Strategic approach to make the real estate portfolio of cities and municipalities in Flanders climate neutral.

1 The challenge: the built environment climate neutral in 2050

By 2050, society must be climate neutral. This also applies to the built environment. Cities and municipalities therefore face a major challenge to upgrade their real estate portfolio. The corresponding investments place a heavy burden on the budgets of local governments. As part of the FALCO project, we examined how the **cost efficiency of these investments** can be guaranteed.

This article is a summary of the final report of 'Breakthrough Project 3': *Financing deep energy retrofits of the assets of local authorities in Flanders*. It is available on the FALCO project website[1] (in Dutch).

2 Financial optimisation of deep energy retrofits

There are "only" 30 years between now and 2050. Knowing that buildings have a shelf life of at least 15-20 years[2], we need to act soon. Also, public authorities are expected to fulfill an exemplary role towards society as a whole. This is reflected in the requirement to make their building portfolio climate neutral a little faster (in 2045).

In translating this ambition into practice, we asked ourselves within the FALCO project: **What is the better option from a cost efficiency perspective?** Renovating the existing building stock at a **fast pace**, so that the climate impact will also decrease quickly? This approach also facilitates taking advantage of some financial payback effects at an early stage. Or, and that is the second option, do we spread the investments over 30 years, and shall we search for an **optimally phased approach** for this? For the sake of clarity of the analysis, we have formulated both options in a rather caricatural manner. Reality contains of course more nuances.

2.1 Accelerated or phased approach?

The two options are visualized in Figure 1, with the period 2020-2050 on the horizontal axis and an entire building portfolio (0-100%, in square metres) on the vertical axis.

[1] FALCO - Financing Ambitious Local Climate Objectives: https://www.financieringlokaleklimaatplannen.be/home.html

[2] Depending on the component ('layer') of the structure, cf. 6 layers concept of Stuart Brand https://en.wikipedia.org/wiki/Shearing_layers

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The yellow bar represents a thorough strategic analysis of a complete real estate portfolio ('SPREM'[3] analysis). The colored blocks represent several ambition levels of energy renovations: green (80% less energy consumption), blue (-42%), orange (-10%). The gray blocks represent the sale of real estate.

Figure 1 – Two strategic options for deep energy retrofits of building portfolios: accelerated vs phased.

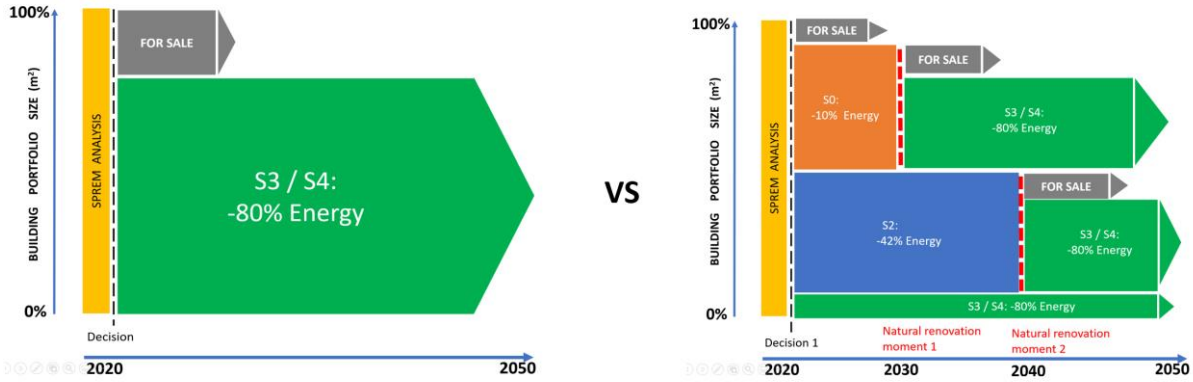
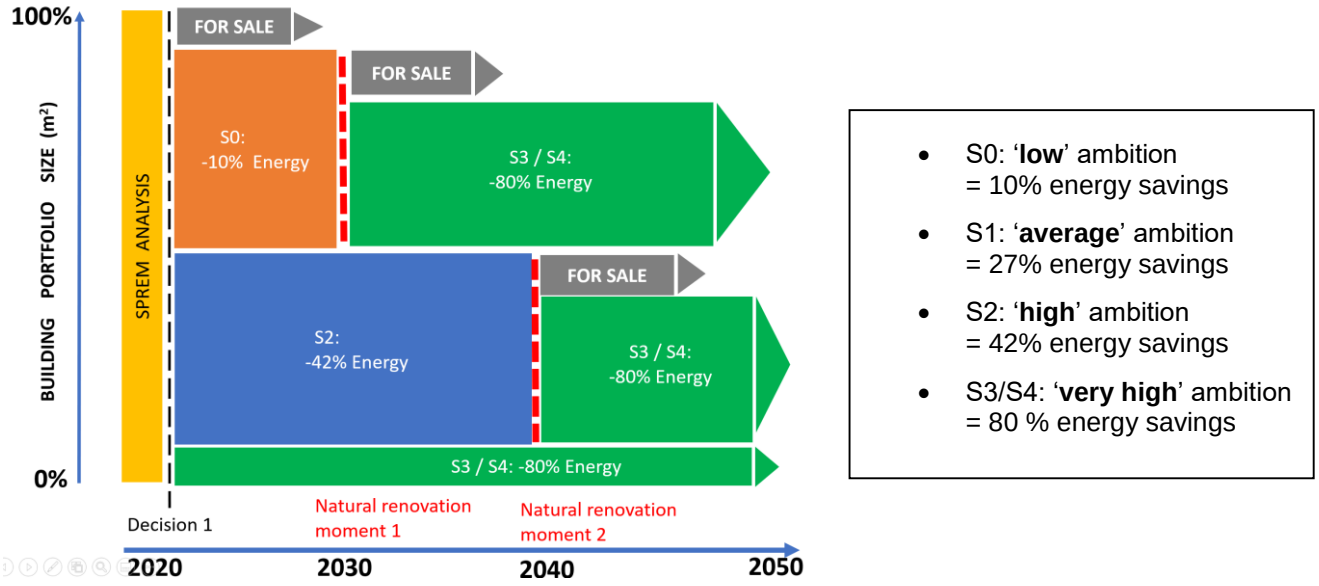


