



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

Deliverable 6.4: Triple-A European Synthesis Paper

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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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Executive Summary

This document presents the summary and key outcomes of the Triple-A project derived from the activities undertaken under the various Work Packages. The goal is to present in a complete but integrated way the outcomes of the project to increase impact, raise awareness, disseminate lessons learnt and inspire future activities.

A series of recommendations, 9 in total, have been developed as integrating highlights from work conducted under WP2-Stakeholder facilitative dialogues and capacity building, WP3-Energy efficiency financing risks and mitigation strategies, WP4-Tools and Benchmarks for mainstreaming energy efficiency investments, WP5-In-country demonstration of Triple-A investments and WP6-Synthesis and Sustainability. The fields covered in the recommendation sets are barriers and ways for boosting energy efficiency investments at EU and Member States level, risks to overcome, findings from the evaluation and benchmarking of energy efficiency investments, highlights from the development and implementation of Triple-A Web-based Database and the Triple-A Standardised Tools, stakeholder's outreach, and engagement outcomes and lessons learnt from the exploitation strategy for the energy efficiency financing tools that was developed within the framework of the Triple-A project.

The 9 recommendation sets together give a detailed overview of the main topics that should be addressed when considering future continuation activities and provide solid ground to continue upon.

1 Introduction

In the present Triple-A European Synthesis paper, information gathered around themes reviewed and analysed during the project or questions that arose are integrated to make generalisation, where applicable, and present information (statistics, quotes, paradigms) in a logical way to support clear outcomes. The Synthesis paper is a result of an integration of what Triple-A partners have researched, built, discussed, and argued about. The scope of the Synthesis paper is to develop and support a key thesis or argument by the lessons learnt integration.

The Synthesis paper refers to all EU Member States, hence the European Synthesis paper. However, all outcomes are also targeted to countries outside the EU, focusing mainly to those with similar governmental or economic conditions or which reside the wider geographical boundaries.

Overall, nine (9) sets of policy recommendations compose the European Synthesis paper which were derived from outcomes of the various Triple-A project WPs activities.

To facilitate an easy understanding of the structure and the content of the policy recommendations sets, a short explanatory introduction is provided to give the evidence they derived from along with their practical application as this has been inherent for future research and market implementation.

1.1 Fields covered under recommendation sets

The Triple-A European Synthesis paper aims at incorporating all outcomes from project activities and from all topics tackled under the scope of each WP key outcome. Therefore, the recommendation sets have been organised in a way to cover all highlights derived from the technical WPs (WP3 Energy efficiency financing risks and mitigation strategies, WP4 Tools and Benchmarks for mainstreaming energy efficiency investments, WP5 In-country demonstration of Triple-A investments) and horizontal ones (WP2 Stakeholder facilitative dialogues and capacity building, WP6 Synthesis and Sustainability). WP1 is not considered as it covers the internal project management activities.

Highlights on the field of energy efficiency financing as derived from the development and implementation of Triple-A Web-based Database¹ and the Triple-A Standardised Tools² are presented. To this end, during the project activities outcomes on barriers and risks to overcome along with the findings from benchmarking and evaluation of energy efficiency investments were gathered and identified. The project fiches (D5.4 Project Fiches) worked as well as a pool of information for these recommendation sets while robust financing models are summarised in order to enable replication on other Member States. Outcomes and key findings from the policy framework sketch are also included. Finally, all the above-mentioned highlights have been integrated into 2 generalised recommendation sets (a) at country and European level and (b) sector specified level (i.e. building).

Highlights from stakeholder's outreach, participation, and engagement activities which worked as a backbone for all the activities under the aforementioned topics are also presented.

The Synthesis paper is completed with key outcomes from the exploitation strategy development of energy efficiency financing tools.

¹ <https://www.aaa-h2020.eu/database>

² <https://www.aaa-h2020.eu/tools>

1.2 Stakeholders' engagement

Triple-A posed a significant effort on the stakeholder facilitative dialogue and capacity building with the scope to involve highly relevant stakeholders in the field of energy efficiency financing. Their various experience, knowledge and skills were required so as to depict in realistic way the market needs.

Several national and international key stakeholders have been identified, categorised and prioritised. The categories defined are five namely investors, project developers, policy makers, research and academia and other bodies.

Their engagement activities had been organised into 4 actions:

- Financing Efficiency market perception from demand and supply side stakeholders (Key stakeholders). This specific action was supported mostly through targeted bilateral meeting discussions and follow-up questionnaires.
- Bottom-up consultation practices for enhancing the engagement of the case study stakeholders through a series of bilateral and multilateral consultations (General outreach).
- Steering decisions made through consultations with members of the Advisory Board (AB) (External experts' consultations).
- Capacity building webinar and in-country trainings to identify case studies and extend the general stakeholder outreach through the participation, inclusion, and introduction of interested stakeholders to the project's tools and all further activities (Semi-targeted engagement).

The engagement of stakeholders led to increased interest towards the Triple-A Tools and the project procedures, which resulted in the collection of high-quality project fiches. Regarding stakeholder consultation, **723** stakeholders have been identified, with **139** actively engaged through **110** bilateral meetings. **34** meetings with Triple-A Advisory Board Members were realised to receive feedback and gain advice. Feedback on the Tools was also received from **228** stakeholders through **5** questionnaires. A series of **17** in total Capacity Building Webinars and Regional Training Workshops with **557** participants were organised in the **8** case study countries, sharing knowledge relevant to financing EE projects in the EU.

More information can be found on the *D2.2 Report on national stakeholders' consolation*, *D2.3 Report on Advisory Board Activities* and *D2.4 Report on Regional Training workshops on energy efficiency financing*.

1.3 Dissemination and Communication strategy

In order to create a real impact with the Triple-A achievements and lessons learnt, a dissemination and communication strategy was outlined from the beginning of the projects and updated according to the project needs and outcomes that have been emerged. The dissemination and communication actions and the digital material produced circulated the main project achievements in the policy and decision-making cycle. As most of the Triple-A partners have significant years of experience in lobbying and advocacy work, they have circulated them in already existing networks and contacts while translations in local languages have further enhanced the impact.

The same applies for the European recommendations. These recommendations will be distributed among a variety of interested parties, such as EC representatives, policy makers, MSs (and non-MSs) governmental actors, etc.. In fact, one recommendation set has been already sent to EU policy makers

which included recommendations gathered under 4 generic themes: electricity market reform, financing methods, technical streamlining, and energy performance certification through an in-depth understanding of the social, technical, economic, and environmental dimensions of the energy transition of the building sector.

Moreover, the recommendation sets work as a base to drive discussions in the final Triple-A event, the European Roadshow which will take place in Amsterdam on the 10th of May 2022. The scope of this event is to raise awareness and share the project findings at the EU level ensuring replicability and exploitation. Details will be available by the end of the project captured under D7.10 Final EU Roadshow Event.

