



Document Control Sheet	
Project Coordinator	EC Network
Responsible Author(s)	LEIF
Organisation	LEIF
Subject / Title of Document	Report on Case studies' exchange among the project partners
Related Task('s)	WP5
Deliverable No.	D5.6
Date of Issue	August 2023
Version Number	Final v2
Ref./File Name	RoundBaltic D5.6. Case studies
Nature of the Deliverable**	Deliverable (D)
Distribution Category: (PU/CO)*	PU

\*Type: **PU**: Public, **CO**: Confidential

\*\*Nature: Type of deliverable could be a F: Flyer, B: Brochure, WP: working paper, P: Paper, D: Deliverable, MD: Management Document, S: Slides, PR: Press Release, CD: Cd-rom, C: conference, W: workshop, TR: training, ME: Media Event, WW: website/webtool

#### Disclaimer

*Responsibility for the information and views set out in this document lies entirely with the authors. The European Commission is not responsible for any use that may be made of the information it contains.*

## Content

1	Introduction .....	4
2	Scope of preparing case studies .....	4
3	Summary of the case studies .....	5
3.1	Poland .....	5
3.2	Latvia .....	6
3.3	Denmark.....	7
4	Description of the case studies.....	9
4.1	Description of case studies in Poland .....	9
4.1.1	Deep energy modernization of 24 educational buildings in the city of Zgierz..	9
4.1.2	Development of the Regional Operational Programme (DAEŚ).....	10
4.1.3	Energy modernization of 24 buildings of the Housing Cooperative Radogoszcz 10	
4.1.4	Mazovia One-stop-shop initiatives .....	11
4.1.5	Podlaskie SME project.....	11
4.2	Description of case studies in Latvia.....	12
4.2.1	Diversifying central district heating in Salaspils .....	12
4.2.2	Support for energy efficiency in housing sector in Olaine .....	12
4.2.3	RENOVE.LV – One stop shop (OSS) for energy efficiency in Riga .....	13
4.2.4	Success story for housing renovation in Liepaja.....	14
4.2.5	Pilot project in low temperature heating in public building in Alūksne .....	15
4.3	Description of case studies in Denmark .....	15
4.3.1	Private homes - South Denmark.....	15
4.3.2	Thermonet concept - East-Denmark.....	16
4.3.3	Social housing - national intervention .....	17
4.3.4	SME sector – Central Denmark Region.....	17
4.3.5	Involvement of the financial sector .....	18
5	Conclusion and main results .....	18

## 1 Introduction

The overarching objective of the RoundBaltic project is to support the implementation of the Smart Finance for Smart Buildings initiative in the Baltic Sea Region, notably the project's direct target countries Poland, Latvia and Denmark. Moreover, RoundBaltic refer to the same objectives as Sustainable Energy Investment Forums (SEI Forums) to build momentum for energy efficiency (EE) finance.

SEI Forums bring together representatives of the financial and energy efficiency sectors to discuss and find solutions to the challenge of energy efficiency finance. Key focus areas are how to ensure an investment friendly framework along designing of financing instruments in accordance with the financial pillars more effective use of public funds, aggregation and project development assistance, and de-risking. A third focus area is to showcase specific initiatives as well as triggering new investment initiatives within existing private and public buildings, industry and SME's, street lighting, district heating, transport infrastructures and integrated renewable energy sources. At the stakeholder level a key intention is to engage the financial sector in conjunction with building capacities of project developers, incl. public authorities, on how to develop EE investments according to the policies.

The RoundBaltic project aims to provide framework and momentum for energy efficiency investments in the direct target countries Poland, Latvia and Denmark, building on the activities of the SEI Forums initiative.

This document describes case studies/good practice examples of the project intervention in Poland, Denmark and Latvia as part of the project's task 5.5 Processing of project findings into dissemination material.

## 2 Scope of preparing case studies

The scope of this task is to make case studies/good practice examples of the project intervention in Poland, Denmark and Latvia that is assessed to be an inspiration source for encouraging energy efficiency finance actions.

The intended type of materials concern 5 case studies of intervention achievements per region (15 case studies in total). The intention of the case studies is to showcase the most interesting specific EE finance actions like implementation of policies, standard contracts (make the market function better), one-stop-shop concepts (initiatives on the ground) or initiatives to engage the financial sector.

### 3 Summary of the case studies

Here follows a summary of the case studies per country

#### 3.1 Poland

- **Deep energy modernization of 24 educational buildings in the city of Zgierz**

The case study describes the project which main goal was the search for financing the comprehensive thermal modernization of 24 educational buildings. The budget of the Commune of the City of Zgierz does not have the possibility to find funds for such large investments. By the decision of the Mayor of Zgierz, the possibility of financing the investment was analyzed. We searched for the possibility of implementing the investment simultaneously in all 24 educational buildings. Decision was made to implement the investment in the public-private partnership model for 24 educational institutions in the Gmina of the City of Zgierz along with co-financing from the ERDF as part of the Integrated Territorial Investments ROP LV for 2014-2020, because only it ensured the implementation of both of the above premises. The goal of Regional Operational Program for Lower Silesia voivodships is to increase competitiveness voivodships and improvement residents' life conditions by implementation sustainable development rules.

[Link to full case study](#)

- **Development of the Regional Operational Programme (DAEŚ)**

The case study depicts DAEŚ together with the Office Marszałkowski taking part in working groups, during which providing opinions on the initial assumptions for activities under the European Funds for Lower Silesia program in the years 2021-2027 took place. In addition, consultations on the development of rules for support mechanisms under the funds of the regional operational program withing the scope of energy efficiency were delivered. Discussion on important issues in the field of: documents related to the negotiating position of the Dolnośląskie Voivodeship Self-Government to the draft Program Contract, draft Partnership Agreement for the implementation of the cohesion policy 2021-2027 in Poland, results of consultations on the project Diagnosis of the socio-economic situation in the Dolnośląskie Voivodeship, the state of work on the perspective financial 2021-2027.

[Link to full case study](#)

- **Energy modernization of 24 buildings of the Housing Cooperative Radogoszcz**

The case study about the need 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 project is carried out cyclically. Annual work includes, among others preparatory work (at the beginning of the calendar year), 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. Submission of an application for partial redemption of the loan to be used to finance the currently implemented investment as well as financial and material settlement of the completed investment. Finally, there was project management phase, including investor's supervision, project management and applicant's potential, promotion.

[Link to full case study](#)

- **Mazovia One-stop-shop initiatives**

The case study on the project, called “Masovia4EEWave” has gotten support from the EIB ELENA and started operation April 2023. The Agency provides services partly-paid by the ELENA grant in the scopes elaborating of energy audits, preparing of feasible studies and technical assessments, technical designing of measures, cost estimating, applications for funding of investment cost and preparing of public procurement for implementation of projects. The project will trigger the investment in energy efficiency and RES in at least **100 public buildings** in the Masovia Region in amount of **94M€** (80M€ in deep renovation of buildings, 11M€ in RES, 3M€ in introduction of energy management systems). Projects implemented in over 100 locations in the region are good examples to be followed by other municipalities. The project fits perfectly into the strategy of the European Green Deal updated with RePower EU.

