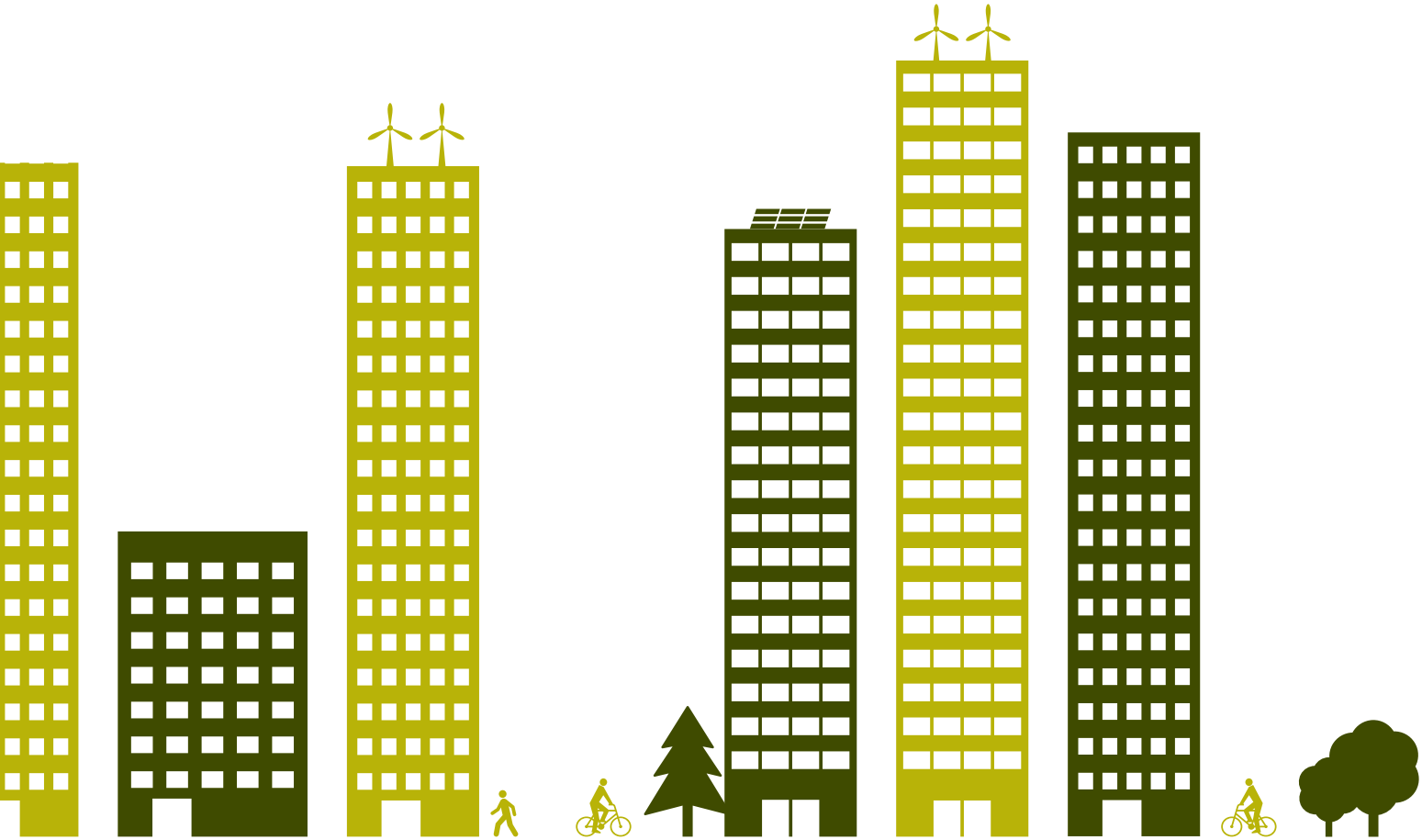


Towering ambitions

Transforming high rise housing into sustainable homes



**green
alliance...**



Towering ambitions: **Transforming high rise housing into sustainable homes**

By Hannah Kyrke-Smith

Green Alliance

Green Alliance is a charity and independent think tank focused on ambitious leadership for the environment. Green Alliance is a charity and independent think tank focused on ambitious leadership for the environment. We have a track record of over 30 years, working with the most influential leaders from the NGO, business, and political communities. Our work generates new thinking and dialogue, and has increased political action and support for environmental solutions in the UK.

About Towering Ambitions

This report is published as part of Green Alliance's Towering Ambitions project which is looking at the challenges faced by residents of existing high rise housing in trying to live greener lifestyles. This report recommends how green living in tower blocks can be facilitated. We have also produced *A better place to live: a toolkit for high rise green living*, aimed at helping tower block residents to take action.

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Executive summary

High rise housing is a familiar feature of the urban landscape. Its compactness offers great potential to provide cleaner, greener, low environmental impact living for residents. This is in line with a broader vision of how sustainable cities of the future will look.

Cities need to make the most of what is already available if they are to realise this vision, but the current reality for many living in existing high rise housing is far from where it needs to be. As well as distinct opportunities, high rise housing presents its own set of unique challenges. There are around 390,000 flats in high rise blocks in England, and they weren't designed for low carbon living.¹

This report examines how the positive vision can be realised, and how sustainable lifestyles and the benefits they bring can reach more people living in existing high rise housing. Based on workshops we have run in three London estates and a series of interviews conducted with stakeholders across the country, we have identified where policy action can be taken now to drive this vision forward.

We propose solutions to improve resource efficiency and support better connected, more cohesive communities. In particular we highlight what the various actors: from national and local government, to landlords and residents themselves, can do to make policy work for high rise housing.

Our overarching conclusion is that existing policies are largely designed with street level properties in mind and therefore fail to support and incentivise sustainable living for high rise residents. As government policies increasingly place responsibility on individuals to take pro-environmental actions, tower block residents are fundamentally disadvantaged as they have less control over the systems around them.

“Existing policies are largely designed with street level properties in mind and therefore fail to support and incentivise sustainable living for high rise residents.”

Many pro-environmental actions like energy saving should also save consumers money. So there is a clear inequity here, especially for tower block residents on low incomes who need to be able to make savings for themselves as well as consider the environment. Moreover, there is a lack of policy drivers or incentives to address the factors preventing tower blocks from supporting greener lifestyles. Until these gaps are addressed tower block residents will continue to miss out.

