FINAL REPORT

DECENTRALISED ENERGY GENERATION (DEG)
SCRUTINY PANEL

November 2011
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Membership

Councillor Gerry Lyons (Chair)
Member for Forest Ward

Councillor Michael Lewis
Member for Chingford Green Ward

Councillor Peter Herrington
Member for Endlebury Ward

Support:

Anthony J. Lane
Scrutiny Unit
Acknowledgements

The Panel Members wish to extend their thanks for the commitment and co-operation of the following witnesses who attended and/or provided information in support of the work of the panel:

**LB Waltham Forest Officers:**

Special Projects & Business Opportunities Manager  Carolyn Seymour  
Energy Manager       Alan King  
Interim Head of Housing Finance     Ken Smith

**External Witnesses:**

Islington Energy Services      Charlotte Parks  
Islington Energy Services      Lucy Padfield  
London Development Authority (LDA)    Peter North  
Olympic Energy Centre (Cofely)     Mark Covington
Executive summary

Local authorities have a central role to play in sustainable energy. With prices steadily rising and climate change high on the agenda, now is the time to explore alternatives to the current centralised infrastructure and look at opportunities like that offered by decentralised energy.

The Decentralised Energy Generation Panel was established in response to policy changes nationally around sustainable, renewable and decentralised energy generation. These changes presented the opportunity for local authorities to become players in a new market with the potential to generate revenue streams while at the same time working toward the objectives of building a greener future and offering social benefit.

As a local authority we had agreed some time ago that one of our main corporate priorities was to get cleaner and greener, while another was to protect the most vulnerable in our community. Tackling fuel poverty amongst those vulnerable residents living in the borough’s social housing stock and looking at ways to reduce the carbon footprint while improving the efficiency of energy generation is completely in line with both of these priorities.

In response to Member interest in the issues and recognising the potential for this investment to add social, environmental and economic value to the community, the Scrutiny Unit, with the agreement of the Overview and Scrutiny Management Committee (OSMC), set up a panel with a remit to explore the current position on DE in Waltham Forest and to investigate ways that we could maximise this opportunity.

The deliberations of the panel had concluded by the time of the decision of government of 31st October 2011 around the amendments to the FiT tariffs and timescales. As such it is important to note that parts of the information contained in this report should be read in the light of the possible ramifications of those unexpected and significant changes.

In this report, the Panel makes a number of recommendations with a view to maximising the long-term benefit for Waltham Forest.

These recommendations encourage the Borough to:

- support and build on the existing projects and work;
- take advantage of this opportunity to alleviate fuel poverty;
- further develop innovative strategies and projects for harnessing DE;
- Seek clear and consistent guidance from central government;
- promptly take advantage of all initiatives and funding opportunities;
- create a conducive environment to encourage inward DE investment;
- establish strong collaborative partnerships and networks;
- maintain the profile of Waltham Forest as an active participant in DE;
- ensure that we have the necessary skills and expertise in place; and
- regularly review projects to ensure that benefits are maximised.

Once in a generation opportunities currently exist for Waltham Forest to take full advantage of such an opportunity - if only by our proximity to the nearby Stratford City and Olympic development and the potential of the Upper Lea Valley (ULV) catchments.
There are strategies and plans currently being developed through such mechanisms as the Local Development Framework (LDF) and the Borough is already working to take forward initiatives with the guidance and support of regional partners, such as the Greater London Authority (GLA).

This report therefore represents a contribution from our Scrutiny members to add value to the debate, lend support for the activities already under way and hopefully drive forward a positive outcome for our residents.

“Government policies to decentralise energy supply mean that councils will be consulted more often and have a direct impact upon the type and location of energy supplies.”

- From The 10 Pillars of Local Energy Security - LGiU 2011
Background to the Panel and Methodology

Because of the size, timescale and nature of the Panel, it was never intended to be an wide-ranging, all-embracing exercise on all the available options for decentralised or local energy generation, but instead it was agreed from the outset that it would focus on a few important key themes over a few short evidence sessions supported by desk research in order to focus outcomes - the lines of enquiry narrowing in accordance with the findings.

As the panel proceeded it was clear that the focus areas would be more specifically around heat generation networks with an additional strand looking at some local renewable energy initiatives utilising the most likely technologies, namely Photovoltaic (PV) panels.

The panel was asked to conduct a short review of the position as it stands with a look at the potential to take full advantage of the opportunities moving forward not only to generate savings and a potential source of long term sustainable revenue – but to also look at the benefits accruable in terms of energy efficiency, environmental improvement and social benefit.

The chosen methodology used in this investigation was twofold: witness testimonies and a paper-based review of Council and other documentation along with site visits organised to see local operations in practice.

The panel held a brief set up meeting in April 2011 and took external evidence over two further dedicated sessions – May and September 2011, with a final review session in November 2011. It also undertook site visits to the Olympic Energy Centre and the Islington Ecology Centre in June 2011.

At the witness sessions, the Panel conducted a question and answer style format with Officers from the directorates of the Environmental Services and also external agencies.

The panel also received written information and submissions from Officers which clarified some matters raised at the panel meetings.

Draft terms of reference of the panel were agreed as (but not necessarily limited) to the following for the selected key themes:

- to review the current DE situation in Waltham Forest.
- to examine reports from relevant services on the options available.
- to review activities and plans of partners.
- to explore the potential of suitable selected technologies.
- to investigate whether and where suitable technologies can be employed.
- to examine the detail and monitor progress against these plans and actions.
- to challenge partners to explore good practice and review options.
- to add value to the benefits realisation process.
- to provide a report to the Scrutiny Management Committee.

In line with normal procedure, it was agreed that the panel would present the final report to the Overview & Scrutiny Management Committee for their review and to pass forward those recommendations agreed at this committee to the Cabinet.

While Cabinet and the Management Committee are not obliged to accept recommendations made by the panel, the outcomes of these recommendations should be reported back to the Panel via the Environment sub-committee. In the event that any recommendations are rejected, the reasons for not accepting should also be advised.
Findings

a) Brief background

99% of energy is supplied by the Big Six major players in the UK market, all with varying degrees of commitment to sustainable energy supply. Ministers have recognised that while it is a competitive market, it is limited in functionality and therefore with the potential to charge inflated prices and have therefore attempted various ways to encourage greater competition.

At the same time, the traditional resources used to generate power are finite and often in the control of a few players. This has an upward pressure on energy costs and the escalation in prices witnessed in the last few years is testament to the fact that it is a trend that does not appear to be altering. Forecasts are equally gloomy on this point in the light of some estimates suggesting that energy prices have already risen some 72% in the last 5 years.

In July 2011 it was reported that British Gas was to increase prices again by an average of around 17%, following on from an increase of 7% last December.

These persistent price rises increase pressure and impact most on those who struggle to cover the costs of their fuel supply – the fuel poor – those on lower incomes – which inevitably includes a large proportion of the most vulnerable people in our community. A fuel poor household is one which cannot afford to keep adequately warm at reasonable cost.

In the UK, Fuel poverty is said to occur when in order to heat its home to an adequate standard of warmth (usually 21 degrees for the main living area, and 18 degrees for other occupied rooms) a household needs to spend more than 10% of its income on total fuel use.

The most recent analysis, published in July 2011, suggested that 4.0 million households in England were living in fuel poverty in 2009, with a projected rise to 4.1 million in 2011. This compares with 5.1 million households in 1996, but a low point of 1.2 million in 2003 and 2004.

The recently released Annual Report on Fuel Poverty Statistics 2011 (Nov 2011) by the Department of Energy & Climate Change (DECC) put the percentage of fuel poor households in England at 18.4%.

In order to provide an indicative estimate for the number of households in fuel poverty in Waltham Forest, discounting regional variations applying this headline 18.4% percentage in Waltham Forest to the borough’s 99,000 households would equate to over 18,000 homes in a situation of fuel poverty struggling to cover essential energy costs.

The Waltham Forest 2011 Private Sector Survey suggests that there are an estimated 11,270 (14.8%) of occupied, private sector, dwellings in fuel poverty in Waltham Forest. Private sector stock is estimated at 78% of homes in the borough. Whilst data on affordable housing is more difficult to capture, links have been made between income poverty and fuel poverty1, and therefore it is likely that there may be a higher proportion of people in fuel poverty in the affordable sector, since due to the nature of the client group, income levels are lower than in private stock.

