Εξοικονομώ-Αυτονομώ (Exsoikonomo-Autonomo) Residential Energy Renovation Programme (Greece)

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Background and objectives

The “Exsoikonomo” programme is Greece’s flagship residential deep energy renovation scheme, which was introduced to raise Greece’s sluggish renovation rate and reduce household energy consumption.

It was initially launched in 2013, as the continuation of the successful Programme “Energy Saving at Home”. The latest iteration, “Exsoikonomo-Autonomo”, was launched in December 2020 with higher subsidy rates and more streamlined processes, designed to:

- Improve residential building energy performance and reduce energy bills.
- Enhance comfort, including a growing emphasis on summer overheating control and space cooling concerns.
- Promote active and passive technologies in Greek homes.
- Decrease carbon emissions from the residential sector.

The programme is aligned with the EU Renovation Wave objectives and funded under the National Recovery and Resilience Plan “Greece 2.0”. The target is to upgrade the Greek housing stock and tackle energy poverty, via tailored grants and loans administered by the Ministry of Environment and Energy. Specific operational objectives include:

- **Energy savings**: Achieve at least 30% reduction in primary energy use per dwelling.
- **Scale**: Renovate tens of thousands of residences per year, with quotas per region to ensure balanced uptake.
- **Equity**: Prioritise vulnerable households via an explicit low-income budget (€100 M) and extra top-up rates.
- **Quality**: Promote high-performance interventions, i.e., insulation, efficient HVAC, solar thermal, executed by certified professionals.

Key features

Eligibility: Private homeowners, i.e., houses, apartments, and multi-apartment buildings (when ownership structure permits collective works).

Subsidy rates: 40-85%, depending on income category, type of intervention, and building location:

- 65-85% for lower-income households (≤ €20k annually), including energy poverty and COVID-19 bonuses [income brackets determine base subsidy from 55% to 65% of eligible costs, plus a 10% “energy-poverty” premium and a 10% “COVID-19” bonus (up to 85 % total)].
- 40-65% for higher-income applicants.

Interest-free loan supplement via Hellenic Development Bank covers the remaining expenses.

Eligible measures include:

- Thermal envelope upgrades: Thermal insulation (walls, roof, floor) and replacement of window frames.
- Installation of heat pumps, A/C units and high-efficiency HVAC systems.
- Solar thermal systems and PV panels.
- Shading systems, e.g., blinds, awnings, external solar protection.
- Passive cooling strategies, e.g., night ventilation, white-roof treatments.
- Smart-home energy monitoring and automation systems.

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There are **expenditure caps**, e.g., a maximum of €6k for solar water heaters, €25k for solar thermal installations. Moreover, there is loan complement – partner banks, e.g., NBG and Eurobank, offer "eco-loans" covering up to 70% of project cost, with a fixed rate and no pre-notation mortgage.

Energy performance requirements: Achieve at least a 3-class improvement in EPC rating or reach class B (steady-state). Third-party inspections (energy audits) pre- and post-implementation are mandatory for each household.

Implementation

Governance:

- **Ministry of Environment & Energy** (MoEE) (ΥΠΕΝ): Programme design, legal framework and overall supervision.
- **Technical Chamber of Greece** (TEE): Administrative coordination and help-desk support.
- **Centre for Renewable Energy Sources** (CRES, Greek energy agency): Monitoring, measurement, control and verification of savings under "Autonomo" phase.

Additional support: Hellenic Development Bank (HDB) and other banks, e.g., NBG and Eurobank.

Application process: Performed via online platforms with support from certified energy auditors and contractors. Documents required include Energy Performance Certificate (EPC) calculation and income declaration.

Energy audits: Conducted before and after work to verify compliance. Linked to KENAK standards (Greek Building Energy Code), including summer-comfort metrics.

Timeline: Projects must be completed within approximately 12 months after contract approval.

Customer journey:

1. Homeowner registers and submits basic data via gov.gr portal or regional TEE offices.
2. Energy audit and cost-quotation by accredited technician.
3. Online submission of application; grant decision within statutory timeframe (~90 days).
4. Contracting works, completion, inspection, verification, and final grant disbursement.

Evolutions & IT improvements:

Post-2021 digital platform enhancements streamlined document upload and eased audit scheduling, thus reducing dropout rates by an estimated 20%.

Budget (or other cost data)

Programme budget (for 2021 cycle): €632 million (75% subsidy rate, plus regional/top-up premiums):

- Dedicated allocations, e.g., €100 million for low-income households.
- An additional €110 million tranche has opened since 2023, exclusively for energy-vulnerable households.

Total allocated funding for 2021-2026: €1.3 billion (across multiple cycles, i.e., 2021, 2023, and 2025).

Source of funding: EU Recovery and Resilience Facility, Cohesion Funds, and national contributions.

Caps: €50,000 per home, €80,000 for type B buildings, €290,000 for multi-apartment buildings.

