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STACCATO

**Sustainable Technologies And Combined
Community Approaches Take Off**

Integrated project

Concerto

**Del. No. 13 - Interim and final reports on economic aspects,
including qualitative and quantitative data on the effect of the
project on the households' budget for energy and the financials of
the investments in RES and RUE.**

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D13 - Report on financing of the STACCATO retrofitting projects in Hungary, Bulgaria and the Netherlands

1 Introduction

Improving energy efficiency in the building sector is an essential part of the requirement for a 20% total reduction of CO₂ emissions set by the European Council. Most experts agree that the best solution is a complex approach combining fiscal and policy measures, along with economic incentives to create favourable financing conditions and induce significant behavioural changes of end-users. Considering the ultimate goal of the STACCATO project, which is dissemination of knowledge and good practice in the field of efficient energy use in buildings in EU countries, the economic analysis should provide solutions for the realization of sustainable energy systems, incorporating the opportunities offered by liberalized energy markets and financial/tax instruments to present a cost neutral offer to the tenants/house owners.

Sustainable energy concepts that were represented within the framework of the STACCATO project have been planned as a demonstration to be replicated in other similar actions. Taking into account the complex character of the project where energy efficiency measures are being combined with the use of renewable energy sources (RES), financial schemes developed for the STACCATO project's implementation as well as identified funding sources on the national and local level were analyzed in the first instance. The sources of funding financing reconstruction of the three STACCATO project sites were examined. This will not only provide information about direct funding opportunities but will give an indication of the project risk perceived in the project countries.

In order to determine the advantages and challenges of implementing STACCATO, funding sources and the economic background of the project should be analyzed. This includes financial flows at the state, regional and municipal levels as well as the availability of private sources finance that were involved in retrofitting STACCATO's construction sites.

The participation of the residents, the involvement of state and local authorities and in general the challenges and difficulties of financing the project, are issues that were addressed in the research. Beyond this, it should be taken into account that discrepancies in national building legislation and regulations may create difficulties in project finance due to higher energy efficiency demands in comparison to national standards.

Improvement of the energy efficiency indicators is a priority of economic development for all three states. However, the approaches that are used to implement these plans differ to a great extent. One should take into account that Hungary, Bulgaria and the Netherlands are countries with very different political situations, economic status and social relations. Understanding the outcome of the project funding can in some cases allow broader conclusions to be drawn about the development of legislation in this field and the level of interaction among stakeholders.

During project planning one must take into account such factors as differences in the private property regimes, the legal status of house associations, and the division of authority between different levels of government, when implementing the renovation of housing stock. Projects of such a level inevitably

require some additional investment by the residents, and it is impossible to solve this problem simply by raising the rent or common costs. Only proof of real material benefits can convince the residents to invest in the reconstruction.

The presented projects are excellent examples of the development of financing schemes in this field. The project's implementation provided a test of the efficiency of interaction and level of interest of energy companies, house associations, local and national authorities, and residents. The analysis of the involved financial sources not only helps to identify barriers that hinder implementation of energy efficiency projects in the residential buildings sector, but also allows assessment to be made of the viability of using these types of funding schemes when planning similar initiatives.

The information collected was gained primarily through the analysis of the STACCATO project documents and reports. In order to identify the gaps and shortcomings of the system of project finance from the legal point of view the national legislation of Hungary, Bulgaria and the Netherlands was also studied in the following areas: state funding for energy efficiency and RES, economic incentives, state economical guarantees, availability of state funding for energy efficiency, and national quality standards affecting project implementation. In order to provide the research with practical examples and amplify the problem analysis with expert opinions, structured interviews with project coordinators in the three countries were also conducted.

2 STACCATO project finance in Hungary

The experience with the project in Hungary can be considered one of the most successful. This is by no means the first experience of implementing energy-efficient projects in residential buildings in the country; however, it is the first time that a project of such a scale with involvement of EU funds, state and municipal financing has been implemented. The “Faluház” is the only one out of the three projects of the consortium that can be considered fully implemented. To date the reconstruction of the building has been completed and the results are being monitored. Undoubtedly, the interest of all the stakeholders and especially the state authorities in such an initiative is one of the factors for success. The project is a product of coordinated actions by all the stakeholders: state authorities, credit organizations, the municipality, the house association and the tenants.

The financial structure of the project, namely the distribution of financial responsibility among the parties, was established according to the “Panel Plusz” state subsidy program. This program implies allocation of funds if there is co-financing by the local administration and the tenants. The project is financed from four sources: the STACCATO budget combined with municipal sources, state financial support and loans taken out by residents (see Figure 1).

