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Renovation

Landscape of climate finance in the Polish buildings sector

In the coming years, Poland will gain access to unprecedented funds for thermal modernization of buildings. Limited monitoring of financial flows in the area of buildings renovation creates a risk of only partial and inefficient use of this opportunity.

ENERGY, CLIMATE AND ENVIRONMENT

Renovation. Landscape of climate finance in the Polish buildings sector

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Foreword

Important decisions are being made now on a number of policy levels in the face of a triple crisis of the COVID-19 pandemic, the associated economic downturn, as well as the ongoing climate crisis. Considering the current situation, global climate policy objectives set by the Paris Agreement and operationalized at the EU level by the Regulation on the Governance on the Energy Union, require a strategic approach to redirect financial flows to low-emission investments.

WiseEuropa, NewClimate Institute and I4CE – Institute for Climate Economics have come together over the last three years to work collectively on how better data – both historical and forward-looking – can help governments and stakeholders improve climate-change related investment decision making. This is a challenge for all countries as the transition to a low-carbon, resilient economic model implies significant investments in buildings, transport systems, vehicles, power plants and many other parts of the infrastructure that supports the economy – and our daily lives. In turn, the transition will also require changes in investments as the flows that support climate-adverse effects (fossil fuels or energy intensive technologies) must be reduced and funds redirected to finance what we truly need for our future. Such considerations are especially important now given the current economic stimulus measures being implemented for economic recovery.

Landscapes of domestic climate finance are comprehensive studies mapping financial flows dedicated to climate change action and the energy transition. Covering both end-investment and supporting financial flows from public and private stakeholders, Landscapes capture how the financial value chain links sources, intermediaries, project managers and end-investment. Increasingly they are useful for documenting past investments and estimating their consistency with national climate objectives – as well as for looking forward to better understand how investment patterns need to change and where the financial resources for low-carbon transition could come from.

While a number of countries to date have produced domestic landscapes, knowledge on domestic climate-related end investment as well as financial flows supporting this investment by public and private actors remain limited across the European Union and beyond. The institutions in the project have come together over the past years to learn from each other's experience and expand the use of analytical tools to aid the process of aligning finance with the objectives of Paris Agreement. Working collectively, we have demonstrated how analysis of climate finance flows can be adapted for use in Poland – with implications for use in other central and eastern European countries.

We hope that this report will help those who know our work to better understand it – and to support, if not inspire, other researchers across Europe and around the world to produce such knowledge base in their countries. We invite all interested parties to get in contact with us as we look forward to working with you to achieve our shared climate objectives.

WiseEuropa, NewClimate Institute, I4CE - Institute for Climate Economics

Executive summary

- **Context:** Thermal modernisation of buildings does not only play a key role in reducing greenhouse gas emissions to the atmosphere, but can also be an important stimulus for the recovery of the European economies after the crisis caused by the COVID-19 pandemic. It is one of the key investment areas supported not only by the EU's Multiannual Financial Framework for 2021-2027, but also by the Recovery and Resilience Facility. The European strategy for the buildings sector, the "Renovation Wave", presents both legislative solutions and proposals for specific financial facilities to address both the challenges. We are therefore at a historic moment when unprecedented funds from the European Union can flow towards the thermal modernisation of buildings. Nevertheless, fragmented information on the scale, sources and instruments of financing, as well as the degree of involvement of different groups of investors in the renovation of buildings, hinder implementation of public policy in this area, and also carry the risk of incomplete or ineffective use of European funding offered under the EU Recovery plan. Making use of these funds will require a precise definition of the domestic investment needs and associated financial instruments.

- **Methodology:** The landscape of climate finance in the Polish buildings sector provides a synthetic assessment of the total scale of investments in low-carbon energy sources and in energy efficiency in four types of buildings, while analysing the relationship between private and public funding. The Landscape uses data on projects launched in 2014-2019. These data include the scale of the investment expenditures broken down into individual low-carbon energy sources in buildings and the ones dedicated to increasing the energy efficiency, along with financial flows broken down into individual years and types of investors.

- **Regulatory environment:** In the years 2014-2019, the regulatory environment in Poland in the area of energy efficiency of buildings evolved, gradually increasing the ambitions and the technical requirements, as well as moving towards the adaptation of buildings to the climate change. This evolution resulted mainly from the necessity to adapt the national regulations to the EU sectoral legislation, as well as the growing importance of fighting the smog generated by emitting pollutants heat sources in buildings. In the reviewed period, most public programmes and funds addressed projects involving public utility and multi-family buildings. On the other hand, the activities enabling the renovation of single-family buildings were limited. Only in 2019, in response to the climate challenges and low air quality, households gained wide access to a dedicated support programme "Clean Air". In the same year, the possibility of using the personal income tax relief for thermal modernisation was introduced.

- **Investment expenditures**: In the years 2014-2019, as a result of the implementation of public programmes, the total amount of approx. PLN 23 billion (5.2 EUR bn) of public and private funds was allocated for low-carbon investments in the buildings sector. Approx. 78% of these funds were allocated for the improvement of the energy efficiency and 22% to low-carbon energy generation.

- **Investors:** The public sector (in particular local governments and municipalities) played the greatest role in financing low-carbon investments in buildings, accounting for the total of approx. 56% of all the expenditures allocated for investment projects in 2014-2019. The second most significant group of investors were households, the share of which oscillated around 35%. Enterprises were characterised with lowest involvement, with their share amounting to approx. 9%.

- **Sources of financing:** For almost every group of investors, the EU funds played a dominant role in financing of low-carbon projects in buildings. It accounted for approx. 75% of all public funds. A significant change in the structure of financing the renovation of buildings in Poland took place in 2019 with the introduction of the thermal modernisation relief and the improvement of the operation of the Clean Air programme launched a year earlier, thanks to which the share of financing from the national budget and the National Fund for Environmental Protection and Water Management (NFOŚiGW) increased significantly.

- **Final investments:**

  - **Energy efficiency** – PLN 18 billion (EUR 4 bn):

    - By 2019, investments in energy efficiency were supported almost exclusively in public and multi-family buildings. Large-scale support for investment projects focused on the thermal modernisation of single-family buildings was started as late as in 2019 - the funds allocated for this purpose accounted for approx. 62% of all the investments in energy efficiency supported by the public sector in 2019.

    - In the analysed period, investments in thermal modernisation of buildings belonging to enterprises remained at the same low level. In the years 2014-2019, the total amount of expenditures allocated for this purpose accounted for slightly more than 4% of all the investments in energy efficiency of buildings supported by public intervention.

    - In the years 2014-2019, projects in the field of the improvement of the energy efficiency of multi-family and single-family buildings were financed mainly from funds coming from commercial banks: their participation was on average approx. 50%.

    - In the public and business buildings sector, financing from the European funds clearly prevailed: it accounted for more than 60% of the value of all investments.

  - **Low-carbon energy sources in buildings** – PLN 5 billion (EUR 1.1 bn):

    - 2016 was a record year in terms of investments in low-carbon energy sources in buildings with almost PLN 1.7 billion (EUR 0.4 bn) allocated for this purpose. However, since 2016 a systematic decline in investments has been recorded. In 2019, their total amount was approx. PLN 0.6 billion (EUR 0.13 bn).

- The largest amount of financial expenditures was allocated for investments based on solar energy. The share of PV panels and solar collectors accounted for 32% and 24% of the total amount allocated for investments respectively. Biomass sources accounted for 20% of the investments, and heat pumps for 13%.

- In the analysed period, low-carbon energy sources in buildings were financed mainly from European funds. Their share in all funding sources amounted to over 60%, i.e. over PLN 3 billion (EUR 0.7 bn).

- In the technologies based on solar energy, funds from the National Fund for Environmental Protection and Water Management (NFOŚiGW) and the Voivodeship Funds for Environmental Protection and Water Management (WFOŚiGW), accounted respectively for 15% and 11% of the financial expenditures on photovoltaics and solar collectors. The remaining financing of investments came from the budgets of enterprises and households (approx. 3.5%, PLN 175 million or EUR 39 mn) and local budgets (approx. 3%, PLN 166 million or EUR 37 mn).

- **Recommendations for decision makers:**

  - **Making the support intensity dependent on the depth of the thermal modernisation and the expected environmental effects of low-carbon energy sources in buildings**, which may have a positive impact not only on the increase of ambitions and thus the reduction of the sector's emissions, but also on the improvement of the efficiency of spending of public funds.

  - **Designing long-term support programmes and continuous calls for applications.** Stable conditions and clear rules of the provision of financing may contribute to the increase of the confidence of all groups of investors and, consequently, the increase of the quality of the projects that are carried out.

  - **Organising support systems in a way ensuring that overlaps and competition between the support programmes are avoided.** It is recommended to standardise the conditions of support, the requirements for environmental effects and the types of eligible costs at the level of individual types of buildings.

  - **Standardisation of the programmes evaluation system along with the monitoring of investment projects and financial flows, as well as the collection of and sharing with data.** The creation of a coherent reporting system and consistent collection of data related to the implemented projects could contribute to effective monitoring of the progress and the information flow between the entities interested in low-carbon investments in buildings. In addition, the restrictions related to European funds, which Poland will have at its disposal in the next decade, will translate into the necessity to implement a methodology for tracking financial flows towards low-carbon investments in order to demonstrate the share of green investments in the structure of spending of European funding.

- **Intensification of activities promoting low-carbon investments in the buildings sector**, including conducting of information campaigns and training in the sphere of the benefits of improving the energy efficiency of buildings and their adaptation to the climate change.

- **Improving the communication and structuring the dialogue between the public and private sectors and the financial institutions** in the field of financing of low-carbon investments in the buildings sector, including strengthening of the co-operation with banks.

1. Introduction

Thermal modernisation of buildings does not only play a key role in reducing greenhouse gas emissions to the atmosphere (buildings are currently one of the largest energy consumers in Europe, responsible for approx. 36% of emissions in the EU (EC 2020c)), but it can also be a stimulus for the recovery of the European economy after the crisis caused by the COVID-19 pandemic. Low-carbon investments in the buildings sector directly and immediately generate new local jobs.

Both challenges are addressed by the European strategy for the buildings sector, the "Renovation Wave", presented in October 2020 and announced by the European Commission almost a year earlier as a part of the implementation of the European Green Deal. The strategy presents both legislative solutions and proposals for specific financial instruments that are supposed to contribute to doubling of the pace of renovation of the EU's building stock and the achievement of significant energy efficiency improvements over the next ten years. In addition, the European Commission forecasts that during that period, investments in the buildings sector will create 160 thousand of green jobs across the EU.

According to the announcement, the "Renovation Wave" will be one of the key investment areas supported not only by the EU's Multiannual Financial Framework for 2021-2027, but also by the Recovery and Resilience Facility. We are therefore at a historic moment when unprecedented funds from the European Union can flow towards the thermal modernisation of buildings. Therefore, the knowledge of the landscape of the financial flows in this sector is crucial. Despite the growing importance of the process of decarbonisation of buildings, the state of knowledge of the sources of financing of the energy efficiency improvements and zero-emission energy sources in buildings in Poland remains at a low level.

