivize electrified heating from renewable emission free resources**. To reduce building emissions, the electrification of heating, especially if the electricity comes from a no-fuel source, should be incentivized. It leverages both the higher heat-generating efficiency of heat-pumps, and the - in many countries - lower carbon intensity of electricity compared to natural gas, which will continue to drop over time.

Such incentivisation could be achieved through more fair taxation of electricity versus gas, e.g. reflecting the real-time carbon intensity, or through tariff structures that favour electrified heating. Cf: Renewable Heat Incentives in the UK, and the German heat-pump tariff.

### 2.2.2 Financing

**Risk assessment and mitigation strategies of energy efficiency projects per country and per sector**. The EU is encouraged to develop guidelines targeted to energy efficiency investments, like the Guide to Cost-Benefit Analysis of Investment Projects, Economic appraisal tool for Cohesion Policy 2014- 2020. Risk Categories, risk factors, mitigation strategies and financial parameters (discount rates, price inflation) that play a major role in the Energy Efficiency financing should be defined for each country. These could be better integrated with the EEFIG De-risking Energy Efficiency Platform.

**Increase focus on financing of measures for smartness, not just efficiency**. The EU targets related to building energy performance, hence also project financing, focus on reducing the energy consumption to achieve better EPC labels. More and better financial instruments should be in place to promote electrification of heating, especially in combination with self-generation and self-consumption, as a second strategy to reduce emissions. This has the additional benefit that over time, emissions will continue to drop without further investments through the ever-decreasing carbon intensity of electricity.

**Deploy Horizon 2020 results in EU Initiatives**. Help direct private capital towards long-term, environmentally sustainable activities, and prevent false claims on the environmental nature of an investment product through EU Initiatives. Results, tools and reports from Horizon 2020 projects should be appraised and incorporated into Facilitating measures in EU's Initiatives such as The Smart Finance for Smart Buildings, the Investment Plan for Europe and the Clean Energy for all Europeans' package.

Standards) require innovative pilots and programmes to be applied to ensure the cost-effectiveness of these schemes funded by rate payers. Thus, the regulatory frameworks are structured to incentivize administrators to continually improve programmes, adjust portfolios based on evolving goals or market needs, and pilot innovative approaches.

Hence, the EU Taxonomy shall be the cornerstone of the European Commission's Sustainable Finance Action plan, underpinning new regulations.

**Create a harmonization framework between project developers and financing schemes**. State-of the art strategies have led to successful financing and completion of energy efficiency projects. Assess funding strategies of realistic and feasible EE investments and incorporate them into financial reports. Use that information to create harmonization frameworks to accelerate similar energy efficiency projects, by including means of financing in practice in the short or medium term, financing methods and approaches, evaluation and verification of the results.

**Encourage access to third-party finance** by supporting the creation of legal frameworks for energy performance contracting and ESCOs, creating financial mechanisms that give security and confidence to risk-averse third-party finance providers and standardising contractual documents, processes and risk assessment protocols. This could include specific guidelines for ESCO qualification, a review of MS compliance with Article 18 of the EED and how Member States, at various degrees of compliance, can grow their market. In addition, specific technical assistance or guarantee funds can be set aside within the Green Deal to facilitate the energy performance contracting process.

**Encourage Member States to create instruments that serve as first-lost guarantee to mitigate end-clients' high credit risk**. Support private investments in Energy Efficiency adopting commonly used techniques of risk mitigation at country level. Instead of promoting public Energy Efficiency funding, make private investments more attractive by encouraging Member States (MS) to establish public instruments that could secure assets providing credit enhancement and first-lost guarantee. Allocate specific funding at the European level so that MS can administer such guarantee funds. The EU could also encourage the adoption of financing schemes similar to the Italian Ecobonus (also known as the 110% tax credit) to boost energy efficiency project implementations at scale in other EU MS, whilst supporting local SMEs (auditors, project developers, ESCOs) in the process.

**Creation of integrated financing approach to facilitate the market uptake of Horizon 2020 projects**. A barrier to projects' exploitation has been identified as the gap between experimental research and innovation grants (Horizon 2020) on one side, and conservative bank-driven project development funds with guarantees (such as ELENA[10]) on the other. The integrated approach looks at private/public capital to invest in solutions that have proven successful and whose models have been assessed as solid, in this manner accelerating scale-up. The major change would involve the co-development of projects and the adoption of metrics in which the socio-environmental values complement the financial ones.

### 2.2.3 Technical streamlining

**Support the digital transformation of the EU's built environment**. Establish an EU level coordinated and structured approach by implementing the Smart Readiness Indicator (SRI) for buildings and aiming to evolve towards an in-use smart building/operational rating. Additionally, look at the potential for a European level digital building logbook to support standardisation and data collection between Member States.

**Benchmarking and standardisation of energy efficiency projects**. Establishment of EU official tools and guidelines for standardized methods and procedures in benchmarking energy efficiency projects.

[10] https://www.eib.org/en/products/advising/elena/index.htm

Outcomes and products of Horizon 2020 projects can be incorporated for a holistic approach of standardisation of EE projects. Standardization increases trust between key actors, enables the development of green products, and secures low interest rates and the growth of green financing.

**Introducing green requirements for government-owned or -financed buildings**, to help shifting market demand. More and more advanced technologies are installed in new and renovated buildings for optimizing building performance. Building technology is though just a means to an end, meaning that just installing more advanced technology will not cut it. Energy efficient building operation relies upon well-designed systems and continuously optimized operation. Based on the results of H2020 projects, digital quality management procedures for energy efficiency functionalities have been developed and are today part of certification schemes that, for the first time worldwide, certify the energy efficiency of building services in operation (e.g. COPILOT building certification[11] and DGNB Buildings in Operation[12]).

**Support the development of the Energy Performance Contracting markets around Europe by encouraging a transition to a demand-driven market.** The ESCO markets around Europe vary considerably between Member States from the highly mature markets in Italy and Germany to the embryonic markets of Greece and Poland. Member States with policies that drive the demand for energy efficiency measures and put in place systems to support the use of performance contracting have experienced the fastest growth. Encouraging Member States to establish EPC facilitators and standard procurement frameworks for EPCs in the public sector will help to create a market "pull" and drive the growth of the ESCO market to meet the demand.