Finally, even after the project duration, all the recommendation sets will be sent to Triple-A stakeholders' network as factsheets or via press releases and all partners will be asked to circulate them among their networks so as to ensure further dissemination and possible replication or future research.

2 Methodological approach

The European Synthesis paper is a combination of different outcomes gathered in a form of recommendation set under significant and complementary topics aiming to provide a holistic overview of the key Triple-A areas. Therefore, ideas, data, and evidence from a series of sources (WP activities) were combined to either present outcomes from research conducted and stakeholders' consultation process or arguments for future research actions.

To this end, the 9 recommendation sets follow the same approach for uniformity purposes and to provide a thorough narrative for each topic analysed. The ultimate scope is to touch upon key issues and provide evidence about the inner workings and positions as to how they should be working based on the best practices collected.

The content list of each recommendation set is as follow:

1. Title & subtitle

The title & subtitle provides the topic that Triple-A tackles with each respective recommendation set.

2. Introduction

Each abstract gives the overview of the topic along with the respective activities and actions undertaken during the Triple-A project. These activities are the base from where the recommendation sets have been derived. The abstract gives also a brief summary of the topic, the overall purpose of the area analysed, and the process followed in order to provide findings and outcomes.

3. Recommendations

The main part of the recommendation set includes insights on particular issue providing evidence-based highlights as derived from the actions explained in the introduction. A bullet point format has been followed for a straightforward comprehension and tables and figures have been used where needed for a summarised representation of outcomes.

3 Triple-A Policy Recommendations

The following nine (9) sets have been derived and together represent the main outcomes from the Triple-A project. In all cases refer to the project's specific deliverables for more detailed information.

WP2: Stakeholders Facilitative Dialogue and Capacity Building

1. Triple-A recommendations from stakeholder engagement activities.

WP3: Energy Efficiency Financing Risks and Mitigation Strategies

2. Triple-A policy recommendations from Triple-A Interactive Web-based Database.

WP4: Tools and Benchmarks for Mainstreaming Energy Efficiency Investments & WP5: In-country Demonstration of Triple-A Investments

3. Triple-A recommendations for barriers to be overcome for energy efficiency projects implementation.
4. Triple-A recommendations for benchmarking and evaluation of energy efficiency investments.

WP6: Synthesis and Sustainability

5. Triple-A recommendations for the exploitation strategy development of energy efficiency financing tools.
6. Triple-A recommendations for policy frameworks and market architecture status.

General:

7. Triple-A recommendations for building sector preparation to enable the energy transition: combination outcomes from 7 H2020 projects.
8. Triple-A recommendations for boosting energy efficiency financing in MS and EU level.
9. Triple-A recommendations for boosting energy efficiency financing.

3.1 Triple-A recommendations from stakeholder engagement activities

Highlights and key observations reported through Triple-A stakeholder's outreach, participation, and engagement activities

The projects' stakeholder³ engagement activities are captured through four specific actions with shared interdependencies. The overarching goal of the activities was the gathering of input of all interested parties and ensuring the necessary consultation with financial institutional bodies and market operators at both the national and EU level.

The four stakeholder engagement actions followed by the project are captured as:

1. *Market perception from demand and supply side stakeholders (Key stakeholders).*
2. *Bottom-up consultation practices through a series of bilateral and multilateral consultations. (General outreach)*
3. *Consultation with members of the Advisory Board (AB). (External experts' consultations)*
4. *Capacity building activities (webinars and workshops). (Semi-targeted engagement)*

What follows is a bulleted summary of recommendations originated from the project's stakeholder engagement activities fitting the four actions.

- A **clear consensus** is reached about the presence of a major gap between theory and practice, particularly when it comes to Energy Efficiency (EE) investments. **Most tools and finance schemes available today are in some way or another very similar according to participants.** What lacks is the room and flexibility to implement the innovative financing schemes and apply them to existing situations or to introduce new schemes into upcoming projects. Key reason behind this unwillingness to innovate is suggested to be due to financing institutions, especially in upper management, still being rather conservative.
- **Priority** should be given to energy efficiency investments - in the **industry and buildings** - in support of the strategy for sustainable finance.
- Provide **economic incentives**, such as **tax exemptions** and **grants** for the implementation of energy efficiency interventions.
- Limit the scope of the content to a few key topics specifically (ie. the database, or assess, agree, or assign tool respectively) as opposed to the entire project. The contents discussed were often too expansive; with little focus therefore, stakeholders were having **difficulty prioritising feedback on specific aspects** as the scope of the topic was too broad, often superseding their individual expertise.
- Most tools and proposed finance schemes are in some way or another familiar, however **what lacks is the room and flexibility at the supplier side to implement new financial schemes** to existing situations and/or introduce new schemes into projects as this remains a very conservative market with significant lead times.
- The **training workshops** and **webinars** have ensured an **exchange of knowledge** and experience, and transfer of the project expertise to stimulate and increase the interest and participation of key stakeholders. The trainings have also **facilitated a dialogue mechanism to share common tools** and instruments on a national level when introducing energy efficiency investments.
- Stakeholders participating in the training workshops indicated the **Tools and Database** provide **benefits** to them by **building trust** between energy efficiency investors and project developers. However, features should be added such as to include not only energy savings, but also technologies and possibilities for generating energy.
- The **sustainability criterion** of the projects could be **more explicit** in the tools and database. In addition, the data behind the

³ Defined as all parties that are in any way linked to or affected by the project's outcomes and operations.

tools leading to calculation of the results could be made more transparent; the calculation of the risk percentages in the tool was given as an example.

- Despite the projects border spanning intention, stakeholders indicated to be most [interested in policies and available funding schemes at the national level](#) and were quickly marked as one of the more interesting and valuable aspect of the projects capacity building activities.
- The [inclusion of the EU Taxonomy](#) has been a hit-and-miss, and was deemed very relevant to some, and less-so for others due to prior knowledge. Stated is that the EU Taxonomy is only important for three groups: 1. Financial market participants and issuers of financial products within the EU; 2. Large companies (>500 employees) that are already required to provide non-financial reporting under the EU Non-Financial Reporting Directive (NFRD); 3. EU and Member States when setting public measures, standards or labels for green financial products or green bonds.
- Participants of several sessions (capacity building webinars and regional trainings) expressed the [simple steps for evaluating EE projects are missing entirely](#) in their respective countries (especially amongst Southern and Eastern European locations) and therefore represent a great opportunity for companies and financial institutions to improve their EE investment strategy through Triple-A implementation.
- It remains very [difficult to find and implement new financing schemes](#). Timeframes are too short and public funds are not enough; private funding is mandatory to accelerate EE project developments.
- The project could [potentially support municipalities](#) by indicating which energy efficiency project ideas could be included in Sustainable Energy Action Plans and facilitating the procedure of financing matchmaking.
- Through its synergies and wide engagement of stakeholders, the project can find and promote [good practices in energy efficiency](#) financing that are useful for ESCOs and other EE companies.
- The Tools provide a [standardised way of projects' evaluation](#) which could be

integrated into banks' and financing institutions' evaluation procedures, standards, and policies, albeit with a significant lead time in the most favourable situation.