Fragmented information on the scale, sources and instruments of financing, as well as the degree of involvement of individual groups of investors in the renovation of buildings, not only hinder Polish climate policy, but also carry the risk of incomplete or ineffective use of European funding offered under the EU Recovery Plan. The condition for Poland to use the funds of the European Recovery and Resilience Facility is the presentation by the government of a detailed reform package, including in the field of energy and climate policy. Simultaneously, at least 37% of the funds under the Plan should be allocated for climate-related purposes. While the representatives of the public administration have announced the inclusion of thermal modernisation of buildings as one of the priority areas of the green dimension of the National Recovery and Resilience Plan as early as in autumn, in the coming weeks it will be necessary to precisely define the investment needs and the financial instruments dedicated to such activities. However, it requires understanding of the current status and an insight into to the future. The landscape of climate finance in the Polish buildings sector presented in this report is the first study in Poland that allows for:

- the assessment of the total scale of investments in low-carbon energy sources and energy efficiency in four types of buildings;
- the identification of the sources of financing and the degree of their use by investors;
- understanding of the role of the public sector and private companies in the decarbonisation of buildings;
- the analysis of the relationship between financing from private and public funds generated by the public support;
- the assessment of the contribution of individual instruments to funding low-carbon investments, including the importance of equity/own funds, debt instruments and public policies in stimulating the market.

In July 2020, we published the first study that used the methodology for mapping domestic financial flows in low-carbon investments to analyse the situation of the energy sector. This report is another step aimed at obtaining a complete picture of the structure of green investments in the Polish economy.

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Box 1. Green recovery measures

Countries in Europe and elsewhere are facing a health crisis that is causing a severe economic shock. During most of 2020, the economic response from public institutions has focused on emergencies, starting with the economic fallout of lockdown measures. Now, while the health crisis is not over, the focus of public policy is shifting from emergency to recovery. A "green" recovery package has the potential to combine benefits on the economy, the environment and public health. It may the best way to respond to the demand for resilience expressed in European societies.

To secure such benefits, a green recovery can start along the lines of the low-carbon strategies that EU countries have drafted in response to the adoption of the Paris Agreement. These strategies provide insights and orientations in how to provide key economic services, such as housing, mobility, industrial and consumer products while building a low-carbon energy system and boosting production efficiency and employment. The building sector, with its high contribution to domestic product, large potential for efficiency measures that save money in the short to medium term, potential to foster energy security, and create jobs is a natural place to start investing for a quick and sound recovery.

Powerful insights can be gained by monitoring the recovery measures taken in different countries. So far, with the exception of the EU, global stimulus measures have primarily focused on short term measures and have in many cases have not signalled a trend towards the low carbon transition that is needed for climate targets. This lies in stark contrast to the ambitious long term net-zero emission targets that a growing number of countries have set themselves. Going forward, classifying measures against low-carbon strategies and taxonomies helps understanding what share of recovery plans is expected to contribute to climate objectives. Conversely, high shares of fossil activities should come with strong environmental conditions, such as incentives to invest in low-carbon technologies. Landscapes of climate finance have the potential to provide another key insight – such as the study conducted by I4CE in France in 2020 (Hainaut H. et al. 2020): they help us to understand how public money combines with private funds to trigger investment projects across various sectors. Therefore, effective recovery plans should lead to increases in climate investment mapped in Landscape studies.

2. Methodology

2.1 Scope of analysis and key definitions

How do we define energy efficiency and low-carbon energy sources in buildings?

For the purposes of preparing this report, we have distinguished two areas of the analysis: energy efficiency and low-carbon energy sources in buildings. The projects aimed at reducing the operating costs and primary energy consumption in the following types of buildings have been classified to the first category:

- energy efficiency in office buildings,
- energy efficiency in public buildings,
- energy efficiency in single-family buildings,
- energy efficiency in multi-owner residential buildings.

We have defined low-carbon energy sources in buildings as those that contribute to the full decarbonisation of buildings, and therefore they primarily include renewable sources. In particular, we focused on the analysis of the financial flows for the following technologies that enable the production of electricity and heat from renewable sources:

- heat pumps,
- PV – photovoltaics (when it is part of a project aimed at building renovation or heat source replacement, e.g. in combination with a heat pump),
- geothermal energy,
- solar thermal collectors,
- biomass sources,
- district heating infrastructure (extensions) - the expansion of the district heating network.

The analysis does not cover wind micro-installations on buildings (due to the marginal volume of this type of investments) and the replacement of heat sources in buildings with installations using fossil fuels. In this analysis, investments in photovoltaics are included only when PV panels

are integrated with other measures to increase the energy efficiency and to reduce the emissions of the building. The total financial flows related to the development of photovoltaics in Poland were discussed in detail in the publication "Alternating Current. Landscape of climate finance in the Polish energy sector". The analysis of heat sources in buildings does not include investments in the construction of the district heating network. We only take into account investment projects leading to the expansion of new or the modernisation of the existing infrastructure, excluding any transactions of acquisitions of the existing assets, which as such, do not have an impact on the functioning of the energy system.

Types of investors

This analysis covers enterprises and other organisations, households, and public sector institutions at the national and the local level. Overall, for the purposes of this study, we divided investors into four categories, described in the table below (Table 1).

Table 1. Types of investors in the Landscape of climate finance in buildings

Type of investor	Description
Companies and other organisations	Enterprises implementing projects aimed at improving the energy efficiency and investments in low-carbon energy sources in buildings. These are mainly companies and natural persons running businesses. Other non-public organisations, such as social organisations, foundations or religious organisations, have also been assigned to this group due to the similar nature and the conditions for implementing low-carbon investments.
Public sector - national level	Public entities investing in projects improving the energy efficiency and low-carbon energy sources in buildings, e.g. state-owned enterprises, educational organisational units, research institutes or the State Fire Service.
Public sector - local level	Local government institutions investing in projects improving the energy efficiency and low-carbon energy sources in buildings, represented mainly by communes, cities, counties and independent public healthcare centres.
Households	Households investing in thermal modernisation and low-carbon energy sources in buildings. This group also includes entities managing residential estates, such as housing co-operatives and housing associations.

Source: WiseEuropa

Financial instruments

Our study covers a wide range of financial instruments that enable investors to obtain the funds necessary to implement low-carbon projects in the buildings sector. This category includes in particular: subsidies, preferential loans, commercial loans, as well as the use of the investor's equity/own funds. For the purpose of mapping of low-carbon investments in Poland, financial instruments have been divided into three categories, according to the nature of the liabilities. These are investment grants and subsidies, loans and equity/own funds (Table 2).

Table 2. Types of financial instruments included in the Landscape of climate finance in the Polish buildings sector

Types of financial instruments	Description
Investment grants and subsidies	Non-refundable financial support disbursed to investors to complete a specific project that are subject to specific settlement rules. In the analysis, we only take into account the support for investments, which can be provided in the form of subsidies from European or national funds, as well as investment subsidies in the form of tax relieves (e.g. thermal modernisation relief covering investments, inter alia, in PV panels and solar thermal collectors) and the ones that involve funds from the Thermal Modernisation and Renovation Fund, supporting projects aimed at the improvement of the energy efficiency of multi-family buildings. The landscape does not include the acquisitions of existing assets and the financial flows under operational support systems (e.g. energy certificates), as they are not used directly as a source of funding for investments. An exception is the personal income tax relief, treated as an investment subsidy.
Loans	As a part of debt financing, preferential and commercial loans have been distinguished. • Commercial debt financing offered by banks, including loans and bonds issued at market rates. The terms of contracted liabilities may differ, depending on the instrument and the type of investor. • Preferential loans, e.g. offered by national environmental protection funds, have more favourable repayment terms, both in terms of interest rate, required collateral, and the repayment schedules, compared to the commercial terms. The offer of preferential loans is addressed to specific groups of borrowers.
Equity/own funds	• In the case of enterprises and other organisations, the financing of investment expenditures from own funds (equity) takes place either by increasing the corporate capital or by reinvesting annual operating surpluses (profit). • Own funds of households are the income or savings used to directly finance projects improving the energy efficiency or the use of low-carbon energy sources in buildings without taking loans or receiving support from third parties.

Source: WiseEuropa

Sources of financing

The information on the sources of financing presented in this analysis shows the origin of the funds used to implement low-carbon investments. Three main types of funding sources have been distinguished: national public funding, European funding and own funds of enterprises (equity) and households (including those managed by the financial sector). Each of the indicated groups includes more detailed categories of funding sources, presented in the table below. The report does not cover directly loans from European banks (the European Investment Bank and the European Bank for Reconstruction and Development) due to the lack of sufficient information on the exact financing structure of low-carbon projects in buildings, but the information on available programmes and financing is presented in Box 2.

It should be emphasised that due to the lack of data on the financial flows supported by the private sector, the presented results only reflect the funds which were mobilised as a result of public intervention, i.e. the direct support from national and European public funds.

Table 3. Sources of financing for investments included in the Landscape of climate finance in the Polish buildings sector

Sources of funding	Category	Description
National public funding	National budget	Funds from the national budget, serving, inter alia, as own funds for investments of national institutions or used to cover the costs of subsidies (e.g. lost revenues resulting from a tax relief), including the thermal modernisation relief and funds from the Modernisation and Renovation Fund (FTiR).
	Local budgets	Local government funds used as own funds for investments.
	National and regional environmental funds	The National Fund for Environmental Protection and Water Management (NFOŚiGW) and the Voivodeship Funds for Environmental Protection and Water Management (WFOŚiGW). They raise funds from environmental fees and spend them on repayable or non-repayable support for environmentally friendly investments. This category includes only the support granted from own resources of the Funds, without any EU funding programmes managed by them.
European funding	European funds	Funding allocated from European funds granted both under national and regional operational programmes.
Enterprises and households	Commercial banks	Loans offered to public and private investors by commercial banks to implement projects supported by public funds.
	Company and household budgets	Own funds of companies and households that are directly involved in projects aimed at improving the energy efficiency and investments in low-carbon energy sources in buildings.

Source: WiseEuropa

2.2 Data sources and timeframe of the analysis

This analysis includes data on projects aimed at improving the energy efficiency and investments in low-carbon energy sources in the buildings sector that were launched in 2014-2019. Contrary to the *Landscape of climate finance in the Polish energy sector*, due to the fact that only partial data for 2013 are available, which make it impossible to present a complete picture of the buildings sector, this report takes into account projects launched since 2014. These data include first of all the scale of the investment expenditures broken down into individual low-carbon energy sources in buildings and the ones dedicated to increasing the energy efficiency, along with financial flows broken down into individual years and types of investors. The preparation of the Landscape of climate finance required access to data with the highest possible level of detail. Where it was possible, we used data concerning individual investment projects. In other cases, we disaggregated the aggregate figures based on partial information and the literature concerning the subject. We obtained the necessary data from databases and public registers, reports and documents published by other institutions, as well as directly from public institutions through addressed to them requests for the disclosure of public information.