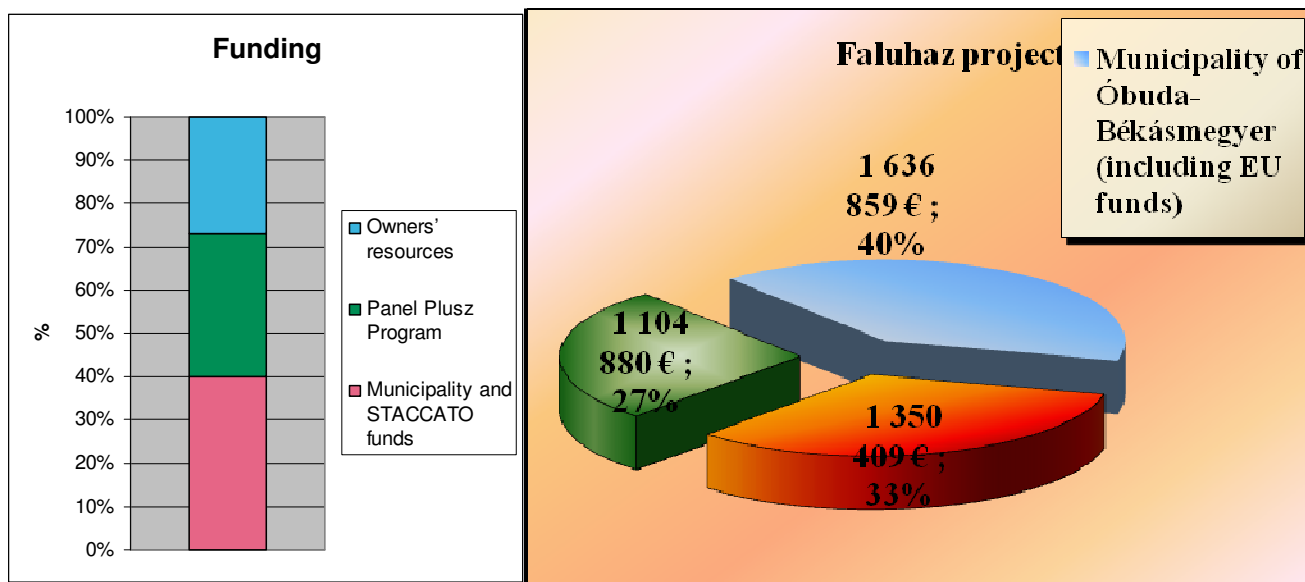


Figure 1. Share of funding of the Faluhaz project

State Funding

State funding of the project was implemented through the “Panel Plus Program”. The program was established in 2006 to support projects aimed at improving energy efficient performance in multistoried blocks of flats of bearing-wall construction. Such projects may involve thermal insulation improvement, including the replacement of doors and windows, upgrading ventilation and heating systems. Also a small amount of grants is allocated to repair the surrounding areas: children's playgrounds, parking spaces, and roads.

The houses that need to have the renovation funded are about 20% of the housing stock of the country. The so-called blocks of flats of bearing-wall construction (“panel houses”) have very low levels of energy efficiency. Typically, high energy consumption of the heating system, as well as extremely poor thermal isolation, can be observed in such buildings. Moreover, it is important to consider that such houses are usually populated by people with low incomes, so the possibility to reduce the energy costs of the tenants is likely to be a significant incentive.

The main goal of the crediting program is to provide co-funding in addition to state subsidies. Lengthy credit maturity, the possibility to repay the loan by means of the saved energy, and reduced interest rates are factors that offer a stimulatory impact on the implementation of the energy efficiency measures in the housing sector. Payments on the program are executed via MFB Bank, which is state-owned and plays the role of an intermediary between the government and the borrowers / those who get subsidies.

By September 2009 100% of the “Panel Plus” program funds had been utilized. Taking into account the successful results, the government made a decision to increase the amount of the available funds to HUF 10 billion. To date the total cost of the projects funded within the program constitute HUF 20 billion. This includes reconstruction of 65 blocks of flats of bearing-wall construction which constitute 8% of the total amount of dwelling stock of this type in the country.

Subsidization takes the form of post financing. The government makes commitments to cover the repair costs in the amount of 1/3 of total sum of investment, and the sum should not exceed HUF 500,000 per apartment. It is assumed that the remaining 2/3 of the expenses are covered by the municipality budget and the own tenants'/owners' own assets.

The decision about funding of Faluhaz from the program's budget was adopted in 2009. In order to support the STACCATO project site the program allocated HUF 371, 646, 000 which is 33% of the total project costs. This amount is refundable to the developers of the project in full upon delivery of the final bill.

3 Local Funding

Funding of the project at the local level is provided from the Obuda municipality budget. According to the development plan, the support in implementing energy efficiency measures is one of the priorities of the City Council of Obuda. As early as 2003 - 2004 a number of projects aimed at renovating blocks of flats of bearing-wall construction subsidized by the government were carried out in the district. Currently Obuda is implementing a municipal subsidy program, within which financial support is rendered to the house unions that are willing to renovate their building. For the purposes of STACCATO the Óbuda municipality is committed to energy effective reconstruction of nearly 900 blocks of flats of bearing-wall construction. Thus the "Faluhaz (Village House)", the largest domestic building in Hungary, was chosen. The reconstruction was supposed to contribute to energy consumption reduction and, consequently, reduction of greenhouse gas emissions. One of the conditions of the project was combination of energy efficiency measures with the introduction of renewable energy sources. As a member of the STACCATO consortium the Obuda municipality has taken responsibility for administering the financing and providing information support.

The funds for the project implementation were attracted to the budget of the municipality via the Panel Plusz Loan program. 23 commercial banks, whose activities are carried out in Hungary, have become participants of the program. In accordance with the established procedure, the bank that will finance a specific project is selected by way of tender. The tender for STACCATO-Faluhaz funding was announced by the municipality of Obuda in March 2009. As a result of the tender Raiffeisen Bank Zrt was selected as a lender.

According to the general terms and conditions loans under HUF 1 mln can be taken for 1 year maximum with an interest rate of the credit from BUBOR+3.00% to BUBOR+5.00%. Besides these basic terms the loan has attached commitment and contract amendment fees. The conditions of the loan that has been provided to the municipality are unique and based on an individual agreement between the bank and local authority.

The agreement between the bank and the municipality was signed on the following terms:

1. A loan in the amount of HUF 240,000 is provided to the municipality for 15 years
2. The required amount should be set aside by the bank and be available to the municipality within 2 years from the date of the contract

3. Payment of the base loan amount is not performed within the first three years after the granting of the loan
4. Payment of interest on the loan must be carried out after the municipality requests the first amount
5. Payments must be made every three months
6. Interest on the loan is calculated using the following formula

$$a*(b+c)*(d/360)$$

, where

a - is the amount of the loan

b - is the interest rate of EURIBOR (the rate used in the credit services offered by one bank to another within the EU territory. The conversion rate is produced every three months)

c - is the interest rate the bank itself: 2,5%

d - is a number of days that have passed from the time when the money was transferred to the municipality account

Given the general trend in the country to improve energy efficiency, the municipality was attracted by the prospect of implementing a demonstration project of such a scale on its territory. In the future, according to estimates of the project developers, funding on this scale level by the municipality will most likely not be needed, but it will be replaced by other forms of support (expertise, coordination, management).

4 Private sources

OTP bank was a major source of private funding (loans to residents) in Hungary. OTP bank is a part of the international OTP Group, which is one of the market leaders in financial services in Central and Eastern Europe. OTP Bank is a universal credit institution offering corporate and private clients a wide range of banking products and services. As the largest commercial bank in Hungary, OTP provides loans to private clients, corporations and municipalities. OTP's share of loans in the market of similar services is 13.4%. When carrying out the corporate policy of the bank, the bank's directorate considers it necessary to take into account environmental risks and looks to promote an environmentally friendly corporate image.