- The projects goals and the direction taken towards their achievement were deemed relevant and logical and stakeholders encouraged the consortium to continue down its current path. That said, concerns were raised about the [inclusion and general awareness of new developments](#) in related topics.

As a general remark to the stakeholder engagement process and activities as a whole: the persistent travel restrictions due to the ongoing pandemic heavily impacted the partners' stakeholder engagement activities as it restricted almost all forms of stakeholder engagement activities to remote sessions.

3.2 Triple-A recommendations from Triple-A Interactive Web-based Database

Highlights and key outcomes for policymaking actions on energy efficiency financing based on cross-country and sectoral analysis.

To upscale energy efficiency investments, policymakers participating in energy efficiency financing need to access digestible insights to support their decision-making. Key recommendations for them can be found on the Triple-A Interactive Web-based Database, which contains information about energy efficiency financing for various countries (namely the Czech Republic, Germany, Greece, Italy, Lithuania, Netherlands, Republic of Bulgaria, and Spain) and energy efficiency sectors. The Triple-A Database ensures that it offers useful insights, risk mitigation strategies, and financial data that assist energy efficiency key actors in their decision-making process.

The Triple-A Web-based Database has been built within the project activities, including data from the Triple-A methodology and risk assessment as well as bottom-up stakeholder consultations. The consultation procedure included dialogue through bilateral meetings, questionnaires, and workshops with energy efficiency companies and project developers, researchers, and representatives from financing institutions and policymakers. The main results emerged are listed below:

- Policymaking should focus on **planning mitigation strategies in order to minimise the financial risk for potential investors**. In this regard, the careful examination of the creditworthiness of the borrower or a possible ESCO contract is of quite importance. The **creation of a unified creditworthiness system for green investments** that takes into account the particularities of the energy efficiency (and other green) investments will facilitate banks and financing institutes that aim to finance green projects as it will drastically simplify and speed up the undertaking procedure.
- Based on Bulgarian stakeholders, Grants and Subsidies, along with Loan guarantee mechanisms and collaterals are the most appropriate mitigation strategy for the country. Hence, policymakers should focus on **well-structured subsidies for energy efficiency projects**, taking in mind not to disrupt the private investments value chain of energy efficiency, as private financing is equally important.

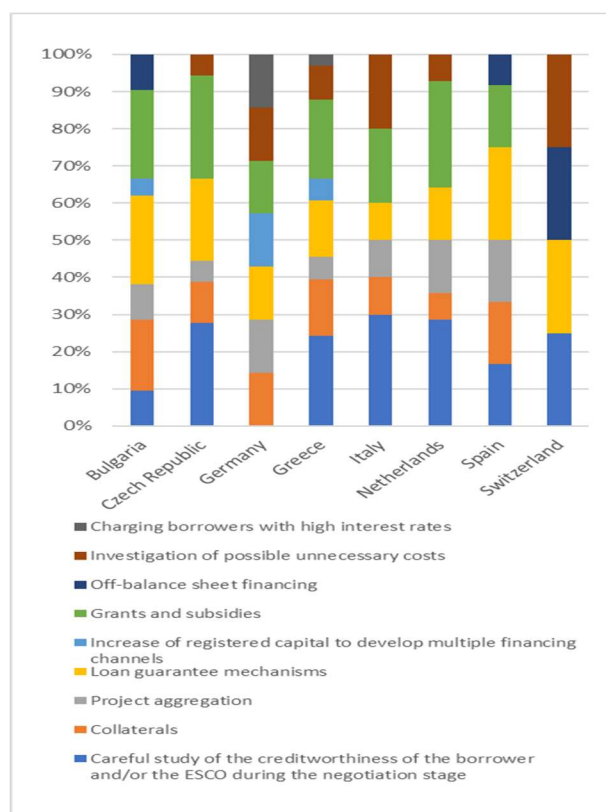


Figure 1. Proposed mitigation strategies related to the energy efficiency projects' financial risk

Furthermore, **introducing a governmental collateral system** would be quite supportive, as it also secures private investments, without interfering with the free market with subsidies.

- Policymakers should consider introducing **campaigns and capacity building actions**

visioning to reduce behavioural risk and introducing ways on how to consume energy in a different, more efficient manner despite the existence of energy efficiency measures, resulting in less energy consumption, overall.

- Research participants from Germany indicated a more drastic method that affects the behavioural change (rebound effect) of end-users, which is the governmental energy price regulation. Indeed, the presence of energy price rules can overturn the rebound effect, reducing the short-run rebound effects so that they become smaller than the long-run effects⁴.
- One of the key governmental main roles, which policymakers should take into account, is the regulation of the energy market. Unstable or misleading regulation can hinder the implementation of energy efficiency projects due to the volatility of energy prices or the strenuous legal procedure for issuing project permits. Eastern European and Balkan countries, such as Bulgaria, the Czech Republic and Greece, should establish a clear long-term government tax policy on energy.
- An applicable risk mitigation strategy for the energy market and regulatory risk is hedging with future (forward) energy contracts or agreements on long term fixed-price energy contracts and long-term fixed interest rates. These instruments support the stability of energy efficiency investments in the private sector and have become even more important when considering the impacts of the latest ongoing energy crisis.
- In order to set a background for more successful energy efficiency technical implementations, policies should be introduced to set up standards in project development and documentation. Proper accreditation and certification of technology supplies and energy efficiency market solutions, mandatory insurances and standardised performance protocols could also play a significant role in countries with a large amount of energy-inefficient buildings,

such as Italy, with over 60% of the Italian real estate stock falling in the less efficient energy classes F-G⁵.

