

- ERDF
- EUR 249 million
- Loan combined with grant
- Energy efficiency and renewable energy
- Greece

*... increasing awareness and changing people's approach to energy efficiency investment through financial instruments ...*

# Energy Savings in Existing Housing Programme, Greece

Case Study



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## Abbreviations

Abbreviation	Full name
CO <sub>2</sub>	Carbon dioxide
EPC	Energy performance certificate
ERDF	European Regional Development Fund
ESF	European Social Fund
EU	European Union
ETEAN	National Fund for Entrepreneurship and Development S.A.
GWh	Gigawatt hours
IT	Information technology
Mtoe	Million tonnes of oil equivalent
ktoe	kilotonnes of oil equivalent
Kt	Kilotonnes
NSRF	National Strategic Reference Framework
OP	Operational Programme



## Table of contents

Abbreviations	2
1 Summary	4
2 Objectives	6
3 Design and set-up	8
3.1 Preceding events	8
3.2 Funding and partners	9
3.3 Investment strategy	10
3.4 Governance	11
4 Implementation	14
4.1 State aid	14
4.2 Financial products and terms	14
4.3 Final recipients targeted	16
4.4 Changes in strategy	17
5 Achievements	19
6 Lessons learned	21
6.1 Design of Financial Instrument	21
6.2 Key Implementation Challenges	22
6.3 Outlook	23



# 1 Summary

The Energy Savings in Existing Housing Programme in Greece (the Programme) was established in 2010 as a holding fund to achieve the objectives of four regional Operational Programmes (OPs) and two sectoral OPs. The Programme, co-funded by the ERDF, provided partially subsidised loans combined with non-repayable grants to support household energy saving investments. The financial instrument aimed to address the reluctance of private investors to fund energy efficiency projects in residential buildings. The buildings sector accounted for about 30% of all final energy consumption in Greece, and there was a high potential for energy savings. In 2008 a cost-benefit assessment<sup>1</sup> estimated that significant energy savings would not be realised without public support.

By March 2017, when the implementation of the financial instrument ended, 51 152 households had been assisted in reducing their energy consumption. This has led to annual primary energy savings of 73.35 thousand tonnes of oil equivalent (ktoe), with energy savings in the domestic sector reaching 853 GigaWatt hours (GWh), while greenhouse gas emission reductions amounted to 612 kilotonnes of CO<sub>2</sub> (kt CO<sub>2</sub>).

The loan-grant combination was provided to final recipients through four financial intermediaries acting as 'one-stop-shop'. Regarding the financial instrument, 99.5% of the allocated ERDF financial resources were disbursed, resulting in 52 347 loans signed amounting to more than EUR 237 million.

The Programme contributed to increasing energy efficiency awareness in the country and changing people's approach to energy efficiency investments through the use of financial instruments. Homeowners became increasingly interested in investing in the improvement of energy efficiency in their houses. In addition, the materials used by construction companies for the energy efficiency improvements under the Programme were certified as regards their energy efficiency characteristics. This practice helped the development of energy efficiency standards in the construction industry of Greece.

Particular challenges for the deployment of the Programme were the coordination of the many bodies involved and the lack of integrated electronic systems for information exchange. However, these challenges were successfully addressed by a coordination mechanism that had clearly defined roles and responsibilities and a communication platform that managed the process of the available data effectively.

1 Ministry of Development (2008), 1<sup>st</sup> National Action Plan for energy efficiency.



## Energy Saving in Existing Housing Programme, Greece

### THE FINANCIAL INSTRUMENT<sup>2</sup>

#### Funding source<sup>3</sup>

OPs 'Competitiveness and Entrepreneurship', 'Environment and Sustainable Development', 'Attica', 'Macedonia – Thrace', 'Crete and Aegean Islands', 'Thessaly – Mainland Greece – Epirus', and private funding

#### Type of financial product

Loans combined with grants

#### Financial size<sup>4</sup>

EUR 249 million, of which EUR 101 million from ERDF and EUR 148 million from private resources (financial intermediaries) for the financial instrument, and EUR 307.2 million from ERDF for grants

#### Thematic focus

Energy Efficiency and Renewable Energy

#### Timing

July 2010 to February 2017

#### Partners

Ministry of Development and Competitiveness of Greece (Management Authority for the Operational Programme 'Competitiveness and Entrepreneurship')

Ministry of Environment, Energy and Climate Change of Greece (Department for planning and coordination of NSRF co-financed actions in the fields of Energy, Natural Resources and Climate Change)

Hellenic Fund for Entrepreneurship and Development (ETEAN) (fund manager)

National Bank of Greece, Alpha Bank, Eurobank, Piraeus Bank (financial intermediaries)

### ACHIEVEMENTS

#### Absorption rate

99.5% of the ERDF resources (as of March 2017)

#### EU leverage

1.36 times<sup>5</sup>

#### Re-investment

The funds returned to the instrument as well as the interest, as certified by the Investment Committee, were re-used for energy-saving actions according to the statutory purposes and procedures of the holding fund manager (ETEAN), as well as for financing programmes for companies providing energy services for energy saving interventions

#### Main results

51 152 households had been renovated by March 2017. Annual primary energy savings were 73.35 ktoe, with energy savings in the domestic sector of 853 GWh, while greenhouse gas emission reductions amounted to 612 kt CO<sub>2</sub>

2 Data from the managing authority at closure of the financial instrument (March 2017).

3 During the last revision of the Greek OPs (September 2015) on the basis of Regulation (EU) 2015/1839 the EU contribution increased to 100%, and the national contribution was cancelled.

4 In June 2016, unused financial resources from the loan part of the financial instrument of EUR 140 million were returned to the Greek Government's Public Investments Programme, so ERDF resources fell from EUR 241 million to EUR 101 million.

5 EU leverage is calculated as the total amount of finance to eligible final recipients, i.e. EUR 249 million + EUR 307.2 million, divided by the total amount of ERDF allocation to this financial instrument, i.e. EUR 101 million + EUR 307.2 million. It does not include the reuse of resources returned to the instrument.



## 2 Objectives

During the period 2000–2007, there was a 3% annual increase in energy consumption in Greece, which led to a total increase of 18% during this period from 18.7 Mtoe in 2000 to 22.1 Mtoe in 2007. This increase was mainly result of the strong economic growth and the changing living standards and consumption patterns of the Greek population. For example, in the same period, the Greek GDP increased by 32% by having an average annual growth rate of 4% mainly due to the major investments that took place in Greece during that period.