Since 1994 the bank has been a member of the United Nations Environmental Program. In 1999 the Bank signed an agreement with the IFC-GEF Program, under which the bank contracted liabilities to provide financial guarantees of the risks associated with implementing energy efficiency projects. One of the results of this collaboration was the OTP Schools Energy Efficiency project initiated with the participation of IFC, where the bank provided financial guarantees for the risks of local authorities and schools. The bank has developed a target crediting program in order to finance energy efficiency

projects. This enabled people to extend the range of funded projects related to energy efficiency improvement and RES introduction. Since 2004 the bank has been a source of co-financing for environmental and infrastructure EU initiatives.

When the bank provides a loan for an energy efficient project, the bank takes into account a number of factors. The design documentation must contain information about the amount of energy saved as a result of the project. Funding of such projects presupposes that the difference between the current level of energy consumption and the level reached as a result of the project will be used for debt repayment.

The bank provides loans on the basis of co-financing, in other words only in cases when other financial sources are confirmed. In the first place the active participation of the municipality in the project implementation is taken into account. This ensures credibility of the project proposal and the process of debt repayment. Typically, the loan is repaid from the funds transferred by residents to the account of the municipality as a payment for utilities, particularly energy. To ensure the loan agreement, the bank must be entitled by the local authorities to first-hand collection of information about the state of the house community's and tenants' accounts.

All these conditions were met when applying for a loan to finance Faluhaz. By the time of processing the loan, state funding from the Panel Plusz program and financial participation of the municipality were confirmed. The contracts with the company providing reconstruction work, Épkar Zrt, and materials and equipment suppliers were signed too. When Faluhaz was implemented the role of borrower was played by the house association, in other words, the residents undertook a direct obligation to repay the loan – in other words, the residents were willing to participate financially in the project from the beginning. It was also implied that the house association would finance a small part of the reconstruction depending on the state of its accounts and the availability of accessible funds.

Overall, the total contribution of the residents in the project constitutes HUF 304,074,000 (appr. EUR 1.1 mln.), which is 27% of the total project cost, or HUF 450,000 per apartment. The interest rate of the loan is 6%. However, this loan is interest free for the owners of the apartments, as the full interest has been paid from the funds of the municipality. Such financial support is offered to house owners by the provisions of the Governmental regulation on state aid for housing 2001. Each house association has to have its own funds reserved on the bank account for renewal/reconstruction. If these funds are not enough residents can take a loan for co-finance. Then the government provides state aid to help the resident to pay back interest of the loan. According to the Article 16 of the Governmental regulation the conditions of the aid are the following:

- During the first 5 years the government covers 70% of the loan interest
- During the second 5 years it covers 35% of the loan interest

As a result of the state aid the amount of money to be paid back by the residents was reduced by HUF 350 000. The credit maturity is 8 years, so the monthly payment for the bank from each apartment will be 3000 to 4000 HUF (figure 2).

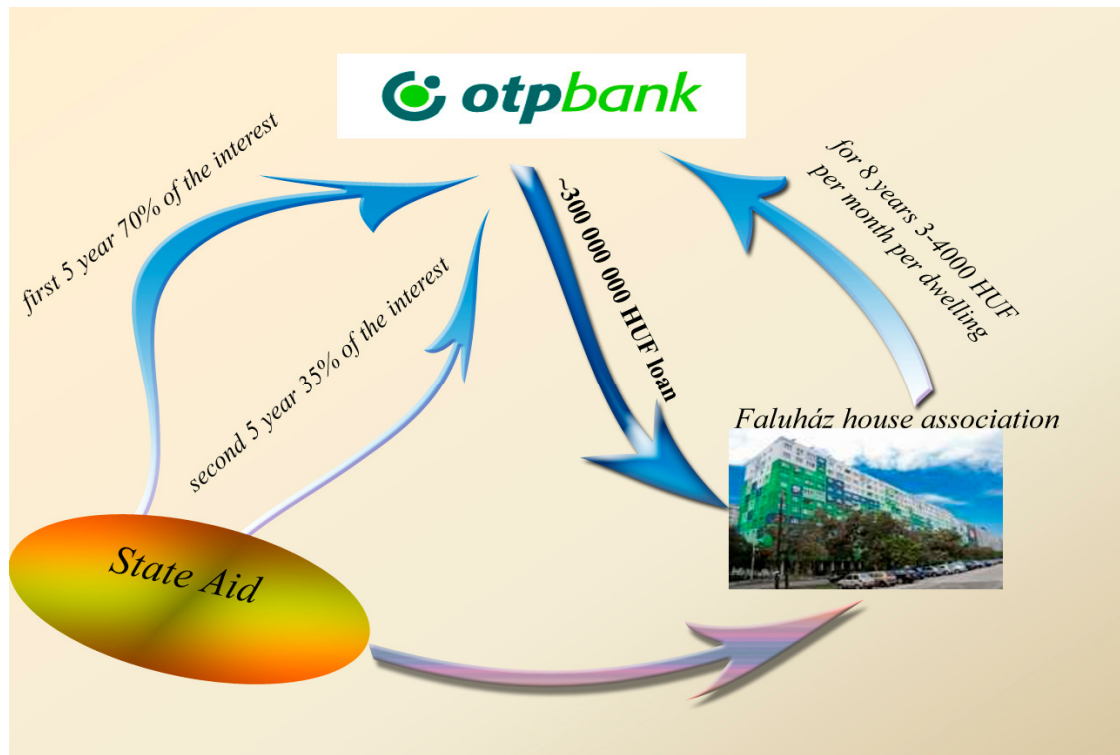


Figure 2. OTP Bank financing construction.

Early energy savings data suggest that the savings on heating costs gained as a result of the modernization of the system are guaranteed to be bigger than this amount. Due to the decrease of energy prices, the total amount of utility payments also decreased. The increase in the monthly utility bills associated with the need to pay the loan is offset by a decrease in energy bills almost by half.

Upon completion of the reconstruction of the house a small-scale preliminary interview was conducted among the residents to find out whether the project meets their original expectations. In general, the residents assess the results of the project as extremely positive. This is primarily due to the decrease of the energy bills by in an average 30-60%. In addition, the residents admit that the financial scheme was absolutely transparent and understandable to everyone. The terms of crediting are assessed as accessible and realistic. Absolutely all the residents confirmed that the project not only did not cost them financially, but, on the contrary, led to significant positive changes in their financial status.