[Link to full case study](#)

- **Podlaskie SME project**

The project provided services to entrepreneurs in the identification and financing of projects improving energy efficiency by 25% in company buildings and as a result of the use of control systems, installations enabling the recovery of thermal energy generated during industrial processes or during its production, improving the energy efficiency of technological systems, energy saving and reduction of CO2 emissions into the atmosphere and the use of energy-saving devices. The project has resulted in implementation of energy efficiency and RES projects in 140 SMEs that allocate 12 MEUR private and public investments. Implementation of these investments resulted in modernization of 90 SMEs buildings, construction of 59 PV plants, construction of 29 heating installations with use of RES and reduction of energy demand by 4 GWh/y.

[Link to full case study](#)

## 3.2 Latvia

- **Diversifying central district heating in Salaspils**

The case study describes the implementation of the first solar panel park in Baltic states for central district heating. As the result of this project 90% of the heat energy in Salaspils town is renewable. Inspired by the vast deployment of solar collectors in Denmark, Salaspils’ system was built in less than six months by Latvian and Danish companies working in close cooperation. Total project costs were EUR 7,08 million, to which EU Cohesion Fund co-financing contributed EUR 2,73 million. In addition to the EU funds, the SEB bank provided a EUR 2,8 million loan. The system includes 1720 solar panels, 8000 m<sup>3</sup> accumulation tank and 3MW wood chip boiler house.

[Link to full case study](#)

- **Support for energy efficiency in housing sector in Olaine**

The case study represents Olaine as one of the front-runners in Latvia as very active supporter for multi-apartment housing renovation. With the support of the municipality 38 multi-apartment houses with 1787 apartments (managed by municipality owned companies) were renovated in the whole Olaine county. The total investment reached 18 690 658 EUR from

which 50% were granted from EU funds, the total amount of CO<sub>2</sub> emissions per year is 2575,13 tons which is 40% less than before renovation. The total heat energy savings per year is 6,856 MWh (spent heat energy before renovation was 118,3 kWh/m<sup>2</sup> per year, after – the average is 52,98 kWh/m<sup>2</sup> which is 55% saving).

[Link to full case study](#)

- **REMOVE.LV – One stop shop (OSS) for energy efficiency in Riga**

The case study describes the first OSS created in Latvia devoted to energy efficiency. Remove.lv as an energy efficiency information center provides informative support to residents of Riga on the way to renovation or renovation of multi-apartment buildings. Their main tasks are to help the residents of Riga is to learn all the details of building renovation, offer information on all support options, improve the quality of life and environment of Riga residents and reduce heat energy costs. In general, Remove.lv provides consultations, information campaigns, financial support options and available tools, resources and documentation.

[Link to full case study](#)

- **Success story for housing renovation in Liepaja**

The case study described Liepaja city as the leader in the whole country with implementing energy efficiency projects in multi-apartment housing. 178 out of 600 multiapartment houses have been renovated so far. With the support of the finance institution ALTUM 72 multi-apartment houses with 3923 apartments were renovated in Liepaja city between 2016 and 2023. The total investment reached 35 348 464 EUR from which 50% were granted from EU funds. The total amount of CO<sub>2</sub> emissions per year is 5162,35 tons which is 40% less than before renovation with the total heat energy savings per year is 13,426 MWh. In addition, the average spent heat energy before renovation was 104,87 kWh/m<sup>2</sup> per year, after renovation the average is 48,43 kWh/m<sup>2</sup> which is 54% saving.

[Link to full case study](#)

- **Pilot project in low temperature heating in public building in Alūksne**

The case study represents Aluksne county is one of the front-runners in Vidzeme planning region as very active supporter for energy efficiency initiatives and projects, which is also defined in Aluksne county Sustainable Energy and Climate Action Plan 2021-2030 (SECAP). One of the goals is to reduce by 20% energy spending in public buildings by 2030. This project was implemented as part of the Interreg “Low Temperature District Heating for the Baltic Sea Region” (LowTEMP) project. This project’s overall budget is 3.8 mil EUR, Vidzeme planning region’s share is 149 878 EUR. Low-temperature heating system can be implemented in other public buildings and could also be developed on a district heating level. Efficient district heating systems are an important component in achieving sustainable energy supply structures and thus contribute to reduced energy waste and greenhouse gas (CO<sub>2</sub>) emissions.

[Link to full case study](#)

### 3.3 Denmark

- **Private homes - South Denmark**

The case study represents a unique approach of combining energy renovation with a conversion to green heat supply of private homes in the South Denmark Region. 7 out of 22

municipalities in the region committed to run one-stop-shops aiming to generate investments of 32 MEUR as an initiative called COHEAT. RoundBaltic has served facilitator of the initiative and engaged the financial sector in the one-stop-shop development.

[Link to full case study](#)

- **Social housing - national intervention**

The case study comes across the entire RoundBaltic intervention in the Danish social housing sector. RoundBaltic has interacted with BL, the Danish Federation of Non-Profit Housing Providers, and the parallel H2020 project Super-i on boosting energy efficiency and other green investments. This has entailed introducing implementation concepts like ESCO and financial instruments to make green investments more dynamic that is being compiled in a holistic Green Model. Moreover, RoundBaltic has helped to develop road maps to lead a green transformation of the social housing sector in the South and East-Denmark regions.

[Link to full case study](#)

- **Thermonet concept - East-Denmark**

Thermonet is a promising new collective heat form that is suitable of serving areas above a certain heating density and where conventional district heating is not feasible. The intervention comprised meetings with 15 municipalities and energy utilities and 20 citizen meetings. This has been accompanied by a video and easy to understand handbook for villages ([Gate21.dk/thermonet](http://Gate21.dk/thermonet)) as well as an assessment tool ([Thermonetcalc.eu](http://Thermonetcalc.eu)). As result, 5 – 10 thermonet investment projects are under planning and the first energy utility has implemented a thermonet project.

[Link to full case study](#)

- **SME sector – Central Denmark Region**

The ECSMV project is a concrete example of an organized cross-municipal collaboration around the promotion of energy efficiency in SMEs in the Central Denmark Region. Supported by roundtables and enabling actions of RoundBaltic the ECSMV project has over the past four years managed to build a community around the green transition, which only became stronger the more stakeholders took an active part in the project, including municipalities, SMEs and advisors. The collaboration has been effective in terms of motivating the SMEs and resulted in green business models for 179 SMEs that allocate 30 MEUR private investments.