Three overarching issues have emerged from our study:

- **Tower blocks are overlooked by policy makers:** policies to support green living and environmental choices in the home must consider how they apply to a tower block context to ensure that residents do not miss opportunities for greener living and warmer, more comfortable homes.
- **Opportunities to promote sustainable lifestyles are being missed by disregarding tower blocks:** cities must integrate tower blocks into current initiatives rather than seeing them as too challenging. They present unique opportunities, such as for district heating, to realise lower carbon ambitions.
- **The unique potential of tower block communities is not being realised:** residents of tower blocks can feel a unique and strong sense of community. Local authorities, housing providers and policy makers would benefit from developing approaches that support and engage these communities in new initiatives.

We have identified seven major opportunities that would address the issues and make the most of existing policy to enable tower block living to become more sustainable:

Smart meters. Tower blocks could be exemplars for the roll-out of energy smart meters, to increase the installation rate, reduce energy use and stimulate personal engagement. **Energy companies should overcome technical barriers and prioritise tower blocks in their smart meter trials.**

Energy Company Obligation. Housing providers and energy companies should work together to use the Energy Company Obligation (ECO) to drive tower block retrofits, benefiting from the economy of scale, tackling many hard to treat homes at once, and drawing on the support of the existing community. If combined with minimum energy efficiency standards for social housing, this would bring widespread improvements to many of the lowest performing blocks.

Heating systems. Given their unique potential and high heat demand, **the government should integrate tower blocks into its heat network proposals next year**, encouraging city decision makers to include them in their low carbon district heating plans. Building managers should engage partners to consider both low carbon heating systems and the opportunity to connect to district heating schemes, when upgrading their tower blocks.

Waste. Dealing with waste in tower blocks stands out as an area where progress has been slow. For high rise schemes to be successful, **local authorities should tailor their approaches to address the particular challenges of each block.** By working with housing providers to engage and secure support from residents and monitoring services, they can identify what works or where improvements are needed. Workable approaches do exist and can help local authorities to improve and widen the reach of their recycling and food waste collection services.

Water. Innovation in tackling tower block water efficiency is badly needed, but is compromised by weak national policy drivers. **The forthcoming Water Bill should set clear metering targets for water companies.**

Installing meters in tower blocks would then be a cost effective option for meeting them. Although, as for energy smart meters, initiatives must be tailored to the context of high rise housing.

Green spaces. Housing providers should support and work with residents to realise the potential of green spaces to benefit the community, creating a foundation for co-operation and wider action. This can be done cost effectively by bringing together people from various blocks and estates, and setting up informal support networks for residents.

Transport. Tower block residents should have access to greener transport choices, but they rarely do. With the opportunity to influence the travel behaviour of large numbers of people at once, **local authorities should actively seek to include tower block residents in consultations regarding local transport strategies.** Building or estate managers should instigate what are often modest but effective changes to make sustainable options, like walking and cycling, easier and more attractive.

1. Cities, smart growth and high rise living

More people than ever before live in cities. Their potential to deliver economic growth has led to a growing political focus on urban environments in the UK. But what of their environmental potential? Compact, resource efficient and well-connected cities with high density living have lower carbon footprints than rural areas, and transforming the current environmental performance of our cities towards this requires us to make the most of what is already available. High rise housing is a familiar feature of the urban landscape, offering great potential to provide cleaner, greener, low environmental impact living for residents, in line with a broader vision of how sustainable cities of the future will look.



People have always been drawn to cities for access to jobs, education, health care, recreation, and social mobility. They are engines of growth and have the potential to lead the UK's economic recovery.

Reflecting the government's emphasis on localism, cities are receiving new powers and responsibilities via City Deals, liberating them to innovate, raise money, create jobs and drive growth. Eight cities agreed deals in July 2012 and a further 20 city regions have been invited to bid for theirs.²

City facts

74 per cent of the UK's population lives in cities and their wider economic areas.³

In London alone, the population stands at approximately 8,174,000, growing by almost 1 million since 2001.⁴

Cities and their wider economic areas are now home to 78 per cent of the UK's jobs.⁵

England's nine largest cities generate 49.5 per cent of the country's GDP.⁶

But what about environmental progress? Cities can be resource efficient places with lower carbon emissions. Their compactness and the efficiency of their systems are key to this. The Royal Institute of Chartered Surveyors has found that, in the UK, densely populated cities have lower emissions and energy consumption per capita than less dense cities.⁷ In contrast, city growth in the UK has tended towards

unsustainable urban sprawl, resulting in communities that are poorly connected to work, shops and other amenities, with an increased dependency on car travel.

The potential for cities to exemplify sustainability is best articulated by the smart growth agenda. This advocates accessible, connected urban communities that are diverse and inclusive, while making the most of existing infrastructure and resources, preserving open spaces and reducing car dependency.⁸ This concept has influenced planning policy in the US and Europe and has led to the successful remodelling of a number of cities. One example is Groningen in the Netherlands where an emphasis on compact city planning since the early 1970s has reduced car access to the centre and increased the number of cycle paths. 78 per cent of residents and 90 per cent of employees now live within three kilometres of the city centre and cycling is the most convenient mode of transport for most journeys.⁹

“Densely populated cities have lower emissions and energy consumption per capita than less dense cities.”

A central principle of smart growth is maximising the value of existing infrastructure, making it important that cities realise the potential of what they have, alongside efforts to encourage new development. Examining the potential of existing high rise buildings has to be central to that effort.

Since 1949 around 6,500 tower blocks have been built in the UK, many of them in the 1960s and 1970s, with around 2,700 in Greater London alone.¹⁰ They were designed to inspire and encourage residents to interact with each other and were initially desirable places to live, due to their perceived convenient location,

relative low cost, surrounding open or green space, and views from higher floors. Over time, many have suffered from significant structural decay, poor management and their potential to offer access to green space and local amenities has been undermined. In spite of this, they are still home to sizeable communities and in need of attention to maximise the opportunities they offer.

High quality refurbishments have been carried out - as demonstrated in case studies featured in this report - but they have tended to look at individual measures in isolation, such as heating or insulation, rather than taking an integrated approach.

“Entire blocks could be made more energy and water efficient, saving residents money on their bills, with the costs of measures brought down through economies of scale.”