5 District heating company

The company that provides central heating in the area is FŐTÁV Zrt. The company was founded in 1994 and is a municipal property. FŐTÁV Zrt. is the largest in Budapest. The company operates in 17 districts of the city, and at the moment in the northern part of Budapest alone, where the Faluház is situated, FŐTÁV supplies energy to 95,600 apartments. The company did not provide direct financial support for the project implementation, but FŐTÁV undertook an obligation to repair and upgrade an outdated heating center in the building. Due to the replacement of equipment, free space, where the solar panel buffers could be installed, appeared in the building.

According to the developers of the demonstration project, getting involvement of the company in the project was something of a lucky coincidence in this case. The replacement of obsolete equipment was scheduled for the near future anyway, thus the plans of the district heating company were in line with the project goals.

However, the motives of the FŐTÁV are not entirely clear. In the view of the municipality the company is interested in maintaining the number of customers and their creditworthiness. For the system to work effectively, the factory or plant should be provided with a full utilities payment collected by the municipal authorities and paid back to the company. Due to the rapid increase of energy costs, low income families, who often live in high density panel houses like Faluház with low energy efficiency characteristics, often struggle to cover district heating costs. In such cases the heating suppliers may also face significant problems. Recently, due to the increase in the price for heating, the residents began to seek opportunities (including illegal ones) to cut costs. Thus it is likely that the company gladly cooperated with the municipality because it was aware that the actions taken would help to reduce energy costs of both the residents and the companies, thereby reducing the likelihood that customers would fall into arrears or look for alternatives.

6 Conclusions

According to evaluation of the project developers, there are a number of drawbacks the elimination of which may increase the efficiency and attractiveness of similar projects, and, as a consequence, increase their number. First of all, they point out that the level of interest of the government towards the energy efficient reconstruction of buildings is still not sufficient. This can be concluded based on the limited amount of funds available for project financing. As noted, in 2009 the budget of Panel Plus was used up and had to be replenished by the injection of an additional HUF 10 billion. This is not sufficient even on condition of co-financing using the funds of the residents and the municipality and financial support of international organizations. The amount of blocks of flats of bearing-wall construction in the country substantially exceeds the amount of available public funds even with the current co-financing structure.

From the municipality's point of view, there is a lack of human resources in energy efficient measures' implementation. At the moment the local authorities lack resources in order to realize their possibilities in the energy supply field, as the municipality employees lack the requisite experience and skills. This is directly connected with the problem of raising public awareness about energy saving problems at the level of end-users. The municipalities have a possibility to choose from a wide range of measures which can be successful in case of the direct contact with the population. This problem can be solved by allocating funds from the local budget for campaigns about energy efficiency in buildings.

Connecting the energy suppliers and energy service companies to implementation of energy-saving initiatives is a very promising option which in the view of the project developers should be further explored. Currently, about 30 ESCOs operate in Hungary, and 5-6 of them cover 80% of the market. The conditions for ESCOs' operation in the country are quite favorable. A lot of commercial banks are willing to cooperate on energy efficiency and they already have existing internal energy conservation programs. The process of energy sector reform, the availability of government plans and programs,

and the availability of international and private funding sources are all favorable factors for energy service companies operating in Hungary. Despite the existing legislative barriers and economic instability in recent years in the country, there is a real opportunity to develop services in the field of energy efficiency. In the future, when replicating the experience of STACCATO, involvement of ESCOs in funding energy efficiency of buildings projects can substantially increase their attractiveness for both the investors and residents.

7

8 STACCATO Project Finance in Bulgaria

The analysis of the STACCATO project financing in Bulgaria has only a theoretical basis at the moment. So far, the reconstruction works of the houses primarily defined by the project have not started. This delay has occurred due to a number of problems, of both administrative and legislative nature. This report describes the situation in the country and the barriers in the financing field that have delayed the project's implementation.

9 Preliminary Plan

Just as in Hungary, the project in Oborishte (Bulgaria) is focused on energy-efficient renovation of blocks of flats of bearing-wall construction. When the initial project proposal was developed it was intended that retrofitting of 5 multi-apartment houses with 401 apartments in total would be conducted within the STACCATO project. All the apartments are privately owned by residents. It was planned that during the reconstruction of the houses 45 more apartments would be added due to the construction of an extra floor in the buildings. Such a measure would not only help to improve the appearance of the house and the district as a whole, but would create additional financial opportunities for the house community, as profits from the sale or rent of the new apartments would be a tangible addition to the common budget. It was also expected that this profit would allow part of the investment to be undertaken by an energy service company. Initially it was planned that the main financial source of the project would be an energy service company that would have a participatory interest of 65% (figure 3). It was assumed that the company would cover the costs for 10-15 years after the project implementation by reducing energy bills. Unfortunately, this plan turned out to be far from reality.

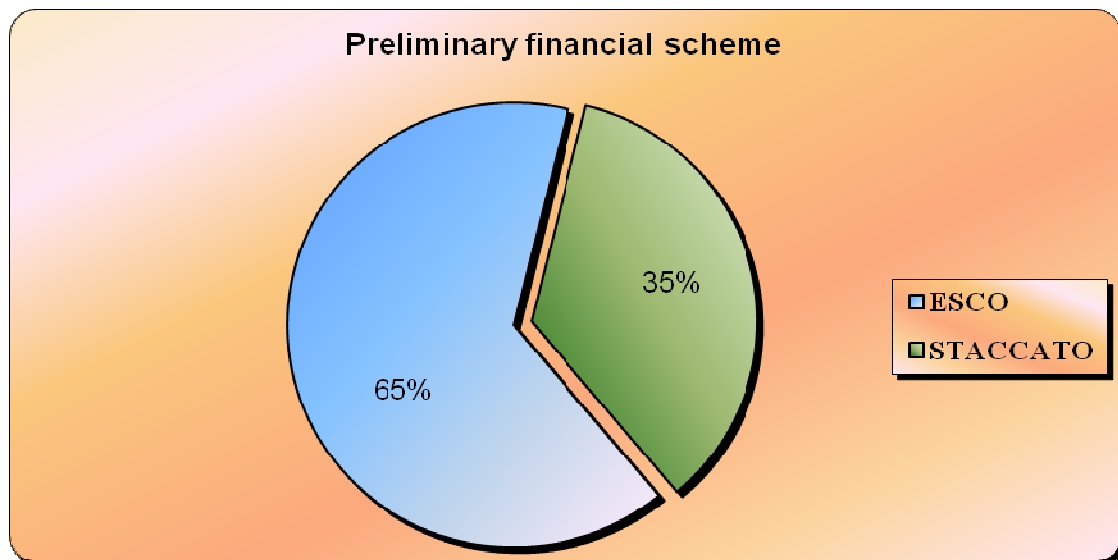


Figure 3. Initial financing plan for the Oborishte project.