[Link to full case study](#)

- **Involvement of the financial sector**

An important element of RoundBaltic has been to engage the financial sector in energy efficiency finance. The Danish financial sector, led by Finance Denmark, introduced in year 2019 “Forum for Sustainable Finance” to pave way for the transformation. The financial sector is on right path with increasing volumes of sustainable finance and employees’ increased involvement. Via roundtables and enabling actions RoundBaltic has helped to clarify the roles of the stakeholders, not least when it comes to organisation of one-stop-shops, coupled with initiation of specific one-stop-shops to drive the development.

[Link to full case study](#)



## 4 Description of the case studies

### 4.1 Description of case studies in Poland

#### 4.1.1 Deep energy modernization of 24 educational buildings in the city of Zgierz

For **Poland** there are case studies related to Deep energy modernization of 24 educational buildings in the city of **Zgierz** and Cooperation with the Marshall Office of Lower Silesia voivodship in development of the Regional Operational Program on years 2021-2027.

The assumption of the project was to carry out a deep energy modernization of 24 public buildings in the city of Zgierz in order to increase their energy efficiency. The investment is a hybrid project implemented in the public-private partnership formula. The planned activities contribute to the rationalization of the use and generation of energy in the buildings covered by the project, which will allow to reduce energy consumption and will contribute to the reduction of air pollutant emissions responsible for the formation of the so-called low emission and greenhouse gas emissions, including by: insulation of facilities, replacement of: windows, external doors, heat sources, internal lighting and carrying out all accompanying works, which are part of renovation and modernization works. The direct recipient of the project is the Zgierz City Commune. The indirect beneficiaries of the project will be people using the facilities, while the final recipients of the project will be residents of the city of Zgierz and the surrounding area.

The main goal of the project was the search for financing the comprehensive thermal modernization of 24 educational buildings. The budget of the Commune of the City of Zgierz does not have the possibility to find funds for such large investments. By the decision of the Mayor of Zgierz, the possibility of financing the investment was analyzed. We searched for the possibility of implementing the investment simultaneously in all 24 educational buildings.

The second aspect was the very high cost of the investment, which had to be incurred in two tranches. A one-time payment of approximately PLN 25 million may disturb the commune's budget. Assessment of the payment application and transfer of money from external funds takes time. Waiting for a refund may take up to six months. Previous experience showed that the settlement of the co-financing and the extension of the assessment of payment applications forced payments from the commune's budget, which endangered its financial liquidity. In the PPP contract, the commune does not spend so much money, but it repays in installments within 15 years after the completion of the investment, and the payments come from savings obtained as a result of the implementation of thermo-modernization works.

Finally, a decision was made to implement the investment in the public-private partnership model for 24 educational institutions in the Gmina of the City of Zgierz along with co-financing from the ERDF as part of the Integrated Territorial Investments ROP LV for 2014-2020, because only it ensured the implementation of both of the above premises. The goal of Regional Operational Program for Lower Silesia voivodships is to increase competitiveness voivodships and improvement residents' life conditions by implementation sustainable development rules. Priorities financing are determined in the program, which means that the aid are forwarded to specified target groups. When developing the regional operational program for 2021-2027, an important point is the consultation on the principles of support mechanisms under the funds, which will allow for the development of solutions aimed at efficient spending of public funds.

[Link to full case study](#)

#### 4.1.2 Development of the Regional Operational Programme (DAEŚ)

Lower Silesian Energy and Environment Agency (DAEŚ) started the cooperation with the Marshall Office of Lower Silesia Voivodeships in order to prepare functional financial mechanism to support energy efficiency investment in new regional operational program for years 2021-2027. The goal of Regional Operational Program for Lower Silesia voivodships is to increase competitiveness voivodships and improvement residents life conditions by implementation sustainable development rules. Priorities financing are determined in the program, which means that the aid are forwarded to specified target groups.

When developing the regional operational program for 2021-2027, an important point is the consultation on the principles of support mechanisms under the funds, which will allow for the development of solutions aimed at efficient spending of public funds.

DAEŚ together with the Office Marszałkowski took part in working groups, during which the following tasks were carried out:

- Providing opinions on the initial assumptions for activities under the European Funds for Lower Silesia program in the years 2021-2027
- Consultations on the development of rules for support mechanisms under the funds of the regional operational program withing the scope of energy efficiency
- Discussion on important issues in the field of: documents related to the negotiating position of the Dolnośląskie Voivodeship Self-Government to the draft Program Contract, draft Partnership Agreement for the implementation of the cohesion policy 2021-2027 in Poland, results of consultations on the project Diagnosis of the socio-economic situation in the Dolnośląskie Voivodeship, the state of work on the perspective financial 2021-2027.

[Link to full case study](#)

#### 4.1.3 Energy modernization of 24 buildings of the Housing Cooperative Radogoszcz

**The Radogoszcz-Zachód Housing Cooperative** implemented the project to carry out the energy modernization of 24 multi-family residential buildings. 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 project is carried out cyclically. Annual work includes, among others preparatory work(at the beginning of the calendar year), 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. After the end of the heating season, the implementation of construction works, which included replacement of hot water installation, replacement of riser valves, insulation of the internal ceiling of the basement, replacement of basement windows and modernization of solar automation. Settlement of the investment completed in the previous year included 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 as well as financial and material settlement of the completed investment. Finally, there was project management phase, including investor's supervision, project management and applicant's potential, promotion.

[Link to full case study](#)

#### 4.1.4 Mazovia One-stop-shop initiatives

Aim of the **Mazovia One-stop-shop** (OSS) project was on the advisory level for municipalities of the Region aimed to prepare the energy efficiency and RES projects in public buildings. The project, called "Masovia4EEWave" has gotten support from the EIB ELENA and started operation April 2023. The Agency provides services partly-paid by the ELENA grant in the following scope:

- elaboration of energy audits
- preparation of feasible studies and technical assessments
- technical designing of measures
- cost estimating
- applications for funding of investment cost
- preparation of public procurement for implementation of projects

The project will trigger the investment in energy efficiency and RES in at least **100 public buildings** in the Masovia Region in amount of **94M€** (80M€ in deep renovation of buildings, 11M€ in RES, 3M€ in introduction of energy management systems).

Thanks to the established cooperation, the allocation of EU Funds allocated in ELENA Program and in the EU Fund for Masovia caused triggering significant value of investments and established the permanent public service related to expected buildings renovation wave in EU. Projects implemented in over 100 locations in the region are good examples to be followed by other municipalities. In the era of the energy crisis caused by Russia's aggression against Ukraine, the involvement of public funds in preparation of projects for financing that reduce primary energy consumption is extremely necessary and appreciated by public authorities, financing institutions building managers. The project fits perfectly into the strategy of the European Green Deal updated with RePower EU. Thanks to the presentation at the RoundBaltic national round table, the project has a chance to be replicated in other regions of Poland with co-financing from the EU Regional Funds for 2021-2027 and by EU ELENA Program.

