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Getting Warmer: The Mayor's role in domestic energy and fuel poverty

Environment Committee

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Holding the Mayor to account and investigating issues that matter to Londoners

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Labour

The Environment Committee examines all aspects of the capital's environment by reviewing the Mayor's environmental strategies and looking at what additional measures could be taken to help improve the quality of life for Londoners.

Contacts

Ian Williamson, Scrutiny Manager
Email: scrutiny@london.gov.uk
Telephone: 020 7983 6541

Mary Dolan, External Relations
Email: mary.dolan@london.gov.uk
Telephone: 020 7983 4603

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Leonie Cooper AM

Chair of the Environment Committee

London homes lag behind homes in other areas of the UK in terms of their energy efficiency. This is a huge problem for many Londoners, as they struggle not only with the high cost of rents or mortgages, but also the high cost of heating their homes as well. Cold homes are especially bad for the health of children and older or less mobile people.

The London Assembly Environment Committee decided to look into this problem and this report sets out some concrete recommendations for the Mayor to consider, which will help those Londoners who are struggling with high bills.

But as well as tackling the issue of unaffordable energy bills London also needs to move to more sustainable forms of heating, rather than relying on fossil fuels.

In his Manifesto, published in March 2016, the Mayor set out his "ambitious long-term plan for clean energy in our capital" and set a target of making London a zero carbon city by 2050.

The Manifesto set out the Mayor's intention to "establish Energy for Londoners, a not-for-profit company providing a comprehensive range of energy services to help Londoners generate more low-carbon energy, increase their energy efficiency, support local and community energy enterprises, and buy clean energy generated across the city." The Mayor also stated that he would "lead on work to cut energy bills for Londoners".

The Environment Committee wants to feed the recommendations contained in this report into the Mayor's imminent draft Environment Strategy, which will set out how the new body Energy for Londoners will function, as well as setting out details of the Mayor's Fuel Poverty Action Plan and Solar Strategy.

I'd like to thank all those involved in the production of this report, and hope that it assists in addressing the urgent issue of Londoners' high energy bills.

Leonie Cooper AM

Chair of the London Assembly Environment Committee

"these recommendations will help Londoners struggling with high bills"

Summary

One in nine London households is officially in fuel poverty. Many more face difficulty paying their energy bills. This has potentially serious consequences for health and wellbeing, and is a challenge for the Mayor's social integration agenda. The Mayor aims to make London a zero-carbon city by 2050, but carbon reduction milestones previously set have been missed. Mayoral energy policy offers scope to address both of these challenges.

The Mayor is looking at setting up a not-for-profit Energy for Londoners company to:

- buy energy wholesale to sell to organisational customers and/or households
- provide energy services such as efficiency improvements and advice

This is ambitious and will carry significant risk, but also has potential benefits in several areas.

Energy efficiency

Domestic energy efficiency can reduce both fuel poverty and carbon emissions. Homes last a long time so improving energy efficiency means retrofitting existing homes. However, recent policies have not delivered anything like fast enough. This is particularly true in London, which has secured less than a proportionate share of national retrofit work. This report suggests a number of ways in which a mayoral energy services provider could better promote the take-up of retrofit, including financing, streamlining planning rules, and developing partnerships with community energy organisations and others to provide trusted and effective advice.

The private rented sector is a particularly difficult market. The Mayor could give advice to small private landlords, and (working with local authorities and/or using mayoral powers in the housing sector) seek to implement and enforce energy efficiency standards.

Energy generation

Low-carbon and renewable energy generation also has potential to reduce emissions and provide affordable energy within London, especially at the domestic and community scale. A mayoral energy supplier would purchase energy from generating companies, and should use this buying power to support renewable and low-carbon energy. In particular, the Mayor should support community energy generators with purchase contracts, sites such as rooftops or waste heat sources, and expertise.

Customers

Customers' choices and behaviours as energy users make a big difference to their energy bills and carbon emissions, whether they live in a draughty old house or a modern eco-

home. A fully licensed energy supplier, or a 'white-label' one, has a direct relationship with individual consumers. The Mayor should pursue this option, and use its influence to promote energy-efficient choices by these customers.[i] Full use should be made of emerging technologies like smart meters and energy control apps.

Energy prices and tariffs vary, and being on a higher tariff can contribute significantly to fuel poverty. If the Mayor supplies energy to Londoners, he should also use this role to offer affordable energy, particularly prioritising those customers most vulnerable to fuel poverty.

Pre-payment meters are often associated with fuel poverty, and tend not to offer the best prices. The Mayor, particularly as an energy supplier, should support people in moving off pre-payment meters where appropriate, or installing a smart meter to better manage their pre-payment deal.

Independently of a possible role as an energy supplier, the Mayor can work with boroughs, community energy organisations and others to help vulnerable customers with advice on energy prices and meters.

We welcome the Mayor's ambitious approach to tackling domestic carbon emissions and fuel poverty. A step change is needed otherwise London will continue to lag behind the rest of the country.

[i] The Green Party Group considers that a White Label model would not sufficiently support the Mayor's goals on energy and fuel poverty, as set out in a note on page 16 and affecting Recommendations 13 and 17.

Recommendations

Theme	Recommendations
London requires transformative action to break out of under-delivery in domestic retrofit: there is a need for more investment.	**Recommendation 1** The Mayor should investigate the feasibility of, and set up if possible, a finance provider (within or alongside the Energy for Londoners company) to provide a version of the Green Deal in London, ideally offering lower interest rates than commercial loans. **Recommendation 2** We support calls to the Government to resource energy efficiency retrofit as a national infrastructure priority.
There is a need for support from the planning system.	**Recommendation 3** The Mayor should facilitate retrofit (and other energy policies) through his planning policies, including by reducing planning barriers to retrofit. **Recommendation 4** The Mayor should add the reduction of fuel poverty as an objective within the London Plan.
The Mayor must promote retrofit much more effectively.	**Recommendation 5** The Mayor should reinvigorate London's promotion of retrofit take-up, through advice and facilitating access to low-carbon options. Partnership with local authorities, landlords, community energy groups, advice providers, installers and others will be a part of this. The Energy for Londoners company could be a major part of this work; other channels may be required in order to reach all of the target sectors, which include: • the private housing sector (including self-financed as well as ECO and its successors) • households in or at risk of fuel poverty, perhaps

	targeted by area • households with scope to carry out retrofit as part of an extension, a refurbishment or maintenance activity
The rented sector is particularly challenging.	**Recommendation 6** The Mayor should support retrofit in the rented sector. Approaches could include: • partnership with social landlords, as currently takes place • clear advice to small private landlords on energy efficiency and how to achieve it • support for local authorities on enforcement of private landlords' energy efficiency obligations • if the Mayor establishes Homes for Londoners or any future London-wide lettings agency, or gains any additional powers in the private rented sector, using them to set and implement energy efficiency standards • close working between the Energy for Londoners company (and any other mayoral channels for promoting retrofit) and Homes for Londoners **Recommendation 7** We support the Mayor's call for more powers in the rented sector, in partnership with boroughs, and also support calls for the Department for Business, Energy and Industrial Strategy to go ahead with consultation on clearer regulations for the private rented sector with a view to improving energy efficiency and affordable warmth.
The Mayor can support London's significant potential to generate low-carbon energy, especially through his emerging role as an energy supplier.	**Recommendation 8** The Mayor, in preparing his solar energy action plan, should look carefully at the recommendations made by the Environment Committee to the previous Mayor on solar energy. **Recommendation 9** The Mayor, particularly through the Energy for Londoners non-profit energy supply company, should support decentralised renewable energy. Forms of

	support could include: • acting as a customer for community and decentralised generators, potentially including domestic micro-generators • helping to broker supply contracts between community and small-scale generators and London consumers, including for direct supply from local generation to local residents **Recommendation 10** The Mayor should report to the Environment Committee the rationales for decisions on the Energy for Londoners company, including: • findings of all option assessment and feasibility work • details of the due diligence undertaken around the risks of entering the energy market, especially financial risks
Community energy is an emerging source of potentially low-carbon and affordable energy.	**Recommendation 11** The Mayor should specifically support community energy generation, to further community engagement and social mobility goals as well as carbon reduction and fuel poverty goals. Forms of support could include: • committing the Energy for Londoners company to purchase from community energy generators • including community energy expertise within the setup of Energy for Londoners • offering partnerships, involving GLA Group organisations and buildings, to community energy groups, for example as sites for rooftop solar (and customers for the electricity) or as providers of waste heat from GLA Group operations • developing models for legal agreements for decentralised generation, with an eye to their use by other organisations as well • supporting the formation and running of the Community Energy London forum and/or other partnerships between community energy groups • working with boroughs to target some funding from Carbon Offset Funds to renewable generation (whether community energy or other)

There is a debate over the desirability of heat networks and combined heat and power.	**Recommendation 12** The Mayor should publish, in the Environment Strategy or elsewhere, evidence of whether and how a heat network strategy will minimise climate change impacts, taking into account the short and medium term emissions of interim carbon-fuelled heat sources compared to non-heat-network low carbon alternatives.
Customers make energy choices that can have a significant impact on their bills, carbon emissions and quality of life. There is great scope for the Energy for Londoners company to help Londoners understand their energy choices.	**Recommendation 13** The Mayor should prioritise the establishment of the Energy for Londoners company (EfLCo; either white-label or fully licensed), to directly reach a wide base of London customers, especially those vulnerable to fuel poverty. The EfLCo should take steps to incentivise, encourage and support energy saving by its customers. Smart energy use and behaviour change should be built into the way that the EfLCo works, with use of specialist behaviour-influence expertise from the early planning stage and ongoing. One or more highly intuitive apps should be sourced for customer interface. **Recommendation 14** The GLA's retrofit work should include advice and follow-up on efficient choices and correct operation, and help with getting smart meters. **Recommendation 15** The Mayor should work with boroughs and other large landlords to promote the rollout of smart meters in rented housing, for example when a property changes tenants. **Recommendation 16** The Mayor and the Energy for Londoners company should support and work in partnership with providers of advice and support to people in making good energy use choices.