As some of the data were only in aggregated format, it was necessary to compare and combine information from different sources. The obtained data made it possible to compile the information on:

- the number of implemented projects, their total costs, including eligible costs, the amount of subsidies from a given source, the project start and end dates, as well as its environmental and material effects,
- the loans and credits granted by environmental funds,
- the types of investors implementing particular types of projects,
- the amount of unit investment expenditures (CAPEX) depending on the type of investment.

Despite the wide scope of collected data, it was not possible to obtain the detailed information on all analysed projects. Some public institutions explicitly admitted that they did not have certain information. On the other hand, in case of private institutions, the problem was the inability to provide such information due the fears of weakening of the competitive positions of the enterprises. In situations where the lack of access to data significantly hindered the analysis, estimates were made based on information on similar projects, as well as on available literature on the subject and market information. Table 4 provides a summary of all sources.

Table 4. Data sources used in the Landscape

Data source	Description
Bank Gospodarstwa Krajowego	• Data on the structure of disbursements from Bank Gospodarstwa Krajowego (BGK) under the Thermal Modernisation and Renovation Fund (FTiR) available on the BGK website, as well as data obtained directly from BGK. • Indicators used: The structure of disbursements of the thermal modernisation bonus in 2014-2019.
Ministry of Finance	• Information provided by the Ministry of Finance on the value of investments supported by the thermal modernisation tax relief in 2019.
Ministry of Development Funds and Regional Policy	• Information provided by the Ministry of Development Funds and Regional Policy through the access to public information, as well as posted on the European Funds Portal. • Data on cumulatively almost 5 thousand projects involving investments in energy efficiency and low-carbon energy sources in buildings implemented under the Operational Programme Infrastructure and Environment and Regional Operational Programmes in 2014-2020. • Indicators used: eligible costs, support amount, project value (PLN), additional installed capacity (MWt), project launch year.
Ministry of Climate and Environment	• Information made available through access to public information on projects financed by the EEA Financial Mechanism and the Norwegian Financial Mechanism. • In total, approx. 100 investment projects in energy efficiency and low-carbon energy sources in buildings in 2013-2017. • Indicators used: eligible costs, support amount (PLN), additional installed capacity (MWt), project launch year.
National Fund for Environmental Protection and Water Management	• Information provided by the NFOŚiGW through the access to public information, as well as the regulations of priority programmes posted on the portal of the National Fund for Environmental Protection and Water Management. • The total number of 12 priority programmes of the National Fund for Environmental Protection and Water Management was taken into account in the field of energy efficiency and low-carbon energy sources in buildings carried out in the years 2006-2019 (including LEMUR, KAWKA, PROSUMENT). • Indicators used: Amounts of disbursed loans and subsidies (PLN), additional installed capacity (MWt), estimated investment expenditures per energy unit depending on the technology used (CAPEX).

Source: WiseEuropa

2.3 Key assumptions

The methodology used to prepare the Landscape of climate finance in Buildings in Poland in 2014-2019 was designed based on the approach developed by the Institute for Climate Economics (I4CE) and used for the annual analysis of the financial flows supporting low-carbon investments in France (Hainaut and Cochran 2018).

We have measured the financial flows resulting from low-carbon investments supported with public funds using two complementary approaches:

- the aggregation of cash flows from primary sources with a high degree of detail and completeness,

- the estimation of the financial flows from funding sources, through intermediaries to the final investors, based on mixed sources of information.

The first approach analyses, inter alia, the flows of funds from national and European public institutions, making it possible to identify specific projects that have received support in the form of grants or preferential loans, as well as the exact amounts allocated to their financing, broken down into individual years. A high level of detail of the analysis is possible in this case thanks to the provision by the Ministry of Development Funds and Regional Policy of detailed information on projects implemented with co-financing from the European Union funds.

The second method was used in those elements of the Landscape that required approximate estimates based on partial data due to e.g. incomplete information on individual projects or data with a high degree of aggregation. This approach was also applied to data, the access to which is difficult due to the applicable law. Examples include the information on the scale of private sector involvement or the activities of financial institutions that are not disclosed to the public. Having the aggregated information and partial information, we were able to make more detailed analyses by adopting a few additional assumptions:

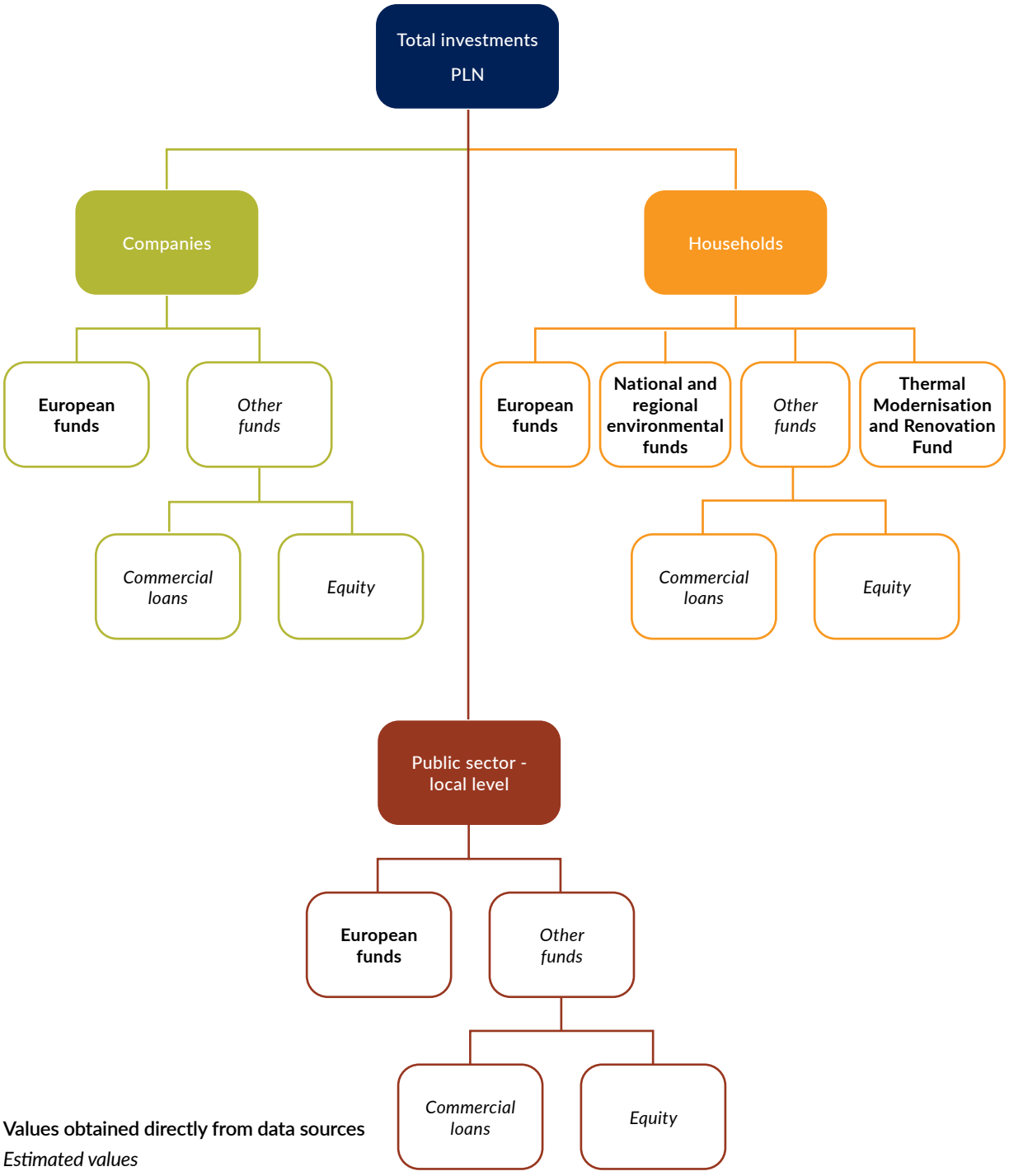
- We assigned the total volume of investment expenditures and related financial flows to the year when the projects were launched. We determined the dates based on the information on individual projects. If there was no information about the launch date of given investment project, we estimated it based on the average duration of similar projects. We did not take into account strategic plans, letters of intent and other documents that have not yet confirmed the actual launch of a project.

- For the purpose of estimation of the size of investments by sources of financing and by instruments, we assumed that if the origin of private funds is not included in the collected data, they constitute the investor's own funds or loans contracted from commercial banks. We established the proportion between the involvement of own funds and loans based on the market debt-to-equity ratio determined for most technologies at the level of 25-75. The exceptions are, for example, the priority programmes of the National Fund for Environmental Protection and Water Management implemented by households, for which we have lowered the estimated debt-to-equity ratio to the level of 15-85 due to the high average level of co-financing from the programmes.

- For projects financed from the European Funds, we assumed investment expenditures calculated using directly the data on individual projects. At the same time, for projects implemented with funds from the EEA Financial Mechanism and the Norwegian Financial Mechanism, as well as projects financed by the National Fund for Environmental Protection and Water Management, we assumed CAPEX in line with the average maximum eligible unit costs of installation from the regulations of selected National Fund for Environmental Protection and Water Management priority programmes.

In this study, all final values are presented in Polish złoty (PLN) in constant prices of 2019.

Diagram 1. Data disaggregation - an example of energy efficiency in multi-family buildings



