

CASE STUDY

ENERGY MODERNIZATION OF 24 BUILDINGS OF THE HOUSING COOPERATIVE RADOGOSZCZ - ZACHÓD FINANCED WITH A LOAN WITH REDEMPTION FROM THE REGIONAL FUND FOR ENVIRONMENTAL PROTECTION AND WATER MANAGEMENT IN ŁÓDŹ (WFOŚiGW)



BULLETS IN CONCISE MANNER

- **increasing the energy efficiency of 24 multi-family residential buildings owned by the "Radogoszcz-Zachód" Housing Cooperative**
- **project financed by loans and redemption of loans from WFOŚiGW in Łódź**
- **annual primary energy savings of 10,697 GJ/year**
- **annual reduction of CO 2 emissions 1,986,563.15 kg/year**



PITCH-TALK SUMMARY

The assumption of the project is to carry out the energy modernization of 24 multi-family residential buildings, which are in the resources of the Housing Cooperative "Radogoszcz - Zachód" in Łódź. The buildings had already undergone thermal modernization, as a result of which external partitions were insulated, entrance doors were replaced and vestibules were installed, and heat production from solar collectors mounted on the roofs of the buildings was added to the domestic hot water system.

The aim of the current project is to increase energy efficiency. The investment in question is a project financed by the Regional Fund for Environmental Protection and Water Management in Łódź (WFOŚiGW). The investment is carried out in stages in order to reduce investment costs by using partial loan redemption in accordance with the rules of the financing institution.

The implemented actions contribute to reducing the demand for heat in the buildings covered by the project, which will allow to reduce the emission of air pollutants responsible for the phenomenon of the so-called low emissions and greenhouse gas emissions. The implemented actions result from the energy audits carried out and consist of:

- replacement of the domestic hot water installation
- replacement of riser valves
- insulation of the internal ceiling of the basement
- replacement of basement windows
- modernization of solar automation

The investment is being implemented in stages. In the first step, works were carried out in one block no. 105 at ul. Biedronkowa 105. They were financed with a loan from WFOŚiGW in Łódź. In accordance with the fund's rules, after the correct and timely implementation of the task, the achievement of the planned environmental and material effects and the timely repayment of the loan, one can apply for its partial redemption. As the investor decided to implement another investment aimed at reducing low emission and increasing energy efficiency, the redemption amount was increased. The redemption obtained was used to finance investments carried out for the next four units: 32, 114, 115, 125.

The investment is being implemented by the Housing Cooperative "Radogoszcz-Zachód" in subsequent multi-family blocks that are within its resources. The resources of the cooperative include 69 multi-family residential buildings. <https://smrz.pl/>

The investments are financed by preferential loans from WFOŚiGW in Łódź and redemption from a loan taken for the implementation of a previously implemented task. <http://www.zainwestujwekologie.pl/>

Ex-ante and ex-post calculation of environmental effects , preparation of applications for co-financing and settlement of loans and redemptions, is provided by Andrzej Gołąbek Energy Use and Conservation Agency. <http://www.auipe.pl/>

The direct recipients of the project are the residents of the Housing Cooperative "Radogoszcz-Zachód". The indirect beneficiaries of the project will be people using the facilities, while the final recipients of the project will be the inhabitants of the city of Łódź and the surrounding area.

CASE CONTENT AND ISSUE

The primary objective of the project was to search for possibilities to finance further thermal modernization of all 69 multi-family residential buildings owned by the "Radogoszcz-Zachód" Housing Cooperative. The budget of the cooperative does not have the possibility to allocate funds for such a large investment, so an analysis of the possibilities of external financing was started.

The possibility of implementing the investment simultaneously in all buildings belonging to housing cooperative was considered. However, due to the very high cost of the investment necessary to be incurred, it was decided to implement the investment in stages. Two options for financing the investment were considered: a loan with a thermomodernization bonus from BGK and a loan with redemption from WFOŚiGW in Łódź. The second source of funding was chosen.

The time of preparing and evaluating the application, signing the contract, requesting payment and transferring money from external funds takes time. Waiting for a refund can take up to six months. Previous experience showed that the preparation of the

