Open Agenda

Environment Scrutiny Commission

Tuesday 15 March 2022
7.00 pm
Ground Floor Meeting Room G02A - 160 Tooley Street, London SE1 2QH

Supplemental Agenda

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Date: 14 March 2022

Agenda Item 7

Energy Review Report – draft

Environment Scrutiny Commission

March 2022

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Introduction

Reducing energy consumption and switching to renewables is becoming an increasingly urgent issue as the climate emergency grows and energy prices rise.

Renewable energy and energy reduction have been identified by environmental researchers as having a crucial role to play in achieving zero carbon. In order to maintain our modern lifestyles and meet the Climate Emergency, Zero Carbon Britain estimates that we will need to switch to 100% renewable energy and reduce by 60% the current amount of energy required.

Whilst the Commission's principle focus on these issues has been in the context of the climate emergency, geopolitical questions around provenance of fossil fuels are also currently coming under the spotlight and leading to further sharp escalation in world energy prices. Southwark Council, residents, businesses and public services are likely to be increasingly impacted by energy price volatility and resulting rises in operational costs and the cost of living. As always, the most vulnerable in our society will be most severely impacted and will need the most protection. Thus the need for urgent action to facilitate a reduction in energy consumption in general and dependency on fossil fuels in particular has never been more pressing.

The council agreed the Climate Emergency Strategy and associated action plan at the start of the review, in July 2021. This is taken as a starting point, with a view to laying down some pointers towards changes required to meet the council's sustainable development objectives, with a particular focus on energy descent and renewable energy production.

Review aims

The review builds on the work of previous iterations of the Environment Scrutiny Commission on Community Energy, with a view to plotting a path towards the Council's delivery of Community Energy projects in the borough.

As well as Community Energy, the review looks at District Heating Networks in the pipeline, including the planned expansion of South East London Combined Heat and Power (SELCHP) District Heating Network, water source heat pumps, and potential for anaerobic digestion of Food Waste.

Alongside this the review considers how to reduce the carbon footprint of Southwark's estate and wider built environment through engagement with key stakeholders including architects, developers, social enterprises, landowners and social landlords with a particular focus on reducing energy consumption in construction and opportunities for retrofitting Southwark's existing homes, schools and offices.

Who the Commission took evidence from

Stakeholders

- Energy Sparks: Dr Claudia Towner, CEO and Programme Director
- SE24 Community Energy: Alan Jones, Chair and co-founder
- The Charter Schools Educational Trust
- Greater London Authority: Catherine Barber, Assistant Director, Environment and Energy - GLA energy presentation.
- Architect Climate Action Network: James Rixon and Sara Edmonds, Architects with a background in retrofit
- Passivhaus Trust: Jon Bootland, CEO
- British Land: Roger Madelin CBE Joint Head of Canada Water
- Peabody: Richard Ellis, Director of Sustainability
- Berkeley: Andrew Maunder, Development Manager; Chloe Young, Head of Development; Berkeley Homes NEL and Victoria Chater-Lea, sustainability advisor.
- Native Land: Felicity Masefield, Development Executive responsible for formulating the Native Land Sustainability Strategy
- Fabrix: Matthew Weaver, Corporate Investment Manager
- Dulwich Estate: Simone Crofton, Chief Executive
- G320 Smaller Housing Associations of London: Mark Jackson, Chief Executive of Lambeth and Southwark Housing Association
- Lend Lease: Ian Smith, Senior Public Affairs Manager
- Retrofit Action for Tomorrow (RAFT): Harry Paticas founder and managing director
- IRT Surveys: Stewart Little CEO
- SELCHP: Neil Brothers, Head of ERF Operations and Thomas Folliard, General Manager - SELCHP Energy Recovery Facility.
- Environment Agency officers responsible for regulating emissions from SELCHP: John Tollervey, Regulatory Officer EPR Compliance, EPR Installations, Kent, South London and East Sussex and Paul Bennett, Installations Team Leader, Kent South London and East Sussex.

Members

Councillor Helen Dennis, Cabinet Member for the Climate Emergency and Sustainable Development

Officers

- Paul Newman, Team Leader - Environmental Protection Team
- Tom Vosper, Strategic Project Manager
- Michael Greenhalf, Waste Contract & Strategy Manager
- Chris Page, Climate Emergency Director
- Juliet Seymour, Planning Policy Manager
- Stuart Davies, Director of New Homes
- Colin Wilson, Head of Regeneration , Old Kent Road

Themes:

Reducing energy in construction

The Commission heard from the New Homes team in the council and a range of large developers delivering new build schemes in Southwark. The developers outlined how they were seeking to reduce embodied carbon in construction, and scope 1, 2 and 3 emissions. (Scope 1, 2 and 3 emissions include those caused by the building, supply chain and building use over time.)

The Regulatory challenges were discussed. The lack of regulation of embodied carbon was highlighted as a gap, with high performing developers and the council using a variety of tools to measure this in the absence of government stipulations. Organisations such Architects Climate Action Network (ACAN) and the UK Green Building (UKGP) are campaigning for the regulation of embodied carbon over its lifecycle for new buildings and major refurbishments[1]. ACAN drew the commission attention to the following principles to save carbon:

1 Build less: reuse existing buildings.

2. Build smart: using low carbon materials.

3. Build efficiently: use fewer resources, waste less.

4. Build circular: design for reuse & recycle

5. Build durable: design for longevity

The previous scrutiny review report on Planning and Environment, which was agreed earlier in the administrative year, recommended that embodied carbon be measured. The cabinet response to this in December set out an intention to consider this in the Early Review of the New Southwark Plan (NSP), which is due soon.

The ban on using cross laminated structural timber in high rise because of fire concerns was also discussed. Both the council and the ACAN have made representations to government on this.

[1] The recent report by UKGP 'Net Zero Whole Life Carbon Roadmap' recommended that the government :

Introduce the regulation of embodied carbon for new buildings and major refurbishments:
- Mandatory measurement and reporting of Whole Life Carbon by 2023 for large buildings (>1,000m2) and residential developments (>10 dwellings).
- Minimum standards (limits) for Upfront Embodied Carbon by 2025 for more mature sectors (i.e. those with sufficient asset level benchmark data), with associated fiscal incentives and penalties.
- Minimum standards (limits) for Upfront Embodied Carbon by 2027 in all sectors.
- Final phase to introduce minimum standards for all size buildings (with a suitable minimum threshold) in all sectors by 2030.

Council New Homes programme

Officers gave an overview of the council's New Homes programme, which is responsible for delivering 11,000 new council homes by 2043. 2,500 of these homes will be built or started on site by May 2022. A recent review of the environmental standards delivered in existing New Homes schemes was carried out by expert consultants. The review highlighted the existence of a performance gap between projects as designed and as operated, as well as the fact that there is no current monitoring of embodied carbon emissions. Officers told the Commission that the greatest initial impact on operational carbon may be achieved by reducing or eliminating this performance gap. However, the operational carbon element of new build development over a 60 year lifetime is relatively small (estimated circa 20% for energy use, operations and maintenance) in comparison to the embodied carbon of construction, particularly where extensive use of concrete and steel is made.

The council has a single small scale, low rise pilot that it estimated could deliver a 70% improvement in whole life carbon emissions (operational and embodied) by deploying the best technically and commercially available technologies, including Passivhaus operational standard and extensive use of timber structure to displace concrete and steel. The results of the study indicate that both Operational carbon emissions and Embodied carbon (Whole Life Carbon) emissions were substantially reduced, but not reduced to Net Zero Carbon through on-site measures, so carbon offsetting will still be needed. A performance comparable to RIBA 2030 Whole Life Carbon targets is forecast to be achieved for Retrofit and Redevelopment options.

