JS LEWIS LTD

Sustainability and Energy Statement

Revised and Updated Report

April 2014

Proposed Lidl Store, Botwell Lane, Hayes

Lidl UK GmbH

Client:	Lidl UK GmbH
Report:	Lidl Botwell Lane – Sustainability and Energy Statement
Date:	April 2014
Revision Details:	Revised and Updated Report (April 2014)
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	Planning Submission Report (15th Nov 2013)
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The Need for a Revised and Updated Report

This report provides an updated energy and sustainability strategy for the live planning application reference (1942/APP/2013/3565) following a singificant change in Lidl's internal lighting specification (a shift to high efficacy LEDs throughout). It also incorporates the findings of the Energy and Sustainability Addendum report submitted to the authority on 08/04/14 and provides further details on the viability study for the energy options.

Lidl UK GmbH ("**Lidl**") is seeking planning permission for the development of a discount neighbourhood food store in Hayes, Hillingdon. JS Lewis Ltd was instructed by Lidl to undertake a technical and financial appraisal of low carbon options for the site, and to draft an energy and sustainability statement for the proposed development.

The proposal represents a major development by the standards defined by the local authority. The energy and sustainability policy targets for major developments in the London Borough of Hillingdon are analysed in the policy section. As set out in this document, the proposals have addressed local policy requirements on energy and sustainability.

The proposal addresses the energy hierarchy, the target for 40% savings in regulated CO2 in the London Plan, the local guidance and policy on energy and sustainability, and all other headline issues including climate change adaptation, water, waste, pollution, biodiversity and sustainable transport.

The scheme achieves a 37% improvement on Part L 2010 through efficiency measures.

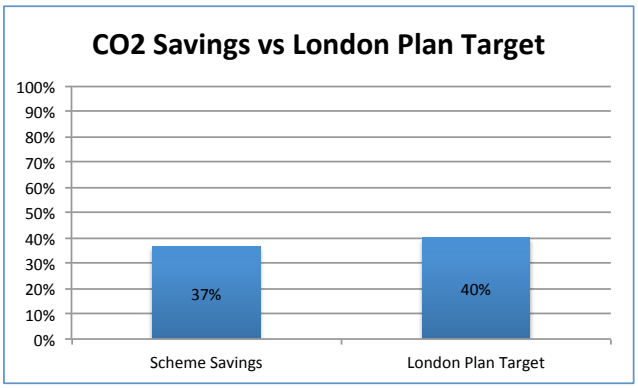

Figure 1: CO2 Savings vs London Plan Targets

All onsite low carbon technologies were reviewed for viability and were rejected. The table below summarises the findings. The very minor shortfall in CO2 savings between the scheme and the London Plan target is proposed to be made up through a contribution to Hillingdon's CO2 offset scheme. The shortfall is 2.21tCO2.

Technology	Tehnical Viability	Financial Viability	Viable?
Wind	NOT VIABLE: Urban wind profile very poor, and visual impact	NOT VIABLE: Poor wind profile means very poor output - not financially viable	NO
Solar PV	NOT VIABLE: Roof faces NW	NOT VIABLE: Return on investment at 1-2% does not meet hurdle rate of 12.5%	NO
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Air source heat pump	NOT VIABLE: Whilst ASHP is used for the welfare block, there is no benefit for sales/warehouse areas in terms of CO2	NOT VIABLE: whilst discreet ASHP for the welfare works, the additional cost and no CO2 benefit for the wider area creates a negative investment case	NO
Solar thermal	NOT VIABLE: Hot water load is negligible, so CO2 saving is also negligible.	NOT VIABLE: Return on investment well below hurdle rate	NO

The proposals aim to achieve the following:

- Energy
  - Wall, floor, roof and window U-values that are better than the minimum requirement;
  - Air tightness of 7m3/m2/hr, compared with the regulation standard of 10m3/m2/hr;
  - Low heating set points (19ºC sales; 13ºC warehouse in the day: 15.5ºC and 9.5ºC at night);
  - Standardised components to ensure efficient servicing and running;
  - Electricity and gas use are monitored and analysed on a monthly basis to help identify opportunities to reduce consumption, and any irregular usage that may derive from faults;
  - Electricity is sub-metered (hot water, cooling, lighting, chillers, bakery and AHT freezers);
  - Appropriate lux levels in specification (400 sales; 500 checkout; 100 elsewhere);
  - High efficiency LEDs throughout internally;
  - Sales area lighting switches on in thirds depending on lux levels, controlled by the building management system;
    - Two thirds of the sales lighting is switched on automatically 15 minutes before opening, and switched off automatically 15 minutes after opening hours;
    - The control of the 2/3 and 1/3 lighting has to be divided between two separate control fuses whereby the 1/3 lighting takes priority over the 2/3 lighting;
  - High efficiency LED lighting externally;
  - Motion detection controls to warehouse, welfare and delivery bay areas;
  - Lux and timer controls for car park;
  - Automatic switching off of car park lighting 10 minutes after the alarm is set;
  - Intermittent mechanical extract ventilation to WCs;
  - Fresh-air ventilation to sales area on an as required basis only using gas monitoring;
  - Free cooling at night where applicable;
  - An estimated improvement on Part L 2010 of 37% for regulated emissions;
  - A proposal for providing the 3% CO2 shortfall via a contribution to the local authority;

    - A more significant CO2 saving anticipated for operational emissions.
- Climate change:
    - CO2 saving measures as set out above;
    - Low flood risk site based on evidence from the Environment Agency website;
    - Water stress is controlled through water-efficient technology in the building.
- Water:
    - Flow control devices in sanitary areas;
    - Water meters with pulsed outputs incorporated;
- Waste and recycling:
    - Carrier bags are charged for to promote reusable bags;
    - Baler to be included onsite;
    - Onsite segregation of waste provided.
- Pollution:
    - Air quality monitored using gas monitors;
    - Measures taken to reduce night time pollution.
- Biodiversity:
    - Brownfield site.
- Sustainable transport:
    - Town centre location;
    - The site has direct access for pedestrians and cyclists and cycle parking;
    - Buses run past the site regularly on Central Avenue and Botwell Lane;
    - A transport assessment has been undertaken;
    - Draft framework travel plan generated.
- Socio-economic:
    - Up to 30 jobs created for local residents;
    - Increased diversity in local retail offering.

This statement has addressed the planning documents set out below:

- NPPF;
- The London Plan 2011;
- London Borough of Hillingdon Local Plan Part 1 (2012);
- Saved Hillingdon UDP policies.

1 INTRODUCTION

1.1 Updated and Revised Report

This report provides an updated energy and sustainability strategy for the live planning application reference (1942/APP/2013/3565) following a singificant change in Lidl's internal lighting specification (a shift to high efficacy LEDs throughout). It also incorporates the findings of the Energy and Sustainability Addendum report submitted to the authority on 08/04/14 and provides further details on the viability study for the energy options.

1.2 Background

This document is part of the planning application for the proposed Lidl store in Hayes, Hillingdon. It sets out the policy framework and the proposed approach to energy and sustainability.

1.3 Scheme Description

The site, Botwell Lane, Hayes, lies to the North West of the junction of Central Avenue and Botwell Lane. The site, the former Hayes swimming pool, is located within the defined town centre boundary of Hayes and is bordered to the south by Botwell Lane which is the principal route linking Hayes to Hayes Town Centre, and Central Avenue to the east. Large residential areas lie to the north and west of the site, with a number of local schools and leisure facilities within close proximity such as the recently developed Botwell Green Sports and Leisure Centre, which incorporates a library, sports hall, swimming pool and sports pitches. The site is well located to provide safe, direct and convenient customer access by a variety of sustainable transport modes.

The proposals seek full planning permission for a Lidl food store, 64 parking spaces and associated works. The proposed store will be located in the North Westerly corner of the site, with the Eastern façade facing onto Central Avenue. The retail element is 2,085sqm GIA in size, with 1,407sqm sales area. The storage area and the welfare block are located to the rear of the building. The South Western façade incorporates the main glazed element. The building design is a pitched roof contemporary building. Parking includes 6 blue/brown badge access spaces and 3 parent and child spaces.