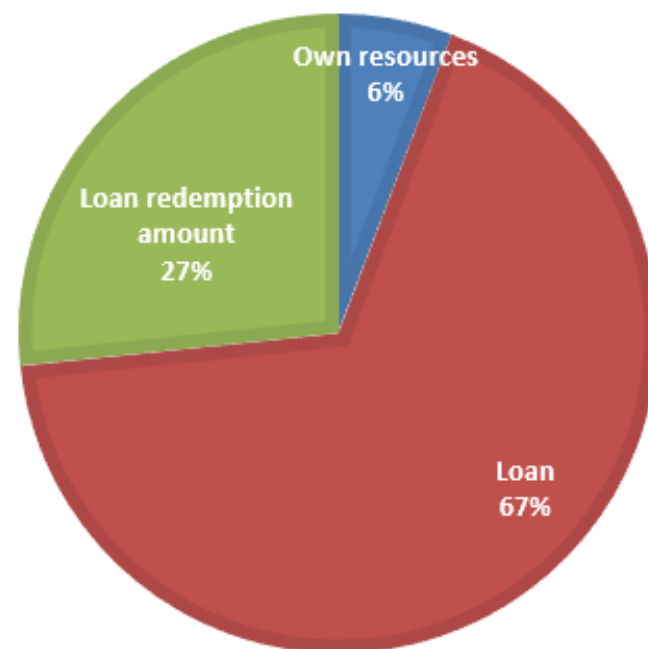
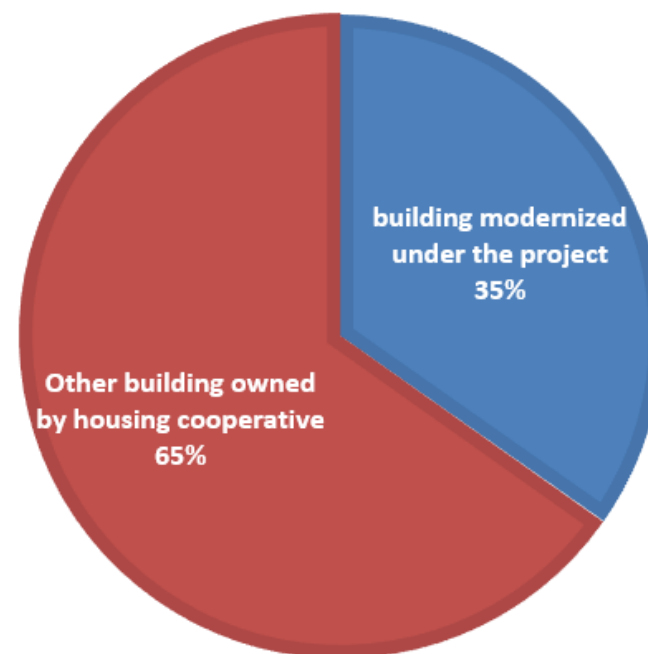
investment, submission of the application for co-financing, implementation of the investment and settlement of the co-financing takes about 1 year. Finally, a decision was made to implement one investment in the following year. The number of buildings to be renovated under one investment depends on the financial capacity of the cooperative to incur financial liabilities. Subsequent investments are partly financed from the redemption of the previously taken loan.

Thermomodernization of residential buildings is of great importance for their inhabitants. First of all, it will allow to reduce the costs of operation and maintenance of buildings and will increase their technical and utility standard.

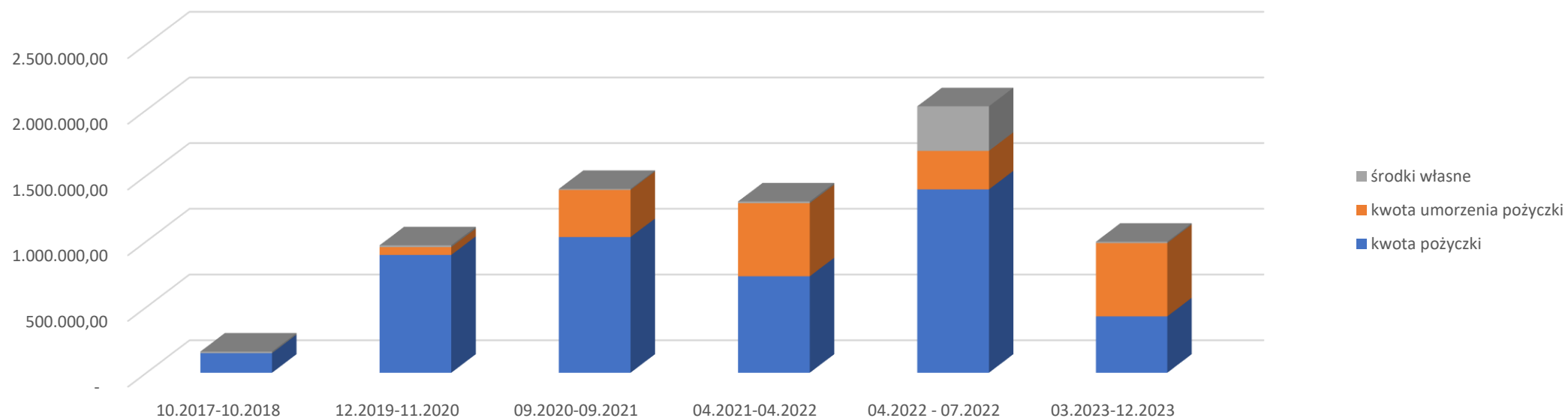
As a result of thermal insulation of the internal basement ceiling, the thermal conditions of the ground floor residents will improve. Insulation of partitions at the junction of heated and unheated spaces will avoid heat loss from heated spaces, and thus financial losses. In addition, it will limit the cooling of the floor in ground-floor apartments. As a result of thermal modernization, the microclimate for the facilities will improve, which will also improve the health conditions of users

