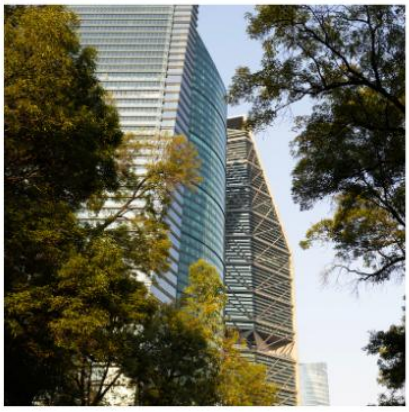
PROSPECT





Learning Handbook on Guarantee Funding

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About the project

PROSPECT aims to strengthen the capacity of local and regional authorities (LRAs) across Europe to implement sustainable energy and climate actions by reducing reliance on public funding and increasing the use of innovative financing schemes (e.g., one-stop-shops, energy agencies, energy communities). The project offers a peer-to-peer Capacity Building Programme (CBP) tailored to the needs and time constraints of LRAs, available in multiple languages and structured in adaptable learning modules. Through large-scale outreach, including very small and remote LRAs, PROSPECT CUBE acts as an entry point to EU programmes and financing opportunities for authorities with limited experience in the field.

PROSPECT CUBE builds upon two successful Horizon 2020 initiatives: PROSPECT (2017–2020) and PROSPECT+ (2022–2025).

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List of abbreviations

Abbreviation	Description
EE	Energy Efficiency
EIB	European Investment Bank
EIF	European Investment Fund
EPC	Energy Performance Contracting
EERSF	Energy Efficiency and Renewable Sources Fund (Bulgaria)
ESIF	European Structural and Investment Funds
EV	Electric Vehicle
HVAC	Heating, Ventilation, and Air Conditioning
IPP	Initial Project Proposal
LRA	Local and Regional Authority
OSS	One-Stop-Shop
PPP	Public-Private Partnerships
ROI	Return of Investment
SECAP	Sustainable Energy and Climate Action Plan
SME	Small and Medium Enterprise

1. Introduction

Local and regional authorities (LRAs) across Europe play a central role in delivering the energy transition and advancing climate neutrality objectives. While a growing pipeline of sustainable energy and climate projects exists at the local level, many initiatives still face significant barriers to implementation. Often, these arise from a combination of technical, regulatory, and organisational challenges, but are most critically linked to limited financial liquidity and risk-related constraints that restrict access to capital.

Collectively, these factors shape how projects are perceived by the financial sector. In many cases, uncertain returns, fragmented demand, or the limited creditworthiness of certain beneficiaries make commercial lenders and private investors reluctant to finance projects, even when they are technically sound and economically viable. As a result, a persistent financing gap emerges, preventing climate ambitions from translating into tangible, on-the-ground outcomes.

Within this context, guarantee funding represents a targeted mechanism for unlocking private investment and scaling up sustainable climate action. Rather than financing projects directly, it de-risks investments by covering a portion of potential losses, thereby improving their attractiveness to private sector lenders. In doing so, it improves lending conditions for LRAs, supporting them in turning investment-ready projects into bankable opportunities that might otherwise remain unrealised.

1.1. Purpose of this handbook

This handbook aims to support LRAs in understanding and applying guarantee funding schemes as part of their broader financing strategies. It introduces guarantee mechanisms as a practical tool for addressing investment risks and mobilising private capital, while explaining how such schemes can be structured and implemented in a public sector context.

Drawing on experience from previous PROSPECT initiatives and broader European practice, the handbook is complemented by illustrative case studies that highlight how guarantee schemes have been successfully applied in different contexts. It provides clear and actionable guidance to support informed decision-making, helping LRAs assess the suitability of guarantee funding and adapt proven approaches to their specific local and regional needs.

1.2. Target audience

This handbook is intended for a broad range of stakeholders involved in, or with a role in, the design and implementation of guarantee schemes, including:

- Elected representatives and decision-makers, who define strategic priorities and enable the integration of risk-sharing instruments into climate and investment plans.
- Financial and budgetary officers, responsible for assessing fiscal implications and ensuring compliance with financial and regulatory frameworks.
- Energy and technical specialists, who identify project opportunities and assess their technical feasibility.
- Legal and procurement experts, who design contractual arrangements and ensure alignment with public procurement and state aid rules.
- Energy agencies and One-Stop-Shops (OSS), which provide technical assistance and support the design and implementation of financial instruments.

The handbook may also be relevant for financial institutions, fund managers, and advisory organisations involved in structuring or operating guarantee mechanisms.

1.3. How to use this handbook

This handbook is designed as a modular learning and reference tool, allowing users to engage with its content based on their role and stage of project development. It provides a structured progression from understanding the fundamentals of guarantee funding to exploring how schemes can be designed and implemented in practice.

The handbook combines conceptual explanations with practical guidance, including case studies, decision-support tools, and key implementation considerations. While it can be read sequentially for a comprehensive overview, each section can also be used independently, enabling readers to focus on the aspects most relevant to their immediate needs.

2. Understanding the guarantee funding

Guarantee funding is a risk-sharing financial mechanism designed to facilitate access to finance by reducing the exposure of lenders to potential losses. Unlike traditional funding instruments, such as grants or loans, guarantee schemes do not directly provide capital to projects. Instead, they act as a form of credit enhancement, improving the conditions under which financial institutions are willing to lend.

At its core, a guarantee fund commits to cover a predefined share of losses in the event that a borrower defaults on a loan. This partial protection reduces the perceived risk for lenders and enables them to extend financing to projects, sectors, or beneficiaries that may otherwise be considered "unbannable" or too risky. In the context of sustainable energy and climate investments, this is particularly relevant for projects characterised by smaller scales, longer payback periods, or higher uncertainty in returns (Bellesi et al., 2025; Braumann et al., 2020; Cicmanova, 2014; IRENA, 2020; Wambui & Cheruiyot, 2025).

By addressing risk-related barriers, guarantee funding acts as a catalyst for mobilising private capital. It strengthens local investment markets, improves financing conditions, and enables the large-scale deployment of energy efficiency and renewable energy projects across different sectors.

2.1. How it works in practice?

In practice, guarantee schemes operate through a formal contractual arrangement between a guarantor (often a public authority, a regional energy agency, or a dedicated fund) and a financial institution. Under this arrangement, the guarantor agrees to absorb a predefined portion of the losses incurred by the lender if a borrower (the debtor) fails to meet repayment obligations. This relationship is often governed by a "Guarantee Agreement" that specifies the eligibility criteria for supported projects and the exact risk-sharing proportions (Wishlade et al., 2017).

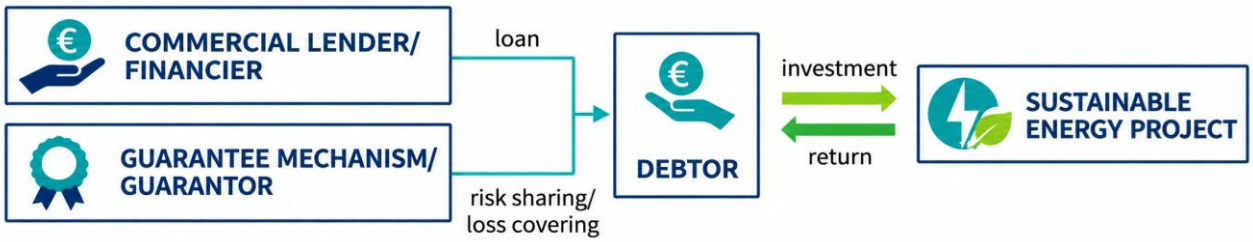


Figure 1. Illustrative representation of the typical operational structure of a guarantee scheme (Source: Author's own elaboration/AI-enhanced)

The process typically begins with the identification of eligible projects or target groups (final beneficiaries), such as households, SMEs, or public entities seeking financing for energy efficiency (EE) or renewable

energy (RES) investments. Financial institutions then provide loans to these beneficiaries under agreed conditions, supported by the guarantee mechanism. In case of default, the guarantee fund compensates the lender for a predefined share of the outstanding loan, according to the agreed coverage ratio - usually ranging between 50% and 80% (Enerinvest, 2021; IRENA, 2020).

From a financial perspective, the presence of a guarantee improves the risk-return profile of the loan portfolio. This enables financial institutions to:

- expand their lending volumes into sectors they might otherwise avoid,
- reduce strict collateral requirements for borrowers, and
- offer more favourable financing terms such as lower interest rates.

Debtors may look to combine these guarantees with complementary instruments - such as grants or capital rebates - to further enhance their effectiveness (fi-compass, 2026).

Focus Box 1: The leveraging role of guarantee schemes

Guarantee schemes are designed as leveraging instruments, meaning that a relatively limited amount of public funding can mobilise a significantly larger volume of private investment. This capacity to multiply financial resources is central to their value, particularly in contexts of constrained public budgets.