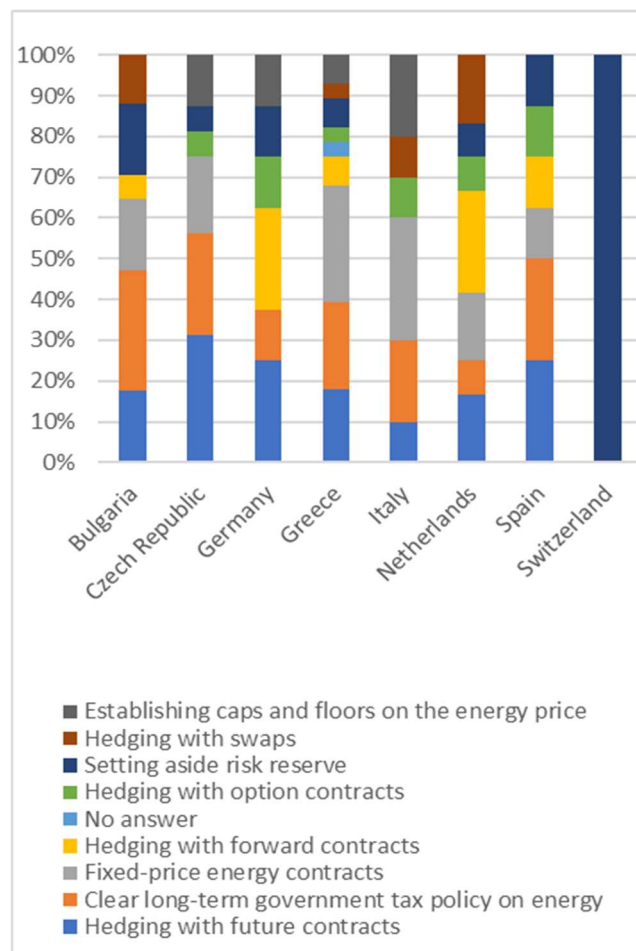


Figure 2. Categorisation of mitigation strategies related to the energy market and regulatory risk

⁴ Figus, Gioele, et al. "Do Sticky Energy Prices Impact the Time Paths of Rebound Effects Associated with Energy Efficiency Actions?" Energy Economics, vol. 86, North-Holland, Feb. 2020, p. 104657, doi:10.1016/J.ENERCO.2019.104657

⁵ IEA - International Energy Agency. Energy Policies of IEA Countries - Italy 2016 Review. 2016

3.3 Triple-A recommendations for barriers to be overcome for energy efficiency projects implementation

Insights and gaps from different perspectives to showcase the needs to overcome in order to increase energy efficiency projects successfully implementation.

The barriers found during the implementation of Triple-A project separated into 3 main categories that affect the implementation of the energy efficiency project. These categories are the regulatory framework, as it sets the basis for energy efficiency financing, the market framework which depicts clearly the situation of the energy efficiency projects financing and implementation and, finally, the key players including mainly financial institutions and SMEs with the role of project developers. The identified recommendations have been derived from several activities that were related to the identification of the barriers and risks that hinder the implementation of energy efficiency investments. More particularly, an extended literature review was conducted, and three surveys were developed on risks of energy efficiency investments in general and in the building sector, as well as on energy efficiency financing risks & evaluation criteria. In addition, capacity building workshops were organised in the eight Triple-A case study countries in order to derive input on the barriers that hinder the implementation of such investments.

Regulatory Framework

- **Unstable or misleading regulation** can hinder the implementation of energy efficiency projects by the unstable energy prices volatility or the strenuous legal procedure for issuing project permits.
- **Policy distortion by taxes**, subsidies or other policy interventions discourages the implementation of energy efficiency interventions in the industry sector.
- **Fluctuation of energy prices** plays significant role on the profitability of EE investments. The latest energy crisis has augmented this issue, creating uncertainty on the estimated cash flows of energy efficiency projects and disconcerting the profitability of these kinds of investments.
- The financial risk depends on a plethora of factors that need to be well understood to be diminished. The main factor that implies the financial risk is the **borrower's creditworthiness**, although several instruments and mitigation strategies exist that could be deployed. Based on Bulgarian stakeholders, Grants and Subsidies, along with Loan guarantee mechanisms and collaterals, are the most appropriate for the country.

Market Framework

- Due to the **market's economic uncertainties** and the manufacturers' need to decrease costs, **Covid-19** has postponed the deployment of energy efficiency in the industry and in all sectors in general.
- Usually, **SMEs focus on expanding their market size and product competitiveness**, leaving behind other factors, such as energy efficiency upgrades.
- **Market-leading banks have a plethora of Green Products**, such as Green Loans, but most of the time, these **are not applied** to smaller, regional banks that SMEs usually do business with.
- The concerns have been exacerbated in the Covid-19 crisis, with **SMEs reluctant to take on any more obligations** in an uncertain market.
- **Investors do not perceive the profitability of energy efficiency measures to a great extent**. To this end, they do not increase the investment's cash flows directly, discouraging them from stirring their capital to such kinds of investments.

Key players

- Since the industry needs a steady flow of financing to meet its long-term energy and climate obligations, financial institutions (both private and public) are central to the strategy.
- Financial institutions tend to underestimate the importance of business interruption risks and the existence of subsidies to drive demand for energy efficiency in companies.
- Financial institutions see the general economic outlook and effective enforcement of existing regulations as less essential drivers of energy efficiency than the users.
- Financial institutions provide an important signal to the industry, when they actively participate in climate and clean energy financing initiatives.
- Financial institutions will increasingly look to the EU Taxonomy in their engagement with a corporate client.
- Finance users see key decision makers' confidence in energy efficiency resources, their awareness at critical decision-maker level, their leadership and human capacity, the energy price and tax volatility as more robust drivers than the financial institutions do.
- Energy efficiency upgrades in SMEs are usually small-scale investments for financial institutions.
- During the COVID-19 pandemic, most of the SMEs were trying to survive, so they did not focus on investing in energy efficiency measures.
- Most of the times SMEs do not have enough budget for energy efficiency investments, while they choose own funding, since there is lack of awareness with regards to funding opportunities at the local or EU level.
- SMEs are generally aware that efficiency improvements can help them increase their competitiveness, but they confront several obstacles that cause inertia. Small-sized and non-energy-intensive industrial SMEs cannot typically work on energy efficiency improvements and hence require more excellent assistance from intermediaries, such as external specialists.
- SMEs lack standardisation procedures in order to establish a solid relationship between an asset owner, an intermediary (e.g., ESCO) and the financial community.

3.4 Triple-A recommendations for benchmarking and evaluation of EE investments

Highlights and directions to key actors and policymakers involved in energy efficiency towards a clearer and more accessible framework for energy efficiency financing.

The majority of Energy Efficiency (EE) investments ideas are abandoned during the first stages of investment generation due to a lack of communication or interest by the involved actors during the design and underwriting procedure. Standardised and integrated methods supporting investors and financing institutes are required to identify highly efficient economic activities. Investment benchmarking by following standardised procedures supports cost-effective and highly efficient EE project proposals, making them more attractive. The following recommendations emerge from the activities of all the Triple-A project activities but mainly from the evaluation and benchmarking process of EE investments within Triple-A Tools and aim to resolve the main barriers to reliable evaluation and benchmarking of energy efficiency projects' financing.