As a local authority we have agreed one of our main corporate priorities is to protect the most vulnerable in our community.

However, even the fuel poverty measure itself is claimed by many groups to be flawed and they want fuel poverty to be redefined to take housing expenses such as mortgage costs and rental payments into consideration. It is claimed that if these costs are factored in, the number of households in fuel poverty will rocket to almost 9 million, or a third of households in the UK.

Add to this, estimates that the current centralised system wastes around 65% of the energy used to fuel it and there is a strong argument that an approach which makes use of the heat wasted by producing electricity close to where it is needed in tandem with utilising the waste heat in local buildings, would be better for the climate, more secure and give better value for money.

Currently only 2% of people in the UK are on a green tariff and Local authorities, as we are now realising, have a central role to play in sustainable energy.

While there are some existing barriers to entry, including the need to meet current electricity supply licence conditions, as of August 2010, local authorities can sell electricity to the national grid, thereby allowing them to effectively set up energy companies.

An Energy Service Company (ESCO) could be explored in terms of an investment opportunity - creating opportunities for councils to generate and sell sustainable energy, cut energy costs, lower residents’ fuel bills, create local jobs and reduce carbon emissions.

However, for many local authorities becoming sustainable energy project developers will mean a significant change in their current ways of working.

Combined heat and power (CHP) can be simply explained as a power station (even on a small building-level scale) that lets you use the heat that all power generation creates, instead of dumping it.

Hospitals are ideal candidates to switch to CHP. Only 60 hospital sites in the UK have CHP and 245 more need it. The Whipps Cross site has a CHP unit that has been on-site for a few years that in July 2011 was being overhauled and tested with a view to re-commissioning which would create yet another potential nodal point for local networking.

Housing estates and new developments are also well suited to district heating. Out of a possible 14%, only 2% of those dwellings in the UK are on district heating. In Denmark, district heating covers at least 60% of space heating and water heating needs.

The Mayor of London has a target to generate 25% of London’s energy locally by 2025.

b) Combined Heat & Power and District Heat Networks (CHPDH)

The panel was advised that work was well advanced on the Local Development Framework (LDF) planning documents, implementing aspirations from the London Plan, Climate Change Adaptation Strategy and draft Mitigation and Energy Strategy, supported where applicable by the relevant specific Area Action Plans (AAPs).

The Waltham Forest Climate Change Strategy (CCS) set targets to reduce carbon emissions by 80% by 2050.
Evidence from the service suggested that by far the largest contribution locally to this Climate Change Strategy target was seen to be via the implementation of combined heat and power (CHP) units and decentralised energy or district heating networks (46%) at a number of local node points or clusters satisfying the required heat load characteristics.

Local efforts have naturally therefore focussed on developing policies and potential DE schemes in the borough.

A Decentralised Energy (DE) or District Heating (DH) system sees a diversification away from the existing centralised generation and supply system through the national grid to smaller networks which produce heat and electricity at or near the point of consumption. Highly efficient CHP systems are the main source of low carbon heat for decentralised energy schemes, as they reclaim the heat normally wasted during the electricity generation process. However, the area over which the heat from the DE system is distributed can be limited by the ability of the project to finance the expensive pipe-work required for such systems.

The local Borough interactive heat mapping study was discussed in some detail at both of the evidence sessions and Members were advised that this map will be used in the future by developers to explore potential locations for local networks when developments are proposed. A link to the London heat map can be found in Appendix 1.

Several feasibility studies were outlined – involving local and regional partners, for instance the Upper Lea Valley Decentralised Energy network and the five north London boroughs working together as part of the Haringey Low Carbon Zone pilot.

Evidence of long term support and commitment of the Council to including DE/DH networks in its plans is evident. A soon to be released consultation document (the Wood Street Area Action Plan) identifies and prominently features decentralised energy networking in the plans which are currently at consultation level. The AAP offers a 15 year window for development and improvement of the area generally.

“An energy study undertaken on heat demand in the borough indicates that there is an opportunity in Wood Street to establish a decentralised energy network. This could potentially be a very effective way of reducing carbon emissions in the area.”

Area Action Plan – Wood Street Version 1 – April 2011

As part of the evidence gathering, members also visited the Cofely Energy Centre on the Olympics site to see the potential of DE in action and visited LB Islington to see another local authority translating a DE vision into a live scheme.

The notes from these visits are presented in Appendix 2.

Cofely (part of GDF Suez) is one of the largest players commercial energy supply sector in the UK and has a concession for the provision of district heating and cooling supply for 40 years on the Olympic site. This represents an enormous opportunity for the Borough, in particular the south of the Borough, to potentially connect into this project, as is forecast for the Thames Gateway area.

It was evident from discussions that Cofely is keen to potentially connect to local schemes in the Borough. The GLA also sees the potential to expand the network.

One fact that did emerge from the sessions was that Cofely have designed in significant expansion capacity. With some of the originally planned regeneration upon which the
energy centre was dependent for its market estimates, particularly in terms of private sector investment, being scaled back as a direct result of the challenges faced from the global economic downturn, this meant that at least in the short to medium term, it was clear that the company needs to explore other opportunities and markets to replace these losses.

There are several infrastructural issues to examine and overcome, however it was originally suggested that there would be capacity to supply a suggested 2-4MW (peak) to Leyton. Cofely have suggested that the changing circumstances on the Stratford site now imply that this potential supply may be somewhat higher.

The panel heard from several sources that it would serve the borough well in the longer term to encourage relevant partners and support measures to look at ways to enable the development of the infrastructure exit points to link the Olympic site with Leyton – for example by strengthening existing structures such as footbridges to enable the supply of heat generated at the site to be exported across the railway lines.

It was noted by our hosts that other Cofely operations, such as in Southampton, enable the local area to benefit from profit sharing and discounted heat for local authority sites.

At the other end of the Borough, there exists the further opportunity for Waltham Forest to collaborate in a cross-borough network in the Upper Lea Valley, which includes Blackhorse Lane, and has all the right factors in place – including a good energy balance and promising connectivity.

Waltham Forest (along with 23 other London Boroughs at this stage) has completed its heat mapping and is exploring 5 potential DH clusters – one promising network includes the town hall and assembly hall with the YMCA and the College.

The next stage for the Borough is Master Planning, using the Arup DE Energy Master Planning tool kit, but this is complex and requires expertise to manage it. The team will be working with the GLA to use the model.

Waltham Forest is working with NLSA on pre-feasibility for the local clusters and the feasibility stage of the project is due for completion early in the coming year which will provide the basis for a bid.

The council has explored the heat profile for the development of DE in all parts of the area and has identified potentially five key local clusters that afford the right characteristics for further exploration into the application of DE / DH networks.

These have been identified as:

1. Northern Olympic Fringe Area
2. Walthamstow Town Centre
3. Blackhorse Lane
4. Town Hall area
5. Wood Street

Further work is required to fully to scope out the high level viability of the identified clusters and then feed that work in to recommend a way forward locally, including work on financial and commercial viability and deliverability.

The next step realistically involves the development of the business case which will form the platform for developing bids for European funding and the exploration of options to take the projects to market thereby gauging interest from private investors such as ESCOs.
c) Renewables

Feed In Tariffs (FIT):

The government Feed-in-Tariff (FIT) introduced in April 2010 is a scheme that currently pays for every unit of electricity generated from solar photovoltaic (PV) panels. This includes both units generated for on site use and any additional units that are exported to the national grid.

The tariffs have two elements, a generation tariff and an export tariff. This FiT tariff has been controversially subject to revisions since it was introduced.

For the duration of the panel sessions, the generation tariff was set at 43.2p/kWh for retrofit solar PV systems <4kW but was revised by the government to remain only until April 2012. The exporting tariff was set at a much lower rate of 3.1p/kWh.

The tariff levels were particularly attractive for the installation of PV panels, generating at their introduction an approximate 7% annual return.

Once signed up to the FIT scheme for solar PV the amount paid was guaranteed for 25 years, linked to the Retail Price Index and is tax-free (compared to only 20 years for other technologies in the scheme).