However, this growth did not continue, primarily due to the completion of many large infrastructure projects that were linked to the Athens Olympic Games and the subsequent long-lasting financial crisis that caused an economic recession. As shown by the official statistical data of Eurostat, all the sectors of economic activity show a decrease in Gross Value Added, particularly for the period 2009–2013, during which the impact of the financial crisis spread in the real economy.

During this period, the Energy Saving in Existing Housing Programme was implemented with the aim of reducing energy consumption in the residential sector. Buildings and transportation are the most energy-consuming sectors in Greece. In 2012, the building sector, consisting of the residential and tertiary sectors, consumed 45% of the final energy in Greece. As the residential sector accounts for 83.68% of the total building stock in Greece, it is, therefore, a significant energy consuming sector in the country.

Residential buildings in Greece had high energy intensity and consumption, as well as high energy savings potential. A primary reason for relatively poor energy efficiency in Greek buildings was that they were old and lacked modern energy efficient building materials or technologies, partly due to a lack of relevant national legislation over the last 30 years. In particular, 55% of residential buildings were built before 1980 and most of them had a partial or total lack of heat insulation, outdated technology and materials in doors and windows (frames/single glazing), lack of sun protection on southern and western faces, inadequate use of Greece's high solar potential and inadequate maintenance of heating / air conditioning systems. It is characteristic that 84% of the buildings built before 1980 were class H, according to the Energy Performance Certificates issued until 2014, while the buildings built over the next three decades were mainly class C or D.

However, the high cost of the energy efficiency improvements discouraged private investment, so public financial support and awareness raising were considered necessary to support energy efficiency and achieve the related socio-economic benefits. In this context, Greece's National Strategic Reference Framework (NSRF) 2007–2013 included a priority to improve the country's energy system and enhance its sustainability, particularly through energy saving. This was translated into priority axes focused on energy-saving measures in four regional OPs ('Attica'; 'Macedonia – Thrace', 'Crete and Aegean Islands', 'Thessaly – Mainland Greece – Epirus'), as well as in two sectoral OPs ('Competitiveness and Entrepreneurship'; and 'Environment – Sustainable Development').

A detailed cost-benefit assessment was carried out in 2008, which confirmed that it would be very difficult for the energy efficiency measures to be implemented without public financial support, even though they could generate economic benefits. The same study indicated that awareness raising measures were required to encourage people to invest in energy efficiency.



On this basis, Greece established an energy efficiency policy framework and created awareness about the importance of the energy efficiency by launching information campaigns, demonstrating energy efficient buildings and by promoting energy efficiency in schools and universities. In parallel, the Ministry of the Environment, Energy and Climate Change, which was the managing authority of the OP 'Environment – Sustainable Development' 2007–2013, in cooperation with the Ministry of Development and Competitiveness, the managing authority of the OP 'Competitiveness and Entrepreneurship' 2007–2013, developed the 'Energy Saving in Existing Housing' Programme. The combination of a financial instrument with grants supported energy efficiency investments in residential buildings and contributed to achieving the energy and environmental targets of the country.

### The renovation and energy performance improvement of a two-dwelling building in Athens: Objectives

The project concerned a residential building with two floors covering 120 m<sup>2</sup>. The building was constructed in 1963 and lacked proper insulation.



The investment in energy efficiency improvements supported by the ERDF financial instrument with an amount of EUR 17 321 (including VAT) for renovation works were classified in the following categories of the Programme:

**Category 1:** Replacing glazing - frames and installation of external shading systems.

**Category 2:** Installing thermal insulation in the building shell, including the roof.

**Category 3:** Upgrading the heating and hot water systems.



## 3 Design and set-up

The governance structure of the financial instrument was a result of considerable work by the programme's stakeholders to develop appropriate arrangements for the scheme's management. Financial products having a repayable component – subsidised loans – as well as non-repayable support component - grants – were combined and provided to final recipients through a 'one-stop-shop' system. For the two components, final recipients interacted exclusively with financial intermediaries.

### 3.1 Preceding events

The country's commitments to environmental protection at European level and the high market cost to implement energy efficiency measures, together with high energy intensity and high energy consumption, led to the need for financial support for the realisation of energy efficiency investments. There was also an increase in energy use, an economic squeeze of weaker income groups caused by the higher energy prices and an increase in the energy deficit. Both financial support and awareness promotion were considered necessary to encourage investments in energy efficiency in residential buildings.

The managing authority of the OP 'Competitiveness and Entrepreneurship', the Ministry of Development and Competitiveness, consulted the Department for planning and coordination of the National Strategic Reference Framework (NSRF) which was responsible for the co-financed actions in the fields of energy, natural resources and climate change within the Ministry of Environment, Energy and Climate Change. This collaboration led to establishing the 'Energy Saving in Existing Housing' holding fund in July 2010.

The managing authority appointed the Hellenic Fund for Entrepreneurship and Development (ETEAN) as holding fund manager. ETEAN was established in 2003 to facilitate access to finance for small and medium-sized enterprises and had substantial experience in the use of EU funding and financial instruments.

#### Piraeus Bank: Initiation process

The involvement of Piraeus Bank started when the holding fund manager (ETEAN), in accordance with the process approved by the investment committee, published a call for financial institutions meeting the eligibility requirements (i.e. operate branches in all country's prefectures) to express their interest.



Based on the terms of reference for the product included in the call, the holding fund manager further specified the terms to potential financial intermediaries, who submitted their own comments and suggestions to reach a final agreement on the implementation terms of the Programme.



## 3.2 Funding and partners

The public entities involved in the financial instrument include the Ministry of Development and Competitiveness that was the managing authority of the OP 'Competitiveness and Entrepreneurship' 2007–2013, and of the four regional OPs that contributed resources to this instrument ('Attica'; 'Macedonia – Thrace'; 'Crete and Aegean Islands'; and 'Thessaly – Mainland Greece – Epirus'). An additional contribution was provided by the managing authority of the OP 'Environment and Sustainable Development'.

The holding fund manager appointed by the managing authority was ETEAN, while four banks - National Bank of Greece, Alpha Bank, Eurobank and Piraeus Bank – acted as financial intermediaries, which ensured that the full range of products were made available to all potential final recipients since together they covered the whole country.