The Triple-A project has deployed a benchmarking methodology and tools in order to assist the underwriting and financing matchmaking of such projects. A pipeline almost 200 EE financially attractive project ideas has been collected, which have been benchmarked by the developed Triple-A Tools. The benchmarking procedure has been realised in close cooperation with targeted stakeholders (project developers, financiers), motivating them to draft their EE project ideas into project fiches, insert them into the Triple-A Tools for efficient benchmarking and initiating matchmaking with financing schemes. This process has resulted in valuable findings, visioning for more effective EE project design and financing matchmaking.

- As observed by the input received by stakeholders through bilateral meetings and communication with energy efficiency project developers and financiers, the EU Taxonomy is not widely used yet. Although in several countries, stakeholders were aware of and supported the EE project alignment with the EU Taxonomy criteria, the majority of the participants declared that they do not take into consideration the EU Taxonomy when designing their EE projects. Further promotional actions, capacity-building webinars and incentives should be designed and promoted through European and National programmes in order to enhance the reception of stakeholders for [EU Taxonomy as the cornerstone of sustainable investments](#).
- Impact of fluctuating energy prices on the profitability of EE investments was highlighted by several partners. The latest energy crisis has augmented this issue, creating [uncertainty about the estimated cash flows of EE projects](#) and disconcerting the profitability of these kinds of investments.
- Policymaking should stir towards the standardisation of project design to make the EE projects' replicability easier. Standardisation could be achieved by establishing a common (even pan-European) framework of EE project fiches, [EE project benchmarking and underwriting procedures](#).
- [Replication of projects, either in terms of financing or/and technical solutions](#), is highly desired. Similar projects allow project developers to demonstrate the proof of concept, promote them as a product, and minimise development costs.
- Another significant instrument that has provenly assisted EE projects financing is project aggregation. [Aggregation of EE projects](#) seems to be more critical than other issues, as it has a positive impact on risk assessment and could provide economies of scale.

- Building confidence between project developers and investors is critical for the implementation – and decision making of EE projects. This could be achieved by introducing standardised underwriting methods, standardised energy efficiency contracts and a stable economic environment regarding energy prices and/or energy taxes.

3.5 Triple-A recommendations for policy frameworks and market architecture status

Highlights and main findings from the Triple-A case study countries' Synthesis paper on the policy frameworks and market architecture.

A set of Synthesis Papers for the 8 Triple-A case study countries (Bulgaria, Czech Republic, Germany, Greece, Italy, Lithuania, The Netherlands and Spain) developed under Synthesis and Sustainability activities aiming to present overview of the applicable regulatory forces, the market architecture, and policy framework related to the projects and tools identified under the Triple-A project. The focus on the case study countries situation is based on the sectors (buildings, industry, transportation, district energy networks and outdoor lighting) and projects that were identified during the project and, in turn, are available through Standardised Triple-A Tools and Triple-A Database on Energy Efficiency Financing. All the input required for the preparation of the Synthesis Papers has been derived from review in current market architecture and policy framework and based on outcomes of all Triple-A activities and mainly from stakeholder facilitative dialogue and capacity building activities, preparation of tools and benchmarks for mainstreaming energy efficiency investments and in-country demonstration of Triple-A investments.

A summary of useful insights from policy frameworks and market architecture is presented below. They could further enhance energy efficiency investments, inspire for decision-making to guide a more detailed set of policies, or to guide ongoing maintenance of the already implemented in EU Member States but not limited.

- The **most numerous** energy efficiency projects identified in Triple-A are from **building sector** as it is most widely supported by investments and consequently support schemes and mainly by public funds.
- Countries with **leading economy** provides a **more complete and multisectoral approach** with support schemes covering a variety of sectors (building, industry, transportation etc.) towards fostering energy efficiency investments.
- Countries with **slow economic recovery** and prolonged severe recession have **starting to put more attention in energy efficiency** and embracing the green and digital transition. This is mainly observed in **building sector** and **renewable energy** respectively.
- Support schemes for building sector includes mainly investments to finance a **large-scale renovation programme** to increase the energy efficiency of **buildings** and also provides measures to promote the use of **renewable energy sources**.

Table 1. Indicative representation of policy framework per sector per country

| | Building | Industry | Transportation | District Energy Network | Outdoor Lighting |
|-----------------|----------|----------|----------------|-------------------------|------------------|
| Bulgaria | | | | | |
| Czech Republic | | | | | |
| Germany | | | | | |
| Greece | | | | | |
| Italy | | | | | |
| Lithuania | | | | | |
| The Netherlands | | | | | |
| Spain | | | | | |

- The main focus of each country is to increase their energy independence, transition to renewable energy sources, decreasing the energy consumption by implementing the **modern low energy technologies** etc.
- Financing bodies and project developers are the main stakeholder groups actively engaged and triggered in this field of energy efficiency financing while policy makers followed. A combination of all of them might have more robust and efficient results.

- Financing bodies were more active in countries with stronger economy while in countries with strong industry or in economic recovery, thus increase in energy efficiency projects, stakeholders from the target group of project developers were more active.

3.6 Triple-A recommendations for the exploitation strategy development of energy efficiency financing tools

Highlights and key outcomes as guidelines and roadmap for the commercial exploitation strategy of Triple-A Tools and Web-based Database.

Two international workshops were held to define the process and decision-making approach for the future exploitation strategy of the Triple-A outcomes. Based on the conclusions obtained, the Key Exploitable Results (KER) methodology was applied. Once the KERs with the greatest potential were identified, business models in line with the nature of the assets to be exploited were proposed and discussed to identify and conclude the most suitable and successful solutions. This recommendation set lists the most important findings from the consultation process with Triple-A partners, but not limited, to define a successful Exploitation Strategy.

Although there are alternative business ideas as identified within the project implementation, the KERs with the greatest potential to succeed in the market and enhance stakeholders in the EE sector are the [Triple-A Web-based Database](#) and [Standardised Triple-A tools](#).

A fundamental part of the development of the exploitation strategy was to characterise the capacity of the Triple-A Tools to interact and transfer information with other similar platforms or initiatives. In the design phase already and the development of the tools, several aspects have been considered to facilitate this interoperability capacity. The platform chosen to test this capability was the DEEP ⁶(De-risk Energy Efficiency Platform) platform developed under the EEFIG (Energy Efficiency Financial Institutions Group) umbrella. Recently, the first projects registered on the platform enable the testing of Triple-A Tools interoperability possibilities.