The attractive returns for PV led to several commercial ‘rent-a-roof’ schemes (usually taken up by organisations that are unable or unprepared to contribute the initial upfront investment), installations on large industrial and community buildings, and in some cases, solar farms.

The original position communicated at a national and regional level was seen to be trying to create a favourable investment climate by removing barriers and encouraging new capability of a public, private or joint venture nature. However, to date the signals have been very mixed in terms of the implementation and further clarity and long term stability needs to be communicated for this vision to be effective.

Prior to the launch of the FiTs, DECC had not expected any installations of PV above 4kW. This is the equivalent of a small installation on a house. Installations on school buildings can, for example, be 100kW. Solar farms, such as the Lanhydrock farm in Cornwall, can be as large as 5MW.

However, such was the take-up that it was estimated that the FiT allocation would be exhausted by the end of the calendar year.

In March 2011, the DECC embarked on a “fast-track” review and consultation around the FiTs, and in June 2011 they revealed the outcome confirming that large scale solar projects would see their funding slashed from April 2011. The DECC took the position that installations of solar farms were not a positive use of funds raised on energy bills, and that they would use up the majority of the FiTs resource available.

They proposed reducing the tariff available to PV installations above 50kW from 29.3p/kWh to 19.0p/kWh, a reduction of 35%. Those sites over 150 kWh were revised to 15p/kWh and 250 kWh to 5 MW to 8.5p/kWh. This represented a reduction of 42% for installations between 50-100 KWh and for even larger projects the cuts stood at around 72%.

Despite heavy lobbying from campaigners and renewable industry, the government decided to stick with its original proposals.

The FIT revisions created widespread concerns as to the viability of the initiative. The Renewable Energy Association was disappointed with the government’s decision and
refused to support the changes. Many in the renewable energy industry believed it should be possible to differentiate between large scale commercial schemes and the kinds of installations councils and the like wish to see in their areas.

Unexpectedly again on 31st October 2011, the Government announced a proposal for a major change in the payments for solar PV. The Government proposed to reduce the FiT rate from 43.3p to 21p for schemes such as those proposed now to be completed after 11 December 2011.

There was a brief period when the previous proposed tariff was to apply - from the date of completion to 31 March 2012 but this concession was felt to allow only minimal relief financially.

Further, developers seeking to self-fund PV installations across property portfolios from April will be in all likelihood further impacted upon by the proposed new multi-installation tariff rates intended to apply to aggregated PV schemes where the recipient owns or receives FiTs from one or more PV installation on separate sites. The rates are set at 80% of the proposed reduced tariffs, and are planned to apply to all new installations forming part of an aggregated PV scheme from 1 April 2012. These changes will also affect the viability of “roof-rental” deals.

This last act has yet to play out fully but is sure to create many issues for anyone planning projects designed to take up this offer.

Renewable Heat Incentive (RHI):

In March 2011, the UK Government announced some detail around their Renewable Heat Incentive (RHI) offering. The Renewable Heat Incentive is designed to provide financial support that encourages individuals, communities and businesses to switch from using fossil fuel for heating, to renewables such as wood fuel.

Presently the government has in place what is called the Renewable Heat Premium Payment. This is the forerunner of the RHI for domestic customers. It is anticipated that the full RHI tariff support scheme will be introduced in autumn 2012, however, the Government has not yet published its proposals for how the Renewable Heat Incentive will work in the domestic sector. These payments will start alongside the Green Deal which it is stated will follow a whole-house approach to retrofitting energy efficiency measures in the home.

In October this year the DECC announced that the European Commission had expressed concerns that the large biomass tariff is set too high. The Commission would only give state aid approval for the RHI for non-domestic generators, subject to a reduction in the large biomass tariff.

Changing the large biomass tariff will require the full RHI regulations to be amended and submitted to Parliament for approval and as such they were unable to launch the scheme as a whole until this process has been completed.

Therefore the scheme could not be opened on 30 September 2011 as they had originally planned and further information was to be issued as appropriate and available.

Local Efforts:

Evidence showed that Renewables (photo voltaic panels, solar hot water, micro-wind, ground and air source heat pumps) were only seen to offer the potential to account for 6% of the carbon reduction target up to 2050 and for that reason our strategy looked to focus on DE while still looking to take advantage of FiTs (see Appendix 1).
Nevertheless, the Council was at the time moving forward on various fronts in terms of PV retrofit programmes with several large scale plans and proposals both corporately and with partners.

Such projects are long term investments needing substantial upfront capital with a long payback period and therefore any downward pressure on returns have a significant impact on the overall viability of the project.

The Council proposed installing PV panels at an estimated cost of £765,000 on seven corporate sites. Those sites are Juniper House, 313 Billet Road, Mapleton House, Chingford Assembly Hall, Walthamstow Assembly Hall, Waltham Forest Town Hall and Sycamore House.

Estimates from the November Cabinet report state that the Council will save £13,852 pa through not having to buy electricity from the national grid and save 100 tonnes of carbon emissions each year.

It was also estimated that, prior to the announced FiT tariff changes, the Council also stood to benefit in the region of £62,562 pa over the 25 year period of the scheme.

This project was still taken to November Cabinet for decision and it was agreed despite the October 31 announcement to fund the installation of the photo voltaic panel arrays at all of the 7 corporate sites listed in the report.

Although taking a significant and unexpected hit with regard to return and payback, the borrowing option was still agreed as it was felt that grid electricity prices would continue to rise and the value of on-site generation would therefore continue to increase. It was also argued that the Council would not be tied into a 25 year agreement and would have more control over the installations and maintenance issues.

Ascham Homes were simultaneously developing a proposal involving several options for up to £8.7M to install around 1100 solar photovoltaic (PV) panels on suitable council houses across the borough. The initial estimate based on the original figures on the Ascham scheme showed a potential net income of £1.91 million over the 25 years of the scheme.

The fate of this particular scheme, also due for Cabinet decision in November 2011, was somewhat different as the 31 October 2011 announcement effectively reduced the main source of income for the proposed PV scheme by more than half thereby collapsing the financial base. Revised figures indicated that it would be about 28-30 years before the scheme would show a positive return.

As a consequence, partners concluded that the solar PV scheme was no longer viable and could not recommend that Cabinet consider a proposal whose financial implications were so uncertain. The Ascham Homes Cabinet report was therefore withdrawn.

Meanwhile, the Council has also been working with five other north London boroughs, led by Haringey and their ambitious Low Carbon Zone pilot project, to assess the potential for energy efficiency retrofit measures across total housing stock, to create a database and draft a Business Plan outlining funding options.

A second stage report on funding options for the North London Councils to potentially work together on a large retrofit scheme is due to report in spring next year. This concentrates on financially viable retro-fit measures under the planned "Green Deal" but will no doubt also reference the recent changes on the Feed in Tariff scheme.

Clearly, while a lot of work had been undertaken, the decision of October 31st will resonate with all schemes relating to this and the regularly changing national policy.
context will mean that this will knock on into the area of potential projects and investment.

“We are committed to supporting the deployment of decentralised energy in London in order to develop a more sustainable, secure and cost-effective energy supply in the capital. The Mayor has set a target to supply a quarter of London’s energy from decentralised sources by 2025.”

Powering Ahead With Decentralised Energy, Greater London Authority, 2011
Conclusions

As a result of this time-limited investigation, in the following section you will find several recommendations from the DEG scrutiny panel. They are intended to add value to the local debate and offer further ideas for taking advantage of and maximising benefit for the community moving forward.

It is clear to the panel that Waltham Forest could benefit from the implementation of local sustainable energy generation schemes and the panel concludes that it is still not too late to take advantage of the sustainable social, economic and environmental structural benefits that are on offer.

In particular we should be looking to identify energy opportunities in two distinct areas:

1. cluster development opportunities - locations in the borough that are suitably dense to support district heating or cooling networks.
2. microgeneration development areas – properly costed, single node opportunities that may contribute where it is technically feasible and financially viable to do so.

Some of these benefits are local and some are global, but broadly speaking, Decentralised Energy Generation represents several opportunities for improvement over the current supply:

- Potential to reduce the overall cost of energy for the local authority.
- Potential to move the local authority further toward energy security.
- Potential to improve the energy generation efficiency – for instance, fuel efficiency, network losses and reduced transmission and distribution costs.
- Potential to generate income for the local authority.
- Potential to reduce fuel poverty for our more vulnerable residents.
- Potential to create local jobs and local economic growth – i.e. business.
- Potential to decrease the environmental impact from heating and energy demand – reducing CO$_2$ and greenhouse emissions
- Potential to show community leadership.