### 2.2.4 Energy Performance Certification

**Support EU convergence in terms of building performance calculation methodology by using the CEN/ISO set of EPB standards.** Building performance is governed by the same laws of physics globally. Historically, in the EU, building performance calculation methodologies (EPC Certificates) have been developed first at national level, more than 15 years ago, for the EPBD's implementation. Since, experience has shown that a coherent, transparent, holistic, level playing field and innovation ready overarching EU level calculation methodology would act as catalyst at both technical and financial levels. For this specific purpose, the CEN/ISO set of EPB standards have been developed and are furthermore flexible for adequately integrating the EU's principle of subsidiarity.

**Define a building performance label reflecting its emission level.** The current Energy Performance Certificate (EPC) labelling focuses solely on a building's energy consumption. It thereby neglects the benefits of electrification and smart control that focus on reducing the emissions associated with the consumption. In contrast to energy consumption reduction measures, electrification in combination with smart control has the additional benefit of delivering increasingly more emission reductions over time thanks to the ever-dropping carbon intensity of electricity. Besides, it can offer invaluable support and flexibility to the grid, to facilitate the integration of higher numbers of intermittent renewables.

**Introduce additional indicators for unleashing the Energy Performance Certificates' full potential.** Making energy use in buildings visible was a major breakthrough made by Energy Performance Certificates. The awareness raising efforts need to continue and make visible instant power, environmental impact (e.g., $CO_2$ emissions), indoor environmental quality (with its recognised impact on health, well-being and comfort, now even more relevant in the COVID-19 reality). This would

[11] https://copilot-building.com/
[12] https://www.dgnb-system.de/en/projects/index.php

enable the transparent monitoring and follow-up of non-energy benefits associated with building performance improvements / renovations while giving them concrete value.

**Complement asset rating with measured performance and ultimately operational rating**. The asset rating introduced by EPC certificates has achieved wonders if we consider how building evaluation has evolved in the past 20 years. It has though some inherent limitations when it comes to triggering building performance improvements / renovations. People need contextualized information for understanding and making the needed links between their behaviour and decision-making and building performance. Furthermore, people need a regular prompt to successfully make building performance intrinsic in daily life. Lord Kelvin said long ago “If you cannot measure it, you cannot improve it”. People back then did not understand what temperature is and now after a few generations it is part of our basic awareness set of skills. Building performance (energy and nonenergy) needs to go through the same process, however much faster if we are all to spend time in healthy, comfortable, smart, nearly-zero energy and carbon free indoor environments by 2050.

## 2.3 Project descriptions

### *Smart Energy Services Integrating the Multiple Benefits from Improving the Energy Efficiency of the European Building Stock*

SENSEI elaborates innovative pay-for-performance (P4P) schemes, where payments for energy efficiency are based on proven and measured savings in real time. Based on this principle, SENSEI puts forth a novel business model that aggregates decentralized energy efficiency measures, and offers the value of energy demand reduction as a service to the grid, while also turning this value into an investable asset for private financing.

### *New Buildings Energy Renovation Business Models Incorporating Dual Energy Services*

NOVICE has been testing the validity of an innovative new business model for Energy Service Companies (ESCOs) that combines both energy efficiency and demand response services into a single service offering. An Enhanced Energy Performance Contract (EPC) will guarantee building owners a minimum level of energy savings and occupant comfort whilst ensuring that a maximum value can be extracted from the flexibility potential of on-site energy assets.

### *Quality Management Investments for Energy Efficiency*

QUEST

QUEST' main goal is to promote investments in Sustainability and Energy Efficiency by identifying and empirically risk-grading factors that influence energetic performance of buildings, making it more profitable to invest in sustainable buildings. QUEST will develop a reliable quality management methodology for investors to evaluate their investments in efficient and sustainable buildings.

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

U-CERT

U-CERT introduces an Energy Performance Assessment and Certification Scheme to value buildings in a holistic and cost-effective manner: Facilitating convergence of quality and reliability, enabling a technology neutral approach; encouraging the development and application of holistic user-centred innovative solutions; Encourage and support end users in decision making (e.g. on deep renovation), nudge for better purchasing and instil trust by making visible added (building) value, using EPCs.

### *Active Managed Buildings with Energy Performance Contracting*

ambience

AmBIENCe provides new concepts and business models for performance guarantees of Active Buildings, combining savings from energy efficiency measures with additional savings and earnings resulting from the active control of assets leveraging for instance price-based incentive contracts (Implicit Demand Response). The willingness to invest in additional sensorisation, ICT and Internet of things will be increased by offering adjacent other-than- energy services, e.g. related to comfort, security or maintenance.

### *Sustainable Energy Assets as tradable securities*

LAUNCH

LAUNCH enables large scale aggregation of sustainable energy assets (SEA) for financiers and supports contractors in growing their project pipeline. The final objective of the project is to accelerate the acceptance of SEAs as tradable securities.

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# 3 2nd Briefing Note: *Triple-A Survey on Building Sector: The Case of Greece*

## 3.1 Introduction

In order to successfully fulfil the scope of the Triple-A project, which is to identify and finance attractive Energy Efficiency (EE) project ideas, relevant key actors should be engaged[13]. To ensure the effectiveness of EE financing, it is important to understand what type of effort should be used for each target group, while participatory activities should be proposed including concrete actions, to foster their contribution[14].

In this context, considering that the Triple-A Tools are going to be used by EE market professionals, project developers, investors, and financiers, their feedback and expertise become crucial for the Triple-A methodology development and implementation. Thus, a targeted Triple-A Questionnaire had been developed and distributed among relevant key players, in order to gather their insights, needs, and feedback to be incorporated into the Triple-A analysis and Tools[15]. This stakeholder consultation approach mainly focuses on validating and enhancing the Triple-A methodology, in order to fine-tune the Triple-A Tools in terms of their functionalities and specifications.

This Note analyses the results of the Triple-A Questionnaire on the Building Sector, being a part of the Triple-A stakeholders consultation process for the Greek case study. The survey took place during the period from June to July 2020 and 77 responses were received by key stakeholders such as bankers, investors, and real estate professionals, all Members of the Association of Greek Valuers (A.VA.G.). Due to the COVID-19 pandemic, the consultation process has been realised via online methods, disseminating the Triple-A questionnaire in an online form and engaging stakeholders mainly via e-mail.