Energy prices and tariffs, and the different payment methods including pre-pay meters, also have a significant effect.

Recommendation 17

We support the Mayor's intention to use the Energy for Londoners company to offer affordable tariffs to Londoners and help to deliver his domestic energy policies. Specific elements of this role could include:

- offering the Warm Homes Discount scheme
- prioritising Londoners vulnerable to fuel poverty as its potential customers – it could have a priority services register identifying vulnerable customers

Recommendation 18

The Mayor should support, where possible, community energy organisations and others giving advice to vulnerable customers about meters and tariffs, particularly those embedded in Citizens Advice Bureaux, often the first port of call for those struggling with their bills.

Recommendation 19

The Mayor, particularly through the Energy for Londoners company, should seek to support people to move off pre-payment meters where that is in their interests, or offer pre-payment tariffs at the same price as credit.

1. Background

Key findings

- Fuel poverty affects one in nine London households, and rising.
- Fuel poverty is most likely in poorly insulated homes.
- Fuel poverty and hard-to-heat homes adversely affect people's health and wellbeing.
- Energy-efficient homes are crucial to reducing London's carbon emissions.

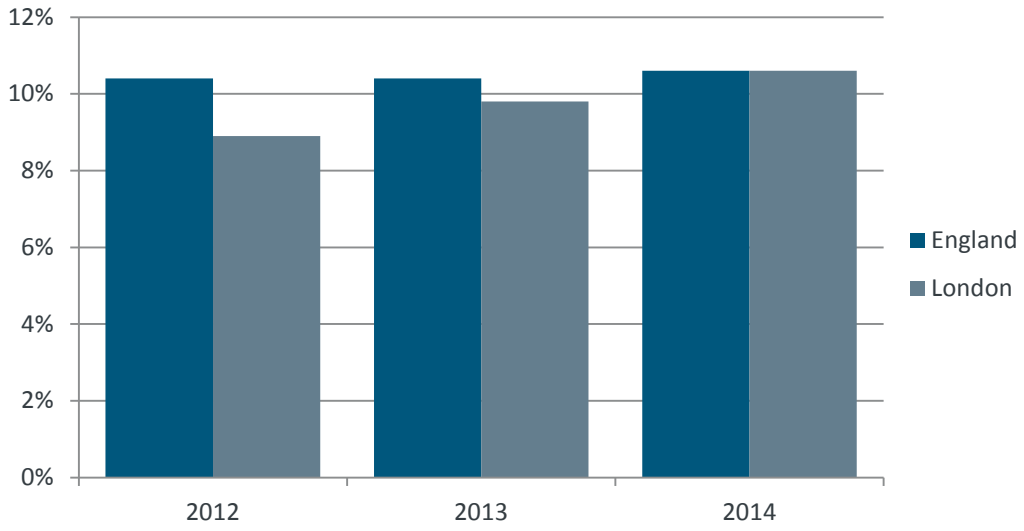
We all use energy in our homes; it is essential to our wellbeing and quality of life. However, energy has both a financial cost to the household and an environmental cost in carbon and other emissions.

Financial costs: fuel poverty and wellbeing

One in nine London households, 348,000, are officially fuel-poor, and this is on the rise.[1] By official definition, fuel-poor households have a combination of low income (below the median, after adjusting for fuel costs) and high fuel costs (above the average for the property type).[2] Many others are likely to have trouble affording their energy bills, while not meeting this definition of fuel poverty.[3] Both official and unofficial fuel poverty are challenges for the Mayor's social integration agenda.[4]

London has recently seen a rise in fuel poverty, out of proportion to the slight rise in the country generally. Two-thirds of the most recent national increase in fuel-poor households is accounted for by London, which has only about one-eighth of the national number of households. Despite being the UK's richest region, London's fuel poverty rate has risen to the national average.[5]

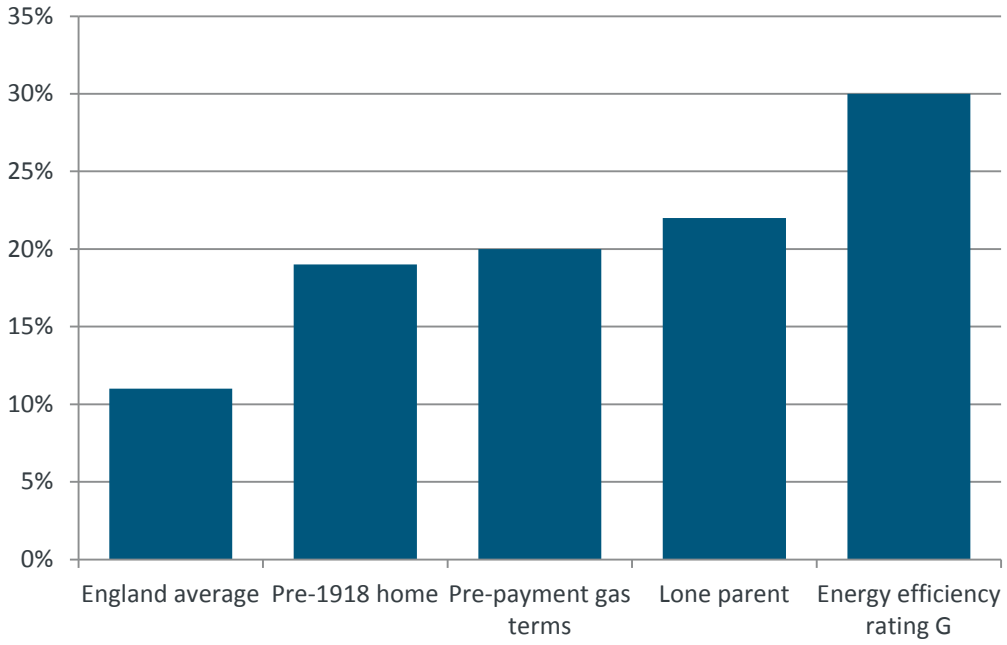
Chart 1: London's fuel poverty rate has risen to the national average



Impacts of fuel poverty

Faced with choices between energy and other essentials, many people live in cold homes.[6] This can have serious effects on both physical and mental wellbeing. There is evidence that cold homes can worsen respiratory and circulatory illnesses, arthritis and rheumatism, and mental health; reduce children's growth and increase their hospital admissions; and affect educational performance and attendance at school and work.[7] There are thousands of 'excess winter deaths' each year in London, of which about a third or more can be attributed to cold homes, and which predominantly affect older people.[8] The groups most affected by fuel poverty include those in poorly insulated homes, those not paying for their energy by regular direct debit, and families, especially lone parents.[9]

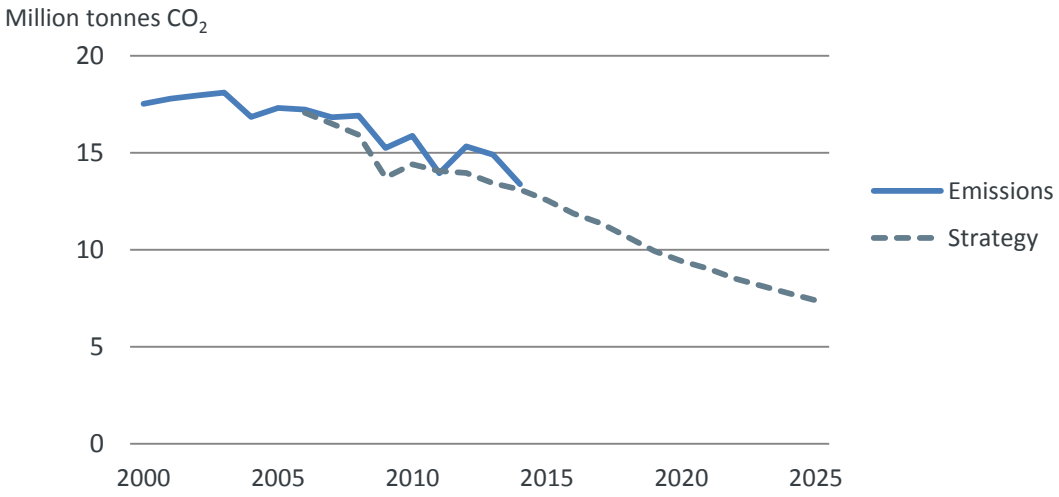
Chart 2: Fuel poverty affects some groups of people more than others



Environmental costs and climate change

London's homes have a major role to play in carbon reduction targets. They produce over a third of the city's greenhouse gas emissions – 13.4 million tonnes of CO_2 in 2014. The current Mayor, Sadiq Khan, inherited from the previous Mayor targets to reduce emissions by 60 per cent by 2025 and by 80 per cent by 2050.[10] However, emissions have overshot the milestones to the 2025 target nearly every year.[11] The Mayor therefore needs to step up the delivery rate of his carbon reduction work dramatically.

Chart 3: London's domestic carbon emissions are not falling as planned in the existing mayoral energy strategy[ii]



Sadiq Khan has said he wants an even more ambitious target – for London to be a zero-carbon city by 2050.[12] The acceleration needed in carbon reduction is therefore greater still.

[ii] Note that London's figures are published without adjusting for weather. The dips in emissions in 2009, 2011 and 2014 are largely due to the mild winters those years – national weather-adjusted figures show a much smoother trend in emissions, more in line with 2012 and 2013. https://www.theccc.org.uk/charts-data/ukemissions-by-sector/buildings/

Energy for Londoners: the policy of the current administration

The Mayor plans to set up a non-profit energy company called Energy for Londoners (EfLCo), to tackle fuel poverty and carbon emissions.[iii] This would create a new entrant to the energy market, from which Londoners could buy their gas and electricity.

