

About De Alliantie

De Alliantie is a Dutch social housing provider with properties in the Amsterdam metropolitan area. With over 60,000 dwellings under management, it is one of the larger housing providers in the Netherlands. De Alliantie aims to have an energy index of 1,25 by 2040 and be energy neutral by 2050. More than 50% of De Alliantie’s dwellings (over 32,000 units) are in multifamily buildings and the rest are mostly terraced houses. The majority of the stock was built between 1950s and 1990s, with a concentration of late 50s and mid 80s buildings. 60% of De Alliantie’s stock has an energy label of C or below, and 37% is D or below. Dwellings are geographically clustered by type and age. These patterns suggest that there can be economies of scale in renovation – since buildings of similar archetype and year of construction will require similar interventions.

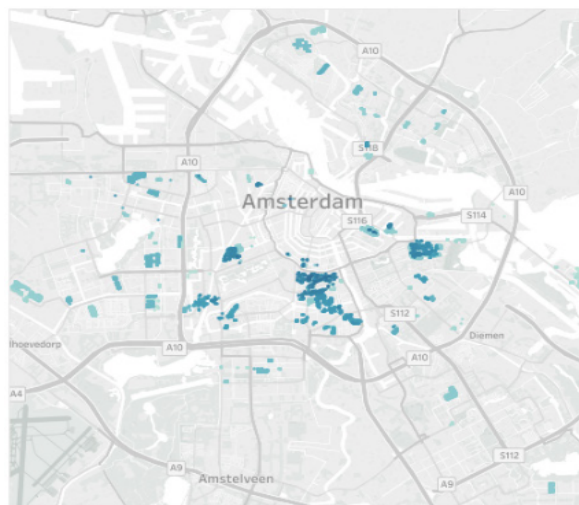


Figure 1. Geographical distribution of the age of de Alliantie's stock

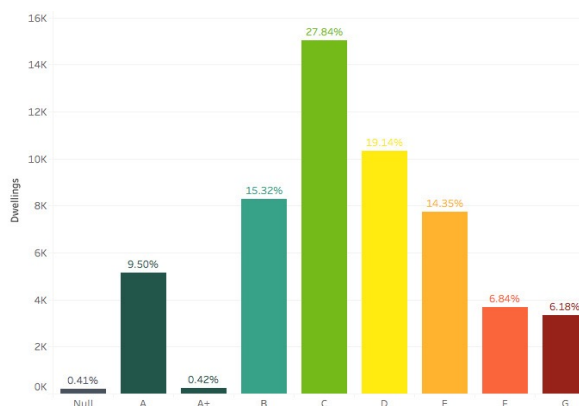


Figure 2. Stock energy label distribution

Renovation packages

For De Alliantie’s stock, five renovation packages are proposed using the Energy Savings Browser created by the Netherlands Enterprise Agency. The browser compares the set of improvement measures against key indicators. Two main dwelling archetypes in De Alliantie’s stock are defined: flats and houses. We focus on the most common construction year within each group to develop estimates for shallow (1-2 label steps) and deep (3+ label steps) renovation packages. Thus, the renovation packages cover 29,090 units in the stock.

Flats – shallow and deep renovation

Most of De Alliantie’s units are flats built in the 1980s and 1990s. Retrofit costs for these range

from €11,600 (shallow) to €14,367 (deep) per unit.

Renovation groups by type and label	Number of Buildings	Most common year	Renovation target	Renovation package
CD Flats	11022	1980s	Shallow (to C)	1
EFG Flats	6121	1970s	Deep (to A)	2
CD houses	6765	1945	Shallow (to A)	3
EFG houses	5152	1945	Deep (to C)	5
TOTAL	29090			

Houses – shallow, moderate and deep renovation

A deep renovation of a house can reduce energy use by 75%, and cost €51,400. At a calculated monthly energy bill reduction of €229, the total savings are €68,700 over 20 years.

Investment Strategies & Impacts

De Alliantie aims to increase its portfolio's average energy index (EI) from 1.75 to 1.25 and generate CO2 savings of 20%. This section uses a custom investment-planning model to project the impact of various investment strategies on key financial and energy indicators over an investment period of 15 years. The pathways allow De Alliantie to explore: the impact of continuing current strategies, the impacts of increasing the annual renovation budget, and the cost/energy savings trade-offs of different renovation ambitions. Projecting De Alliantie's current investment strategy over the long term using a shallow-renovation approach shows that the stated targets will not be met until 2043, 11 years after the deadline. To meet its energy targets, De Alliantie can perform shallow renovations on many units, or deeper renovations on fewer units. When following a strategy of shallow renovations, the objectives would be reached by increasing annual investments from €13.8M to €20M. This would achieve 20% CO2 use reductions by

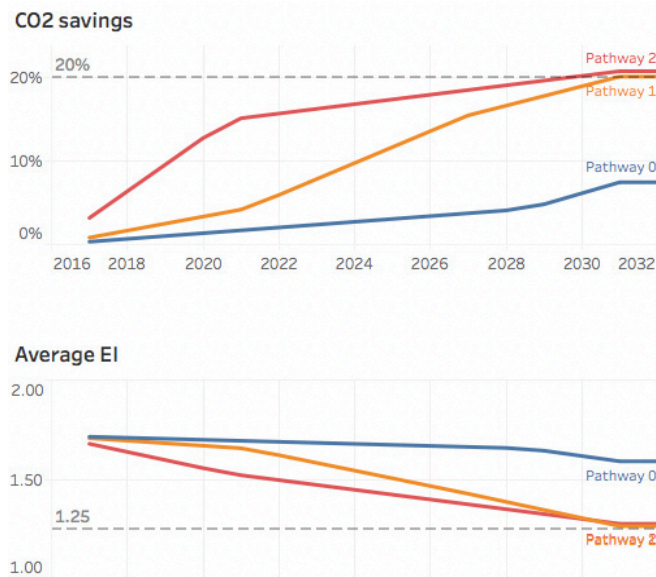


Figure 3. CO2 savings and EI projections of the 3 pathways

improvements. Such a programme would reach 9,882 dwellings at a cost of €225M, and achieve €109M in energy bill savings, with 20% CO2 use reductions. The deep renovation pathway is more financially-viable.

Conclusions & Recommendations

Conclusions

Currently 60% of De Alliantie's stock has an energy label C or below. De Alliantie aims to have an energy index of 1.25 by 2040 and be energy neutral by 2050.

- 26 years to meet energy targets under current investment practices
- 214% ROI total lifetime savings from deep renovation of a house
- €569M savings on energy bills following a deep renovation programme

Potential for multi-building renovation

Similarity of buildings in stock can provide an year 15, and total energy bill savings of €16.9 million. An alternative strategy focuses on deep renovations, aiming for 5 labels step

opportunity for alternative procurement strategies, bundling projects at larger scale. Comparable approaches show significant benefits in per-unit costs, increased quality and reduced overhead costs.

Recommendations

More detailed and accurate results could be achieved by: completing the data missing related to EPC and energy index; expanding the number of archetypes and renovation options included; by validating actual costs and benefits based on De Alliantie's experiences; and/or by aligning impact with current "real options" which would allow for the costing programs currently being discussed at strategic level.