## 3.2 Triple-A Questionnaire

The main objectives of this online questionnaire are to:

- assess the current situation of the Greek building stock in terms of EE;
- outline the behaviour of Greek stakeholders regarding EE in buildings;
- outline the link between the EE performance of buildings and their value in the real estate market;
- evaluate the added value of implementing EE investments in the building sector;

[13] Karakosta, C., Papapostolou, A., Vasileiou, G., Psarras, J. (2021). Financial Schemes for Energy Efficiency Projects: Lessons Learnt from In-Country Demonstrations. Energy Services Fundamentals and Financing. Edited by: David Borge-Diez and Enrique Rosales-Asensio. USA: Academic Press, Elsevier, ISBN: 9780128205921, https://doi.org/10.1016/C2018-0-04950-6, pp 55-78.

[14] Papapostolou, A., Karakosta, C., Mylona, Z., Psarras, J. (2020). Financing Sustainable Energy Efficiency Projects: The Role of Stakeholders. Book of Proceedings of the XIV Balkan Conference on Operational Research, Operational Research in the Era of Digital Transformation and Business Analytics, 30 September - 3 October 2020, Thessaloniki, Greece, (pp. 116-120), ISBN – 978-618-85079-0-6.

[15] Triple-A (2020). Final Standardised Triple-A Tools, Deliverable 4.2, Horizon2020 Triple-A project, No. 846569.

- fine-tune and harmonise the Triple-A Tools, in order to extract more accurate and according to the user needs and priorities results.

The main characteristics of the questionnaire are the following:

- Explorative, semi-quantitative online questionnaire.
- Different question formats, from Likert-like scales to multiple choice and free text boxes.
- Questionnaire Dissemination Tool: Google Forms.

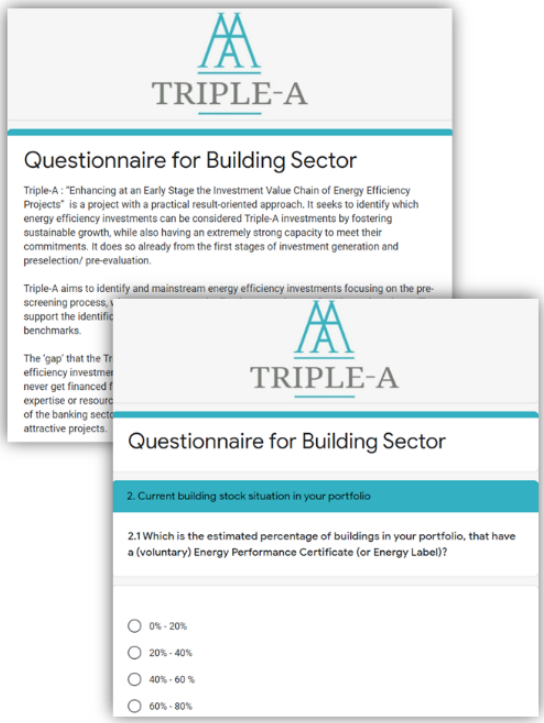


**Figure 2: Triple-A Questionnaire on Building Sector**

The questions were structured around 6 sections:

1. Current building stock situation in stakeholder's portfolio.
2. Behaviour of stakeholders towards EE upgrades of buildings.
3. Relation between EE upgrades and value of property.
4. Identification of risks in EE projects.
5. Contribution of Triple-A Tools to the real estate sector.
6. Use of state-of-the-art Tools in the real estate sector.

The findings of the analysis outline that most of the buildings with Energy Performance Contract (EPC) pertain to poor or really poor performance (classes D-G), while the majority of owners would not assess their asset's energy performance, if they were not obliged by law.

Only 13% of the flats with EPC are high energy efficient buildings. demonstrating the need of action to be taken towards mainstreaming EE, at least in the building sector (Figures 3 & 4).

In Greece only a small evolvement apropos EE in building assets is recorded. At the same time, no difference has been noticed in buyers' or renters' behaviour since the formal obligation for EPCs in the country (Figure 5).

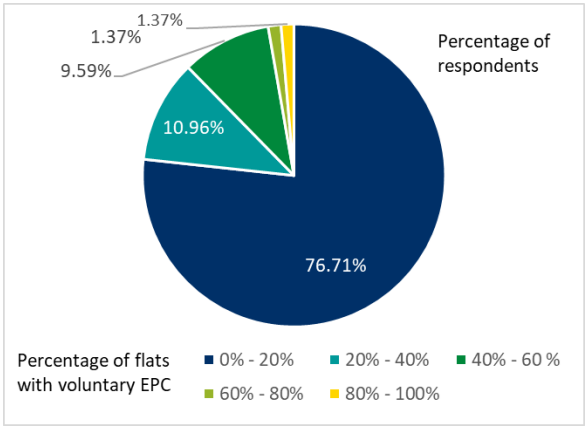


Figure 3: Distribution of flats with a voluntary EPC

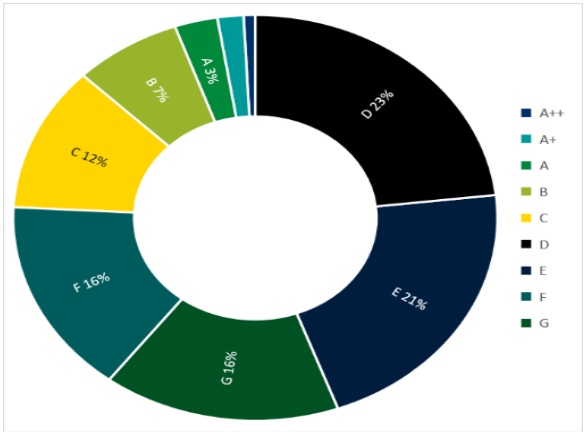


Figure 4: EPC classes allocation of the Greek building stock

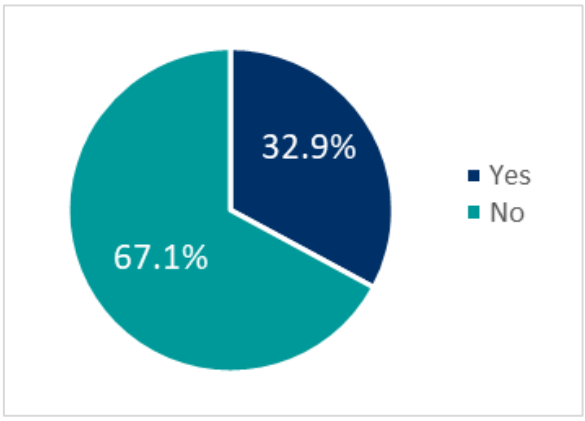


**Figure 5: Change of stakeholders' preferences and selection criteria since EPC became obligatory in Greece**

Most of the responders have expressed their belief that the pandemic imposed an impact on the real estate sector and affected it to some (47.4%), moderate (21.1%), small (18.4%), or large (10.5%) extent. The absence of negative results from the COVID-19 has been observed by a relatively low share (2.6%) of the responders (Figure 6).