Values obtained directly from data sources
Estimated values

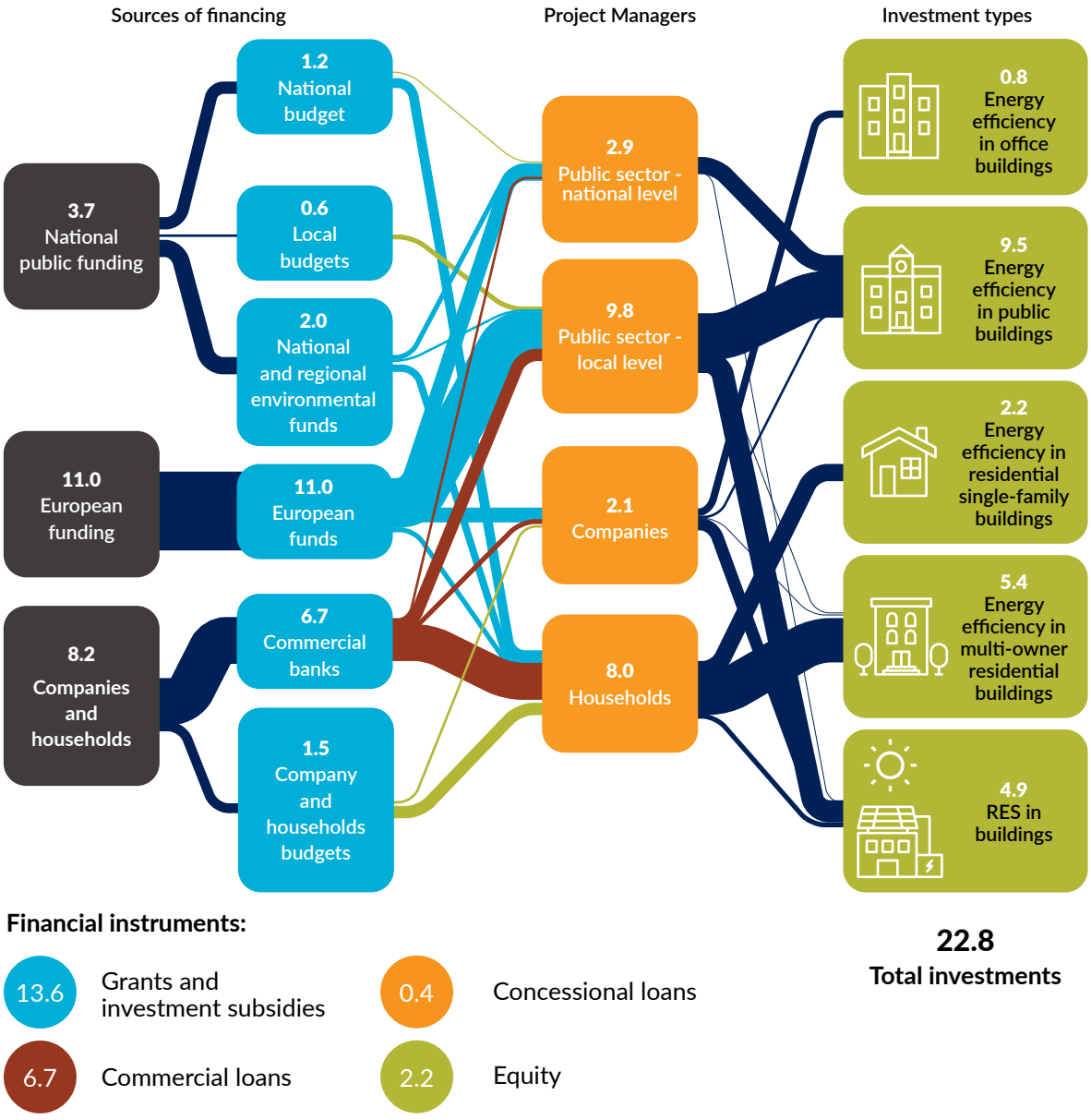
Source: WiseEuropa

3. Results

3.1 Financial flows in the buildings sector in 2014–2019

Diagram 2. Landscape of climate finance in the Polish buildings sector in 2014-2019

Landscape of climate finance in Poland, buildings sector
(amounts in billion PLN, total flow in the 2014-2019 period)



Source: WiseEuropa and I4CE based on data on public support programmes for the renovation of building stock in Poland.

Regulatory context

In the years 2014-2019, the legislative environment in Poland in the area of energy efficiency of buildings evolved, gradually increasing the ambitions and the technical requirements, as well as moving towards the adaptation of buildings to the climate change. In 2014, the Act on the Energy Performance of Buildings specified, inter alia, the principles for issuing energy certificates and developing a national action plan to increase the number of low-energy buildings.[1] In the following years, additional regulations were introduced, of which the Regulation of the Minister of Infrastructure of 12 April 2002 on technical conditions to be met by buildings and their location[2] that specifies in detail the energy efficiency of modernised and newly built buildings in Poland continues to play a significant role. The amendments to the regulation introduced a gradual increase of the requirements by 2021, and also took into account the possibility of using renewable energy in buildings. This evolution resulted mainly from the necessity to adapt national regulations to the EU sectoral regulations (e.g. Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency), as well as the necessity to achieve the emission reduction targets and to improving energy efficiency for 2020.

In the reviewed period, most public programmes and funds addressed projects involving public utility and multi-family buildings. In this context, throughout the years, the renovation of single-family buildings was not in the focus of actions, despite the existing ecological premises that pointed out the presence of outdated and ineffective heat sources in this type of buildings. This trend changed as late as in 2019, and households received a broad access to dedicated "Clean Air" support programme, aimed primarily at the replacement of heat sources and offering the possibility of using the thermal modernisation relief. In the further part of this chapter, we present the details of shaping of the financial flows in 2014-2019, broken down by investment directions, types of investors and sources of financing.

Investment expenditures

- The scale of low-carbon investments in the buildings sector in Poland largely depends on the expenditures on thermal modernisation, i.e. on the improvement of the energy efficiency. In the years 2014-2019, such projects accounted for approx. 78% of the value of all low-carbon investments in buildings, while funds allocated for low-carbon energy sources amounted to approx. 22%.

1 Journal of Laws of 2014, item 1200
2 Journal of Laws of 2015, item 1422, as amended, and Journal of Laws of 2019, item 1065

Figure 1. Low-emission investments by energy efficiency and renweables in 2014-2019

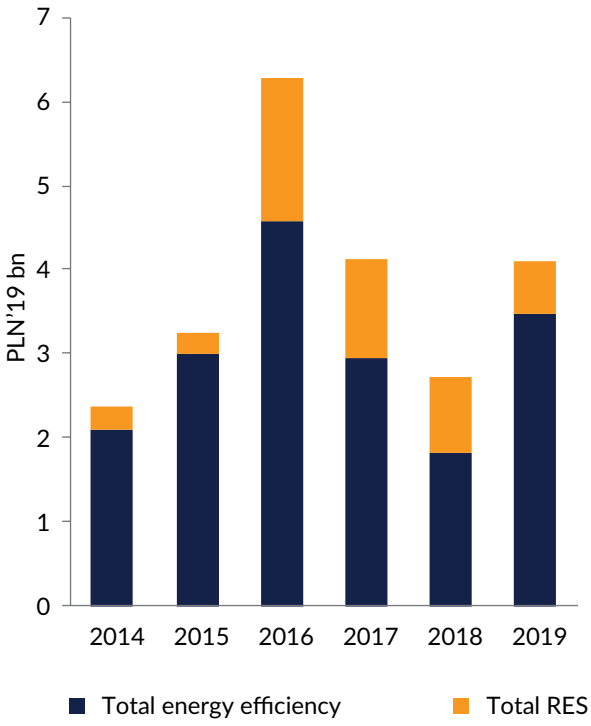
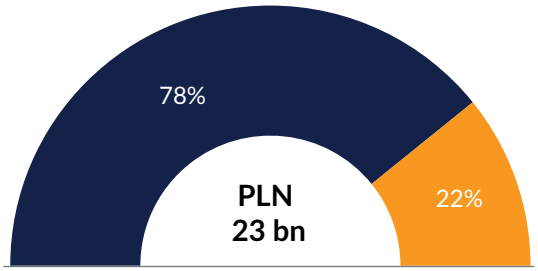


Figure 2. Total value of investment projects by energy efficiency and low-emission energy sources in 2014-2019



Source: WiseEuropa.

The estimated amount of funds mobilised as a result of public intervention that were allocated for the implementation of low-carbon investments in the buildings sector reached PLN 23 billion in 2014-2019. The vast majority of this amount, approx. 78%, i.e. PLN 18 billion, was allocated to projects improving the energy efficiency of buildings, while 22% of funds (almost PLN 5 billion) supported projects related to the replacement of heat sources and the installation of renewable energy sources in the analysed sector.

The dynamics of spending of funds dedicated to thermal modernisation has changed over the years. Most projects, with a total value of PLN 4.6 billion, were launched in 2016, which was a consequence of the distribution of spending of the EU funds under the 2014-2020 multiannual financial framework. In the following years, the accumulated expenditures were gradually decreasing, reaching a level slightly higher than the scale of financing in 2014-2015. The downward trend of 2016-2018 was stopped in 2019, when additional public support programmes, including those launched under the Clean Air programme contributed to an almost twofold increase in the investment expenditures for this purpose (from PLN 1.8 billion to PLN 3.5 billion).

The scale of investments in the replacement of heat sources and the installation of renewable energy sources in buildings, similarly to the energy efficiency, also increased rapidly in 2016, increasing its value six times compared to 2014 (from PLN 250 million to PLN 1.7 billion). The dynamics was different in the years 2017-2019, when this type of investments was systematically decreasing, finally reaching PLN 637 million in 2019.

The available data and estimates show that in 2014-2019, the most of the new capacity was installed in such low-carbon technologies as biomass sources (532 MW in total), solar thermal collectors (423 MW) and photovoltaics (314 MW). According to the information obtained, in the following years there was a gradual decrease in installed RES capacity, but this effect may be caused not so much by the number and value of launched projects, but by the lack of relevant data on this subject.

Investors

- In 2016, there was a boom in local government investments in low-carbon projects in buildings. This phenomenon was related to the availability of the EU funds for this group of investors in that period.

- In 2017-2019, the participation of national and local public entities in financing of the investments decreased, which was to some extent offset by an over fourfold increase in the activity of households between 2018 and 2019.

Figure 3. Financing of low-carbon investments in the buildings sector by investor group in 2014-2019

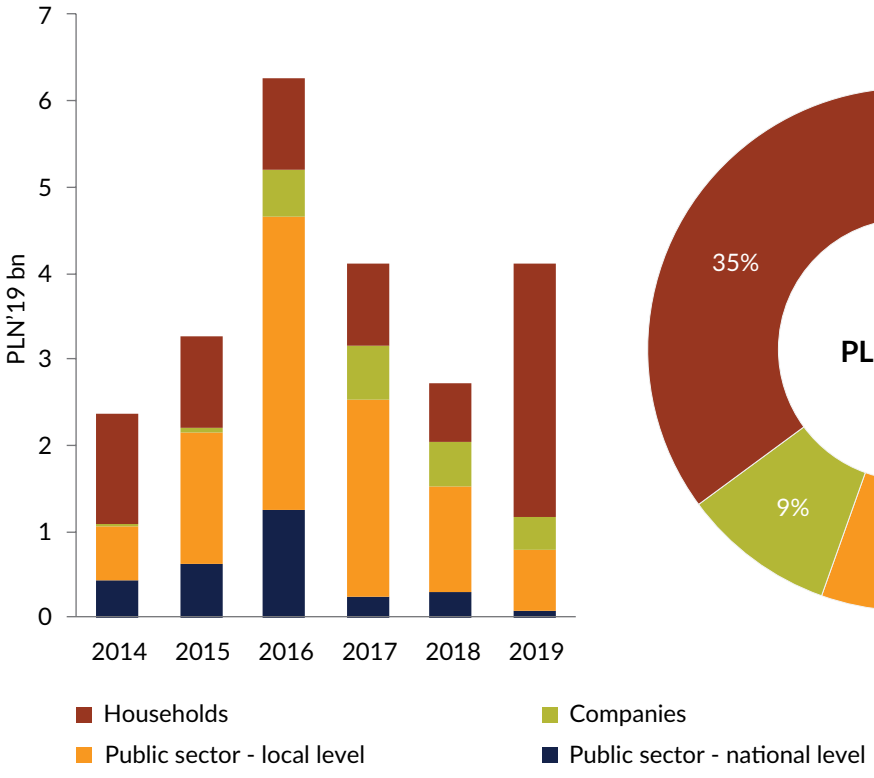
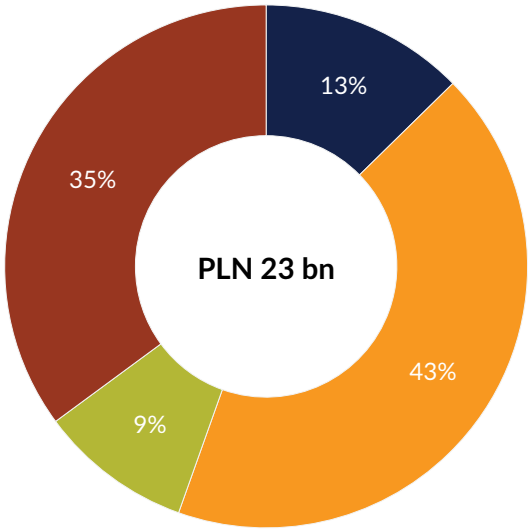


Figure 4. Cumulative share of particular investor groups in financing low-carbon investments in the building sector in 2014-2019



Source: WiseEuropa.