Initial public funding of EUR 241 million was paid from the National Programme for Public Investments<sup>6</sup> as a direct financial contribution (i.e. grant) to the holding fund. This amount was initially co-financed by the ERDF and national resources. However, due to the financial crisis, the public funds required were lacking. For this reason, in September 2015 the Greek 2007–2013 OPs were reviewed by the EC and the ERDF co-financing rate was increased to 100%<sup>7</sup>. The following table illustrates ERDF resources allocated by the participating OPs to the Energy Savings in Existing Housing Programme, for both loans and grants.

Table 1: Resources allocated per OP (in EUR million)

Operational Programme	ERDF contribution to financial instrument loans up to December 2015	ERDF contribution to financial instrument loans from December 2015	ERDF contribution to the grant up to November 2013	ERDF contribution to the grant from November 2013
Competitiveness and Entrepreneurship	107.0	35.0	93.0	155.0
Environment and Sustainable Development	15.0	15.0	0	6.0
Attica	66.0	14.0	34.0	34.0
Macedonia – Thrace	33.0	28.5	17.0	91.0
Thessaly – Mainland Greece – Epirus	16.0	7.0	9.0	18.6
Crete and Aegean Islands	4.0	1.5	2.0	2.6
<b>TOTAL</b>	<b>241.0</b>	<b>101.0</b>	<b>155.0</b>	<b>307.2</b>

6 In Greece all EU funded programmes were pre-paid by the National Programme for Public Investments (part of the state budget) and then the country was reimbursed for the EU contribution.

7 COM(2015)400, Brussels, 15.7.2015, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, A new start for jobs and growth in Greece.



From the initial budget allocated to the financial instrument, an amount of EUR 51 million was allocated to cover the interest rate loan incentives to the final recipients as well as management and other costs (including the remuneration of the holding fund manager and EUR 135 of management fees to be paid to the financial intermediaries for each disbursed loan). The remaining amount of EUR 190 million was committed to support new loans for energy saving investments with 1:2 co-financing rate from the financial intermediaries. This attracted EUR 380 million in private financing, making EUR 570 million available for loans, so every euro in ERDF support leveraged on average an additional two euros from private sources.

The support for final recipients was a combination of a grant and a partially subsidised loan. According to the investment strategy, incentives offered through the financial instrument and the grant intensity (15-70%) were based on final recipient criteria, i.e. personal and family income. Performance of the financial instrument was affected directly by the type of final recipients applying for the Programme, i.e. providing more support to low income final recipients (entitled to 70% grant and 30% partially subsidised loan).

Due to the economic recession, the incomes of the citizens reduced significantly and as a result the majority of the Greek households were eligible for higher non-repayable support by the Programme, which led to faster absorption of the OP commitments allocated to the grant component and lower utilisation of the loan component.

As a result, adjustments to the budget for the loan component were needed to ensure successful implementation of the Programme and to better address the market gap. This led to a joint ministerial decision in December 2015, which reduced the initial holding fund's budget (loan component) of EUR 241 million by EUR 140 million (corresponding to unused funds allocated to the financial instrument) to EUR 101 million. The EUR 155 million initial allocation for non-repayable support (grant component) had previously been increased to EUR 307.2 million in November 2013.

### **3.3 Investment strategy**

Two products were provided by the Programme: (a) a loan having a commercial and a subsidised component and (b) a grant as non-repayable support covering part of the investment costs, the cost of the energy audit and the project consultant. The proportion of these elements varied depending on the income of the homeowners. The 'Energy Savings in Existing Housing' Programme provided from 15% to 70%<sup>8</sup> non-repayable support, whereas the remainder was offered as a mandatory partially subsidised loan<sup>9</sup> with no collateral, with or without a guarantor, no loan approval expenses and a minimum maturity of four years or a maximum of six years with one year grace period.

The strategy's objective was to either raise the funded households by one energy efficiency class, or to reduce their energy consumption by 30%, as measured by energy auditors before and after implementation.

<sup>8</sup> Based on the income of the final recipient.

<sup>9</sup> The loans were made up of 1/3 contribution from the OPs at 0% and 2/3 contribution from the financial intermediary at 7.4% resulting in a reduced effective rate of 4.93% payable by the borrower.

The final recipient criteria for the investment strategy are illustrated below in Table 2:

Table 2: Types of final recipients and incentives offered through the financial instrument

Final recipients	Category A1	Category A2	Category B
<b>Personal Income</b> <sup>10</sup>	≤ EUR 12 000	EUR 12 000 – EUR 40 000	EUR 40 000 – EUR 60 000
<b>Family Income</b>	≤ EUR 20 000	EUR 20 000 – EUR 60 000	EUR 60 000 – EUR 80 000
<b>Incentives</b>	70% grant; 30% partially subsidised loan	35% grant; 65% partially subsidised loan	15% grant; 85% partially subsidised loan

### 3.4 Governance

The partners, as indicated in section 3.2, contributed to the scheme's implementation through a set of governance arrangements based on their competences and the required procedures.

The Greek 2007–2013 Management and Control System anticipated a single ministry level managing authority representing all regional OPs. For this reason, in the context of the 'Energy Savings in Existing Housing' Programme, the regional OPs allocated their funding and delegated their managerial responsibilities to the managing authority of the 'Competitiveness and Entrepreneurship' 2007–2013 OP, which is a Special Service within the Ministry of Development and Competitiveness. This Special Service of the Ministry of Development and Competitiveness was responsible for channelling the EU funds to the holding fund manager (i.e. ETEAN), which was in charge of managing both the loan and grant disbursements.

The Department for planning and coordination of NSRF co-financed actions in the fields of Energy, Natural Resources and Climate Change within the Ministry of Environment, Energy and Climate Change was also involved, specifically in marketing, providing information, planning, coordination and monitoring.

Specifically, this department was responsible for:

- issuing the Programme's implementation guide;
- monitoring progress, notifying the managing authority of OP 'Competitiveness and Entrepreneurship' 2007–2013 and providing guidelines to Departments and other stakeholders when required;
- managing a helpdesk to provide information and training to all partners responsible for informing citizens;
- providing information to the holding fund manager to develop its information system; and
- approving all promotional material.