Energy for Londoners

The Mayor's office identified seven options for the EfLCo, of which three were identified for evaluation study. These three were:[13]

White Label Plus – the energy would be supplied by an established energy company, but the Mayor would negotiate agreements over tariffs and sources of energy, and badge the product Energy for Londoners.[iv]

Full Supply Licence (Mutual) – the EfLCo would buy energy in the wholesale market and sell to consumers; the EfLCo would be owned by a community benefit society having the GLA, boroughs, housing associations and community energy groups as members.

Full Supply Licence (Consortium) – the EfLCo would buy and sell energy as above, and be owned as a company or special purpose vehicle by the GLA and others such as boroughs.

The other four options identified were:

White Label – the GLA would procure a licensed energy supply company to provide energy, which would be branded as Energy for Londoners

Full Supply Licence (Fully Owned) – the EfLCo would be fully owned by the GLA

Full Supply Licence (Equity) – the GLA (or subsidiary company) would take an equity stake in an existing fully licensed supply company

Full Supply Licence (Purchase) – the GLA (or subsidiary company) would purchase an existing fully licensed supply company already operating in the market

The Mayor is showing ambition in entering the energy market. This is particularly true if the Mayor wishes to make a big difference to households across such a large population as London. The EfLCo will take time to establish, and require financial investment (as an example, Bristol City Council allocated up to £1.5 million to establish their company,

[iii] Greater London Authority (GLA) staff have at times also applied the label Energy for Londoners to general energy policy and programme work by the GLA itself. To avoid confusion, this report will avoid this usage.

[iv] The Green Party Group believes that a fully licensed energy supply option for the Mayor's proposed 'Energy for Londoners' company has the best delivery potential for: alleviating fuel poverty; providing customers with the best possible tariffs; creating in-house skills capabilities and local jobs; supporting and creating significant investment for new renewable energy generation; and delivering energy efficiency measures in London.

The Green Party Group believes that the 'White Label' option, where energy would be supplied by an established energy company and branded as 'Energy for Londoners', will hamper the Mayor's abilities to deliver on the above outcomes. A White Label company as opposed to a fully licensed one would mean reduced revenues and less influence over tariffs negotiated with a third party.

This dissenting opinion affects recommendations 13 and 17.

Bristol Energy, which obviously operates in a much smaller city).[14] The costs and other challenges may not all be obvious to begin with and so there are risks, particularly financial.

However, there is considerable potential for the EfLCo to increase the Mayor's power to make a difference. The risks may therefore be worth taking on, but will need proper management. The Mayor has commissioned consultancy work to assess the set-up and capital costs in the first five years, timeframes, and financial and reputational risks, alongside other factors. As the Mayor will take into account this assessment work in deciding on how to implement the Energy for Londoners proposal, so the recommendations of this report should also be read as subject to the findings of the option assessment and feasibility work, including the financial risks that emerge. The findings of this work are expected to be published in the summer of 2017; some external financial modelling has been produced by Landman Economics for the Switched On London campaign.[15]

2. Energy efficiency

Key findings

- Retrofitting existing homes to be more energy-efficient is an essential part of carbon reduction, so London needs an effective mechanism to promote domestic retrofit.
- Retrofit has been stuck for some years in a rut of under-delivery; recent policies have not delivered the efficiency works required to meet carbon targets.
- Transformative action is required, including much more effective promotion work, especially in the rented sector, and action to provide access to finance and remove planning barriers.

Energy-efficient homes allow people to save money, reduce carbon emissions and enjoy warmer homes. The energy efficiency standards of new homes have been improving over the years, and the Mayor has applied a 'zero-carbon' standard in London since October 2016.[16]

However, older homes (of which there are a high percentage in London) often have very poor energy efficiency.[17] As over 80 per cent of London's existing homes are expected to still be in use by 2050, they require retrofitting to a better level of efficiency.[18]

Often, energy efficiency improvements pay for themselves in energy bill savings; for others, subsidy is needed and is merited by the health and environmental benefits.[19] However, take-up of energy efficiency measures remains too low, whether because of inadequate understanding of the benefits, up-front costs, inconvenience or for other reasons.[20]

Supporting and promoting energy-efficiency retrofit

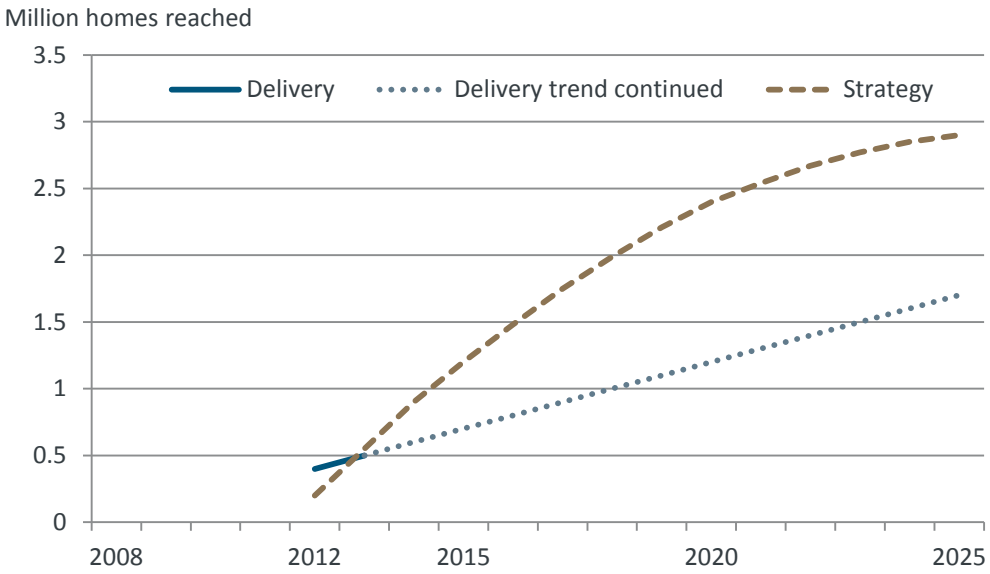
Historically, retrofit has been challenging, policy improvements marginal, and delivery slow. This is true across the country, not just in London. Most recently, the Government established the Green Deal loan framework for the pay-as-you-save market and the Energy Company Obligation (ECO), which provides grants for more marginal improvements and for poorer or vulnerable households (often for part of the cost).[21] However, the Government reduced the ECO resources available nationally each year after the first phase of the programme, meaning that, following a peak in early 2014, retrofit activity has since slowed down. The Government has also ceased funding the Green Deal Finance Company, effectively ending that scheme, following low take-up.[22] As local delivery programmes tend to rely on these national sources for capital funding, these changes have held back the delivery of programmes in London boroughs and around the country – even highly successful schemes, such as in Kirklees.[23]

London has found retrofit particularly challenging. It has always achieved less than a proportionate share of the retrofit funding and work under the national schemes. Other areas such as Scotland that were once in the same position have effectively secured more than their share, by working proactively with social landlords and overcoming barriers for installers (and by providing additional capital funding).[24] Recent official figures show that only 3.5 per cent of London households received ECO measures over the lifetime of the scheme – the lowest rate of any region in Great Britain, where the average was 6.0 per cent, with Scotland achieving 8.1 per cent and the North West 9.4 per cent. [25] This lack of retrofit delivery has contributed to London's recent rises in fuel poverty.[26]

The current Mayor has inherited a retrofit programme that is behind in its delivery targets. The main London programme is RE:NEW, which encourages and assists homeowners and landlords to access these national funding schemes. The Climate Change Mitigation and Energy Strategy (CCMES), set under the previous Mayor, envisaged London as a whole retrofitting 2.9 million homes between 2008 and 2025, with milestones of 1.2 million in 2015 and 2.4 million in 2020. The Environment Committee found in 2015 that delivery was severely behind this trajectory, with targets for the current phase of the GLA's retrofit programme being consistent with around 1.1 million

homes fitted by mid-2017, and even these targets unlikely to be met, due especially to the reductions in national funding. The Energy Saving Trust told us that the 2025 target will be missed.[27]

Chart 4: London's retrofit delivery is not accelerating as planned in the Mayor's strategy



Graph previously published in *Cutting Carbon in London: 2015 update*[28]

The current Mayor must seek an even greater acceleration in retrofit, as part of the route to his zero-carbon city goal.[29] In working towards this, the Mayor plans to review retrofit targets and must then show (either in the Environment Strategy or in an early supplementary document to it) a trajectory to his new goals. He has said he will conduct an early trial of net-zero-energy retrofitting of homes, and explore innovative ways to direct funding to treat existing homes.[30] Reducing carbon emissions and increasing energy efficiency are among the benefits against which the GLA is seeking to evaluate options for the EfLCo.[31]

The Government has announced that ECO will be replaced by a new scheme from 2018, focused specifically on fuel poverty, rather than on carbon reduction in general. In the current year, the balance within the existing ECO framework will shift towards fuel poverty. The overall annual funding of the scheme is also to reduce, with a corresponding effect expected on delivery.[32]

Areas in which the Mayor could improve retrofit work include financing, planning barriers and promotion.

Financing domestic retrofit

London needs additional funding sources and financing avenues for retrofit. ECO funding is reducing even as delivery needs to accelerate.

The 'able-to-pay' sector particularly needs financing. These households will see the cost of their retrofit repaid by savings on energy bills, and/or have some money to invest up front. However, many cannot initially pay the whole cost, so there is a major role for loans and pay-as-you-save finance. This was the sector which the Green Deal catered for. With the ending of the Green Deal and the shift of ECO to fuel poverty, the able-to-pay sector has little retrofit help now.

