

Tottenham Note

Full planning permission is sought for the Stadium, the Tottenham Experience and the Hotel. Outline permission is sought for the Residential, Sports Centre and the Community Health Building.

Response to the original energy strategy submitted in September and the energy note submitted on the 6th Nov 2015.

1) Baseline data on emissions

Policy Background

London Plan Policy 5.2 requires all new development to achieve a 35% carbon reduction on site, or pay to offset any remaining emissions.

The Club Application and Issues

The energy calculations (and carbon emissions) provided are based on the development connecting to the local district energy network powered by an efficient heat and power units. But the club made it clear that the worst case scenario is that the scheme will have a single energy centre served by boilers. The emissions data presented do not reflect this.

The carbon emissions data is needed for both the best and the worst case. This will help the determination of the EIA and to calculate the potential carbon offsetting payments from the detailed application (Stadium, Experience, and Hotel). The club need to model the sites carbon emission based on the carbon factors of heat generated by single energy centre served by multiple boilers (the worse case). From this ensure that the overall carbon emissions are modelled. And that the 35% target is achieved. This is backed up by 5.2 of the London Plan and was also raised in the stage 1 report and at previous meetings with the club.

	Total carbon emissions to offset from the Stadium, Hotel and Experience (full applications)	Value of offsetting (at the nation price of £2,700 per tonne)
Best Case (connect to the area wide DEN)	Stadium – 342 tonnes of CO ₂ Hotel – 108 tonnes of CO ₂ Experience – 29.05 tonnes of CO ₂ Total = 479.05 tonnes of CO ₂	£1,293,435
Worst Case (a single energy centre serving the development site)	TBC	TBC

Mitigation via legal requirement

The total carbon emissions from submitted full planning applications (stadium, health centre, experience and hotel) need to be confirmed. This should be delivered as soon as possible. As this figure is needed to calculate any potential carbon offsetting funds that are required.

The carbon offsetting figure is then needed to be then included in the legal agreements so that the Council can “claw back” once the scheme makes profit.

The outline planning applications (health centre, residential and extreme sports centre) and their carbon reduction targets will be determined at reserve matters when they are submitted in design detail.

Ask for Planning Committee

That the committee require the applicant to issue a report to the planning committee on total carbon emissions for the detailed scheme (Hotel, Stadium and Tottenham Experience). And that should the required target of 35% reduction not be achieved that the emissions from the development are offset at the cost of £2,700 per tonne. And that this offset payment is then made to the Council to deliver carbon reduction projects in the local area.

2) Clean (Energy networks)

Policy Background

All major planning applications must demonstrate how their energy systems have been selected in accordance with the order of preference in Policy 5.6 of the London Plan. Energy assessments will need to explicitly work through the order of preference and where an approach is not appropriate for the development the assessment must provide reasoned justification.

Specific comments on London Plan Policy 5.6

- LP Policy 5.6 A: the information submitted has not evaluated the feasibility of Combined Heat and Power (CHP) systems for the development nor have they evaluated the opportunity to extend their system beyond the site boundary.

- LP Policy 5.6 B: The submission broadly follows the DE hierarchy upon completion of all stages of development:
 - i. A single site wide energy network connecting all residential and non residential buildings within the development and connection to the area wide decentralised energy network with a single point of connection will be pursued as the first priority
 - However proposed use of temporary plant rooms / energy centres likely to result in 3 temporary plant rooms (stadium, hotel, extreme sports) and multiple gas boilers operating on site prior to connection to the DE network when the residential element is constructed
 - ii. Should an area wide DE network not come forward, a single site wide energy network connecting all residential and non residential buildings within the development and served by a single energy centre with CHP will be taken forward.
 - However proposed use of temporary plant rooms / energy centres likely to result in 3 temporary plant rooms (stadium, hotel, extreme sports) and multiple gas boilers operating on site until the final energy centre is constructed under the residential element of the southern

The Club Application and Issues

The submitted information (in September and 6th Nov 2015) has not set out how the development will comply with London Plan policy 5.6 and the DEN hierarchy. The request for additional information in Para 170, 172 and 173 from the GLA stage one report has not been responded to positively.

The applicant needs to demonstrate that an area wide DEN being served by the site has been investigated. Should it be technically feasible and viable the applicant is expected to deliver this. If it is not able to be delivered then justification will need to be given.

Should the area wide DEN not come forward, the applicant will be required to deliver a single energy centre on site serving the site. The high level schematics shown (in Energy strategy clarification note appendix B schematics) suggest that this is deliverable. And that it would be located under the residential units and

generate heat through the operation of multiple gas boilers. But these are high level drawings and no design drawings exist to show how this will be delivered.