- Interest-free loan (100% interest subsidy), with caps based on household and building type.

Results and impacts

Outputs (by 2019):

- Approximately 130,000 buildings had been renovated under "*Exoikonomo I & II"* (2010-2019). Similar uptake was expected with the "*Autonomo*" round.
- Annual energy savings **853 GWh/year** (30% per building) and approximately **612 kt CO_2/year** reduced.

Outputs (by 2024):

- Over 120,000 applications had been submitted (2021-2024) (with a growing interest in shading and cooling upgrades), from which over 30,000 applications had been approved nationwide. Total approved applications amounted to contracts worth over €220 million.
- Dedicated roll-out in energy-vulnerable segment: 2,500 households were supported in the second phase alone.
- Estimated annual energy savings **>1,000 GWh/year** (average ≥32 % primary energy reduction per dwelling) and carbon emissions savings **~300 ktCO_2/year**.

Shift in priorities: While early rounds focused on heating and insulation, recent calls showed growing uptake of space cooling and shading solutions, i.e., "*Exsoikonomo-Autonomo*" prioritised space cooling through both shading and insulation.

Social benefits: Average energy bill savings **~€450/year** per household, improved thermal comfort, health, and living standards overall, increased property value, heated interest and increased market for energy service companies (ESCOs), energy auditors, smart-home systems and other automation technologies.

Lessons learnt

- **Integrating summer comfort** criteria in building programmes is key in a Mediterranean country; while initial programmes underemphasised passive cooling, shading strategies are now becoming essential. Demand for solar-shading devices and A/C units rose significantly after 2022 heat waves.
- **Energy inspection** compliance added rigor and clarity, distinct pre- and post- inspection improved outcomes.
- **Digital resilience**: Digital simplification (e-platform, online submissions) reduced complexity and improved accessibility. Process simplification, e.g., digital platform and pre-approved contractors, improved uptake. Early platform overloads led to multiple "*application windows*" and staggered regional launches; robust server scaling was critical.
- **Equity** remains a key concern, as low-income homeowners still face financial barriers and often struggle to pre-finance renovation works, despite high subsidy rates. The dedicated €110 million budget tranche proved essential to effectively reach vulnerable groups, although uptake remained limited until targeted outreach campaigns were launched.
- **Grant-loan synergy** effectively addressed key market barriers: 70% of participants stated that they would not have proceeded with renovations without subsidies.
- **Stakeholder coordination**: Close collaboration between the Ministry of Environment and Energy (MoEE/ ΥΠΕΝ), the Technical Chamber of Greece (TEE), and the Centre For Renewable Energy Sources (CRES) improved audit consistency, although continued training for inspectors remains necessary.

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Interview with Stefanos Pallantzas (Hellenic Passive House Institute, HPHI)

Interviewee: *Stefanos Pallantzas, Civil Engineer (NTUA), Passive House Certifier, Hellenic Passive House Institute (HPHI), experienced professional with the "Εξοικονομώ-Αυτονομώ" scheme,* **Date**: July 6, 2025, **Place**: Athens

1. What was the original inspiration behind the "Εξοικονομώ-Αυτονομώ" scheme?

The initial inspiration behind the "Εξοικονομώ-Αυτονομώ" scheme was multifaceted, emerging from the need to address major challenges in Greece's building sector. Key motivations included the necessity for substantial energy efficiency improvements and reduced energy consumption, given that the majority of Greek buildings are old and highly energy-intensive. Improving energy performance aimed to lower the country's energy footprint and reduce household energy costs. Simultaneously, improving the quality of living and residential conditions through energy renovations was another important goal, aiming to provide enhanced thermal comfort, reduced operational expenses, and increased property values. The programme was also strategically envisioned as an economic stimulus to support local employment, particularly in the construction sector and related fields such as engineering services and building-materials supply.

Notably, the "Autonomo" aspect of the scheme placed emphasis on energy autonomy and the optimal integration of renewable energy solutions and passive-house principles. This component reflected a growing understanding of the necessity for a holistic and ambitious approach to building design, aimed at achieving higher levels of energy independence and sustainability, aligning with the standards of passive and nearly zero-energy buildings (nZEB).

Moreover, environmental protection and addressing climate change were significant drivers. The scheme was directly aligned with Greece's commitments under EU climate policies, specifically regarding emissions reduction from buildings and achieving European climate targets for 2030 and beyond. The scheme also served the critical purpose of complying with European directives and legislation, particularly the Energy Performance of Buildings Directive (EPBD), thus ensuring that national policies matched European regulatory expectations.

2. What challenges arose during its development or implementation?

Major challenges during implementation included bureaucratic complexity, such as extensive paperwork, slow approvals and fund disbursements, and frequent changes to guidelines, which caused confusion among participants. Financial obstacles were also significant, as rising construction material and labour costs (exacerbated by the energy crisis and geopolitical developments) often exceeded the initially allocated budgets, forcing homeowners to contribute more than expected. In addition, access to interest-free loans was restricted by creditworthiness criteria, excluding many lower-income households.