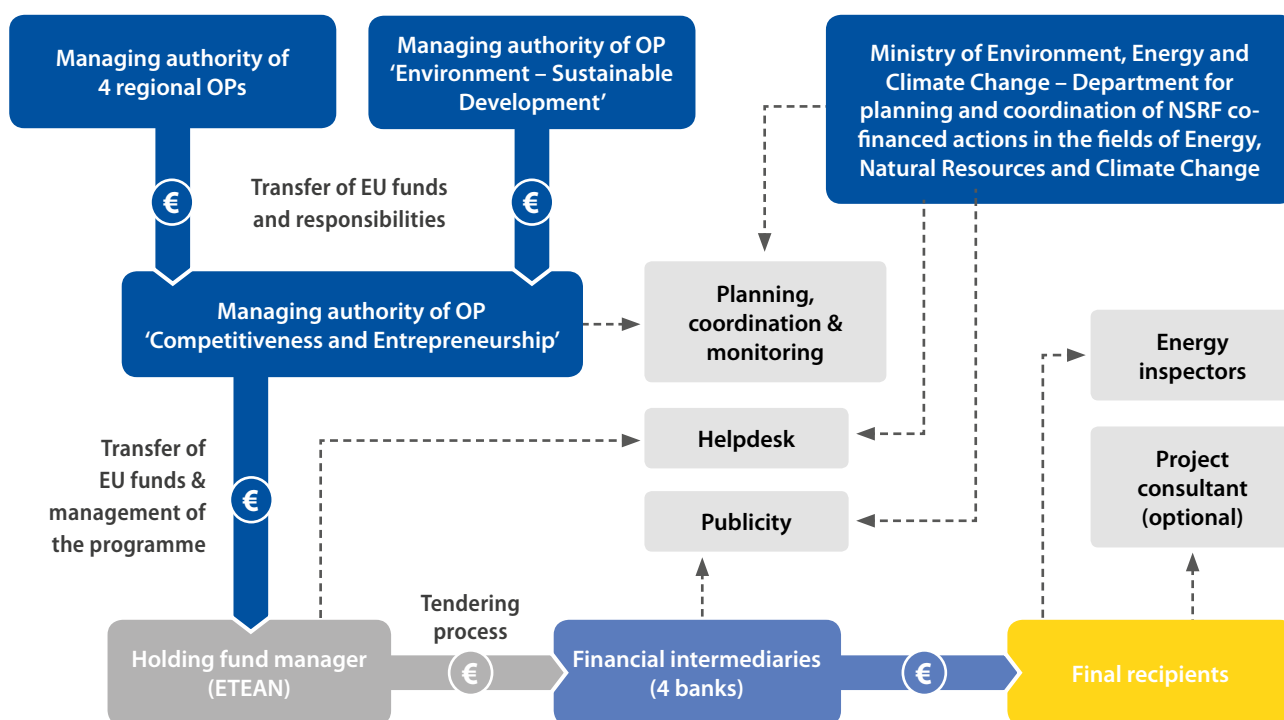
<sup>10</sup> Personal income based on the most recent (annual) tax declaration documents at the date of application.



In addition to these public actors, other types of actors played a role in the implementation of the instrument. Within the Ministry of Environment, Energy and Climate Change, inspectors were responsible for carrying out energy audits, both before approval of the financing and following implementation. The Hellenic Energy Inspectorate carried out verification checks on Energy Performance Certificates (EPCs), as well as sample-based checks on the results of the energy audits. The governance structure was designed by the National Coordination Authority, jointly with the managing authorities.

The timeline for the implementation of the financial instruments is shown in Table 3.

Figure 1: Roles of partners implementing the 'Energy savings in Existing Housing' Programme



Other bodies that were involved in the scheme's decision-making processes, including the **investment committee** of the holding fund and the **monitoring committee** of the Competitiveness and Entrepreneurship OP. The investment committee's responsibilities included final approval of investment decisions based on applications submitted by the holding fund manager. The monitoring committee oversaw all OP activities, and its role towards the managing authority was mainly consultative.

In particular, the managing authority provided information to the monitoring committee on the implementation of the financial instrument by submitting meeting minutes and submitting the annex for the annual implementation report. The managing authority also verified the information included in the reports and helped the preparation of the payment application to the certifying authority.

The financial intermediaries (in close cooperation with the holding fund manager and the Department for planning and coordination of NSRF co-financed actions in the fields of Energy, Natural Resources and Climate Change) were in charge of marketing the instrument to final recipients. Moreover, they were also responsible for selecting the final recipients.

Table 3: Timeline for implementation of the financial instrument

Time period	Action taken
July 2010– August 2010	Establishment of the ‘Energy savings in Existing Housing’ fund (legal framework, issue of Joint Ministerial Decision)
August 2010	Holding fund manager and managing authority signed the funding agreement
September 2010	Transfer of public funds to the holding fund
September 2010	Call for expression of interest for financial intermediaries launched
October 2010	Deadline for the submission of applications by financial intermediaries
November 2010	Selection of co-investors (four banks co-investing EUR 380 million)
December 2010	Signing of funding and co-investment agreements with the four banks
January 2011	Set-up of the financial instrument
February 2011	Date for submitting applications under the Programme
July 2011	First decisions for selecting final recipients
August 2011	First loan contracts signed
September 2011	First advance payments to final recipients
December 2011	First full payments (final disbursements) to final recipients
March 2012	Modification of the implementation guide
November 2013	Increase of the grants component (from EUR 155 million to EUR 307.2 million)
December 2015	Financial instrument budget modification (from EUR 241 million to EUR 101 million) <sup>11</sup>
October 2016	Extension of deadline for loan disbursements until 31 December 2016
January 2017	New deadline extension for loan disbursements until 31 January 2017

### Piraeus Bank: Governance

During implementation, the bank interacted with final recipients, as well as with engineers, project consultants, the holding fund manager (ETEAN) and the Ministry of Environment, Energy and Climate Change by addressing queries, providing clarifications and submitting data. Piraeus Bank had set-up a dedicated process to manage the Programme, though staff were also in charge of other activities. A series of departments were involved in this process, including the organisation (products division), information technology and legal departments.



<sup>11</sup> The reallocation was based on a ‘Joint Ministerial Decision’ published on 24.12.2015 (Government Gazette 2845/B).



