

**Coordination and Support Actions**  
*LC-SC3-EE-10-2018-2019-2020*  
**Mainstreaming Energy Efficiency Finance**



## Triple-A

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

### Project Factsheet

**Grant agreement ID:** 846569

**Project duration:** 01.09.2019 - 31.05.2022

**Funded under:**

*H2020-EU.3.3.1.* - Reducing energy consumption and carbon footprint by smart and sustainable use  
*H2020-EU.3.3.7.* - Market uptake of energy innovation - building on Intelligent Energy Europe.

**Topic:** LC-SC3-EE-10-2018-2019-2020 - Mainstreaming energy efficiency finance

**Funding Scheme:** CSA - Coordination and support action

**Project total cost:** 1.486.196,25€

**EU contribution:** 1.486.196,25€

## Summary of the context

Triple-A has a very practical result-oriented approach, addressing the challenge of mainstreaming energy efficiency (EE) investments, by seeking answers to the following 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?

In particular, the **Triple-A scheme** identifies “Triple-A” EE investments, aiming to reduce the respective time and effort required at the crucial phase of the investments’ conceptualisation, as well as to increase transparency and efficiency of respective decision making. In this respect, the main challenge lies in **identifying which investments can be considered as Triple-A investments**, fostering sustainable growth, while also having an extremely strong capacity to meet their commitments, **already from the first stages of investments generation and pre-selection/ pre-evaluation**. With this new scheme, we have sought and identified EE investments more transparent, predictable and attractive for investors / financiers and project developers.

## Triple-A Methodology

The **Triple-A scheme** comprises three critical steps clearly linked with each question mentioned above, with the following main outputs:

- ✓ **Step 1 - Assess: Member States risk profiles and Mitigation Policies**, including a **Web-based database** that enables comparability per Member State and sector, identification of market maturity, exchange of experiences regarding good practices among the Member States, and facilitation of the replicability, leading to fruitful policy analysis for scaling-up EE investments and reducing uncertainty for investors/financiers. Complete **risk assessment** of projects and incorporation of **EU Taxonomy eligibility criteria** are the main pillars of the Assess step.
- ✓ **Step 2 - Agree: Standardised Triple-A Tools and Benchmarks** with guidelines translated in all languages of the consortium partners accelerating and scaling up private Triple-A investments in EE.
- ✓ **Step 3 - Assign: Assign results in In-country Demonstrations, Replicability, and Overall Exploitation**, including recommendations on what EE investments are realistic and feasible in the national and sectoral context, as well as on how they could be financed in practice in the short or medium-term via innovative green financing schemes, such as Green Loans and Mortgages, Green Bonds, and Energy Efficiency Auctions. Particular focus is given on the aggregation of projects, reducing risks and fostering the financing of small-scale projects.

The Triple-A case study countries were selected to promote diversity across a number of factors, including: a leading European economy (**Germany**), an innovation front-runner in energy (**The Netherlands**), a weak economy, went through one of the longest and most severe recessions (**Greece**), an economy with slow economic recovery (**Italy**), a diversified economy with a strategic geographical location having some of the largest European firms (**Spain**), a country that has experienced one of the fastest economic recoveries in Europe (**Lithuania**), a progressing country with a once sceptical stance towards low-carbon development (**Czech Republic**), and a country, recovering from a slow transition to a market economy, with growing regional strategic role and significant ambition towards EU processes (**Republic of Bulgaria**).

## Standardised Triple-A Tools

The Triple-A Tools are the key elements to pave the way for the Triple-A methodology in order to facilitate investors and project developers and enhance the value chain of energy efficiency financing. The Triple-A Tools materialise the Triple-A scheme, organised according to three central pillars: **Asses**, **Agree** and **Assign**, making EE investments more transparent, predictable, and attractive for investors / financiers and project developers. In particular, three Tools have been developed:

**Assess Tool:** The Triple-A Assess Tool is the first step of the standardised Triple-A scheme for assessing and benchmarking EE project ideas. The Assess Tool mainly assesses the **risks** and **maturity** of the proposed EE investment. The risks are related to the specific country in which the project is implemented, the proposed technologies, and the project management, while the maturity of the investments is related to its readiness for implementation. In this respect, key parameters on the EE financing have been identified (e.g., risk level, size of the investment, type of energy efficiency projects, Energy Efficiency Measures (EEMs) eligibility, etc.) as eligibility criteria to increase security and trust. Additionally, the incorporation of the **EU Taxonomy** in the Triple-A scheme was considered appropriate as a state-of-the-art approach in sustainable financing. The first part of the Assess Tool is based on screening criteria that emerged from an excessive review of the EU Taxonomy. In addition, guidelines and criteria from the EU funded PREMIUM LIGHT PRO were incorporated in the Triple-A Outdoor Lighting Sector. At the end of the first part of the Assess Tool, the project would be assessed whether it is EU Taxonomy compliant or not. The second part of the assessment tool is a comprehensive risk assessment based on the user's answers to a set of questions that capture the specific characteristics of each investment, including, among others, the energy savings and baseline calculation methods, the existence of projects permits and the experience of the developing team. Finally, the aggregated risk value of the project is calculated.