Existing high rise housing could have a lower carbon footprint than conventional housing. Entire blocks could be made more energy and water efficient, saving residents money on their bills, with the costs of measures brought down through economies of scale. Blocks could be well connected to public transport, with well-signed and lit walking and cycling routes and sufficient cycle parking, giving residents more sustainable transport choices. Good quality recycling and food waste collection services could make it easier for residents to waste less, and green spaces around blocks could be used better, for recreation or community gardening, bringing residents together and offering health benefits as well.

This report examines the context of existing tower blocks in detail, looking at how action by different stakeholders can realise their potential.

We have worked with three estates in London, running workshops with residents, landlords and local authority officials to explore how to make them better places to live. We also conducted a further series of 35 interviews with housing associations, local authorities, policy experts and other stakeholders across the country.

These workshops and interviews helped us to understand the challenges for tower blocks and their residents in becoming more sustainable, and have shaped our policy recommendations. Another product of this research is a separate toolkit, *A better place to live*, designed to help individuals and residents' groups to improve their homes and local environment.¹¹

PETRA's tenant power



The Parkhill Estate Tenants and Residents Association, or PETRA, in Havering, London became a Tenant Management Organisation in 2003, taking over housing management services of their three blocks from Havering Council.

A money saving estate

There were major concerns about the blocks, including unreliable lifts and door entry systems and poor internal decorations in communal areas. Each flat was only partially double-glazed and repairs took a long time. Tackling these concerns was the first priority, but then they decided to keep improving their environment in other ways.

Their biggest venture has been the Money Saving Estate project, aiming to transform the estate into a 'beacon for social housing' through energy saving. An initial energy audit of the estate showed up problems that many tower blocks will recognise:

Serious heat loss in winter through single glazed windows

Communal lighting on 24/7 all year round

Large uninsulated roof areas on all three blocks (making top floor flats very hard to heat)

Extractor fans in bathrooms and toilets running 24/7 all year round

Uninsulated cavity walls in the kitchens and bedrooms

Cavity walls with defective trays allowing rain to penetrate flats

Residents on the most expensive energy tariffs using card or key meters

Low use of energy efficient light bulbs or other energy saving measures

Taking action

Working with an energy adviser, residents created an action plan which included:

Asking the council to replace single glazed windows

Insulating cavity walls

Fixing cavity trays

Replacing the communal lighting fittings with low energy LED lighting and motion sensors so they are only on when necessary

Replacing, upgrading and insulating roofs

Installing solar photovoltaic panels on the roof to reduce the costs of communal lighting

Providing energy saving advice

Well supported

The work has been funded in part by a grant from the Department of Energy and Climate Change's Local Energy Assessment Fund. They were also supported by Carbon Leapfrog, an agency that offers free advice to communities.

The plans are well underway. Havering Council has agreed to replace the windows, insulate the cavity walls, upgrade the lighting, replace all the front doors and frames, and insulate and reroof all three blocks. They are also tackling card meters and fuel poverty issues. Solar panels will be a priority once the new roofs are installed.

Strong resident involvement and the skills and resources they have developed through managing the estate since 2003 are behind their progress and ambitious plans.

2. Transforming tower blocks

There are real opportunities at the individual household and to some extent, the wider neighbourhood level, to improve quality of life in tower blocks, increase community cohesion and lower environmental impact. But from a policy perspective and to achieve change at scale, the greatest potential is realised by considering the whole block and the community living in it. These changes, from improving energy efficiency, to providing good quality recycling services and creating well used green spaces, not only require well designed government policy, but also action from building managers, housing providers, local authorities, and well-supported community groups.



In the home

There are a number of policies and initiatives, currently in design or being rolled out, targeted at individuals and the decisions they make about their homes. But how well are these working for the residents of tower blocks? Often, it appears that the intended benefits are less easily realised for these individuals.

Smart meters

By the end of 2019, the government intends every home in the UK to have a smart meter.¹² They will enable householders to understand and reduce their energy use via more accurate billing and the ability to monitor their use more effectively. In tower blocks this will transform the way many residents pay for their energy, as in many cases it is currently paid for through a service charge.

Although the roll-out starts in 2014, householders can already request a smart meter from their energy company, depending on their supplier and eligibility. Evidence shows that smart metering reduces energy use, not only initially but also over the longer term.¹³ A resident in the Grantham Road estate, one of our case studies, already has a smart meter which has reduced his energy use and lowered his bills.

“Tower block residents should be able to benefit from smart meters alongside all other UK householders, now and in the future.”

Tower block residents should be able to benefit from smart meters alongside all other UK householders, now and in the future. Tower blocks have the potential to be exemplars for their roll-out: many are run by housing associations, so flats will all have the same energy supplier, enabling a supplier to install meters throughout a block at the same time and reduce installation costs.

The existing close communities in blocks provide a valuable opportunity to increase acceptance rates and capture the energy efficiency benefits of smart meters. Residents are likely to talk about what they are learning

from using smart meters and the changes they are making, leading to potentially significant aggregated energy savings.

There are challenges implementing smart meters in tower blocks due to issues with communication technology when all meters are in the basement. Before the roll-out starts, all service providers will have to prove they have a solution for difficult properties, including tower blocks.

Energy companies should focus on resolving technical issues so that high rise housing can demonstrate the potential of smart meters, and not be left until last in the national roll-out. This should include prioritising tower blocks in the range of early smart meter trials being run over the next couple of years.

Minimum energy efficiency standards

Tenants in the private rented sector will have the right to demand energy efficiency measures from landlords from 2016, with minimum energy efficiency standards coming into force from 2018.¹⁴

There is no corresponding right for social housing, an example of the disparity between what is on offer to private and social tenants to make it easier to improve the efficiency of their homes.

There are a number of reasons why the energy efficiency of social and private rented housing tends to differ, and although social housing on average has a higher environmental and energy performance rating, many tower blocks are less efficient.¹⁵

Minimum standards for social housing would be an opportunity to capture those blocks at the bottom of the scale, and would empower tower block residents to request improvements to their homes and the block itself rather than waiting for their landlord to decide an upgrade is due.

The government should use the forthcoming Energy Bill to amend current plans and draw up minimum energy efficiency standards for social housing.