The largest amount of funds, i.e. approx. 56% (almost PLN 13 billion), for investments in low-carbon technologies in the buildings sector in the period 2014-2019 was allocated by the public sector, in particular by local governments and communes (43%, almost PLN 10 billion). Nevertheless, the scale of the involvement has changed dynamically over time. In 2016, investments by local governments and national administration doubled compared to 2015. However, it was a temporary phenomenon, resulting from the implementation of projects supported by EU funds in that period. In the following years, the interest of local governments in low-carbon investments in buildings decreased to the level almost from before the investment boom, and in case of national public entities (public sector - national level), the expenditures decreased by over 80% compared to 2014.

The group of investors that played a smaller role in 2014-2016 were households with a 35% share in financing of low-carbon investments in buildings. Until 2018, their average expenditures amounted to approx. 31%, increasing to 72% in the last examined year, mainly due to the mobilisation of funds under the thermal modernisation relief and the government's Clean Air programme. Investments carried out by companies and other organisations showed the lowest dynamics. After the eight-fold increase in the funds invested by these entities in 2016 (compared to 2015), the amount of expenditures remained at a lower level, with a slight decrease in 2019. Across the entire period, the importance of the public sector and households in financing low-carbon investments in the buildings sector was almost ten times greater than the involvement of companies and other organisations, the share of which was 9%.

Sources of financing

- For most of the period under review, European funding played a dominant role in supporting low-carbon investment in the buildings sector from public sources. That picture changed as late as in 2019 with the increasing importance of funds from the national budget (the thermal modernisation tax relief), the National Fund for Environmental Protection and Water Management and the Voivodeship Funds for Environmental Protection and Water Management.

Figure 5. Main sources of financing in 2014-2019

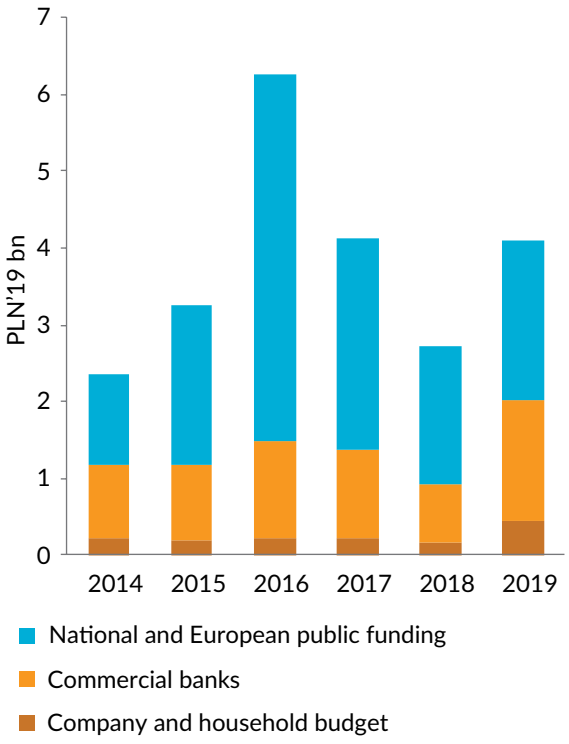
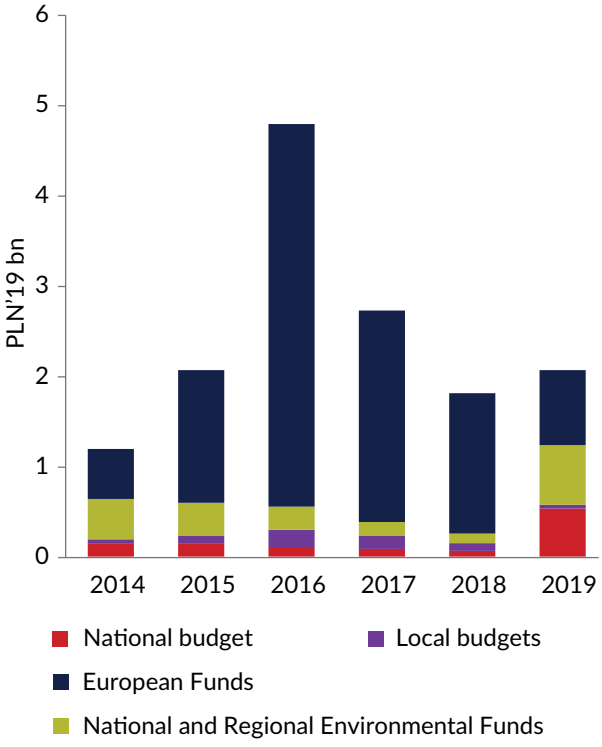


Figure 6. Sources of national and European public financing (2014-2019)

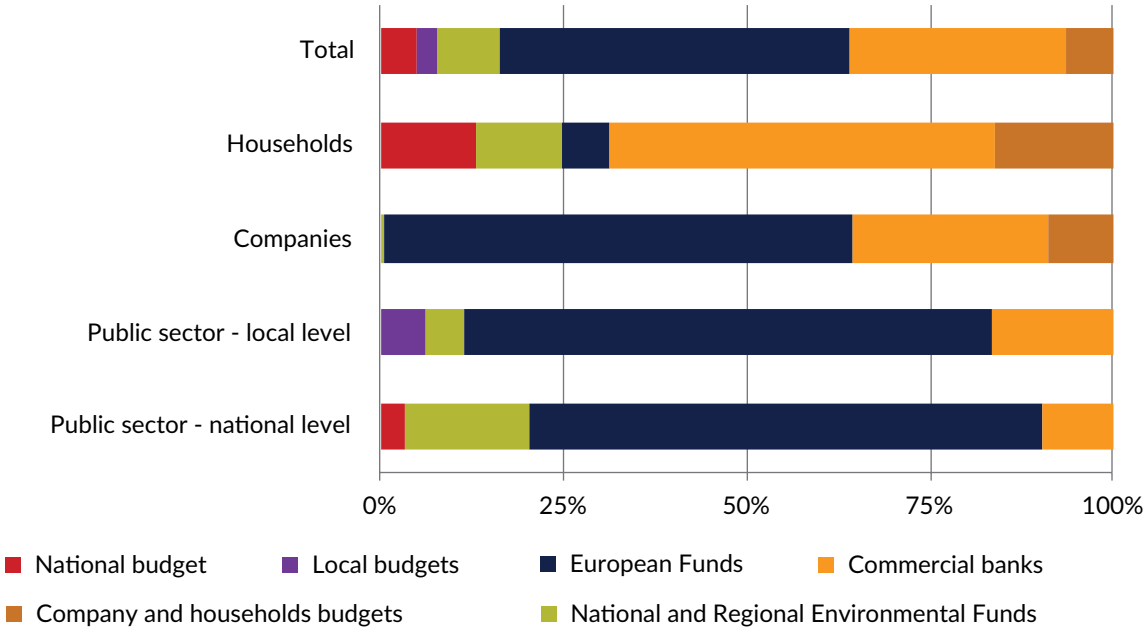


Source: WiseEuropa.

Throughout the analysed period, the participation of commercial banks and the budgets of enterprises and households remained at a more or less constant level. The greatest support for low-carbon investments from public sources was provided by European funds, which accounted for 75% of all public funds (approx. PLN 11 billion). At the same time, the public sector at the national, regional and local levels was responsible for the use of over 70% of European funding (PLN 9 billion). In 2015-2018, European funds exceeded over five times the national public financing. Nevertheless, since 2016, the share of the EU funds in the financing structure has been consistently and gradually decreasing, which was related to the pace of spending and launching of projects in the 2014-2020 financial framework. The decrease was not accompanied by an increase of the domestic financing. A significant change in the structure of financing took place in 2019 with the introduction of the thermal modernisation tax relief and the Clean Air programme, thanks to which the share of financing from the national budget and the National Fund for Environmental Protection and Water Management (NFOŚiGW) increased significantly.

- The public sector and the sector of enterprises were implementing low-carbon investments in buildings mainly based on European funds, while households mostly relied on funds obtained from commercial banks.

Figure 7. Cumulative share of available sources of finance by investor types



Source: WiseEuropa.

Throughout the analysed period, the extent of the use of available sources of financing for low-carbon investments in buildings by individual groups of investors differed. While implementing investments mainly related to the thermal modernisation of public utility buildings and publicly owned residential buildings, the public sector used the EU funds in over 70%. At the national level, the second important source of funding was the National Fund for Environmental Protection and Water Management (17%), while local governments used this source to a lower extent, which in this case covered 6% of all investments carried out by this group of investors. At the regional level, commercial banks (17%) and local budgets (6%) were of greater importance.

In projects implemented by companies, the key element was the use of the EU funds (64%), which were characterised by a high intensity of support. The mix of financing sources for the project implemented by households was the most diversified among all groups of investors. In this case, low-carbon investments in the buildings sector were possible thanks to funds obtained from commercial banks (52%) and own funds (16%). The rest of the financing was obtained from the national budget (13%) (the thermal modernisation relief) and the National Fund for Environmental Protection and Water Management (11%) (mainly the Clean Air programme). Households (including housing associations and co-operatives) used the EU funds to the least extent; they were responsible for only 7% of their investments.

Box 2. The support of the European Bank for Reconstruction and Development (EBRD) and the European Investment Bank (EIB) for the thermal modernisation of buildings in Poland

The European Bank for Reconstruction and Development (EBRD)

The financial support of the European Bank for Reconstruction and Development for investments in increasing of the energy efficiency of buildings in Poland was provided mainly through loans granted to domestic private financial institutions. These funds were then transferred to the final beneficiaries, which included either micro, small or medium-sized enterprises or individual customers. The first group of customers was covered by the Poland GEEF (Green Economy Financing Facility) Leasing Framework programme, and the second by the Poland REEF (Residential Energy Efficiency Framework) programme.

The GEEF Leasing Framework provides for financial support for the implementation of projects, including in the field of increasing of the energy efficiency and effective resources management through senior loans or, more often, leasing. The total support granted under the programme in 2013-2019 amounted to EUR 305 million, but there is no publicly available data that would allow an estimation of what part of this amount was allocated to investments in the thermal modernisation of buildings belonging to enterprises.

The REEF programme finances the improvement of the energy efficiency and effective resources management in residential buildings through loans. In 2013-2019, the EBRD invested in total EUR 98 million in this programme, but as in the case of the GEEF Leasing Framework, based on publicly available sources, it is difficult to estimate how much of this amount was allocated exclusively for the thermal modernisation of buildings.