1.4 Energy Use in Retail

The approach to low carbon buildings has evolved from early 'Merton Rule' policies that specifically drove onsite renewable energy to an increasing focus on carbon savings, and more recently, closing the gap between design performance and performance in occupation. The proposed revisions to Part L demonstrate an increasing focus on energy efficiency.

Supermarket retail uses have a unique energy demand profile. They tend to require high levels of electricity for refrigerating perishable foods and for lighting the retail area. Heating and cooling requirements tend to represent a low proportion of the site carbon emissions. Part L and the London Plan policy 5.2 deal with heating, cooling and lighting energy demands predominantly.

1.5 Lidl UK GmbH

Lidl tends to have energy demands well below the UK benchmark for retail uses. In particular, electricity demands are significantly lower. This is a reflection of Lidl's cost-efficient business model. The company is a limited assortment discount retailer offering a limited range of food products at

discounted prices within an efficient and convenient environment. A primary consideration for the business model is the minimisation of cost at all stages.

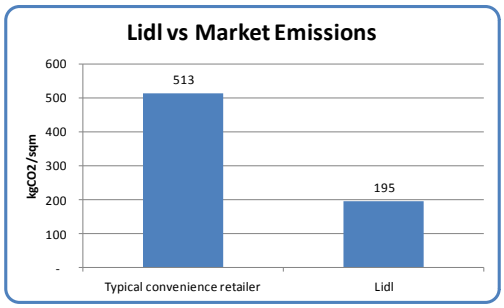

Figure 2: Lidl's Emissions vs Other Retailers

2 POLICY REVIEW

2.1 National Policy

In March 2012 the National Planning Policy Framework replaced the former national planning policy statements and guidance notes. The NPPF sets a presumption in favour of sustainable development. Section 10 concerns itself with climate change. In particular, paragraphs 95-97 discuss energy consumption and carbon emissions:

"95. To support the move to a low carbon future, local planning authorities should:

- *plan for new development in locations and ways which reduce greenhouse gas emissions;*
- *actively support energy efficiency improvements to existing buildings; and*
- *when setting any local requirement for a building's sustainability, do so in a way consistent with the Government's zero carbon buildings policy and adopt nationally described standards.*

96. In determining planning applications, local planning authorities should expect new development to:

- *comply with adopted Local Plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and*
- *take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.*

97. To help increase the use and supply of renewable and low carbon energy, local planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources. They should:

- *have a positive strategy to promote energy from renewable and low carbon sources;*
- *design their policies to maximise renewable and low carbon energy development while ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts;*
- *consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure the development of such sources;*
- *support community-led initiatives for renewable and low carbon energy, including developments outside such areas being taken forward through neighbourhood planning; and*
- *identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers."*

2.2 Regional Policy

The London Plan 2011 includes the following policies:

- 5.2 – Minimising CO2 Emissions
  - Application of the energy hierarchy;
  - 25-40% improvement on Part L 2010, unless clearly demonstrated that the specific targets cannot be fully achieved onsite;
- 5.3 – Sustainable Construction
- 5.6 – Decentralised Energy
  - Evaluate CHP;
  - Prioritise connection to existing or planned decentralised energy networks where feasible;
- 5.7 – Renewable Energy

    - Achieve 20% renewables where viable;
- 5.9 – Overheating and Cooling
    - Apply the cooling hierarchy and minimise cooling needs.

The draft SPD on Sustainable design and construction issued for consultation by the GLA in the summer notes that the 40% CO2 reduction sought for 2013-2016 applies to developments submitted for planning after the October date for the new Part L 2013.

2.3 Local Policy

The policy framework for energy and sustainable design is set out below:

The Local Plan Part 1 (2012)

Only part 1 of the local plan has been published to date. It makes references to sustainable development, but sets no specific policies. It suggests that Part 2 of the local plan will incorporate specific policy targets. This has not yet been published for consultation.

