City of Amsterdam



Tackling energy poverty with used solar panels

A step-by-step plan with practical lessons from Zonbank Amsterdam

Hoptille pilot project 2025

Step-by-step plan

This step-by-step plan guides local authorities through each stage of a project with used solar panels. The plan is intended for policy advisors, project leads and partners who help with implementation. Each step describes what the municipality can do, the key considerations and the practical lessons learned in Amsterdam.

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Step 1. Determine the goal, target group and type of area

Why does the municipality want to install used solar panels, and for whom?

Actions

- Determine which societal challenge is the main focus: energy poverty, the circular economy, access to solar energy or a combination of these.
- Find out where energy poverty is common. For example, use the Monitor Energiearmoede (Energy Poverty Monitor) from TNO and Statistics Netherlands (CBS), together with the knowledge of local partners. Table 3 of the monitor shows energy poverty at neighbourhood level for each municipality.
- On that basis, decide whether a neighbourhood-based approach is the right choice or whether energy poverty is more widely dispersed. Look at which type of housing is best suited to the plan: housing association homes, privately owned homes, owners' associations (VvEs) or a combination of these. Each type requires different agreements on funding, decision-making, communication and installation.

Lesson from Amsterdam

Housing associations are often a good place to start. They know the target group and the buildings well, and they know which roofs are suitable. In Amsterdam, the local knowledge of housing associations proved important. They know which households are at high risk of energy poverty, which roofs are technically suitable and where maintenance or renovation is already planned. This is how the first pilot in Amsterdam came about, in a Ymere housing complex in Hoptille, Amsterdam Zuidoost.

Alternative approach

When energy poverty is scattered, an approach based on target groups sometimes makes more sense.
This approach does require more tailoring, because the roof inspection, scheduling, contact with residents and installation have to be arranged home by home.

One example is the approach taken by the municipality of Haarlemmermeer. There, 25 owner-occupier households at increased risk of energy poverty received used solar panels. These households had previously received an energy allowance from the municipality. They could sign up to take part.

Step 2. Secure political and civil service support

Who gives the mandate, and what role does the municipality play?

Actions

- Make sure there is a clear mandate, including the capacity to prepare a pilot.
- Make it clear whether the municipality mainly facilitates, brings parties together, provides subsidies, creates demand itself or combines several of these roles.
- Describe the social business case in broader terms than just the payback period: lower energy bills for households in energy poverty, preservation of strategic materials, CO_2 reduction, jobs for people who face barriers to employment and an inclusive energy transition.
- Set down in writing that investing unequally may be necessary to create more equal opportunities in the energy transition.

Lesson from Amsterdam

The City of Amsterdam's Programme Zon was given a political mandate to focus on qualitative scaling up as well as on its rooftop solar targets. In line with the principle of 'unequal investment for equal opportunities', and to promote a circular economy, capacity was made available to support a regional reuse chain, pilot projects and the further development of Zonbank Amsterdam (Amsterdam Solar Bank).

In 2026, new solar panels delivered 5 to 18% more output per square metre than inspected used panels. However, with the net-metering scheme ending, this extra output brings households taking part in Zonbank Amsterdam hardly any additional savings. Good support to help households use energy smartly has a bigger effect on their savings.

Follow this link for the proposal to the College of Mayor and Alderpersons on Zonbank Amsterdam.

Step 3. Work with existing reuse initiatives

Where do the panels come from, and how is quality assured?

Actions

- Contact a supplier of high-quality used components at an early stage. Where possible, use an existing reuse chain, such as Stichting ZonNext, for collecting, sorting, inspecting, storing and delivering used solar panels and other components.
- Determine which test or inspection certificates and warranties are needed, and agree in writing with the supplier which components are suitable. Also make an early rough estimate of how many components will be needed and when, so that the supplier can plan for this.

Lesson from Amsterdam

The municipality does not need to handle the organisational and logistical steps for reuse itself. It adds the most value by creating a socially beneficial use for inspected used materials and predictable demand for them.