The applicant promotes three options, and demonstrates that all three are viable and deliverable. These are connection to the area DEN, a site wide heating network, and multiple energy centres serving individual buildings. This last option is not policy compliant and this has highlighted by the GLA and Haringey.

The high level schematics shown (presented by the applicant in the Energy strategy clarification note appendix B schematics) suggest that the pipe network will be located under the retractable pitch / car park. And that pipes will be linked through basement walls. These connections across the site will need to be confirmed and delivered from the onset. This will mean that there is no costly retrofitting at a later and preclude the delivery of site wide network, and enable the development of the area wide DEN. The applicant also should demonstrate how the site wide heat network will connect to the area wide network. This needs to be confirmed with detailed drawings. This should be demonstrated through floor plans, size, location, flue exits, and layout to demonstrate in detail that the proposed energy strategy will be delivered.

To enable the area wide DEN to come forward the applicant will need to make a financial contribution to connect to the area wide DEN. These costs will be based on the avoided costs that they will be saving by not housing a single energy centre or related equipment on site. (This would be the avoided cost of constructing and housing a flue on site through the tallest building, the clean up technologies on site, and the CHP plant on site). Final costs will be determined.

Specifically the club needs to submit details on the following:

- Where are the pipes and the conduit space that will be constructed across the site to deliver the site wide network and connections? What will be constructed as part of phase one? How will future phases be constructed?
- Evidence that the site wide heat network has avoided all conflicts with other site wide utilities and SUDs network.
- Details on the site wide heating network design and operation parameters. The temporary boilers proposed (providing 5.6 MW of heat for the stadium and 3.2MW of heat for the hotel) should be designed to be decommissioned and removed once the area wide network is connected to the site. On decommissioning, will the temporary boilers be relocated to the single energy centre?
- Where are the punch points (through the concrete basement walls) to connect to the area wide DEN?
- Demonstrate that a site wide energy centre could be accommodated
- Flue details

Mitigation via legal requirement

The following will need to be picked up in the legal agreements and s106.

1. Agreement that the applicant agrees to use best endeavours to work with the Council or the Decentralised Energy Network supply company to deliver a connection and heat supply to the site. The owner shall connect the development to the DE network within [6] months of the network becoming operational.
2. Agreement that in the event that the Decentralised Energy Network does not come forward, all domestic and non domestic building uses will be connected to a single/communal site wide heat network by a single energy centre supplying all the heat demands of the development. [Does this need a trigger point? – suggested at the reserve matters application / or commencement on the residential tower but please lets discuss!]

3. The club will be conditioned to provide two sets of diagrams and associated commentary to the Council for approval on policy compliance. These details will be submitted to the Council for approval at least 3 months before the construction of the basement starts. Once approved the club will be required to deliver the proposals approved. (see notes 4, 5, and 6 below) These two models need to clearly set out:

Model 1) How the site will link into the area wide district energy system serving all buildings and energy users across the site and how this will connect through a single entry point. As proposed in the Energy strategy clarification note section (section 3.1.2 of the Energy Strategy). This may include several temporary plant rooms, which would be decommissioned once the area wide network is delivered. Timeframes for decommissioning will need to be set out.

Model 2) How the site will deliver a single energy network serving all buildings and energy users and be heated and powered through one energy centre. As proposed in the Energy strategy clarification note (dated 6th Nov 2015) appendix B schematics. Any temporary plant will be decommissioned and a timetable for this need to be clarified.

4. Prior to the commencement of the development [or other suitable trigger point], details of how the single/ communal network will connect through a **single point to an area wide DE network will be submitted to the Council for approval**. This should be 3 months prior to commencement on sit. This will set out how the communal network will serve the whole development and how it will be delivered. This shall be submitted for approved in writing to the Local Planning Authority. This shall include:
 - a) The location and size of the required temporary energy centre (s);
 - b) Details of connectivity to all units and phases of the development;
 - c) The route of all appropriately sized pipe work between all buildings and that the pipe work will be delivered by the developer to the single point of exit to the area wide DEN;
 - d) How the site wide network construction will be phased, and evidence that conflicts with other site utilities and SUDs network and the site wide heat network has been considered and avoided / mitigated;
 - e) How individual phases (and their sub phase) will connect to the area wide DE network should a connection be available prior to completion of the Residential units;
 - f) Detailed drawings on the location and space allocated for the temporary energy centre (s);
 - g) The location and size of the flue serving the temporary energy centre (s);
 - h) Details on the site wide heating network design and operation parameters (set out in GLA District Heating Manual for London (or its replacement) and the ADE/ CIBSE Heat Networks Code of Practice);
 - i) Details and locations of the “punch points” through the building fabric linking all buildings and confirmation (with drawings/schematics) that there is easy and safeguarded access to these punch points;
 - j) Details and locations of the “punch points” through the main basement wall to the public highway (with drawings/schematics) and that there is easy and safeguarded access to these punch points locations;
 - k) A planned timetable for decommissioning of the plant on site (or that that they can be located to another site) once the area district energy network is developed;
 - l) A valuation of the avoided costs that the applicant will be saving by not housing a single energy centre or area wide DEN on their site once connected to the area DEN. (this is the avoided cost of constructing and housing a flue on site, the clean up technologies on site, and the CHP / Boiler plant on site)
5. Prior to the commencement of the development [or other suitable trigger point], details of how the single/ communal network and **single energy centre** serving the whole development will be

delivered, shall be submitted for approval to the Local Planning Authority 3 months prior to commencement on site. This shall include:

- a) Details of connectivity to all phases of the development;
 - b) Details on the size, layout and location of the final single energy centre, and point of connection to the public highway
 - c) Clear diagrams showing the flues from the generators and the energy centre and space for the required clean up technologies;
 - d) Indicative plant (including CHP size) and thermal store/buffer vessels with associated monthly demand profiles for heating, cooling and electrical loads
 - e) The route of all appropriately sized pipe work between all buildings and that the pipe work will be delivered by the developer to the single energy centre;
 - f) How the site wide network construction will be phased, and evidence that conflicts with other site utilities and SUDs network and the site wide heat network has been considered and avoided / mitigated
 - g) Detailed drawings on the location and space allocated for the energy centre (s);
 - h) Details on the site wide heating network design and operation parameters;
 - i) Details and locations of the “punch points” through the building fabric linking all buildings and confirmation (with drawings/schematics) that there is easy and safeguarded access to these punch points;
 - j) Details and locations of the “punch points” through the main basement wall to the public highway (with drawings/schematics) and that there is easy and safeguarded access to these punch points locations;
 - k) Demonstration that the site wide energy centre could accommodate a CHP if this is required;
 - l) Details on the boilers proposed (providing 5.6 MW of heat) in the single energy centre. These should be designed to be decommissioned and once the area wide network is connected to the site. Or that that they can be located to another site.
 - m) Space will need to be allocated for heat exchangers and heat rejection equipment.
 - n) Clear diagram showing the flues from the generators and the energy centre and space for the required clean up technologies;
 - o) A planned timetable for decommissioning of the plant in temporary plant rooms once the full onsite network is developed;
6. For all the detailed application elements of the application (currently stadium, Tottenham Experience and Hotel), Prior to the commencement of the development [or suitable trigger point], details of the single temporary plant room / energy centre, energy (heat and power) plant specifications, and communal network and future-proofing measures shall be submitted for approval to the Local Planning Authority 3 months prior to commencement on site.

These details shall include:

- a. technical specifications for the temporary energy centre/plant room, and proposed plant and buffer vessels, and its operation
- b. evidence showing that the combustion plant to be installed meets an emissions standard of 40mg/kWh. Where any installations do not meet this emissions standard it should not be operated without the fitting of suitable NOx abatement equipment or technology as determined by a specialist to ensure comparable emissions following installation (emissions certificates will need to be provided)
- c. full details of the location and appearance of the flues, including height, design, location and sitting
- d. plan showing the temporary energy centre/plant room/s with details of the design of building services future-proofing and showing how the [first phase of] development will be designed to connect to the single site wide communal network and final energy centre,

- such as punch points in the building fabric, plans showing external buried pipework routes and trench details, service entry pit and capped off pipe work stubs, and space allocation for a future heat exchanger if an indirect connection is proposed
- e. how the full applications application (currently stadium, Tottenham Experience and Hotel) will connect to the area wide DE network should a connection be available prior to completion of the residential development
 - f. How the network construction will be phased, and evidence that conflicts with other site utilities and SUDs network and the site wide heat network has been considered and avoided / mitigated
 - g. details of other future proofing measures to enable connection to the site wide communal network and final energy centre
 - h. Details of the temporary flues from the generators and the energy centre and space for the required temporary clean up technologies;
 - i. Details on the Secondary system design including pressures and supply and return temperatures
 - j. A planned timetable for decommissioning of the plant in temporary plant rooms once the full onsite network is developed

Ask for Planning Committee

That committee expects that the club will connect to the area wide DEN and then decommission all independent heating plant on site. Or that the Club will deliver a single energy centre on site that serves all buildings and then decommission all heating plant not located in this energy centre. And that this single energy centre will be designed to easily connect to the area wide network.

Details of how this will happen will be submitted to the Council for approval at least 3 months before the construction of the basement starts.

That the application will demonstrate this before commence on site for the full applications (Stadium, Hotel and Sports Centre). And that this phase will ensure compatibility to the wider aspiration.

3) Green

Policy Background

London Plan policy 5.4 requires renewables to be investigated and were feasible delivered. Local Plan policy SP04 requires that 20% of a developments energy need is delivered through renewable technologies where viable.