Notwithstanding the above, in 2018, the EBRD invested EUR 32.7 million in the purchase of bonds issued by Pekao SA Bank. The bank have committed to allocate 150% of the proceeds from this investment to financing of the improvement of the energy efficiency. In 2016, the EBRD also granted a loan of EUR 100 million to Kaufland for the renovation (including the improvement of the energy efficiency) of selected hypermarkets and logistics centres of the company in Poland.

The European Investment Bank (EIB)

The European Investment Bank supported investments in energy efficiency in buildings in Poland through the JESSICA, ELENA and PF4EE programmes.

The first of them, i.e. **Joint European Support for Sustainable Investment in City Areas**, is implemented on the initiative of the European Commission in co-operation with the Council of Europe Development Bank and financed from the resources of the Urban Development Fund (in Poland managed by BGK), operating under the European Regional Development Fund. The programme assumes granting of preferential loans or guarantees to co-finance, inter alia, projects in the field of improvement of the energy efficiency of buildings. However, the condition is their presence in urban revitalisation plans. Based on publicly available data, it is difficult to estimate what amount was allocated under the programme directly to investments in the thermal modernisation of buildings in Poland in 2013-2019.

ELENA, i.e. the European Local ENergy Assistance, is a programme managed by the EIB and financed by the European Commission from the Horizon 2020 programme budget that provides technical support for planned investments in the energy efficiency and renewable energy sources in buildings and in the urban transport sector. Its recipients are entities from the public and private sectors: banks and building owners. The programme finances, inter alia, energy audits, drawing up of business plans, financial and legal advice, preparation of tender procedures, consolidation of project and project management. Its purpose is exclusively to support the preparation and not the implementation of projects - it acts as a lever to mobilise the appropriate investments. In the years 2013-2019, five projects related to energy efficiency were financed under the ELENA programme in Poland. The total amount of their financing reached over EUR 12 million.

PF4EE, i.e. Private Finance for Energy Efficiency, is a facility that provides support for investments in the improvement of the energy efficiency from the EU LIFE programme. It applies to financial institutions and may take the form of cash collateral for loans granted for energy efficiency projects, direct long-term financing with funds that are then lent to final customers or the form of expert support. In 2013-2019, just one project was co-financed from this programme in Poland. In 2019, BNP Paribas bank received cash collateral for granted loans in the amount of EUR 16 million.

In total, in 2013-2019, the European Investment Bank co-financed in Poland initiatives aimed, inter alia, at the improvement of the energy efficiency of buildings in the amount of over EUR 428 million in the form of loans to local governments or credit lines granted to financial institutions. However, publicly available sources do not allow to determine the amount of financing directly allocated for the thermal modernisation of buildings for each project.

3.2 Results by type of final investment

Energy efficiency

- Before 2019, investments in the energy efficiency were made almost exclusively in public buildings and multi-family buildings. The investment projects focused on the thermal modernisation of single-family buildings were commenced as late as in 2019 - the funds allocated for this purpose accounted for approx. 62% of all the investments in energy efficiency supported by the public sector in 2019.

- In the analysed period, investments in thermal modernisation of buildings belonging to enterprises remained at the same low level. In the years 2014-2019, the total amount of expenditures allocated for this purpose accounted for slightly more than 4% of all the investments in energy efficiency of buildings supported by public intervention.

Figure 8. Investments in energy efficiency by building type in 2014-2019

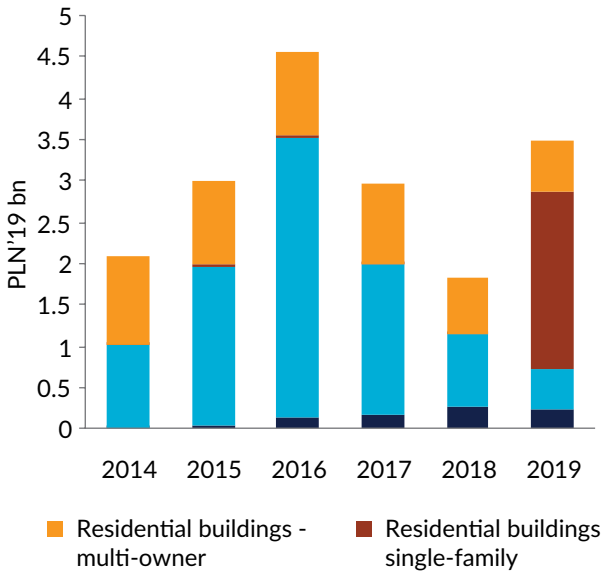
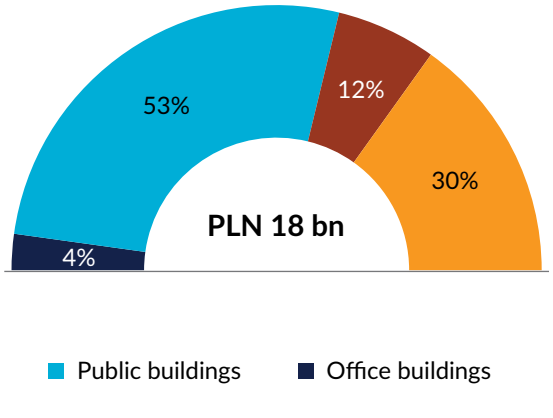


Figure 9. Cumulative share of investments in energy efficiency by building type in 2014-2019



Source: WiseEuropa.

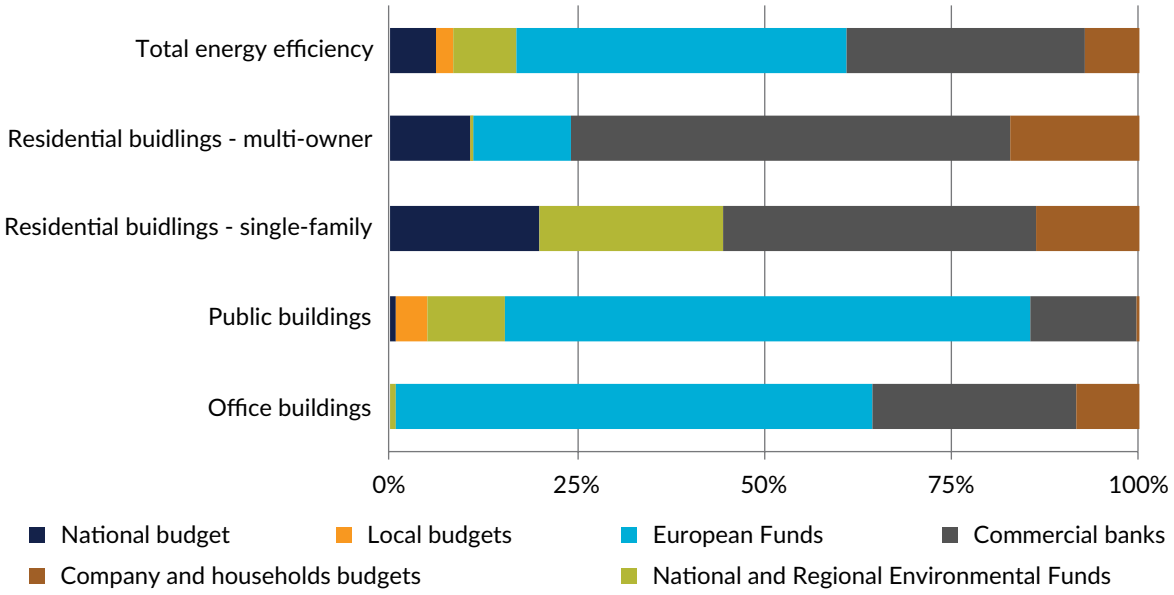
The cumulative value of funds invested in the energy efficiency of buildings in the years 2014-2019 amounted to approx. PLN 18 billion. Approx. 53% of this amount was allocated for the energy efficiency of public buildings - the total financial expenditures for this purpose amounted to over PLN 9.5 billion. The thermal modernisation of multi-family buildings was the second major area financed in 2014-2019. Approx. 30% (i.e. almost PLN 5.5 billion) of all funds allocated for the energy efficiency in the analysed period was allocated to this area. Investments in the thermal modernisation in single-family buildings accounted for 12% of the total expenditures, i.e. less than PLN 2.2 billion. However, this amount is almost exclusively linked with the wave of investments launched in 2019 with the total value of PLN 2.16 billion. It was caused by the introduction of the

thermal modernisation tax relief and the allocation of the funds under the Clean Air programme to the improvement of the efficiency of single-family buildings. Without these funds, 2019 would have had the lowest financial flows towards the energy efficiency of buildings in the 2014-2019 period.

- In the years 2014-2019, the energy efficiency of multi- and single-family buildings was financed mainly from the funds coming from commercial banks: on average they accounted for approx. 50%.

- In the public and company buildings sector, financing from the European funds clearly prevailed: it accounted for more than 60% of the value of all investments.

Figure 10. Cumulative share of available sources of finance for energy efficiency by building type in 2014-2019



Source: WiseEuropa.

The analysis of the financial flows in the years 2014-2019 allows for the identification of the two most important sources of financing of the energy efficiency in Poland, i.e. European funds and commercial banks. European funding supported the improvement of the energy efficiency of buildings in Poland with the amount of PLN 7.89 billion (44% of all investments), and commercial banks mobilised PLN 5.66 billion (32% of all investments) for this purpose.

The European funds had a very high share in the investments in the thermal modernisation of enterprise and public buildings. They accounted respectively for 63% (PLN 0.5 billion) and 70% (PLN 6.67 billion) of the funds allocated for the energy efficiency in these sectors. On the other hand, loans granted by commercial banks played a major role in financing of the renovation of private residential buildings. In the single-family buildings sector, they accounted for 42% of all funds (PLN 0.9 billion), and in the multi-family buildings sector, their share in financing of the energy efficiency was 58% (PLN 3.16 billion). The remaining part of financing of the energy efficiency of

private residential buildings was provided by funds from the national budget (20% in the case of single-family buildings, 11% in the multi-family buildings sector), the share of which in supporting of the thermal modernisation of public buildings was negligible, and zero in the case of company buildings. The lack of European funds among the sources of financing of the energy efficiency of single-family buildings, as opposed to other types of buildings, is noteworthy. In this sector, however, the highest share of funds from the National Fund for Environmental Protection and Water Management (NFOŚiGW) and the Voivodeship Funds for Environmental Protection and Water Management (WFOŚiGW) was observed, amounting to 24% (PLN 0.53 billion). However this source supported public buildings with the largest amount, i.e. PLN 0.97 billion.

Low-carbon energy sources in buildings

- 2016 was a record year in terms of investments in low-carbon energy sources in buildings with almost PLN 1.7 billion allocated for this purpose. However, since 2016 a systematic decline in investments has been recorded. In 2019, their total amount amounted to approx. PLN 0.63 billion.