Going forward the Council's New Homes vision is to reduce operational and embodied carbon, as well as carbon produced in the construction of New Homes. This will be done through a number measures, including adopting Whole Life Carbon Assessment on all large scale (greater than 150 units) developments, which addresses both operational and embodied carbon performance and by deploying the BSRIA soft landings methodology to improve performance of operational carbon delivered. The following Whole Life Carbon targets have been adopted for New Homes :

- Low Rise (<18m tall) 300 kg/CO2e/m2 (RIBA sustainable outcome target for domestic properties, 2030)

- High Rise (>18m tall) 450 kg/CO2e/m2 (RIBA sustainable outcome target for domestic properties, 2025)

These correspond with the RIBA sustainable outcome targets for domestic properties by 2030 and 2025 respectively.

Officers told the Commission that no New Home ought to require retrofit, that renewable energy is being installed as part of the construction process and that low carbon natural materials will be used. Residents will be supported to use their new

low carbon homes, which operate differently than traditional homes. There will also be an evaluation of the higher comfort and lower fuels bills to evidence the social value of going Net Zero Carbon. Officers told the Commission that the council is developing partnerships and a supply chain to achieve this vision.

Low carbon developments

Exemplar projects were showcased by developers. At the high end is a 15 unit Passivhaus scheme delivered by Lend Lease, and a low carbon scheme (both embodied and emitting) at Canada Water being delivered by British Land. Here a new form of earth friendly cement is being used and Canada Water uses Local Heat Networks, which recycles heat from offices and residential blocks. Canada Water will not use gas, with the exception of the swimming pool, and this can be replaced in the future.

The Passivhaus Trust representative spoke about a number of schemes coming online in London and across the UK, and the associated costs and incentives. Presently public authorities and social housing providers tend to be the main clients. The Scottish School Trust incentivises building to Passivhaus standards. With every iteration of Passivhaus schools the construction costs have reduced, depending on size, with improvements in learning and the supply chain. The first generation of schools is tend to be 15% more expensive to construct, the second generation 10-12% more expensive and the third generation are expected to have an 8 - 4% uplift in costs. Lend Lease and other developers said there is tentative evidence of the private sector demanding Passivhaus buildings with increasing awareness of the ecological emergency and energy price hikes. If the market starts to demand Passivhaus, this would significantly increase supply.

Sharing good practice in construction was discussed with several developers indicating that they already work in partnership and there was a readiness by some to open their books up to share costs and expertise in delivering low carbon development.

Further steps by the council

The role of planning committees in demanding better environmental standards was discussed and a comparison made with members insisting on affordable housing at committee stage driving better practice.

Recommendations

Adopt Whole Life Carbon Assessment for all council New Homes

Adopt the following in Council polices:

- Introduce a requirement within planning policies for new developments to measure whole life carbon emissions.

- Apply a policy similar to the London Plan Policy SI2 to all major developments.
- Where land owned by the local authority is to be developed, leased or sold, bids to be scored on whole life-cycle carbon efficiency.
- Support the use of bio-based materials by e.g.: requiring timber frame construction in non-relevant buildings (as defined by building regulations).
- Require planning applications to report the efficiency of the structure in mass of material per m2 e.g.: using IStructE calculator.
- In Local Plans identify areas for future development where soil conditions do not require carbon intensive foundations, by conducting EN15978 / ISO 21930 compliant evaluations.
- Set minimum levels for the use of reused and recycled materials for public projects.

For more information see ACAN and Carbon Neutral Cities Alliance publications [2]

Retrofitting and energy reduction: Schools, Social Housing, Private Housing, and Offices

Switching to renewables and reducing the energy consumption of our existing buildings will be key to tackling the Climate Emergency, as well fuel poverty.

This can be partly be achieved through more efficient use of our existing energy and building infrastructure, through use of Smart Meter analysis and ensuring that Southwark's buildings use cost effective renewable energy suppliers wherever possible, and that LED light bulbs are installed.

However, to achieve the more substantive changes required to reach net zero and tackle fuel poverty, there will need to be 'deep retrofits' of our existing buildings. Architects from ACAN told us that 20% of total UK emissions come from our homes, but 80% of UK homes that will be in use in 2050 have been built already. Retrofit is, therefore, key to tackling climate breakdown.

The UK Green Building Council recent publication 'Net Zero Whole Life Carbon Roadmap' that was launched at COP26 and provided to the Commission urged action:

[2] For more detail refer to ACAN's full report The Carbon Footprint Of Construction https://www.architectscan.org/_files/ugd/b22203_c17af553402146638e9bc877101630f3.pdf and "Carbon Neutral Cities Alliance & Bionova Ltd (2020) "City Policy Framework for Dramatically Reducing Embodied Carbon"

'Improving the energy efficiency of our existing homes is a fundamental element of the UK's Net Zero 2050 pathway, linked to a transition from fossil fuel heating to zero carbon heating technologies, with a significant role for heat-pumps.

There can therefore be no further delay in embarking on a national programme of home retrofit, transforming UK housing to make it efficient, warm and cheaper to heat whilst phasing out fossil fuel heating.'

Retrofit approach and industry standards

Retrofit aims

Retrofit specialist Architects from ACAN told us that retrofit is not just about reducing carbon emissions. A best practice retrofit should:

● Reduce fuel bills

● Improve health and wellbeing

Retrofit at scale would also generate significant employment opportunities and stimulate the economy.

Fabric First

All the retrofit professionals who gave evidence emphasised a 'Fabric First' approach. This is also the approach of the billion pound government funding coming on stream, the Social Housing Decarbonisation Fund, which states:

A 'fabric first' approach ensures heat loss prevention measures are installed before other energy efficiency measures. As well as benefiting the comfort health and wellbeing of tenants, and helping to save money on energy bills, a fabric first approach can help to maximise the dwelling's suitability for low carbon heating, either now or in the future[3].

IRT Surveys advised the Commission that regardless of sector and solution there should be measures to reduce a building's heat and energy loss first, and only then clean energy installed.

British Standards PAS 2035 / 2030

Retrofit is a fast growing industry with new British Standards and specialist roles.

These standards and roles have been introduced in part to address past problems, where previous ill devised retrofits have, on occasion, caused regrets, resulting in problems with moisture, inadequate ventilation, and inadvertently locking in carbon

[3] See 'Social Housing Decarbonisation Fund: questions and answers' , point 26 .https://www.gov.uk/government/publications/social-housing-decarbonisation-fund/social-housing-decarbonisation-fund-questions-and-answers

though mediocre or poorly designed improvements. The new approach is a whole building approach considering the needs of the occupants and taking a planned phased approach, delivered by a trained workforce. The new British Standards for Retrofitting are:

- PAS 2035 - Retrofitting dwellings for improved energy efficiency – Specification and guidance
- PAS 2030 - Specification for the installation of energy efficiency measures

The British Standards and roles are being supported by a training programmes. PAS2035 standards introduce and set the skills for five new roles – Retrofit Advisor, Retrofit Assessor, Retrofit Co-ordinator, Retrofit Designer, and Retrofit Evaluator – in addition to the existing role of Retrofit Installer.

Figure X The Retrofit Academy CIC

Passivhaus EnerPHit

Passivhaus is another recognised programme that can be utilised by both new builds and retrofits. This has rigorous performance standards and testing. EnerPHit is a slightly relaxed standard for retrofit, where the existing architecture and conservation issues mean meeting Passivhaus Standard is not possible. Retrofits to this standard will deliver energy efficiency of 90% plus, which is higher than many new builds.

Retrofit by building type.

There is a huge challenge to retrofit our buildings. Even the majority of new buildings will need to be retrofitted.

It is possible to retrofit many building to Passivhaus EnerPHit standards, in particular blocks, whether horizontal or vertical. This means many relatively modern buildings, such as residential housing blocks, some school buildings, and recent offices can be

retrofitted to need little additional energy, that could all potentially be delivered by renewables, such as PV and heat pumps.