It is not without its difficulties – for instance, a district heating model of the future will mean that energy centres will possibly be sited locally all around us and will require significant community acceptance.

District heating needs significant capital expenditure and may only bring CO$_2$ reductions over conventional heat supply in a relatively small number of locations with high heat densities.

While it fully supports the good work done to date with sub-regional partners in the area, the Panel concludes that some other boroughs have been quicker in exploring the potential of the decentralised energy generation agenda, securing investment and allocating resources to more fully explore the potential of such technologies.

That is not to say that we are the last in line. During the evidence sessions the GLA indicated that Waltham Forest, while not in the first wave, were in what they described as the 2010/11 wave (heat mapping Phase 2) along with several other boroughs. They suggested that at that stage we were following the correct steps and were moving forward at an acceptable pace.

It is not within the scope or the remit of this panel to specify which technologies should be employed where or to go into detail about how this could be possible as this would be the job of each individual business case.
Currently the panel has been made aware of the local efforts to connect schemes together, in economically viable clusters, the focus being on heat networks within the borough in order to get economies of scale.

They were also made aware of several proposals, such as the Ascham Homes (now cancelled) and corporate PV retrofit schemes that were looking to take advantage of current national initiatives.

Both schemes were potentially at risk of being lost due to the circumstances that transpired in late October, the overall uncertainty of national policy and the margin for error in delivering within the tight timescales imposed. Under the original parameters of the scheme the panel supported proposals for the PV panel retrofit projects for both the Ascham Homes stock and Council assets, however understood the failure of one of these projects. As such, the panel welcomes the decision to proceed with the flagship project to retrofit panels to those seven corporate sites. It will provide a model for community leadership and indicate strongly that the Borough is proactively engaged with the green agenda.

It is clear that in these straitened times that the local authority can only allocate a certain limited amount of resources to the task of implementing green energy initiatives. The panel suggests however that we perhaps examine the proportion of resource we allocate to the DE agenda in comparison with those other boroughs that are already seeing the benefit of their endeavours and are increasing the momentum of their development of networks within their borders.

We should look to maximise expected local outcomes where there is a need to promote the broad interests of the borough in a competitive tendering environment - including but not exclusively in terms of finding funding, inward investment opportunities, regeneration and procurement for physical infrastructure. Where necessary, in order to increase chances of success, the local authority services should look at bringing in the requisite professional advice and skills in the development of applications for funding, drafting of bids and proposals, contract negotiation, procurement and delivery of contracts – perhaps drawing from the experience and expertise of local authority partners that have already undertaken similar successful projects.

The more enabling the policy and pervasive attitude around DEG, the greater the chance that this could make Waltham Forest a more attractive borough for the kind of inward investment, regeneration and development it wants.

The Council has been advised by the GLA and others to concentrate on significant redevelopments and public sector anchor loads / demand nodes for their work in this area and it makes sense to focus on working with larger partner organisations and businesses – those that can make a greater initial impact in promoting the business case for DE and have the track record to actually back it up with hard evidence of successful projects.

Additional advantages should accrue in terms of economies of scale, information sharing and learning from good practice which will create further synergies and develop the potential for future cross-border investments and projects moving forward.

However, with regard to control of the projects, the panel urges caution and careful deliberation before embarking on any potential projects without a full and thorough exercise being undertaken to fully and fairly evaluate the potential risks and returns.
A rigorous analysis of the costs and benefits will help evaluate the return on the investment from these activities and regular monitoring and reporting will assess whether we are on target and where we could improve.

There are a range of options to run DE and the borough needs to decide the level of ownership or management of the process that best fits. Passing over control of projects may seem on the surface to take away a lot of the risks associated with development but also will entail a reduced return and overall longer term benefit for the local community.

It is very early in the development cycle for the concept of DE here in the UK, however, such schemes are commonplace in Europe and other parts of the world.

Understandably, in turbulent and uncertain times it would be safer to slow the momentum of the development of bold projects and visionary plans. Often good intentions and seemingly attractive concepts and plans can be driven off course by changing priorities and emerging issues.

However, the panel believes that despite the current setbacks this is important work and Waltham Forest should continue with strategic visions and exciting projects in the area of Decentralised Energy generation. This is about positive regeneration and investment in the area and the opportunity to invest to save in the medium to longer term.

Finally, unless the general feeling of uncertainty is removed, issues are resolved and long term strategies and actual projects are put in place locally, there is a risk we could miss out on many of these potential benefits.

We need to be well prepared and ready to take the opportunities when they arise.

“Economic and environmental trends point to distributed power generation units with a power output of less than 10 MW being a genuine commercial alternative to centralized power generation in the very near future.”

- Conference on electricity markets, Vigo Spain, Oct 2007
**Recommendations**

Based on the information sessions convened, the Panel makes the following recommendations for Management Committee to carry forward:

**Recommendation 1**

The Council should continue its work on the energy master plan in order to further develop local opportunities and in particular to establish the feasibility and viability of the five clusters already identified from the heat mapping exercise.

**Recommendation 2**

Following on from Recommendation 1, the Council should support plans from the Energy and Carbon Reduction Team to deliver a CHP decentralised energy pilot scheme (such as the Town Hall scheme) with the support and guidance of the GLA’s ELENA facility, which aims to help others bring projects to market.

**Recommendation 3**

Local strategic partners should continue to pursue fuel poverty reduction strategies from our decentralised energy projects for the benefit of our most vulnerable residents.

**Recommendation 4**

The Council should help facilitate relevant partners to provide the necessary exit points for the DH pipes from the Olympic site – such as across the existing road and foot bridges, etc.

**Recommendation 5**

Following the work carried out under Recommendation 1, the Council and partners should encourage developers of all suitable new buildings, regeneration projects and other large scale capital developments to make provision for connection to the planned strategic DE network. Where this is not practical developers should be encouraged to look at the feasibility of incorporating suitable decentralised energy technologies.

**Recommendation 6**

The Council and partners – perhaps at a sub-regional level - could explore ways to improve local inward investment by offering incentives for DE generation projects - for example, grants, loans, rate holidays or rebates could be considered.

**Recommendation 7**

The Council should continue to review the potential of its own and key strategic partner asset bases to develop innovative collaborative energy schemes.

**Recommendation 8**

Where corporate procurement rules allow, the Council could look to explore the feasibility of requiring contractors and utilities working on their behalf to purchase a proportion of their energy requirements from sustainable and renewable sources at competitive market rates – where possible sourcing from local DE generation networks.

**Recommendation 9**

The Council should maintain a high profile in deliberations around the development of the district energy network in particular from such sites as the Olympic Park energy site, The Upper Lea Valley Opportunity Area and Whipps Cross Hospital.
Recommendation 10
Local regeneration, planning and development services should be involved at an early
stage on all new developments through the LDF and AAP mechanisms to ensure early
buy-in and joined up planning by developers and utilities.

Recommendation 11
The panel recommends that the Council review our resource levels developing DE in
the borough. Consideration should be given to a business case for the creation of a
dedicated DE resource within the Energy and Carbon Reduction Team.

Recommendation 12
The Council should ensure that we have access to adequate commercial awareness
and sufficient negotiating expertise to drive good long term deals with regard to DE
projects.

Recommendation 13
The Council should look to continue to strengthen current networks and look at possible
new partnerships at the local, sub-regional and regional (pan-London) level with a view
to advocating our position and establishing a cohesive local infrastructure.

Recommendation 14
The Council should ensure that we support service representations and other
associated activities aimed at raising the Borough profile and achieving the future
implementation of DE, by being closely involved in local authority level lobbying,
attendance at key meetings, negotiations and discussions with key partners.

Recommendation 15
That the Council works with partners when required to urge central government to
provide clearer guidance and information along with a cohesive long term policy to
reassure potential investors of the security of their potential returns on investment and
long term viability of DE projects.

Recommendation 16
The Council should explore collaboration and the sharing of good practice with partners
that have a progressive and advanced DE strategy.