The Club Application and Issues

The scheme does not deliver maximum opportunities to deliver carbon reduction through the use of renewable technologies (LP Policy 5.7). The application has included some PV panels on the residential tower (outline application). Delivering 0.5% of the energy needs across the whole site.

Mitigation via legal requirement

At detailed design stage of the outline applications (residential, Sport centre, Health centre) should use best endeavours to maximise the opportunities for the generation of electricity through the use of renewable technologies.

Ask for Planning Committee

That the committee highlights the lack of renewables on the full application (Stadium, Experience, and Hotel) and requires the applicant to issue a report at each full design application stage (for the residential, health centre and sports centre) to maximise delivery of renewable technologies working towards the 20% target.

4) Overheating

Policy Background

London Plan Policy 5.9 requires that the applicant needs to demonstrate by a dynamic thermal model using future weather patterns has been undertaken to demonstrate that cooling risk is minimised. Working through the cooling hierarchy the applicant will have to demonstrate that the design of the development has minimised the overheating risk.

The Club Application and Issues

The developer has not delivered a dynamic thermal model to reduce the risk of overheating. Alongside this the developer has not designed the scheme to minimise over heating risk and reduce the need for mechanical cooling. This has been continually highlighted by Haringey Council and is in the GLA stage 1 letter.

It is expected that a dynamic thermal model using the London dataset, and future weather patterns model units / areas at most risk (south facing areas) in the following:

- Stadium
- Hotel
- Health Centre
- Experience
- Sports Centre
- Residential block

The design of these buildings should be reviewed to reduce the risk of overheating and minimise the use of mechanical cooling. Currently these buildings are predominately glazed and require to air conditioning to manage overheating risk. It is noted that the club have stated that air conditioning will remove the risk of overheating. But the local grid supply is weak (as highlighted by the club in their utilities and energy strategy) and with increased energy demand in the summer, this is seen as a high risk cooling strategy.

Design measures and the use of natural ventilation are expected and where these are not enough to guarantee the occupant's comfort (in line with the cooling hierarchy set out in London Plan Policy 5.9). Only then will the developer should identify the cooling requirement of the different elements of the development in the energy assessment document.

The residential, sports centre and health centre being at outline, these should be conditioned that these building can provide the dynamic thermal model at detailed design submission.

The health centre and the residential development must have a dynamic thermal model, due to the needs of the users who can be identified a vulnerable to heat stress. As submitted in the Energy note (dated 6th Nov 2015) the residential development will not be designed to include mechanical cooling.

Mitigation via legal requirement

The club will be conditioned to have undertaken a dynamic thermal model for the stadium, experience and the hotel. That all designed measures that can be installed are installed to minimise overheating risk. This should be sent to the Council for approval 3 months before the buildings start on site.

The club will be conditioned that at detailed design stage dynamic thermal modelling will be expected for the hotel, sports centre and residential block to ensure that overheating risk is designed out. This should be sent to the Council for approval at design stage.

These models will include:

- That air conditioning will only be permitted once all feasible design measures to reduce overheating risk have been delivered. (Policy 5.9 LP)
- That all glazing should achieve a minimum g value of 0.2 as set out in the Energy Note by BuroHapold (6/11/15)
- Air conditioning will not be permitted on the residential units, any community areas and health block (as put forward in the section 5.2, 5.4 and 6 of the energy strategy).

Ask from Committee

Due to the glazed design of the full and outline proposals that there is an overheating risk. The reliance on air conditioning to address this is a high risk strategy for the occupiers. The club has identified that there is a risk of electricity supply through a weak grid in the area. Therefore we seek that a dynamic thermal model is undertaken before the stadium, hotel and experience commence on site, and at the design stage of all outline applications. This should be modelled using future weather patterns which will cover the life time of the buildings.

The design of the building should have worked through the London Plan "Cooling Hierarchy" and be assessed to ensure that cooling design measures are delivered (reduced glazing, brise soleil, passive ventilation etc) to reduce the need for air conditioning.

5) General comments on the energy obligations as submitted

- Need to define "feasibility" and "viability" in terms of energy infrastructure. This needs to be approved by the Council and the GLA.
- Need to remove the statement found in 3.1.2 which states "if the owners consider sit is not feasible or viable to deliver" the council will determine if the case put forward by the club is sound based on policy.
- The word "capable" needs to be removed. This is none committal. Wordings need to be strengthened and should change to include "will deliver".
- Section 3.1 and up sections are unacceptable as this would accept that the scheme is non-policy compliant.
- Any legal obligation need to change reference from "the Council bring forward the DEN" to enable anyone to bring forward the DEN. It could be a private company.
- We need a tighter time frame for decommissioning temporary heat equipment to enable the single energy centre to be brought forward.