We heard from experts that there should be a London version of the Green Deal. This could provide loans for energy efficiency improvements on a pay-as-you-save basis. It would ideally maximise take-up by offering the loans at less than commercial rates of interest for household loans, and ploughing repayments back into future loans to other households on a revolving basis. It could work alongside the successor to ECO or grants available from other sources, and alongside households' own abilities to pay up front, if applicable.[33]

Another potential source would be investment from national government. The Government has a National Infrastructure Plan in which it plans to invest over £100 billion during the 2015-2020 Parliament, also drawing in additional private funding. The plan seeks to promote a better quality of life and a more productive economy. As well as improving infrastructure, the investment will provide economic stimulus and support jobs and skills. Currently, investment in the supply and transmission of energy qualifies as infrastructure (as do transport projects and a range of other investments), but investment in domestic energy efficiency retrofit does not. This is despite the fact that retrofit may be a more cost-effective and longer-lasting way to bring energy use and energy supply into balance than increasing supply. Therefore there is a strong case for retrofit to be brought within the scope of the infrastructure fund, potentially unlocking significant capital funding.[34]

Recommendation 1

The Mayor should investigate the feasibility of, and set up if possible, a finance provider (within or alongside the Energy for Londoners company) to provide a version of the Green Deal in London, ideally offering lower interest rates than commercial loans.

Recommendation 2

We support calls to the Government to resource energy efficiency retrofit as a national infrastructure priority.

Barriers to retrofit in development control

The development control system may restrict retrofit alterations to homes. For example, external wall insulation often still requires (and may not receive) planning permission when proposed on flats or in conservation areas, which between them comprise a large proportion of London, especially inner London. New windows and solar panels may also be disallowed in conservation areas, even to the rear of properties.

Local application is important. The various London boroughs may have different policies, or implement wider policies in different ways. In some cases this can keep homes in poor energy efficiency. It may also delay (perhaps unexpectedly) even permissible works while the application is considered, putting off householders and reducing delivery under schemes like ECO.[35]

Recommendation 3

The Mayor should facilitate retrofit (and other energy policies) through his planning policies, including by reducing barriers to retrofit.

Recommendation 4

The Mayor should add the reduction of fuel poverty as an objective within the London Plan.

Retrofit promotion

The Mayor seeks to promote retrofit take-up, both in terms of the number of homes reached, and the number and carbon reduction impact of measures fitted in each home. Households are often unreceptive to unsolicited and unfamiliar approaches, whether commercial or official.[36]

Partnership with community energy bodies may offer a better way in. In a case study in Plymouth, the local community energy group achieved 4.5 times better take-up than British Gas in parallel street-by-street promotion. Research by the Energy Saving Trust and Forum for the Future has shown that areas of the country with strong community engagement had the best outcomes under national retrofit funding schemes.[37]

Local authorities (and bodies backed by them) have also had success, such as Better Homes Yorkshire and Cosy Homes Lancashire.[38] As models for the EfLCo, the Mayor is considering a consortium (in which boroughs may participate alongside the Mayor) or a mutual (in which boroughs and others would be members of a community benefit society, which would own the energy company).[39] Either through this EfLCo arrangement, or in a separate fuel poverty partnership, the Mayor could seek to bring together the work of different boroughs on fuel poverty – Islington's work, including the Seasonal Health Interventions Network (SHINE), was cited to the committee as a good example. The Mayor will, however, have to work in the context of budget pressures on local authority retrofit promotion work.[40]

The objectives of the EfLCo include reducing carbon emissions through the promotion and improvement of energy efficiency, and minimising the need for investment in additional

infrastructure by better managing energy demand.[41] The energy supplier could use its relationship with its customers to promote energy efficiency measures, and help them to access (or even directly provide) the necessary advice and retrofitting services.

Recommendation 5

The Mayor should reinvigorate London's promotion of retrofit take-up, through advice and facilitating access to low-carbon options. Partnership with local authorities, landlords, community energy groups, advice providers, installers and others will be a part of this. The Energy for Londoners company could be a major element of this work; other channels may be required in order to reach all of the target sectors, which include:

- the private housing sector (including self-financed as well as ECO and its successors)
- households in or at risk of fuel poverty, perhaps targeted by area
- households with scope to carry out retrofit as part of an extension, a refurbishment or maintenance activity

Issues in the rented sector

The private rented sector (PRS) is particularly challenging for energy efficiency. More than a quarter of private tenants live in a dwelling that does not meet the Decent Homes Standard, compared to under one in five owner-occupiers and about one in seven social tenants. Private landlords may have little incentive to invest in reducing energy bills, and tenants little ability to do so – both may have little awareness of the opportunities and benefits. In London well over a quarter of homes are privately rented, compared to just one in six nationally, making the PRS issue especially significant here.[42]

In contrast, the social rented sector has had more success in retrofitting homes. Housing Associations and councils are relatively easy for the GLA to engage with and often motivated to reduce tenants' energy bills.[43]

Minimum standards for energy efficiency are coming to the PRS. It will not be legal to rent properties in energy efficiency band F or G from 2018, as long as it is reasonably practicable to bring up their energy efficiency.

However, the effectiveness of this policy faces serious barriers. Small private landlords may have limited awareness of what practical steps they can take to improve efficiency.[44]

Finance is also lacking. The 'reasonably practicable' criterion as it stands allows landlords not to carry out works if they cannot get grants or subsidies to cover the cost. This combines with the failure of the Green Deal and cuts to ECO to mean that landlords can usually get around the requirements on the grounds of up-front cost. If a London-based finance option were available (see Recommendation 1), it could make the energy efficiency standards for the private rented sector applicable more often, by ensuring that it is generally reasonably practical, at least financially, to make the improvements.[45]

There is also an issue of limited enforcement in the PRS. With constrained resources for environmental health officers, local authorities tend to rely on tenant complaints to identify hard-to-heat properties. However, tenants can be reluctant to report their problem to the council for fear of falling out with the landlord and potentially losing their tenancy. This contributes to the limited enforcement of standards for the PRS.[46]

A mayoral London-wide lettings agency could make a great contribution here. The Mayor has proposed establishing such a body under the label Homes for Londoners. There would be strong synergies between the work of that body in letting decent and affordable homes, and the EfLCo with the objective of meeting energy needs in an affordable and low-carbon way. The two bodies could promote their common goals by working closely together or even sharing an organisational connection.[47] We heard early indications from the Deputy Mayor for Environment and Energy that she is exploring how to work with her counterpart for Housing.[48]

Recommendation 6

The Mayor should support retrofit in the rented sector. Approaches could include:

- partnership with social landlords, as currently
- clear advice to small private landlords on energy efficiency and how to achieve it
- support for local authorities on enforcement of private landlords' energy efficiency obligations
- if the Mayor establishes Homes for Londoners or any future London-wide lettings agency, or gains any additional powers in the private rented sector, using them to set and implement energy efficiency standards
- close working between the Energy for Londoners Company (and any other mayoral channels for promoting retrofit) and Homes for Londoners

Recommendation 7

We support the Mayor's call for more powers in the private rented sector, in partnership with boroughs, and also support calls for the Department for Business, Energy and Industrial Strategy to go ahead with consultation on clearer regulations for the private rented sector with a view to improving energy efficiency and affordable warmth.

3. Energy generation

Key findings

- London has significant potential to generate low-carbon and renewable energy.
- The Mayor can support this potential through his emerging role as an energy supplier.
- Community energy is another emerging source of energy, potentially low-carbon and affordable. With assistance it could support the Mayor's policy goals.
- There is a debate over the desirability of heat networks and combined heat and power. The Mayor needs to consider their role in London's long-term energy strategy and address these questions with robust evidence in his energy strategy.

London has considerable scope for generating low-carbon and renewable energy.[49] Generation within an urban area is almost always small- to medium-scale, supplying local or regional users, and is known as decentralised energy.

Solar energy is one of the most suitable forms of generation within London. The Environment Committee has previously reported on this unfulfilled potential, and heard this point again during this investigation.[50]

Recommendation 8

The Mayor, in preparing his solar energy action plan, should look carefully at the recommendations made by the Environment Committee to the previous Mayor on solar energy.

This chapter will cover three issues within energy supply policy. The Mayor's principal new policy tool is his role as an energy supplier. There is also scope for him to specifically support the emerging community energy sector. Finally, this chapter will touch on the debate over combined heat and power and district heating networks.

Mayoral energy supply: Energy for Londoners

The GLA is pursuing a role as an energy supplier. In order to supply energy to customers it will purchase energy from producers. The Mayor will therefore have scope to support low-carbon energy generation on its way to commercial viability.

The Mayor will potentially enter the energy market in two phases: Licence Lite and a fully licensed (or a 'white label plus') energy supplier.

Licence Lite was initiated under the previous administration. It involves buying energy directly from producers and selling it on to business customers. As the GLA will be operating as a purchaser in energy markets, it will potentially be a customer for commercial producers of renewable energy, and could use this purchasing power to support the Mayor's goals for increasing renewable energy generation.[51]

It would also be worth investigating whether the GLA under Licence Lite could act as a purchaser for micro-scale and domestic generators, such as homes with solar panels. The committee heard calls for the Mayor to offer a London Feed-in Tariff.[52]

A fully licensed energy supplier, the EfLCo, is under consideration by the current administration. This would have greater scope to expand its user base to domestic customers, and therefore to increase its purchasing power for energy. A 'white label plus' model would see energy supplied by an existing energy company, but under an agreement with the GLA covering sources of energy. Encouraging the generation of low-carbon energy is one of the goals put forward for the EfLCo.[53]

As noted in the background chapter, there are risks to the GLA here. Establishing the EfLCo will involve entering a new and highly regulated sphere of activity. Energy markets can be volatile and the EfLCo will need to be expert at assessing and hedging the commercial risks. The necessary due diligence will need to be conducted thoroughly.