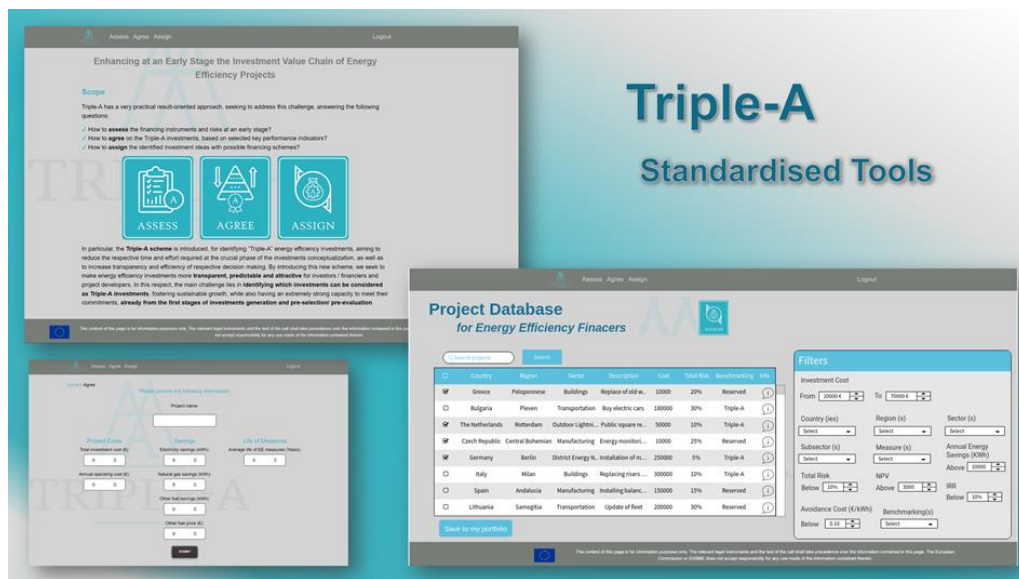
**Agree Tool:** This Tool supports the **identification of Triple-A investments**. The **benchmarking** methodology takes into account **financial**, **environmental**, and **risk indicators**. The risk is embedded directly as calculated in the Assess Tool. The financial indicators are calculated based on harmonised parameters of the EU Directives and Regulations on Cost-Benefit Analysis of Investment. Additionally, the Environmental, Social, and Sustainability (**ESG**) criteria have been reflected from EU official statistics by deploying a unique methodology for each case study country. A dedicated methodology has been deployed to create sustainability, and social criteria for the Triple-A Tools, incorporating official Sustainable Development Goals (**SDG**) and Eurostat indicators. The methodology produces a parameterised SDG progress estimation (per project country and sector), using it as a criterion for the benchmarking procedure. A multicriteria decision analysis method, namely ELECTRE Tri, has been included in the assessment process to benchmark the project ideas that have been inserted. The candidate projects are classified into one of the following categories: "**Triple-A**", "**Reserved**", or "**Rejected**", according to their performance on the evaluation criteria. Standalone python scripts to execute the ELECTRE Tri multicriteria classification method and the SDG criteria calculation for the Agree Tool have been developed to be independently used for future applications and relevant platforms.

The development of the Agree Tools and the benchmarking methodology has been supported by the interoperability with the DEEP platform. sharing common KPIs, thresholds and calculation methods, while also Triple-A has become **a data provider of the DEEP 2.0 platform**, sharing data regarding energy efficiency projects, as collected in the Triple-A pipeline of energy efficiency financing. **36 projects** have been shared anonymously to the DEEP 2.0 platform so as to contribute to the Database's statistics. It has to be noted that the benchmarking thresholds are not considered static by the Triple-A methodology. They are continuously redefined and updated based on the feedback received by the Triple-A stakeholder consultation, including the results of Triple-A Questionnaires that have been disseminated to stakeholders.