There are other building types, such as Victorian residential street properties, and other older buildings, that because of the architecture and heritage cannot be completely retrofitted, although it is possible to make significant energy savings.

Even though these building have limitations on retrofit potential it does not mean that it will save energy to demolish them, as there will be enormous amounts of carbon locked up in the building structure. It will usually make sense to retain and reuse as much of the existing structure as possible, particularly when a building has a cultural, heritage or architectural value.

Schools

School energy reduction

In October the Commission heard from Energy Sparks, a charity which provides an online energy analysis tool and energy education programme specifically designed to help primary and secondary schools reduce their electricity and gas usage through the analysis of smart meter data.

The programme engages children in exercises to identify energy savings. The Commission heard that some schools had a 30% energy saving, whereas some had much lower savings, depending on how well the school managed its energy use before joining Energy Sparks, and on their building and estate infrastructure.

Energy Sparks can work with any school and have worked with a range of school types including Local Authority, Academy and Independent Schools.

School Retrofit

The Commission heard from RAFT which has done a deep retrofit of several schools in south London using around £300,000 worth of funds from the Public Sector Decarbonisation Fund. Using a Passivhaus EnerPHit approach there is potential to reduce energy by 90%, depending on the typology of schools, and schools have typically reduced energy consumption by 75%.

Schools often have a mix of building types – from Victorian and older to more modern – as well as a series of refurbishment programs over the years. So these are complex projects which can demand a variety of technical solutions.

The RAFT programme combines educational work on understanding how to improve both energy efficiency and air quality in classroom: high levels of CO2 typical of poorly ventilated classrooms have a detrimental effect on learning. Good quality retrofit will improve both energy efficiency and air quality.

Previous projects in schools in Lewisham have often been in response to local interest and championed by RAFT.

RAFT suggested a more strategic approach for Southwark, with the plans for retrofitting the school estate used to identify 5 schools of different building type to be exemplars for a larger roll out.

Recommendation

Encourage uptake of School energy reduction and climate education programmes, through the appointment of a dedicated officer (see recommendation under Community Energy). Energy Sparks are well placed to deliver this.

Undertake a Retrofit assessment of Southwark's Primary School estate using PAS2030/5. Identify 5 exemplar schools who are willing to undertake a deep whole building retrofit and aiming to reach EnerPHit Passivhaus, where possible. RAFT are well placed to deliver this.

Retrofit Social Housing

Southwark Council is the largest social landlord in London and the fourth largest nationally, with over 52,500 properties and 14,500 leaseholders. 42% of all Southwark's housing is social housing and a further 17,000 homes are owned by housing associations

Funding

There are sources of government funding avaible to retrofit social housing, the most significant of which is the Social Housing Decarbonisation Fund (SHDF), which takes a 'Fabric First 'approach.

The GLA is running several programmes to support the retrofit of Social Housing, including the Retrofit Accelerator for the whole of the UK, funded by The Department for Business, Energy and Industrial Strategy (BEIS), delivered by Turner and Townsend, to enable councils and other housing providers to access the Social Housing Decarbonisation Fund.

Housing providers have to form a consortium to access the Social Housing Decarbonisation Fund (SHDF), and in the first phase this has had to be led by a local authority, although this may not be true for further rounds. Although Southwark is due to receive funding from this round for a council estate, no consortiums were formed with other housing providers.

There is a related Innovation Fund, which is open to London Boroughs, however, Southwark has not yet applied to be part of this. Officer capacity to engage and the

cost benefit analysis for applying for funds was raised as a concern during the Commission's roundtable discussion. The GLA representative made the case that participation in programmes can pave the way for government funding that can potentially offer millions of pounds to the council and social housing retrofitting programmes.

The next round of funding through the SHDF is likely to offer between £10 – 15,000 per eligible home (which has to be matched by one third), which could generate significant funds for social housing, reducing carbon and bills.

The council has made use of other funds offered by the Mayor of London, including those aimed at delivering District Heat Networks.

Currently there are no schemes that would support the delivery of New Homes and the associated retrofit of estates. Members made the case that the council is one of the biggest deliverers of roof builds in Europe, in order to extend housing provision. As this makes use of embodied carbon in existing housing it is an environmentally sound approach, yet none of the Mayor of London's funding programmes dovetail with this method.

Council homes

The Climate Emergency Strategy lays out a broad brush action plan to decarbonise Southwark's housing estate, with an emphasis on the council estate. There are serval council house retrofit projects underway, including a Passivhaus pilot retrofit. The council has also made use of various funding pots for a number of estate retrofit projects.

While there are pockets of encouraging practice there is no well-developed plan for a deep retrofit programme for Southwark's council housing estate, or beyond. Officers have indicated that they are still in the discovery phase at the moment, with various strands of research, survey and scoping work underway in order to plan out a housing retrofit programme

There are several schemes to enable this provided by the Mayor of London and commercially. Back in 2019 the Community Energy report recommended the Mayor of London's 'London Homes Energy Efficiency Programme' (LHEEP) and that the Council uses this to plan energy efficiency on estates and assist project planning the best time to fit renewables, where feasible. This was not followed up, however, Cabinet did respond to say they were considering purchasing the Carbon Reduction Options for Housing Managers (CROHM) software, a stock assessment tool used by large-scale landlords for designing and implementing strategic retrofit programmes for their housing stock. As yet no funding had been identified for this. During the review the Commission heard from IRT Surveys who undertake data driven surveys informed by thermal imagery, providing retrofit plans for local authorities and other

housing providers, using their cloud hosted DREam software. Their process also facilitates access to public and private capital funding, and links to supply chains.

Housing Association retrofit

Small housing Registered Providers told the Commission that they are only just getting to grips with the climate and ecological emergency and the concept of retrofitting. The scale of the financial challenge, funding gap, knowledge gap, and overcoming the bureaucratic hurdles to access funding are considerable. The Mayor of London's Social Housing Retrofit Accelerator, funded by BEIS, is well placed to help as this programme will offer technical advice and support to social housing providers to help them bid into government's Social Housing Decarbonisation Fund. Small providers are often not aware of this so there is more work to be done on this.

Peabody, a much larger housing provider, is further on in the journey with several retrofit projects in place. They have employed a funding broker to help access funding, given the complexity of the task.

Engaging tenants

A significant challenge for Peabody has been to engage tenants with retrofit as around 40% have refused, partly because of the disruption. Fabric First approaches go beyond traditional approaches of loft and double glazing and can involve the insulation of internal / external walls. They are now embarking on a co-creation approach with tenants. IRT Survey said that tenant engagement has been an issue for their schemes, with a refusal rate of around 50%.

There are resources avaible to help engage tenants in the journey including research by the Carbon Coop, and the possibility for tenants to visit Passivhaus retrofit projects, so tenants can experience the comfort that can be achieved.

Architects involved in delivering retrofit, the Passivhaus Trust and New Homes team all flagged up the importance of factoring in education, as using a retrofit or new build highly insulated house is different from a traditional home.

Private accommodation

Owner-occupiers and private renters are the biggest group of fuel poor households by tenure. Older people, single parents and households with someone with a disability are particularly vulnerable.

The Mayor of London's Warmer Homes programme addresses this need by offering free heating, insulation and ventilation improvements for low income Londoners who are vulnerable to cold. This £4.95m programme funded by the Mayor of London is available for owner occupiers or private rented tenants, with grants of up to £5,500 available

Landlords and rented accommodation

The Climate Emergency Strategy aims to use the rental scheme to stipulate that an ECE C certificate must be obtained.

Owner occupiers

There are a number of government schemes and Mayor of London schemes to support private homes owners. Alongside the Warmer Homes initiative, there is a solar buying scheme.