[Link to full case study](#)

#### 4.1.5 Podlaskie SME project

The **Podlaskie SME** project – "Loans for thermomodernization of SMEs" in Podlaskie region is a concrete example of an organized cross-municipal and multi-stakeholders collaboration around the promotion of energy efficiency in SMEs. The project provided services to entrepreneurs in the identification and financing of projects improving energy efficiency by 25% in company buildings and as a result of the use of control systems, installations enabling the recovery of thermal energy generated during industrial processes or during its production, improving the energy efficiency of technological systems, energy saving and reduction of CO2 emissions into the atmosphere, the use of energy-saving devices and technologies and the implementation of energy management systems. The required effect is achieved by presenting an energy audit being subject to verification. The ex-post verification of the projects is also assured.

Thanks to the decision of the regional authorities of Podlaskie, a repayable financing mechanism was launched consisting in loans with an interest rate reduced to 0%. The subsidy from EU funds from the Regional Operational Program 2014-2020 was made available to two financial intermediaries: the Loan Fund of the Podlaskie Regional Development Foundation, which is public-private entity, and the private Eastern Fund Ltd. Both institutions had extensive experience in financing SME activities, but not in improving energy efficiency and introducing RES.

The project has resulted in implementation of energy efficiency and RES projects in 140 SMEs that allocate **12 MEUR** private and public investments. Implementation of these investments resulted in modernization of **90 SMEs** buildings, construction of **59 PV plants**, construction of **29 heating installations** with use of RES and reduction of energy demand by **4 GWh/y**

[Link to full case study](#)

## 4.2 Description of case studies in Latvia

For **Latvia** there are case studies related to five municipalities – Liepāja (Kurzeme planning region), Alūksne (Vidzeme planning region), as well as Riga, Salaspils and Olaine.

### 4.2.1 Diversifying central district heating in Salaspils

**Salaspils** was the first ever in Baltic states where solar panels are used for central district heating. Ltd. “Salaspils Siltums” as Salaspils county municipality owned enterprise executed the first large-scale solar panel park in 2018-2019. “Salaspils Siltums” as the first one in Latvia which started using solar panels in central district heating is certainly a front-runner in energy efficiency for other municipalities in Latvia. Salaspils county council approved Salaspils town’s Sustainable Energy and Climate Action Plan (SECAP) in 2013. SECAP provided comprehensive analysis and set the following action points and goals in energy efficiency until 2030. Salaspils Siltums also created mid-term strategy for the development of company, set rather high goals and were looking for opportunities to achieve them.

Inspired by the vast deployment of solar collectors in Denmark, Salaspils’ system was built in less than six months by Latvian and Danish companies working in close cooperation. Total project costs were **EUR 7,08 million**, to which EU Cohesion Fund co-financing contributed **EUR 2,73 million**. In addition to the EU funds, the SEB bank provided a **EUR 2,8 million** loan. The system includes 1720 solar panels, 8000 m<sup>3</sup> accumulation tank and 3MW wood chip boiler house.

In 2017, Salaspils Siltums implemented its first solar panel project. In order to produce green electricity, 86 solar panels with a total capacity of 25 kW were installed on the roof of the company’s building. In 2019, the company continued the green course and implemented a large-scale project, installing a solar field with 1720 solar collectors, an accumulation tank and a 3MW wood chip boiler house. Currently **90%** of amount of central district heating energy in Salaspils is produced by renewable energy resources, including **20%** by solar panels. Heating is Latvia’s highest energy-consuming sector.

[Link to full case study](#)

### 4.2.2 Support for energy efficiency in housing sector in Olaine

**Olaine** is one of the front-runners in Latvia as very active supporter for multi-apartment housing renovation. Even though, most of the housing is privately owned, Olaine municipality together with its owned company “Olaine water and heat” (which is responsible for heating and house-keeping) in the last decade has managed to involve many local housing associations in renovation projects. Olaine

county municipality has showed straight-forward strategic planning and political, financial support for energy efficiency projects. One of the main success keys was strong involvement of public sector professionals engaging with inhabitants, helping to organise the implementation of projects, and creating technical documentation at first hand.

Ltd. “Olaine water and heat” maintains 149 multi-apartment houses in Olaine county, from which most of them are located in Olaine town and Jaunolaine village. Around ¾ of all residents live in these two settlements, and also – multi-apartment houses. Therefore, Olaine municipality has seen high importance of supporting implementation of energy efficiency projects and has acted accordingly. Olaine county municipality has dedicated yearly funds from annual budget to support creating various technical documentation – energy audits, technical documentation, also project management, author supervision of the implemented projects and construction supervision. In the period 2016-2020 municipality spent 113,400 EUR for the maintenance of bank loan contracts and interest payments.

Energy efficiency has been set as one of the top priorities for the work of municipality and subsequently yearly funds followed. Olaine experienced domino effect – there were the first renovated houses 10 years ago already, and inhabitants with seeing good examples from their neighbours became more supportive to make long-term commitment and investment in renovation project for their own houses. Olaine key success factor was strong involvement of public sector professionals engaging with inhabitants, helping to organise the implementation of projects, and creating technical documentation at first hand. Financial help from municipality already reaches over 1 mln. EUR since 2016.

Olaine county council approved Olaine county Sustainable Energy and Climate Action Plan (SECAP) in the end of 2021. SECAP provided comprehensive analysis and set the following action points and goals in energy efficiency until 2030. Ltd. “Olaine water and heat” as municipality owned company also has mid-term strategy for the development.

With the support of the municipality 38 multi-apartment houses with 1787 apartments (managed by municipality owned companies) were renovated in the whole Olaine county between 2017 and 2023. Main results for all 38 multi-apartment houses:

- the total investment reached **18 690 658 EUR** from which 50% were granted from EU funds;
- the total amount of CO2 emissions per year is **2575,13 tons** which is **40% less** than before renovation;
- the total heat energy savings per year is **6,856 MWh**;
- the average spent heat energy before renovation was 118,3 kWh/m<sup>2</sup> per year, after renovation the average is 52,98 kWh/m<sup>2</sup> which is 55% saving.

[Link to full case study](#)

#### 4.2.3 REMOVE.LV – One stop shop (OSS) for energy efficiency in Riga

Riga city has the biggest need to renovate houses - more than 6000 multi-apartment houses. At the same time Riga has showed poorest overall results in comparison to other cities and lack of political support so far. Riga city is the first municipality in Latvia that has created a **One stop shop** (OSS) devoted to energy efficiency in 2023. Most of the municipalities are consulting their inhabitants in energy efficiency matters but such one stop shop is the next step. One of the biggest OSS needs is not only to consult but promote energy efficiency.

As part of EU LIFE program project “REVERTER” Riga energy agency in 2023 created digital one stop shop “Riga energy efficiency information center” (<https://renove.lv/>). Renove.lv as an energy efficiency information center provides informative support to residents of Riga on the way to renovation or renovation of multi-apartment buildings. Their main tasks are to help the residents of Riga:

- learn all the details of building renovation,
- offer information on all support options,
- to improve the quality of life and environment of Riga residents,
- reduce heat energy costs.