## 4 Implementation

The instrument's implementation was influenced by broader macro-economic developments, which caused significant changes in the investment strategy. These affected the instrument's budget, co-financers and target group. Nevertheless, the functioning of the scheme and the way that final recipients accessed support remained unchanged.

### 4.1 State aid

A public body was appointed as a holding fund manager by transferring the OP financial contribution as a grant. No other investors were involved at this level, avoiding the need for market-compliant risk-sharing mechanisms.

The holding fund manager selected four banks through a competitive procedure, based on their co-investment appetite, business plans and due diligence procedures. The holding fund manager agreed a risk-sharing scheme of 1:2, with the holding fund contributing a third of the total loan fund volume.

Financial intermediaries acted as a 'one-stop-shop', with final recipients only interacting with one financial intermediary for all components of the package (i.e. the partially subsidised loan and the grant). When evaluating applications, financial intermediaries applied their respective credit scoring policies to assess the creditworthiness of potential final recipients. Each approved loan had a subsidised (1/3 of the total amount) and a commercially priced (2/3 of the total amount) component. The interest rate on the subsidised component was fully covered by the holding fund and the 4.93% weighted average interest rate for each loan was the result of the 7.4% interest rate applied by the financial intermediaries on the commercial component of the loan (7.4% on the 2/3 of the total loan amount) and the 0% interest rate applied by the holding fund manager on the subsidised component of the loan (0% on the 1/3 of the total loan amount). In addition, according to law 128/75<sup>12</sup>, 0.08% is added on top.

The proportion of the grant component varied with the final recipient's income, as shown in Table 2 above, with a total intervention maximum ceiling of EUR 15 000 per household. In addition, only natural persons (not businesses) were eligible for this financial instrument, with only one application for each residence. This targeting of citizens rather than commercial entities<sup>13</sup> significantly reduced market distortion and thereby assisted compliance with competition rules.

### 4.2 Financial products and terms

The financial product offered to final recipients was a package made up of a loan at 4.93% interest rate plus a 0.08% levy. This partially subsidised loan was combined with grants based on the individual final recipient's income.

When submitting an application, potential final recipients could rely on application assistance from qualified project consultants. This could be reimbursed up to EUR 250 per individual application and EUR 800 (without VAT) for apartment blocks. Applications were assessed on a rolling first-come first-served basis up until the allocated budget limit for each region. To be selected, projects needed to ensure an energy efficiency upgrade of one class or at least a 30% reduction in Kilowatt hour/m<sup>2</sup> consumption, measured by energy auditors before and after implementation. These energy audit costs were fully reimbursable.

<sup>12</sup> According to Greek Law 128/75, a levy is imposed, with few exceptions, on loans and credits granted by financial institutions in Greece.

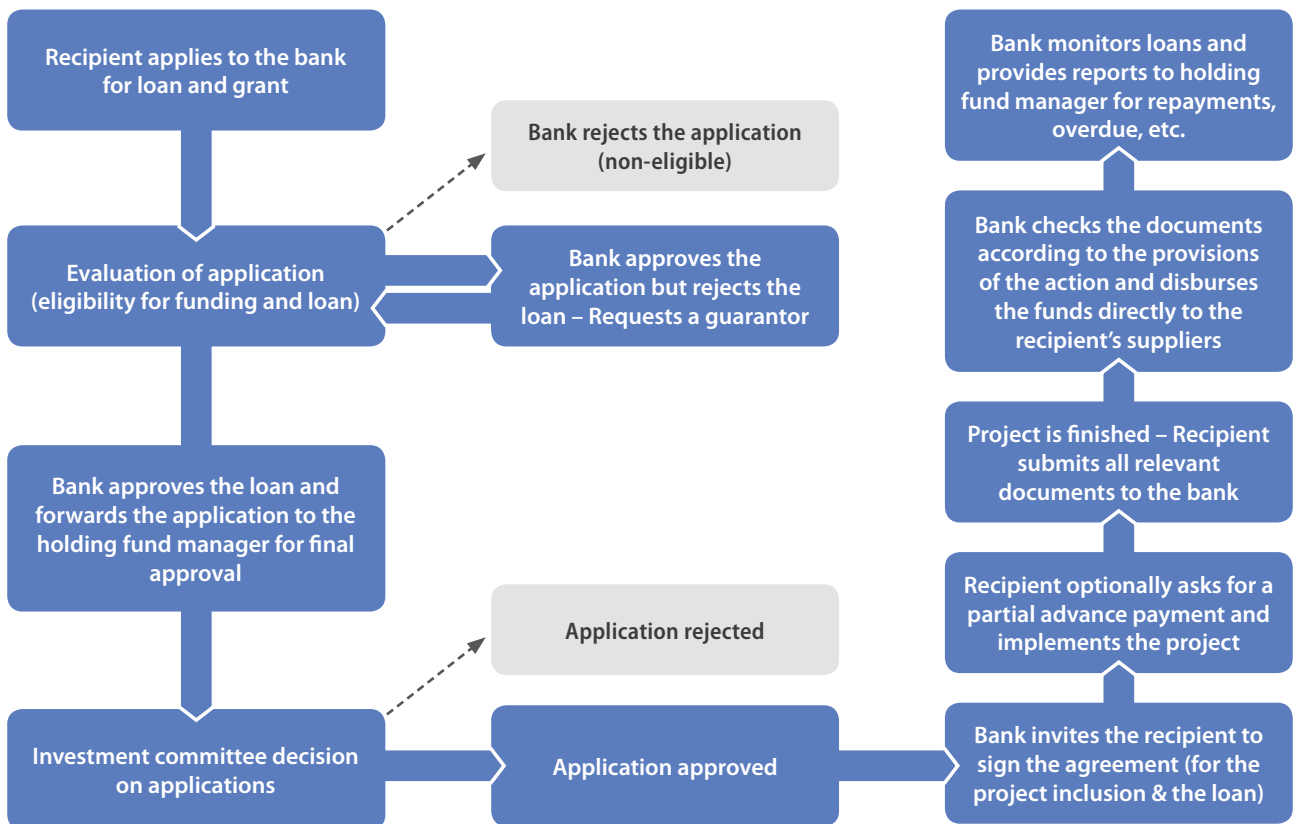
<sup>13</sup> In terms of policy objectives residential energy efficiency also differs from energy efficiency in SMEs.