In order to involve an energy service company in the project, direct participation of the residents is needed. In order to avoid complications deriving from coordination of a large number of participants it was intended that house associations would be created. This matter turned out to be one of the most complicated for the implementation of the project in Bulgaria. The main problem of an administrative nature is the absence in most houses of a legal representative of the residents who has a right to make financial transactions on their behalf.

The house associations and residents' relations matters are regulated by the Law on Condominiums (2009). The law states that a house association can be established by the residents on a voluntary basis on condition that 100% apartment owners give their consent. On average, each block of flats of bearing-wall construction has more than 50 apartments, and it has proved extremely difficult to get 100% consent of all the residents of such large blocks to establish a house association.

According to the developers of the project, a lot of the apartments are currently vacant, as their owners go abroad to earn money, or live in other parts of the city. Currently, the government is revising the Law on Condominiums, in order to reduce the quorum to 67% of ownership. However, until such changes are implemented, the provisions of the law are a major obstacle to the project's implementation. Due to these problems it was decided to revise the financial scheme of the project: the developers had to abandon the idea of ESCO involvement in the project.

10 State Finance

The concept of the project in fact changed twice. This is a case both regarding the financing scheme and project activities. In the second stage it was decided that 80% of energy efficient modernization of the apartments would be financed by the owners themselves, and 20% would come from public funds. 100% of modernization of the common spaces (staircases, front doors, etc.) was planned to be covered from the state budget.

The STACCATO financial part of the project is 35% which is to be allocated for the installment of the solar thermal system and the additional energy efficiency measures. The part which was to be covered by the ESCO is currently shared between the owners and the National Renovation Programme (figure 4).

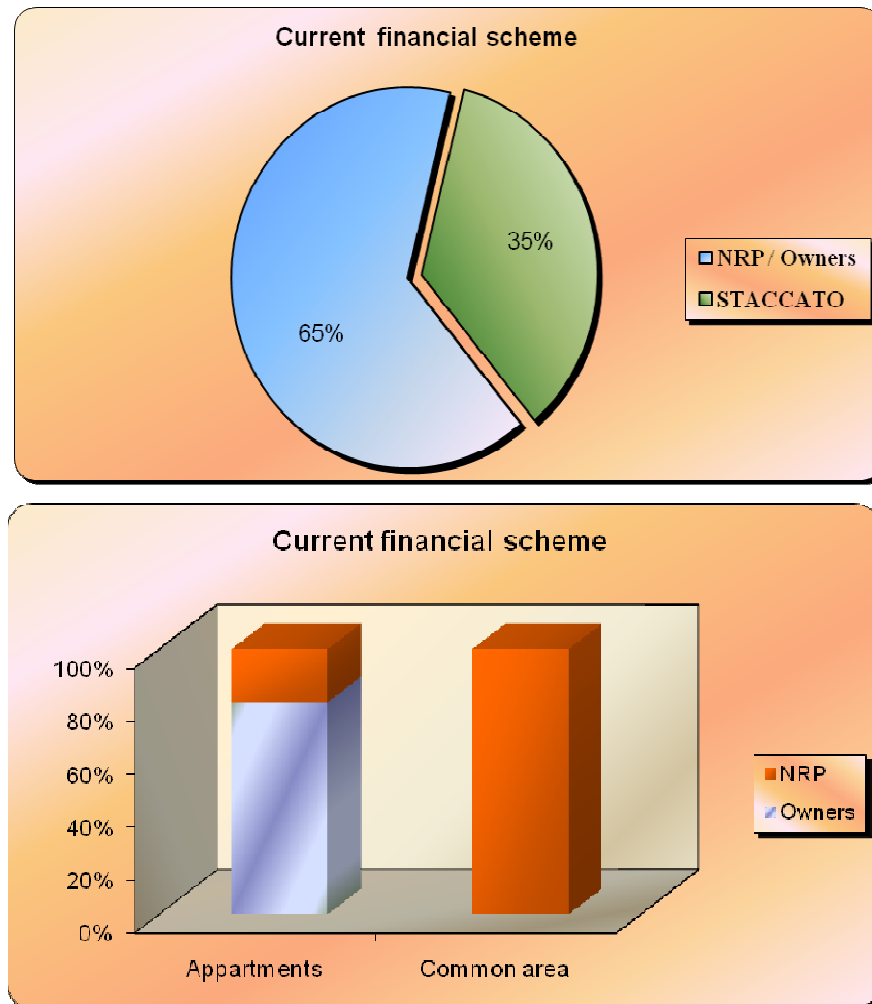


Figure 4. Revised financing scheme for the Oborishte project.

Opportunities of Bulgaria for financing energy projects have increased significantly in recent years. International donors and EU accession funds were the funding sources in the early stages. However, recently domestic financial resources started playing the leading role. Bulgaria has developed interesting schemes of public-private partnerships, such as the Bulgarian Energy Efficiency Fund. There are also targeted subsidies programs and credit lines. With the adoption of the Energy and Energy Efficiency Act in 2002, the activities of regional and local authorities in this field were significantly stimulated.

As a source of public funding the STACCATO project team identified the National Renovation Program. The program was approved by the government in 2005, and it is focused on improving the quality of the housing stock of large cities in Bulgaria. The program has at its disposal a budget of EUR 430 million, which is designed to subsidize the

reconstruction projects. The subsidies are allocated based on 20% of the reconstruction cost. The projects to be financed should meet the following criteria:

- the level of energy saving is supposed to reach over 60% (63-63% on average) after the energy saving measures
- establishment of house community
- a significant positive effect in terms of CO2 emissions reduce
- housing cost increase in the market as a result of renovation of the building
- creating conditions for employment
- significant indirect effects of a positive nature for other sectors of the economy
- increased tax revenues

Bulgaria experienced difficulties with the Oborishte project implementation due to the financial crisis which coincided with a change of government. In the first trimester of 2009 GDP in the country declined by 3.5%, in the second trimester it declined by to 4.9%, and in the third trimester it declined by 6.3%. In all the sectors ranging from the financial to the real one, the crisis in Bulgaria turned out to be a crisis of its production system. In the second trimester of 2009 exports in the country dropped by 24 percent over the same period in the previous year, as a response to a decline in industrial production by 7.2 percent. Bulgaria acutely depends on energy supplies from Russia, namely, oil and primarily gas supplies. While Europe's dependency on Russian gas imports is roughly 25 percent of its needs, in the case of Bulgaria this figure is four times higher and constitutes 92 percent of domestic consumption. The energy situation in Bulgaria is also associated with the electricity production performed by the country's only nuclear power plant Kozloduy, which had its six reactors cut to four in 2002 within the European integration process, what decreased the nuclear capacity from 4 to 2 GW.