Water meters

Evidence suggests that installing a water meter can reduce use by more than ten per cent.¹⁶ At the moment, householders can request a water meter from their supplier and they are being rolled out on a compulsory basis in some water stressed areas.

“Without metering targets it is unlikely that a concerted effort will be made to tackle the challenges of water meter installation in high rise housing.”

Metering all flats in a block would help residents gain control over their bills and would also offer a cost effective installation opportunity for water companies. But existing high rise water supply systems can make installation difficult, and a water company may refuse collective or individual requests on the basis that it would be impractical or too costly. As an alternative, residents can ask to be switched to an ‘assessed charge’, which estimates their bill as if it were metered. A number of the Grantham Road estate residents did this, and they all saw their bills go down.

A water company may also be able to install a single meter for a whole tower block, with agreement from the landlord and tenants. This has the potential to increase the accuracy of individual bills to some extent, although would not give residents reason to reduce their usage to the extent an individual meter would.

Without metering targets it is unlikely that a concerted effort will be made to tackle the challenges of water meter installation in high rise housing, and there are no drivers for building managers to improve water efficiency either. Innovation in tackling water efficiency is badly needed.

The government should use the draft Water Bill to set metering targets for water companies, taking on the Walker report recommendation that 80 per cent of households should have a meter by 2020.¹⁷ A compulsory metering scheme should protect vulnerable customers who may see increased bills as a result, and support them with water efficiency advice.¹⁸ As with smart meters, any roll-out will need to be tailored to high rise housing and make the most of opportunities to use them as exemplars.

The Green Deal

The Green Deal is a new opportunity to finance the installation of energy efficiency measures which will be available to householders from January 2013. But taking advantage of it for a whole property retrofit, including insulation or double glazing, will be impractical for individual residents in tower blocks. As we discuss below, financing whole block retrofits via the Energy Company Obligation offers much greater potential. However, residents could use the Green Deal to help finance smaller scale measures such as LED lighting, water efficient showers and taps. Residents will have to get their housing provider’s permission to apply for a Green Deal project and demonstrate their ability to afford the loan repayments.

“Residents could use the Green Deal to help finance smaller scale measures such as LED lighting, water efficient showers and taps.”

Housing providers should support residents who want to take up the Green Deal, especially where they do not have significant retrofit plans for the wider building.

Behaviour change

Given the challenges that tower block residents currently face in taking advantage of opportunities to help reduce their resource use, such as smart meters and water meters, the major area in which individuals can make a difference is via simple behavioural changes. Taken together, these can help to reduce a block's overall impact and reinforce the progress that can be made by the more extensive whole block approaches discussed below. Many of the changes that residents themselves can make are highlighted in *A better place to live*, our toolkit for sustainable living in tower blocks. Actions include simple changes like turning off lights when not in use, using curtains to keep heat in and purchasing the most efficient options when replacing appliances.

“The closeness of tower block communities provides good opportunities for communication, with neighbours able to discuss issues they have in common and support each other in making changes.”

Effective communication about the reasons for making these changes is particularly essential in tower blocks. The simple claim that energy efficiency can save you money may not hold true for them if, for example, heating is controlled and billed centrally, regardless of how much individual flats use. In these cases a large number of residents will need to change their behaviour before individuals can see an impact on their bills.

The closeness of tower block communities provides good opportunities for communication, with neighbours able to discuss issues they have in common and support each other in making changes, and newsletters and noticeboards offering spaces to display information.

Advice should be tailored appropriately for tower blocks. At the national scale, there is a need to present all the policies discussed in this report as part of a broader effort to make the UK fit for the future and energy secure, a subject which is addressed in our earlier report, *Neither sermons nor silence*.¹⁹ The unique context of high rise living needs to be taken into account if communications are to be effective at reaching residents.

Whole block solutions

The biggest opportunities to increase the sustainability of tower blocks involve actions to improve the whole building in an integrated way. Fifty three per cent of flats in high rise blocks would benefit from cavity wall insulation and 78 per cent from storage heater upgrades.²⁰

“Fifty three per cent of flats in high rise blocks would benefit from cavity wall insulation and 78 per cent from storage heater upgrades.”

Addressing heating and energy challenges like these, although best done to whole blocks, creates social challenges due to the number of people affected at once. Residents can initiate some of these changes, but many will require investment and intervention by housing providers and building managers.

Energy efficiency

Large scale tower block insulation tends to be motivated by reducing fuel poverty, reducing emissions or increasing climate change resilience. United House, for example, retrofitted two tower blocks in the London Borough of Barking and Dagenham to proof them against flooding, overheating and water stress.²¹ The cost of installing energy efficiency measures can be lower per property for high rise blocks than other types of housing, and funding retrofit measures on a large scale has proven to be a cost effective way for energy companies to meet their targets under the **Carbon Emissions Reduction Target (CERT)** and the **Community Energy Saving Programme (CESP)**. Both schemes are closing at the end of 2012 but they have been used to support some tower block retrofits. One high profile example is the Edward Woods estate in west London, where Rockwool insulated three run down tower blocks and installed solar panels for electricity generation. The evaluation of this work (see case study right) highlighted the importance of effective resident engagement to encourage support for projects of this scale.²²

The **Decent Homes Standard** has also resulted in many tower blocks being improved, with new kitchens, bathrooms, heating systems, insulation and windows. A number of housing providers went beyond the thermal efficiency requirements, which were seen to be relatively low, running their own Decent Homes Plus schemes with additional energy efficiency measures.²³ With the final £1 billion of the Decent Homes backlog recently allocated by the government, housing providers could use the funding as an opportunity to do a full energy efficiency upgrade of high rise blocks.²⁴ This could be co-ordinated with other initiatives to maximise the energy efficiency of electrical appliances and lighting.

The government should look again at social housing standards, and consider the option of a new, formal Decent Homes Plus programme with stronger thermal efficiency standards.

Looking ahead, the new **Energy Company Obligation (ECO)** is likely to be an important means of funding large scale tower block retrofit and could provide some useful examples of the value of the new mechanism. ECO replaces CERT, but has the potential to support a more holistic set of retrofit measures than CERT, which was targeted at insulation.