Recommendation 17
The Council and strategic partners should ensure they remain up-to-date on available
green initiatives, whether it be energy efficiency or around renewable, sustainable, or
decentralised energy, in order to be ready for the prompt adoption of suitable
programmes and also to be well prepared to encourage and promote prospective take
up within the community to maximise potential returns.

Recommendation 18
Through such mechanisms as the LDF and related AAPs, the Council should ensure
that they continue to actively consult the views of the community, respond to their
concerns and keep them informed of developments.

Recommendation 19
Once DE projects have been commissioned, the Council should continue to regularly
assess whether the forecasted benefits have been realised and look at the variance
between expectations and actuality to establish best value and practice and optimum
benefit realisation for projects moving forward.

NOTES to Recommendations:
1. All recommendations will be reviewed by Scrutiny Management Committee before
   being referred onward if they agree them.
2. While Cabinet is not obliged to accept recommendations made by Scrutiny bodies,
   in the event Cabinet does not accept any recommendation it is obliged to advise the
   Scrutiny Management Committee of the reasons for rejection.
APPENDIX 1 - Service Position Statement

The Council is working across a broad spectrum of activity to achieve locally generated energy, which is a much more efficient method than the national grid of powering and heating local buildings. Work is well advanced on the LBWF Local Development Framework (LDF) planning documents (see Council website) to embed local targets and action, implementing the Mayor of London’s aspirations from the London Plan, Climate Change Adaptation Strategy and draft Mitigation and Energy Strategy. (See www.london.gov.uk)

The Waltham Forest LSP Climate Change Strategy (CCS) has set targets to reduce carbon emissions by 80% by 2050. The largest contribution towards reaching the target is forecast from locally generated energy, via CHP units and decentralised energy networks (46%). Renewables (photo voltaic panels, solar hot water, micro-wind, ground and air source heat pumps) account for 6%. See table below and http://www.walthamforest.gov.uk/index/environment/climate-change/what-we-are-doing.htm

<table>
<thead>
<tr>
<th>Proportion of total CO₂ saved from each category</th>
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<tbody>
<tr>
<td>CHP</td>
</tr>
<tr>
<td>Behavioural Change</td>
</tr>
<tr>
<td>Transport</td>
</tr>
<tr>
<td>Renewables</td>
</tr>
<tr>
<td>Energy Efficiency</td>
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</tbody>
</table>

The Council is part of the London Development Agency (LDA) DEMap programme (Decentralised Energy Mapping) to plot the opportunities for local decentralised energy (DE) networks. This report will be finalised in March and a stakeholder workshop is planned for late February (date to be confirmed). The data will be uploaded to the London Heat Map (see http://www.londonheatmap.org.uk/Content/home.aspx). The interactive map will be used by developers and regeneration programmes to explore potential local networks when developments are proposed.

The Council is also part of the Upper Lea Valley Decentralised Energy network study being led by the LDA, North London Strategic Alliance and LB Enfield. A previous study showed the potential for a network connecting the power station in Enfield, Edmonton incinerator and various regeneration areas including Blackhorse Lane in Waltham Forest. A second study on the pre-feasibility viability of the scheme is currently being commissioned (due to report in June) and LBWF are on the steering group.
The Council is also working with 5 other north London boroughs, led by Haringey and their Low Carbon Zone pilot project to create a cross borough housing stock database to assess the potential for retro-fitting PV panels and a Business Plan to show the funding options. This is due to report in April this year.

A high level assessment has been undertaken for Waltham Forest Council buildings to plot the opportunities for installing PV panels. These would potentially benefitting from the new Feed In Tariff (FiT) which is currently stated to last 25 years. Preliminary costings show that PV would have a 13 year payback and to install it at c.10 office sites could cost £2.2m. This is obviously a long term investment with a long payback period needing substantial upfront investment. Initial analysis (but not by a finance expert) shows a potential net income of £1.91 million over the 25 years of the FiTs scheme. But the government is rumoured to be reassessing and potentially changing the scheme. The next step is detailed site surveys of the 10 sites identified to have the most potential for PV which is being led by the Design & Project Development team. A related project, again, with the north London boroughs will result in a draft procurement framework agreement for a retro fit programme. This commission is due to report in April.

The government is also due to shortly release details of another incentive scheme to produce locally generated heat energy. Called the Renewable Heat Incentive (RHI) it is due to start from April this year but final details of the scheme have not been released.
APPENDIX 2 - Summary Notes of Evidence Sessions

11 April 2011
Initial Set-Up Meeting
Members Present: Cllrs G Lyons (Chair) (GL); P Herrington (PH); M Lewis (ML)

Discussion Points:
It was noted during the course of the discussion:
- The panel was to endeavour to complete its deliberations after 4 meetings.
- Schools (we have 71 in the borough), housing estates, local authority assets and hospitals represent excellent DE opportunities.
- WXH has recently installed new biomass boiler plant and we should ascertain whether it had done so with a view to or potential for networking.
- Potential sites for visiting were discussed – LB Croydon, Olympic site, WXH, Islington Energy Centre and other flagship sites. The panel had already recently visited NLWA. [Postscript: The Olympic site and Islington Energy Centre were finally selected].
- It was noted that it would be useful not only to look at potential sites for good practice – but also potential areas for improvement for lessons to learn.
- For the next meeting Carolyn Seymour (who leads on DE projects in the borough) and Alan King to be invited to attend and supply heat /energy maps (DEMaP), progress on any local/neighbourhood plans, results of consultations (such as the stakeholder workshop) and progress with cross borough and regional work.
- Future appropriate witnesses would be called upon following further discussion and the site visits.

24 May 2011
Meeting 2 – Local Picture and DE Overview / Projects

Members Present: Cllrs G Lyons (Chair) (GL); P Herrington (PH); M Lewis (ML)
Witnesses: Carolyn Seymour; Alan King

Noted during the course of the presentation and discussion from CS:
- 19 of 33 London LAs now have heat maps available online. Information from WF was of a high quality to compile our map.
- Ascham Homes has a good stock of operational CHP units – 7 of 8 currently operational.
- CHP units are generally set up and used to provide a baseline - it is important to balance supply and demand.
- The Energy & Carbon Reduction Team is looking at feasibility of a “mini-cluster” embracing the WF College, WFTH and the YMCA.
- Distance between the node points is critical for the transfer of heat.
- DECC is supporting cross-borough work – across 6 NE London boroughs, including Haringey.
- Special Projects is working closely with Ofgem on a “Lite” form of export license as a work around of the current requirements.
- The Olympic energy site is currently run by Cofely. They are looking to extend network which presents opportunities for NOF.
• It is a modular structure that will allow units to be slipped in as required. Currently 1 of the 4 potential engines is in place.
• Issues such as the rail line need to be explored for connection of NOF to Olympic site. Footbridges present an opportunity.
• Other LAs planning projects include Barking & Dagenham, Woking, Islington, and City of Westminster (Pimlico).
• Islington highlighted as good potential site visit.
• Some LAs have gone through the expensive step of building their own wire networks.
• The average lifespan of a CHP unit was given as 10 years – 30,000 hours @ 3,000 annual hrs.
• Payback on investment was around year 5 with possible major overhaul needed around year 7.
• A major ULV study is due to be presented this year which will give a much clearer picture and way forward.
• The main local hubs will most likely be the Olympics site and Edmonton.
• The WXH site had never been commissioned since installation has been tied up in legal issues around poor design since it was built 5 yrs ago. This dispute has now settled.
• It was noted that the Edmonton site is possibly only online until 2016 in its current form.
• Site visits to be taken to Olympic Site and Islington Energy Centre.
• It was agreed for Peter North (GLA) to be approached to attend the next session and will be able to offer a regional perspective on DE – others may be advised.