Figure 2 – Phased approach, using natural renovation moments.



We compared the strategic two options (accelerated vs. phase) by assessing various parameters (see discussion in section 2.2). The conclusion was that the phased approach (as shown in Figure 2) is the most cost-efficient option. This approach is based on the following principles:

- Start with an analysis of **actual housing needs**. Which services do you wish to provide to the citizens of the municipality? Which buildings are needed for this? Is it possible to combine functions or services?

[3] SPREM – Sustainable Public Real Estate Management

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- After this initial analysis, it will probably appear that part of the portfolio is no longer needed. Also it is possible that part of it cannot be made future-proof. By no longer investing in this part of the portfolio (**divesting**), you can avoid maintenance costs or even generate income, which can be invested in the buildings you do keep and will become the **core portfolio**. These **revenues will help support the difficult business case of deep energy renovations in the core portfolio**.
- When investing in the core portfolio, it is important to make maximum **use of 'natural renovation moments'**. These are moments in time when investments must be made in buildings anyway for reasons other than energy efficiency: end of life of technical installations, asbestos removal, fire safety upgrades, accessibility improvements, facilities for the 'new way of working', aesthetic upgrades, and so on.
- Try to **synchronize renovations** across several buildings, so that **clusters of buildings** are formed that are tackled jointly. This increases the tendering efficiency (e.g. for energy performance contracts (EPC)).
- The building portfolio of cities and municipalities often also includes **buildings with heritage value**. The technical possibilities to drastically reduce the energy demand of these buildings often conflict with aesthetic criteria. This group of buildings requires an alternative strategy. This may consist in seeking a different balance between reducing energy demand *and* using renewable energy. Compared to non-heritage buildings, the balance will tip more towards the use of renewable energy. This renewable energy is preferably produced locally (not necessarily on the site itself, but still on the territory of the municipality).

2.2 Evaluation[4] of both strategic options

We have **calculated both options on a virtual building portfolio of 100 000 m²**, with an **energy cost in the BAU scenario of 1 million euros per year**. Subsequently, both options were assessed taking into account various parameters: risk for technical and economic lock-in, renovation pace, learning curve / progressive insight, technological innovation, impact on the workload of building managers, evolution of energy prices, political decision-making process, and finally, the impact of the investments on the policy space of local governments (including 'self-financing margin'[5]). Obviously, in this article we cannot go into all the parameters mentioned; we will cover the most relevant insights.