Recommendation 9

The Mayor, particularly through the Energy for Londoners non-profit energy supply company, should support decentralised renewable energy. Forms of support could include:

- acting as a customer for community and decentralised generators, potentially including domestic micro-generators
- helping to broker supply contracts between community and small-scale generators and London consumers, including for direct supply from local generation to local residents

Recommendation 10

The Mayor should report to the Environment Committee the rationales for decisions on the Energy for Londoners company, including:

- findings of all option assessment and feasibility work
- details of the due diligence undertaken around the risks of entering the energy market, especially financial risks

Community energy

Community energy is an emerging contributor to London's energy mix. In this model, local people own a social enterprise that generates energy and/or provides energy services. Energy generated is typically renewable, with several examples in London of solar photovoltaic (PV) installations, such as those run by Brixton Energy or South East London Community Energy.[54] A community energy enterprise is for community benefit, generating a small return for investors (and/or co-operative members) and also contributing to a community benefit fund (the benefits delivered may be energy-related but are not necessarily). There are other benefits for the community as well; the community can build social capital, volunteers can gain business experience, and a high proportion of the project's spend often goes to the local area. These advantages support the Mayor's priorities around community engagement and social mobility. The power generated is supplied ideally direct to local customers at high efficiency and at an affordable rate; any surplus can normally be sold to the grid.[55]

Community energy therefore can contribute to low-carbon energy supply, to energy affordability and to tackling fuel poverty in other ways.

But community energy schemes can face difficulties in becoming commercially viable. Prices for the sale of electricity back to the grid are set by the Feed-in Tariff (FiT), which for solar the Government has reduced by 77 per cent. This makes it more difficult to establish further solar projects.[56] Other renewable energy sources are available, such as water source heat pumps (as used at the Kingston Heights development) and waste heat such as the heat from the London Underground (used at Bunhill in Islington). The GLA sees waste heat as a major energy source in the long term for London.[57]

Other challenges include finding site partners and investors. Site partners host the generation and are the primary on-site customer for generated power; investors provide

the capital to fund construction and set-up. The sector is relatively new and each new group or project needs to devise legal agreements and other ways of working. There may also be risks of organisational sustainability for volunteer-run bodies.[58] A Community Energy London forum is being set up to facilitate the exchange of knowledge between community energy groups.[59]

To operate successfully, community energy groups need:[60]

- customers to buy their energy
- sites for their generation plant
- model legal agreements for leasing and power purchase
- investors
- practice-sharing and learning between themselves

Increasing community energy generation is one of the benefits against which the GLA is seeking to assess options for the EfLCo.[61] The EfLCo will therefore need to engage with community energy bodies, and including community energy expertise in some way would be an effective way to help ensure that engagement is effective.[62]

The Mayor requires boroughs to operate Carbon Offset Funds. Developers make contributions to these in lieu of on-site compliance with the carbon emissions standards for new building. Currently, boroughs use the money in the funds for energy efficiency work, but they could potentially open them to renewable generation as well.[63]

Recommendation 11

The Mayor should specifically support community energy generation, to further community engagement and social mobility goals, as well as carbon reduction and fuel poverty goals. Forms of support could include:

- committing the Energy for Londoners company to purchase from community energy generators
- including community energy expertise within the setup of Energy for Londoners
- offering partnerships, involving GLA Group organisations and buildings, to community energy groups, for example as sites for rooftop solar (and customers for the electricity) or as providers of waste heat from GLA Group operations
- developing models for legal agreements for decentralised generation, with an eye to their use by other organisations as well
- supporting the formation and running of the Community Energy London forum and/or other partnerships between community energy groups
- working with boroughs to target some funding from Carbon Offset Funds to renewable generation (community energy or other)
- close working between the EfLCo (and any other mayoral channels for promoting retrofit) and Homes for Londoners

Combined heat and power and heat networks

Heating homes is an important component of energy use; it has been slower to decarbonise than electricity supply. Since 1990, greenhouse gas emissions from electricity supply have reduced by half, while emissions from heating have reduced by only a fifth.[64]

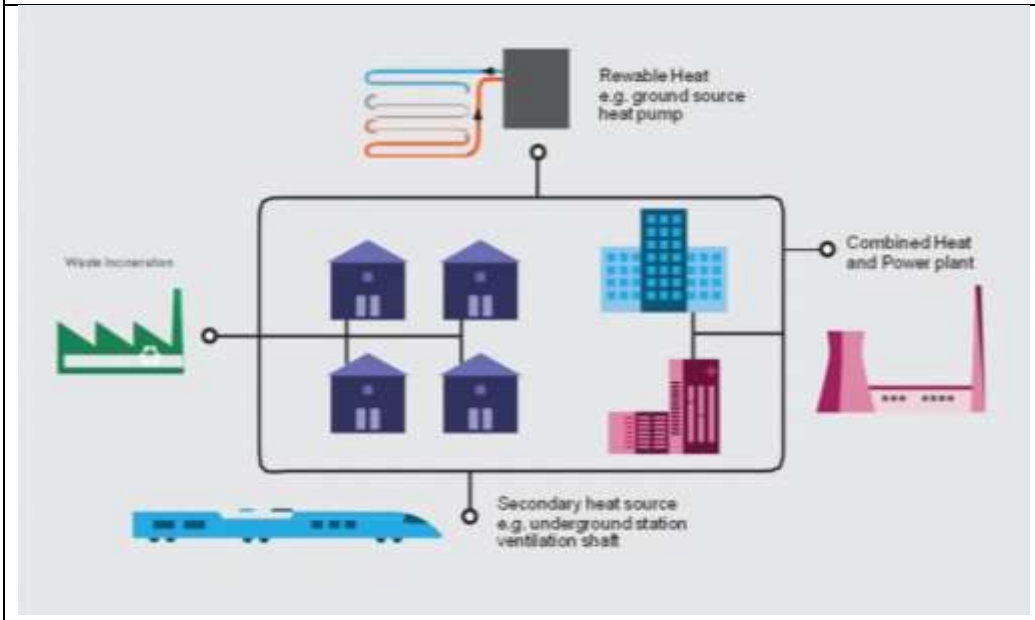
Combined heat and power (CHP) involves generation of electricity and provision of heat from the same plant. The plant generates energy by burning fossil fuel (such as gas), biomass, waste or other fuel. The waste heat from the generation process is carried by pipes to warm local buildings. CHP is already established in the energy market and CHP plants run by local authorities and housing associations are set to be the main initial energy suppliers for the Mayor. Under Licence Lite, the Mayor will be able to sell this electricity to public sector bodies like TfL. With CHP also producing heat for local residents, mayoral electricity purchase could help support the availability of affordable heating.[65]

CHP is generating some debate. Compared to centralised fossil fuel power stations it can be relatively carbon-efficient. This is because the leftover heat from electricity generation is used rather than wasted, and because feeding power directly into local grids reduces the loss of electrical energy in transmission. However, critics of CHP point out that it is combustion-based, typically using fossil fuels.[v] It therefore emits carbon, potentially more per unit of energy than grid electricity and certainly more than fully renewable alternatives. It also emits local pollutants like NOX, which runs counter to the Mayor's air pollution policies and objectives.[66]

As it stands, CHP is included in the Mayor's energy strategy as an interim heat source for developing networks of heat pipes. Heat networks are durable parts of London's infrastructure and are a major part of the Mayor's future energy strategy, since they are needed to take advantage of many of the most promising urban renewable energy sources like waste heat.[67] It seems that the long-term carbon savings are expected to outweigh the emissions from gas-fired CHP in the nearer future. However, written information received by this investigation questions this analysis.[68] The Mayor needs to show convincingly that this strategy is the most sustainable option in the long term.

[v] CHP plants using waste as a fuel source do qualify as approximately 50 per cent renewable. There are also Energy from Waste plants in London that are not heating homes, which is a missed opportunity. See written contribution DEFP-004 Environmental Services Association.

Infographic: Heat networks can take heat from a variety of sources to homes and other users



Graphic: Greater London Authority

Recommendation 12

The Mayor should publish, in the Environment Strategy or elsewhere, evidence of whether and how a heat network strategy will minimise climate change impacts, taking into account the short and medium term emissions of interim carbon-fuelled heat sources compared to non-heat-network low carbon alternatives.

4. Customers

Key findings

- Customers make energy choices that can have a significant impact on their bills, carbon emissions and quality of life.
- Energy prices and tariffs, and different payment methods including pre-payment meters, also have a significant effect.
- Smart meters can help customers to understand their energy use and the price they are paying.
- There is great scope for the Energy for Londoners company to help Londoners understand their energy choices.

Customer energy choices

People can control their energy use by their choices and behaviours – if they understand the effects these choices are having. Every home, even ones with only standard fittings such as boilers, radiators, windows and doors, needs operating in a certain way to maximise its energy efficiency. Failure to manage windows properly can lead to great heat loss in winter and overheating in summer. Ineffective use of thermostats and timers can lead to wasted energy in over-heating, or heating rooms that are empty for hours. This can be a particular issue when new efficiency measures are fitted that the householder is not used to living with.[69]

Poor energy choices increase costs not just for the householder but also wider society. In addition to immediately higher carbon emissions, there can be dissatisfaction with new energy efficiency measures, leading to bad word of mouth and lower uptake elsewhere. Many retrofit schemes include advice on operation, but advice is more effective if there is follow-up, to check satisfaction and assist householders in adjusting to new installations.[70]

Smart meters

Smart meters are an important new way for people to take control of their energy usage. They have more informative displays than traditional meters, showing how fast energy is being used and what the cost is in pounds and pence. They also transmit this information to the energy supplier.[71]

This real-time data can allow people to make more informed choices about energy use. Where people want to keep their bills down, they can identify activities that use a lot of energy and reduce them. On the other hand, where people would benefit from using more energy (for example to heat their home adequately) but were uncertain about the cost, they can see when they can afford to. After having a smart meter installed, eight in ten people take steps to reduce their energy usage. Where lower-cost energy is available at certain times, for example because of on-site solar generation or an off-peak tariff, they can also help users choose to run appliances at cheaper (often also lower-carbon) times. Of course, many people need some help and advice on how to use their smart meters most effectively, so it is essential that this is provided.[72]

When combined with technology such as smartphones, tablets and apps, smart meters can provide easily accessible and vivid visualisations and comparisons of energy use. This helps users of such technology to be interested in, aware of and motivated by energy saving.[73]

Energy suppliers are responsible for fitting smart meters, and so the EfLCo would be an operator in this process. Subject to its other concerns during its set-up phase, it could prioritise customers who would most benefit from a smart meter.