15 Sep meeting
Meeting 3 – Regional Overview from the LDA

Members Present: Cllrs G Lyons (Chair) (GL); P Herrington (PH); M Lewis (ML)
Officers: Carolyn Seymour; Alan King; Anthony Lane
External Witness: Peter North (PN) - Head of Energy Supply (LDA)

Noted during the course of the presentation and discussion from PN:

• DH pipe networks look to address space heating plus hot water requirements.
• Target to produce 25% heat and power from DE by 2025 - DH is predicated on CHP – suitable for urban applications.
• London CO₂ emissions target 60% reduction (1990 baseline) by 2025.
• Smaller systems would generally be fired by gas but as the size increases they could utilise liquid waste – like Edmonton.
• European centres such as Copenhagen use industrial waste to fuel their DH systems.
• The LDA looked to work in areas where there was “market failure” with regard to DH uptake.
• The LDA look to beat the current market by 10% or more – end users should pay LESS.
• The LDA is driven forward by the Carbon savings as well – DE provides one of the most effective routes.
• DE projects realistically take about 3-7 years to come to fruition.
[Slide 4] PN outlined 4 types of projects Type 1 being the smallest through to Type 4 (not on the sheet) but related to Carbon Capture projects the scale of which would be down to the DECC and central Government.

Type 1 may be the sort of single site project that is dormant during low load periods – at night or in summer!

Type 2 (Multi-Type, Mixed Use) utilise a load diversification that ensures a better usage of the equipment – e.g. public buildings and residential often have very different usage patterns that create a synergy.

Type 2 projects are all over Europe and are nothing new at all over there.

The extensive pipe networks required for Type 3 DH projects are costly and are regarded as infrastructure.

Beijing was highlighted as having over 1000km of DH pipework.

PN highlighted heat losses of 1°C per km of pipework as a typical rule of thumb.

The ratio of loss to supply means that the higher the supply the greater the return.

To the question of heat losses to the end of the circuit, it is regulated by the flow rate and boosters can be added to the circuit to ensure all get sufficient heat.

[Slide 5] Energy Master Planning

At the initial capacity building stage, it is where partners build knowledge and enthusiasm around the concept.

Waltham Forest has completed its heat mapping in Phase 2 – 2010/11 wave.

PN recommended that the next logical stage for WF is the Master Planning stage.

Following the master planning is a break point – a decision as to whether the process is owned or managed by the local authority.

There are a myriad of possible permutations of control and it is up to the borough to decide which is the best fit.

DECC / Haringey have a Energy Master Planning worksheet (which we are already looking at working with this however we are seeking guidance as it is complex and requires a good deal of technical know-how).

23 London boroughs have already completed their heat mapping exercise.

Islington is in the front wave and is now at procurement phase for projects like Bunhill.

Our work with the NLSA means that we are just in front of a number of boroughs on our progress with business planning – perhaps half way along.

Fiscal changes have meant that the LDA can no longer offer support for feasibility studies.

Hackney and Islington are also looking to collaborate on cross-border initiatives.

[Slide 8] Enfield has all the right factors in place – including a good energy balance and promising connectivity.

Blackhorse Lane appears in this catchment area.

On the question of the high calorific value from the BIFFA plant – fuel from waste materials can be fine-tuned these days with the right processing to offer the calorific values and the biomass levels that the customer specifies.

PN noted that Network Rail had stringent requirements for utilising their land for say pipe networks and were therefore very difficult to work with.

Edmonton heat losses (23MW) could support the load of 40,000 homes.

[Slide 10] Thames Gateway: PN cited 400 MWe per year of heat lost straight into the Thames in this area alone.

Thames Gateway is already connected into the Cofely Olympic Park DE site.
• NLSA is looking at connecting down into the Olympic Park.
• DE / DH projects in Europe are almost exclusively started as public sector initiatives.
• LDA looks to utilise the skills and expertise of Danish and Finnish engineers to develop projects – reduces risk.
• ELENA can cover some of the cost for support to prepare, implement and finance the investment programme, such as feasibility and market studies, business plans, energy audits and preparation for tendering procedures.
• LDA project engineers can offer support but not in terms of detailed feasibility studies.
• Boroughs will need to look at around £15K for the feasibility study and to mirror the commitment of the LDA to offer a dedicated project engineer, as well as the buy-in of a Finance Director who fully understands the requirements.
• Ideally there should be some Memorandum of Understanding drafted between the NLSA partner boroughs – Barnet, Camden, Enfield, Hackney, Haringey, Islington, Redbridge and Waltham Forest.
• The Mayor of London wants to see such projects and networks developed and there is a lot of support available.
• The third phase now for the LDA is to support and assist borough endeavours to take DH projects forward.
• CS noted that WF is at the stage of pre-feasibility for our clusters and the NLSA project is conducting feasibility studies (largely funded by Enfield) due for completion in Jan 2012 – this will then provide the basis for a bid to ELENA.
• WF is exploring 5 potential DH clusters – one is to link the town hall and assembly hall with the YMCA and the College.
• PN suggested that the town hall based cluster could be reviewed now pre-feasibility as infrastructure was already in place.
• CS suggested that preliminary discussions with Public Realm have indicated no real obstacles to crossing Forest Road.
• The LDA is looking at an instrument like a “Junior Electric Supply License” which would enable direct supply to smaller networks between buildings to enable them to charge much more per unit of energy than the current grid export price.
• CHP is now seen as the most efficient means of carbon reduction in densely populated urban areas.
• LDA driven by the Carbon savings.
• Good local CHP can achieve around 90% efficiency whereas a centralised power station set up after transmission losses (and heat losses of 3-4%) will achieve in the region of 40-45%.
• The DH pipework is “technologically agnostic” and so can be upgraded to suit the best technologies at the time to fuel and drive the process.
• As a borough we should look to encourage the relevant partners and support measures to facilitate the exit points for the DH pipes for the Olympic site – namely across the footbridge, etc.
Site Visits

20 June 2011

Site Visit #1 – Cofely Olympic Energy Generation Centre

Members: Cllrs G Lyons (Chair) (GL); P Herrington (PH); M Lewis (ML)

Officers: Carolyn Seymour – Special Projects Mgr (CS); Alan King – Energy Mgr (AK);
Anthony Lane - Scrutiny Unit (AL);

External Officer / Host: Mark Covington - Cofely (MC)

Noted during the course of the visit and presentations from MC

- Cofely is now the largest commercial energy supplier in the UK.
- Stratford City and the ODA are the current employers of Cofely services.
- Anticipated district heating and cooling supply for 40 years - incl. Games Venues, Stratford City
- 2 energy centres on the site – one at Stratford City the other at Kings Hill.
- Early predictions for potential supply to Leyton suggested 2-4MW (peak) but several factors relating to housing density and changing potential markets suggest that this may now be much higher
- Much of the site is “over-designed” – oversized pipes, over capacity refrigeration system (“design solution that avoids overcapacity”) – and the overall design is modular to scale up line with demand.
- Units can be readily installed as and when demand materialises.
- Olympic Fringe supply issues (e.g. to Leyton) around the viability of utilising current bridges to take supply pipes. Cofely will need support from the Borough if this is to be negotiated going forward.
- As a rule of thumb MC suggested that 30MW equated to roughly 800 homes – each boiler rated at about 30MW and the potential for the site was about 210MW.
- The plant was designed so that the CHP units took the baseline loads and gas fired units could handle peak demand.
- Cofely Southampton availability historically has been 99.8%.
- The biomass feed for the boilers must be sourced as a stipulation of the contract from within a 100 mile radius.
- Cofely has a subsidiary within that range for the potential supply. Negotiations currently ongoing.
- Canal transport was explored but the bridges were too low to accommodate empty barges outbound.
- The Olympic Site primarily generates heat for piping to end users with the “by-product” being the power output which is sold into the grid.
- Installation of a (very expensive) “private wire” could potentially flip this model over – such as the line in Southampton for the port.
- Discussions are ongoing about a “private wire” to the Westfield site down the line.
- Southampton benefits from profit sharing and discounted heat for authority sites.