Offices and non-domestic buildings

UK Green Building Council's recent publication 'Net Zero Whole Life Carbon Roadmap' finds that non-domestic building stock currently represents approximately 20% of Built Environment carbon emissions, and that the pace of deployment of energy efficiency measures has been slow in this sector.

The Commission heard from Fabrix, who have a specialism in retrofit of heritage buildings and repurposing offices. They pointed out that the embodied carbon of a building is huge, and even though a retrofit of an existing building may result in a lower EPC than a new build, a good retrofit can significantly reduce energy and extend the life of a building, and embodied carbon, by 40- 50 years, alongside preserving the cultural value. Around 70% of a building's lifetime carbon is contained in the fabric of the building.

The Planning and Environment Scrutiny Review report of 2021 made recommendations on retaining existing buildings as presently the NSP does not go far enough on this issue. The cabinet response outlined an intention to consider this in the Early Review of the NSP.

Recommendation

The Commission would like to see the recommendation on retaining existing buildings expedited and draw attention to the recommendation in the UK Green Buildings Net Zero Whole Life Carbon Roadmap to: *'Use planning reforms to prioritise reuse of existing buildings and assets, and disincentivise demolition and new build'* and Architects Climate Action Network to *'Require planning permission for building demolition, and where demolition is proposed applicants to submit whole life carbon studies for both retrofitting and new-build options*[4]*.*

Retrofit and the local economy

The Passivhaus Trust highlighted the enormity of the task of retrofitting our homes and the skills gap. Its website highlights that, with 27 million homes to retrofit in the

[4] See https://www.architectscan.org/embodiedcarbon

UK, retrofit of one home must be completed every 35 seconds between 2020 and 2050, requiring a workforce of 2 million people!

Southwark residents and businesses could potentially benefit from this growing retrofit economy by supporting the labour market to make the most of this opportunity. We will certainly need to build capacity to deliver the work required, and at pace.

Recommendations

Southwark ought to mirror Zero Carbon Britain target of 60% energy descent, by undertaking a Fabric First insulation programme for our buildings, to reduce energy usage and enable renewable energy, where feasible, to plug the gaps**.**

Add extra staff capacity in order to:

Survey and plan a phased retrofit programme for the council estate utilising the new British Standards and making best use of available technology. CHROM software and / or IRT Surveys DREam methodology is well placed to deliver this.

Join Mayor of London's Innovation Partnership as this provides a route to scale up retrofit and build local capacity.

Add capacity to enable Southwark's council estates, and both small and large Registered Providers (RP) of housing, to access the Social Housing Decarbonisation Fund, in line with the millions of pounds of inwards investment this could attract. Support for RPs could range from promotion of the fund and support available from BEIS/ Turner and Townsend all the way up to forming and leading consortium.

Develop best practice in co-creation of retrofit with social housing tenants to support council and housing associations in deliver of their programmes.

Consider how best to urgently build and train a workforce with the capacity to retrofit at scale.

Mayor of London

The Mayor of London has several good schemes but these are hard to navigate. Accessibility would be helped by providing easy to read briefings aimed at the following cohorts: Councils, Social Housing providers, Private Landlords, Tennant and Owner Occupiers outlining the many programmes made available by the Mayor of London and further afield to enable people and organisations to make the most of what is on offer.

Waste

The Commission looked at waste in some depth as currently a significant part of our current and future energy is predicted to come from waste, via incineration at South East London Combined Heat and Power (SELCHP), and the Commission wished to examine the potential to increase Anaerobic Digestion to produce energy. The Commission also examined the wider health and environmental impacts of our waste treatment, and in particular the impact of incineration on air quality.

Waste contracting arrangements

The council currently has an integrated contract for provision of waste management services with Veolia that operates under the Private Finance Initiative programme. This is a long term contract that expires in 2033. The programme resulted in the construction of the Integrated Waste Management Facility in Devon Street, off the Old Kent Road, to provide local waste treatment facilities for Southwark's waste, which became operational in 2012. The long term contract gives the council a long term cost certainty, but the downside is the reduced flexibility to undertake substantial changes. The facility includes:

- Recycling Centre.
- Transfer station where waste can be aggregated into bulk quantities for transport to other processing destinations if it cannot be treated within the facility. This includes food and garden wastes.
- Material Recycling Facility (MRF) – where mixed dry recyclable materials are sorted into separate material types, before being sent in bulk to reprocessors for re-manufacture.
- Mechanical & Biological Treatment (MBT) plant – where mixed general waste (including food waste) is bio-stabilised to produce a dry fibre material for use as a secondary fuel, generating both heat and electrical energy. Most of this goes to SELCHP, as discussed below.

Food, organic waste and Anaerobic Digestion

Of the total 142,000 households in Southwark, roughly half (mostly kerbside properties) receive an organic waste collection. The Council's approach is to separate food waste collection by collecting it from properties where participation is highest, whilst treating waste to minimise environmental impacts and avoiding landfill.

In May 2019 the council and Veolia began operating a pilot project for collection of food waste from blocks of flats. This initially included roughly 7,500 properties, and has since expanded to include nearly 15,000 properties. Participation was voluntary, and blocks of flats were only included in the service where there was some indication

of active support and enthusiasm from property managers and/or residents within the block. The Commission noted that many residents are keen to increase food collection.

Tonnage information since the project commencement date shows that the average level of participation over this period is 0.44 kg per household per week – around 14% of all food waste that these households are estimated to produce. This suggests that most residents do not regularly use the service, and the capture rate of food waste is very low, despite the availability of the service. The remaining 86% of the food waste is disposed of by residents using the general waste bins, which is treated in the MBT as normal to produce a fuel.

Officers said that implementing Anaerobic Digestion is dependent on government plans being brought forward, including a policy and legal framework and funding. The government has consulted on plans for a major review of the UK's national waste strategy, and the resulting Environment Bill is expected to become law by 2022 with a range of new measures and obligations for councils. One element that is expected to become a requirement is the provision of mandatory food waste collections for all households (and for businesses through their commercial waste collections). The timetable is not known with any certainty, although an indication was given in the consultation that the expected implementation date would be between 2023 and 2031, depending on the contract arrangements that councils currently have in place. The government has announced a significant funding package as part of the strategy review.

Officers told the Commission that if the Council jumps ahead of government policy with expansion of food waste or scaling up Anaerobic Digestion then the costs will fall solely on the council. It is, therefore, likely that the borough will get more carbon savings from other activities and investments, until government policy is updated.

Currently there is only limited capacity for Anaerobic Digestion (AD) processing in the London area, and other than a small amount of commercial waste collected by a third party subcontractor and processed in East London, none of the Council's collected waste is processed via Anaerobic Digestion. In the medium term (3-5 years) a significant increase in Anaerobic Digestion processing capacity is expected to be built through the normal operation of market forces, but the choices are currently very constrained, with an increasing level of demand, and limited supply.

Mechanical & Biological Treatment (MBT) for fuel use in Municipal Waste Incinerators (MWIs)

Under the terms of the contract the residual waste is treated in the Mechanical & Biological Treatment facility within the plant at Devon Street, with some recyclables extracted, to produce a range of solid fuels to be used for energy generation. Some

of these fuels are used in industrial processes such as cement kilns, but most are used for energy generation in Municipal Waste Incinerators (MWIs)

Currently, most of the output fuel from Southwark's waste is sent to SELCHP, a Municipal Waste Incinerator (MWI), although this is not a requirement of the contract. Veolia may choose to use any other suitably regulated facility for energy recovery from this waste, and about 25% of Southwark's fuel outputs are combusted in other facilities (which are similar in nature to SELCHP, although not generally as energy efficient) elsewhere in the UK.