Technical challenges included widespread urban planning irregularities, inconsistent material and construction quality, and coordination issues within apartment buildings. Furthermore, limited public awareness, particularly during the COVID-19 period, and a shortage of qualified professionals hindered effective implementation, contributing to suboptimal renovations and the persistence of energy poverty.

3. Which factors contributed most to its success, and how are these related to cooling measures?

Although Mr. Pallantzas believes that no version of the "Εξοικονομώ" programme has fully achieved its potential, he highlights several positive factors that distinguished the "Exoikonomo-Autonomo" scheme from previous editions. The substantial subsidy rates, reaching up to 90% in some cases with a budget ceiling of €50,000, acted as a powerful economic incentive, enabling even deep retrofits aligned with passive house standards. Rising energy costs, especially in the wake of the energy crisis, increased public awareness of heating and cooling expenses, further enhancing the scheme's attractiveness. Additionally, the prospect of increased property value provided a strong secondary incentive for homeowners to invest in upgrades.

Notably, the scheme supported the installation of mechanical ventilation systems with heat recovery, addressing indoor air quality issues, such as mould and moisture, while reducing overall energy demand.

Mr. Pallantzas expressed particular satisfaction in having contributed to the inclusion of this measure. Furthermore, the scheme incentivised the adoption of renewable energy technologies, including PV systems and solar thermal installations, which promoted energy autonomy and contributed to meeting Nearly Zero-Energy Building (nZEB) goals.

In terms of sustainable cooling solutions, the programme indirectly encouraged measures that support summer thermal comfort and reduced reliance on active cooling systems. These measures included better insulation, airtightness, shading, and mechanical, natural, or mixed ventilation principles.

Finally, although the programme did not explicitly mandate passive house standards, it successfully raised awareness and market interest in high-performance building practices, paving the way for future advancements in sustainable and climate-resilient architecture.

4. How has the scheme evolved (main changes, etc.) in recent years?

The “Εξοικονομώ” scheme evolved through successive iterations (notably in 2021, 2023, and 2025), aiming to simplify application procedures and improve accessibility, though these changes had limited success. The budget reduction from €50,000 to €30,000 per dwelling led to lower-quality and less ambitious interventions. While the scheme continued to prioritise vulnerable households, the available support remained insufficient to fully cover costs, leaving many low-income applicants unable to participate meaningfully.

The persistent challenge of including apartment buildings remained unresolved, and the programme’s "*spreading funds thinly*" approach further weakened its effectiveness. Efforts to digitise processes and reduce bureaucracy have also had limited impact so far. According to Mr. Pallantzas, these cumulative changes have eventually reduced the programme's potential rather than enhancing its efficacy.

5. What future developments or adaptations are planned? What are the main challenges for the coming years?

Future plans indicate a shift towards a more advanced model, emphasising the energy renovation of vulnerable households, integrating geographical and social criteria, and increased involvement of energy providers. However, Mr. Pallantzas expresses concern that the programme continues to focus on individual applicants (citizens) rather than on buildings as the core renovation target.

Looking ahead, several major challenges remain. These include addressing Greece’s aging and poorly insulated building stock, effectively incorporating apartment buildings (with full subsidies where necessary), and better tailoring financial mechanisms. While grants should remain available for low-income households, middle-income households could instead benefit from interest-free loans or tax incentives. Stronger promotion of deep renovations to achieve Nearly Zero-Energy Building (nZEB) standards is also essential.

In addition, widespread training programmes are needed to address professional knowledge gaps and enhance the quality of energy upgrades. Finally, Mr. Pallantzas stresses the urgent need to revise the current KENAK energy code, which sets only minimum and often insufficient requirements, to enable more ambitious and impactful energy efficiency improvements across the sector.

6. If you could go back in time, what do you think could have been done differently?

Mr. Pallantzas stresses that the program should have prioritised deep renovations and nZEB/passive building standards from the outset, establishing more ambitious energy performance targets rather than merely incremental improvements. Simplifying administrative procedures, including fewer required documents and user-friendly digital platforms, could have reduced delays and increased engagement. Pre-approvals for standardised interventions, faster subsidy disbursement (including larger upfront payments), and incorporating simplified processes for resolving minor urban planning irregularities would have further streamlined participation.

Moreover, ensuring higher quality materials and installations, alongside comprehensive certification and training programs for engineers and construction teams, could have significantly improved outcomes. Additionally, a clear, targeted public information campaign, emphasising both economic and quality-of-life benefits, would have reduced scepticism and increased uptake, fostering a strategic, holistic approach focused on sustainable long-term building efficiency rather than short-term financial distribution. He concludes that political and scientific reasoning were often overridden by short-term populist thinking and reactive decision-making.