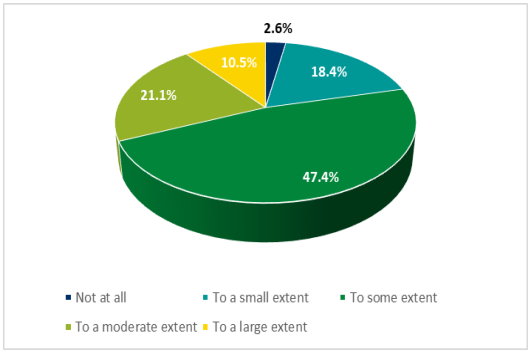


**Figure 6: Impact of COVID-19 in the real estate sector**

With regards to the increase of property values that EE measures provoke, envelope retrofits constitute mainly the EE upgrade with the highest correlation to the increase in property value, followed by lighting appliances' retrofits. Measures related to district energy networks have the lowest correlation between EE measures and asset price, most probably due to the low popularity of such infrastructures in Greece (Figure 7).

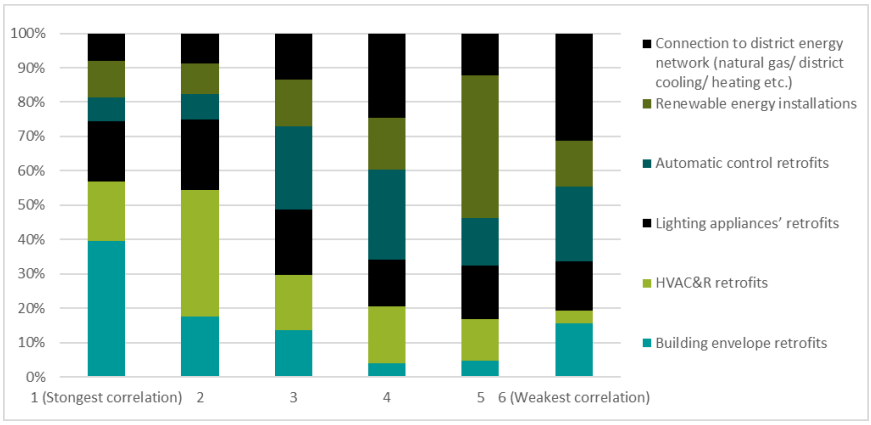


**Figure 7: Correlation between EE measures and the price of the asset**

The correlation between EE upgrades and property value was also examined and stakeholders' opinions regarding the increase in asset's selling price and rent values were collected. For the case of property selling, 50% of the responders replied that the price increase may reach the level of 10-15%, while a proportion of 20% assumed a greater increase (by 20%). Regarding the case of property rent, 31% of the responses indicated a reduced increase (5%) in rent price, while 23% of the answers pointed out a greater increase (10%).

Concerning the main risks that halt EE measures from being implemented, the financial risk is recorded as the most critical, followed by the energy market and regulatory risk[16]. Besides, additional risk factors constitute the absence of proper education, technical expertise and adequate certification, the consent of building property owners to these developments, the lack of proper works certification and the frequent defects in constructions (Figure 8).

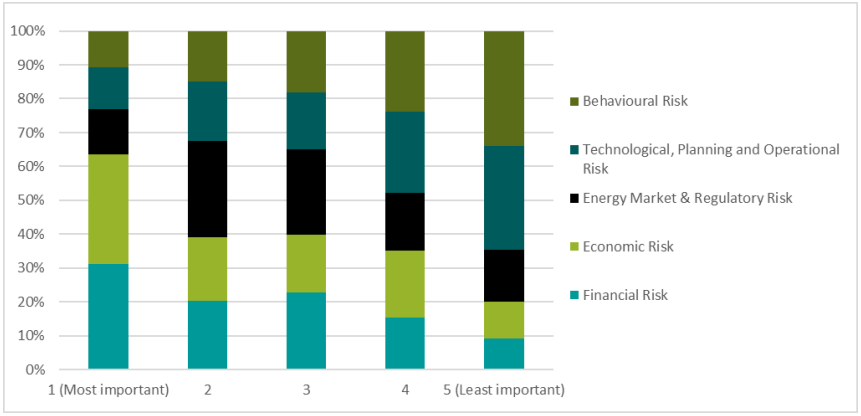


**Figure 8: Importance of the most popular Risk Categories in EE Financing**

[16] Triple-A (2020). Final Report on Risks of Energy Efficiency Financing and Mitigation Strategies Typology, Deliverable 3.1, Horizon2020 Triple-A project, No. 846569.

Remarkable positive response has been observed in favour of possible online platforms that would present building properties selected for EE upgrades (such as the Triple-A Tools) (Figure 9).

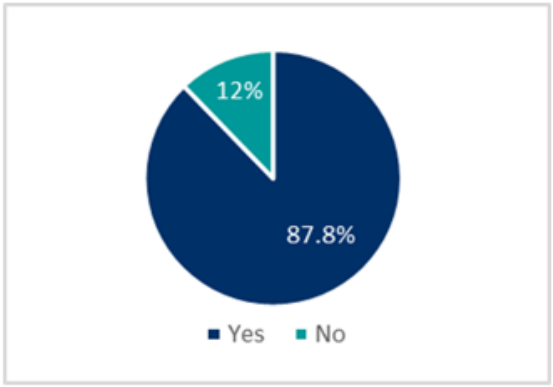


Figure 9: Interest of respondents in online EE financing tools

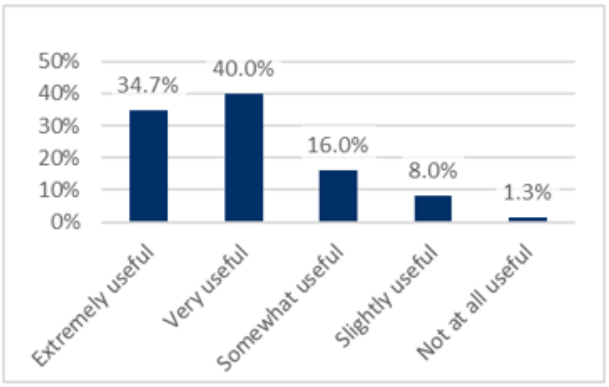


Figure 10: Perception of respondents towards state-of-the-art financing platforms

Coupled with the positive feedback on the development of online tools, a significant amount of the respondents would provide statistical data for sales and rents for academic research.