Due to the crisis, the Bulgarian Government was forced to drastically cut or freeze funding for public programs. Over the past year funding for implementation of the project from the National Renovation Program was revised several times. Lack of public funding makes it impossible to implement the project. For example, installing of solar panels is impossible without repairing the roof, and repair is one of the activities financed from the NRP.

In early 2010 the project developers were informed by the authorities that a planned payment of EUR 2.5 million had been withdrawn. In April 2010 they received the information that the funding was once again allocated. Two weeks later the decision was again reversed. In June they were informed that the project would be funded by the end of 2010. The memorandum between project developers and Bulgarian government is prepared, but it has not been yet signed by the relevant ministry. In autumn 2010 the Government has informed the developers that the funding of the NRP will be roughly 40% less than was previously promised. However, the amount could vary depending on overall renovation costs.

11 Bank Loan

When the project developers were searching for a private credit institution (bank), they encountered the same problem as when they sought the involvement of an energy service company. It is not profitable for any commercial bank to deal with a large number of borrowers, which is inevitable in the absence of a house association.

Two house associations are registered in the Oborishte district. One of them can serve as an example of an energy efficiency project funding. The residents of a 22-apartment house are planning to take a bank loan in order to implement the project. The loan was granted for a period of 7 years with an interest rate of 10% per annum. An agreement of the house association to install a GSM tower on the roof of the house for 10 years served as a credit security. The loan will be redeemed by the allowance the condominium gets from the rent of the roof. The residents of the house have their own means to improve the thermal insulation. Additional STACCATO funding will also allow installation of solar water heaters.

Thus, it can be concluded that the presence of a house association is crucial for the interaction between the residents and financial institutions. Lack of necessary regulatory documents and shortcomings of the law on condominiums hamper development in this area.

12

13 Participation of local authorities

Oborishte municipality does not possess sufficient funds to support the STACCATO project financially. However, local authorities have provided significant support in addressing social issues. It was initially planned that local authorities would provide organizational support: providing facilities for meetings with residents, involvement of the residents in the planning of activities, provision of contact details of the residents, and conducting interviews.

However, the project developers have pointed out that organisational support can also be a complex matter. A survey among the residents found that a lot of them do not want to deal with the municipalities due to complicated bureaucratic procedures. Some city districts already have negative experience of projects being held up due to administrative delays, which may be due to a lack of awareness of local authorities themselves about the problems of energy conservation. There are also often insufficient tools for information dissemination - thus, for example, the web page of the municipality of Oborishte could be further developed, while the available municipality databases do not contain sufficient information, so most of the necessary data had to be collected by project developers by personal contact with each resident individually.

Also one of the causes of the relatively limited attention of the local authorities to energy efficiency matters is the absence of necessary legislation. Article 9 of the Law on Energy Efficiency states that "The municipal councils shall adopt programmes for energy efficiency ... as well as for ... renovation of the building stock, administrative and business buildings on the territory of the municipality for the purpose of implementing energy efficiency measures". This is the only legal regulation of the municipalities in this area. The Article contains only general obligation of municipalities to develop local energy efficiency strategy and does not support this general principle with complementary

legislation that would make it concrete. In effect, all energy efficiency matters are regulated at the state level.

14 Current Situation

Currently the project developers have decided to replace the buildings originally selected for the reconstruction. Now the choice has been made in favor of houses that already have an established house association. As we can see from the above discussion, the possibility to implement the project in such houses looks much more realistic. Furthermore, based on research conducted in Bulgaria, house associations are usually created for the purpose of energy-efficient house reconstruction. This means that the residents have already taken all necessary actions for this activity: project documentation is prepared, energy audit is conducted, and co-financing has been found.

In the Oborishte district the residents of about 15 houses would be interested in the reconstruction project implementation through STACCATO. The houses are in various stages of readiness for the project. In some houses house associations are already registered, while others have activist groups. Some owners are still at the stage when they are thinking about the project and collecting the necessary information. Others have all the information collected and have conducted energy audits. From the point of view of the project, the most promising is the 22-apartment buildings with a house association, where the owners have already conducted research about possible sources of funding, as well as energy audit. There are all the prerequisites are in place so that next year the residents can apply for funding from the REECL-2 program described in the next section. At the same time the developers are raising awareness in other houses. It was planned to hold a big meeting of all the interested residents of the district in November.

The matter of connecting solar collectors to the district grid requires additional elaboration. In the course of negotiations with the district heating companies it was discovered that when solar collectors are installed on the roof of the house, the individual billing may be more complicated and some regulatory changes might be necessary. Currently negotiations are being conducted with the district accounting company in order to search for possible options to address the problem.

This problem is rather of a technical nature. According to project developers, current regulations and existing methodology for hot water metering enables people to be issued separated bills that would include the energy efficiency benefits. However, the Bulgarian Ministry of Economy, Energy and Tourism insist that a new methodology has to be developed in order to achieve this goal. Taking into account that any significant delay in developing such a methodology could be an obstacle to the project's implementation it was agreed that project developers must ensure a special metering in the reconstructed houses that would allow easier billing. This problem has occurred due to concern of accounting companies on billing procedure. Since the goal is to replicate the STACCATO demonstration project in Bulgaria in future projects, developers insist that there is an urgent need to resolve this problem concerning invoicing procedures.

At the end of November the project developers were informed that the funding from the National Renovation Program is finally available and the program has indicated that the pilot buildings will start renovation in March 2011 for the interior (including internal insulation of ground floor slab) and will be fully renovated around May 2011 when weather is suitable for external works as well.