Making changes to our waste practices and longer term strategy

It is unlikely that the council could realistically change the current residual waste management arrangements significantly until after the current Waste PFI contract expires in 2033.

Beyond that time, the council could actively seek to reduce the amount of residual waste generated by both waste minimisation, and increased recycling of waste by producers, including implementing Anaerobic Digestion. This would have the effect of reducing the environmental impacts of the council's waste, and maximising the recovery of value from waste through a more 'circular economy' approach – which would be consistent with the principles of the Climate Emergency Strategy and associated action plan.

There will be some scope to undertake waste minimisation and increase recycling under our current contract, and Veolia undertake a range of outreach and education programmes to encourage this. It is unclear whether there would be scope to make more fundamental changes including implementation of Anaerobic Digestions within the current arrangements.

There will however be further scope and duties to collect food and potential opportunities to introduce Anaerobic Digestion once the legislation and funding is in place and the Commission considered that this would be a good point to revisit Southwark's waste strategy .

Recommendation

Next year the Environment Commission undertake a waste strategy review, once the new measures, obligations and funding associated with the Environment Bill become clear.

District Heating Networks

Southwark has several District Heating Networks in various stages of exploration and Commissioning. The most advanced is a scheme using water source heat from the London aquifer to supply three council estates. The other advanced plan is to extend the present District Heat Network using heat from the (SELCHP) Municipal Waste Incinerators (MWIs) to supply several council estates and the Old Kent Road opportunity area.

The Council has also commissioned some detailed research and modelling to explore the potential for implementing further District Heating Networks, using open and closed loop ground source systems and sewer source systems.

Heat charging

The council now has a legal duty to install heat meters in new builds, major renovations and all other situations when viable. Viability is defined by Cost Effectiveness Test.

Officers told the Commission that most tenants in the borough pay a flat rate for heat regardless of consumption. This spreads the cost of high and low consumers and helps to protect the most vulnerable. But it does not encourage energy efficient and carbon saving behaviour or allow residents to make savings through life-style choices. Moving to a system of heat meters while protecting the most vulnerable and avoiding unintended consequences will be an important operational development.

The Council needs to define its policy and direction regarding tariffs, including determining whether this will be by borough or estate, and developing charging and payment plans.

Water source heat pump projects

The council has investigated five sites to install water source heat pumps to supply the Council's housing estates, using the London aquifer as the water source. Consort, Newington and Wyndham were all found to be both technically and economically viable at this time.

Carbon savings are projected to be 3,848 tonnes CO2 per year.

Three pumps will be installed. Works have progressed well with all bore holes drilled, tested and finalised and all heat pumps installed. Commissioning should be completed by November 2021 at Consort and Wyndham and in early 2022 at Newington.

<u>Funding for capital cost</u>

Funding for the water source heat pump projects comes from a Mayor's Energy Efficiency Fund (MEEF) loan, which would be repaid over the lifetime of the heat pumps with income from the Renewable Heat Incentive (RHI).

The above grants mean homeowners will not be charged. There are other sources of funding for similar projects being considered. Ensuring that leaseholders do not incur unmanageable capital costs is a key consideration.

Potential for further water and ground source heating

Overall the borough has very good geology from a ground source heating perspective and a few opportunities where sewer source heating might be worth pursuing. The map below outlines the best opportunities for low carbon heat to pursue in different parts of the borough.

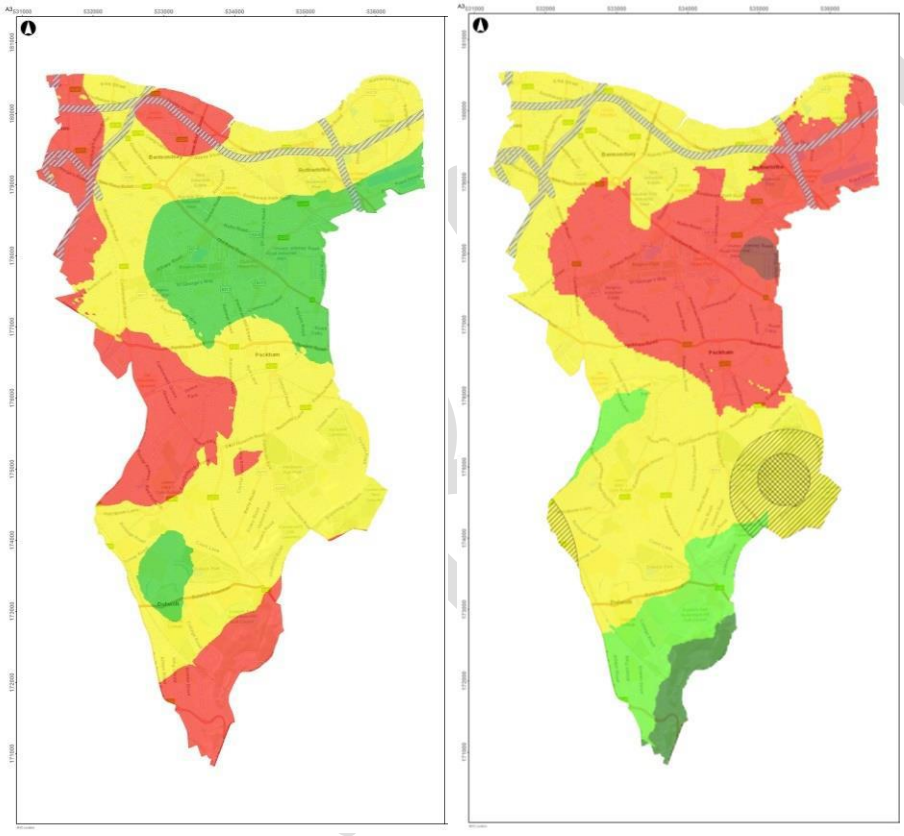


Figure 2 – Closed loop GSHP potential (left); Open loop GSHP potential (right). Red represents the highest potential

South East London Combined Heat and Power (SELCHP)

South East London Combined Heat and Power SELCHP is based in Lewisham, Off Surrey Canal Road, London SE14 5RS. It is a Municipal Waste Incinerator (MWI) that takes waste to burn from several sources, including Southwark.

SELCHP is a public and private sector joint venture between Veolia (50% share), iCON Infrastructure (49.78% share), LB Greenwich (0.074%share), LB Lewisham (0.074% share) and RL Design Solutions (0.074% share).

Southwark Council has a contract with Veolia to treat waste. This contract includes MBT waste that is incinerated at SELCHP.

SELCHP told the Commission that the main purpose of the activity at SELCHP is to divert non-hazardous municipal waste from landfill, and as a by-product, to recover energy in the form of steam for both the export of heat via a district heating network and as electricity for export to the National Grid. The current District Heating Network (DHN) currently provides heating and hot water to around 2,500 homes in Southwark, using SELCHP.