29 June 2011

Site Visit #2 – LB Islington Ecology Centre

Members: Cllrs G Lyons (Chair) (GL); P Herrington (PH); M Lewis (ML)
Officers: Carolyn Seymour – Special Projects Mgr (CS); Alan King – Energy Mgr (AK); Anthony Lane - Scrutiny Unit (AL);

External Officer(s) / Hosts: Lucy Padfield (LP); Charlotte Parks (CP) – Islington Energy Services; Matthew Loveday (Park Operative)

Noted during the course of the visit and presentations from LP and CP

- Islington has a team of 17 looking at energy supply and decentralised energy projects – we have 3.5 Full Time equivalent posts (once 2 vacancies filled). Three LB Islington posts are funded by external and European monies (such as ERDF); 2 by the Climate Change Partnership, however the majority are funded by the work done by the Council.
- The team procures all of the Councils energy requirements
- CO2 Emissions breakdown 33% Domestic / 12% Transport / 55% Commercial / -WF breakdown is roughly 50% Domestic / 25% Transport / 25% Commercial)
- LP mentioned the difficulty in finding good installers locally for green projects.
- Islington Climate Change partnership is 200+ strong including all major energy consumers.
- They are currently undertaking a Best Value procurement process to select a 3rd party to control the FiT revenue stream with some tariff revenue to come back to the borough.
- New tighter FiT rates did not concern them as their projects were individually not that large and could in fact have a knock on benefit with regard to increasing the supply of decent installers.
- The Climate Change fund was pump primed with £3M from Islington and another £1M levered in.
- Islington’s goal is to cut emissions by 40% by 2020 based on a 2005 baseline (which is a lot tougher than many targets that are generally 1990 based)
- They believe that the financial benefits alone from doing this make it worthwhile – it ticks all the boxes and it pays for itself.
- 22% of their residents are in fuel poverty currently - this could rise to 30% with no intervention.
- Wind Energy – they are experimenting with it but tend not to push in their planning policies – reliability issues – especially electrics.
- One positive aspect of wind turbine is that they have noticed that the are a “visible” renewable icon – it says something to local people – and they even see it as an attraction – to have picnics by it and so forth.
- Described Decentralised Heat (DH) as “agnostic” – it will take heat from whatever source is bolted on so new technologies could be explored as they come online.
- It is also easy to bolt into estates and so forth.
- DH was cited to give almost twice as much return as (say) solid wall insulation – quoted £550/tonne CO2 saved versus around £1000/t for the latter. DH is very common in Europe.
- There were also issues with conservation areas for external wall insulation – but it does have a role to play in the overall picture.
- Internal wall insulation difficult logistically – creates a lot of issues around refurbishments and so forth and also reduces overall room size.
- CP saw the DE DECC funded Carbon Framework tool kit as a “bit of a blunt instrument” but useful to evaluate and prioritise different projects.
- On the issue of ownership it was a question of risk versus reward – the more you control a project the greater the savings and returns. But the higher the risks.
• Control in the hands of an independent ESCO could mean reduced benefits for the community (e.g. fuel poor) as they will try to maximise profits for shareholders.
• Public financing will generally also be cheaper than that available to an ESCO.
• Generally Islington liked to maximise control by increased ownership levels for that very reason – however there are many hybrid ownership options that can be explored.
• Islington First Model – Initially they default toward full Council ownership but do not close off any options – such as joint ventures or full privatisation.
• Interestingly Islington can sell heat but they are obliged to offer a “competitive unit price” that does not significantly undercut the ESCO supply. This has the benefit of increasing profitability of the project if in the hands of the Council.
• They do not have skills to fulfil roles in DH such as fuel supply and maintenance so these must be outsourced – usually on long term contracts.
• They look to run parallel contracts of around 10 years on things like supply and maintenance.
• Islington have also experimented with mobile containerised CHP engines with a view to moving them around according to demand – the Bunhill site is one such.
• Bunhill had £4.2M funding and the energy centre building (less engines) was around £200K to construct. Payback around 20 years with the 20% fuel savings they offset to fuel poor residents – commercially this payback would be as short as 12 years according to their figures without these savings factored in.
• One lesson learnt was the value of using planned new-build or existing buildings to avoid planning and consultation complications.
• An independent energy centre can generate a lot of community focus. Cited the Pimlico project as one that gives the area great pride.
• Bunhill is gas fired presently but any engine could be bolted on according to technologies available.
• If there is one aspect to get absolutely right first time it is the pipe network because it is best to only have to do this once. It is valuable to engage Highways early in this process to plan the best routes.
• An interesting approach was that they generally opt for a cross-disciplinary project team drawn from diverse areas such as legal, finance, ALMO, leisure – this tends to give a fresh energy to the team as it takes people outside their normal sphere of activity and it also builds capacity – this team reports to a formal Project Board which includes the Director and Portfolio Holder.
• In-house capacity is important however they do draw some days down on consultants (technicians, etc) for specialist expertise on any particular project as and when required.
• Islington will now be looking to work on a paid consultancy basis with other boroughs – such as Hackney – to assist them in their DE schemes.
• LP pointed out that in some cases the newer Local Authority players can be nimbler than the larger and more established private sector suppliers.
• Tendering – they noted that £40K was generally enough to go to tender with a significant degree of detail to plan a DE scheme at pre-feasibility stage.
• Islington is currently benefiting and will benefit further in the future from profit sharing and discounted heat for local authority sites.
• Big Society vibe - the woodland area is managed 80% by volunteers and is a good way to engage the local residents – including offering valuable activity opportunities for their vulnerable citizens – it is a space that they can come and enjoy.
APPENDIX 3 - Stakeholder map


3.2 Department of Energy and Climate Change (DECC): The DECC vision is of a thriving, globally competitive, low carbon energy economy. Key priorities include to save energy and to support vulnerable consumers; to deliver secure energy on the way to a low carbon energy future; to drive action on climate change at home and abroad and to manage our energy legacy responsibly and cost-effectively.

3.3 European Local Energy Assistance (ELENA): ELENA is a technical assistance facility managed by the European Investment Bank (EIB) and covers a share of the cost for technical support necessary to prepare, implement and finance the investment programme, such as feasibility and market studies, business plans, energy audits, preparation for tendering procedures, etc.

3.4 North London Strategic Alliance (NLSA): The key purpose of the NLSA is to develop and articulate a clear vision for north London, and to provide the strategic leadership to ensure that the vision is realised. The NLSA is politically led with a core membership made up of those local authorities which constitute the north London area (Barnet, Camden, Enfield, Hackney, Haringey, Islington, Redbridge and Waltham Forest) and also bringing together public, private and voluntary sector organisations.

3.5 Greater London Authority (GLA): The GLA is a strategic authority with a London-wide role to design a better future for the capital. They support the work of the Mayor of London, helping his office to develop and deliver strategies for London and the London Assembly in their role of scrutinising the work of the Mayor of London and representing the interests of Londoners. They offer assistance to organisations in the development of projects through their European Local Energy Assistance (ELENA) facility.

3.6 Islington Energy: This is Islington's in-house energy team charged with implementing the Decentralised Energy Programme to cut carbon emissions and fuel bills in the borough as part of that council's commitment to addressing climate change.

3.7 Energy and Carbon Reduction Team: Waltham Forest’s in-house team charged with implementing our decentralised energy programme.

3.8 Cofely: Cofely is the energy and environmental efficiency services arm of GDF SUEZ working both with business and public sector organisations. GDF SUEZ is one of the leading energy providers in the world and Cofely is now one of the largest commercial energy suppliers in the UK – which includes their running of the on-site Olympic Energy Generation site.

3.9 Haringey Low Carbon Zone: A pilot project to assess the potential for energy efficiency retro-fit measures across total housing stock of a working group of six north London Boroughs consisting of Camden, Hackney, Haringey, Islington, Newham and Waltham Forest. The project is led by Haringey.
APPENDIX 4 - Glossary

Area Action Plan (AAP): An optional Development Plan Document forming part of a local planning authority’s Local Development Framework that sets out proposals and policies for the development of a specific area such as a town centre or an area of new development.

Climate change: A long-term change in weather patterns over a specific region or the whole Earth.

Combined Heat and Power/Plant (CHP/P): The combined production of electricity and usable heat is known as Combined Heat and Power (CHP). Steam or hot water, which would otherwise be rejected when electricity alone is produced, is used for space or process heating. Combined Heat and Power (CHP) is a highly efficient process that captures and utilises the heat that is a by-product of the electricity generation process. By generating heat and power simultaneously, CHP can reduce carbon emissions by up to 30% compared to the separate means of conventional generation i.e. via a boiler and power station.

Decentralised Energy (DE): also called distributed generation / energy, on-site generation, dispersed generation, or embedded generation and refers to energy generated from many smaller energy sources.

Distributed Generation (DG): alternative term to describe decentralised energy systems or micro-generators where the heat and electricity is generated at, or near to, its point of use.