At first, it is often difficult to find enough buyers for reused materials. Pilot projects can help to organise demand, streamline processes and build trust among clients, installers and residents. This gives the reuse chain the chance to develop into a good alternative to the established channels for new materials.

Together with Stichting ZonNext, WEEE Nederland, Milieuwerk and Refurn, Amsterdam has helped to develop a regional reuse chain for collection, inspection, storage and delivery. Other municipalities can join this reuse chain and focus on putting the panels to use locally.

Step 4. Choose a funding model

Who pays for what, and how can this be arranged?

Actions

- Determine which funding is available: municipal funds, subsidies, SPUK funding, contributions from housing associations, funding bodies and/or money from other partners.
- Determine who pays which costs. Distinguish between panels, inverters, mounting materials, installation, monitoring, maintenance, resident support and additional measures, such as a solar water heater.
- Hold a market consultation with local installers to set realistic project budgets and subsidy amounts.

Lesson from Amsterdam

Finding a workable funding structure can take a lot of time. So start early, especially if the money comes from different programmes or funds.

In Amsterdam, it turned out that simply offering free used panels was not enough. Residents were hesitant because of uncertainty and negative media reports about feeding electricity into the grid. The subsidy scheme 'Used Solar Panels on Amsterdam Housing Association Roofs' (Gebruikte zonnepanelen op Amsterdamse corporatiedaken) therefore covers the full cost of installation. Tenants pay no service charges and will still benefit once net metering ends.

Housing associations do contribute €32.50 per panel to the reuse chain. This keeps enough inspected panels in stock. They also arrange monitoring and maintenance of the installations.

Installation costs vary depending on the home, the roof and the number of panels. For examples, see the subsidy amounts in article 2.4 of the subsidy scheme. These amounts were based on a market consultation with local installers.

Step 5. Start with a small pilot project

Which location offers the best chance of a success that is both achievable and visible?

Actions

- Choose a housing complex or neighbourhood with enough suitable roofs, a clear target group, an engaged roof owner and a local contact person.
- Ideally, choose a place where there is already a reason to start, such as an earlier roof survey, a plan to make homes more sustainable or a district programme.

Lesson from Amsterdam

In Amsterdam, direct contact with a local property manager at a housing association led to a workable pilot more quickly than a general approach through the administrative route. Local property managers and resident liaison officers often have a better idea of what is going on in the neighbourhood, which complexes offer a good chance of success and where there is already contact with residents. This means they can find concrete starting points for a pilot project more quickly. Energy communities can also play an important role in this.

Step 6. Draw up a technical and financial plan

Will it work on this roof, for these residents and at this cost?

Actions

- Have an installer check the roof and carry out a technical assessment. Housing associations often already have a regular installation or maintenance partner for this.
- For each home, look at how many panels will fit, where the best position is and roughly how much electricity the panels will generate.
- Together with the roof owner, estimate how long the panels can stay on the roof, for example in view of planned maintenance, renovation or demolition.
- Work out with the roof owner and installer roughly how much residents can save. Take into account the household type, the number of panels, whether the home uses gas or is all-electric, and the expected consumption profile.
- Make a cost estimate for the complete solution, including resident contact, installation, monitoring, maintenance and any aftercare.
- Where appropriate, use the ZonNext calculation tool to estimate the CO_2 savings per home, for new as well as used solar panels.
- Based on the points above, decide whether the project can go ahead. Schedule a go/no-go decision before developing the project further.

Lesson from Amsterdam

Roofs where the standard business case was previously unattractive are often particularly suitable for a Zonbank project when the social value is high.

Step 7. Reach clear agreements on roles and preconditions

Who is responsible for what, and how can the risks be limited?

Actions

- Record arrangements in a collaboration agreement, subsidy conditions or implementation agreements.
- Agree on ownership of the installation, the quality of the used panels, warranties, installation responsibilities, maintenance and how faults will be followed up.
- Agree what happens if there is damage, if residents move, or if the building is renovated or demolished. Also agree who will remove and take back the panels.
- Make explicit arrangements for monitoring, privacy and access to consumption data.
- Decide who residents can call or email after installation.