**Assign Tool:** It is a multidimensional platform that aims to match benchmarked projects with financing institutions (e.g., funds, investors, banks) looking to invest in green EE projects and create a **green portfolio**. The Tool provides a pool of Triple-A projects and a parameterised investing portfolio to financing bodies. At

the same time, project developers, ESCOs, and EE companies could be notified in case their project has been selected for financing through a specific financing scheme. Triple-A Assign Tool supports all **innovative green financing schemes**, such as **Green Loans** and **Mortgages**, **Green Bonds** and the state-of-the-art financing method of the **Energy Efficiency Auctions**. The Triple-A Assign Tool acts as a facilitator to project aggregation, reducing risks and fostering the financing of small-scale projects. At the same time, it creates a trusted community of energy efficiency financers and construction companies, as it supports the functionality of detailed user profiles, which can be viewed by other users (stakeholders), building confidence, and bringing reliability to the proposed investment ideas.

The Assign Tool benefits financing bodies as it provides them with access to a pool of **profitable, pre-evaluated Triple-A projects**. Stakeholders can filter and select projects according to criteria that fit their needs. Numerous project characteristics are laid out in a user-friendly interface, such as the project's benchmark rating, country, sector, enabling the user to examine potential proposed investments. Also, projects could be aggregated by investors to create a Green Bond portfolio, while they can explore a database of Green Bonds that have been published to the Tool. Financers could view the companies and the projects included in the bond, check the characteristics of the Green Bond, and further communicate with the Green Bond issuer. In addition, the state-of-the-art financing scheme of the Energy Efficiency Auctions is fully supported in the Triple-A Tools, enabling users to upload auctions and aggregate projects in order to create portfolios. As far as project developers are concerned, they get notified of financing requests from potential investors, along with details regarding the proposed financing schemes and investors' contact data.



Screenshot of the Standardised Triple-A Tools

The Standardised Triple-A Tools have been implemented using Python 3.0 programming language. The web-based application is designed in Django, which is an open-source python web framework. The Triple-A Tools are accessible through the Triple-A Standardised Toolbox Platform<sup>1</sup>, which can be reached through the direct link, or the Triple-A webpage<sup>2</sup>. The Triple-A Tools will be available online even after the project end.

Triple-A Tools instruction video<sup>3</sup> created and uploaded on the Triple-A YouTube webpage in English and Greek and subtitles for all consortium languages. Triple-A Tools Guidelines<sup>4</sup> have been composed and

<sup>1</sup> Standardised Triple-A Toolbox: <http://toolbox.aaa-h2020.eu/>

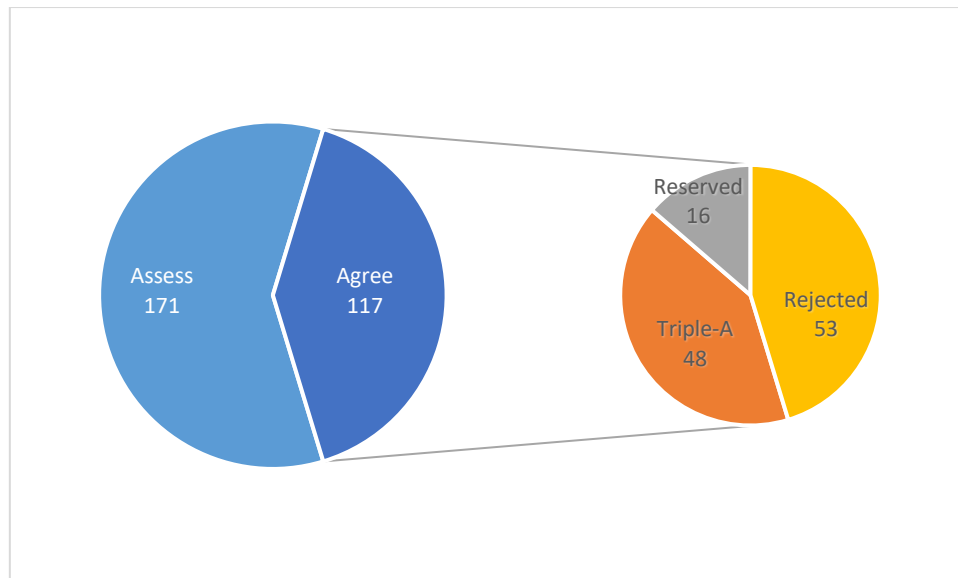
<sup>2</sup> Triple-A Webpage: <https://aaa-h2020.eu/tools/>

<sup>3</sup> Available here: <https://aaa-h2020.eu/index.php/videos>

<sup>4</sup> Available here: <https://aaa-h2020.eu/index.php/tools-guidelines>

translated to all consortium languages. As a matter of fact, 1243 users have visited the Triple-A Tools page, while also 170 users have signed up and utilised the online platform. Feedback on the Tools has been received from 228 stakeholders since a dedicated section on the Tools functionalities and usefulness has been included in three Triple-A questionnaires.