Figure 11. Investments in low-emission energy sources in buildings by RES technology in 2014-2019

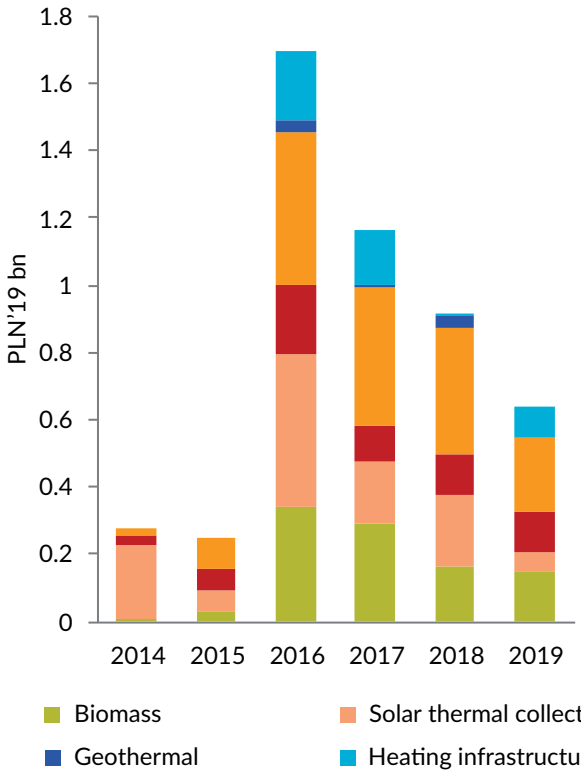
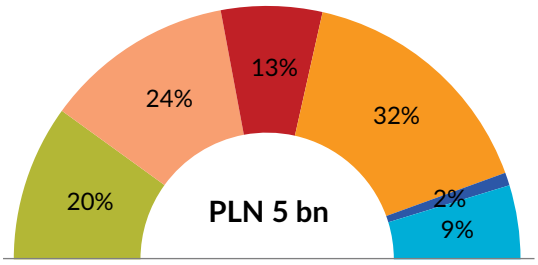


Figure 12. Cumulative share of investments in low-emission energy sources in buildings by RES technology in 2014-2019

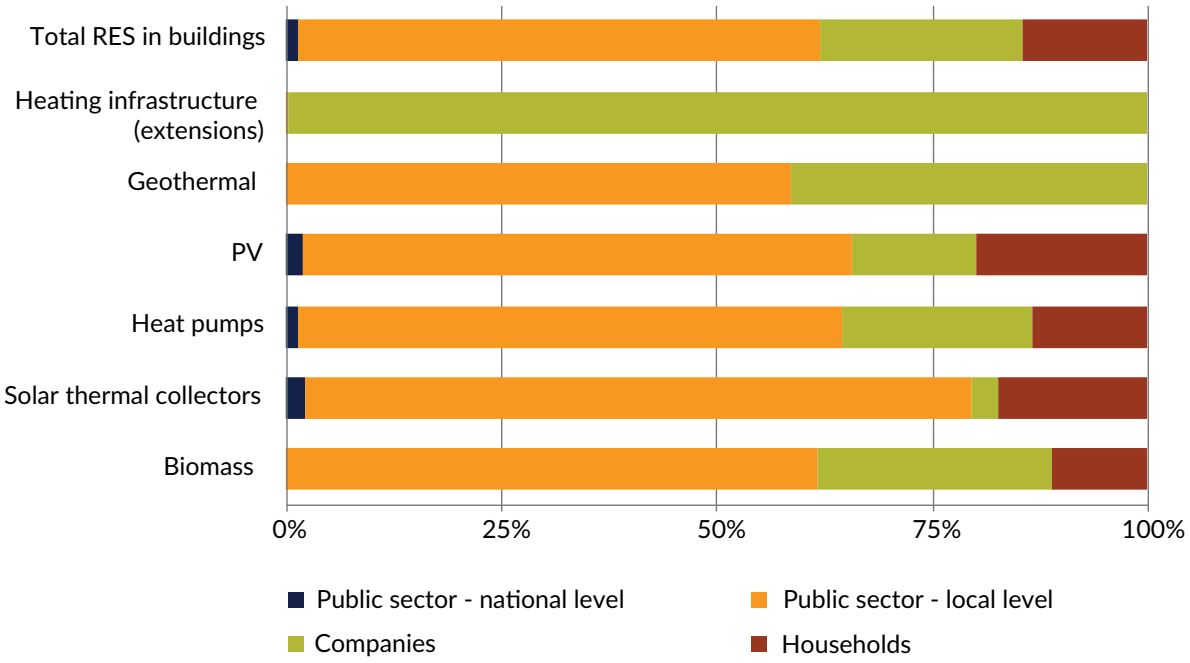


Source: WiseEuropa.

The cumulative value of the funds invested in low-carbon energy sources in buildings in 2014-2019 amounted to approx. PLN 5 billion. The largest amount of financial resources was spent on investments in photovoltaics, their total share in this amount is 32%, i.e. over PLN 1.5 billion. In terms of the level of financing, solar thermal collectors also stand out - almost PLN 1.2 billion has been allocated for this purpose, i.e. 24% of the total investments. Biomass sources account for 20% of the investments (less than PLN 1 billion), and heat pumps for 13% (over PLN 0.6 billion). Other technologies, of lesser importance for investors, include connections to the district heating infrastructure (9% share, approx. PLN 0.45 billion) and geothermal energy (2% share, approx. PLN 81 million). Despite the downward trend (from almost PLN 1.7 billion invested in 2016 to PLN 0.6 billion in 2019), the shares of individual technologies in the spending structure remained at a similar level also over the next years of the analysed period, in particular between 2016 and 2019.

In the years 2014-2019, public sector institutions at the local level (local government) clearly dominated among the entities investing in low-carbon energy sources in buildings.

Figure 13. Cumulative share of investor groups in financing low-emission energy sources in 2014-2019



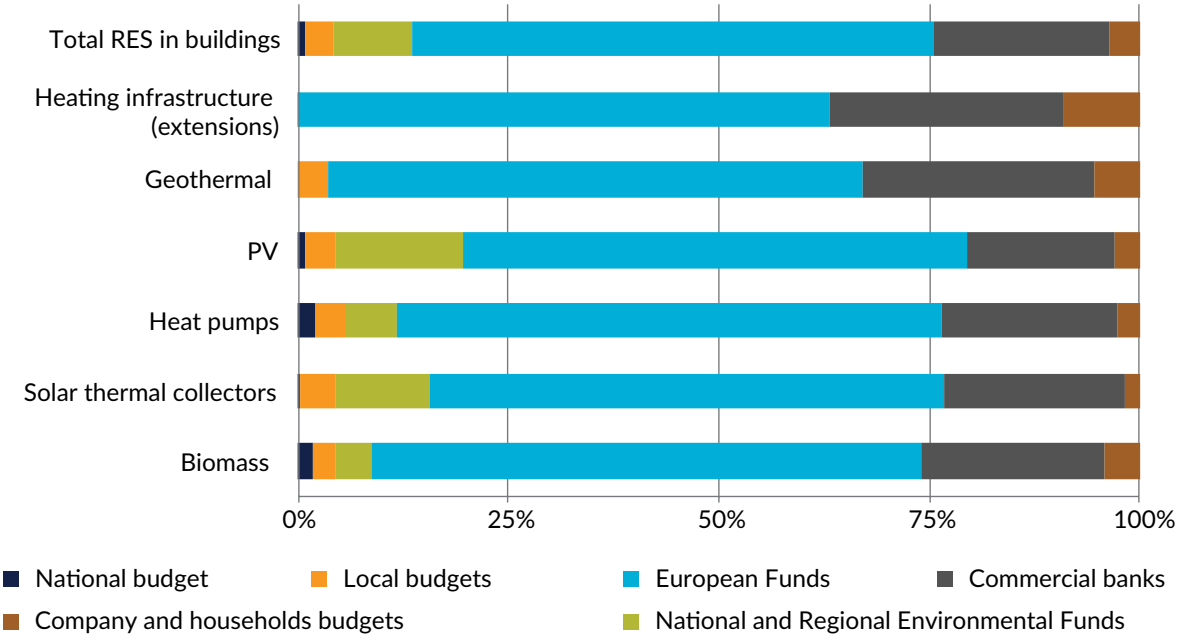
Source: WiseEuropa.

The analysis of the contribution of individual investors to the installation of low-carbon energy sources in buildings shows that the participation of local government institutions in these investments amounted to 61%, which corresponds to nearly PLN 3 billion. In case of individual technologies (apart from the connections to the district heating infrastructure), their contribution ranged from 58% (geothermal energy) to 77% (solar thermal collectors). The largest amount, i.e. over PLN 1 billion, was invested by local governments in photovoltaics. Among the remaining investors, enterprises stand out, being responsible for 24% of all investments. It is the only group of investors that allocated funds for the development of the district heating infrastructure in 2014-2019. The entrepreneurs allocated the largest investment expenditures for the development of biomass sources (PLN 266 million) and photovoltaics (PLN 228 million). Responsible for 14% of all

investments households invested primarily in solar energy - over PLN 300 million was allocated by them for PV panels and PLN 210 million for solar thermal collectors. Public institutions at the national level were responsible for the remaining, marginal part (i.e. 1%), of the investments in low-carbon energy sources.

- In the analysed period, financing of low-carbon energy sources in buildings was provided mainly from the European funds. Their share in all funding sources amounted to over 60%, i.e. over PLN 3 billion.

Figure 14. Cumulative share of available sources of finance for energy sources in 2014-2019



Source: WiseEuropa.

In the years 2014-2019, European funds dominated among the sources of financing of low-carbon energy sources in buildings regardless of their technology (they provided over 60% of financing for each technology). For the technologies based on solar energy, financial resources from the National Fund for Environmental Protection and Water Management (NFOŚiGW) and the Voivodeship Funds for Environmental Protection and Water Management (WFOŚiGW) were also significant. These funds were responsible respectively for 15% and 11% of financial expenditures for solar farms and solar thermal collectors. The remaining financing of investments came from the budgets of enterprises and households (approx. 3.5%, PLN 175 million) and local budgets (approx. 3%, or PLN 166 million). Public funds at the national level played a marginal role. In the analysed period, the shares of individual sources of financing in the development of heat pumps and biomass sources were similar. In the case of the latter, a noticeable difference is the much smaller share of the national environmental funds (4%) in supporting of this technology.

Box 3. Buildings sector in the French Landscape of climate finance

In 2018, investment in the French building sector totalled 20.7 billion euros. This amounts to 45% of French climate investment. Retrofitting of residential buildings mobilized 15.1 billion euros. In contrast with the Polish landscape, private owners, notably households, accounted for 88% of climate investment in the sector. Such a difference may be due to the greater attractivity of low-carbon technologies such as efficient boilers and heat pumps in France.

While climate investments in the French building sector have risen since 2011, the amounts remain below the levels required to achieve France's national climate objectives. According to I4CE's assessment of the national low-carbon strategy (Stratégie nationale bas-carbone, SNBC) between 13.7 and 20.8 billion euros per year should be invested for retrofitting residential buildings the short term (2019-2023), and 2.9 to 4.3 billion euros for retrofitting public and private tertiary buildings. The actual gap between current investment and corresponding needs may be higher than it appears through the numbers. Indeed, the national strategy calls for a focus on deep and complete retrofitting of buildings while the vast majority of current investments concern many small superficial operations such as boiler replacement.