Figure 3 presents the overview of the Triple-A exploitation strategy process while a list of highlights as derived from the exploitation strategy process of Triple-A are presented below

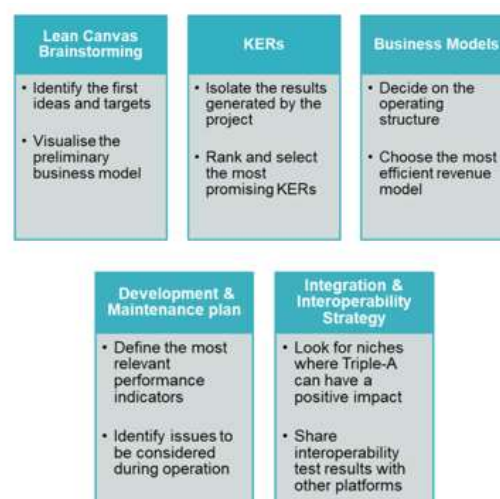


Figure 3. Structure of the areas and steps covered during the process of Triple-A exploitation strategy

- [ESCOs](#) were targeted as the most interested potential clients in the services offered by Triple-A due to the existing financing problems in the sector.
- [Joint exploitation](#) of the outcomes was decided as the most reliable, complete and secure option.
- For the [revenue model of the Triple-A Tools](#), [payment gateways](#) to specific functionalities

⁶ deep.eefig.eu

(such as receiving a small commission each time a project is funded) [are recommended](#).

- For the [revenue model of the Triple-A Web Database](#), [access free of charge](#) for all users is proposed so as to help on raising awareness in the field of EE financing while attracting users for Triple-A Tools. The placement of advertisements was also considered.
- The [performance indicator](#) for an objective success monitoring is proposed to be the [number of projects funded](#). This indicator shows how many successful processes have been carried out within the Triple-A Tools.
- [Private and independent certification](#) by a reputable company is necessary to gain market position.
- Within the [integration strategy](#), various approaches should be considered on how EE financing tools have the potential to generate value within the European EE market.
- [Triple-A outcomes are easily adaptable](#) to all members of the European Union. The great diversity of participating countries, with different climates, legislative structures, economic situations, etc., has conditioned the adaptation of the Triple-A outcomes to a large number of specific constraints.

In a nutshell, specific points have been identified that should be considered when planning EE financing tools implementation in the market. These aspects can help reduce barriers to market entry while mitigating certain risks:

- [Independent certification](#): Being certified by an independent and reputable private company can strengthen the project and increase the confidence of early adopters.
- [Dissemination strategy](#): Making a controlled transition of dissemination and marketing efforts from the European project to commercial exploitation can help maintain the user base and give a sense of coherence.
- [Website and social media](#): It is expected to use the network obtained in the social networks and website where dissemination actions have been carried out. In this way, it would be possible to start publishing success stories achieved during the project and beyond in order to encourage new users.
- [Identify new trends in the EE market](#): Today's energy market is constantly changing, driven by a multitude of reasons (climate crisis, new technologies, price volatility, geopolitics, etc.). New topics have emerged and need to be investigated and adapted so as to depict today's market successfully.

3.7 Triple-A recommendations for building sector preparation to enable the energy transition: combination outcomes from 7 H2020 projects

Actions towards the adoption of energy efficiency measures and smart technologies supporting the uptake of more renewable energy sources.

The transition to a climate-neutral economy demands actions where public and private sector investments can be channelled towards climate-friendly technologies and business models for the building sector. To this end, a holistic approach led to recommendations from an in-depth understanding of the social, technical, economic and environmental dimensions of the energy transition from activities under 7 H2020 projects (SENSEI⁷, Triple-A⁸, NOVICE⁹, QUEST¹⁰, U-CERT¹¹, AmBIENCE¹² and LAUNCH¹³) in December 2020.

The 7 H2020 projects and their underlying goals were supported by more than 1,500 stakeholders by December 2020 with the majority of them to be from relevant fields, such as project developers, investors, financial institutions, buildings professionals, policymakers or national authorities, and researchers in business and techno-economic fields. The main focus topics for each project are highlighted in Table 2.

Table 2. 7 H2020 project 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 | | | | | | | |

Electricity Market reform

- The **redesign of capacity markets** is expected so that energy efficiency (EE) can practically compete with supply side options in a way to reward EE projects.
- **Demand Response** (DR) programmes has the potential to compensate all stakeholders (supplier, customer, BRP, aggregator) and

do not favour additional generation capacity over DR capacity. Making the rules around participation simpler will encourage more demand response aggregators to participate and help grow the market.

- **Load aggregation** is allowed in most countries for both generation and DR and tends to favour aggregated energy generators. To encourage greater participation at the demand side, both sides must be able to compete on an equal playing field.
- Fair yet **straightforward pre-qualification requirements** should occur to allow participation from new market entrants and aggregated loads. Limiting the market for demand response aggregators to very large or industrial sites.
- **Incentivise network operators to pilot ambitious pay - for - performance programmes**. Policymakers could pilot pay-for- performance schemes in the context of applying the Efficiency First principle.
- **Accelerate the roll out of smart meters** by encouraging 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.

⁷ <https://senseih2020.eu/>

⁸ <https://www.aaa-h2020.eu/>

⁹ <https://novice-project.eu/>

¹⁰ <https://project-quest.eu/>

¹¹ <https://u-certproject.eu/>

¹² <https://ambience-project.eu/>

¹³ <https://www.launch2020.eu/>

- **Incentivise electrified heating from renewable emission free resources.** This could be done by more fair taxation of electricity versus gas.

Financing

- **Guidelines targeted at energy efficiency investments** should be encouraged by considering risk assessment and mitigation strategies for energy efficiency projects per country level and sector level.
- More **innovative financial instruments** should be put in place to promote **electrification of heating**, especially in combination with self-consumption as a second strategy to reduce emissions. To this end, an increased focus on financing smartness and not just efficiency should be paid.
- Create a **harmonisation framework between project developers and financing schemes**. This could include assessment of funding strategies of realistic and feasible EE investments and incorporate them into financial reports.
- **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
- Encourage Member States to create instruments that serve as first-loss guarantee to mitigate end-clients' high credit risk.
- The facilitation of the market uptake of H2020 projects could further be boosted, while it looks at private/public capital to invest in solutions that are proven successful and whose models have been assessed, in this manner accelerating scale-up.

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 a European level digital building logbook.

- **Benchmarking and standardisation of energy efficiency projects.** Establishment of EU official tools and guidelines for standardized methods and procedures in benchmarking energy efficiency projects.
- **Introduce green requirements for government-owned or -financed buildings**, to help shifting market demand with digital quality management procedures for energy efficiency functionalities.
- **Support the development of the Energy Performance Contracting markets** around Europe by encouraging a transition to a demand-driven market which will help to create a market "pull" and drive the growth of the ESCO market to meet the demand.