In total, 170 projects have been assessed by the Triple-A Assess Tool, while 119 have been inserted to the Triple-A Agree Tool, as provided by partners and stakeholders, in line with WP5 activities. 51 projects have been identified as Triple-A, while 16 projects have been identified as Reserved and 52 as Rejected. The benchmarking method is flexible, enabling adjustments according to the investment goals and rules of each type of financing institution or/and investor.



*Projects Classification in the Triple-A Tools*

### Triple-A Database on Energy Efficiency Financing

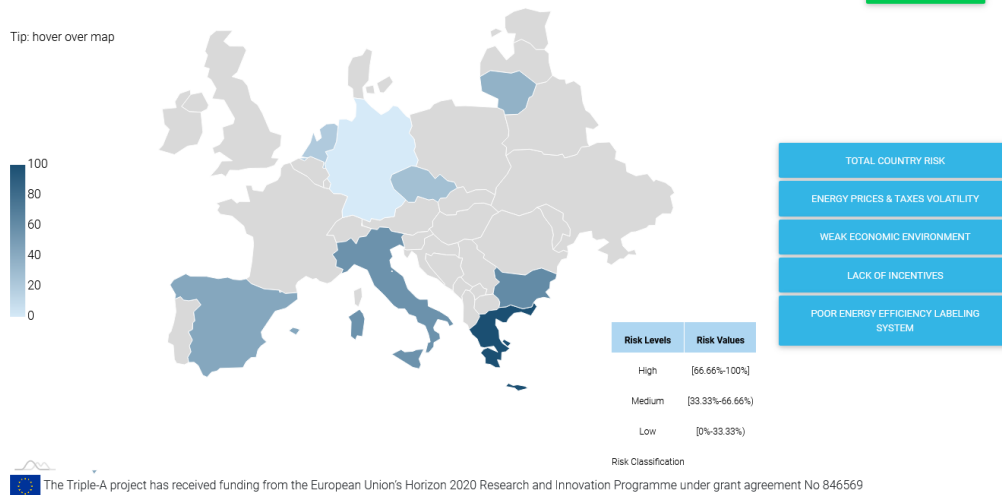
The **Triple-A Database on Energy Efficiency Financing** has been developed by NTUA since June 2020, accompanied by the respective report “Web-Based Database on Energy Efficiency Financing and Supporting Documentation”<sup>5</sup>. The Database is an **online interactive application** that incorporates the results from the status quo analysis and the elaboration/categorisation of the financing instruments and risk mitigation strategies within the framework of the Triple-A project and the Triple-A methodology. Thus, this knowledge database Triple-A offers a cross-country analysis, including **interactive maps and graphs**.

<sup>5</sup> Available here: <https://tinyurl.com/2p966nm9>

## Total Country Risk

This risk factor indicates how risky each case study country is from a holistic point of view, considering all the country-specific risks reported by the Triple-A risk assessment methodology, namely the macroeconomic risk ("weak economic environment"), the energy market's volatility ("energy price and taxes volatility") and the quality of the national policies about energy efficiency implementation ("lack of incentives", "poor energy labeling system").

DOWNLOAD



### Triple-A Database on Energy Efficiency Financing

In particular, the Database includes data on **risks** and **uncertainty factors** that might reduce **profitability of investments** and endanger efficiency projects debt repayment, as they have been identified and categorised in the **Triple-A risk assessment methodology**.

**Investors** are facilitated from the information included in the Triple-A Database on Energy Efficiency Financing by the following means:

- ✓ **Country Risks** assist them to effectively select the country of implementation of energy efficiency measures.
- ✓ **Energy Efficiency Projects Risks** facilitate the understanding of energy efficiency projects' risk nature and the identification of the de-risking potential of energy efficiency projects.
- ✓ **Risk Mitigation Strategies** aid them to make better energy efficiency investments evaluations
- ✓ **IRR: Project's Perspective** supports the examination of energy efficiency projects' performance with respect to investment horizon, while also the identification of the optimal holding period.
- ✓ **Financial Models** serve in identifying innovative ways of combining financing instruments.

**Project Developers** are facilitated by the following means:

- ✓ **Energy Efficiency Projects Risks** help to understand energy efficiency projects' risk nature and identify de-risking potential of energy efficiency projects.
- ✓ **Risk Mitigation Strategies** serve to identify de-risking strategies.
- ✓ **IRR: Project's Perspective** acquires evidence of EE projects' profitability potential.
- ✓ **IRR: Investor's Perspective** facilitates the identification of the minimum required performance to be achieved.
- ✓ **Financing Instruments** aid the identification of financing means.