District heating (DH): District heating (less commonly called teleheating) is a system for distributing heat generated in a centralized location for residential and commercial heating requirements such as space heating and water heating. The heat is often obtained from a cogeneration plant burning fossil fuels but increasingly biomass, although heat-only boiler stations, geothermal heating and central solar heating are also used, as well as nuclear power. According to some research, District Heating with Combined Heat and Power (CHPDH) is the cheapest method of cutting carbon, and has one of the lowest carbon footprints of all fossil generation plants.

Embedded generation: Electricity generation plant connected directly to the local distribution network rather than to the national grid (also referred to as ‘distributed generation’).

Energy Centre: A facility usually containing CHP plant which can help meet the Mayor of London’s energy targets.

Energy hierarchy: The Mayor of London’s approach to reducing carbon dioxide emissions in the built environment. The first step is to reduce energy demand (be lean), the second step is to supply energy efficiently (be clean) and the third step is use renewable energy (be green).

Energy network (also community or sustainable energy network): heating, cooling or power circuit that can operate independently of the national grid.
**Energy Study:** The accompanying Energy Study prepared by the Mayor of London’s Decentralised Energy Team.

**Feed in Tariff (FiT):** The government Feed-in-Tariff (FiT) is a scheme that is paid by energy suppliers for every unit of electricity generated from solar photovoltaic (PV) panels. This includes both units generated for on site use and any additional units that are exported to the national grid. The scheme is currently projected to last 25 years.

**Green Deal:** The framework the Government is establishing to enable private firms to offer consumers energy efficiency improvements to their homes, community spaces and businesses at no upfront cost, and to recoup payments through a charge in instalments on the energy bill. It was included in the The Energy Bill introduced to Parliament on 8 December 2010.

**Local Development Frameworks (LDFs):** Statutory plans produced by a local planning authority comprising a portfolio of Development Plan Documents including a Core Strategy, proposals and a series of Area Action Plans. These are replacing borough Unitary Development Plans.

**Local Implementation Plans (LIPs):** Statutory transport plans produced by London boroughs bringing together transport proposals to implement the Mayor of London’s Transport Strategy at the local level.

**London Thames Gateway Heat Network:** A hot water transmission network that will connect diverse sources of affordable low/zero carbon heat to existing and new developments helping to create sustainable communities.

**Low Carbon Capital:** A project which by 2025, would see London providing a concentration of finance, business services and innovation thereby providing opportunities for businesses, inward investors and Londoners, and generating jobs and wealth for London and the UK.

**Lower Lea Valley:** The lower section of the river Lea that includes a number of strategically important development opportunities in parts of Hackney, Newham, Tower Hamlets and Waltham Forest.

**Major Power Producers:** Defined as companies whose prime purpose is to generate electricity and DECC collects and publishes monthly data from MPPs in the UK. Energy balances divide electricity generation into two categories - electricity produced by MPPs and electricity produced by ‘other generators’.

**Micro-CHP:** In the UK, a micro-CHP plant is usually a CHP plant with a capacity of 5kWe or less (this is in contrast to the EC Cogeneration Directive where a micro-CHP is defined as <50kWe).

**New and emerging technologies:** Technologies that are either still at a developmental stage or have only recently started operating at a commercial scale. They may be new applications of existing technologies.

**Opportunity Areas:** London’s principal opportunities for accommodating large scale development to provide substantial numbers of new employment and housing, each typically more than 5,000 jobs and/or 2,500 homes, with a mixed and intensive use of land and assisted by good public transport accessibility.
**Other Generators:** This term refers to companies who produce electricity as part of their industrial or commercial activities but whose main business is not electricity generation. The majority of electricity produced by these schemes is consumed on the site but some producers also transfer electricity to the public supply system. 50% of production from these comes from good quality combined CHP. Less than 10 per cent of the UK’s electricity is generated by ‘other generators’.

**Public realm:** The space between and within buildings that is publicly accessible, including streets, squares, forecourts, parks and open spaces.

**Renewable energy:** Energy derived from a source that is continually replenished, such as wind, wave, solar, hydroelectric and energy from plant material, but not fossil fuels or nuclear energy. Although not strictly renewable, geothermal energy is generally included.

**Section 106 Agreements:** These agreements confer planning obligations on persons with an interest in land in order to achieve the implementation of relevant planning policies as authorised by Section 106 of the Town and Country Planning Act 1990.

**Social (and community) infrastructure:** Covers facilities such as health provision, early years provision, schools, colleges and universities, community, cultural, recreation and sports facilities, places of worship, policing and other criminal justice or community safety facilities, children and young people’s play and informal recreation facilities. This list is not intended to be exhaustive and other facilities can be included as social infrastructure.

**Stratford City:** The major commercial and residential development constructed on the site of the former Stratford Rail Lands around Stratford International and Regional stations that was granted planning permission by Newham Council and approved by the Mayor of London and the Government Office for London in 2004. It includes the Westfield Shopping Centre and the Olympic Village which houses the Olympic Energy Centre.

**Sustainable development:** This covers development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

**Waste management facility:** Any facility that receives and treats waste. This includes waste transfer stations, mechanical or biological treatment facilities and thermal treatment facilities.
## APPENDIX 5 - Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AAP</td>
<td>Area Action Plan</td>
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<tr>
<td>ALMO</td>
<td>Arms Length Management Organisation</td>
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<tr>
<td>CCHP</td>
<td>Combined Cooling, Heat and Power Plant</td>
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<tr>
<td>CCS</td>
<td>Climate Change Strategy</td>
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<tr>
<td>CERT</td>
<td>Carbon Emissions Reduction Target</td>
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<td>CHP</td>
<td>Combined Heat and Power</td>
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<tr>
<td>CHPDH</td>
<td>District Heating with Combined Heat and Power</td>
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<td>CSE</td>
<td>Centre for Sustainable Energy</td>
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<tr>
<td>DE</td>
<td>Decentralised Energy</td>
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<tr>
<td>DECC</td>
<td>Department of Energy and Climate Change</td>
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<td>DEG</td>
<td>Decentralised Energy Generation</td>
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<td>DEN</td>
<td>Decentralised Energy Network</td>
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<tr>
<td>DEPDU</td>
<td>DE Project Delivery Unit</td>
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<td>DH</td>
<td>Decentralised Heat</td>
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<td>DEMap</td>
<td>Decentralised Energy Mapping</td>
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<td>EAG</td>
<td>Energy Affordability Gap</td>
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<td>EC</td>
<td>European Commission</td>
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<td>EIB</td>
<td>European Investment Bank</td>
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<td>ELENA</td>
<td>European Local Energy Assistance</td>
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<td>ESCO</td>
<td>Energy Service Company</td>
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<td>FiT</td>
<td>Feed in Tariff</td>
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<td>GLA</td>
<td>Greater London Authority</td>
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<td>HMO</td>
<td>Houses in Multiple Occupancy</td>
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<td>LAA</td>
<td>Local Area Agreement</td>
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<td>LDA</td>
<td>London Development Agency</td>
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<td>LDF</td>
<td>Local Development Framework</td>
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<td>LLV</td>
<td>Lower Lea Valley</td>
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<td>LSP</td>
<td>Local Strategic Partnership</td>
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<td>MPP</td>
<td>Major Power Producer</td>
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<td>NLSA</td>
<td>North London Strategic Alliance</td>
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<td>NOF</td>
<td>Northern Olympic Fringe</td>
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<tr>
<td>Ofgem</td>
<td>Office of the Gas and Electricity Markets</td>
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<td>OSMC</td>
<td>Overview and Scrutiny Management Committee</td>
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<td>RHI</td>
<td>Renewable Heat Incentive</td>
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<td>RHP</td>
<td>Renewable Heat Premium</td>
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<tr>
<td>SCS</td>
<td>Sustainable Community Strategy</td>
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<tr>
<td>SEA</td>
<td>Strategic Environmental Assessment</td>
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<td>SRF</td>
<td>Strategic Regeneration Framework</td>
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<td>SRQ</td>
<td>Sustainable Residential Quality</td>
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<td>TfL</td>
<td>Transport for London</td>
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<td>Upper Lea Valley</td>
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<td>VfM</td>
<td>Value for Money</td>
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<tr>
<td>WXH</td>
<td>Whipps Cross Hospital</td>
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APPENDIX 6 - Some Useful References


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