Saved UDP Policies

There are no specific targets set out in the saved UDP policies relating to energy and sustainability.

2.4 Discussion

The key sustainability policy targets for the development to address are those embodied within the London Plan. The CO2 target for 2013 onwards is 40% CO2 saving.

3 ASSESSMENT METHODOLOGY

3.1 Building Energy Modelling

A planning stage model of the building was built in SBEM, which is certified as a valid software package for demonstrating Part L compliance at building control stage. The model incorporated the efficient building specification requirements of Lidl and accounted for the site-specific design. This model provided a detailed breakdown of energy demands which were used to assess the viability of clean and renewable energy technology. A number of iterations and combinations of measures were reviewed. Inevitably, some assumptions have had to be made as the building is at planning stage. A full services design would take place at post-planning stage and allow a more in-depth and accurate analysis. The options proposed as part of this strategy should therefore be flexible to allow alternative options that achieve similar CO2 savings to be employed if detailed analysis shows potential for refinement.

The limitations of building modelling should be noted. Energy use in occupancy rarely reflects modern modelling techniques which tend to be optimistic. A sound understanding of energy use in occupancy and how this is managed is also important.

3.2 Modelling Limitations

Part L, and indeed planning policy, deals with a theoretical modelling of regulated emissions only. In reality, Lidl has been shown to have far lower emissions than other supermarket operators. This highlights the limitations of focussing on theoretical models, particularly where the non-regulated emissions are much more significant than the unregulated emissions.

3.3 Viability Assessment

A viability assessment is a measure of two separate aspects: financial and technical. Where both aspects are considered viable, then the option being appraised can be incorporated into the project. Where only one or the other fails, then the option is not integrated into the project and is deemed not viable.

3.3.1 Technical Viability

Options for energy and CO2 reduction have different technical limitations including availability of energy demand to service, availability of resource, environmental constraints, availability of technology sizes and other issues. These are assessed and weighed up for each proposal.

3.3.2 Financial Viability

Financial viability is also a key issue for a competitive market economy. Options are assessed on an asset investment basis, as is standard practice in industry, to determine whether they would meet company investment criteria. The internal rate of return (IRR) is assessed for each option. The technology-specific IRR is then compared with an investment hurdle rate. This is a return on investment that any project has to make for it to be worthwhile investing in.

This hurdle rate is generated from two different component parts:

1. A reasonable supermarket retail weighted average cost of capital (WACC);

2. An additional return requirement for non-core business investments to account for the opportunity cost of that investment.

WACC values are typically 15% for property development companies. Supermarket retailers tend to have lower WACC values, reflecting the lower risk associated with their business model. However, the property development arms of retailers may employ property development rates. For the purpose of this appraisal, a WACC of 7.5% is used as representative of the retailer, rather than the property developer.

A premium needs to be added where an investment does not represent core activities as it effectively has an opportunity cost for the business. For the purpose of this appraisal, a premium of 5% is applied.

The investment hurdle rate used is therefore 12.5%. If an investment in non-core activities (ie anything that is not convenience retailing) is to be made, it would need to achieve this return.

4 ENERGY

4.1 Monitored Energy Demand

Lidl has significantly lower measured emissions than the relevant CIBSE supermarket retail benchmark would indicate:

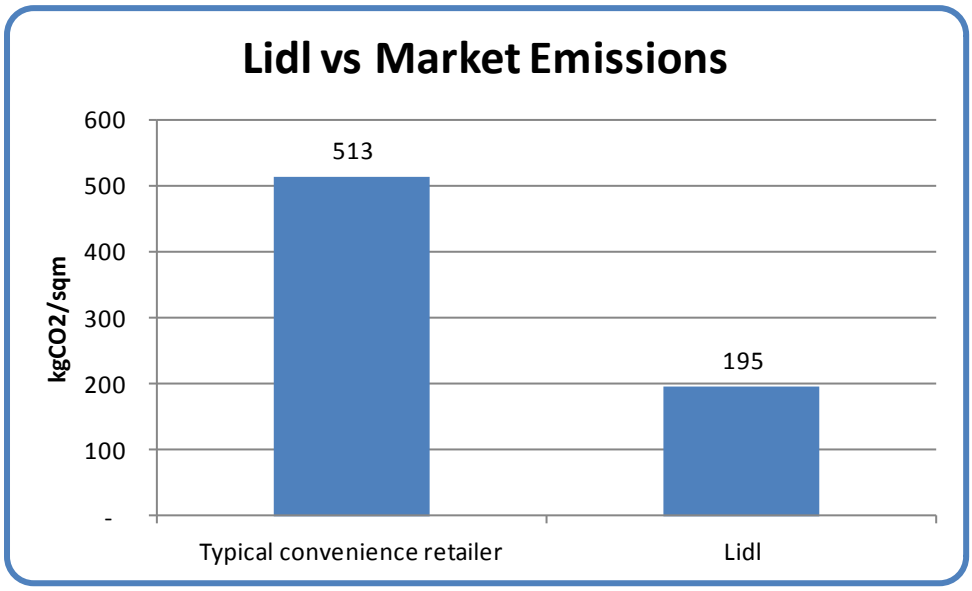

Figure 3: Lidl Emissions vs Market Emissions

The market emissions are based on the CIBSE benchmarks, derive from a study of over 500 retail outlets. This is reflection on management techniques, a low cost approach to retailing, and the importance of driving down operating costs wherever possible.

The TER as modelled in SBEM provides the following emissions summary:

Baseline (BER)		
Energy consumption	**kWh**	**kgCO2**
Heating	49,895	9,979
Cooling	22,015	11,382
Auxiliary	8,347	4,316
Lighting	50,666	26,194
Hot Water	4,794	2,478
Total	135,717	54,349

Figure 4: Baseline Emissions

4.2 The Energy Hierarchy

The energy hierarchy is promoted by the London Plan. This prioritises efficiency measures over and above clean energy, and over renewable energy. Clean energy comes second, including heat recovery and gas CHP. Last comes renewable energy. Lidl has been using energy efficiency techniques as a means of reducing energy costs. This is reflected in the measured energy performance as set out above.

4.3 Summary of Efficiency Measures

Heating and Domestic Hot Water

- Low heating set points (19°C sales; 13°C warehouse in the day: 15.5°C and 9.5°C at night);
- Standardised components to ensure efficient servicing and running;
- Wall, floor, and roof U-values that are better than the minimum requirement;
- Glazing U value of 1.1W/m2K;
- Air tightness of 7m3/m2/hr, compared with the regulation standard of 10m3/m2/hr.

Retail Lighting Measures

- Appropriate lux levels in specification (400 sales; 500 checkout; 100 elsewhere);
- High efficiency LED internal lighting throughout;
- Sales area lighting switches on in thirds depending on lux levels, controlled by the building management system;
    - Two thirds of the sales lighting is switched on automatically 15 minutes before opening, and switched off automatically 15 minutes after opening hours;
    - The control of the 2/3 and 1/3 lighting has to be divided between two separate control fuses whereby the 1/3 lighting takes priority over the 2/3 lighting;
- Efficient LED lighting externally;
- Motion detection controls to warehouse, welfare and delivery bay areas;
- Lux and timer controls for car park;
- Automatic switching off of car park lighting 10 minutes after the alarm is set.

Ventilation and Air Conditioning

- Intermittent mechanical extract ventilation to WCs;
- Fresh-air ventilation to sales area on an as required basis only using gas monitoring;
- Free cooling at night where required.

Metering and Monitoring

- Electricity and gas use are monitored and analysed on a monthly basis to help identify opportunities to reduce consumption, and any irregular usage that may derive from faults;
- Electricity is sub-metered (hot water, cooling, lighting, chillers, bakery and AHT freezers).

4.4 Clean Energy/Low Carbon Technology

There are no known district heat schemes in the vicinity, and it is unlikely that they would be able to supply energy at a competitive price to Lidl's current energy costs. Connection is therefore not viable. Gas CHP was considered but found to be not viable, making an annual loss. This is because supermarket retail is a poor match for gas CHP at this scale. Gas CHP requires far more significant heat loads before it can be considered viable. Using the smallest available unit on the market, the full load equivalent running hours remained well below CIBSE recommended minimums.