Initially, we performed a financial analysis at the building level. Our calculations show that energy savings of 42% can be achieved in a budget neutral way. However, in order to achieve climate neutrality at the building level, energy consumption often has to be reduced by much more than 42%. This implies that the business case will become negative. It is therefore a misunderstanding that the challenge of the cities and municipalities consists in earmarking initial financing and that after that, the payback effects will do their work. **Additional repayment capacity will be required to offset the negative business case.** This can be found, among other things, in **strategic real estate management at portfolio level**. Optimized building management and the sale of redundant or obsolete buildings results in less expenditure and generates income. The latter can be invested in the core portfolio to make it climate neutral.

We have made the following observations with regard to the **pace of renovation**. We have calculated the costs for two strategic options: accelerated and phased. The accelerated option, in which substantial investments in the buildings are made as early as possible, has the advantage that it contributes to

[4] The complete assessment is available in the final report of DBP3 on the FALCO website.

[5] In Flanders, local authorities are requested to obtain a 'structural' financial equilibrium (https://lokaalbestuur.vlaanderen.be/bbc-strategisch-en-financieel-beleid/bbc-ondersteuning/financieel-evenwicht)

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climate mitigation earlier, by significantly reducing carbon emissions at an early stage. However, this political choice entails significant costs, which are higher compared to the costs of the phased approach. This is explained by two factors: the accelerated approach does not benefit from natural renovation moments. This is the consequence of replacing installations that have not yet been written off. In addition, the payback effect of in-depth energy renovations is often overestimated: at current energy prices, these investments cannot be recovered. There is therefore - from a financial perspective - no interest in having all investments taking place as early as possible.

The **sale of surplus real estate** can significantly contribute to the financing of deep energy renovations. The latter sounds simple, but of course requires a thorough strategic review of the building portfolio of a city or municipality. In this exercise, various factors need to be taken into account: life cycle costs, location of a building in relation to public transport (cf. node value), societal return on real estate, and so on. The buildings that pass this test are the candidates for the core portfolio.

Real estate management at the portfolio level rather than the building level also means that the target of reduced energy consumption at the building level can be 'released' to a certain extent. Concentrating the services of cities and municipalities in a well-chosen selection of buildings automatically leads to a reduced total energy consumption, hence subsequent reduced total carbon emissions, while delivering the same service.

Finally, we would like to mention a few **non-financial aspects** that should not be overlooked when choosing a renovation pace. We would like to focus on two of them that in our opinion are quite important: (1) There is still insufficient knowledge regarding deep renovations (technological, conceptual, tendering, etc.). The literature shows that the actual energy savings are often (considerably) less than originally expected. In a phased approach, one learns with each renovation, and one can use these insights in the subsequent renovation. This is less possible in an accelerated approach. (2) Implementing a renovation operation in a cluster of buildings also has a significant impact on the professionals who have to manage this. This concerns two important processes: on the one hand, the tendering of the works, but also the relocation operations of the staff working in the buildings. This factor may seem ancillary compared to the factors discussed elsewhere in this note, but based on interviews that we conducted with building managers we know that these services are often understaffed.The latter means that an accelerated approach would create an organizational spike which would be difficult to absorb. Also, the increase in demand for renovation works is likely to impact their price levels due to lack of contractor capacity.

2.3 Public or private financing methods?

In principle, there are 2 options for the initial financing of energy efficiency measures: public and private financing. In the FALCO project, it was **initially assumed that private financing was the better option** because it has no impact on local government debt consolidation. This would make it possible to opt for an accelerated scenario instead of a phased one. A decisive element in our evaluation, however, turned out to be the requirement of the Flemish government on the local authorities to maintain a *structural* financial balance, which in the jargon translates into maintaining a "positive auto-financing margin (AFM)". In other words, it is not so much the avoidance of debt accumulation that determines the choice of financing method, but rather the pursuit of a sound financial policy in the long term ("structural" balance). Moreover, cities and municipalities borrow at lower rates than private borrowers. It would be illogical not to make use of this as a local government. In short, **public funding is recommended when implementing deep energy retrofits**. In this context, we would like to clarify that, contrary to common perception, private financing is not a necessary condition for implementing an EPC contract (Energy Performance Contract). EPC contracts can also be funded with public funding.

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2.4 Next steps?

The strategic real estate management approach proposed above is / was tested in the framework of the FALCO project. As part of the SURE2050 project (www.sure2050.be), the approach will be refined and further tested.

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