**Policy makers** are facilitated by the following means:

- ✓ **Energy Efficiency Projects Risks** could be used to employ the risk assessment framework.
- ✓ **Sustainable Development Goals** assist in the identification of energy efficiency sectors that need to be prioritised.

The Triple-A Database has been continuously **expanding and updating**. The updates include:

- ✓ Enhancement of the Database's interface.
- ✓ Updates of the statistical indicators every 6 months.
- ✓ Checking if any of the statistical Eurostat indicator has been discontinued.
- ✓ Checking to include new indices that may arise.
- ✓ Checking of potential updates in the risk assessment methodology according to stakeholders' feedback.

The Web-Based Database<sup>6</sup> can be accessed easily accessed by Triple-A's website under the "Tools" section of the main navigation pane or through a direct link. The Database does not require any registration or log-in to be accessible.

The Triple-A Tools are interconnected with the Triple-A Database on Energy Efficiency Financing. A common communication framework has been established between the Triple-A Tools and the Triple-A Database on Energy Efficiency Financing. Data regarding country risks are automatically inserted into the Triple-A Tools from the Triple-A Database on Energy Efficiency Financing.

## Triple-A Recommendations













Nine (9) recommendation sets have been developed to provide an overview of integrating highlights from work conducted under the Triple-A project. Some of the highlights are the following:

- ✓ Countries need a **steady flow** of financing to meet their long-term energy and **climate obligations** with the financial institutions (both private and public). However, the lack of standardisation procedures makes this difficult and highlights that **building confidence** between project developers and investors is mandatory.
- ✓ To this end, energy efficiency financing tools (such as the Triple-A Toolbox) and finance schemes should be used widely to foster 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 the strongest economic condition to lead the way with a holistic and multisectoral approach to financing schemes.
- ✓ 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.
- ✓ The regulatory frameworks should be ready for a rapid reflex to **European Directives** to embody whatever is required on time and in a manner to be easily applied both in the public and private sectors.
- ✓ Introducing a **governmental collateral system** would be pretty supportive and a clear long-term government tax policy on energy.
- ✓ The **aggregation** of energy efficiency projects seems critical as it reduces the overall investment risk and provides economies of scale.

<sup>6</sup> Available here: <https://aaa-h2020.eu/database> and <https://database.aaa-h2020.eu/>

- ✓ The careful examination of the borrower's creditworthiness or possible **ESCO contract** is essential. To this end, a **unified creditworthiness system** for green investments will drastically simplify and speed up the undertaking procedure.
- ✓ Proper **accreditation and certification** of technology supplies and energy efficiency market solutions, and standardised performance protocols will further boost successful energy efficiency investments.
- ✓ It is strongly recommended that policymaking stir towards the standardisation of project design to make the **energy efficiency projects' replicability** easier. In this context, establishing EU official tools and guidelines for standardised methods and procedures in benchmarking energy efficiency projects proved of great importance. Outcomes and products of Horizon 2020 projects (and other research projects) can be incorporated into a holistic approach to standardising energy efficiency projects.

## Partners

No.	Partner organisation	Country	EU contribution (€)	Logo
1	NATIONAL TECHNICAL UNIVERSITY OF ATHENS (NTUA)	Greece	299.156,25	
2	ABN AMRO NV (ABN AMRO)	Netherlands	95.500	
3	INSTITUTE FOR EUROPEAN ENERGY AND CLIMATE POLICY STICHTING (IEECP)	Netherlands	137.312,50	
4	JRC CAPITAL MANAGEMENT CONSULTANCY & RESEARCH GMBH (JRC)	Germany	129.625	
5	GFT ITALIA SRL (GFT)	Italy	80.562,50	
6	CREARA CONSULTORES SL CONSULTORES SL (CREARA)	Spain	126.125	
7	ADELPHI RESEARCH GEMEINNUTZIGE GMBH (adelphi)	Germany	70.437,50	
8	TRAPEZA PEIRAIOS AE (PB)	Greece	129.875	
9	UNIVERSITY OF PIRAEUS RESEARCH CENTER (UPRC)	Greece	133.875	
10	SEVEN, THE ENERGY EFFICIENCY CENTER Z.U. (SEVEN)	Czech Republic	119.815	
11	PUBLIC INVESTMENT DEVELOPMENT AGENCY (VIPA)	Lithuania	93.350	
12	NATSIONALEN DOVERITELEN EKOFOND (NTEF)	Bulgaria	70.562,50	

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