The scheme delivers passive design, frugal energy use through the affordable business model. The energy hierarchy has been applied. Energy efficiency measures achieve nearly the entire 40% target.

Low carbon and renewable energy measures were also reviewed, but the case for including them was poor and failed to make the investment hurdle rates required. This was due in part to the output of the SBEM model, which shows that demands are generally low, with the exception of lighting. A summary of the viability findings is set out below:

Technology	Tehnical Viability	Financial Viability	Viable?
Wind	NOT VIABLE: Urban wind profile very poor, and visual impact	NOT VIABLE: Poor wind profile means very poor output - not financially viable	NO
Solar PV	NOT VIABLE: Roof faces NW	NOT VIABLE: Return on investment at 1-2% does not meet hurdle rate of 12.5%	NO
Biomass	NOT VIABLE: Hayes is within the Hillingdon air quality management area and would therfore not be permitted. Poor load matching and technology space/management requirements further affect the case.	NOT VIABLE: Biomass would not make the investment hurdle rate either	NO
CHP	NOT VIABLE: poor load matching for retail.	NOT VIABLE: Negative return on investment due to high capital cost, and higher than usual operational costs	
Ground source heat pump	NOT VIABLE: Marginal/zero CO2 benefit compared with the proposed strategy due to high emissions from electricity	NOT VIABLE: Return on investment well below hurdle rate	NO
Air source heat pump	NOT VIABLE: Whilst ASHP is used for the welfare block, there is no benefit for sales/warehouse areas in terms of CO2	NOT VIABLE: whilst discreet ASHP for the welfare works, the additional cost and no CO2 benefit for the wider area creates a negative investment case	NO
Solar thermal	NOT VIABLE: Hot water load is negligible, so CO2 saving is also negligible.	NOT VIABLE: Return on investment well below hurdle rate	NO

4.5 Energy Demand and CO2 Breakdown

Having modelled the proposed store and used the above energy measures, the following energy demand remains:

Energy consumption	**kWh/sqm**	**kWh**
Heating	20.39	38,333
Cooling	9.54	17,935
Auxiliary	4.48	8,422
Lighting	17.15	32,242
Hot Water	2.40	4,512

Figure 5: Summary of Retail Energy Demands

The lighting is the most significant contributor to CO2 according to the SBEM model – the breakdown is set out below:

Carbon Weightings	
Heating	19%
Cooling	23%
Auxiliary	11%
Lighting	41%
Hot Water	6%
Total	100%

Figure 6: Weighting of CO2 Emissions

LED internal lighting has become part of the Lidl specification very recently, providing very high levels of energy efficiency, over and above those for the previous highly efficient T5 lighting. The key characteristics are:

- LOR = 100%

- Efficacy = 110 lumens/Watt
- Display lighting efficacy = 85-90 lumens/Watt

The standard assumptions on the target Lux levels within the standard SBEM model were reviewed, and adjusted to align with Lidl's significantly lower target lux ratings. This showed that the Lidl lighting energy demand would be significantly lower than the standard assumptions allow. The BER was adjusted to reflect this:

The retail element achieves 37% saving with this strategy:

	kgCO2/sqm
TER	27.61
BER	20.32
BER adjusted for Lux	17.52
Saving	37%

Figure 7: CO2 Improvement Made

The energy efficient emissions are as follows:

Proposed Scheme (TER)		
Energy consumption	**kWh**	**kgCO2**
Heating	38,333	7,745
Cooling	17,935	9,272
Auxiliary	8,422	4,354
Lighting	21,495	11,113
Hot Water	4,512	2,333
Total	90,697	34,817