Energy Performance Certification

- **Support EU convergence in terms of building performance calculation methodology** by using the CEN/ISO set of EPB standards.
- **Define a building performance label** reflecting its emission level and not solely on a building's energy consumption which neglects the benefits of electrification and smart control. This 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 EPCs full potential** such as environmental impact and indoor environmental quality. This would enable the transparent monitoring of non-energy benefits.
- **Complement asset rating with measured performance and ultimately operational rating.** People need contextualised information for understanding and making the needed links between their behaviour and decision-making and building performance.

3.8 Triple-A recommendations for energy efficiency regulatory frameworks in MS and EU level

Key actions for national and European regulatory frameworks to enhance the successful implementation of energy efficiency investments.

This recommendation set wraps-up key highlights to be considered for national regulatory framework and the European as well. The scope is to present actions in different aspects and stages for fostering energy efficiency investments and increase their impact as well. These particular recommendations have been derived from various activities taken place in the eight Triple-A case study countries, such as surveys, bilateral meetings and events (Regional Training Workshops and Capacity Building Webinars) where mainly national stakeholders participated giving feedback on the existing energy efficiency policy, market and regulatory framework of the countries. In addition, Triple-A partners and Advisory Board Member also contacted stakeholders from other EU countries (e.g., Cyprus, Montenegro,) in order to communicate Triple-A message and derive fruitful ideas and recommendations on the energy efficiency financing in their regions and the whole EU as well.

Member States level

- Policy options should be revised towards developing long term stability for the green transition of industry.
- **Partnerships with businesses on decarbonisation**, such as voluntary agreements, to ensure they work towards meeting the long-term climate and energy objectives should be developed.
- **Support programmes** to facilitate the uptake of measures identified in mandatory audits should be developed.
- **Public grants and guarantees** should be used to support project development, quality assurance, de-risking and insurance costs of multiple EE investments to trigger private sector investments instead of limiting the public funds to fewer wholly funded projects. **Subsidies** should be used only to support organisations that need them and have a catalytic effect through leveraging private finance.
- **Development of markets for green products**, including green public procurement should be supported.
- The regulatory national framework should be prepared to **comply with the EU Taxonomy standards**.
- A **rapid reflex to European Directives** should be guaranteed so as they are **embodied** in the **national legislation** on time and in a manner that they could be easily applied by public and private sector. SMEs can quickly apply.

- The EU energy efficiency-related and environmental recommendations should be incorporated, although not obligatory.

EU level

- The growth of energy efficiency networks should be promoted by **building sectoral toolkits and benchmarking tools** helping in this way the standardisation of energy efficiency solutions and increasing the knowledge sharing capabilities of industrial companies and SMEs.
- It should be ensured that **Energy Efficiency First principle** is integrated into relevant climate and energy policies as an element in the broader decarbonisation policy framework.
- **Relevant policies should be monitored and revised regularly** to ensure their continued effectiveness to accelerate investments in energy efficiency.
- Research investments into energy efficiency technologies and techniques in the **industry** should be increased.
- **Industry** should be given sufficient priority to **accelerate investments in energy efficiency** in order to develop more ambitious energy efficiency policies in all sectors.
- Non-financial corporate sustainability reporting should be extended, which applies to large companies and SMEs that emit significant GHG amounts of GHGs, voluntarily.

- SMEs should be supported in dealing with genuine product passports, which will include many sustainable indicators (incl. GHG emissions).
- Incentives should be provided to SMEs and industries in order to proceed with energy efficiency measures. A competitive energy efficiency market should be created, avoiding distortion from horizontal subsidies that lack technical criteria.
- The energy efficiency capacity per sector and country should be assessed and monitored targeting the most energy-consuming and inform stakeholders with best practices, recommendations and financing programs.

3.9 General Triple-A recommendations for boosting energy efficiency financing

Insights to highlight the needs and actions to be done towards fostering energy efficiency financing.

This recommendation set presents the overview of outcomes as derived from different activities during the Triple-A project implementation and in different stages. Several targeted groups (financial institutions, project developers, SMEs, ESCOs, policy makers, regulatory authorities etc.) have been involved in various activities in order knowledge and experience to be exchange for the successful implementation of Triple-A Tools and the project itself. The engagement activities and review mainly focused on the Triple-A case study countries (Bulgaria, Czech Republic, Germany, Greece, Italy, Lithuania, The Netherlands, Spain) but not limited, in order to provide a general overview in a Pan-European level. Recommendations focus on regulatory steps that should be done in country and European level, technical aspects, methodologies, risks assessment and mitigation strategies for fostering energy efficiency financing and engagement activities of key stakeholders to raise awareness and replicate success stories. These recommendations have been derived from various activities taken place in the eight Triple-A case study countries, such as surveys, bilateral meetings and events (Regional Training Workshops and Capacity Building Webinars) where mainly national stakeholders participated giving feedback on the existing energy efficiency policy, market and regulatory framework of the countries. In additions Triple-A partners and Advisory Board Member also contacted stakeholders from other EU countries (e.g., Cyprus, Montenegro, North Macedonia, Slovakia) in order to communicate Triple-A message and derive fruitful ideas and recommendations on the energy efficiency financing in their regions and the whole EU as well.

- The launch of the [EU Taxonomy](#) and the rise of [ESG criteria](#) in investment decision-making should be the first step in a unified and transparent framework to monitor and establish green development.
- [The EU Taxonomy is not widely used yet, due large size of the document and its technical complexity.](#) The decoding of each requirement is needed, while further promotional actions, capacity-building webinars and incentives should be designed and promoted through European and national programmes in order to enhance the reception of stakeholders for EU Taxonomy as the cornerstone of sustainable investments.
- [Guidelines targeted to energy efficiency investments](#), like the Guide to Cost-Benefit Analysis of Investment Projects, Economic appraisal tool for Cohesion Policy 2014-2020 are encouraged to be developed. Risk categories and factors, mitigation strategies and financial parameters (discount rates, price inflation) that play a major role in the energy efficiency financing should be defined at a country level.
- [EU and national policies and resources should work effectively to drive R&D](#) for optimal energy efficiency outcomes.
- [A similar to renewable energy investments approach](#) should be adopted towards energy efficiency investments, since they are strongly related, and both can have a high positive impact both environmental and economic.
- [Economic incentives](#) should be provided, such as [tax exemptions](#) and [grants](#) for the implementation of energy efficiency interventions in key sectors (buildings, industry).
- [High profile campaigns](#) on the benefits of energy efficiency investments in several sectors (buildings, transport, outdoor lighting, manufacturing, district heating and cooling) should be conducted.
- [Co-operation among policymakers, governments and companies](#) is crucial for a shared understanding and hatch a plan for deep decarbonisation of energy sector with long-term competitiveness that facilitates access to long-term and profitable financing for the green transition.
- An appropriate [risk mitigation strategy](#) for the financial risk is hedging with future (forward) energy contracts or agreements on long term fixed-price energy contracts and long-term fixed interest rates. These instruments support the stability of energy

efficiency investments in the private sector, and they have become even more topical with the latest ongoing energy crisis.