The role of suppliers

Energy suppliers can incentivise and encourage energy saving in other ways too. They can structure tariffs to reward energy saving. They can use bills and other communication to highlight energy-saving steps, encourage their adoption and show householders how to

keep their bills down. Energy companies can also refer customers on to other organisations providing energy saving measures.[74]

An EfLCo could lead the way. Through supporting energy-efficient choices by its customers, it could promote the benefits it is being set up for, including reducing energy bills, alleviating fuel poverty and reducing carbon emissions.[75] This leadership could challenge commercial operators to do more to show their customers how well they help them to save energy.[vi]

Vulnerable customers

Not everyone is equally aware of the need for energy saving advice or where to get it. Lack of up-to-date communications technology, and lack of skills such as literacy, numeracy or IT use, can mean messages do not reach the people who need them. The types of people who experience these difficulties may be some of those, like older people or people with low basic skills, who are already most vulnerable to fuel poverty.

Energy companies, local authorities and housing associations have significant roles to play in helping to reach these people. These providers need to work together to identify and support their vulnerable customers.

The voluntary sector also has a major part to play, but faces increasing challenges. Community energy groups and bodies such as Citizens Advice and Age UK can also be important partners. They often have much higher levels of trust among people who may not be reached by established means. However, funding issues, especially the continuing squeeze on grants from the public sector, are challenging their operations.

Recommendation 13

The Mayor should prioritise the establishment of the Energy for Londoners company (EfLCo; either white-label or fully licensed), to directly reach a wide base of London customers, especially those vulnerable to fuel poverty. The EfLCo should take steps to incentivise, encourage and support energy savings by its customers. Smart energy use and behaviour change should be built into the way that the EfLCo works, with use of specialist behaviour-influence expertise from the early planning stage and ongoing. One or more highly intuitive apps should be sourced for customer interface.

Recommendation 14

The GLA's retrofit work should include advice and follow-up on efficient choices and correct operation, and help with getting smart meters.

[vi] Regarding the role of suppliers and the text of Recommendation 13, note the opinion from the Green Party Group on page 16, that a White Label model would not sufficiently support the Mayor's goals on energy and fuel poverty.

Recommendation 15

The Mayor should work with boroughs and other large landlords to promote the rollout of smart meters in rented housing, for example when a property changes tenants.

Recommendation 16

The Mayor and the Energy for Londoners company should support and work in partnership with providers of advice and support to people in making good energy use choices.

Energy prices and tariffs

There are many energy tariffs on the market, varying considerably in price. The principle of the market is that suppliers compete on price so that prices for consumers are driven down. However in practice, each supplier will have a range of tariffs and deals. Only some customers will be on the cheapest price. In December 2016, Ofgem found that there were more than 1.7 million customers with a particular supplier who could save over £260 a year by switching to the cheapest tariff from that same supplier. It found 6.6 million customers with another supplier who could have saved £129 a year. Overall, about two-thirds of customers are on full-price standard variable tariffs (SVTs) or pre-payment meters (which can be more expensive still, as discussed in the next section). These proportions vary from supplier to supplier, and some have over 90 per cent of their customers on the SVT.[76]

The cheapest prices are in many cases time-limited, with specific deals either drifting up in price over time, or reverting to a full-price rate after a certain period.[77] To secure the cheapest prices, it is often necessary to navigate the market with some skill and diligence, shopping around and switching on a regular basis.[vii] There are commercial reasons why most suppliers operate in this way. To attract new customers, it is necessary to offer competitive deals. But to attract capital, it is necessary to generate higher profits from existing customers who are not shopping around.

A mayoral energy supplier would face some of the same pressures if it wished to compete for fast-moving customers, and it remains to be seen whether it would ensure that all of its customers had equally fair-priced tariffs.

One of the models under consideration for the Energy for Londoners company would be 'white-label plus', whereby the energy supply would be provided by an existing company, with a partnership agreement with the GLA which would, hopefully, give some control over factors such as tariffs. Energy for Londoners as a fully licensed supplier in its own

[vii] Note that the official definition of fuel poverty is based on expected energy prices, not the actual prices paid, so it does not take into account vulnerable customers' difficulties in navigating the market. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/557400/Annual_Fuel_Poverty_Statistics_Report_2016_-_revised_30.09.2016.pdf

right (an EfLCo) would have much greater control over revenues and tariffs. [viii] This could have a number of benefits:

- The non-profit model might mean that customers could get a better deal overall.
- An EfLCo could focus on customers less likely to shop around, offering them a stable good deal, and not using them to subsidise discounted rates for others.
- It could potentially attract such customers through establishing a reputation for fair pricing and by referrals from fuel poverty advice services or through direct marketing to people vulnerable to fuel poverty or to paying over the odds for energy.
- There could be greater revenue streams for investing in renewables and retrofit programmes.

The stated objectives of the Energy for Londoners company include reducing and alleviating fuel poverty through the provision of fairer and more affordable tariffs.[78]

Funding is scarce for other organisations that provide advice and support to vulnerable customers around meters and tariffs (some are discussed in the previous chapter on energy use choices). Funding is particularly scarce that supports the background work of building relationships with other organisations, enabling advisers to identify and connect with those who need advice.[79]

Recommendation 17

We support the Mayor's intention to use the EfLCo to offer affordable tariffs to Londoners and help to deliver his domestic energy policies. Specific elements of this role could include:

- offering the Warm Homes Discount scheme
- prioritising Londoners vulnerable to fuel poverty as its potential customers – it could have a priority services register identifying vulnerable customers

Recommendation 18

The Mayor should support, where possible, community energy organisations and others giving advice to vulnerable customers about meters and tariffs, particularly those embedded in Citizens Advice Bureaux, often the first port of call for those struggling with their bills.

[viii] Regarding the different models for the EfLCo and the text of Recommendation 17, note the opinion from the Green Party Group on page 16, that a White Label model would not sufficiently support the Mayor's goals on energy and fuel poverty.

Pre-payment meters

At least one in five Londoners have pre-payment meters for gas and/or electricity. The best energy tariffs are not available to these customers – these tariffs tend to be found on direct-debit deals involving both gas and electricity. Costs are particularly high for customers who use emergency credit on a pre-payment meter – they can pay in the region of £300 per year more for their energy compared to the best deals on the market, approaching £100 million per year across London.

Some customers choose pre-payment but others may prefer to change. People choose pre-payment as a method of controlling energy expenditure. However, customers with a history of difficulty paying energy bills, or otherwise without good credit records, may be stuck on pre-payment. Some customers simply find that a pre-payment meter is the default, for example when moving into a new home. They may (perhaps with support) be able to find a better energy deal via another payment method.[80]

The rollout of smart meters will, hopefully, help pre-payment customers. As well as offering some of the same benefits in bill control, smart meters can be more flexible between pre-payment and credit arrangements, and should reduce the additional operating costs of pre-payment, thereby enabling providers to offer pre-payment tariffs closer in their pricing to credit tariffs.[81]

Many pre-payment meters are in rented properties. Tenants are entitled to have smart meters installed without waiting for the landlord to do this or give permission, but many are not aware of this or fear reprisals. Energy suppliers, as part of their smart meter rollout programme, could communicate this to both tenants and landlords, along with the benefits to both of having a smart meter installed.[82]

Recommendation 19

The Mayor, particularly through the Energy for Londoners company, should seek to support people to move off pre-payment meters where that is in their interests, or offer pre-payment tariffs at the same price

Our approach

The Environment Committee agreed the following terms of reference for this investigation:

- To examine the potential contribution of Energy for Londoners (and other mayoral policy and programmes in the area of domestic energy) in reducing:
    - carbon emissions and other environmental costs from domestic energy
    - energy bills and fuel poverty

At its public evidence sessions, the committee took oral evidence from the following guests.

13 October 2016:

- Shirley Rodrigues, Deputy Mayor for Environment and Energy
- Patrick Feehily, Assistant Director of Environment, Greater London Authority (GLA)
- Brooke Flanagan, Principal Policy and Programme Officer, GLA
- Léonie Greene, Head of External Affairs, Solar Trade Association
- Emma Bridge, Chief Executive Officer, Community Energy England

10 November 2016:

- Afsheen Kabir Rasheed, Chief Operating Officer, Repowering London
- Giovanna Speciale, Director, South East London Community Energy
- Bevan Jones, Managing Director, Sustainable Homes
- Claire Maugham, Director of Policy & Communications, Smart Energy GB
- Peter Smith, Director of Policy & Research, National Energy Action
- Philip Sellwood, Chief Executive, Energy Saving Trust
- Sophie Neuburg, London Campaigns Lead, Friends of the Earth

During the investigation, the committee also received written submissions from the following individuals and organisations:

- Barny Evans
- Forestry Commission
- London Borough of Sutton
- Environmental Services Association
- Age UK
- London Borough of Lewisham
- A2 Dominion
- National Housing federation
- E.ON
- Ashden
- Doosan
- Grid Edge Policy
- Elementa Consulting
- Energy Saving Trust
- Southwark Council
- London Councils
- London Borough of Islington

References

[1] *Fuel poverty detailed tables: 2014*. Department for Business, Energy and Industrial Strategy and Office for National Statistics, 2016. https://www.gov.uk/government/statistics/fuel-poverty-detailed-tables-2014 (and previous years).