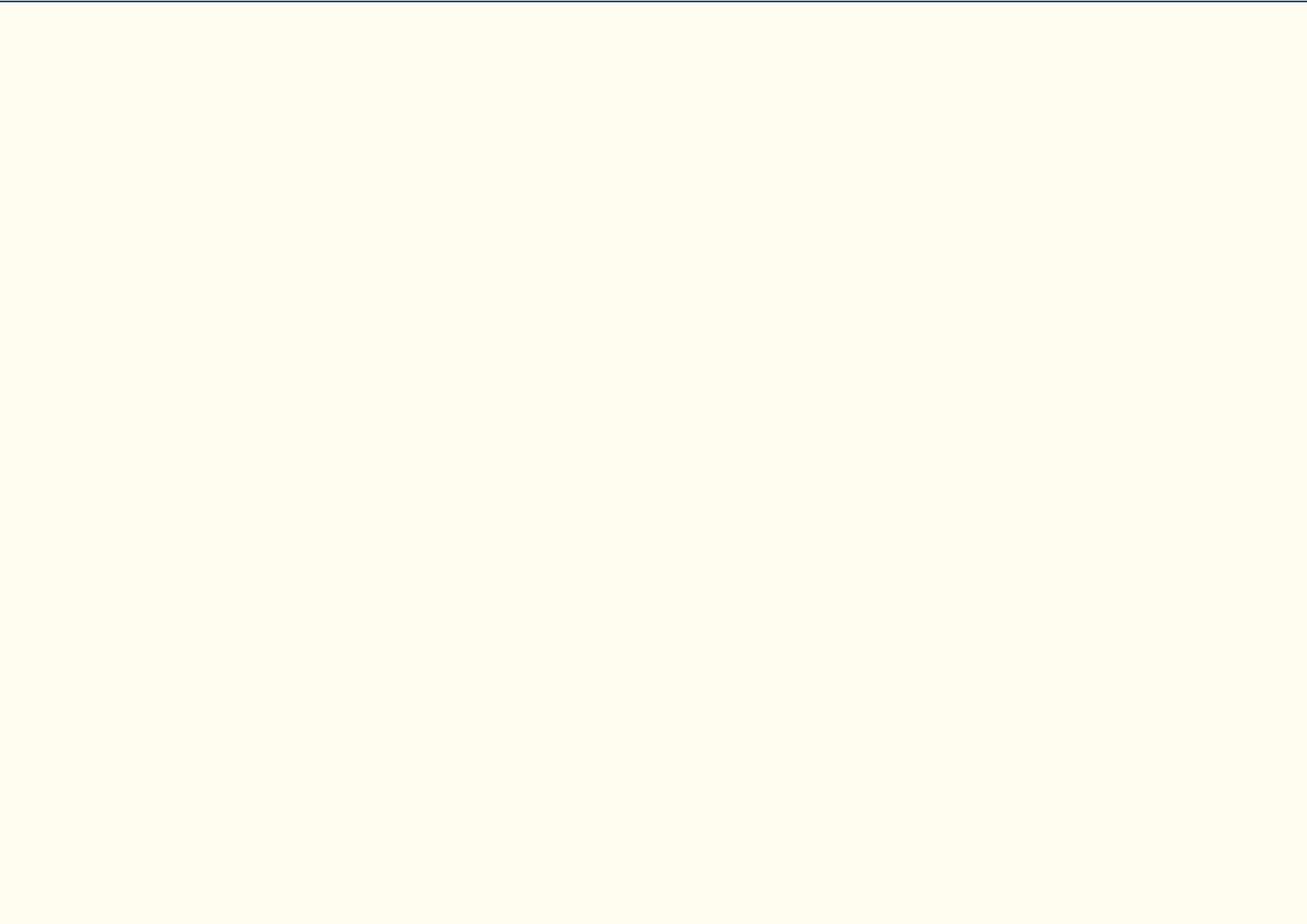
The benefits of thermal modernization translate into increased comfort for all residents using the facilities. In addition, the implementation of the task will improve the general perception of the technical infrastructure of buildings by users, thus increasing their care for property.