In order to receive and assess applications, as well as to monitor implementation, financial intermediaries had either to adapt their information systems, or develop new systems that could interact with the holding fund manager. An electronic file with the applications was sent on a daily basis to the holding fund manager. A file for each energy efficiency investment project had to be kept by financial intermediaries for five years after completion of the project.

The loan maturity was four to six years, with or without a guarantor, with no mortgage on the property, direct loan repayments without charges, and immediate payment of contractors through the financial intermediary without involving final recipients. The advance payment could be 30% to 40% of the total eligible cost.

The signature of the loan contract with the final recipient would normally be within four months from the notification of the approval decision from the fund manager to the financial intermediary. If necessary, this period could be extended by up to 12 months with the approval of the holding fund manager. The final recipient could request an advance payment of 30% or 40% of the eligible budget on signing the loan contract. This was paid directly by the bank to the contractor. Implementation of the energy efficiency interventions should have been completed within three months of the advance payment being disbursed, or the contract being signed if no advance payment took place, with a maximum extension for implementation of 12 months.

Figure 2: Access to the financial instrument's support



EUR 70 million had been repaid to the financial instrument by June 2018.



### Financial Intermediary – Piraeus Bank: Reporting

The bank's obligations to provide statistical data included sending reports on a weekly basis based on specific templates containing the number of applications and approvals per region, advertising, projections, etc. These reports were addressed to both the holding fund manager and to the Ministry of Environment, Energy and Climate Change.



The bank had to adapt its information technology system to the Programme's requirements.

## 4.3 Final recipients targeted

The final recipients targeted were natural persons with full ownership or property rights to an eligible residence, and a personal income of up to EUR 60 000 or family income of up to EUR 80 000. The Programme financed investments in houses, blocks of flats (for areas concerning all apartments), or an independent apartment:

- In an area with a zone price of up to EUR 2 100 /m<sup>2</sup> at the end of 2009;
- With a building permit or equivalent administrative document proving that the building is legal. These need to be submitted to the financial intermediary at the latest by signature of the loan agreement;
- An energy performance classification lower than, or equal to, energy class 'D';
- Not marked for demolition.

Marketing the instrument to final recipients was the responsibility of the financial intermediaries, who had committed to specific marketing plans. These were made in close cooperation with the holding fund manager and the Ministry of Environment, Energy and Climate Change through its Department for planning and coordination of NSRF co-financed actions in the fields of Energy, Natural Resources and Climate Change. Promotion included advertising in newspapers and notices on financial intermediaries' websites, as well as through brochures and posters.

Publicity actions were also implemented by the holding fund manager and potential final recipients could get information from the official website<sup>14</sup> of the Programme. The holding fund manager and the Ministry of Environment, Energy and Climate Change also operated helpdesks to support the final recipients.

According to a survey carried out as part of the interim evaluation of the 'Competitiveness and Entrepreneurship' OP, 74% of final recipients were satisfied with the quality of information provided on the scheme.<sup>15</sup> Financial intermediaries, however, highlighted the need for more promotion/dissemination activities.

Furthermore, publicity from the financial intermediaries and the Ministry of Environment, Energy and Climate Change highlighting the economic and environmental benefits of energy upgrades could have increased the interest of potential final recipients. This was an important lesson learned for promoting energy efficiency financial instruments.

14 <http://exoikonomisi.ypeka.gr>

15 Interim Evaluator of OP Competitiveness and Entrepreneurship 2007 – 2013 (2013), Field survey on the Energy Savings in Households mechanism.



## The renovation and energy performance improvement of a two-dwelling building in Athens



The investment involved:

- Thermal insulation of an 80 m<sup>2</sup> roof, using composite thermal insulation 30 x 60 cm boards of concrete and extruded polystyrene. For sealing, a drainage membrane was laid under the boards.
- Upgrading the heating and hot water supply systems by replacing the existing boiler and burner, installing a new cast iron boiler, G125–32 with a power of 22–32 KW and a performance grade of 96%.
- Upgrading the heating and hot water supply systems by installing automatic control devices, in particular by thermostatic switches in the ground floor and first floor heaters. In the boiler room an electrical compensation system was also installed.

### 4.4 Changes in strategy

The financial instrument's investment strategy went through several amendments during implementation, mainly due to the deteriorating general economic situation.

A first modification of the strategy was the introduction of a guarantor in March 2011. Recipients could have a guarantor for their loan to improve their creditworthiness, especially for the elderly, the young and those with insufficient personal income, who had difficulties accessing loans from the financial intermediaries.

Changes in eligibility requirements to increase the attractiveness of the Programme for final recipients were made by modifying the implementation guide. The initial 30% maximum grant support offered by the programme, which was not attractive enough for lower-income homeowners required a significant increase to 70% in March 2012, through the introduction of a new category of final recipients (category 'A1' as indicated in Table 2). The scheme coincided with the introduction of austerity measures in the economy that significantly reduced the disposable income levels of the Greek households. The new economic reality required an amendment of the initial design. This included amending the funding scheme to accommodate low-income recipients. A new category of recipients was created with the financing scheme providing loans for 30% of the budget and a grant for 70%, which was completely the opposite of the initial design. This led to an increase in applications, together with quicker absorption of grant resources compared to loan support.

As a consequence of this strategy change, more funding for the grant component of the financial instrument was required. In November 2013 the non-repayable budget was increased from EUR 155 million to EUR 307.2 million and in December 2015, following a Joint Ministerial Decision, unused financial resources of the loan part of the financial instrument of EUR 140 million were returned to the Programme for Public Investments of the Greek Government, leading to a reduction from EUR 241 million to EUR 101 million. This did not affect the instrument's governance structure save that the co-financing commitments of the Financial Intermediaries were similarly reduced pro rata from EUR 380 million to EUR 160 million.