The **Green Deal** offers potential for mass discounts to be negotiated if, for example, a whole tower block decided to pursue it. But housing providers are more interested in the potential of ECO to fund whole estate retrofits than the idea of individual households taking up the Green Deal on a piecemeal basis. Also, because ECO is intended to focus on hard to treat properties, such as those with solid walls, many tower blocks will fall into this category. This is a win-win opportunity: a cost effective way for energy companies to meet their targets, making retrofit more affordable for housing providers, and making residents' homes warmer.

West London tower block retrofit and social impacts study



Three 22-storey tower blocks in the Edward Woods estate in west London have undergone a £16 million upgrade, led by the London Borough of Hammersmith and Fulham and part funded by the London Development Agency and British Gas under the Community Energy Saving Programme (CESP). This flagship project highlights how the Green Deal's whole building approach can work for high rise housing, and provides a model for tower block retrofit across the country.

Before the upgrade, two thirds of surveyed residents suffered from excessive cold and damp in winter and many were at risk from fuel poverty. Attitudes to energy saving varied widely, with annual bills for almost identical flats ranging from £444 to £2,470. Energy efficiency and acoustics in the blocks were improved through exterior wall and roof insulation and double-glazed windows in communal areas. Cladding the blocks also improved their physical appearance. Photovoltaic solar panels were fitted on the south sides of the blocks to power lifts and communal area lighting, and new central heating systems were installed in studio flats, replacing inefficient and expensive storage heating.

Alongside this, the London School of Economics (LSE) was commissioned by the insulation solutions provider, Rockwool, to assess the social impacts of these measures by carrying out resident surveys during the works. The study, *High rise hope*, highlighted that effective resident engagement was important to encourage support for the project and, despite the disruptions, 72 per cent of residents rated their experience as excellent, good, or neither good nor bad. 86 per cent felt well informed about the works, thanks to regular newsletters and a dedicated resident liaison officer appointed by the contractor.

Residents are positive about the estate and their homes, and feel safe living there. Years of upgrading and close management have made residents feel good about where they live. The current project fits into this virtuous cycle. However, the majority thought the main aim of the project was to improve the appearance of the blocks, not tackle energy efficiency, and only a third thought their flat would feel warmer or have fewer damp problems in the future. The potential of the works to deliver both energy and financial savings is substantial, but will only be realised through resident participation and energy behaviour change over time.

With so much potential to upgrade many hard to treat properties at the same time, alongside the economies of scale and existing supportive communities that tower blocks offer, housing providers and energy companies should work together to use ECO to drive tower block retrofit.

Birmingham will be demonstrating the opportunity provided by these two new routes, with plans to retrofit three tower blocks funded by the government's 'go early' support for the Green Deal. The city has identified a further 20 blocks to retrofit, overcoming the perception that such blocks present too many barriers to action.

As Birmingham makes progress and shares its learning, other local authorities should consider including tower blocks in any Green Deal or ECO funded schemes they are planning.

Increasing energy self-sufficiency

High rise housing provides an opportunity for energy self-sufficiency, as it can both generate and use the heat and energy produced at scale. Compact city environments are uniquely suited to this, and tower blocks could be significant players in such systems.

Many tower blocks already have shared heating systems, but new technologies allow these to be upgraded to low carbon heating systems (eg biomass or heat pumps). Replacing inefficient systems can achieve carbon savings at lower cost than retrofitting flats and with less disruption to residents.²⁵ As with many of the policies discussed, tower block installations can be more cost effective than in individual properties. System upgrades could also provide residents with greater control over their heating, something which many currently lack.

The capital costs of installing new heating systems can be high, but building owners can receive an income for any heat generated from

renewable heat technology through the non-domestic **Renewable Heat Incentive** (RHI).²⁶ The **Renewable Heat Premium Payment** (RHPP) was also open to communities and social landlords, although a short application window made it hard for all but the most organised to apply. The EcoPod is a good example of a heating system which can be eligible for the RHI, and it gives residents individual control of their heating and brings down energy bills too. First installed on a tower block in Greater Manchester, it has now been installed on a number of blocks nationwide.²⁷

Where it is impractical to install a low carbon heating system in a block, it is possible to link blocks to existing low carbon district heating schemes, making use of excess heat generated by a central heat source. This is an efficient way of reliably supplying heat across a city or area based on demand, and has the potential to support urban growth and regeneration.

This is likely to be a cost effective option for building managers as it is possible to use existing pipe networks in a block, therefore minimising disruption, and will bring down the cost of supplying heat to the block, in turn reducing residents' energy bills. Two blocks in Birmingham have been linked to an existing combined heat and power (CHP) system at the ICC conference centre, replacing the blocks' outdated heating systems.²⁸

The government's heat strategy recognises the role for cities and their tower blocks in developing heat networks, and it has already provided funding to four cities to undertake feasibility studies on new district heating projects.²⁹

Tower blocks must be integrated into the government's detailed proposals for heat networks as they are developed, making the case to cities to include them in their low carbon district heating plans.

A woodchip heating system in Greater Manchester



The Lancashire Hill Estate in Heaton Norris is managed by Stockport Homes. The residents now receive 80 per cent of their primary heating and hot water from a new biomass communal boiler that runs on wood chips. The system produces 75 per cent less carbon dioxide per year than the old gas district heating system. Similar schemes are planned in nearby estates as part of a wider transition from gas to renewables.

Building managers had also previously updated insulation and windows. Residents have better heating controls and warmer homes as a result.

The project was backed up with energy efficiency advice delivered by trained staff helping residents to understand their use of energy better.

Building managers should engage partners to consider both low carbon heating systems and the opportunity to connect to district heating schemes when upgrading the heating in their tower blocks.

With regard to electricity, solar **feed-in tariffs** (FiTs) provided an incentive for estates to install solar PV, generate their own electricity, bring bills down and benefit from the FiT income. The Brixton energy co-operative in south London installed solar PV, it re-invests some of the income generated into a community energy efficiency fund and returns the rest to community shareholders.³⁰ But the recent cut to FiT rates means the financial returns will not be as high as they have been and, in some cases, this will no longer be a cost effective route for tower blocks. Optima Community Association in the West Midlands, for example, installed solar PV on low rise flats and bungalows but then had to scrap plans for its tower blocks.³¹

Despite lower financial returns, FiTs could still help to lower bills and increase comfort for residents, but schemes will require a different kind of business case. For the time being, the real opportunities for energy self-sufficiency in tower blocks lie with heat, but building managers and communities interested in electricity generation should consider the various financing models available, including the community-owned energy model used in Brixton, or partnerships with energy companies.