15 Other Financial Sources

Still other co-financing options are considered for the additional potentials that may join the project in the next months. One of the possible financing sources may be the Bulgarian Energy Efficiency Fund. The Foundation provides loans for the project with the interest rate of 6-9% per annum. To obtain a loan, one must already have 25% of the total project cost on the account when applying for the loan. Moreover, energy audit and registration energy passport of a building are required. According to results of a survey conducted among the residents, this funding is not deemed as attractive. However, the project developers believe that the fund may still ultimately play some role in the financing.

Given that the issue of the National Renovation Program funding is still uncertain, other co-financing options are considered. The project developers place significant expectations on the Residential Energy Efficiency Credit (REECL) Facility established by the European Commission, the European Bank for Reconstruction and Development, and the Bulgarian Energy Efficiency Agency. The program's budget will be secured by the credit lines of leading Bulgarian banks that are issuing loans for energy efficiency projects. In the first stage of implementation the program funded single energy-efficient measures: double-glazing; wall, floor, and roof insulation; efficient biomass stoves and boilers; solar water heaters; efficient gas boilers; and heat pump systems. The second stage of the program REECL-2 will already make provision for funding for the reconstruction of the whole building. The new credit line will be available from the end of 2010.

16 Conclusions

The financial scheme of the STACCATO renovation project in Bulgaria is currently more or less clear. The major barrier for the project's implementation was a delay in state funding caused by uncertainties over the availability and size of funds provided by the National Renovation Program. Participation of ESCO companies still cannot be considered as an efficient financial source due to the lack of practice and experience, and the current legislative barriers. In terms of private finance, it should be admitted that owners are aware of the opportunities provided with the energy efficiency renovation and are willing to participate financially. The regulatory obstacles such as lack of legislation on house associations urgently need to be overcome through the amendment of relevant acts.

17 STACCATO project finance in the Netherlands

The Amsterdam-Noord project differs from other STACCATO projects in several respects. Firstly, the apartments of the reconstructed houses are owned not by the residents, but two house associations. The people who live there are tenants. This could seem to alleviate the situation significantly. However, in practice, the house associations are extremely limited in their actions. The situation is complicated by the need to coordinate the actions of two legal entities. According to Dutch law, there are special requirements for interaction of house associations with residents when addressing publicly important issues: information must be disseminated in a timely manner, and the decision should be made as a result of consultations with the tenants, except for

maintenance matters. When deciding on any improvements in a house that affect the financial condition of the residents, it is necessary to get consent of 70% of the residents. Energy efficiency activities count as an improvement in this sense, and thus require 70% approval.

Secondly, the work in the Amsterdam case involves significant work within the apartments, meaning residents must choose between suffering inconveniences if they stay in their apartment or moving out during the period of repair and staying in "holiday homes". Thirdly, a major role in the Dutch project financing is played by an energy service company, ENECO. The company is both an initiator of the project, and a financial source.

According to the project coordinators, arranging financing was the least problematic part of the implementation. The total cost of houses' reconstruction according to the project in the Netherlands is EUR 100 million. The project activities started in 2008; however, due to problems of a social nature the work was repeatedly delayed due to dissatisfaction of the residents with the work of construction companies. In addition it has to be mentioned that it has proved unexpectedly challenging to get all necessary information related to project finance from the Dutch project coordinators. The data provided is rather limited and does not include all details that are necessary to create a complete picture about the project realization.

State Support

The share of public funding in the project was less than 10%, and the funds were provided from two targeted funding programs. One of them, Buildings and CO₂ Reduction, was of a temporary nature, and has since closed. The purpose of the program was financial support for technical measures to reduce energy consumption in existing buildings. Subsidies amounted to no more than € 1 million per project, or up to 15% of the total investment amount. The list of measures to be funded was approved by the government, and it included wall isolation and roof repair, upgrading of hot and cold water system, and cogeneration. The main criterion of the project was the amount of CO₂ emissions reduction. Unfortunately, the research team was unable to obtain precise information on the details of this financial scheme's role in the overall financing in the Netherlands, specifically the exact amount of the subsidy.

The second program, Regeling groenprojecten (Green project financing) is a state support program for loan processing for environmental protection projects. The scheme 'regeling groen projecten' offers the chance for commercial and nonprofit organizations to obtain loans (green financing) in the country's banks at reduced interest rates on the basis of a "green certificate". The interest rate in such cases is lower than ordinary commercial loans by 1-2%. Dividends and interests are not subject to profit tax.

The law establishes a procedure for applying for green financing. The project developer submits a project and investment plan to a bank that has a green fund. The list of such banks and financial institutions was approved by the government. When a bank accepts the design documentation, it applies for a green certificate on behalf of the project initiator. The certificate is issued in one of the authorized state bodies depending on the scope of the project implementation. In addition to a detailed description of the project information about the expected environmental benefits, anticipated risks and the required funding must be present in the project documentation. If a positive decision is taken, a

green certificate is issued to the bank and the project developer. The certificate is valid for 10 years. In case significant changes are introduced in the project, the developers must inform the foundation. If the project involves reconstruction or repair, the application for a certificate must be submitted in advance before all the work starts. The project budget should not be less than € 22,689. The initiators of the project must prove that given the risks of the project, its significance for the environmental and economic factors, the project can be realized only by using green financing.

When processing the loans for the STACCATO project implementation both the house associations and Eneco used such a scheme. The loan amount was of about 40 million Euros for the associations and about 1 million Euros for Eneco. The loans are issued for 10 years, and the interest rate was approximately 1% below the normal interest rate.

Local Finance

The local authorities' support was of a mainly informational and organizational nature. Financial participation of the local authorities took the form of a target grant of EUR 50,000 for the purchase of solar collectors. The money was allocated from the budget and provided by the municipality.

The main financial support on the local level was organized by two housing associations, Eigen Haard and Ymere. As mentioned above, part of the finance was provided under the green loans program. According to Eneco the total amount of the 'green credit' for both associations is EUR 40,023,984 of financing and EUR 94,220,001 of investments in building measures. In addition, in order to ensure sustainable energy supply, another loan based on normal commercial bank conditions was taken. The mounts of the loans are EUR 59,936,016 and 5,739,999 respectively, provided by Rabobank and BNP Paribas (figure 5).