However, their overall effectiveness depends on achieving a careful balance of risk-sharing between public and private actors, ensuring that lenders remain incentivised to carry out robust credit assessments while still benefiting from the reduced exposure provided by the guarantee mechanism. Striking this balance is essential for maintaining financial sustainability and enabling the large-scale deployment of sustainable energy investments (OECD, 2025; Todeschi et al., 2025).

2.2. Arrangements, Types and Characteristics

While the core principle of risk-sharing remains consistent, the practical configuration of any guarantee fund hinges on three defining dimensions:

- the nature or identity of the guarantor - whether purely public, private, or a hybrid entity,
- the mechanism or type of guarantee provided – whether individual, project-specific guarantees or a broader portfolio-based coverage, and
- the specifics of risk allocation, including the level of risk absorption and the pricing or cost-sharing structure applied.

For LRAs, a deep understanding of how these fundamental choices intersect with their local context is essential before finalising the specific architecture and operational design of a guarantee scheme.

2.2.1. Arrangements

From an operational perspective, guarantee funding schemes can be structured in different ways, depending on the strategic choices outlined above. Among these, two commonly applied configurations - shaped primarily by the actors driving the process - are the ESCO-based and commercial bank-based (portfolio) models (EERSF, 2026).

In ESCO-based models, the guarantee mechanism is specifically designed to support projects implemented by an Energy Service Company (ESCO), which acts as the project developer and the primary service provider. In this configuration, the ESCO typically bundles multiple investments - such as EE retrofits in public buildings or distributed RES installations - and secures the necessary financing from a financial institution utilising a guarantee as credit enhancement.

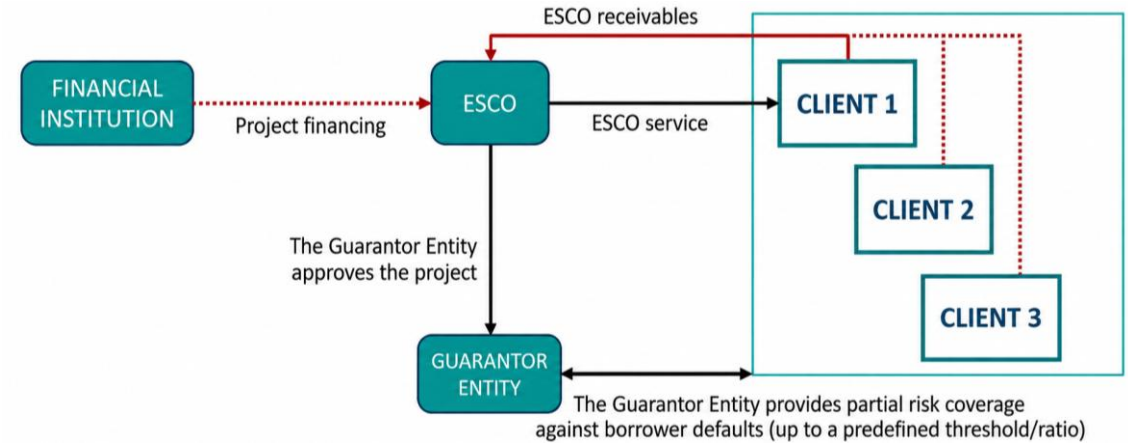


Figure 2. Operational structure of an ESCO-based guarantee arrangement
(Source: Adapted from ERSF, 2026 / AI-enhanced)

In this setup, the guarantee directly reduces the financial risk for the lender, while the ESCO provides performance-based assurances (e.g., guaranteed energy savings) to the final beneficiary, thereby strengthening the overall bankability of the projects.

Focus Box 2: ESCO-based guarantee in practice - the EERSF case (Bulgaria)

A leading example of an ESCO-based guarantee arrangement is the Bulgarian Energy Efficiency and Renewable Sources Fund (EERSF), which pioneered a dedicated guarantee mechanism to support ESCOs implementing energy performance contracts in municipal and private buildings.

The EERSF mechanism covers up to 80% of the ESCO's project-specific debt, significantly reducing lender risk and facilitating access to bank financing. By improving the bankability of ESCO-led projects, it plays a key role in unlocking investment and supporting the early development of the ESCO market in Bulgaria (EERSF, 2026).

In commercial bank-based models, guarantee schemes are used to support lending across the broader spectrum of final beneficiaries (households, SMEs, or public entities). In this set-up, commercial banks provide loans directly to the borrowers - often through streamlined, standardised products - while the guarantee fund covers a portion of the credit risk, typically at the portfolio level.

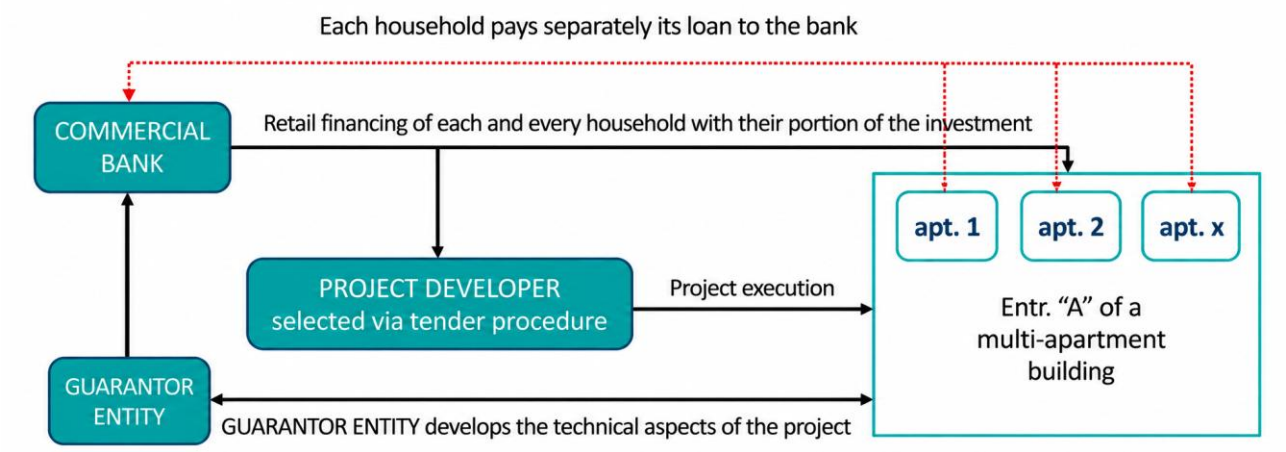


Figure 3. Operational structure of a commercial bank-based guarantee scheme
(Source: Adapted from ERSF, 2026 / AI-enhanced)

This approach enables commercial financial institutions to scale up lending across multiple smaller projects, such as residential renovations or distributed RES installations, while benefiting from risk diversification and simplified administrative procedures.

Focus Box 3: Commercial bank-based guarantee in practice – the EERSF residential model (Bulgaria)

Building on the success of its ESCO-based guarantee model, EERSF also applied a commercial bank-based guarantee model, operating as a dedicated residential instrument at portfolio level.

Under this structure, commercial banks provide standardised loans to households within multi-apartment buildings for deep renovation projects, while EERSF covers up to 50% of the portfolio-level default risk. By reducing lender exposure and standardising financing products, this leveraged approach enables participating banks to scale up lending, supporting the renovation of thousands of apartments (EERSF, 2026).

More broadly, guarantee schemes may operate either through centrally managed structures at the national or regional level or direct partnerships with commercial banks and local intermediaries. The choice of arrangement ultimately depends on key factors such as local market maturity, the institutional capacity of the LRA, the typical project scale, and the prevailing policy priorities.

2.2.2. Types

Beyond their operational arrangements, guarantee funding schemes can be differentiated based on their institutional typology (i.e. who establishes and manages the fund) and the specific instrument used to define the risk-sharing mechanism. For LRAs, selecting the appropriate type of guarantee is a key design decision, with direct implications for both financial performance and implementation efficiency.

2.2.2.1. Institutional typology of guarantee funds

Guarantee funds can first be distinguished based on their organisational sponsorship and governance structure. The primary institutional types relevant to this field include (OECD, 2010)d governance structure. The primary institutional types relevant to this field include (OECD, 2010):

- Public guarantee schemes, which are typically established or managed by public entities or financial intermediaries at the national or regional level as part of dedicated programmes or strategies. These schemes utilise public funds, including state subsidies and/or key European-level funding sources such as the European Structural and Investment Funds (ESIF) or the InvestEU programme - and are characterised by strong credibility within the commercial banking sector, as payments in the event of default are ultimately backed by public resources.
- International schemes, which are established through bilateral or multilateral arrangements involving governments or international financial institutions, such as the European Investment Bank (EIB). These schemes are often highly specialised and commonly combine guarantee instruments with technical assistance to support project developers and financial intermediaries.
- Mutual guarantee schemes, also known as mutual guarantee associations or societies, are formed by private, independent organisations of borrowers. Typically funded through membership contributions and, in some cases, complemented by public support, these schemes are collectively managed to improve members' access to finance.