The idea of the cooperative to finance further investments by means of a financial assembly: a loan and redemption of the previous loan from WFOŚiGW in Łódź lasts until 2017, when the first task was completed. Currently, 5 tasks have been completed for 23 buildings and another one is being planned for 2023, concerning one large building.



NAME OF THE TASK Thermal modernization of multi-family residential buildings in the resources of the Housing Cooperative "Radogoszcz - Zachód" in Łódź	NUMBER OF BUILDINGS	TIME LIMIT FOR COMPLETION	TOTAL VALUE OF THE TASK PLN	own funds	loan amount	loan forgiveness amount	CO2 saving kg/year	energy saving GJ/year	primary energy savings GJ/year	primary energy savings toe /year
block no. 105	1	10/2017-10/2018	160 725.98	11 816.98	148 909.00	-	94 419.30	863.06	474.68	11.34
block no. 32, 114, 115, 125	4	12/2019-11/2020	968 915.49	13 506.89	895 845.00	59 563.60	578 024.40	5 217.07	2,869.39	68.53
block no. 26, 51, 112, 116, 122	5	09/2020-09/2021	1 397 931.89	7 895.89	1 031 698.00	358 338.00	715 477.70	6,539.83	3,596.91	85.91
block no. 57/58, 61, 101 and 124	5	04/2021-04/2022	1 302 501.36	13 034.96	733 452.00	556 014.40	287 893.00	2 863.63	1 575.00	37.62
block no. 28, 29, 41/42, 102, 130, 131, 132	8	04/2022 - 07/2022	2 027 070.63	339 302.83	1 394 387.00	293 380.80	188 970.50	1 834.72	1009.10	24.10
block no. 111	1	03/2023-12/2023	996 319.41	9 963.19	428 601.42	557 754.80	121 778.25	2 130.25	1 171.64	27.98
TOGETHER	24		6,853,464.76	395 520.74	4 632 892.42	1 825 051.60	1 271 085.45	12 908.73	7 099.80	255.49





SOLUTIONS APPLIED

The project is carried out cyclically. Annual work includes, among others:

1. At the beginning of the calendar year, preparatory work, including the selection of subsequent buildings for further thermal modernization, preparation of audit and design documentation, development of application documentation for funding from WFOŚiGW in Łódź and announcing a tender for construction works.
2. After the end of the heating season, the implementation of construction works, i.e.
 - replacement of hot water installation
 - replacement of riser valves
 - insulation of the internal ceiling of the basement
 - replacement of basement windows
 - modernization of solar automation
3. Settlement of the investment completed in the previous year, including the demonstration of the tangible and ecological effect. Submission of an application for partial redemption of the loan to be used to finance the currently implemented investment.

4. Financial and material settlement of the completed investment.

5. Project management, including: investor's supervision, project management and applicant's potential, promotion.



RESULTS

The value of the project and funding

- Total value of the project in 2017-2023: PLN 6,853,464.76
- Value of loans from WFOŚiGW: PLN 4,632,892.42
- Redemption value of loans from WFOŚiGW: PLN 1,825,051.60
- Number of buildings modernized 24 out of 69
- Reduction of demand for thermal energy 19,448.56 GJ
- Reduction of CO₂ emissions 1,986,563.15 kg/year

	CO ₂ e emissions	energy consumption
SMEs	-	-
Residential buildings	1,986,563.15	255.49
public buildings	-	-
Total savings	kg CO₂ /year	toe/year

LESSONS LEARNED

1. investments should be carefully prepared in advance in every formal, legal, design and construction aspect
2. it is necessary to carefully monitor the settlement dates and the application for partial loan redemption
3. specialists in the fields covered by the task are needed (construction, energy, finance, PZP , etc.) staff and external advisors
4. constant dialogue between the parties to the contract - talks about each diagnosed risk, solving problems before they escalate, annexing the loan agreement in the event of any discrepancies
5. ensuring the achievement of the planned physical and environmental effects

NEXT STEPS

The Radogoszcz-Zachód Housing Cooperative plans to carry out further activities aimed at energy modernization of buildings, as well as further use of renewable energy sources to meet the needs of heating and electricity. This is another challenge due to the billing of electricity in the PV installation for common parts of buildings.



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Disclaimer

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This Case Study was elaborated as part of the RoundBaltic project bringing together representatives of the financial and energy efficiency sectors at regional and national roundtables to discuss and find solutions to the challenge of energy efficiency finance in the three target countries Poland, Latvia and Denmark.

Key focus areas have been to ensure an investment friendly framework along designing of financing instruments in accordance with the EU financial pillars more effective use of public funds, aggregation and project development assistance and de-risking.



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