[2] *Annual Fuel Poverty Statistics Report 2016*, Department of Energy and Climate Change (DECC), pages 6-8 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/557400/Annual_Fuel_Poverty_Statistics_Report_2016_-_revised_30.09.2016.pdf

[3] The official definition excludes anyone living in a household with average or better energy efficiency, however low their income. Between 2011, the last year using the old definition of fuel poverty as spending 10 per cent of income on fuel, and 2013, the first year using the new definition, official fuel poverty fell by nearly a third. This is unlikely to be entirely due to a shift in the underlying ability of people to afford energy (Friends of the Earth at the Environment Committee meeting of 10 November 2016 – transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 4). The definition change particularly affected the fuel poverty status of older people and people living alone, because of the way that income and expected energy costs are now adjusted for household size.

[4] *A City for All Londoners*, Mayor of London, October 2016 https://www.london.gov.uk/get-involved/have-your-say/all-consultations/city-all-londoners

[5] National Energy Action and the Energy Saving Trust at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 pages 1-2). Data at *Fuel Poverty Detailed Tables: 2014*. Department for Business, Energy and Industrial Strategy and Office for National Statistics, 2016. https://www.gov.uk/government/statistics/fuel-poverty-detailed-tables-2014; alter the year in the web address to 2012 or 2013 to find data tables for previous years.

[6] Sustainable Homes and Friends of the Earth at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 pages 3-4).

[7] *Fuel poverty and cold-home-related health problems*, Public Health England and University College London Institute of Health Equity http://www.instituteofhealthequity.org/projects/fuel-poverty-and-cold-home-related-health-problems

Chilled to Death – the human cost of cold homes. Association for the Conservation of Energy http://www.ukace.org/2015/03/chilled-to-death-the-human-cost-of-cold-homes/

Who Is Affected By Fuel Poverty? Climate Just http://www.climatejust.org.uk/who-are-we-concerned-about-4

[8] *Excess Winter Mortality in England and Wales* (Office for National Statistics) gives trends over time for winter deaths. The latest edition (https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/excesswintermortalityinenglandandwales/2015to2016provisionaland2014to2015final#main-points) gives regional comparisons, and some discussion of the reasons for deaths and their connection with temperature and domestic insulation, arguing that the very low rates of excess winter deaths in countries with cold winters, and the much higher rates in countries with mild winters, can be attributed to differences in insulation and habits of wearing warm clothing.

Further discussion of the role of temperature and insulation in winter deaths is found in the previous edition (https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/excesswintermortalityinenglandandwales/201415provisionaland201314final) – that winter had seen cold temperatures and a particularly large number of winter deaths.

The World Health Organisation figure was mentioned by National Energy Action at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 7) and is found in the WHO report *Environmental burden of disease associated with inadequate housing.* http://www.euro.who.int/__data/assets/pdf_file/0003/142077/e95004.pdf Conclusion on pages 87-88.

The issue of winter deaths, specifically for older people, was emphasised in written contribution DEFP-005 Age UK London.

There is also information on the health impacts of warm versus cold homes in written contribution DEFP-015 Energy Saving Trust, and in official reports and academic papers referenced by that contribution.

[9] *Fuel poverty detailed tables: 2014*. Department for Business, Energy and Industrial Strategy and Office for National Statistics, 2016. https://www.gov.uk/government/statistics/fuel-poverty-detailed-tables-2014

[10] *Delivering London's Energy Future*, the previous Mayor's 2011 Climate Change Mitigation and Energy Strategy. https://www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/delivering-londons-energy-future-climate-change The target had first been set by Ken Livingstone, the first Mayor in the Greater London Authority era.

[11] As found by the Environment Committee in https://www.london.gov.uk/about-us/london-assembly/london-assembly-press-releases/cutting-carbon-london-2015-

update; latest available figures are at https://data.london.gov.uk/dataset/interim-london-energy-and-greenhouse-gas-inventory--leggi--2014

[12] *A City For All Londoners*, Mayor of London 2016 https://www.london.gov.uk/get-involved/have-your-say/all-consultations/city-all-londoners page 61.

[13] https://www.london.gov.uk/sites/default/files/dd2077_efl_signed_pdf.pdf

[14]https://democracy.bristol.gov.uk/Data/Cabinet/201507061800/Agenda/0706_6.pdf

[15] The Switched On London work has at the time of this report's publication not yet been made available on the web. The report title is *Delivering Energy for Londoners; the Viability and Potential of a London Supply Company*. The campaign's general website is http://switchedonlondon.org.uk/.

[16] *Housing Supplementary Planning Guidance* https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/housing-supplementary

Information on progress in recent years is in the Mayor's 2015 Energy Planning Monitoring Report https://www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/2015-energy-planning-monitoring-report

[17]https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/335148/Chapter_1_Energy_performance.pdf (see table 1.1) and http://www.thegreenage.co.uk/how-energy-efficient-are-homes-in-london/

[18] https://www.london.gov.uk/sites/default/files/london_infrastructure_2050_e-book.pdf See also written contributions, such as DEFP-017 London Councils

[19] http://www.moneysavingexpert.com/utilities/green-deal

[20]http://www.nef.org.uk/themes/site_themes/agile_records/images/uploads/BreakingBarriers_SummaryReport.pdf

[21] https://www.gov.uk/green-deal-energy-saving-measures/overview

[22] Green Deal cessation covered at the Green Deal source above. ECO: https://www.gov.uk/government/news/green-deal-finance-company-funding-to-end and emphasised by Friends of the Earth at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 13).

There is a clear table of annual funding figures in written contribution DEFP-018 London Borough of Islington, which also emphasises the shift of ECO funding away from solid wall insulation, which is a crucial aspect of London's retrofit need.

[23] Written contributions DEFP-003 London Borough of Sutton and DEFP-016 London Borough of Southwark; also

Written evidence from Kirklees Council to House of Commons Science and Technology Committee, 2014

https://www.publications.parliament.uk/pa/cm201314/cmselect/cmsctech/254/254we20.htm

[24] Energy Saving Trust at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 9).

See also written contributions DEFP-010 E.ON, DEFP-015 Energy Saving Trust and DEFP-017 London Councils

[25] Raised by the Energy Saving Trust at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 2). Data at https://www.gov.uk/government/statistics/household-energy-efficiency-national-statistics-headline-release-february-2017 - table 2.2.3. For more historic context, see the Environment Committee's 2008 report *Lagging Behind* https://www.london.gov.uk/about-us/london-assembly/london-assembly-publications/lagging-behind-insulating-homes-london

The issue was also raised in written contributions such as DEFP-018 London Borough of Islington

[26] National Energy Action and the Energy Saving Trust at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 pages 1-2).

[27] *Cutting carbon in London – 2015 update*, particularly slides 6 and 7 https://www.london.gov.uk/about-us/london-assembly/london-assembly-press-releases/cutting-carbon-london-2015-update. Energy Saving Trust view that the 2025 target will be missed was given at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 2).

[28] https://www.london.gov.uk/about-us/london-assembly/london-assembly-press-releases/cutting-carbon-london-2015-update

[29] Deputy Mayor for Environment and Energy at the Environment Committee meeting of 13 October 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6092&SID=14801 page 32).

[30] https://www.london.gov.uk/decisions/md2080-energy-leap-project

[31] https://www.london.gov.uk/sites/default/files/dd2077_efl_signed_pdf.pdf

[32] http://www.building.co.uk/eco-replacement-will-not-come-into-effect-until-2018/5079826.article and http://www.cleanenergynews.co.uk/news/efficiency/eco-replacement-slated-for-2017-but-with-40-budget-cut-5722

[33] National Energy Action at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 pages 12-13).

See also written contributions DEFP-003 London Borough of Sutton, DEFP-006 London Borough of Lewisham and DEFP-011 Ashden

[34] Friends of the Earth at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 13).

For official information on the National Infrastructure Plan see https://www.gov.uk/government/collections/national-infrastructure-plan

See also http://www.cbi.org.uk/news/the-future-of-the-energy-company-obligation-eco5/ as an example of the many other calls for energy efficiency to be a national infrastructure priority

[35] Written contributions DEFP-0005 Age UK London, DEFP-006 London Borough of Lewisham, DEFP-009 National Housing Federation, DEFP-010 E.ON, DEFP-011 Ashden and DEFP-018 London Borough of Islington

[36] Smart Energy GB at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 11).

[37] Repowering London and Energy Saving Trust at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 pages 11-12).

See also written contribution DEFP-011 Ashden.

For Plymouth study, Community Energy England at the Environment Committee meeting of 13 October 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6092&SID=14801 page 32.

[38] DEFP-011 Ashden (on Cosy Homes Lancashire); http://www.betterhomesyorkshire.co.uk/

[39] https://www.london.gov.uk/sites/default/files/dd2077_efl_signed_pdf.pdf

[40] National Energy Action at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 12).

See also written contributions DEFP-006 London Borough of Lewisham, DEFP-011 Ashden, DEFP-013 Grid Edge Policy, DEFP-017 London Councils and DEFP-018 London Borough of Islington

[41] https://www.london.gov.uk/sites/default/files/dd2077_efl_signed_pdf.pdf

[42] Energy Saving Trust at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 6).

See also written contributions DEFP-006 London Borough of Lewisham, DEFP-007 A2 Dominion, DEFP-013 Grid Edge Consulting and DEFP-015 Energy Saving Trust

[43] Written contribution DEFP-009 National Housing Federation

[44] Sustainable Homes at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 5). Also written contribution DEFP-017 London Councils.

[45] National Energy Action and Energy Saving Trust at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 pages 4-7).

See also written contributions DEFP-006 London Borough of Lewisham, DEFP-010 E.ON, DEFP-015 Energy Saving Trust and DEFP-017 London Councils.

[46] Friends of the Earth, National Energy Action and South East London Community Energy at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 pages 6-8).

See also written contributions DEFP-003 London Borough of Sutton, DEFP-006 London Borough of Lewisham, DEFP-011 Ashden, DEFP-013 Grid Edge Consulting and DEFP-015 Energy Saving Trust

[47] Sustainable Homes at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 21).