For most LRAs in Europe, public guarantee schemes or hybrid models combining public funds with international technical and financial backing, represent a highly effective starting point.

2.2.2.2. Instrumental and risk coverage typology of guarantee funds

A second and equally important distinction concerns the type of guarantee instrument applied and how risk coverage is structured and allocated. In the context of local energy and climate finance, this is typically reflected in two primary functional types (Bellesi et al., 2025; Braumann et al., 2020):

- Credit guarantees, which represent the most widely used instrument, designed to cover a predefined share of the loan principal in the event that a borrower fails to meet repayment obligations. By providing this direct form of credit enhancement, these guarantees reduce the lender's exposure and improve financing conditions, such as lowering interest rates or extending repayment tenors.
- Performance guarantees, which provide coverage for the risk that a project fails to achieve its expected technical or energy performance outcomes. This type of guarantees is particularly relevant in models such as ESCO contracts, where the beneficiary requires assurance that the projected energy savings or cost reductions will be delivered.

For LRAs, credit guarantees constitute the primary tool for de-risking private bank lending and mobilising capital for climate transition investments. In operational terms, two main approaches are commonly applied (fi-compass, 2024; Todeschi et al., 2025):

- Individual (project-based) guarantees, which provide coverage on a case-by-case basis for specific loans or projects, and are particularly suitable for larger or more complex investments - such as deep renovation of public buildings or district energy systems - where detailed assessment and tailored risk-sharing arrangements are required. While offering greater control, these guarantees tend to involve higher administrative effort and longer processing times.
- Portfolio-based guarantees, which cover a predefined share of losses across a portfolio of loans rather than on an individual project basis, allowing financial institutions to manage risk at an aggregated level. This approach enables faster loan approval processes, reduces administrative complexity, and is particularly effective for supporting a large number of smaller, standardised investments, while benefiting from risk diversification.

More advanced risk-sharing structures that can be incorporated within these approaches include:

- First-loss guarantees, under which the guarantor absorbs initial losses up to a predefined threshold, effectively taking on the highest-risk portion of the portfolio. This significantly enhances the attractiveness of the remaining risk for private lenders and can play a key role in mobilising investment in higher-risk or emerging markets (IRENA, 2020).

- Counter-guarantees, which provide an additional layer of protection to the primary guarantor, involve a higher-level entity - such as a national development bank or a European facility like the European Investment Fund (EIF) - sharing or absorbing part of the initial risk exposure, thereby strengthening the overall risk mitigation framework (Bellesi et al., 2025).
- Pari-passu guarantees, under which the guarantor and the private lender share any losses on a pro-rata basis according to a predefined percentage. Unlike first-loss structures, this approach ensures that the lender retains a continuous financial exposure to every loan, maintaining a strong incentive for diligent credit assessment and monitoring (Wishlade et al., 2017).

Focus Box 4: Direct vs. Indirect (counter-guarantee) structures

While the type of instrument (e.g. credit vs performance) defines what is covered, the contractual structure determines how the guarantee is delivered. In practice, LRAs should distinguish between:

- Direct guarantees: The guarantor enters into an agreement directly with the lending institution, covering losses in case of borrower default. This approach is typically used for individual (project-based) guarantees and larger-scale investments where a direct relationship with the financing bank is required.
- Indirect guarantees: Typically implemented through counter-guarantee structures, involve a "guarantee for the guarantor", whereby a central (national or supranational) institution provides risk coverage to a local intermediary that issues guarantees to commercial lenders.

Implications for LRAs: Indirect models are particularly suited to portfolio-based schemes, enabling LRAs to leverage the credit strength of larger institutions while scaling up lending without managing individual claims.

2.2.3. Key characteristics

Guarantee schemes, regardless of their institutional setup or specific structure, share a set of core characteristics that enable risk-sharing and private capital mobilisation. By primarily reducing lenders' exposure to potential losses, they facilitate access to finance for final beneficiaries and generate a leverage effect, allowing limited public resources to support larger investment volumes. These fundamental commonalities, summarised in Table 1 along with their implications for LRAs, determine the broader operational and financial capabilities of each application, ultimately shaping how effectively they optimise investment results in practice (Bellesi et al., 2025; Wambui & Cheruiyot, 2025).

Table 1. Cross-cutting characteristics of guarantee funding schemes

Characteristics	Description	Implications for LRAs
Leverage effect of public funds	Public cover potential losses rather than being disbursed upfront, enabling a small capital base to mobilise larger volumes of private investment. (multiplier effect).	Maximises impact of limited public budgets and enables larger-scale investment programmes.
Risk-sharing structure	Financial risk is shared between the guarantor and the lender based on predefined coverage levels.	Requires careful calibration to balance risk reduction with continued lender responsibility.
Improved access to finance	By mitigating perceived and actual risks, guarantees enable lending to otherwise underserved beneficiaries or sectors.	Facilitates financing for households, SMEs, and public entities with limited creditworthiness.
Enhanced financing conditions	Reduced risk exposure can lead to more favourable loan terms, such as reduced interest rates, collateral requirements, or longer repayment periods.	Improves affordability of investments and increases project uptake.
Scalability and standardisation potential	Particularly in portfolio-based models, guarantees support standardised lending and aggregation of multiple small-scale projects.	Enables large-scale deployment of EE and RES investments.
Cost-efficiency and contingent liability	Public funds are used only in case of default, increasing cost-efficiency while creating contingent liabilities.	Requires sound financial planning and risk monitoring mechanisms.
Governance and monitoring requirements	Effective implementation requires clear eligibility criteria, reporting systems, and claim and recovery procedures.	Demands institutional capacity for scheme design, oversight, and performance tracking.
Flexibility and complementarity	Guarantees can be adapted to different sectors and combined with other support measures.	Allows LRAs to tailor schemes to local needs and integrate them into broader financing strategies.

Moving beyond their functional characteristics, guarantee schemes are governed by a set of precise technical parameters that directly influence the risk-sharing dynamics between the guarantor and the financial institutions providing the underlying loans. These technicalities, summarised in Table 2, determine the exact structure, limits and operational mechanism of each application (fi-compass, 2024).

Table 2. Core technical characteristics of guarantee funding schemes

Technical parameter	Description	Implications for LRAs
Portfolio volume	Total volume of loans covered by the guarantee	Determines the scale and impact potential of the scheme
Guarantee rate	Share of each loan covered by the guarantee	Defines the level of risk protection provided to lenders
Cap rate	Maximum loss coverage for the portfolio or guarantee	Limits public financial exposure and ensures sustainability
Guarantee amount	Total value of guarantees committed	Influences leverage potential and budget allocation
Guarantee fee	Risk premium paid by lenders to the guarantor	Supports financial sustainability and reflects the cost of risk
Eligibility criteria	Conditions that projects or beneficiaries must meet to qualify	Ensures alignment with policy objectives and target groups
Payment claim mechanism	Process triggered in case of borrower default	Defines how and when the guarantee is activated
Recovery mechanism	Process for losses recovery after default	Determines how losses are shared between guarantor and lender
Collateral requirements	Assets pledged by borrowers as security	Affects accessibility of financing for beneficiaries
Multiplier ratio	Ratio between public funds committed and total loans generated	Measures the leverage effect and overall efficiency of the scheme

2.3. Why guarantee funding matters? Benefits and added value for LRAs

The main value of guarantee funding for LRAs lies in its capacity to bridge the gap between project viability and risk uncertainty, enabling investments that might otherwise remain unrealised. In doing so, it strengthens the conditions under which local climate ambitions - such as those defined in a territory's Sustainable Energy and Climate Action Plan (SECAP) - are effectively translated into robust, bankable project pipelines, maximising the impact of public resources without compromising fiscal sustainability or expanding municipal debt obligations (Bellesi et al., 2025; fi-compass, 2024; Todeschi et al., 2025).

Collectively, the core advantages of guarantee funding for LRAs are summarised across three primary strategic dimensions as follows:

I. Catalysing investment and fiscal efficiency. Guarantee funding enables LRAs to mobilise significant investment while preserving fiscal space and optimising the use of public resources. Key benefits include:

- Potential off-balance sheet advantage. Guarantees may be treated as contingent liabilities rather than direct debt, potentially allowing LRAs to support investments while preserving borrowing capacity, depending on the scheme's structure and applicable accounting and fiscal rules.
- Maximising budgetary leverage. Guarantees achieve greater impact per euro spent by using public funds as a de-risking reserve rather than an upfront subsidy, enabling LRAs to unlock significantly larger volumes of private capital (e.g. with leverage ratios potentially reaching 10:1)[1].
- Scalability and aggregation. Guarantees support the transition from standalone pilot projects to territory-wide deployment, with portfolio-based models enabling the aggregation of small, standardised projects into structured, financeable pipelines.