The response to the economic crisis triggered by the COVID-19 epidemic provides an opportunity to design a better renovation policy. Namely, public subsidies can be increased and combined to provide a stronger incentive to engage in deep and complete retrofitting of all types of buildings. Local government's efforts to coordinate information, resources and services should be prolonged and increased. Households could find borrowing conditions adapted to the duration and profitability of their projects through semi-public or corporate banking networks. Together, measures requiring 1.2 billion euros per year in public money could bring climate investment at the levels required in the national strategy. Such efforts would bring co-benefits, such as reducing energy insecurity, unemployment, air pollution and increasing tax revenues.

In September 2020, the French government announced a recovery plan ("France Relance") including 6.7 billion euros over two years for retrofitting in the building sector. This is an encouraging first step, but challenges remain in providing these additional resources to potential projects, as well as in coordinating with existing envelopes and instruments. For example, there is still little incentive for deep retrofitting in the private dwellings despite its contribution to the national climate objectives.

4. Summary and recommendations

In this report, we have analysed the available data on financing of low-carbon investments in order to better understand the processes taking place in the Polish buildings sector in recent years and to correctly define future challenges and opportunities for the policy makers, public and private sectors, and financial institutions. The results show that the years 2014-2019 were characterised by a high level of variability in terms of the scale of the financial expenditures and the involvement of individual groups of investors in the implementation of low-carbon investments in buildings.

Until 2018, the thermal modernisation of building stock and the installation of renewable energy sources were primarily possible thanks to the European funding. The characteristics of these funds caused uneven distribution of the investors' activity over time, resulting in an increase of investments in 2016 by at least 50% in relation to each of the analysed years. A significant change came in 2019, when national funds (from the national budget, local budgets as well as the National Fund for Environmental Protection and Water Management and the Voivodeship Funds for Environmental Protection and Water Management) accounted for approx. 2/3 of the total involvement of public financing in the implementation of low-carbon investments in buildings. Such a significant increase in the share of national funds shows that properly implemented regulations and incentives may allow the achievement of real changes in the process of decarbonisation of buildings in a very short time – the observed changes are a direct result of the introduction of the thermal modernisation tax relief and the expansion of the Clean Air programme. At the same time, it is worth to note that while public intervention had a significant impact on the increase of the scale of financing measures to support the energy efficiency of buildings, it did not translate into investments in renewable energy sources – the investments in the latter category have been systematically decreasing since 2016.

At present, the national programmes of support for the thermal modernisation of buildings are being designed (including the update of the Clean Air programme), and the reforms necessary to create the National Recovery and Resilience Plan and to use the European recovery funds are being prepared. Thus, it is necessary to design and adopt an action plan – a long-term renovation strategy – in which individual facilities complement each other, allowing for the effective spending of available funds. Below we present the key recommendations for this process resulting from the analysis of the financial flows in the Polish buildings sector.

Recommendations for decision makers:

- **Making the support intensity dependent on the depth of the thermal modernisation and the expected environmental effects of low-carbon energy sources in buildings**, which may have a positive impact not only on the increase of ambitions and thus the reduction of the sector's emissions, but also on the improvement of the efficiency of spending of public funds.

- **Designing long-term support programmes and continuous calls for applications.** Stable conditions and clear rules of the provision of financing may contribute to the increase of the confidence of all groups of investors and, consequently, the increase of the quality of the projects that are carried out.

- **Organising support systems in a way ensuring that overlaps and competition between the support programmes are avoided.** The presence of several similar support programmes aimed at the same type of final investment has a negative impact on the effectiveness of the funds spent. Therefore, it is recommended to standardise the conditions of support, the requirements for environmental effects and the types of eligible costs at the level of individual types of buildings.

- **Standardisation of the programmes evaluation system along with the monitoring of investment projects and financial flows, as well as the collection of and sharing with data.** Due to the variety of available instruments, the creation of a coherent reporting system and consistent collection of data related to the implemented projects could contribute to effective monitoring of the progress and the information flow between the entities interested in low-carbon investments in buildings. In addition, the restrictions related to European funds, which Poland will have at its disposal in the next decade, will translate into the necessity to implement a methodology for tracking financial flows towards low-carbon investments in order to enable the reporting process and to demonstrate the share of green investments in the structure of spending of European funding.

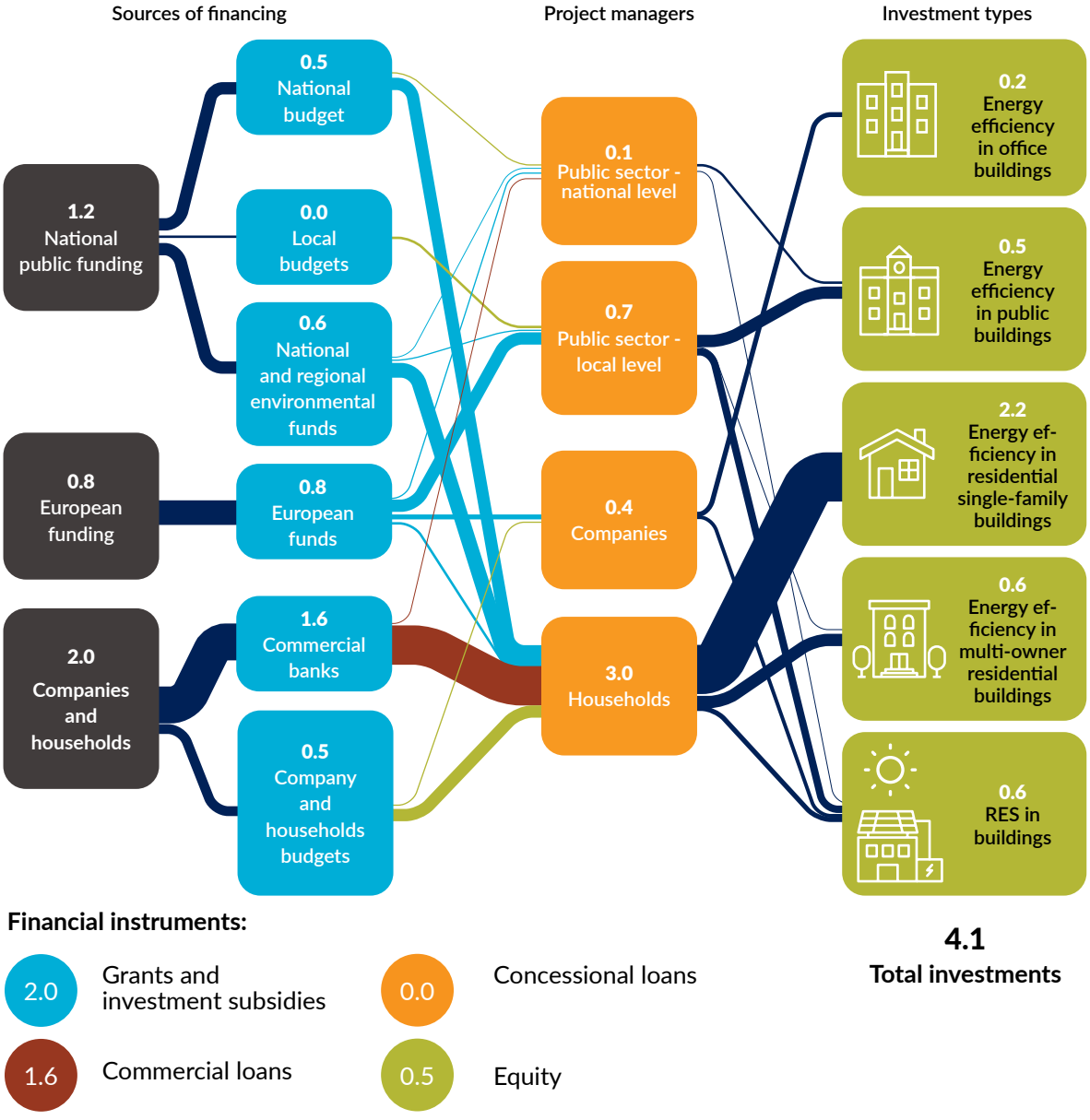
- **Intensification of activities promoting low-carbon investments in the buildings sector**, including conducting of information campaigns and training in the sphere of the benefits of improving the energy efficiency of buildings and their adaptation to the climate change.

- **Improving the communication and structuring the dialogue between the public and private sectors and the financial institutions** in the field of financing of low-carbon investments in the buildings sector, including strengthening of the co-operation with banks.

Annex A: Landscape of climate finance in the Polish buildings sector in 2019

Diagram 3. Landscape of climate finance in the Polish buildings sector in 2019

Landscape of climate finance in Poland, buildings sector
(amounts in billion PLN, 2019)



Source: WiseEuropa and I4CE based on data on public support programmes for the renovation of building stock in Poland.

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WiseEuropa

WiseEuropa is an independent think-tank and research organization based in Warsaw that undertakes a strategic reflection on European politics, foreign policy and economy. The mission of WiseEuropa is to improve the quality of Polish and European policy-making as well as the overall business environment by promoting the use of sound economic and institutional analysis, independent research and evidence-based approach to impact assessment.

Website: wise-europa.eu

NewClimate Institute

NewClimate Institute supports research and implementation of action against climate change around the globe. NewClimate Institute generates and shares knowledge on international climate negotiations, tracking climate action, climate and development, climate finance and carbon market mechanisms. They connect up-to-date research with the real world decision making processes, making it possible to increase ambition in acting against climate change and contribute to finding sustainable and equitable solutions.

Website: newclimate.org

Institute for Climate Economics (I4CE)

Institute for Climate Economics (I4CE) is a think tank that provides public and private decision-makers with expertise on economic and financial issues related to the energy and ecological transition. I4CE strives to implement the Paris Agreement and make global financial flows compatible with low-carbon development that is resilient to climate change. Since 2012, I4CE has conducted and published multiple iterations of the French Landscape of Climate Finance, a study that tracks domestic climate investment and analyzes how it is financed. I4CE will build on its experience and success in France in increasing granularity on climate finance data and linking this with national policy planning processes.

Website: i4ce.org

Energy, Climate and Environment Programme

Poland, Europe and the world are currently facing unprecedented challenges associated with the environment and resources. Avoiding dangerous climate change, improving public health and increasing resource security requires a profound economic transition. Taking advantage of opportunities and avoiding the associated developmental traps requires in-depth evaluation of the short- and long-term impacts of environmental protection and natural resource management policies. Under the Energy, Climate and Environment Programme, we prepare comprehensive sectoral and macroeconomic analyses, focusing on the broadly defined low-emission economic transition in Poland and globally. We are active in areas such as: Polish and EU energy and climate policy, domestic resource policy, improving resource efficiency in the economy, protection of the environment and public health by limiting harmful emissions, sustainable transport policy. This paper is a part of the Energy and Climate Project.

ENERGY, CLIMATE AND ENVIRONMENT

Other publications:

"Alternating Current Landscape of climate finance in the Polish energy sector",
Bukowski M. (ed.), Warsaw 2020

"Tracking climate-related investments and finance flows Implications of the EU Taxonomy",
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