Expansion

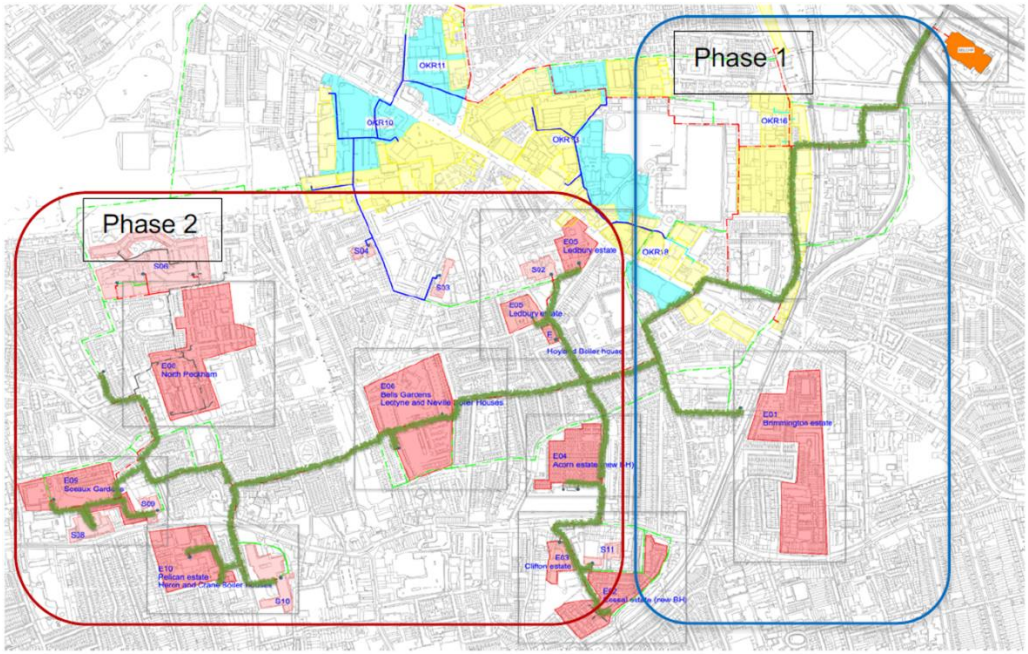
The council is planning to expand this provision. Expanding the network would enable SELCHP to export existing heat generated by the plant, much of which is unused. This heat exists anyway and so utilising it to heat buildings is a more efficient use of the energy generated than simply allowing it to escape.

Cabinet is yet to make a final decision on SELCHP, however a report to cabinet concluded that increasing the use of waste heat from SELCHP is a significant opportunity for Southwark's heat networks in the medium and long term. SELCHP expansion is shortly to enter commercial viability testing, with the council receiving commercial proposals from Veolia at the end of 2021. These will then be appraised by the Council (with external support as necessary) to reach agreement on terms.

Phase One of the expanded heat networks will enable schemes within the Old Kent Road regeneration area to connect and Phase Two will provide heating to existing estates.

The estates currently being considered for connection (shown in red in Figure X) are Brimmington, Acorn, Cossall, Leontine, Neville, Hoyland, Pelican (Heron & Crane), Sceaux Gardens, North Peckham. This list equates to 2,928 properties. In addition there is potential for the Tustin Estate and Ledbury Estate to connect as and when final decisions on these projects are reached as they are on or near to the planned heat network route.

The projected carbon saving from switching the Council's housing networks to SELCHP heat is 9,800 tonnes CO2 per year. Figure X shows the current expected network route, though this is subject to change.



Low Carbon?

Officers told the Commission that expansion of the District Heating Network would seek to recover more of this wasted heat, and use it within a heat main to provide heat and hot water to more homes and/or businesses. Capturing and using this energy would reduce demand for energy generated by combustion of fossil fuels (e.g. individual gas boilers). This expansion would not increase the amount or type of waste combusted by the facility, nor would it affect the emissions. The impact would be only to recover heat that would otherwise be lost to the atmosphere.

Utilising SELCHP heat is, therefore, considered low carbon as it captures and uses energy that would otherwise be wasted, and can substitute this for fossil fuels. A cabinet report found that the system also operates with a very low carbon factor of around 58 grams CO2 per kWh of heat compared to around 250 grams for a gas boiler.

Air Pollution

SELCHP is regulated by the Environment Agency as an industrial installation, with an environment permit that controls operating methods and emissions. Exhaust gases from combustion of waste are subject to stringent pollution control measures, and details of emissions are published on SELCHP's website.

The permit sets conditions and limits for a range of pollutants, including nitrogen oxides, hydrogen chloride, sulphur compounds, organic carbon compounds etc. These pollutants are roughly analogous to those emitted for any combustion process, including traffic emissions. However, while emissions from SELCHP may contain many similar pollutants to traffic emissions, the main difference is obviously that traffic levels vary throughout the day as they are from mobile sources, whereas SELCHP is a fixed and ongoing source of emissions around the clock.

The Environment Agency gave evidence to the Commission on the performance of SELCHP. The facility is graded B. This performance is considered good for a complex industrial facility as even minor incidents preclude scoring the perfect A rating. In SELCHP's case the A rating was missed because of a loss of data for a few days and the marginal breaching of an emission limit, although it was reported that these had negligible material impact. Environment officers said there is a process to monitor and assess problems and then identify remedial actions and SLECHP is very good at this addressing issues if they arise.

The Commission heard that concerns around incinerators tends to be based on the following factors:

- The belief that the emissions represent a serious hazard to health. Impartial studies of modern incinerators have not supported this conclusion.
- That the presence of incinerators in communities represent a blight on the local amenity value in terms of visual and traffic impacts

Part of the underlying argument is that incinerators tend to be located in areas of higher deprivation, with any impacts of incineration representing a greater impact on the poorest communities. There is no doubt that this is factually true, and it is also true of almost all industrial facilities. The poorest communities are often located closer to areas of industrial development which are considered suitable in planning terms for location of MWIs and other industrial installations. This is the result of both land and development costs and the planning process.

Officers highlighted to the Commission the fact that the only alternative to incinerators is landfill disposal. Landfill sites are considered substantially more damaging environmentally than MWIs, and are *also* located in areas of higher deprivation. Officers noted the practical reality that choices on waste recovery and disposal must be made from limited options – with MWIs generally being seen as the 'least bad' of the realistically available options for managing general waste.

There are a number of authoritative studies on the impacts of MWIs on air quality and health. The Commission was referred to a recent report Commissioned by the GLA in 2020, which reviewed recent evidence. This suggests '*that well-managed modern EfW/MSWIs are unlikely to pose a significant health risk (i.e. cancer, non-cancer, pregnancy, birth and neonatal health) in the UK under the current stringent regulatory regime.'*

The Commission discussed past protests by Friends of the Earth at SELCHP. SELCHP representatives said this was focused on dioxin, which is no longer an issue. This stance is corroborated by the GLA report which finds:

'*there is limited evidence of an association of proximity to older incinerators, or exposure to dioxins, with sarcoma and lymphoma risk in other countries, the very substantial decrease in dioxin emissions from EfW/MSWIs over recent years is likely to make these risks negligible for populations currently living in the vicinity of modern, well-controlled plants in the UK. It is important to point out that stack emissions from modern MSWIs are much reduced compared to old generation plants'.*

Though the risks to health are small they are nevertheless present. The GLA report quantified the health effects associated with emissions of nitrogen oxides and fine particulate matter from five facilities in London, including SELCHP, using established risk factors. The east of London is most affected, and west of London much less so. The report estimated 15 deaths per annum in London that are attributable to emissions from the EfW / MSWI facilities, and these are predicted to occur within just nine boroughs (Havering, Croydon, Bexley, Bromley, Greenwich, Barking and Dagenham, Redbridge, Lewisham, and Southwark). In Southwark this is estimated at 0-1 a year. Annual respiratory hospital admissions per year attributable to PM10 from the five facilities are estimated to be 8-12 per year, and likewise annual cardiovascular hospital admissions per year from the same cause are 8-12 per year.5

These emissions and health impacts need to be set alongside potential savings from not burning gas, and those health detriments. These were not quantified by the Commission. Nor were more critical voices on incineration considered from organisations such as Friends of the Earth. Further work could be done on this if and when a Waste review is undertaken by a future Environment Scrutiny Commission.

Costs

Veolia and the Council are currently embarking on a commercialisation process and when this is complete the costs will be better understood [6]. Officers said that it is hoped, however, that the project can be delivered with a combination of government grants and Veolia corporate loan so that no capital contribution will be required from the Council. Veolia and the Council have already applied to HNIP for both commercialisation and construction phase funding.

