

# A green outlook on property renovations

- ★ As more people and organisations consider installing their own solar panels, ICT plays an increasing role in connecting energy supply and demand across communities. The DREEAM project aims to help identify the right combination of technologies to help manage this energy effectively and reduce energy bills, as **Rolf Bastiaanssen** explains

A lot of attention in research is currently centered on improving energy efficiency in residential buildings, with scientists developing innovative technologies to reduce consumption. Only a relatively limited set of technologies can be applied when the focus is on individual buildings however, due to both economic and practical constraints, now the DREEAM project is looking at the issue on a larger scale. "We are working with large social housing providers to plan renovations at scale, as you can get costs down through simple operational efficiencies," says Rolf Bastiaanssen, the project's Principal Market Developer. The project is working at pilot sites across Europe with the aim of identifying the right combination of technologies to improve energy efficiency, taking local circumstances into account. "For example, in urban environments, there may be solar panels on the roof to generate energy," outlines Bastiaanssen. "There's not a lot of space on a roof. There is also the question of who owns that energy and what you do with it."

## DREEAM

Demonstrating an integrated Renovation approach for Energy Efficiency At the Multi-building scale

With a focus on social and public housing, the DREEAM project aims to show how renovating housing stock on a larger scale is an opportunity for better integration of renewable energy and is generally more cost-effective. The project demonstrates a multi-building and single owner renovation approach that can achieve a 75% reduction of total energy demand.

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On average, as little as 45 percent of the energy generated by photo-voltaic panels on a residential building is actually used by the household that installed them, with the surplus being sold back to the national grid at low rates. Creating a local smart-grid opens up the possibility of selling that energy to neighbours in an apartment block, benefitting both parties. "Maybe a neighbour would pay 80-90 percent of the commercial

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price for that energy," explains Bastiaanssen. Housing associations are able to do this on a larger scale, as they often manage thousands of apartments, which Bastiaanssen says could lead to wider benefits. "We work with large housing providers to demonstrate the value that could be delivered to people in the affordable housing sector through the adoption of energy flexibility services," he continues. "It's about using renewable energy efficiently. These flexibility services could lead to reductions in household bills of between 10-20 percent."

This approach is very much in line with the wider shift towards the de-centralisation of energy provision and the goal of bringing supply closer to demand. The aim in the project is to work with different networks of housing associations and connect them with solution providers that could help improve efficiency. "We provide housing providers with insights and technology, and we invite solution providers that we see could add value," explains Bastiaanssen. While the amount of

energy generated by renewable sources of energy can vary according to the local climate and the time of year, the methods by which that energy can then be effectively distributed are more broadly applicable, and Bastiaanssen says the market is set to evolve further. "Over the coming years, as technology continues to develop, we can expect that there will be many more energy producers than we see now," he stresses.

The focus of attention in the project has been on social housing, yet this approach could potentially be applied by private housebuilders and companies in future. New buildings will have to meet ever-tighter energy efficiency standards, and Bastiaanssen believes that flexibility services will have an important role to play in this respect. "Regulations in some countries state that buildings should be energy-neutral, so they will need to generate energy, for example through solar panels. From here, the situation becomes more complicated, and you have to distribute the energy that has been generated," he says. This points to a growing need for flexibility services; Bastiaanssen says that by developing an effective methodology for energy-efficient renovations, the project will make an important contribution. "We will take our methodology and help housing associations see how green renovation at large scales is cheaper in the long-term, while it is also environmentally-friendly and makes good business sense."

Pilot site in Berlin - Netelbeckplatz