Managing waste and recycling

The average recycling rate for England is 42.9 per cent, but progress in high rise housing is much less than this.³² In London, it is currently an average of only ten per cent, and is even lower for food waste.³³ Given the number of people living in a small area, the collection of recycling and food waste from blocks could be a cost effective way for local authorities to contribute to national recycling and landfill diversion targets, improve their recycling performance and ensure their services reach all residents. There are some good

examples, including residents in London's Petticoat Tower who have a twice weekly collection of recycling and food waste from each flat. Recycling is also largely accepted by residents, and compact tower block communities can help to reinforce the behaviour, as people see their neighbours recycling.

However, many tower blocks suffer from poor or non-existent recycling and food waste collections. Doorstep collection is expensive as individual flats are less accessible than street properties, and space shortages often make it a fire or health and safety risk. Collection sites at the bottom of blocks are more common, and are cheaper for the provider, but often result in lower recycling rates.³⁴ They can suffer from contamination and, as it is hard to identify which residents are responsible, it is often easier to remove them altogether. Infrequent collections can lead to them overflowing and, if blocks have rubbish chutes for general waste, it significantly weakens the incentive to recycle, as general waste disposal is so much easier. Even where chutes have been converted to recycling chutes, there are problems with correct usage.

“The average recycling rate for England is 42.9 per cent, but progress in high rise housing is much less than this.”

There are, however, some good workable approaches, and WRAP's guidance on recycling collections for flats is a useful source of information and advice for any local authority rolling out new services.³⁵ The right infrastructure is essential to increase recycling rates, and the needs of a tower block will be very different to street level schemes. Recycling trials run in three London boroughs, for example, adopted different approaches; these depended on the number of households, existing fly tipping problems, space available for bins and accessibility for collection crews, and each saw increased recycling rates as a result.³⁶

Engaging residents is also vital. Under its Our Common Place programme, Waste Watch worked with tower block residents in 21 estates across London, adapting its approach to the needs and interests of each community. Across all estates, environmental awareness and recycling performance rose, contamination levels fell and, in addition, residents said they felt a greater sense of community.³⁷

Local authorities need to tailor their services for tower blocks if they are to be successful. This should include bringing information about recycling provision into rental agreements and welcome packs, as well as reinforcing messages with publicity in communal areas. Once schemes are in place, it is also important that building managers monitor them to ensure continued success.

Many local authorities will need help in achieving this. In London, the London Waste and Recycling Board's (LWARB) flats recycling programme has provided funding to help a number of boroughs overcome the barriers to providing effective services to more challenging properties such as tower blocks, but there is no national equivalent.³⁸

The government should extend funding for similar programmes beyond London, to enable more local authorities to improve recycling and food waste collection services for high rise housing. One option would be to reopen the weekly collection support scheme next year, ensuring that both recycling and food waste collection services remain eligible.³⁹

Reuse schemes

Reuse schemes, for furniture, appliances, clothes and other unwanted items, have great potential in high rise housing due to the high number and turnover of residents, the difficulty of disposing of bulky items from higher floors and the potential for vacant flats or garages to provide space for re-use centres.

Housing providers should partner with existing reuse organisations to review the availability of vacant flats and garages for reuse space for residents and, possibly, the wider community as well.

Rolling out recycling and food waste collection in Hackney



Despite 50 per cent of Hackney's homes being high rise, the majority of residents benefit from a recycling service.

With funding from the London Waste and Recycling Board's (LWARB) Flats Recycling Programme, high rise homes have also been given reusable recycling bags for storing and transporting their recycling to communal bins. To make it as easy as possible, both the bins and bags are clearly labelled with what materials can be recycled. The bins are in a convenient location, emptied weekly, and have locked lids with slots to deposit recycling, to avoid contamination with general rubbish.

Some high rise properties also have a food waste service, which has recently been expanded thanks to the Flats Recycling Programme. Here, residents have been given a small kitchen caddy and compostable

liners, and the food waste is then put into food waste bins situated next to the recycling bins. These are emptied twice weekly and the compost is used on Hackney's green spaces, returning the benefits to the local community. With additional funding, Hackney Council would like to roll out food waste collection to all high rise properties so that all residents have access to these opportunities.

Communicating and engaging with residents is a big part of the success of these services. This includes door to door visits, events, leaflets and letters keeping residents informed about the services. Over 11,000 tonnes of dry recycling has been collected since 2010 and in that same period 654 tonnes of food waste has been collected that would have otherwise gone to landfill.

Beyond the block

The sustainability of a tower block is not only dependent on its fabric, energy, water and waste services and the behaviour of residents in their homes. It also depends on the block's surroundings, the vitality of the surrounding community, how space is used, the availability of sustainable transport choices and how well connected a tower block is to its neighbourhood.

“Less than one per cent of people living in social housing use the green space on their estate.”

Green spaces

The majority of high rise housing has some kind of green or open space nearby, but its use varies greatly. Research in 2010 found that less than one per cent of people living in social housing use the green space on their estate.⁴⁰

Shared green spaces are often seen as a public good, and are not properly valued in terms of their environmental and social benefits.⁴¹ They can suffer from neglect and are under threat from demands for more housing or parking spaces. In our workshops, Harrow Road residents were worried that planned local regeneration will result in some of their blocks' green spaces being replaced with new low rise flats. Petticoat Tower residents say they find it hard to feel ownership of their central square, as it is also a public thoroughfare. Even where green space is maintained, restricted budgets and conflicting interests can lead to tensions about how space is developed and utilised. For example, on the Grantham Road estate, concerns about misuse or damage led to green space being locked away behind fences, no longer available for residents' use.

“A focus on making better use of green space can be a means to get people talking, creating a feeling of empowerment that leaves communities better placed to tackle wider issues as well.”

These issues undermine the potential for shared green space to compensate for noise, overcrowding and a lack of private garden, as well as improve well-being, enhance social cohesion and reduce crime.

Shared green space can be kept as a wildlife-friendly space, managed as a community garden, run as an allotment or developed into a children's play area.