The responders expressed their beliefs regarding the presence of state-of-the-art financing platforms which was significantly positive. In particular, about 75% of the participants stated that they found the related platforms extremely or very useful (34.7% and 40%, respectively). Moreover, moderate positive responses were expressed by almost the rest responders (24%), excluding a minor 1.3% who did not find them useful at all (Figure 10).

However, with regards to the frequency of use of Automated Valuation Models (AVMs), one-third of the respondents (real estate professionals) have stated that they never use AVMs to evaluate building assets (Figure 11). Thus, it is evident that customised to the stakeholders' needs and user-friendly evaluation Tools would provide services of high value.

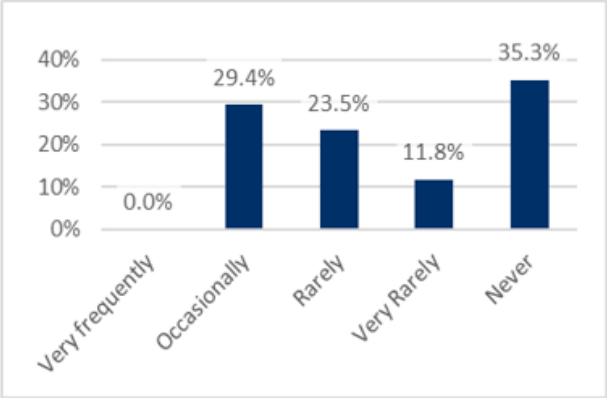


Figure 11: Frequency of use of AVMs

## 3.3 Conclusions

After analysing the responses received the key highlights arisen are:

- Buildings' owners are not expected to **assess their assets' energy performance** by their own will.
- It is estimated that the majority of buildings assessed in Greece are in the **lowest EE classes**.
- Stakeholders' **interest** has hardly shifted towards **EE in buildings**.
- **EE profile of a building** is considered a **valuable asset** for long-term capital investments.
- **Lack of capital** and the **high costs** compose the major factors that hinder buildings' owners to implement EE measures.
- **Building envelope retrofits** are expected to **increase the value** of the property when being applied.
- **COVID-19 pandemic** has **affected** the real estate sector.
- When EE upgrades have been applied to a building, a **price increase** is foreseen in case of selling or renting a property.
- **Financial and economic risks** were rated as the most critical ones affecting the successful financing of EE investments.
- **Triple-A Tools** could provide services of high-value in the real estate sector.

# 4 3rd Briefing Note: *How to prepare buildings for the energy transition*

## 4.1 Introduction

Stakeholder engagement is of paramount importance in order for the targets set in the context of Triple-A to be met. In this respect, a special focus should be laid on reaching the target groups with the appropriate background per case, also ensuring their empowerment through actively participating in decision making[17].

Investors are considered the key target group in order to achieve Triple-A objectives. First, the Triple-A methodology, is oriented to investors and creates high added value for them[18]. Moreover, investors could play a crucial role in fostering EE investments, by bridging the gap created from the fact that the current investment levels in EE are well below the required ones so as the targets set in a European level to be met[18]. Therefore, their preferences and behaviour need to be analysed, especially in the current macroeconomic environment that presents extreme particularities, such as the historical lows of interest rates[19].

This briefing note analyses the results of the Triple-A Questionnaire on the investors' preferences, which is a part of the Triple-A stakeholder consultation process and conducted as a primary step towards calculating the Cost of Capital of EE projects across Triple-A case study countries. The calculation of the Cost of Capital of EE projects was implemented in the context of the Triple-A Task 3.2: Assessment of Member States Risk Profiles.

The survey took place from January to February 2021, and in total, sixty-eight (68) responses were received, mainly from EE experts and investors. Due to the containment measures imposed to deal with the covid-19 pandemic, the consultation process implemented online, while the stakeholders were engaged mainly via e-mail and personal invitations.

## 4.2 Triple-A Questionnaire

The main objectives of this online questionnaire (Figure 12) are:

- To identify the main investor profiles involved in EE financing;
- To gather the preferences of each investor profile engaged in EE financing in terms of minimum required return at different risk classes (low-, medium- and high- risk class) and holding period (year) of investment;
- To estimate the capital structure through which an EE project is usually financed, i.e., the debt and equity shares.

[17] Papapostolou, A., Karakosta, C., Mylona, Z., Psarras, J. (2020). Financing Sustainable Energy Efficiency Projects: The Role of Stakeholders. Book of Proceedings of the XIV Balkan Conference on Operational Research, Operational Research in the Era of Digital Transformation and Business Analytics, 30 September - 3 October 2020, Thessaloniki, Greece, (pp. 116-120), ISBN – 978-618-85079-0-6.

[18] Triple-A (2020). Final Standardised Triple-A Tools, Deliverable 4.2, Horizon2020 Triple-A project, No. 846569.

[19] EY (2018). WACC in the context of Risk, Return and Resilience at PR19: Ernst & Young report. Retrieved from https://www.unitedutilities.com

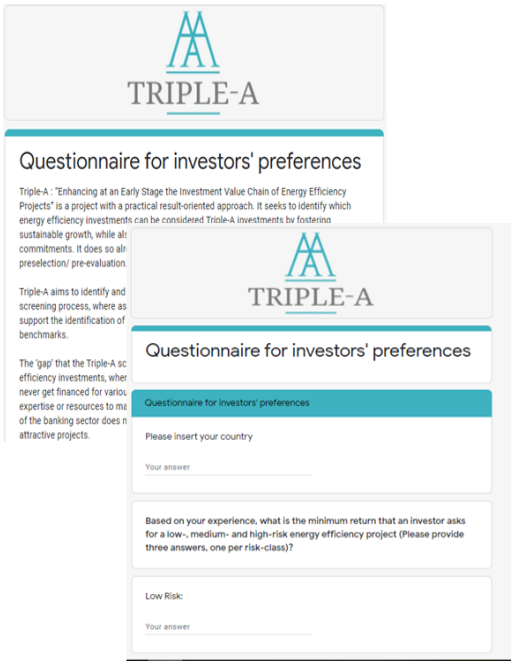


**Figure 12: Triple-A Questionnaire on Investors' Preferences**

The main characteristics of the questionnaire are the following:

- Explorative, quantitative online questionnaire.
- Different question formats, from text questions to multiple choice and free text boxes.
- Questionnaire dissemination tool: Google Forms.
- Available in three languages: English, Spanish, Greek[20].