Table 4: Modifications to the financial instrument

Modification number and date	Modification
1 <sup>st</sup> (March 2011)	Adding guarantor
2 <sup>nd</sup> (May 2011)	A first extension for submitting applications Modified energy targets Reduced duration of project implementation from nine to four months
3 <sup>rd</sup> (June 2011)	Programme extended until resources exhausted Requirements for final recipients modified: <ul style="list-style-type: none"> <li>a) independent apartments included in the target group</li> <li>b) building permits required up to end of 1989</li> <li>c) zone price requirement increased to EUR 2 100/m<sup>2</sup></li> </ul>
4 <sup>th</sup> (March 2012)	Building permit date abolished Limitations removed on the type of residence A new income category introduced, benefitting from grants up to 70% of project costs, and advanced payments up to 40%
5 <sup>th</sup> (December 2015)	Reduced loan component of the programme

## 5 Achievements

According to the holding fund manager (ETEAN), based on the 51 152 energy-upgraded houses across the country in the 2007–2013 period, there were annual primary energy savings of 73.35 ktoe, with annual primary energy savings reaching 853 GWh, while annual greenhouse gas emission reductions amounted to 612 kt CO<sub>2</sub>.

Table 5: Key achievements

OP contributions paid to final recipients in loans	
Number of loan contracts signed with final recipients	52 347
Number of final recipients supported	51 152
Total value of loan contracts signed with final recipients (in EUR)	EUR 237.11m
<i>of which OP contributions</i>	EUR 79.03m
Amounts of OP contributions lent by the banks to final recipients (Final loan payments to final recipients and loan advances)	EUR 74.12m
<i>of which assistance from ESIF</i>	EUR 74.12m
Total other contributions, outside ERDF mobilised at the level of final recipients (Financial intermediaries contributions to final loan payments and loan advance)	EUR 148.23m
OP contributions paid to final recipients in other financial products (Amounts in million Euro)	
OP contributions paid to final recipients	EUR 20.25m
<i>of which assistance from Structural Funds (in EUR)</i>	EUR 20.25m

Source: Final Implementation Report of the Competitiveness and Entrepreneurship OP, March 2017

The total area of renovated residences amounts to 5.2 million m<sup>2</sup> and 83% of the completed interventions involved the replacement of frames/glass panes, 53.9% thermal insulation and 71.6% upgrade of the heating system and domestic hot water supply. Other actions included investments in renewable energy sources as part of building renovation, such as biomass burners, heat pumps and solar thermal systems.



## Piraeus Bank

Cooperation with the holding fund manager required continuous interaction and further assistance was needed for proper implementation of the Programme.



Particularly critical were the development of a suitable IT system for the assessment and processing of applications as well as the production of the required documents and the storage of the necessary files.

Piraeus Bank, under the 'green entrepreneurship' initiative and its social policy, has a particular interest in contributing to this kind of actions. Moreover, through the Programme, Piraeus Bank had the opportunity to reach new clients who could potentially require further services. A lesson learned was that, when involved in similar public support initiatives, careful planning of the required input early in the process is key, especially in terms of workflow organisation and adapting IT systems.

As a result of the Programme under the Operational Agreement signed between Piraeus Banks and ETEAN, 15 500 loans had been provided by March 2017, and EUR 71.33 million disbursed. The loans had a one year grace period, repayment in up to 72 months and an interest rate of 4.93%. Furthermore, estimated environmental effects of this agreement were annual primary energy savings of 22.18 ktoe, with domestic energy savings of 258 GWh, while greenhouse gas emission reductions were 186 kt CO<sub>2</sub>.

## The renovation and energy performance improvement of a two-dwelling building in Athens: achievements

The energy efficiency certificates issued before and immediately after the financial instrument's support showed that primary energy consumption over 121 m<sup>2</sup> reduced by 3 993 KWh (i.e. a 33 KWh/m<sup>2</sup> reduction falling from 145 KWh/m<sup>2</sup> to 112 KWh/m<sup>2</sup>). The cost of these interventions was EUR 17 321 (including VAT) and the Programme was subsidised for 65% of the net amount, i.e. the cost to the individual was 35% x EUR 14 082 (net amount) = EUR 4 928.70 + EUR 3 238.86 (VAT). Depreciation of these operations was set at 10.4 years.



Energy-saving interventions in residential buildings led to a significant reduction in the cost for heating, cooling and hot water. In the example, not only has this been achieved, but the home owner claims that especially in the upper floor the temperature difference in the summer months may have exceeded 7° C, which has improved the comfort and quality of life. Moreover, energy-saving interventions not only produce the above results but also help to protect the environment because significantly fewer pollutants are emitted.

## 6 Lessons learned

The experience of this financial instrument co-financed by the ERDF has allowed stakeholders to draw on several important lessons for similar schemes in future. Their experience was used in the ex-ante assessment for the 2014–2020 programming period in Greece, when assessing residential sector financing needs for energy efficiency.

### 6.1 Design of Financial Instrument

The Programme was a particularly innovative energy renovation programme for the residential sector with its loan and grant combination. It addressed a very wide target group, the majority of homeowners in the country, rather than enterprises, as is the case with most co-funded actions. This meant that citizens with lower incomes could upgrade their residential energy efficiency, which they had difficulty doing previously with only their own funds. By doing so, they managed to improve their living conditions, reduce the energy related expenses and increase the value of their properties. Also, the improved energy performance reduced the energy consumption of the Greek households and benefited the national economy and the environment (mainly in urban areas) by enhancing the energy supply security and by reducing the emissions of greenhouse gases.

Moreover, according to a survey by the managing authority on a sample of final recipients, the Programme motivated business or individual persons to work in the field of energy efficiency (e.g. as suppliers, energy consultants or energy inspectors) and also contributed to job creation/preservation in the construction sector for technicians and engineers. It is estimated that in the programme were involved more than 1 700 Greek enterprises, 4 000 engineers and 300 bank employees.

During implementation, an important lesson learned related to the communication activities, is that ‘word-of-mouth’ can be a powerful tool for the promotion of the Programme. Positive opinions coming from satisfied homeowners, construction companies and energy inspectors should be greatly encouraged and used for marketing purposes. In addition, is important the design and implementation of communication activities that ensure the dissemination of the information related to the programme and its benefits to all relevant market stakeholders.

Another important lesson learned is that significant reduction in household energy consumption is unlikely to be achieved from interventions designed to support the improvement of the energy efficiency alone. In fact, the implementation of the Programme suggests that there is potential for larger energy savings if energy efficiency investments are applied in combination with activities targeting consumer behavioural changes in energy consumption.

Furthermore, during the Programme it became evident that there was a need for a ‘one-stop-shop’ portal, accessible on-line by all stakeholders, to improve the communication and coordination between the different parties to save time and effort. A web portal or on-line tool for common use by all stakeholders involved in the day-to-day management of data related to such a financial instrument, could contribute to greater efficiency and effectiveness of implementation, particularly when many loans to a wide number of final recipients is envisaged.