Residents' associations are well placed to get ideas off the ground and to maintain green spaces that they value. Where residents' groups are weak or absent, a focus on making better use of green space can be a means to get people talking, creating a feeling of empowerment that leaves communities better placed to tackle wider issues as well.⁴²

Green space is often improved by residents working together and local authorities and housing providers can do more to facilitate this kind of sustainable connectivity. With this support, residents' groups can run and manage community composting or gardening schemes. This is done well in Poplar, where residents have turned the grey space around their tower blocks into a community garden and food growing area, with support from the housing association Poplar HARCA and others (see case study on page 20).⁴³ Hackney's recycling team helps community groups get started by providing free compost units, kitchen caddies and leaflets.⁴⁴

Housing providers are well placed to work with and support residents to galvanise co-operation and community action around green spaces, and can do so cost effectively by bringing together champions from various blocks and estates, to set up an informal support network for residents.

The Greening Brownfield project



Greening Brownfield is a community garden and food growing co-op on the Brownfield housing estate in Poplar, east London. Initiated and run entirely by residents, the garden is completely organic and run on permaculture principles, with a mixture of private and communal plots. It was established in 2010 on a disused tennis court.

The co-op runs drop-in events and encourages residents to grow their own vegetables or help out on the community plot.

They secured £1,000 of funding to create the garden from Capital Growth, a partnership initiative between London Food Link, the Mayor of London, and the Big Lottery's Local Food Fund. They have also been awarded a £3,000 grant from Groundwork London to buy new play equipment for children.

Extra help is often needed to inspire and realise residents' aspirations for significant improvement to their green spaces. In the EC1 New Deal for Communities programme this meant working with urban designers to create multi-functional green and open spaces providing both environmental and social benefit to the community (see case study on page 22). Neighbourhoods Green, a partnership of national organisations including Design Council CABE, Groundwork and Natural England, works with social landlords to highlight the importance of well-designed and managed open spaces for residents.

The **Community Infrastructure Levy** (CIL) provides a source of income from local development which local authorities can decide to spend on green infrastructure.⁴⁵ This replaces section 106 arrangements which often helped to fund road building programmes. A number of local authorities have included green spaces on their draft Regulation 123 list (proposed infrastructure the levy will be spent on).

Where development is occurring near a tower block, local authorities should consider using CIL income for green spaces that will benefit residents and the wider area.

Supporting sustainable transport

Walking and cycling has both health and environmental benefits. Nearly two million people in the UK now cycle at least once a week, and 77 per cent of trips under a mile are carried out on foot.^{46, 47}

There are good examples of tower block residents being supported in making sustainable transport choices. The EC1 New Deal for Communities programme in London redesigned the streets around housing estates to improve pedestrian access. An estate in Liverpool is following the home zone model to reduce car access and make the streets safer for walking.⁴⁸

“There are good examples of tower block residents being supported in making sustainable transport choices.”

But despite the number of residents, many tower blocks suffer from poor access to shops, post offices and other amenities, as well as poor connection to public transport, even if a city itself has good overall provision. The nearest supermarket for Harrow Road residents is too far to walk to and the two buses serving the main road are often overcrowded.

Many estates lack secure bike storage and storage space inside flats is limited, which deters people from cycling, and poorly lit and signed paths feel unsafe and undermine people's confidence to walk or cycle. Crime and anti-social behaviour can also put people off walking or waiting at bus stops. With car running costs too high for many, people are left disadvantaged and cut-off.

There is much scope for improvement, and the potential to enhance the travel choices of a large number of residents at once. Better signage and lighting could make navigation around estates straightforward and safer. Reducing parking spaces would free up valuable shared community or cycle storage space. Access routes to estates could be redesigned to give priority to cyclists and pedestrians, with wider paths and restricted access for cars, and stricter speed limits where cars are permitted. Housing providers could also investigate the feasibility of setting up on-site car sharing schemes.

“Many estates lack secure bike storage and storage space inside flats is limited, which deters people from cycling.”

Encouraging walking and cycling in east London

Before



After



Previously described as “bleak, unsafe and empty”, Radnor Street Gardens and the surrounding streets in the St Luke’s area of EC1 were transformed over two years, between 2007 and 2009; the gardens are now an attractive small park with redesigned landscaping, planting, seating and stimulating play opportunities. The work was carried out by Islington Council working with EC1 New Deal for Communities (NDC) on a programme of improving local streets, parks and open spaces on council housing estates in the area.

Radnor Street Gardens is a small green space surrounded by high rise blocks of flats. Before the transformation it had only been used by dog walkers, while moving vehicles and parked cars on surrounding streets discouraged local residents from walking in the area. The new designs, part of a plan for the wider neighbourhood, included clear sight lines and a safe pedestrian route through the park, linking the area to local amenities. Improvements to the surrounding streets reduced traffic, parked cars and included some shared surfaces. The impact of vehicles on the estates was also reduced and,

together, these improvements have encouraged residents to lead more active lives and interact more with their neighbours. This has been further reinforced on some of the estates which have also been relandscaped, some with allotments for residents.

Residents were involved at all stages of the design and implementation of this work, playing a key role in its success. Design teams were appointed for each project; they worked closely with residents, built consensus and communicated ideas and solutions that were new to residents while also ensuring that the end result was of a high quality.

When Radnor Street Gardens reopened a local resident said “it’s created an instant community”, while the headmistress of the primary school on Radnor Street said “I have watched the transformation of EC1 and seen the impact on our children and their families. It’s unusual in this day and age to see children playing outside, but EC1 now feels safe and it feels good”.

Tower blocks should provide multiple sustainable transport options, such as those suggested above. Many are only modest but are effective changes. Building or estate managers should create estate plans to make walking and cycling more attractive options, eg following the home zones model.

Cities should think about these opportunities as they develop their transport strategies, consulting tower block residents about the improvements that would matter most to them.

The government’s recently closed **Local Sustainable Transport Fund (LSTF)** is funding improvements like these.⁴⁹ Local authorities who were successful in their LSTF applications should ensure that the delivery of their plans reflects good practice and makes these new transport options available to tower block residents.

The **Community Infrastructure Levy** can also provide funding for local sustainable transport and, as discussed with reference to green spaces above, local authorities should pursue opportunities to spend it in a way that benefits high rise dwellers where they have been affected by development.

Community empowerment and influence
Taking a step back from the detail, it is important to ensure that the foundations for action are in place to initiate and support change. Tower block residents and communities have great potential to create change, but need to feel empowered and involved in the decisions that affect them.