II. Breaking market barriers and ecosystem transformation. Guarantee schemes play a catalytic role in addressing structural market barriers and supporting the long-term development of local financial ecosystems. Key benefits include:

- Bridging the "bankability" gap. Guarantees enable technically sound projects to overcome barriers related to limited creditworthiness or lack of financial track record, which are common among smaller municipalities or local SMEs.

[1] The achievable leverage ratio depends on the risk profile of the underlying portfolio, the guarantee structure (e.g. partial or first-loss coverage), and market conditions. Leverage ratios of up to 10:1 illustrate the potential of guarantee schemes to mobilise financing beyond the resources committed, although actual outcomes vary across schemes (European Commission, 2019). For further discussion of leverage mechanisms, risk-mitigation instruments, and their application to EE and clean energy investments, see fi-compass, 2024, 2026 and OECD, 2025 (Bellesi et al., 2025).

- Reducing risk perception. Beyond mitigating actual financial risks, guarantees build confidence among commercial lenders, encouraging investment in less familiar technologies (e.g. deep renovations or emerging clean energy solutions).
- Supporting market maturity. As financial institutions gain experience, guarantees contribute to the development of market maturity, enabling lending with minimal public risk-sharing support over time and strengthening local financial ecosystems in the long term.

III. EMPOWERING ACCESSIBILITY AND PROJECT UPTAKE. Guarantee funding enhances the accessibility and attractiveness of investments, enabling broader participation and accelerating implementation on the ground. Key benefits include:

- Improving affordability. Guarantees stimulate demand by enabling more favourable loan conditions for beneficiaries, such as lower interest rates and longer repayment periods.
- Ensuring inclusivity. Guarantees facilitate participation for a broader range of beneficiaries, including vulnerable groups and entities with limited collateral, supporting a more socially inclusive energy transition.
- Accelerating SECAP delivery. By unlocking access to private capital, guarantees directly support LRAs in meeting their local and regional energy targets, as well as broader European policy objectives, more rapidly than relying on public budgets alone.

Focus Box 5: Financial impact – Guarantees and public debt (off-balance sheet considerations)

Guarantee funding can offer LRAs a significant advantage in managing public finances, particularly in how investments are reflected in municipal debt. Key considerations include:

- Contingent liability (off-balance sheet potential): Guarantees are typically not recorded as immediate debt, as financial obligations only arise in the event of default. This allows LRAs to support investments without directly increasing their debt levels.
- Efficient use of public resources: Instead of allocating the full investment amount, LRAs only need to set aside a limited provision (the provisioning rate) to cover potential losses, enabling more efficient budget use.
- Preserving borrowing capacity: By avoiding immediate debt recognition, guarantees help maintain fiscal space and allow LRAs to retain borrowing capacity for other strategic priorities.
- Compliance with EU accounting rules: For European LRAs, the treatment of guarantees depends on compliance with Eurostat's "control and risk" criteria. When properly structured (e.g. through ESCO models or PPPs) investments may remain off the public balance sheet.
- Need for careful structuring and oversight: Achieving these benefits requires robust scheme design, sound risk assessment, and coordination with national audit authorities to ensure correct classification and long-term fiscal sustainability.

2.4. Sector-wide application: When and where guarantee funds can be used?

Guarantee mechanisms represent a strategic shift from traditional grant-based funding to risk-sharing financial instruments. For LRAs in Europe, they are essential for bridging the "financing gap" in the energy transition. By providing a safety net to commercial lenders, guarantees de-risk innovative climate projects - such as deep building renovations, electric mobility, and renewable energy communities - that might otherwise be deemed too risky or lack sufficient collateral (Todeschi et al., 2025).

For LRAs, guarantees act as a powerful catalyst for unlocking private investment where municipal budgets are constrained and perceived risks deter commercial lenders. In doing so, they play a central role in advancing the transition to a climate-neutral economy within the European Green Deal and Fit for 55 framework.

Their effectiveness is shaped by two key considerations (Bellesi et al., 2025; fi-compass, 2024; IRENA, 2020):

- Versatility: Guarantees can be applied across sectors - including public, residential, commercial, and infrastructure - and across scales - from large district energy systems to individual building-level interventions.
- Strategic conditionality: Guarantees are most effective when addressing risk perception rather than a lack of viable projects or lending capacity. The emphasis on blending with complementary instruments such as grants or technical assistance (e.g. ELENA facility) is a crucial technical detail for developing a high-quality, investment-ready project pipeline.

Building on these aspects, Table 3 provides an indicative overview of the where and how of guarantee funding application across sectors, highlighting the contexts and types of investments in which the instrument is most effective.

Table 3. Indicative overview of guarantee funding applications across sectors and type of investment

Sector	Indicative applications and typical guarantee structures
Public buildings	Supporting: EE renovations and RES integration in public assets, including deep renovation of schools/hospitals, HVAC upgrades, and rooftop solar.
	• Typical guarantee structures: Individual (project-based) or ESCO-based guarantees • Most relevant for: Medium-to-large projects requiring improved bankability and performance assurance
	• Implications for LRAs: Reduces upfront public expenditure while enabling large-scale renovation of municipal assets
Residential sector	Supporting: large-scale EE improvements and small-scale RES installations in housing, including building insulation, window replacement, heat pumps, and rooftop solar.

	• Typical guarantee structures: Portfolio-based credit guarantees via commercial banks • Most relevant for: Aggregation of small projects and wide citizen participation
	• Implications for LRAs: Enables large-scale citizen engagement and supports inclusive energy transition programmes
Commercial & SMEs	Supporting: EE upgrades and on-site RES for private sector actors, including energy improvements in retail and industry and small RES systems.
	• Typical guarantee structures: Credit guarantees (project-based or portfolio-based) • Most relevant for: Facilitating access to finance and supporting local economic activity
	• Implications for LRAs: Strengthens local economies while reducing emissions from private sector activities
Public infrastructure	Supporting: EE improvements and smart systems in municipal infrastructure, including street lighting retrofits and smart city systems.
	• Typical guarantee structures: Portfolio-based or ESCO-based guarantees • Most relevant for: Scalable deployment and operational cost reduction
	• Implications for LRAs: Enables rapid roll-out of replicable projects and long-term operational savings
Sustainable mobility	Supporting: Low-carbon transport systems and supporting infrastructure, including Electric Vehicle (EV) charging networks, electric bus fleets, and cycling infrastructure.
	• Typical guarantee structures: Credit or project-based guarantees • Most relevant for: Capital-intensive investments requiring coordination with transport operators
	• Implications for LRAs: Supports decarbonisation of transport systems while leveraging private sector participation
District energy & large infrastructure	Supporting: Integrated energy systems combining EE and RES at system level, including district heating and cooling and energy networks.
	• Typical guarantee structures: Individual (project-based) or blended guarantees • Most relevant for: Complex, high CAPEX projects requiring long-term planning
	• Implications for LRAs: Facilitates implementation of strategic infrastructure projects with high investment needs
Cross-sectoral projects	Supporting: Aggregated EE and RES investments across multiple sectors, including mixed building portfolios and multi-sector pipelines.
	• Typical guarantee structures: Portfolio-based or blended guarantees • Most relevant for: Scaling up investment and enabling programme-based implementation
	• Implications for LRAs: Enables coordinated, large-scale investment strategies across sectors

Additional areas where guarantee funding can be applied extend to a broader range of climate-related investments, including:

- Circular economy initiatives, such as waste-to-energy systems, recycling infrastructure, and resource recovery facilities, where revenue streams may be volatile and investment risks higher.
- Climate adaptation and resilience projects, including flood protection, green infrastructure, and sustainable urban drainage systems, which often involve long-term benefits but limited immediate financial returns.

In these cases, guarantees are typically combined with complementary instruments to address both financial and non-financial barriers (fi-compass, 2024, 2026).

Across all sectors, the choice of a guarantee over other funding mechanisms depends on specific conditions or financial friction points that define the strategic justification for its use (Wambui & Cheruiyot, 2025). These critical "trigger scenarios" are summarised in Table 4.

Table 4. Key trigger scenarios justifying the application of guarantee funding

Trigger scenario	Why guarantee funding is most appropriate
High innovation risk	When projects involve first-of-a-kind or less mature technologies, which are perceived as too risky by commercial lenders without risk-sharing support.
Collateral gaps	When municipalities, SMEs, or other beneficiaries lack sufficient assets to meet collateral requirements for accessing conventional bank loans.
Cost of capital constraints	When reducing borrowing costs is necessary to make projects financially viable or affordable for end users, particularly in socially sensitive sectors.
Limited public budgets (leveraging needs)	When LRAs aim to maximise the impact of limited public resources by using guarantees to mobilise significantly larger volumes of private investment.
Long return on investment (ROI) periods	When projects have extended payback horizons (e.g. climate adaptation or infrastructure investments), requiring additional risk mitigation to ensure lender confidence over time.

Focus Box 6: When guarantee funding adds value?