Lesson from Amsterdam

When scaling up through a subsidy scheme, the municipality can set public-interest preconditions, while housing associations keep enough room to organise projects within their own operations and contracts. See chapter 2 of the Amsterdam subsidy scheme for legally grounded preconditions.

Step 8. Develop a resident engagement and recruitment approach

How do you make the offer clear and trustworthy?

Actions

- Make use of people the residents already know, such as housing association staff, resident liaison officers, energy coaches, the neighbourhood team or other organisations in the district.
- Use letters or leaflets, but also talk to residents in person. This can be done on the doorstep, in residents' homes, during drop-in sessions or at an information fair in the neighbourhood.
- Be transparent and use simple language when talking about output, feed-in, energy contracts and what solar panels can and cannot solve.
- Make it clear that residents do not have to pay anything. Tell them what they do and do not need to do, and who they can contact with questions.
- Explain which data will be monitored and for what purpose, and ask for explicit consent when consumption data are used.

Lesson from Amsterdam

In the Amsterdam pilot, about half of the households eventually took part. Distrust of a free offer turned out to be a real barrier. Doubts, misinformation or negative stories can spread quickly in the neighbourhood and influence other residents' decisions. According to the housing association involved, this risk may be greater at large group meetings, where the distrust or negative experience of a single resident can quickly set the tone.

Explaining things in person works better: on the doorstep, by phone or in small group discussions, through people the residents know. This leaves room for questions and for repeating the information. This approach does take a lot of time. So make as much use as possible of existing support for residents.

Step 9. Install, monitor and stay in touch

Is everything working properly? Who is available to answer questions?

Actions

- On handover, give residents a simple explanation of the installation. Explain how the installation works, how they can see its output and how they can make smart use of the solar power.
- Arrange monitoring so that faults and lower-than-expected output are spotted in good time.
- Make sure there is a clear point of contact, a fault reporting procedure, maintenance arrangements and an aftercare check-in.
- Show residents what the panels produce. For example, use a small display or an app that shows output and consumption.
- Share stories and experiences to increase trust and visibility in the neighbourhood.

Lesson from Amsterdam

Residents value personal contact, but aftercare is easily forgotten. Monitoring and providing information should therefore be treated as part of the project design, not as a separate final step.

An earlier pilot project in Amsterdam showed that accessible, real-time information about consumption and output can make a big difference. With a HomeWizard Energy Display, residents could see their energy use in real time. Several households said this helped them use energy more smartly. Two households even bought an electric hob so they could cook more often during the day, when the sun is shining.

Research into energy coaching in Amsterdam shows that coaching alone can lead to significant savings: up to €104 per month on average. For this reason, do not treat solar panels as a stand-alone intervention. See them as part of a broader package of resident support and renovation, and as a concrete opportunity to inform residents about smart energy use.

Step 10. Evaluate and scale up

What went well? How do you turn a successful pilot into a programme?

Actions

- Evaluate more than just the number of panels, the kWh output, the costs, the CO_2 reduction and the savings. Also look at how many residents take part, what their experience is and where implementation gets stuck.
- Record which documents and agreements can be reused, such as the collaboration agreement, the letter to residents, the Q&A, monitoring arrangements and other conditions.
- Use the evaluation to build a well-founded case for political decision-makers on whether scaling up through a subsidy, programme or wider collaboration is needed.
- Work with parties that are already active in several neighbourhoods or for several housing associations. They can help replicate the approach more quickly.
- Document the approach in practical terms. Give parties in the neighbourhood the practical guidance and resources to carry out projects. As a municipality, stay involved where this is useful and feasible.

Lesson from Amsterdam

In Amsterdam, the successful pilot project sparked a discussion about repeating it and making it even bigger. Once the approach had been proven to work in practice and it became clear that more neighbourhoods had suitable complexes, the question shifted from whether it could be done to how it could be scaled up.
A subsidy scheme for housing associations proved the logical choice.
Housing associations like projects to fit in with their existing operations, and they offer the greatest potential in Amsterdam. The City mainly facilitates funding and, where useful, supports communication with residents and knowledge sharing.

Colophon

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