Renove.lv provides:

- consultations - free online and face-to-face consultations before and during renovation.
- information campaigns – implement various types of informational measures for citizens.
- financial support options – provide information on available financial support options.
- tools, resources and documentation – collected comprehensive information and sample documents to be submitted.

From 2017-2023 total 93 multi-apartment houses have been renovated or the process has started in Riga. These 93 buildings have applied for 50% grant support, warranty and loan support from ALTUM. Main results for all 93 multi-apartment houses:

- the total investment reached **60 913 777 EUR** from which 50% were granted from EU funds;
- the total amount of CO2 emissions per year is **4492,2 tons** which is **43% less** than before renovation (CO2 savings - 3413 tCO2);
- the total heat energy savings for heating per year is **8,321 MWh**;
- the average spent heat energy before renovation was 151,9 kWh/m<sup>2</sup> per year, after renovation the average is 62,43 kWh/m<sup>2</sup> which is 41% saving.

[Link to full case study](#)

#### 4.2.4 Success story for housing renovation in Liepaja

**Liepaja** city is the leader in the whole country with implementing energy efficiency projects in multi-apartment housing. 178 out of 600 multiapartment houses have been renovated so far.

With the support of the finance institution ALTUM 72 multi-apartment houses with 3923 apartments were renovated in Liepaja city between 2016 and 2023. Main results for all 72 multi-apartment houses:

- the total investment reached **35 348 464 EUR** from which 50% were granted from EU funds;
- the total amount of CO2 emissions per year is **5162,35 tons** which is **40% less** than before renovation;
- the total heat energy savings per year is 13,426 MWh;
- the average spent heat energy before renovation was 104,87 kWh/m<sup>2</sup> per year, after renovation the average is 48,43 kWh/m<sup>2</sup> which is **54% saving**.

In addition to that technical documentation was developed with the financial support of municipality.

In 2023, Liepaja city has concluded that overall support (financial, informational etc.) for housing renovation has been indeed huge and therefore this city shows the best results in the country. However still 70% of houses attached to district heating system network are not renovated yet. The goals for 2030 include renovation of district heating networks, bigger usage of renewable resources

in heat energy production, informational campaigns, supporting housing renovation, attracting more users for district heating, implementing and promoting ESCO projects, developing transport systems and more.

Liepaja approved its 10 years Sustainable energy and climate action plan in 2020, with which municipality plans to maintain the energy management system, as well as to continuously improve the energy performance indicators.

[Link to full case study](#)

#### 4.2.5 Pilot project in low temperature heating in public building in Alūksne

**Alūksne** municipality had installed data monitoring systems for several educational institutions in the city, collecting data on electricity, water, and heat consumption. However, the pre-school educational establishment “Pienenīte” was the first which heating system was modernised to a low temperature which can be so-called as 4<sup>th</sup> generation heating system. These systems are characterised by the transfer of lower temperature heat in optimally insulated pipes with reduced pipe dimensions.

Alūksne county is one of the front-runners in Vidzeme planning region as very active supporter for energy efficiency initiatives and projects, which is also defined in Alūksne county Sustainable Energy and Climate Action Plan 2021-2030 (SECAP). One of the goals is to reduce by 20% energy spending in public buildings by 2030. This project was implemented as part of the Interreg “Low Temperature District Heating for the Baltic Sea Region” (LowTEMP) project. This project’s overall budget is **3.8 mil EUR**, Vidzeme planning region’s share is **149 878 EUR**.

The collected data helped to justify the necessary energy efficiency measures in the building and attract additional funding.

In addition, the use of data provides accurate information on which systems (water, heat, electricity) operate efficiently over a specified period of time, as well as data analysis and energy efficiency solutions for specific groups of rooms.

Such low-temperature heating system can be implemented in other public buildings and could also be developed on a district heating level. Efficient district heating systems are an important component in achieving sustainable energy supply structures and thus contribute to reduced energy waste and greenhouse gas (CO<sub>2</sub>) emissions.

[Link to full case study](#)

### 4.3 Description of case studies in Denmark

#### 4.3.1 Private homes - South Denmark

For Denmark there are two case studies presented regarding **COHEAT** and **Thermonet** initiatives. Southern Denmark region’s (RSD) ambition is to reduce greenhouse gas emissions by 70% by 2030 in accordance with the national Danish goal. Under the RoundBaltic project the region seeks ways to help fulfilling this goal by enabling concrete sustainable investments to be accelerated and implemented through novel business, technology and replication models organized in One-Stop-Shops (OSS) and in other facilitatory ways. This case study concerns an initiative named COHEAT that represents a unique approach of combining energy renovation with a conversion to green heat supply of private homes in the region. 7 out of the 22 municipalities in the Region of Southern Denmark commit to become ‘investing’ municipalities that want to be part of enabling structures for energy renovation and conversion to green heat of private homes. OSS structures intended to mobilise

citizens and more specifically the house owners to take decisions on and helping to implement green investment solutions. COHEAT2 will, based on the experience that has been gained nationally and EU-wide. The other 15 municipalities in RSD have expressed interest in learning of the COHEAT activities and replicate the concepts and good practice of relevance for their ambitions. COHEAT will be implemented according to the energy efficiency first principle entailing that the conversion of oil and gas boilers to heat pumps – a leading trend in Denmark due to the policy goal of phasing out oil and gas boilers until 2030.

A transition from fossil fuels towards green, local heat supply in the Region of Southern Denmark entails that approx. 100,000 households are to convert from oil, gas and wood to zero emission technologies, and the district heating suppliers must complete the out-phasing of fossil fuels and at the same time connect as many consumers as possible to their grids. Moreover, a big share of the private homes has an energy class of C or less and need to undergo energy renovations. COHEAT entails a mix of individual and collective investment solutions depending on what solutions are most rational in the given solution according to technical and economic criteria. A key promising solution is named local heating, where a high-capacity heat pump (eventually combined with other green technology) supply heat via a local pipeline network or micro-grid to the individual buildings in the community in combination with energy renovations.

For the private homes in South Denmark a key step in the process has been to undertake heat planning to designate areas suitable for different forms for green heating and energy renovations according to rational criteria. This is to be supplemented with campaigns and involvement of the financial sector towards the homeowners. The approach to enabling the green heat and energy renovations solutions is the following:

- A local Energy Plan – driven by the municipalities and the district heating companies and in accordance with the local SECAP/SEAP and related provisions. This energy plan is to pave way for the most rational green investment solutions.
- A local Information Plan – to ensure that all types of potential customers are being informed and empowered to take action.
- A local Investment Plan – to facilitate decision on the business plan.
- The Danish Government runs a support scheme with subsidies for Danish households to undertake energy renovations and conversion to green heat supply that give stimulus to the COHEAT initiative.