While highly versatile, guarantee funding is neither a universal requirement nor always the optimal solution. Rather than a one-size-fits-all instrument, its strength lies in addressing situations where uncertainty or perceived risk limits the willingness of financial institutions to provide capital, even when projects are fundamentally sound.

In such contexts, guarantees can unlock financing by redistributing risk and bolstering lender confidence, enabling investments that might otherwise stall. However, when constraints arise from other factors such as insufficient project maturity, limited technical capacity, or low demand, alternative support mechanisms may be more suitable.

Selecting the right intervention therefore requires a rigorous assessment of implementation barriers and a realistic evaluation of the role risk mitigation can play in overcoming them.

2.5. Main stakeholders involved

Guarantee funding schemes are built around a coordinated network of actors that collectively enable the sharing and redistribution of financial risk. Unlike traditional funding mechanisms, they operate through a structured interaction between the entities that provide risk coverage and those that access financing for project implementation (fi-compass, 2024; Makinson, 2006; Wishlade et al., 2017).

Accordingly, stakeholders in this ecosystem can be broadly grouped into two main categories:

(i) actors that provide and structure the guarantee funding, and
(ii) actors that apply for and benefit from guarantee-backed financing

Regarding the first category, guarantee schemes are typically established and capitalised by public-sector actors, often in cooperation with international financial institutions and, in some cases, private stakeholders. Their role is to design the scheme, define its scope and eligibility, and assume part of the financial risk to mobilise private investment. In particular, among these actors:

- Public authorities (national, regional, and local) play a central role in initiating and supporting guarantee schemes, either by allocating public resources directly or by contributing to dedicated guarantee funds. They also ensure alignment with broader climate and energy policy goals.
- International financial institutions and EU bodies (e.g. development banks, EU structural funds) frequently co-finance guarantee schemes, providing both capital and technical support for their design and implementation. Their involvement enhances risk-sharing capacity and supports scaling up the scheme.
- Specialised funds and intermediaries (e.g. national EE funds) act as dedicated guarantors or delivery channels, managing the scheme, setting the risk parameters and, in some cases, combining guarantee provision with lending and advisory services to ensure projects reach financial close.
- Private sector contributors and donors may also participate, particularly in blended or pilot schemes, supporting the capitalisation and development of innovative guarantee mechanisms.

The distribution of responsibilities of these actors is summarised in Table 5 below.

Table 5. Actors providing guarantee funding and their roles

Actor	Primary role	Contribution to guarantee schemes
Public authorities (including LRAs)	Strategic design and capitalisation	• Allocate public budgets to provide first-loss or pari-passu risk coverage • Ensure alignment with policy objectives
EU/International financial institutions	Co-financing, risk-sharing and technical support	• Provide large-scale capital to enhance the leverage effect

		• Offer counter-guarantees and technical support to scale up schemes
Specialised funds/ guarantee facilities	Scheme management and delivery	• Implement the guarantee mechanism (as fund managers or retail lenders) • Perform credit risk assessments • Monitor the guarantee portfolio performance
Private investors/ donors	Complementary financing	• Provide additional capital particular in blended finance structures, • Support to pilot schemes, innovation financing

On the demand side, guarantee funding supports a wide range of actors seeking access to financing for energy and climate-related investments. These stakeholders benefit either directly, by receiving loans backed by guarantees, or indirectly, through improved financing conditions and reduced risk exposure. In particular, among them:

- LRAs use guarantee-backed financing to implement infrastructure and building-related investments, particularly where budget constraints or borrowing limits restrict direct financing.
- SMEs access financing for EE improvements, RES investments, and process optimisation, often overcoming barriers related to limited collateral or credit history.
- ESCOs play a central role in structuring and delivering projects, particularly under Energy Performance Contracts (EPCs), where they may assume technical and performance risks and enhance project bankability.
- Households and citizens benefit from improved access to financing for residential EE and RES investments, mainly through portfolio-based schemes implemented via financial institutions.
- Financial institutions while not final beneficiaries, act as key intermediaries by originating and managing the loans supported by guarantees, enabling the flow of capital to the market.

The roles and contributions of these actors are summarised in Table 6 below.

Table 6. Actors applying for and benefiting from guarantee funding

Actor	Primary interest	Role in guarantee funding schemes
LRAs	Implementation of climate and infrastructure investments	• Act as final recipients of financing and project implementers and promoters • Use guarantees to access financing with improved conditions
SMEs and businesses	Access to finance and cost savings	• Act as final recipients of guarantee-backed loans • Implement EE and clean energy measures

ESCOs	Project delivery and performance-based revenues	• Act as project developers and implementers, and facilitators of financing structures • Structure performance-based contracts, such as EPCs • Enhance project bankability
Households/citizens	Lower energy costs and improved comfort	• Act as final beneficiaries typically in portfolio-based schemes • Access financing for residential EE and RES investments
Financial institutions	Lending activity and risk management	Act as financial intermediaries: • providing loans backed by guarantees • expand lending higher-risk segments through risk-sharing

The stakeholder relationships described above are illustrated in Figure 4.

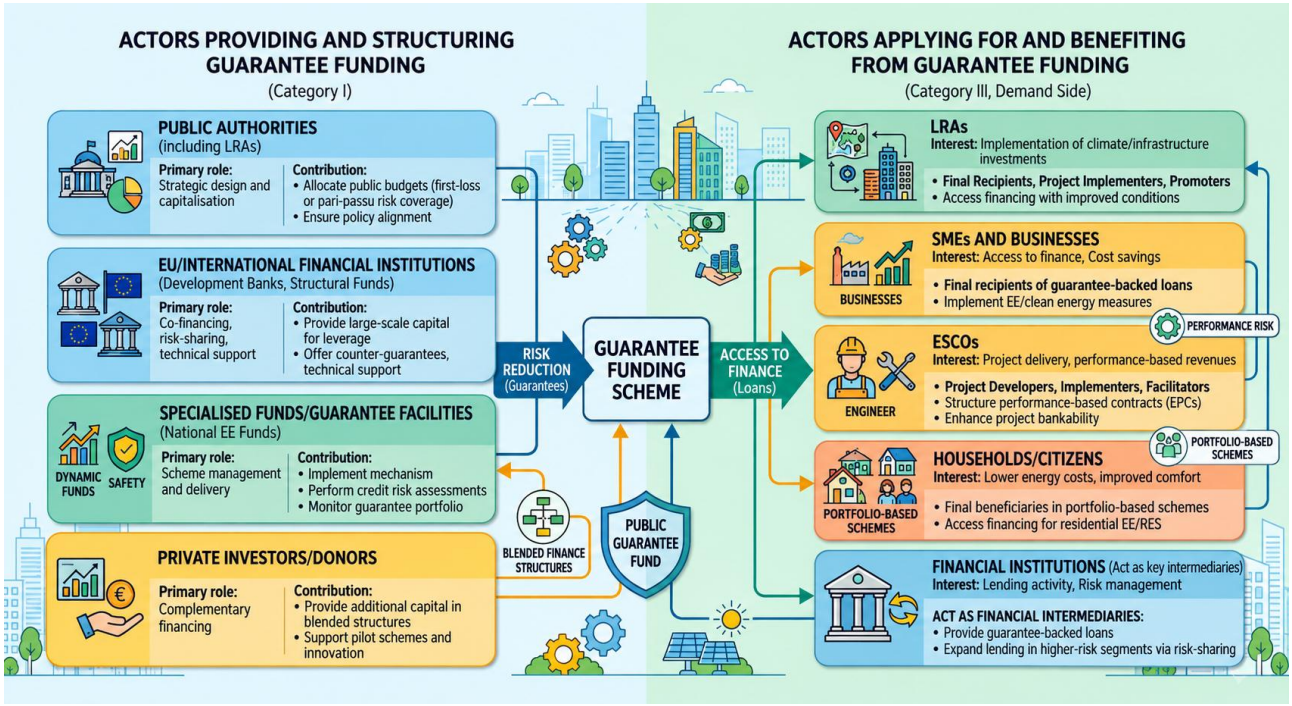


Figure 4. The stakeholder ecosystem and financial flows within guarantee funding schemes (Source: Authors' own elaboration / AI-enhanced)

3. Setting up a guarantee fund scheme: A quick step-by-step guide

Functioning as a targeted risk-mitigation instrument, guarantee funding offers a powerful alternative to traditional direct financing. Unlike grants or public loans, which provide upfront capital but may be constrained by available budgets, guarantees use public resources to unlock private investment. By covering a share of potential losses, they enable financial institutions to finance higher-risk projects, increasing scalability and allowing limited public funds to catalyse a significantly larger volume of total investment (Nwani et al., 2022; Wambui & Cheruiyot, 2025).