- **Provision of information and awareness-raising** plays a crucial role in minimising the behavioural risk, which is mainly based on the behaviour change of end-users after the implementation of energy efficiency measures (to a residence or a workplace).
- Policymakers should consider introducing **campaigns and capacity building actions** on how to consume energy in a different, more efficient manner despite the existence of energy efficiency measures, resulting in less energy demand. Research participants from Germany indicated a more drastic method that affects the behavioural change (rebound effect) of end-users, which is the governmental energy price regulation.
- The policy framework should positively support strong corporate energy efficiency investment choices at key points in their investment cycle (e.g., planning, design, implementation. Monitoring and evaluation).
- **Facilitation of public resources** should be engaged to establish dynamic and effective systems for sharing information and technical experience.
- **Sustainability related reporting should be encouraged** (if not becoming mandatory) for large companies in order for investors to seek and stir their capital to sustainable financing properly.
- **Industry benchmarks and technology maps** should be further developed. A typical evaluation framework should be adopted when a company is regarded as ESG ready.
- Building confidence is critical for the implementation – decision making for energy efficiency projects. This could be achieved by introducing standardised underwriting methods, standardised energy efficiency contracts and a stable economic environment, with regards to energy prices, and/or energy taxes.
- **Standardisation of energy efficiency investments** increases trust between key actors, enables the development of green products, and secures low interest rates and the growth of green financing.
- **Policymaking should stir towards the standardisation of project design**, in order to make easier the energy efficiency projects replicability. Replication of projects, either in terms of financing or/and technical solutions, is highly desired. Having similar projects allows project developers to demonstrate the proof of concept, promote them as a product, and minimise development costs.
- The policy framework should support the **clarification** of the **regulatory, fiscal and accounting** treatment and standardisation of Energy Performance Contracts.
- Policymaking should focus on two main targets: facilitate and support the financial models that are the most important for each country, and at the same time plan mitigation strategies in order to minimise the risk for potential investors.
- Introducing a **governmental collateral system** would be supportive, as it also boosts secures private investments, without interfering with the free market with subsidies.
- The creation of a **unified creditworthiness system** for green investments that takes into account the particularities of the energy efficiency (and other green) investments should be supported. This approach will facilitate banks and financing institutes that aim to finance green projects as it will drastically simplify and speed up the undertaking procedure.
- Establishment of **EU official tools and guidelines for standardised methods and procedures** in benchmarking energy efficiency projects. Outcomes and products of Horizon 2020 projects (and other research projects) can be incorporated for a holistic approach of standardisation of EE projects.
- Special focus should be given to structured subsidies for energy efficiency projects, taking into account not to disrupt the private investments value chain of energy efficiency, as private financing is equally important.
- Eastern European and Balkan countries, such as Bulgaria, the Czech Republic and Greece, should **establish a clear long-term government tax policy on energy**.

4 Conclusions

Nine (9) recommendation sets have been developed to provide an overview of integrating highlights from work conducted under Triple-A project. Activities under WP2-Stakeholder facilitative dialogues and capacity building, WP3-Energy efficiency financing risks and mitigation strategies, WP4-Tools and Benchmarks for mainstreaming energy efficiency investments, WP5-In-country demonstration of Triple-A investments and WP6-Synthesis and Sustainability were the main pool of information for useful insights to cover key topics under the field of the energy efficiency financing, its barriers, risks and methodologies to evaluate and benchmark them. The development and implementation process of the Triple-A Web-based Database and the Triple-A Standardised Tools contribute as well towards this direction while the recommendation sets were not complete without outcomes from the exploitation strategy for the energy efficiency financing tools and the added business value.

The unstable or misleading regulation along with the market's economic uncertainties creates bottlenecks that need to be overcome in order to boost energy efficiency financing. Therefore, countries need a steady flow of financing to meet their long-term energy and climate obligations with the financial institutions (both private and public) are central to the strategy. However, the lack of standardisation procedures makes this difficult and highlights that the building of confidence between project developers and investors is mandatory. To this end, energy efficiency financing tools (such as the Triple-A toolset) and finance schemes should be used widely with the room and flexibility to implement innovative financing schemes.

Priority should be given to energy efficiency investments in the industry and buildings sector in all Triple-A case study countries with the ones with strongest economic condition to lead the way with a holistic and multisectoral approach on financing schemes.

On top of that, the EU Taxonomy and the inclusion of the ESG criteria should work as the cornerstone of these investments and regulatory frameworks should be prepared to comply with the EU Taxonomy standards. Moreover, the regulatory frameworks should be ready for a rapid reflex to European Directives, so as to embody whatever required on time and in a manner to be easily applied both in public and private sector. Furthermore, introducing a governmental collateral system would be quite supportive along with a clear long-term government tax policy on energy.

On the other hand, the aggregation of energy efficiency projects seems to be also critical as it has positive impact on risk assessment and could provide economies of scale. However, mitigation strategies to minimise the financial risk for potential investors should be also foreseen. In this regard, the careful examination of the creditworthiness of the borrower or possible ESCO contract is of quite importance. To this end, a unified creditworthiness system for green investments will facilitate banks and financing institutes and it will drastically simplify and speed up the undertaking procedure. On top of that, proper accreditation and certification of technology supplies and energy efficiency market solutions and standardised performance protocols will further boost successful energy efficiency investments.

Financing bodies and project developers are the main stakeholders actively engaged and triggered in this field, while policy makers and governmental actors follow. A combination of all of them might have more robust and efficient results as policy makers have the potential to introduce campaigns and capacity building actions vision to cover the abovementioned key issues. In addition, they could promote energy efficiency financing tools and best practices. For example, Triple-A outcomes which are also easily adaptable to all members of the European Union. The great diversity of participating countries,

with different climates, legislative structures, economic situations, etc., has conditioned the adaptation of the Triple-A outcomes to a large number of specific constraints. To this end, Triple-A partners have already established connections with MS other than Triple-A partners (Cyprus, Montenegro, North Macedonia and Slovakia) visioning on the exploitation of the project outcomes.

Finally, it is strongly recommended that policymaking should stir towards the standardisation of project design, in order to make easier the energy efficiency projects replicability, since replication of projects, either in terms of financing or/and technical solutions, is highly desired. In this context, the establishment of EU official tools and guidelines for standardised methods and procedures in benchmarking energy efficiency projects proved to be of great importance. Outcomes and products of Horizon 2020 projects (and other research projects) can be incorporated for a holistic approach of standardisation of energy efficiency projects.