Figure 8: Energy Efficient Scenario

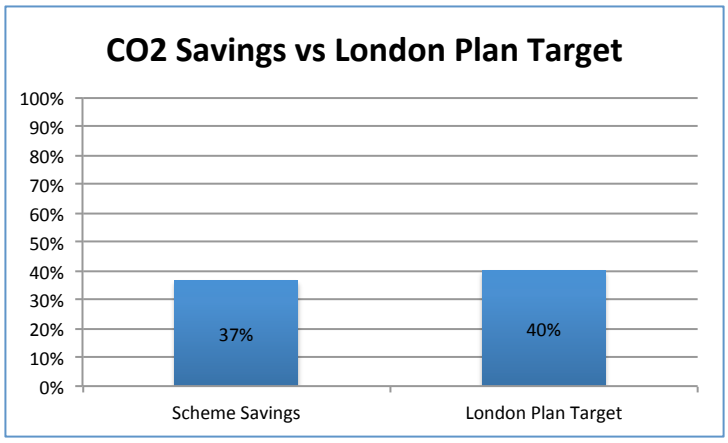

Figure 9: Comparison with London Plan CO2 Target

With savings of 37%, the shortfall is 2.21tCO2. It is proposed that an contribution is made to Hillingdon as an offset to achieve the full 40% savings.

5 SUSTAINABILITY ISSUES

5.1 Climate Change Adaptation

Energy in building use is a key contributor to the UK's carbon emissions. The energy hierarchy sets out the order of importance for the adoption of different carbon saving measures:

- Reduce energy use;
- Use clean energy sources;
- Use renewable energy.

The development will also strive to utilise low impact materials in its construction. Key measures will include:

- Using low climate change impact building materials;
- Sourcing sustainable timber;
- Using low or zero global warming impact insulation materials.

5.2 Water

A water meter will be installed with a pulsed output. Low water fittings including dual flush WCs and spray taps will be used in sanitary areas.

5.3 Waste and Recycling

Construction waste will be recycled where possible. During the operational phase, a baler will be used for cardboard onsite, and other waste streams will be segregated.

Lidl constantly improve recycling levels. In 2009/10, Lidl recycled 80% of all waste generated from stores. By 2012/13 this increased to 90%, and the target for 2013/14 is 92%. Carrier bags have to be purchased to reduce waste, and trolleys are coin-operated to reduce theft and abandonment.

5.4 Pollution

A range of measures have been implemented to reduce pollution. Biomass technology is avoided due to the air quality management area restrictions. Night time light pollution is reduced through automatic shut-offs based on a 15 minute overrun either side of operational hours.

5.5 Biodiversity

The site is a brownfield site. The landscaping strategy will allow for habitat creation where possible.

5.6 Sustainable Transport

The site is located within the boundary of Hayes town centre, and provides direct pedestrian access and cycle access and parking. There are a number of buses that stop outside the site on the Botwell Lane side, including the 195 to Brentford, the 698 to West Drayton and the H98 to Hounslow.

Store stock levels are carefully monitored in order to minimise deliveries to only one or two HGV deliveries each day. The returning HGV transports waste and recyclable material to the nearest Regional Distribution Centre for processing. This ensures that the return journey is not a wasted trip.

5.7 Socio-Economic

The development process will see significant investment in the local economy, creating jobs in construction and supply chain. It is anticipated that the store will create up to 30 jobs for local residents. Once operational, the affordable retail model offered by Lidl will create benefits for local consumers too.

6 CONCLUSION

6.1 Revised and Updated Report

This report has revised and updated the energy and sustainability strategy for the proposed scheme to address both a significant change in the Lidl lighting specification, which reduces CO2 significantly, and to incorporate the findings of the addendum submitted in support of the same application.

6.2 Social and Economic Sustainability

The scheme has the potential to drive more sustainable travel patterns by creating a more local offering than alternatives, and will also create employment opportunities during construction and operation.

6.3 Energy

The scheme now achieves regulated CO2 savings of 37%, as modelled in SBEM, through a series of efficiency measures set out below. The viability of clean technologies was considered in depth for both technical and economic viability. The findings are summarized below:

Technology	Tehnical Viability	Financial Viability	Viable?
Wind	NOT VIABLE: Urban wind profile very poor, and visual impact	NOT VIABLE: Poor wind profile means very poor output - not financially viable	NO
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Solar thermal	NOT VIABLE: Hot water load is negligible, so CO2 saving is also negligible.	NOT VIABLE: Return on investment well below hurdle rate	NO

The shortfall of 3% is not possible onsite through low carbon technology. Therefore it is proposed that Lidl make a contribution to an offsite solution through Hillingdon's offset scheme. The shortfall equates to 2.21tCO2.