Table 7. Comparison between guarantee funding and direct financing

Aspect	Guarantee funding	Direct financing (e.g. grants/loans)
Access to finance	Improves access for higher-risk or underserved segments	Depends on budget availability and eligibility criteria
Project pipeline requirement	Requires a steady pipeline of investment-ready and bankable projects	Can support individual or standalone projects
Administrative complexity	Higher - requires scheme design, risk assessment, and monitoring systems	Lower - more straightforward disbursement procedures
Scalability potential	High - especially in portfolio-based schemes	Limited by available public funding
Fiscal treatment	Typically off-balance sheet (as contingent liability, subject to rules)	On-balance sheet especially for loans or treated as direct expenditure for grants
Typical use case	Addressing financing barriers and mobilising private capital	Directly funding priority projects or providing subsidies

For LRAs in particular, this mechanism has proven vital for enabling ambitious climate and energy project planning, provided it is carefully integrated into their operational and fiscal frameworks (Todeschi et al., 2025). To help them address the “how”, this section sets out a practical approach for designing and managing guarantee-supported investment portfolios, structured around a seven-step implementation roadmap.

3.1. The guarantee funding implementation roadmap

Setting up a guarantee-supported project represents a strategic shift from traditional grant-based approaches towards more sophisticated project management practices. For LRAs in particular, this can be a complex and demanding process, typically involving multiple phases and steps, and requiring specialised technical expertise (fi-compass, 2017; Raimondi et al., 2018). To help them navigate the underlying complexities, a high-level roadmap organised across seven steps is presented hereunder.

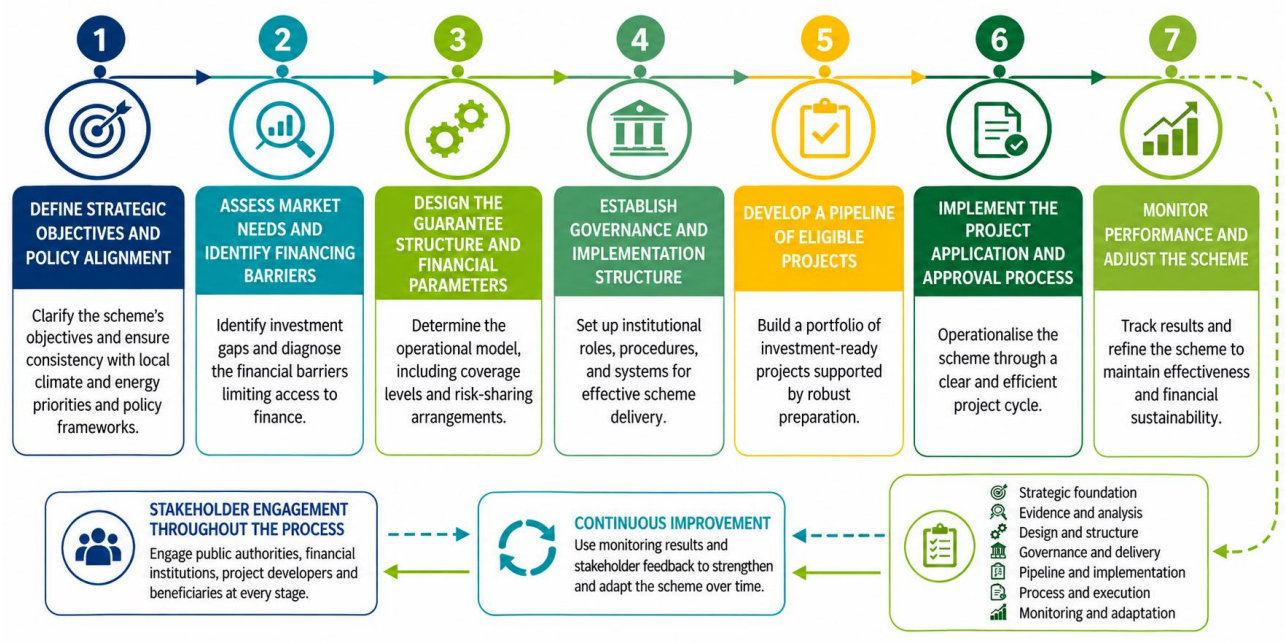


Figure 5. Roadmap for setting up a guarantee funding scheme: key steps for LRAs
(Source: Authors' own elaboration / AI-enhanced)

While the exact process may vary depending on the institutional context and scale of the scheme, the proposed roadmap is intended as a high-level planning tool, helping to articulate both the strategic rationale ("why") and the pathway for implementation ("how"). In that regard, rather than a prescriptive blueprint, it provides flexible guidance that can be adapted to project-specific technical characteristics and local administrative contexts.

Step 1 – Define strategic objectives and policy alignment.

This step establishes the purpose and scope of the guarantee scheme, ensuring alignment with local energy and climate priorities (e.g. SECAPs) and broader policy frameworks. Key actions typically include:

- identifying priority sectors (e.g. buildings, SMEs, RES, infrastructure),
- defining the target beneficiaries (e.g. households, SMEs, public entities),
- clarifying the policy objectives (e.g. emission reduction, energy savings, market development),
- assessing how the guarantee scheme complements existing funding instruments.

A focus on sectors where a clear financing gap exists - rather than where grants are already abundant - helps ensure guarantees bring viable but underserved projects to bankability.

- Common pitfalls to avoid: Designing the scheme without a clear link to policy priorities
- Overly broad scope that reduces effectiveness and focus

Step 2 – Assess market needs and identify financing barriers

A guarantee scheme should respond to clearly identified market failures, particularly those related to risk perception, lack of collateral, or limited access to finance. Key actions in this step typically include:

- conducting a market assessment to identify investment gaps,
- analysing barriers to financing (e.g. credit risk, long payback periods),
- engaging with financial institutions to understand lending constraints,
- identifying target segments where guarantees can have the highest impact.

Early engagement with local markets and a clear understanding of their risk appetite are critical to ensure the guarantee addresses real credit constraints.

Common pitfalls to avoid:

- Using guarantees where barriers are unrelated to risk (e.g. lack of project maturity)
- Failing to consult financial institutions early in the design phase

Step 3 – Design the guarantee structure and financial parameters.

This step defines how the guarantee will operate in practice, including its coverage, scale and risk-sharing arrangements. Key actions typically include:

- defining the guarantee type (e.g. individual vs portfolio-based, direct vs indirect),
- setting key parameters (guarantee rate, cap rate, portfolio size, eligibility criteria),
- determining the provisioning rate and overall budget allocation,
- designing risk-sharing arrangements between guarantor and lenders.

While a 100% guarantee rate may appear attractive to financial institutions, maintaining a "skin in the game" approach (e.g. 70–80% coverage) helps ensure that lenders remain diligent in credit assessment and project monitoring.

Common pitfalls to avoid:

- Overestimating coverage levels, reducing lender incentives
- Underestimating risk exposure and provisioning needs

Step 4 – Establish governance and implementation structure

Effective implementation requires clear institutional roles, procedures, and monitoring and verification (M&V) mechanism. Key actions in this step typically include:

- defining roles of guarantor, financial intermediaries, and implementing bodies,
- establishing operational procedures (application, approval, claims, recovery),
- setting up M&V and reporting systems,
- ensuring compliance with regulatory and accounting frameworks (e.g. Eurostat rules).

While both technical and financial approvals are required, distinguishing between climate eligibility and creditworthiness - and delegating the latter to financial intermediaries – can significantly reduce administrative burden.

Common pitfalls to avoid:

- Weak governance structures leading to operational inefficiencies
- Lack of clarity in roles and responsibilities among stakeholders

Step 5 – Develop a pipeline of eligible projects

A strong and credible pipeline of projects is essential for the success and scalability of the scheme. Key actions in this step typically include:

- conducting detailed energy audits or feasibility studies,
- identifying and aggregating potential projects (e.g. building renovations),
- supporting project developers in preparing investment proposals,
- ensuring projects rely on proven and bankable technologies.

A detailed energy audit is typically required to establish project eligibility and should be prioritised early to support robust project preparation.

Common pitfalls to avoid:

- Lack of project preparation leading to low uptake
- Over-reliance on unproven or high-risk technologies

Step 6 – Implement the project application and approval process

This step operationalises the scheme through a structured project cycle, ensuring transparency and efficiency. Key actions typically include:

- project identification and initial screening,
- preparation and submission of the Initial Project Proposal (IPP),
- technical and financial appraisal of projects,
- formal approval and financing decision,
- negotiation and disbursement of funds.

Appraisal timelines depend on the quality and completeness of submissions; well-prepared applications can typically be assessed within six weeks.

Common pitfalls to avoid:

- Complex or unclear application procedures discouraging applicants
- Delays due to incomplete documentation or weak project preparation

Step 7 – Monitor performance and adjust the scheme

Continuous monitoring ensures the scheme remains effective and financially sustainable. Key actions in this step typically include:

- tracking guarantee utilisation and default rates,
- monitoring financial performance and leverage achieved,
- evaluating policy impact (e.g. energy savings, emissions reduction),
- adjusting parameters and eligibility criteria based on experience.