The process from energy plan to investment plan in interaction between municipality, local district heating company and consumers/homeowners

[Link to full case study](#)

#### **4.3.2 Thermonet concept - East-Denmark**

A linked promising initiative is Thermonet – a new possibility based existing solutions. It can introduce district heating in areas where traditional district heating is too expensive. The municipal energy planners are now making new heat plans to phase out oil and gas, and the energy utilities have to implement the plans. It is expected that Thermonet will be part of the future heat plans by municipalities and energy utilities, however these actors need to better understand Thermonet before they incorporate this solution on a wider scale. At the moment there are three main aspects to work on:

- Introducing and explaining Thermonet to climate and energy planners



- Introducing and explaining Thermonet to energy utilities in seminars and bilateral meetings
- Through public citizen meetings, present the possibility to house owners in opting for the Thermonet solutions in areas where district heating is not viable but are still close enough for a Thermonet solution.

Denmark needs to electrify heating of buildings and to find sustainable solutions for heating single family houses in rural areas. Thermonet is a possible solution for both challenges. Although the technology is known, the combinations where the heat pumps is connected in a shared net, is new. There is currently a lack of knowledge by the municipal planners and utilities on this new Thermonet solution and is the reason behind this solution not being more widespread in current energy/heat plans. The citizens will in most circumstances not be able to implement the projects themselves. This project must change this situation by educating the municipalities and energy utilities and producing tools and information materials for them about Thermonet.

[Link to full case study](#)

#### 4.3.3 Social housing - national intervention

For social housing there are persistent barriers related to energy renovations that need to be addressed such as the lack of financing for deep energy retrofitting, lack of technical capacity in social housing organisations and the democratic powers of tenants. Therefore, a new green guarantee fund under the National Building Fund has been created to support up to 6 billion in energy efficiency investments in the sector. Furthermore, the aim is to introduce the ESCO model as an innovative way to increase dynamics of green investment, incl. providing better security for the project economy and helping to attract private capital. A key issue is to create trust on the side of tenants. The implementation of energy efficiency projects requires most of the residents' votes as well as confidence in the present decision-making basis. A way to encourage trust is the use of dynamic accounts based on three measuring points – CO<sub>2</sub>, humidity and heat – in addition to providing a more holistic overview of consumption, that can form basis for increased fairness in the settlement between consumers.

The technical solutions are known and the required funds can come from many places like public green funds as well as mortgage and pension funds. However, there is a need to develop joint investment-oriented actions across sectors, interests and knowledge. With such purpose the 'green model' is under development aiming to make the green transformation of the social housing sector as simple, uniform, experience-based and effective as possible.

[Link to full case study](#)

#### 4.3.4 SME sector – Central Denmark Region

The **ECSMV project** has documented that the SMEs in the Central Denmark Region has a huge potential for green transition. With a little push to identify opportunities and the right support along the project journey, the way is paved for them to quickly take their first green steps and at the same time prepare for the approaching future market with rapid steps. Roundtables during Sustainable Energy Investment Forums have suggested and promoted cross-municipal / regional collaborations as advantageous structures to assist SMEs in connection with planning and implementation of energy efficiency and circular economy. Ideally, these can function as "one-stop-shops" that guide the SMEs through the entire value chain from screening to commissioning and monitoring. The project includes 18 of 19 municipalities in the region and is led by Ringkøbing-Skjern (project manager), Skive and

Aarhus Municipalities. Each municipality participates with a local contact person and one or more performing screening agents. The consultancy work is carried out by 10 pre-qualified consulting companies. The project's screening concept, which is based on key actors with knowledge of the local business community having a dialogue with the companies, has proven to give more companies an increased potential to develop green business models than expected.

[Link to full case study](#)

#### 4.3.5 Involvement of the financial sector

The Danish financial sector is taking rapid steps to increase its sustainability. Finance Denmark, as business association, established a "Forum for Sustainable Finance" to pave way for the transformation and the progress has taken place with the help of recommendations from that forum. Regular sustainable reports make clear that the financial sector is on right path with increasing volumes of sustainable finance and employees' increased involvement. Yet there is still a lot of unreleased potentials and needs for optimising the organization of efforts. Since then, the financial sector has progressed on sustainable finance. The RoundBaltic project has helped to follow-up on the financial sector's engagement incl. one-stop-shop development. Moreover, FIDA is involved in separate initiatives like taking part in Climate Partnership under the Danish Government and running specific campaigns.

The Climate Partnership under the Danish Government entails a number of initiatives like the financial sector's role in promoting energy-efficient buildings and production facilities, It also aims to improve the advice and associated implementation of solutions in relation to financing institutions' dialogue with its customers. Finance Denmark is closely following developments at EU level. The position is that a common taxonomy would be good in providing transparency and credibility. At the same time, it must be applicable in practice and development of tools in Denmark must be linked to the development at international level. Finance Denmark also supports the EU Renovation Wave and its initiatives and funds to energy-renovate the building stock in Europe, realising that 75 per cent of buildings are energy inefficient.

[Link to full case study](#)

## 5 Conclusion and main results

For Poland the scope of case studies includes:

1. Preparatory work, including preparation of project documentation, application documentation for co-financing from the ERDF and negotiation of a public-private partnership agreement with the ENGIE group
2. Construction works, i.e. comprehensive thermo-modernization works (including facades, windows, doors, central heating replacement, ventilation etc.) and other renovation works (improvement of sanitary conditions, repairs of common rooms (corridors, lobbies), repairs of installations - where necessary, other work necessary to improve energy efficiency and the installation of an energy management system
  - Project management, including investor's supervision, project management and the applicant's potential, promotion.

Project value and funding:

- Total project value: PLN 52,631,178.63
- The value of co-financing from the ERDF: PLN 35,226,754.02
- Total value of eligible expenses: PLN 41,649,035.28
- Total value of non-eligible expenses: PLN 10,982,143.35
- Total area of modernized buildings 52,000 m<sup>2</sup>
- The cost of the PPP contract is approximately PLN 56 million
- Reduction of energy demand by 12 million kWh / year, including reduction of consumption:
- Heat energy of 9.26 million kWh
- Electricity 313 490 kWh
- Reduction of CO<sub>2</sub> emissions 3 195 050 kg / year

Cooperation with the Marshal's Office of the Dolnośląskie Voivodeship will result in the development of a regional operational program for 2021-2027. One of the priority axes in the document is "A more environmentally friendly, low-carbon and zero-carbon economy and a resilient Europe by promoting a clean and fair energy transition". The scope of this task includes, among others, supporting energy efficiency and reducing greenhouse gas emissions, supporting renewable energy in accordance with Directive (EU) 2018/2001, including its sustainability criteria, and supporting the transformation towards a circular and resource-efficient economy.