The main investor profiles (Figure 13) include Institutional Investors (38%), Retail Investors (29%), Energy Service Companies - ESCOs (10%), Impact Investors (7%), and Funds (7%)[21]. The "Other" category involves some investor categories for which only one answer was provided, such as "Real Estate Investors" and "National Promotional Institutions", which were excluded from the final sample to ensure the robustness of the results.

[20] Available at https://forms.gle/w7gnn7igcPziDCkCA (English version), https://forms.gle/WKEXcJBDMoABxt4s6 (Greek version), https://forms.gle/MLrmwgGiLLgj7Kf57 (Spanish version).

[21] Triple-A (2020). Report on the Cost of Capital Estimation of Energy Efficiency Projects across Member State Countries, Deliverable 3.3, Horizon2020 Triple-A project, No. 846569.


Figure 13: Distribution of Responses (%) per Investors' Profile


Figure 14: Distribution of Responses (%) per Case Study Country

The majority of answers was provided for the Retail and Institutional Investors, suggesting that these two categories are the prevalent ones in EE financing.

In addition, responses were provided by stakeholders from all the Triple-A case study countries, while the majority emerged from stakeholders from Greece and the Netherlands, covering almost the half of the total sample of answers (45%; Figure 14). Next comes Czech Republic, Lithuania, Spain, Germany, Bulgaria and Italy in terms of the number of stakeholders who participated in the survey. In addition, some replies were collected by stakeholders from other countries apart from the Triple-A case study ones, such as Ireland and Switzerland and were classified under the "Other" category (Figure 14).

After collecting the input and based on the results arisen on the minimum required return by each investor, the project IRR curves were constructed (Figures 15-16). These curves, from the investor's side, indicate how the minimum accepted project IRR by each investor profile varies across the different risk classes. From the project's perspective the curves indicate the minimum project IRR that an EE project should achieve to be regarded as eligible for each investor profile.

Each investor profile of the analysis has his own preferences at every risk class, varying also distinctly across risk classes (Figures 15-16). Institutional investors', Impact investors' and ESCOs' preferences vary in a symmetric way across risk classes (Figures 15-16). On the contrary, Retail investors' preferences increase at a greater rate at higher-risk classes, while Funds' preferences increase at a lower rate at higher-risk classes (Figures 15-16).

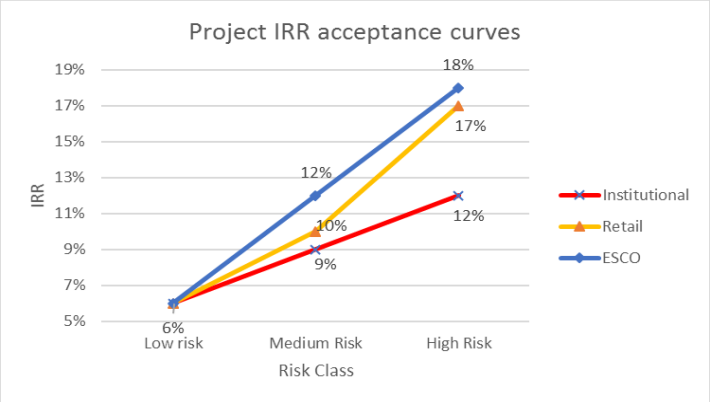


**Figure 15: Project IRR Acceptance Curves for the Institutional, Retail and ESCO investor profiles**

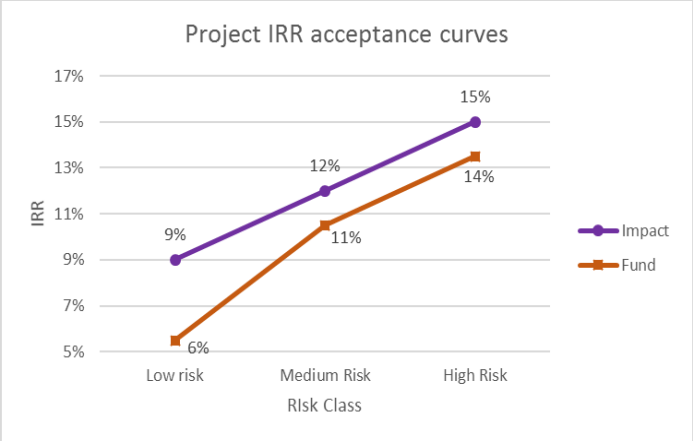


**Figure 16: Project IRR Acceptance Curves for the Impact and Fund investor profiles**

Although all the risk profiles analysed are risk-takers, since they accept to invest in projects of high risk, comparatively, Funds could be considered as higher risk-takers indicating a higher appetite for investing in high-risk projects. On the contrary, Retail Investors tend to be risk-averse, while the other investors' categories show risk neutrality over taking higher risks. As stakeholders commented, for larger-scale projects, investors' required returns may be slightly lower, while for smaller scale projects are slightly higher.

As regards the maximum accepted holding period per investor profile, i.e., the period that investors accept to hold their money on an investment before earning the required return, Impact Investors are the ones that accept the largest holding period (19 years; Figure 17), which is in line with their objectives that are not purely financial ones. The other investor profiles of the analysis have similar holding period preferences, ranging from 9 to 10 years (Figure 17).

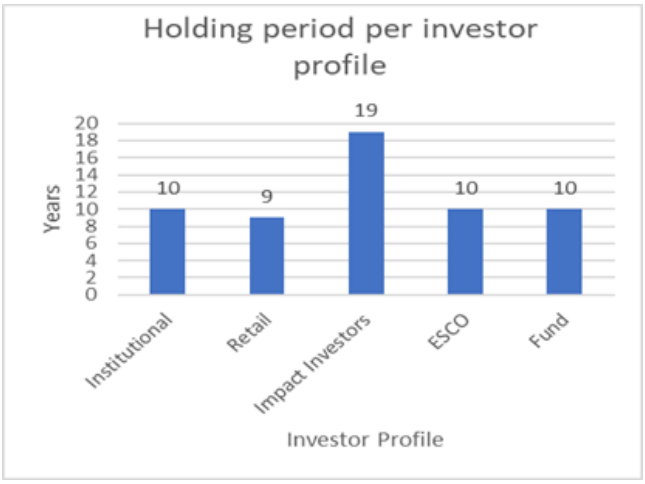


**Figure 17: Holding Period per Investors' Profile**

In many cases, EE projects investors are simultaneously the owners of the buildings or enterprises on which the EE measures are implemented, as reflected by stakeholders. In these cases, their holding period is the lifetime of the project under implementation.