Regular evaluation of the leverage ratio (private capital mobilised per euro of public guarantee) helps justify continued fiscal allocation and demonstrate value compared to traditional grant spending.

Common pitfalls to avoid:

- Lack of performance monitoring and feedback loops
- Failure to adapt the scheme to evolving market conditions

3.2. Guarantee funding checklist – Key questions for successful setup

To complement the proposed implementation roadmap, the following checklist serves as a practical tool for LRAs to assess their readiness and guide key decisions when setting up guarantee-supported projects. It translates the main steps into a set of actionable questions to be addressed throughout the process.

Step 1 – Definition of strategic objectives and policy alignment

☐ Does the scheme clearly support specific SECAP or SECAP-related targets?

☐ Have the priority sectors and target beneficiaries been identified?

☐ Is there a long-term political and institutional commitment to maintain the fund?

Step 2 – Market needs assessment and identification of financing barriers

☐ Have key financing barriers (e.g. risk perception, collateral constraints) been identified?

☐ Has at least one market consultation with local financial institutions been planned or carried out?

☐ Does the guarantee mechanism address real lending constraints and demand?

Step 3 – Design of the guarantee structure and the financial parameters

☐ Are the guarantee parameters (coverage rate, eligibility, risk-sharing) clearly defined?

☐ Is the guarantee rate high enough to motivate financial institutions but low enough to ensure they still perform due diligence?

☐ Have budget allocation and provisioning requirements been assessed?

Step 4 – Establishment of the governance and implementation structure

☐ Are the legal roles and responsibilities of all stakeholders formally documented?

☐ Are clear and manageable administrative procedures and coordination mechanism in place?

Step 5 – Development of a pipeline of eligible projects

☐ Has a pipeline of investment-ready projects been identified?

☐ Has a technical preparation (e.g. energy audits, feasibility studies) been carried out☐ Do projects meet minimum eligibility and bankability criteria?

Step 6 – Implementation of the project application and approval process

☐ Are the application procedures simple, transparent, and standardised?

☐ Is the required documentation clearly defined and communicated?

☐ Are the appraisal timelines and decision-making processes established?

Step 7 – Performance monitoring and scheme adjustment

☐ Are the key performance indicators (e.g. leverage ratio, default rates) are defined?

☐ Are the M&V and reporting mechanisms in place and simple enough for projects to follow?

☐ Has a process for reviewing and adjusting the scheme been established?

Following the readiness assessment outlined above, the choice of guarantee mechanism depends on the characteristics, scale, and risk profile of the project or programme. Table 8 below provides a practical tool to support this decision.

Table 8. Selecting the most suitable guarantee mechanism

Decision criterion	Typical scenario	Recommended mechanism	Application logic
Project scale and complexity	Large, standalone infrastructure project	Individual project guarantee	Suitable for high-value, complex projects requiring tailored risk assessment
Target beneficiaries	Large number of small-scale projects	Portfolio-based guarantee	Enables aggregation and streamlined lending at scale
Delivery model	Projects requiring performance-based delivery models	ESCO-based guarantee	Addresses technical performance risk linked to energy savings
Financial viability	Long or uncertain payback period	Blended finance structure	Combines guarantees with grants or subsidies to improve viability

4. Critical conditions influencing guarantee fund schemes

Guarantee funding schemes operate within complex financial and institutional environments, where their effectiveness depends on a range of conditions and contextual factors. While they can play a catalytic role in mobilising private investment, their success is influenced by key drivers, barriers, and risk dimensions that shape their implementation in practice.

This section outlines these critical conditions, providing a structured overview to support LRAs in designing and deploying guarantee funding schemes effectively.

4.1. Drivers and success factors

The effectiveness of guarantee funding schemes depends on a set of enabling conditions that support their uptake, scalability, and long-term sustainability. Key drivers and success factors include:

- Strong policy alignment with local and national climate and energy objectives (e.g. SECAPs) ensures coherence, political support, and long-term commitment.
- Clearly identified market failures such as risk perception, collateral constraints, or limited credit access, enable targeted and effective intervention.
- Appropriate risk-sharing design, with well-calibrated guarantee coverage (e.g. partial coverage), maintains lender incentives while reducing perceived and actual risks.
- Early engagement of financial institutions and intermediaries ensures alignment with market practices, risk appetite, and operational requirements.
- Availability of a robust pipeline of technically and financially viable projects is critical to ensure uptake, scalability, and efficient use of guarantee resources.
- Strong institutional capacity and governance structures, including clear roles and efficient procedures, enable effective implementation and reduce operational bottlenecks.
- Complementarity with other financial and technical instruments (e.g. grants, technical assistance, advisory support) enhances project viability and market uptake.
- Credibility and financial strength of the guarantor (e.g. public authorities, development banks, EU instruments) increase confidence among financial institutions and investors.
- Standardisation of financial products, particularly in portfolio-based schemes, facilitates replication and large-scale deployment.
- Continuous performance tracking (e.g. leverage ratio, default rates) and adaptive management enable timely adjustments and strengthen long-term effectiveness.

4.2. Barriers and limitations

Despite their potential, guarantee funding schemes face a number of structural and operational challenges that may limit their effectiveness and uptake. Key barriers and limitations include:

- Limited availability of investment-ready projects constrains the uptake and impact of guarantee schemes, as insufficient pipelines of mature and bankable projects reduce opportunities for financing mobilisation.
- Low awareness and limited experience among financial institutions and beneficiaries can hinder market uptake, particularly in markets where guarantee instruments remain relatively unfamiliar.
- Misalignment with actual market needs and risk perceptions reduces the attractiveness of guarantee schemes, limiting their ability to address real financing barriers effectively.
- High administrative complexity and transaction costs can discourage participation, particularly for smaller projects, where procedural burdens may outweigh the perceived benefits of the instrument.
- Regulatory and accounting constraints (e.g. state aid rules, fiscal treatment) may limit the deployment of guarantees, creating uncertainty and additional compliance requirements for LRAs and financial actors.
- Limited institutional capacity at the local level can affect the design, implementation, and management of schemes, reducing the effectiveness and operational efficiency of guarantee mechanisms.
- Risk of underutilisation of allocated resources reduces the overall efficiency and impact of guarantee funding, particularly when schemes fail to generate sufficient market demand.
- Dependence on external intermediaries may create coordination challenges and reduce control over implementation, especially when multiple actors are involved in financing and project delivery.
- Perceived complexity compared to direct funding instruments may discourage adoption, especially in early market stages, where stakeholders often prefer simpler and more familiar financing solutions.
- Poorly designed schemes may lead to market distortion or crowding-out of private financing, reducing incentives for commercial lenders to engage under normal market conditions.

4.3. Key risk dimensions

Guarantee funding schemes are inherently designed to manage and redistribute risk; however, they also introduce a set of financial and operational risks that need to be carefully assessed and monitored. Key risk dimensions include:

- Credit risk arises from borrower defaults, potentially triggering guarantee payouts and affecting the long-term financial sustainability of the scheme.
- Concentration risk increases exposure to sectoral, technological, or counterparty-specific shocks, particularly when guarantees are heavily focused on limited market segments.
- Moral hazard risk may weaken lender incentives for due diligence, especially if risk-sharing arrangements are not appropriately balanced between actors.
- Performance risk occurs when expected project outcomes are not achieved, reducing projected revenues or savings and affecting repayment capacity.
- Liquidity risk may emerge if multiple guarantee claims are triggered simultaneously, creating short-term financial pressures for the guarantee provider.
- Regulatory and compliance risk relates to non-compliance with applicable legal or fiscal requirements, potentially affecting the eligibility or operation of the scheme.
- Operational risk stems from inefficiencies or failures in governance, administration, or internal processes, which may reduce the effectiveness and reliability of the mechanism.
- Market risk reflects changes in external economic or market conditions, such as interest rates or energy prices, that may affect project viability and financing demand.
- Reputational risk may arise from poor performance, low uptake, or high default rates, potentially undermining stakeholder trust and market confidence.
- Leverage risk results from inappropriate calibration of the guarantee mechanism, leading either to excessive financial exposure or insufficient mobilisation of private investment.

4.4. Synthesis of critical conditions affecting the transition pathway

Table 9 summarises the key conditions affecting guarantee scheme design and implementation, including enabling factors, challenges, and mitigation measures to guide LRAs.