The combination of grant and loan support offered by the Programme was a key factor in unlocking energy efficiency investments in residential buildings. 70% of the homeowners surveyed for the mid-term evaluation stated that they would not have participated in the scheme without the direct grant-funding component<sup>16</sup>. Additionally, the requirement of the Programme to carry out ex-ante and ex-post energy inspections to define the energy needs of the household buildings and the achieved outcomes, enabled interventions that maximised energy savings and allowed verification of the energy upgrading after the works of the individual renovation projects.

Another important lesson for future schemes is the flexibility of the loan-grant combination. A flexible procedure allowing easy changes of the funding combination could result in more efficient and attractive implementation. Due to the complexity of the building sector in Greece and more specifically of the residential block of flats, there were limited integrated interventions in block of flats. In order to reach these more complex properties it may be necessary to give extra incentives for this building category.

Finally, the certification of materials according to their energy efficiency characteristics resulted in more energy saving awareness and the increased use of such materials throughout the construction industry in Greece transforming them into an industry standard, which was not initially foreseen as a potential benefit.

## 6.2 Key Implementation Challenges

The financial instrument during the implementation period encountered various challenges due to the variety of stakeholders, the size of the fund and the special characteristics of the offered financial products. This sub-section describes the most important challenges that were encountered and how they were addressed.

There was long period for maturity due to the difficulty of the involved partners to adapt to the Programme's philosophy and requirements and the lack of energy efficiency awareness of the targeted groups. To address this, information sessions and trainings, as well as awareness activities regarding the Programme's parameters and special characteristics should precede the launch of any similar instrument.

In addition, the financial instrument experienced organisational issues in the initial phase due to the constraints of the Programme. Experience shows that adequate time was needed for the design and implementation of such a Programme, given the compulsory processes required by legal and regulatory frameworks (EU and national) for delivering the final product (loans) to final recipients.

Moreover, due to the great number of involved stakeholders, coordination issues presented in several related aspects. For instance, a notable challenge was the need to adapt the IT systems of financial intermediaries to the requirements of the holding fund manager. This resulted in delays in the production of the necessary data and the exchange of the required information. Similar problems were also encountered in the interaction between final recipients and financial intermediaries.

Although, compared to the past, the application process was considerably simplified, there was still burden in terms of submission requirements for homeowners. The application form required

<sup>16</sup> Interim Evaluator of OP 'Competitiveness and Entrepreneurship 2007–2013' (2013), Field survey on the Energy Savings in Households mechanism.



up to 14 supporting documents depending on the type of residence ownership, ranging from the building permit to the homeowner's income tax form. In addition, there were delays by the banks in the approval of loan applications, and the checking of the completion documents. These difficulties, whilst they did not create major problems in the implementation process, were taken into consideration for the design of the future programme.

Dealing with these challenges required continuous co-operation between the Programme's partners. This included structured reports from financial intermediaries and their homogenisation by the holding fund manager, as well as regular data checks from the managing authority to avoid failures and actions from all the involved parties to speed-up disbursement of the available funds.

An important issue was also the initial reluctance of construction companies to get involved in the instrument due to the perceived high administrative effort which was required for their direct interaction with the financial intermediaries. As specified in Figure 2, financial intermediaries would directly interact with these companies to cover their costs of renovating the residence. At first, construction companies preferred to deal directly with homeowners but this ceased to be an issue when the grant component increased and the required communication channels between banks and construction companies were established.

Furthermore, the distribution of funds could have been designed in a more strategic way by allowing allocation based primarily on the renovation needs and not on the household numbers. The revision of the implementation guide in 2012 improved the overall absorption rate but resulted in a more rapid exhaustion of allocated budget in some regions, e.g. in the Regions of Macedonia, while others were unable to use all the resources e.g. in Crete.

### **6.3 Outlook**

The Programme was implemented through the first holding fund that was established for such purpose in Greece and it was the first time that public support was given to the private housing sector for energy efficiency investments.

The Programme met its energy saving targets, improved the quality of life of many Greek households and reduced on average their energy consumption by 42.5% (165 kwh/m<sup>2</sup>). With the support of the instrument many, mainly low income, citizens achieved energy savings accounted on average to EUR 1 200 per year.

80% of homeowners that benefitted from the Programme indicated their interest in proceeding with further energy saving interventions, but 76% of these indicated that they would not go ahead with such interventions if these had to be entirely funded from their own resources. Moreover, 96% of recipients would recommend the Programme to other potential recipients.

The value of legacy resources (residual funds and value of investments and participations recorded before the submission of the programme's closure documents) attributable to ERDF resources were EUR 74.7 million. As certified by the Investment Committee, funds returned from the reinvestment of legacy resources, as well as interest, should be re-used for energy-saving actions according to the statutory purposes and procedures of the holding fund manager (ETEAN) as well as for financing programmes for companies providing energy services in the context of energy saving investments.



Due to the high demand an 'Intermediate Programme' was launched to cover some of the pending applications, which were not selected under the 2007–2013 Programme, until the start of the new programme under the 2014–2020 programming period. Through the 'Intermediate Programme' the holding fund supported 62.6 million of new loans which allowed to 15 579 households to upgrade their energy category.

The need for continued public co-funding was analysed in the ex-ante assessment, which also addressed the most suitable forms of support for the 2014–2020 programming period, including the combination of grants and financial instruments. The ex-ante assessment for energy efficiency financial instruments in the 2014–2020 programming period recommended an allocation of EUR 68 million of public funds for financial instruments. Based on the ex-ante assessment and following the experience of implementing the 2007–2013 Programme, Energy Savings in Existing Housing Programme II was designed and launched by the Greek Government with funding from ERDF and national resources, including further grant support alongside the financial instruments.

By taking into account the lessons learned from the 2007–2013 period, the characteristics of the current Programme – again managed by ETEAN – were improved and a new Management Integrated System (Platform) was created for better management of the Programme and for better communication among all stakeholders. Finally, the current Programme continues to provide combined support of grants and loans but also offering the possibility for only grant or loan support and has extended its eligibility in order to cover a wider spectrum of energy saving interventions and related expenses (e.g. energy consultant, studies, required approvals) in residential buildings.









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