In Havering, on the edge of London, residents have formed a tenant management organisation (TMO), taking over responsibility for service management from the council on a voluntary basis. This could be a valuable option for residents’ groups in other tower blocks that would like a more formal say in how their block

is run, if sufficiently supported by their housing provider as they apply and get started.

In Bristol, the council employs tenant participation officers, and tenant representatives are invited to council meetings to comment on and input to plans for any works that will affect them. However, all three London estates we worked with felt their housing providers didn’t engage with them sufficiently. Residents in the Harrow Road estates felt that their area would improve far more if they were given more ownership and could say what they want to see happen locally.

The **Localism Act** should enable communities to have their say in what local land is used for. It encourages local authorities and communities to find new ways of working, to set a local vision for development and regeneration.⁵⁰ Existing residents’ groups in tower blocks are well placed to seize this opportunity. They could help to shape neighbourhood plans so that they work for local communities and the local area.

“The Localism Act should enable communities to have their say in what local land is used for. It encourages local authorities and communities to find new ways of working.”

There are plenty of opportunities, and steps are being taken in the right direction, but there is much more potential for community spirit to be harnessed, by supportive housing providers and local authorities. Only then will residents feel truly empowered to make their tower blocks better places to live.

Conclusions and recommendations

High rise housing has enormous potential to be more resource efficient and to support better connected, stronger communities, while helping cities to transform their efficiency and environmental performance. However, existing policies have largely been designed with street level properties in mind, therefore failing to support and incentivise sustainable living for high rise residents. Major opportunities exist that, if taken up, would address these issues and enable tower block living to be more sustainable - fitting the vision of providing a desirable, sustainable way of life for high rise residents.



Cities are popular places to live, but despite the focus on their potential to deliver economic growth, there is a lack of debate about realising the value of existing assets like tower blocks, and the quality of life of those who live in them.

This report highlights that high rise housing has enormous potential to be more resource efficient and to support better connected, stronger communities, while helping cities to transform their efficiency and environmental performance.

Various actors, from governments and landlords, to residents themselves, can play a part in realising this potential. We have found that there are opportunities at the individual, household and wider estate or neighbourhood level to improve the quality of life in tower blocks, increase community cohesion and reduce environmental impact. But, from a policy perspective and to achieve change at scale, it is clear that the greatest potential lies in considering the whole building and community.

Fundamentally, we have found that the unique environments of tower blocks mean that existing policies, often designed with street properties in mind, don't incentivise sustainable living for high rise residents. As policies place increasing responsibility on individuals to reduce their own consumption, tower block residents are clearly disadvantaged as they have less control over the systems around them.

There is a clear inequity, especially for those on low incomes who need to make savings for themselves as well as the environment. A lack of policy drivers or incentives to address this in certain areas, means that tower blocks will continually miss out on the benefits of policies unless these gaps are recognised.

In this report we have made recommendations to address these gaps, and move from the current state of play to the vision of tower blocks as better, greener places to live.

Three overarching issues emerged from our study:

- **Tower blocks are overlooked by policy makers:** policies to support green living and environmental choices in the home must consider how they apply to a tower block context to ensure that residents do not miss opportunities for greener living and warmer, more comfortable homes.
- **Opportunities to promote sustainable lifestyles are being missed by disregarding tower blocks:** cities must integrate tower blocks into current initiatives rather than seeing them as too challenging. They present unique opportunities, such as for district heating, to realise lower carbon ambitions.
- **The unique potential of tower block communities is not being realised:** residents of tower blocks can feel a unique and strong sense of community. Local authorities, housing providers and policy makers would benefit from developing approaches that support and engage these communities in new initiatives.

With this in mind, we have identified seven major opportunities that would address these issues and make the most of existing policy to enable tower block living to become more sustainable:

Smart meters. Tower blocks could be exemplars for the roll-out of energy smart meters, to increase the installation rate, reduce energy use and stimulate personal engagement. **Energy companies should overcome technical barriers and prioritise tower blocks in their smart meter trials.**

Energy Company Obligation. Housing providers and energy companies should work together to use the Energy Company Obligation (ECO) to drive tower block retrofits, benefiting from the economy of scale, tackling many hard to treat homes at once, and drawing on the support of the existing community. If combined with minimum energy efficiency standards for social housing, this would bring widespread improvements to many of the lowest performing blocks.

Heating systems. Given their unique potential and high heat demand, the **government should integrate tower blocks into its heat network proposals next year**, encouraging city decision makers to include them in their low carbon district heating plans. Building managers should engage partners to consider both low carbon heating systems and the opportunity to connect to district heating schemes, when upgrading their tower blocks.

Waste. Dealing with waste in tower blocks stands out as an area where progress has been slow. For high rise schemes to be successful, **local authorities should tailor their approaches to address the particular challenges of each block.** By working with housing providers to engage and secure support from residents and monitoring services, they can identify what works or where improvements are needed. Workable approaches do exist and can help local authorities to improve and widen the reach of their recycling and food waste collection services.

Water. Innovation in tackling tower block water efficiency is badly needed, but is compromised by weak national policy drivers. The **forthcoming Water Bill should set clear metering targets for water companies.** Installing meters in tower blocks would then be a cost effective option for meeting them. Although, as for energy smart meters, initiatives must be tailored to the context of high rise housing.

Green spaces. **Housing providers should support and work with residents to realise the potential of green spaces to benefit the community**, creating a foundation for co-operation and wider action. This can be done cost effectively by bringing together people from various blocks and estates, and setting up informal support networks for residents.

Transport. Tower block residents should have access to greener transport choices, but they rarely do. With the opportunity to influence the travel behaviour of large numbers of people at once, **local authorities should actively seek to include tower block residents in consultations regarding local transport strategies.** Building or estate managers should instigate what are often modest but effective changes to make sustainable options, like walking and cycling, easier and more attractive.

While it may be a challenge to find workable, scalable solutions for high rise housing, we have demonstrated that there are compelling reasons why tower blocks and those who live in them should not be overlooked.

Existing high rise housing has the potential to be regenerated, to be better connected and have low environmental impact, fitting the vision of providing a desirable, sustainable way of life. But only as long as the support is there. Tower blocks should be at the heart of plans to develop compact, smart, sustainable cities, taking their place alongside the new high rise housing that is increasingly seen as the cutting edge of urban living.

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