Table 9. Summary of critical conditions influencing guarantee funding schemes

Dimension	Key drivers/enabling factors	Common barriers/risks	Mitigation measures
Political & strategic	• Alignment with climate and energy strategies • Clear policy objectives and long-term commitment	• Shifting political priorities • Limited institutional ownership	• Formal policy endorsement • Integration into multi-year investment plans
Legal & regulatory	• Clear guarantee and risk-sharing rules • Compatibility with state aid and public finance rules	• Regulatory uncertainty and complex compliance requirements • Unclear accounting treatment	• Early legal and financial due diligence • Standardised legal structures and compliance checks
Technical/project development	• Bankable, investment-ready, projects • Reliable audits and feasibility studies	• Weak pipeline and low project readiness • Insufficient technical data	• Early technical assistance and project preparation • Pipeline development and project aggregation
Financial & market design	• Well-calibrated risk-sharing mechanisms (e.g. partial guarantees) • Alignment with lender needs and market conditions	• Misalignment with financial institution requirements • High perceived risk and low lender interest	• Market testing with lenders • Adjustment of guarantee parameters (coverage, eligibility, pricing)
Institutional & governance capacity	• Clear stakeholder roles and responsibilities • Adequate administrative and financial expertise	• Limited institutional capacity • Complex stakeholder coordination	• LRA capacity-building and technical support • Use of specialised intermediaries
Market readiness & uptake	• Active lender and intermediary participation • Awareness and understanding of guarantee instruments	• Limited market experience • Perceived complexity compared to grants or loans	• Market outreach and stakeholder engagement • Simplified and standardised financial products
Operational & implementation	• Efficient application, appraisal, and approval • Standardised procedures and documentation	• Administrative complexity and high transaction costs • Approval and implementation delays	• Streamlined procedures • Digitalisation and process simplification
Risk management & monitoring	• Continuous monitoring (e.g. leverage ratio, default rates) • Portfolio diversification and risk allocation	• Credit, concentration, and liquidity risks • Moral hazard and underperformance	• Risk management and provisioning frameworks • Adaptive scheme design and periodic evaluation

5. Summary of key takeaways

WHAT IS GUARANTEE FUNDING ABOUT? Guarantee funding is a risk-sharing financing instrument through which LRAs facilitate investment in energy and climate projects by covering a portion of potential financial losses. Rather than providing upfront capital, guarantees act as a safety net for lenders, enabling them to finance projects that may otherwise be considered too risky or insufficiently collateralised.

This approach helps bridge the gap between available private capital and investment opportunities, reducing perceived and actual risks while mobilising significantly larger volumes of financing. In doing so, it allows LRAs to maximise the impact of limited public resources, support market development, and accelerate the implementation of climate and energy strategies.

HOW IS THE GUARANTEE FUNDING STRUCTURED IN PRACTICE? In practice, guarantee schemes are commonly implemented through two operational configurations:

- ESCO-based models, where an ESCO develops and bundles multiple investments (e.g. EE retrofits or distributed RES installations) and secures financing supported by a guarantee, combining credit enhancement with performance assurances.
- Commercial bank-based (portfolio) models, where guarantees support lending by financial institutions across multiple beneficiaries, typically through standardised loan products and portfolio-level risk coverage, enabling faster approvals, risk diversification, and large-scale deployment of smaller investments.

The selection of the appropriate configuration depends on local market conditions and policy objectives, shaping how LRAs adapt their approach across different delivery models and investment scales.

WHAT ARE THE MAIN GUARANTEE FUNDING TYPES AND HOW THEY ARE APPLIED ACROSS SECTORS? Guarantee funding schemes can be differentiated based on:

(i) their institutional setup,
(ii) the type of instrument used to structure risk coverage,
(iii) their operational approach, and
(iv) the risk-sharing arrangements adopted.

These distinctions influence how guarantee mechanisms are structured, implemented, and managed. For LRAs, understanding them is essential when selecting a suitable mechanism that responds to specific financing needs. Accordingly, guarantee schemes can support investments across sectors, from SMEs and residential EE to public buildings and larger energy infrastructure projects.

Table 10. Typology of guarantee fund schemes and their applications for LRAs

Typology	Guarantee type	Core idea	Typical use for LRAs
Institutional typology	Public guarantee schemes	Publicly backed guarantees through national or EU programmes	• National or regional schemes • Local programmes aligned with SECAPs
	International schemes	Guarantees from multilateral/bilateral institutions (e.g. EIB, EIF), often with technical assistance	• Large-scale strategic projects • Capacity-building and market development initiatives
	Mutual guarantee schemes	Borrower-based associations facilitating access to finance	• SME financing • Local business or cooperative-led initiatives
Instrumental typology	Credit guarantees	Coverage of loan repayment risk in case of borrower default	• Mobilising private lending • Public buildings, SMEs, residential EE investments
	Performance guarantees	Coverage of technical or performance risk (e.g. unmet energy savings)	• Performance-based projects • ESCO-type delivery models
Operational approach	Individual (project-based) guarantees	Case-by-case risk coverage for specific projects or loans	• Large - scale projects (e.g. district energy, deep renovations)
	Portfolio-based guarantees	Risk coverage across a portfolio of loans	• Large-scale programmes • Residential and SME investments
Advanced risk structures	First-loss guarantees	Coverage of initial losses by the public sector, up to a defined threshold.	• High-risk or emerging markets • Early-stage project pipelines
	Counter-guarantees	Risk-sharing between a higher-level institution and the primary guarantor	• Scaling local schemes • Strengthening guarantee fund creditworthiness
	Pari-passu guarantees	Proportional risk-sharing between lender and guarantor	• Balanced risk-sharing • Mature markets

In practice, these mechanisms are not mutually exclusive and can be combined within blended financing structures to address sector-specific needs, project characteristics, and market conditions.

WHO SHOULD USE GUARANTEE FUNDING? Guarantee funding is particularly suitable for LRAs and public entities that:

- aim to mobilise private investment without relying solely on public budgets,
- seek to improve access to finance for higher-risk or underserved segments,
- operate in markets where viable projects exist but financing barriers persist,
- want to scale up investment programmes across multiple sectors or beneficiaries,
- aim to strengthen local financial ecosystems and encourage private-sector participation.

It is especially relevant in contexts where budget constraints, risk perception, or limited collateral restrict access to conventional financing.

WHEN IS GUARANTEE FUNDING MOST EFFECTIVE? Guarantee funding performs best in situations where financial barriers - rather than a lack of viable projects - limit investment. Its effectiveness is enhanced when:

- projects are technically sound but face constraints related to risk perception or creditworthiness,
- a sufficient pipeline of investment-ready projects is available or can be developed,
- guarantee structures are well aligned with market needs and lender requirements,
- risk-sharing is carefully calibrated to maintain incentives for financial institutions,
- complementary instruments - such as grants or technical assistance - can support project preparation and viability,
- institutional capacity and governance structures enable effective implementation and monitoring.

Under these conditions, guarantee funding can act as a catalytic instrument, unlocking private capital and enabling the large-scale deployment of climate and energy investments.

References

Bellesi, V., Denis, B., & Schenk, C. (2025). *Guarantees and other risk mitigation instruments for clean energy: Harnessing blended finance to scale investments in emerging markets and developing economies (OECD Environment Working Papers No. 266).* (DOI)

Braumann, W., Leutgöb, R., & Leutgöb, K. (2020). *Analysis of guarantee instruments for EES projects (D3.4, V1.1).* (Link)

Cicmanova, J. (2014*). Financing schemes increasing energy efficiency and renewable energy use in public and private buildings.* (Link)

EERSF. (2026). *Guarantees*. (Link)

Enerinvest. (2021). *Guide to financing for sustainable energy projects.* (Link)

European Commission. (2019). *Guidance for Member States on Article 46 - Reporting on financial instruments and on Article 37(2)(c) - Leverage Effect*. (Link)

fi-compass. (2017). *Developing an action plan for ESIF financial instruments.* (Link)

fi-compass. (2024). *ERDF guarantee financial instruments.* (Link)

fi-compass. (2026). *Combination with capital rebate for financial instruments in energy efficiency.* (Link)

IRENA. (2020). *Renewable energy finance: Sovereign guarantees (Renewable Energy Finance Brief 01, January 2020).* (Link)

Makinson, S. (2006). *Public finance mechanisms to increase investment in energy efficiency. A report for policymakers and public finance agencies.* (Link)

Nwani, S., Abiola-Adams, O., Otokiti, B. O., & Ogeawuchi, J. C. (2022). Integrating credit guarantee schemes into national development finance frameworks through multi-tier risk-sharing models. *International Journal of Social Science Exceptional Research*, 1(2). (DOI)

OECD. (2010). *Facilitating access to finance: Discussion paper on credit guarantee schemes.* (Link)

Raimondi, A., De Nittis, A. T., Valentini, S., & Bottacini, M. (2018). *Guidelines on financial instruments to support the implementation of the energy plans (DELIVERABLE D.T1.5.2).* (Link)

Todeschi, V., Bertoldi, P., Hernandez Moral, G., Clementi, E., Treville, A., & Melica, G. (2025). *Financial instruments for mitigation, adaptation and energy poverty actions. Covenant of Mayors Guidebook. Complementary document 5.* (DOI)

Wambui, R., & Cheruiyot, J. (2025). *Project-based guarantees in climate finance: Enhancing effectiveness and scale.* (Link)

Wishlade, F., Michie, R., & Vernon, P. (2017). *Research for REGI Committee – Financial instruments for energy efficiency and renewable energy.* (Link)

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