[48] Deputy Mayor for Environment and Energy at the Environment Committee meeting of 13 October 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6092&SID=14801 page 4).

[49] London Energy Plan https://www.london.gov.uk/what-we-do/environment/energy/scenarios-2050-london-energy-plan

[50] *Bring Me Sunshine!* 2015 Environment Committee report on solar energy (https://www.london.gov.uk/about-us/london-assembly/london-assembly-

publications/bring-me-sunshine-how-londons-homes-could), and the Solar Trade Association at the Environment Committee meeting of 13 October 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6092&SID=14801 pages 26-27 and 29-30).

[51] Deputy Mayor for Environment and Energy at the Environment Committee meeting of 13 October 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6092&SID=14801 pages 14-15).

See also written contribution DEFP-017 London Councils

[52] South East London Community Energy at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 19).

[53] https://www.london.gov.uk/sites/default/files/dd2077_efl_signed_pdf.pdf

[54] https://brixtonenergy.co.uk/about-us/; http://selce.org.uk/

[55] South East London Community Energy at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 14).

[56] South East London Community Energy and Repowering London at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 pages 15-16);

Solar Trade Association at the Environment Committee meeting of 13 October 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6092&SID=14801 pages 25-26); and

written contribution DEFP-006 London Borough of Lewisham

[57] London Energy Plan https://www.london.gov.uk/what-we-do/environment/energy/scenarios-2050-london-energy-plan

[58] Evidence from guests at the at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 pages 18-19)

[59] South East London Community Energy at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 pages 19-20).

[60] Community Energy England at the Environment Committee meeting of 13 October 2016 (transcript:

https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6092&SID=14801 page 23 on). See also Repowering London and South East London Community Energy at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859) and written contributions DEPF-003 London Borough of Sutton and DEFP-015 Energy Saving Trust.

[61] https://www.london.gov.uk/sites/default/files/dd2077_efl_signed_pdf.pdf.

[62] Sustainable Homes at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 21).

[63] Sustainable Homes at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 20). See detail at https://www.london.gov.uk/sites/default/files/gla_cof_approaches_study_final_report_july_2016.pdf

[64] Written contribution DEFP-015 E.ON

[65] GLA at the Environment Committee meeting of 13 October 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6092&SID=14801 pages 22-23 and 39). See also written contribution DEFP-016 London Borough of Southwark.

[66] Written contributions DEFP-001 Barny Evans and DEFP-012 Doosan

[67] GLA at the Environment Committee meeting of 13 October 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6092&SID=14801 page 28). See London Energy Plan for further detail https://www.london.gov.uk/what-we-do/environment/energy/scenarios-2050-london-energy-plan

[68] Written contributions DEFP-001 Barny Evans, DEFP-009 National Housing Federation and DEFP-014 Elementa

[69] Sustainable Homes at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 10).

[70] Sustainable Homes at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 13).

[71] https://www.smartenergygb.org/en/about-smart-meters/what-is-a-smart-meter and written contribution DEFP-010 E.ON

[72] Smart Energy GB at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 pages 7 and 22).

See also written contribution DEFP-017 London Councils

[73] Smart Energy GB and Sustainable Homes at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 pages 22 and 24). See also written contribution DEFP-001 Barny Evans

[74] Written contribution DEFP-010 E.ON.

[75] https://www.london.gov.uk/sites/default/files/dd2077_efl_signed_pdf.pdf

[76] http://www.bbc.co.uk/news/business-38314164 and http://www.bbc.co.uk/news/business-39095434

[77] South East London Community Energy and Sustainable Homes at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 pages 23-4 and 28-9).

[78] https://www.london.gov.uk/sites/default/files/dd2077_efl_signed_pdf.pdf

[79] South East London Community Energy at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 pages 28-9).

See also written contribution DEFP-006 London Borough of Lewisham.

[80] National Energy Action at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 26).

[81] Written contribution DEFP-015 Energy Saving Trust. Also Smart Energy GB at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 8).

[82] Smart Energy GB at the Environment Committee meeting of 10 November 2016 (transcript: https://www.london.gov.uk/moderngov/mgChooseMDocPack.aspx?ID=6093&SID=14859 page 26).

Other formats and languages

If you, or someone you know, needs a copy of this report in large print or braille, or a copy of the summary and main findings in another language, then please call us on: 020 7983 4100 or email: assembly.translations@london.gov.uk.

Chinese

如您需要这份文件的简介的翻译本，
请电话联系我们或按上面所提供的邮寄地址或
Email 与我们联系。

Vietnamese

Nếu ông (bà) muốn nội dung văn bản này được dịch sang tiếng Việt, xin vui lòng liên hệ với chúng tôi bằng điện thoại, thư hoặc thư điện tử theo địa chỉ ở trên.

Greek

Εάν επιθυμείτε περίληψη αυτού του κειμένου στην γλώσσα σας, παρακαλώ καλέστε τον αριθμό ή επικοινωνήστε μαζί μας στην ανωτέρω ταχυδρομική ή την ηλεκτρονική διεύθυνση.

Turkish

Bu belgenin kendi dilinize çevrilmiş bir özetini okumak isterseniz, lütfen yukarıdaki telefon numarasını arayın, veya posta ya da e-posta adresi aracılığıyla bizimle temasa geçin.

Punjabi

ਜੇ ਤੁਸੀਂ ਇਸ ਦਸਤਾਵੇਜ਼ ਦਾ ਸੰਖੇਪ ਆਪਣੀ ਭਾਸ਼ਾ ਵਿਚ ਲੈਣਾ ਚਾਹੋ, ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਇਸ ਨੰਬਰ 'ਤੇ ਫ਼ੋਨ ਕਰੋ ਜਾਂ ਉਪਰ ਦਿੱਤੇ ਡਾਕ ਜਾਂ ਈਮੇਲ ਪਤੇ 'ਤੇ ਸਾਨੂੰ ਸੰਪਰਕ ਕਰੋ।

Hindi

यदि आपको इस दस्तावेज का सारांश अपनी भाषा में चाहिए तो उपर दिये हुए नंबर पर फोन करें या उपर दिये गये डाक पते या ई मेल पते पर हम से संपर्क करें।

Bengali

আপনি যদি এই দলিলের একটা সারাংশ নিজের ভাষায় পেতে চান, তাহলে দয়া করে ফো করবেন অথবা উল্লেখিত ডাক ঠিকানায় বা ই-মেইল ঠিকানায় আমাদের সাথে যোগাযোগ করবেন।

Urdu

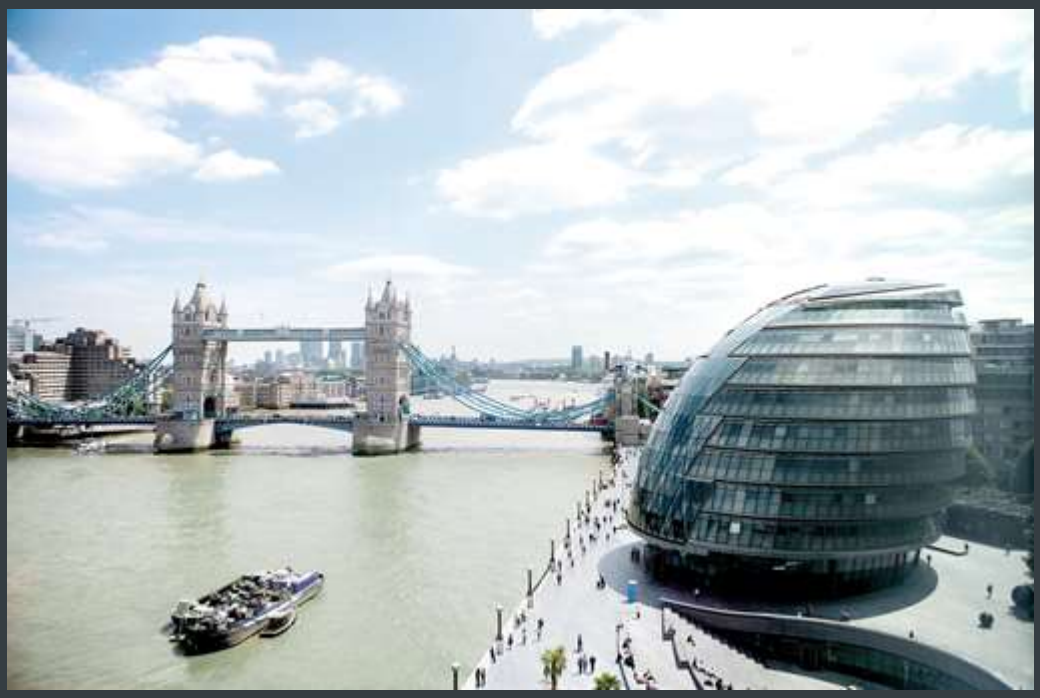
اگر آپ کو اس دستاویز کا خلاصہ اپنی زبان میں
درکار ہو تو، براہ کرم نمبر پر فون کریں
یا مذکورہ بالا ڈاک کے پتے یا ای میل
پتے پر ہم سے رابطہ کریں۔

Arabic

الحصول على ملخص لهذا المستند بلغتك،
فرجاء الاتصال برقم الهاتف أو الاتصال على
العنوان البريدي العادي أو عنوان البريد
الإلكتروني أعلاه.

Gujarati

જો તમારે આ દસ્તાવેજનો સાર તમારી ભાષામાં
જોઈતો હોય તો ઉપર આપેલ નંબર પર ફોન કરો
અથવા ઉપર આપેલ ટપાલ અથવા ઈ-મેઈલ સરનામા
પર અમારો સંપર્ક કરો.



Greater London Authority

City Hall
The Queen's Walk
More London
London SE1 2AA

Enquiries 020 7983 4100
Minicom 020 7983 4458

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