SELCHP recipients

The current plan is to build a housing estate anchor load network and encourage new developments along the Old Kent Road to connect to the new network as each area is reached.

The Old Kent Road opportunity area requires new development to connect to the SELCHP District Heating Network, however Joseph Homes [7] evidence to the Commission questioned if this is appropriate given the insulation standards of new builds and costs to residents. British Land also commented that while serval years ago developments such as Kings Cross, which used Combined Heat and Power (CHP), were considered at the leading edge, Canada Water will now utilise Local

[5] Pg. 20- 23 Health Effects due to Emissions from Energy from Waste Plant in London May 2020

[6] Officers indicated that £632m will be needed to add domestic heating systems to the SELCHP network in a report to the 29 November 2021 meeting

[7] via email

Energy Networks, and these maybe more appropriate than CHP for new development.

The other recipients are council estates, which will need to be retrofitted for heating (to switch away from gas) to enable connection to the District Heat Network (DHN).

The Biscuit Factory in Bermondsey, a mixed use development, already has an independent connection to SELCHP.

The Commission enquired if other properties could be added, including residential Victorian street properties. SELCHP advised that it is expensive to connect to individual properties.

The cost of connecting street properties was not quantified however a GLA Commissioned report in 2016, Connecting Existing Buildings to District Heating Networks, Technical Report, did quantify this, comparing the cost of connection with the cost of retrofit cost and factored in energy prices. The report was commissioned in order to plan out the type of buildings that later generations of District Heat Network might serve, assuming that earlier generations would be connected to new builds and council estates for logistical reasons, in line with current SELCHP DHN expansion plans.

This report found that:

'The cost to connect existing gas centrally heated domestic buildings was found to vary from £66/m2 to £87/m2 equating to between £4,600 and £6,800 per unit, based on the architectures assessed. For commercial buildings this varied from £15/m2 to £82/m2. The cost to connect existing electrically heated buildings was higher, ranging from £112/m2 to £141/m2 for domestic buildings, equating to between £7,700 and £11,000 per unit. For commercial buildings this varied from £30/m2 to £191/m2. By comparison, the cost to undertake an energy efficiency retrofit to allow efficiency solid walled dwelling was estimated to be £106/m2 to £159/m2. This works would involve meeting PartL1B insulation standards for improved U-values, new windows and halving air infiltration on hard-to-treat dwellings. Going deeper, a retrofit with Passivhaus U-values, halved infiltration and triple glazing was found to be up to £354/m2[8]'.

The report went on to identify the properties that would be most cost effective to connect:

The properties found to be the most cost effective in relation to connecting to district heating networks were low and medium efficiency electrically heated high-rise flats, low-rise flats and houses, as well as large offices which are electrically heated. These types of buildings represent 8.7% (330,000) of existing buildings in London. The LSOAs with the highest densities of these properties can be found in Tower Hamlets, Westminster, Hammersmith & Fulham and Southwark. These boroughs are relatively central suggesting that the greatest opportunities for retrofitting these types of buildings for connection to district heating are in the denser, more central London boroughs.

Properties found to be of medium cost effectiveness for district heating include low and medium efficiency gas heated high and low rise flats, houses and large retail buildings. Collectively the properties falling into the high and medium cost effective categories

[8] Connecting Existing Buildings to District Heating Networks. Technical Report
14 December 2016

represent up to 81.7% of the stock (3,100,000 buildings). Areas with the highest density of medium cost effective buildings include Tower Hamlets, Westminster, Hounslow, Southwark, Islington and Wandsworth.'

The report then went on to examine how this would shift if gas prices rose , concluding that if gas prices rose by 50% , the current situation in 2022, then the whole life cost of District Heating Networks become more viable as district heating retail prices can increase, and went on to note that further scenarios to improve cost effectiveness include reductions in capital cost driven from the market, or policy driven e.g. supported by additional funding leveraged through Carbon offset payments, ECO or other grants.

Integrating SELCHP and District Heating Networks with retrofit and the switch to 100% renewables over time.

SELCHP is potentially a low carbon source of energy that provides a very good intermediate source of energy as we move towards renewables – making good use of unused heat. Presently, however, while it is lower carbon it is not renewable, totally clean or fossil free, given that a significant amount of energy in MBT fuel originates from products produced from oil and even if the emissions are well controlled they do pose a risk to health, albeit very small .

Heat pumps utilising heat from the London aquifer, sewage, or rock geology though can be considered as renewable, fossil free and clean. There are significant opportunities here for future District Heat Networks.

The evidence the Commission received on retrofit and linking building with low carbon / renewable energy was that insulation and reducing heat and energy loss and consumption ought to come first, and then alternative sources of energy used to fill the gaps.

The recent cabinet report on heat networks compared other sources of energy with heating networks and the counterfactual of business as usual. However it did not compare and contrast with retrofit of estates to EnerPHit Passivhaus standards, where possible. The overall vision of decarbonising Southwark's heat networks does factor in retrofit, mainly later down the line, predicting this will contribute 14% by 2030:

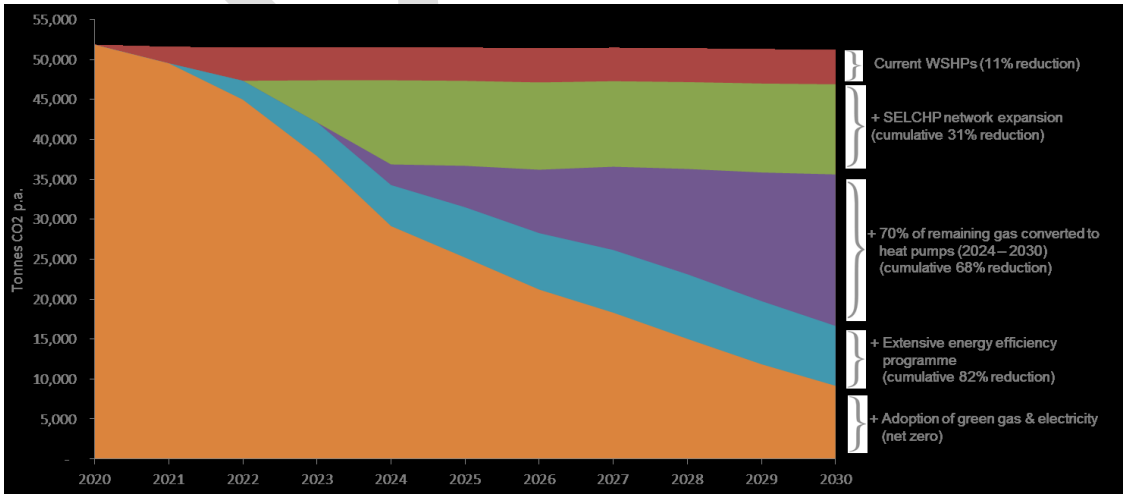


Figure X Heat Network seminar to councillors 27/07/021

The amount predicted to be saved through retrofit is not that ambitious or in line with target for energy descent set out in the Zero Carbon Britain report, which recommends 60%, and the timing is later than the Fabric First approach currently recommended. The other factor is fuel bills, bearing in mind potentially rapidly escalating energy prices, and that the cheapest option will always be the saving on the energy not used.

As part of the final evaluation stage of SELCHP the Commission recommends that a retrofit assessment is done for each of the planned housing estates to provide an adequate comparison to look at if there could be higher cost, carbon and savings to resident bills delivered by retrofitting, bearing in mind the cheapest energy is no energy. When calculating carbon saved the embedded carbon cost of constructing fitting the District Heating Network ought to be included, alongside savings from operational carbon.

The current council focus for District Heating Networks has been the Old Kent Road opportunity area and council estates, and while this may well still make sense in the short to medium term, longer term there will be opportunities to provide heat to those properties that cannot be retrofitted to Passivhaus standards and these ought to be considered for bringing forward if more suitable, including those properties not under direct council control.