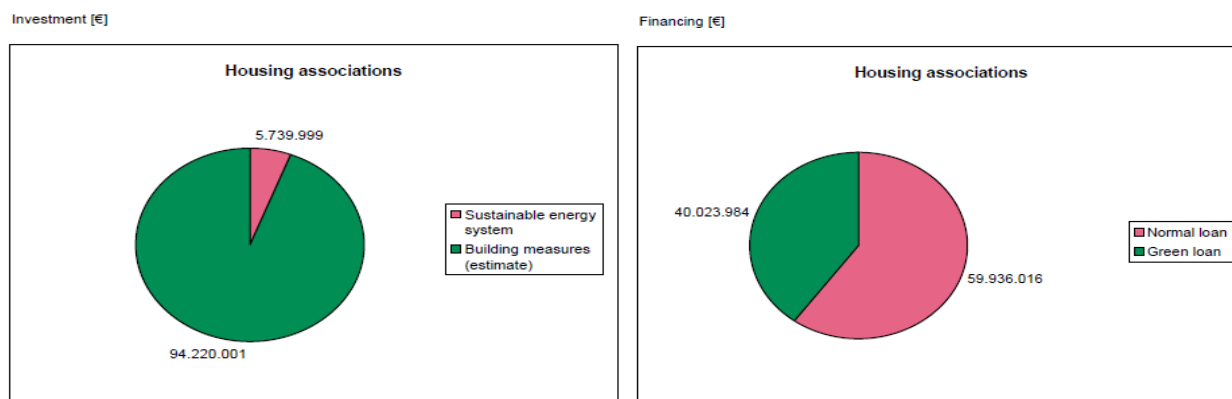


Figure 5. Amsterdam project: Housing associations' investment costs and financing scheme.
Source: Eneco

Unfortunately information provided does not contain detailed data about the interest rates and conditions of the loan. The questions that still need to be clarified in further research are the following:

1. How will housing associations repay the loan? Will it be covered by increasing the common costs or from the budget of the organizations?

2. The project implementation was delayed due to the mistakes of constructions companies. How much money has already been already transferred for the building measures and what kind of financial responsibilities are included in the contracts with construction companies?
3. What are the conditions of the “normal” loan?

18 Third party finance – Eneco

Eneco is one of the 3 largest energy corporations in the Netherlands. The company is specialized in the production, transmission, trading, supply and metering of energy (electricity, gas and heat) and related products and services. About 2 million customers, both domestic and business, are served by Eneco. Every year the company has an opportunity to finance a few projects and once a year has a right to act as a credit facility.

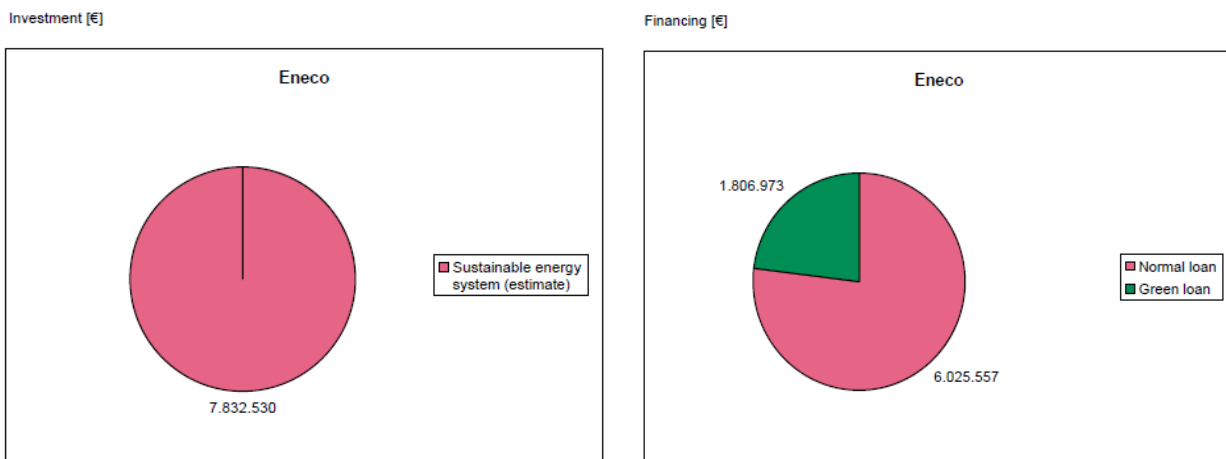


Fig.6: Amsterdam project: ENECO contribution

The amount that was provided by Eneco for the project implementation is c. Eur 8 millions. This amount was directed on sustainable energy supply. From the loan which was taken by the house association Eur 5 million was allocated for Eneco and this amount is equal to conventional energy supply.

19 Conclusions

Implementation of the STACCATO project in the Netherlands from the financial point of view looks the most promising. The financial sources involved are identified, state support is provided in time and house associations are armed with all necessary regulations and willing to participate. By contrast, practical realization of energy efficient renovation was complicated by a lack of communication among the involved stakeholders and problems with retaining the tenants' co-operation. The involvement of two house associations and their administrative responsibilities with respect to tenants was a major barrier for successful project realization.

21 Overall conclusions

As it can be seen from the information provided, financial schemes as well as empirical experience in the project countries are very different and influenced by various factors. In Hungary, the STACCATO demonstration project was well planned and supported by state and local authorities. A clear financial scheme involving the municipality, tenants and credit organizations was provided with relevant informational and organizational support. Soft loans' condition such as long pay-back period and low interest rates granted by the participating banks meant that the project was cost-neutral for residents. Thus, it can be concluded that from the financial point of view Hungary successfully reached the main project goal.

In comparison to Hungary, the Bulgarian financial scheme used for the demonstration project looks more tangled even though the project participants were defined at the project planning stage. The initial idea of involving ESCO in the project finance turned out not to be viable in practice. Funding which was attracted to the project afterwards was more complex and strongly dependant on state finance provided by the National Renovation Program. Other sources such as Energy Efficiency Fund and EBRD's Residential Energy Efficiency Credit (REECL) could be involved in a form of co-finance on the later project stages, though this is as yet uncertain. Dependence on the state funding, bureaucratic procedures caused by changes in the government, and lack of supportive legislation on house associations, were all factors causing a delay of the project's implementation.

Against the background of the previous examples the financing scheme of the retrofitting project in the Netherlands is much more advanced. Long term experience of realization of ESCO initiatives as well as targeted state funding and private crediting was a great base for the project realization. Nevertheless, challenges of a social nature caused significant problems during the project's implementation. It should also be noted that some challenges related to collecting information have arisen in the Netherlands case, meaning that judgements on certain aspects of the financing process there need to be more cautious at this stage.