In addition though, as discussed in this document, the actual measured operational emissions are expected to demonstrate a much greater improvement over the sector benchmark due to Lidl's focus on efficiency and low-operating costs. The available data indicates that Lidl tends to outperform the sector on CO2 emissions by 62%.The key measures integrated into the scheme are as follows:

- Energy
  - Wall, floor, roof and window U-values that are better than the minimum requirement;
  - Air tightness of 7m3/m2/hr, compared with the regulation standard of 10m3/m2/hr;

- Low heating set points (19ºC sales; 13ºC warehouse in the day: 15.5ºC and 9.5ºC at night);
- Standardised components to ensure efficient servicing and running;
- Electricity and gas use are monitored and analysed on a monthly basis to help identify opportunities to reduce consumption, and any irregular usage that may derive from faults;
- Electricity is sub-metered (hot water, cooling, lighting, chillers, bakery and AHT freezers);
- Appropriate lux levels in specification (400 sales; 500 checkout; 100 elsewhere);
- High efficiency LED lighting throughout internally;
- Sales area lighting switches on in thirds depending on lux levels, controlled by the building management system;
  - Two thirds of the sales lighting is switched on automatically 15 minutes before opening, and switched off automatically 15 minutes after opening hours;
  - The control of the 2/3 and 1/3 lighting has to be divided between two separate control fuses whereby the 1/3 lighting takes priority over the 2/3 lighting;
- Efficient LED lighting externally;
- Motion detection controls to warehouse, welfare and delivery bay areas;
- Lux and timer controls for car park;
- Automatic switching off of car park lighting 10 minutes after the alarm is set;
- Intermittent mechanical extract ventilation to WCs;
- Fresh-air ventilation to sales area on an as required basis only using gas monitoring;
- Free cooling at night where applicable;
- An estimated improvement on Part L 2010 of 37% for regulated emissions;
- A proposal for providing the 3% CO2 shortfall via a contribution to the local authority.

6.4 Environmental Sustainability

The scheme has addressed local and regional policy thoroughly, and in doing so has achieved the following:

- A much more significant CO2 saving anticipated for operational emissions.

- Climate change:
  - CO2 saving measures as set out above;
  - Low flood risk site based on evidence from the Environment Agency website;
  - Water stress is controlled through water-efficient technology in the building.
- Water:
  - Flow control devices in sanitary areas;
  - Water meters with pulsed outputs incorporated;
- Waste and recycling:
  - Carrier bags are charged for to promote reusable bags;
  - Baler to be included onsite;
  - Onsite segregation of waste provided.
- Pollution:
  - Air quality monitored using gas monitors;
  - Measures taken to reduce night time pollution.
- Biodiversity:
  - Brownfield site.
- Sustainable transport:
  - Town centre location;

  - The site has direct access for pedestrians and cyclists and cycle parking;
  - Buses run past the site regularly on Botwell Lane and Central Avenue;
  - A transport assessment has been undertaken;
  - Draft framework travel plan generated.
- Socio-economic:
  - Up to 30 jobs created for local residents;
  - Increased diversity in local retail offering.

6.5 Compliance

This statement has addressed the planning documents set out below:

- NPPF;
- The London Plan 2011;
- London Borough of Hillingdon Local Plan Part 1 (2012);
- Saved Hillingdon UDP policies.

Therefore, it addresses planning policy requirements on energy, CO2 and sustainability.

APPENDIX A – REFERENCES

National Planning Policy Framework, DCLG, March 2012

London Plan 2011

London Borough of Hillingdon Local Plan Part 1 (2012)

Saved Hillingdon UDP policies

AND

Drawings and information from the proposed scheme.

JS LEWIS LTD