In addition, for DAEŚ thanks to the cooperation of the established working group, which included representatives of equal sectors, it was possible to properly identify activities requiring financial support in the Dolnośląskie Voivodeship. In the next steps, the organization of a conference is planned, which in its program will include the presentation of a long-term renovation strategy and new mechanisms for financing energy efficiency. In addition, it is planned to raise the qualifications of employees of contracting companies, who will, among others, be responsible for the implementation of the assumptions of the long-term renovation strategy. In the Lower Silesia region, meetings with target groups such as real estate managers or entrepreneurs are also planned in order to familiarize them with the existing and planned mechanisms of financing sustainable energy.

During the implementation of the Radogoszcz-Zachód Housing Cooperative project the value of the and funding are:

- 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 CO<sub>2</sub> emissions 1,986,563.15 kg/year

The lesson learned for this project is that investments should be carefully prepared in advance in every formal, legal, design and construction aspect. It is necessary to carefully monitor the settlement dates and the application for partial loan redemption and specialists in the fields covered by the task are needed (construction, energy, finance, PZP, etc.) staff and external advisors. Finally, 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 ensuring the achievement of the planned physical and environmental effects.

The RoundBaltic project supported in the **Mazovia Region OSS** creation of the network of public energy advisors, whose activities will trigger investments undertaken by municipalities and other energy end users. Initial free consultancy allows beneficiaries to shorten the way to meet the technical conditions to take advantage of preferential financing. The nation-wide support schemes for renovation of buildings, RES installations, improvement of energy efficiency in municipal infrastructure and in SMEs will be better available in combination with regional funds. Thermal modernization of public buildings is co-financed by European Union programs and EAA funds. Currently, the EPC+ pilot program is being implemented, financed with a budget of €25M from the EU Modernization Fund, which can be transformed into a permanent mechanism for the implementation of investments in public utility buildings owned by public finance units. In individual regions, their authorities provide their own budget funds, supplementing them with EU and private funds in the form of Financial Instruments for energy efficiency improvement, RES installations and circular economy. For example, Masovia Region has planned allocations for 2021-2027: **€24.1M** for energy efficiency in buildings, **€19.1M** for RES in buildings, municipal infrastructure and SMEs. These instruments will be prepared by Bank Gospodarstwa Krajowego, which will select national and regional financial intermediaries in a transparent manner.

During implementation of the **Podlaskie SME** project a regional point of independent consulting for SMEs was created, whose activities ensure transparency in the selection of technologies based on the qualitative assessment of projects in the form of energy audits. Initial free consultancy allows beneficiaries to shorten the way to meet the technical conditions to take advantage of preferential financing. Regional financial institutions located close to the market reach beneficiaries faster thanks to the use of professional energy consultancy. Elevating the project to the level of RoundBaltic roundtables drew the attention of the central authorities to the need to support regional and local initiatives conducive to the development of green investments in enterprises.

As for the next steps in Podlaskie Region the regional Authorities took decision about continuation of Regional Financing Instrument for energy efficiency and RES in SMEs with budget of 22MEURO co-financed by EU Fund for Podlaskie for 2021-2027.

The Instrument is envisaged as the loan provided by the intermediary financing institution (public or private), softened by the appropriate credit redemption. Implementation is expected early 2024 after selection of intermediary financing institutions. It is expected that next 250 SMEs in the region will strengthen their own market position thanks to implementation of sustainable investments.

For **Salaspils** total project costs were **EUR 7,08 million**, to which EU Cohesion Fund co-financing contributed **EUR 2,73 million**. In addition to the EU funds, the SEB bank provided a **EUR 2,8 million** loan. The system includes 1720 solar panels, 8000 m<sup>3</sup> accumulation tank and 3MW wood chip boiler house. Altogether Salaspils has implemented great project but during the last few years there has not been any other large-scale development projects in Latvia similar to this. Knowing energy efficiency goals; current energy crisis; and unstable geopolitical situation, there should be implemented way more similar projects.

Over the last 10 years Salaspils Siltums has implemented 7 projects and made a transition to renewable energy resources and energy efficiency. Relative heat loss on transporting networks in 2011 was 22% but in 2019 only 10%. In 2021 more than 90% of heat sources are renewables. By the end of 2021 Salaspils Siltums has installed altogether 2076 solar panels with the capacity of >100 kW. Amount of electricity produced over 10 years: 900 000 kWh. Annual CO<sub>2</sub> saving: **>440 tonnes**.

Such process of implementing and financing large-scale project should be elaborated for other municipalities to take over the best practices and follow Salaspils' example. Mostly municipalities use grants as the first hand for projects that are easier to plan and implement. Attracting Salaspils and other best-practice example municipalities to the following RoundBaltic events would possibly help in finding new ways to finance energy efficiency, also find out the key factors that helped making positive decisions for energy efficiency. It is not enough with energy efficiency goals on national level, but it is very important to align them with local level goals, compile the overall possibilities for achieving them and ensure that politicians follow the goals on local level.

**Olaine** county municipality has showed straight-forward strategic planning and political, financial support for energy efficiency projects. One of the main success keys was strong involvement of public sector professionals engaging with inhabitants, helping to organise the implementation of projects, and creating technical documentation at first hand. With the support of the municipality 19 multi-apartment houses were renovated in the whole Olaine county between 2017 and 2021. In addition to that, for 90 multi-apartment houses energy audit documentation were developed, for 62 houses technical documentation was developed with the support of municipality. Project management was given to 104 houses. For 23 houses municipality covered bank loan maintenance and interest payments. 15 houses received real estate tax rebate. For 11 already renovated houses municipality supported renovation of stairwells. The total municipal support in 2017-2021 reached 1 million EUR. The total investment in housing renovation reached 9 million EUR, from which 3,96 was granted by EU but 4,13 by apartment owners. As mentioned before, central district heating price starting form 2022 has increased by 158%. Since then, already two multi-apartment houses have made decision for renovation. We see Olaine can be analysed further in RoundBaltic project and the best practices for creating municipality support framework could be shared with other municipalities. These practices include strategic planning, analysis, political will, professional and dedicated communication by municipality, yearly financial support.

Olaine county development program is being developed in 2021-2022. It is planned to increase the energy efficiency of municipal buildings, to continue improving the energy efficiency of apartment buildings and arranging the housing stock. Olaine county has approved their 10 years Sustainable energy and climate action plan in 2021, with which municipality plans to establish, implement and maintain an energy management system in the Olaine county, as well as to continuously improve the energy performance indicators and the operation of the Energy management system in accordance with the requirements of the LV EN ISO 50001: 2018 standard. The goal for Olaine county is to become climate neutral by 2050.