Commission member commented that a District Heating Network at this scale is a significant investment, in line with ambitious civil engineering projects undertaken by local authorities of the 19th century. It therefore ought to be future proofed as much as possible to ensure that the Southwark is not inadvertently locked into relying on waste as a fuel as we move towards a circular economy and waste management in line with that principle. Another opportunity that ought to be explored is ensuring the SELCHP DHN has the potential be repurposed by using other sources of ground rock and water source heat, given the promising geology, and for solar heat to be included, given the cabinet report noted that some countries have managed to successfully integrate solar thermal collectors into their heat network infrastructure. Southwark has significant untapped solar potential.

Recommendations

Review the requirement for developers in the Old Kent Road opportunity area to connect to Combine Heat and Power District Heating Networks as it maybe be more optimal to achieve zero carbon through micro local energy networks using renewables and demanding better operational carbon standards.

Ensure that only council estates that would not be better served by a deep retrofit and use of renewables are connected to SELCHP. Evaluation must be made by conducting a comparison of carbon and capital expenditure, and projected eventual resident fuel bills to identify what would be the best value

Ensure as much as possible the eventual District Heat Network can be repurposed to use other sources of renewable energy including solar, if viable, and ground and water sources given the excellent geological prospects.

Investigate whether to prioritise future connections to the planned District Heating Network for properties (including clusters of street properties, e.g. Victorian terraces) that cannot be completely retrofitted because of architecture or heritage issues, and consider bringing these forward.

Consider how best to move towards a system of billing residents for energy on the basis of their actual consumption. Any such system must adequately protect against fuel poverty, whilst encouraging all residents to avoid wasting energy.

Community Energy

Previous scrutiny work on Community Energy

The review started with a summary of previous scrutiny committees work into Community Energy, with a report completed June 2019, and further work tracking this in subsequent iterations of the Environment Scrutiny Commission.

Previous Commissions had focused on the most common, tried and tested form of Community Energy, which is solar (PV) delivered by a Community Energy social benefit company (Ben Com) working in partnership with housing estate tenants, schools and community buildings. Three Ben Coms are active in and around Southwark: South East London Community Energy (SELCE), SE24, and Repowering London.

Community Energy has been organically growing in cities over the last several years, usually powered by volunteers using a Community Benefit Society model, whereby the capital is raised through a local stock offer to local residents, and funds are set aside to invest in social and environmental priorities, which are chosen locally, by the beneficiaries. Projects frequently use solar in cities to generate energy as this is one of the best sources of renewables in an urban environment.

Historically these have generated an income by providing electricity to the communal areas of the project and by selling electricity to the grid at preferential rates or Feed in Tariffs; these Feed in Tariffs (FiT), ended in April 2019. Under this arrangement solar array projects with the right aspect have been able to generate enough money to pay back the capital costs and generate a surplus to invest in social benefits; often these are about reduction of energy use and focused on residents in fuel poverty.

The demise of the Feed in Tariffs (FiT) in 2019 has meant that the funding for PV projects is more challenging, particularly estate based projects. The previous Community Energy scrutiny report had tracked a council pilot of Community Energy on three council estates, which had looked at the viability of different projects, utilising mainly PV on roofs. An external technical evaluation had concluded that with

the end of the FiT the PV projects put forward were not viable on these estates and LED lighting projects would work better.

Given the enthusiasm of residents for the pilot projects, and the wider benefits of Community Energy , the scrutiny Commission in 2019 encouraged the council to continue to work with TMOs and TRAs to explore Community Energy through the Great Estates programme, in partnership with local Community Energy Ben Com companies, and to link these with emerging financing opportunities, such as the development and roll-out of electric vehicle charging points, battery storage and local electrical grids.

The Community Energy scrutiny review report in 2019, and subsequent work by later Commissions, also concluded that schools and community buildings remain a good fit for solar based Community Energy projects, as the day time consumption of electricity matches energy generation. Carbon Offset funds have been used to pump prime schemes in other local authorities, and this was also recommended for Southwark.

SE24 and Charter Schools Educational Trust evidence to the Commission

SE24, the borough's most local Community Benefit Company, presented on Community Energy projects in Southwark, with a particular focus on recent work in schools. A recent project had been funded through a community share offer and capital funding from the Mayor of London's London Community Energy Fund grant. Past projects had utilized the FiT but as this was no longer avaible more recent projects have been larger and relied more on the site uptake of energy. Both PV and more recently LED projects have been delivered.

SE24, like other Community Energy initiatives, is able to work with small and medium schemes which are less commercially viable. SE24 told the Commission that it brings experience gathered over the last decade plus local knowledge and relationships in the community, which means it is able to engage with stakeholders and knows where the local need is for community benefit projects, e.g. tackling fuel poverty.

SE24 said it is important that the Council understands what Community Energy can do in terms of action to deliver low carbon and renewable energy, as well as mobilize enthusiasm for action to tackle the Climate Emergency. It said that the current references to Community Energy references in the Climate Action Plan are quite tenuous and it is unclear where the funding might come from. SE24 told the Commission that Carbon Offsets are potentially a good source of funding and even a

small amount of the 2 million plus in the fund, and approximately 5 million[9] in the pipeline, would help. SE24 advised that a £1 investment from funders can generate about £7 in other investment – from private investors, for example.

Cabinet launched The Green Buildings Fund in October 2021 to utilize the carbon offset funds collected from developers to meet net zero. This may be a potential source of funds as it will focus on delivering key carbon reduction projects, including the decarbonisation and retrofitting of community buildings, schools and council housing. The funding criteria for offsetting projects has not yet been finalized. Once this is done it will be published on the council's website with the relevant guidance and application form.[10]

SE24 recommended the council focus on delivering Community Energy in the school estate, and in particular the Primary School estate where the council has most influence. There are around 39 Local Authority primary schools. Working with schools would entail promoting Community Energy, both solar and LED, to site owners from school leaders to governors. The biggest hurdle is legal so standard leases approved by the Local Authority would very useful. Encouragement from the council to work with Community Energy Ben Coms would also be very helpful.

GLA Solar Map that can be used to map school sites, which is useful, alongside School Estate Officers who can assist with surveying, as they will know the condition of the roof. Some sites will become viable if installation of solar is scheduled at the same as roofs being redone.

There is also a need for additional staff capacity to get Community Energy working on the Southwark school estate, with input across various areas including liaison and legal, which would probably be equivalent to one Full Time Worker. SE24 advised that collaboration with another local borough could help if they have existing capacity.

The Charter Schools Educational Trust made a submission which echoed these points and that support around the legal aspects, advertising the community fund, and support making applications would be gratefully received by schools within the borough.

Recommendations

Directly employ or provide funding for a FTE staff member to work with Primary Schools, potentially in collaboration with another borough. This person would:

[9] As of as of August 2021, the council could receive up to £10,351,691.46 of potential carbon offset financial contributions if all permissions were implemented, however, it is unlikely the Council will collect the full amount . See point 21.

[10] See point 38 page 9 https: //moderngov.southwark.gov.uk/documents/s102256/Report%20Green%20Buildings%20fund.pdf

- **Communicate with schools leaders the benefits of Solar PV and LED Community Energy**
- **Develop and provide standardized legal documents**
- **Link in with school Estate Officers to coordinate surveying of roofs to identify potential projects and timescales**

Cabinet expedite the agreeing and finalizing the funding **criteria and the application process for The Green Building Fund publish in order to enable the considerable Carbon Offsets in this fund to be allocated .**

The final funding criteria and application process for the Green Building Fund is set up to enable support Community Energy applications for PV and LED in schools, from Community Benefit Companies.

Environment Scrutiny Commission

MUNICIPAL YEAR 2021-22

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