

# Sonderborg: Retrofitting Package

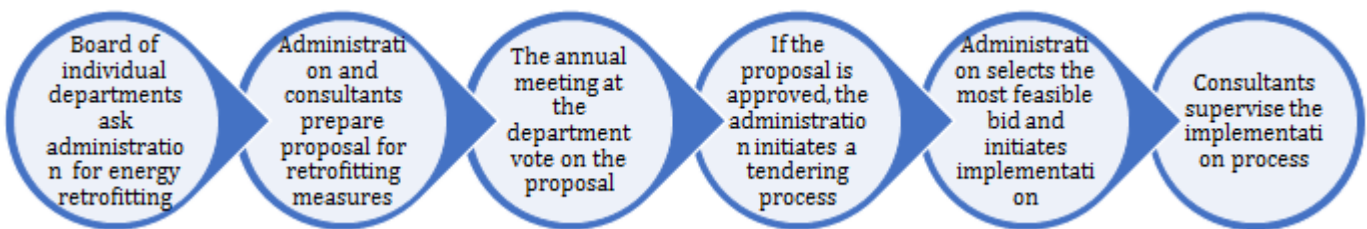
## Overview

In Sonderborg, 7 different housing association departments with a total of 815 apartments and 1,400 tenants are involved in the retrofitting package. The measures include insulation of facades and roofs, airtight constructions, new low-energy windows and doors, new ventilation systems with heat recovery replacing traditional exhaust air ventilation systems, new indoor and outdoor LEDs, LED street lighting in the common areas, automatic heating control systems, improvement of the indoor climate, installation of a total of 6,000 m<sup>2</sup> of roof-integrated solar photovoltaic plants for electricity supply in the majority of the housing departments. The objective of the measures is to reduce energy consumption for the residents, to improve the indoor climate in the buildings and to assist Sonderborg with becoming a carbon neutral area in 2029.

## Business Models

The business model for traditional energy retrofitting measures is that the rent increases for the tenants due to investments in retrofitting measures that will be compensated by a similar reduction in energy expenses for the tenants. In addition, in most cases there will also be an improvement in the indoor climate of the apartments. A part of the business model is that the contractor/supplier provides the financing in addition to the delivery and installation of the energy retrofitting measures. The financing is paid back with the actual value of the obtained energy savings. This means that the residents do not get any savings on their energy bills until the investments have been repaid, but after that period, they will have a considerable reduction in their energy bills without having to pay a higher rent or pay for an upfront investment.

## Process

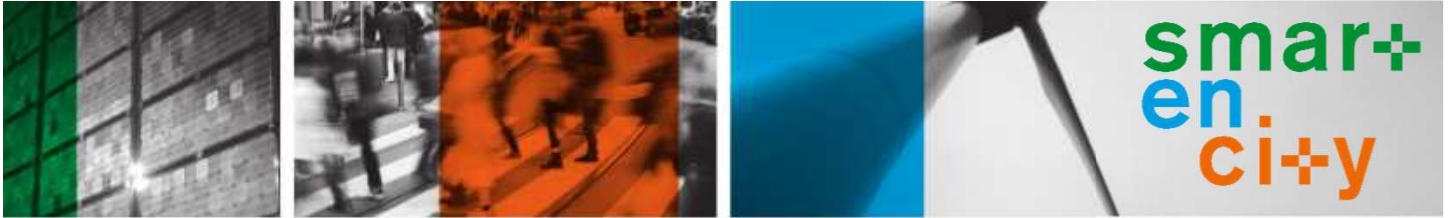


## Citizen Engagement

All individual departments have a separate board consisting of 5-8 residents. This board is elected by all the residents in the department at an annual meeting. The administration of the housing associations together with their external consultants prepare a proposal for energy retrofitting of the individual departments. This will be presented and discussed, then the residents present at the meeting vote yes/no for the proposal, and it needs a simple majority to be approved.

## Benefits

- Increased resource and energy efficiency
- Reduction of energy bills
- Reduction of carbon emissions
- Better (evidence-based) planning
- Stable long-term return on investment
- Increased comfort
- Social integration



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## Stakeholders

<b>Owner(s)</b>	Housing Associations
<b>Service/Technology Provider</b>	Consulting architects and engineers/ building contractors
<b>Users</b>	Residents
<b>Investors</b>	Housing Associations

## Investment/Finance

Ca. 10 Million Euro.

## Replication Potential

It is anticipated that the developed methods for building integration of solar photovoltaic panels and the simulation software for distributing the produced solar electricity for immediate use and selling it to the grid can be replicated in other cities. Also, the financing scheme that the exact measured energy saving is used to pay back the investment could be replicated. This means that the residents do not experience an increase in their rent and also do not get a reduction in their energy costs until the investment is paid back. The citizen engagement process in housing associations in Denmark is very rare in Europe and could be interesting for other cities and countries to replicate.

**SONDERBORG**



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## More Information

<https://smartencity.eu/about/solutions/retrofitting-sonderborg/>



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