For **Riga** political support and energy efficiency in the agenda of decision makers is very important – even though Riga as capital had even bigger financial support possibilities than other municipalities, it has been far behind others in multi-apartment housing renovation process. Only proactive work and active, including communication by Riga energy agency has raised awareness about energy efficiency matters of Riga citizens. Creation of **One-stop-shop for energy efficiency** information in Riga has finally compiled all the necessary information, resources and capacity in one center, that is way easier to communicate renovation process to the society and reach set goals. Such one-stop-shops should be created on regional level or in other municipalities in Latvia.

The next steps are to Promote usage of Renove.lv for Riga citizens, promote creation of such OSS for other municipalities and regions. Running the Renove.lv OSS for at least a year, analyze the results, share them with other municipalities in the network and develop services. Riga city council has approved their Sustainable energy and climate action plan in 2022, with which municipality plans to

support and promote energy efficiency projects in multi-apartment housing even more actively. The goal for Riga city is to become climate neutral by 2050.

For **Liepāja** main issues to overcome and solve in the future are:

- Construction costs have skyrocketed therefore citizens keep postponing decision making for implementing renovation projects. There are high risks of stopping projects when construction costs keep rising and companies can fight for higher costs which affect the apartment owners.
- Complicated rules for ALTUM support program are not friendly for decision makers – apartment owners.
- Low interest of construction companies for renovating multi-apartment house one by one. In addition to that apartment owners who did not vote positive upon the renovation project might complicate the project – disturbing construction process, not letting in their apartment for work etc., that makes the whole project not appealing for company and low prospects of final profit.
- Even though renovation of multi-apartment houses in Liepaja city has been active since 2006, there are still many stigmas about it. Interest of citizens keep lowering because mostly decision-making process has not been successful, and they have no energy to start all over again. Many apartments are rented out short-term for tourists, are owned by foreigners or current owners live abroad and are not reachable etc. All the houses in Liepaja which were eager to renovate has already done it in the period from 2006 – 2023, but the rest has bigger obstacles.

Liepaja approved its 10 years Sustainable energy and climate action plan in 2020, with which municipality plans to maintain the energy management system, as well as to continuously improve the energy performance indicators.

In **Alūksne** case the project confirms that there are much greater possibilities for increasing energy efficiency in public buildings, not only traditional insulation measures. Innovative solutions and data analysis in this educational institution “Pienenite” will be a visible example that will help educate other municipal employees and residents.

For implementing low temperature heating system, the existing infrastructure was not fully changed, only adapted so the main investment made was in data monitoring and management system. If municipality can adapt the pilot project system to other public buildings huge energy savings in total can be made.

Together with the improved heating system, data monitoring and analysis, performed works, there is an opportunity to identify other existing problems in “Pienenite”, which should be solved together with the municipality to reduce energy consumption and increase the energy efficiency of the kindergarten. Educational activities about energy efficiency activities and measures with staff and children should be regularly maintained.

On municipal level more investment in public buildings should be made in order to improve energy efficiency starting with monitoring, finding the best individual solutions for heating systems and financing their implementation. How to bring results of the pilot project on bigger scale, so they – data monitoring and building management systems – can be used in other public buildings.

For Denmark the scope of case studies includes:

- Put in place one-stop-shop structures in the Region of Southern Denmark as driver of energy renovation and green heat solutions for private homes
- The intended investment volume of the green solutions amount to approx. 32 MEUR, of which energy renovations make up approx. 6 MEUR.
- Reduction of energy demand by 36,710 MWh/year
- Reduction of CO<sub>2</sub> emissions by 6.509.000 kg / year
- Inspiring other municipalities/utilities in RSD and other parts of Denmark/EU to opt for the COHEAT solution.
- Establish 10 Thermonet's on Zealand in the next 3 years
- The cost of the 10 will be 13 mio. €
- Reduction of energy demand by 6 million kWh / year, including reduction of
- Reduction of CO<sub>2</sub> emissions by 1.596.000kg / year
- Inspiring other municipalities/utilities to opt for the Thermonet solution.
- Developing a national Elena application to roll out even more Thermonet's in all of Denmark

For the **private homes in South Denmark the main results involve** putting in place one-stop-shop structures in the Region of Southern Denmark as driver of energy renovation and green heat solutions for private homes. The OSS in the 7 municipalities will start their operations from year 2023 in accordance with the concepts shaped under RoundBaltic and developed in detail under the EU LIFE PDA Programme. This entails there will be promoted different type of green heating and energy renovation investments in accordance with a heat planning process. Monitoring will be put in place to follow and document the investments as they progress and inspiring other municipalities/utilities in RSD and other parts of Denmark/EU to opt for the COHEAT solution. A key lesson to be learnt from the Project Zero initiative and the upscaling under COHEAT, facilitated by RoundBaltic, is that municipalities are appropriate bodies to run one-stop-shops as driver of green heating and energy renovations of private homes. Among other stakeholders this is appreciated by banks that can use the one-stop-shops as platforms to fulfil their intentions of increasing green loans.

For **social housing** the ambition is to that the green model will systematise and structure energy efficiency finance in the Danish social housing sector, incl. establishing one-stop-shops as driving force in the implementation. A regional roadmap is currently being compiled as part of finalising the RoundBaltic project that will provide a concrete plan for implementation and integration of the ideas and recommendations. It is motivated by a combined effort of improving the national investment framework and initiatives on the regional/local level. On the national level, the focus is on creating the best enabling environment for the green model so it will be used successfully when on the regional level, Southern Denmark and Eastern Denmark will follow the guidelines in the regional roadmaps for energy transformation.

For the **ECSMV project** an external evaluation state that the project's organization and the practical implementation of the collaboration are mentioned as worthy of emphasis, and as a good example of successful implementation of decentralized business promotion projects at local level. The project's success is based, among other things, on the strong dialogue that has been established over the life of the project between all involved partners. In general, there will be a need for further development of competences among advisers, banks, and municipalities in relation to assisting companies in relation to a holistic approach that, in addition to energy savings, also envisages circularity and side benefits from energy savings (including business drivers). In this connection, there is a need for the

involvement of a wide circle of actors around the projects, both in terms of advice and guidance, but also with respect to knowledge gathering, exchange of experiences, etc. which, overall, can help the SMEs through the project processes in the most appropriate way.

The **financial sector's** sustainability report for 2022 shows results like that Danish banks and mortgage institutions provided 691 billion DKK (around 92 billion EUR) to financing of climate friendly activities. Many of the Danish banks launched their own initiatives on sustainable finance, incl. offers aiming to speed up green heating and energy renovation of private buildings as well as within the SME/industry sector.

The uptake of sustainability in the financial sector goes hand in hand with the climate concerns in the society as such. This interaction is clear to see in the financial sector's participation in the Climate Partnership under the Danish Government. Despite these achievements there is still a lot of unreleased potentials and needs for optimising the organisation of efforts. The roundtables and enabling actions under RoundBaltic have helped to clarify the roles of the stakeholders, not least when it comes to organisation of one-stop-shops to drive the development. The efforts will now continue according to this learning.