It should be noted that the above-presented minimum required returns by investors (Figures 15-16) account for the Cost of Capital of EE projects, provided that each investor type in question will leverage all the necessary capital for the project's implementation.

However, usually, EE projects are financed via a mix of debt and equity (Figure 18). In particular, on average, the share of debt financing in the capital structure of an EE project ranges in the order of 40%, while equity share, i.e., investors, in the order of 60% (Figure 18).

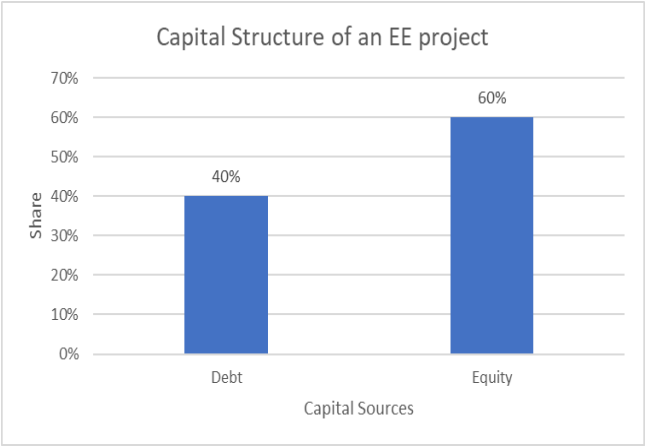


**Figure 18: Capital Structure of an EE Project**

## 4.3 Conclusions

Key conclusions regarding the investors' preferences are summarised below:

- **Institutional**, **Retail**, **Impact**, **Fund** and **ESCO** investor profiles are the ones that usually engaged in EE financing, with Institutional and Retail Investors being the most prevalent.
- Each investor profile has its own **distinct preferences**, varying also in a distinct way across risk classes.
- Retail Investors tend to be **risk-averse** compared to the other investors' profiles analysed. Funds are **risk-takers** and ESCOs, Institutional and Impact investors are **risk-neutral**, compared to the other investors' profiles analysed.
- **Impact Investors** accept the largest holding period (19 years), while the other investor profiles have similar holding period preferences, varying from 9 to 10 years.
- EE projects are usually financed via **a mix of debt and equity**, with the share of equity on the capital structure being slightly larger.
- The **scale** of an EE project can affect the required returns by investors and its capital structure.

# 5 4th Briefing Note: *Integration of two Standardized Approaches for Transparency Improving of Energy Efficiency Investments and Confidence between Owner and Investor in Building Sector*

## 5.1 Introduction to ICP and Triple-A

The lessons learned from the experience gained in financing EE projects in the building sector, lead to the conclusion that the use of standardised methods for pre-selection, as well as standardised procedures for project implementation, operation of buildings and continuous monitoring of results are essential not only for reducing the risks of EE projects, but also set the basis for increasing the confidence of the investors.

Experience gained in using Investor Confidence Project (ICP) protocols showed that their strongest features are related to certain phases of the life cycle of EE projects. The **ICP protocols** are intended to serve as minimum requirements for investment quality analysis and as **best practices for the operation, maintenance and monitoring of the building installations and for the measurement and verification of energy savings**. In fact, the ICP Protocols are a system of clear and transparent procedures, the precise implementation of which contributes to the achievement of the EE objectives set in the investment.

On the other hand, the recently developed **Triple-A approach focuses on to the quality of the upcoming EE investment in its conceptual development phase**. The EE projects assessment starts from the energy savings calculation, ideally provided through the ICP methodology or a similar and validated approach. An additional advantage of this approach is that an in-depth assessment of pre-selected significant risks is made and specific strategies are proposed to eliminate or significantly reduce them. Another significant advantage of the Triple-A approach is the preliminary assessment of a number of Key Performance Indicators (KPIs) such as financial, socio-economic and environmental taking into account the EU Taxonomy criteria. In this way, a clear idea of the proposed investment potential is given so as to promote sustainable growth and at the same time whether it has the capacity to meet its financial commitments by achieving the energy saving goals.

Important similarities stand out between the two methodologies:

- Minimizing the risks in the implementation of EE project;
- Making EE investments sufficiently transparent and understandable for potential investors;
- Increasing the confidence of potential investors.

The essential differences between the two standardised methodologies are **the project life cycle phase**, on which **the specific activities for achieving the set goals are emphasized**.

In particular, ICP protocols encourage the use of best practices and procedures in:

- Commissioning;
- Maintenance and monitoring of building and;

- Measurement and verification of the achieved results.

The Triple-A methodology focuses on the assessment of the proposed investment in the conceptual phase by:

- Making an in-depth risk assessment and proposing strategies for risks elimination;
- Provides a comprehensive analysis of the investment potential to promote sustainable growth and at the same time;
- Investigates whether it has the necessary capacity to meet its financial commitments by achieving the set goals for energy savings.

Each of the methodologies is focused on different phases of the project cycle (the conceptual development phase for Triple-A and respectively the implementation and monitoring phase of the ICP). This determines their characteristics and, accordingly, gives specific advantages to one or the other[22].

**Table 3: Comparative analysis of the approaches in ICP and Triple A to achieve the Energy Efficiency objectives according to the phases of the project life cycle**

| EE Project Life Cycle / Requirements | ICP | Triple-A |
|---|---|---|
| **Conceptual Phase / Initiation of EE investment intention** | | |
| **Energy audit report** | **x** | **x** |
| **Energy saving calculations** | **x** | **x** |
| **Baselining** | **x** | **x** |
| **Baseline core requirements** | **x** | **x** |
| **Identifying Energy Conservation Measures** | **x** | **x** |
| **Investment costs estimation** | **x** | **x** |
| **Risk analysis and proposed mitigation strategies** | | **x** |
| **Compliance of the calculated energy savings with the requirements of the EU Taxonomy.** | | **x** |
| **Evaluation of KPIs (Financial, Social-economic, Environmental)** | | **x** |
| **Informed decision on the financing method for EE project implementation** | | **x** |
| **Implementation phase** | | |
| **Design, construction, and verification plans** | **x** | |
| **Operational performance verification plan** | **x** | |
| **Operations, maintenance and monitoring** | | |
| **Operation, maintenance and monitoring plan** | **x** | |
| **Measurement and verification of energy saving results** | | |
| **Measurement and Verification plan** | **x** | |

[22] It is worth mentioning that ICP project focuses on the development of ICP Protocols that define a standardised roadmap of best practices for originating energy retrofits (energy audit report, energy saving calculation, energy efficiency measures identification, etc.). On the other hand, Triple-A uses this kind of information in order to proceed with energy efficiency project ideas risk assessment and benchmarking already from the first stages of investments generation and pre-selection/ pre-evaluation, where no standardisation exists.

Comparing the two standardised methodologies, it can be noted that the combination of both covers the entire life cycle of EE projects. Their integration can lead to significant benefits for the main players of the EE investments (project owner - funding institution).

## 5.2 Lessons learnt from EE projects

There are many factors that determine whether an EE project for a building will be considered successful or unsuccessful. In addition to the identified EE measures and the agreement between the interested parties (owner and investor), the exact planning of the implementation activities, the appropriate technologies, as well as the provision of proper operation and maintenance of the building installations are of great importance.

Specific examples in this regard are sufficiently illustrative.

An EE project in a large administrative building in Gabrovo district, with an investment value of over 620000 €, with integrated ESMs, including the installation of a photovoltaic system (with estimated energy savings of more than 70% of energy consumed before the project implementation), was almost **failed due to the lack of a preliminary analysis of risks** such as administrative barriers to the connection of the photovoltaic system to the national energy network, as well as the lack of a preliminary analysis of the communication channels between the individual consumers of energy within the building itself. Solving the problems was related to the loss of valuable time, additional costs and broken trust between the main players (the owner of the building and NTEF as a financing institution). In this example, the existence of an established standardised methodology for the preliminary assessment of the investment intention, such as Triple-A, would be useful at the beginning of the negotiations. Timely identification of risks, such as those related with the energy market and its regulation or those related with communication channels between the key players could lead to:

- Joint adequate action to reduce the its effects Proper planning;
- Saving valuable time and financial resources;
- Enhanced trust between key players

Given the complex nature of EE project, the additional inclusion of clear procedures for the operation and maintenance of the building and the careful monitoring of energy consumption will certainly help the smooth and rapid achievement of the envisaged energy savings.

**Figure 19: Project name "Investment for energy efficiency in an administrative building, city of Gabrovo",**

*Source: NTEF archives*

Another example of the importance of using standardised methodologies is the negative experience, occurring by inadequate energy audits and consequently inappropriately selected technologies. In a school building in region of Sofia the implementation of an energy saving measure "Replacement of internal heating system and diesel boilers" was included. The problem arisen was related to the fact that the audit report provided replacement of old boilers with similar ones with low efficiency without replacement of the fuel base. This resulted to a new energy audit, and consequently to a price increase of the investment costs and loss of valuable time. It would have been more efficient and faster to identify the problem following standardised methodologies like Triple-A. The assessment of energy savings would lead to a faster response, and the inclusion of ICP protocols for monitoring energy consumption could significantly help to achieve the set energy savings,

A good example of benefiting from the application of the standardised approach is a recently implemented project with the financial participation of NTEF and through the implementation of ICP protocols for public buildings. The investment reached over 500000 € and included the implementation of a set of EE measures in the large school building in the city of Sofia, Lyulin district. The site was selected after a thorough analysis of energy audit to confirm that the proposed technical solutions meet the requirements for achieving class A energy advancements for the building after the implementation of all EE measures. Immediately after the completion of the construction works, the implementation of clearly defined procedures for operation and monitoring of the facilities and systems in the building began. The procedures cover the internal heating installation with the necessary automation, the heating and hot water boilers with optimized automation and system for monitoring the consumed energy, as well as the automated building lighting and the system for control of internal microclimate. Monitoring results are reported on a weekly basis. This time interval is currently sufficient for the application of precise corrective actions when necessary.

In this case, integrating the Triple-A methodology could shorten the decision-making time significantly and add additional confidence by proving that efforts are worthwhile.


**Figure 20: Project name: "Improving the energy efficiency of 79 Indira Gandhi High School, Lyulin district"**

*Source: NTEF archives*

## 5.3 Conclusions

The abovementioned examples and experience gained by them showed that the combined use of two or more standardised approaches greatly facilitate the financing decision-making and the optimal management of the investment, as well as the achievement of the set goals. This does not referring only on energy savings, but also on financial commitments and commitments to achieve specific environmental indicators.

The integration of the ICP and Triple-A standardised methodologies seems very suitable for complex EE projects and especially for those where the integration of complete building management systems is required.

The integration of the two models (ICP and Triple-A) makes it possible to cover a large part of the project life cycle. This contributes to:

- Bringing under control the impact of important risks for the project from its initial phase of development;
- The timely implementation of appropriate strategies and corrective actions from the initial phase of its development to the moment when the achieved results are monitored.
- Enhancing the transparency of the project in terms of important features such as energy savings, recognizable technical solutions,
- Ensuring the implementation of the set indicators (for energy efficiency, financial, social, environmental)
- Supports the implementation of complex and innovative technical solutions.
- Strengthens trust between stakeholders;
- Facilitates informed decision – making and
- Opens opportunities for alternative financial solutions.

This makes the project more predictable, easy to implement and ensures the implementation of the set goals and commitments.

It is suggested that the maximum benefits of combining standardised methodologies can be derived from projects financed through loans, green bonds or in the provision of funds for the implementation of public EE projects where essential are the controls over the spending of public funds and at the same time achieving maximum results.

# 6 Next steps

As the project continues and activities are on their peak, several topics have already been discussed and agreed to be presented in a Briefing Note. They include information gathered from WP2 Stakeholder Facilitative Dialogue and Capacity Building Activities and especially results came out through the stakeholder consultation process and the implementation of the Capacity Building Webinars in the eight case study countries.

Moreover, results from application through the Triple-A Tools of the benchmarking of the energy efficiency projects identified is expected to provide useful material in order to process it into information package in Briefing Notes.

Finally, Triple-A has established more than 40 synergies with H2020 projects and other relevant initiatives. To this end, joint activities and research conducted along with them will be further analysed and presented in upcoming Briefing.