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Sustainability and Energy Statement

On behalf of:
Tesco Stores Limited

In respect of:
**Hawkins Lane
Burton-upon-Trent**

Date:
December 2010

Reference:
1102009/R002/MR v.3



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1.0 Executive Summary

- 1.1 The Sustainability Statement is submitted with the planning application for an extension to the Tesco store at Hawkins Lane, Burton on Trent.
- 1.2 The statement recognises the policy imperatives at national, regional and local levels to achieve high standards of sustainability performance, both in terms of the strategic fit of the proposal and the realisation of the development through its design and construction.
- 1.3 This statement provides details of the sustainable elements of the scheme and how these will be implemented.
- 1.4 A total carbon reduction of 10% is achievable for the development against industry benchmarks and is met through CHP, energy efficiency measures and good design principles.
- 1.5 The proposals are based on Tesco's 'Environmental Store' design format which aims to incorporate the following sustainable design features:
 - Dedicated staff Travel Plan to promote more sustainable work travel patterns;
 - Timber clad construction is a more sustainable building material which has less carbon in it and reduces the overall embodied energy in the building;
 - Implementation and review of environmental management practices such as commitment to the Considerate Constructors Scheme;
- 1.6 A Site Waste Management Plan will be produced for the site post planning to ensure that waste is managed effectively through construction and post completion. Tesco currently achieve 90% of waste diverted from landfill from construction and 100% from operational waste.
- 1.7 Tesco have a series of annually reported Corporate Key Performance Indicators. These indicators measure the sustainability performance of the store in use and therefore provide a mechanism to ensure delivery of the sustainability aspirations.

2.0 Introduction

Purpose of this Statement

- 2.1 This statement is submitted on behalf of Tesco Stores Limited ('Tesco') in support of a full planning application for the erection of new foodstore on land at Hawkins Lane, Burton. The proposal involves the redevelopment of the existing site for a new 'Environmental Format' foodstore ('Eco Store'), car park, petrol filling station, new landscaping and associated works. The Eco Store minimises energy consumption and maximises efficiency in construction and operation through its design, the materials used, and a number of additional features.
- 2.2 As well as assessing the energy demands of the building and efficiency measures proposed the statement has also been developed to reflect a good practice approach to sustainability assessment, assessing the social, economic, and environmental impacts of the store in line with PPS1. The content of the assessment seeks to provide a consistent and complementary analysis when taken into account with the planning application and should be read alongside the accompanying plans and reports.

Application Site

- 2.3 The application site is situated off Hawkins Lane to the north of Burton town centre. The buildings were cleared in 2003 and the site has remained vacant since. Horninglow Street forms the northern boundary to the defined town centre as per the adopted proposals map. This links the application site to the northern end of the town centre and the Middleyard Retail and Leisure Park.
- 2.4 The development proposal comprises the erection of a new Tesco foodstore with ancillary car park, petrol filling station, together with service yard, access and ancillary works. The total floorspace of the new store will be **10,570 m²** gross. This will include a two separate mezzanine floor areas including **296 m²** gross for a customer café located to the front of the store and **410 m²** to the rear of the store to accommodate staff facilities.
- 2.5 Access to the new store will be taken from Hawkins Lane. The layout of the store is positioned to the east of the site, with car park to the western half of the site. Areas of plant and the service yard are located to the rear of the store backing onto employment

uses. The petrol filling station is located adjacent to the site entrance.

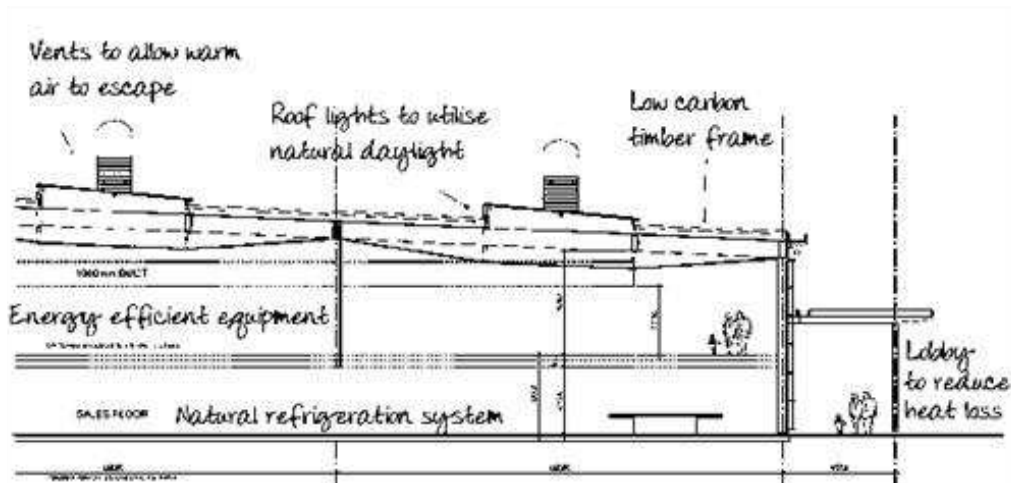
- 2.6 There is an existing line of mature boundary trees to rear of properties on Horninglow Street which help screen the site. The proposal involves substantial landscaping works to significantly improve boundary treatments between the application site and residential properties.

3.0 Tesco Approach to Sustainability

3.1 Tesco recognises the role it can play as a leading developer. On the 18th January 2007 Sir Terry Leahy, Chief Executive of Tesco Stores Limited said:

"Our [Tesco] verified carbon footprint includes all our existing stores and distribution centres worldwide. We [Tesco] will reduce emissions from these buildings by at least 50% by 2020. We will ensure that all new stores built between now and 2020 will emit, on average, at least 50% less carbon than an equivalent store built in 2006."

3.2 To deliver this Tesco has embarked on a series of initiatives which are coordinated through their internal Centre of Excellence for the Environment. These initiatives include a working group formed of Tesco employees and select industry experts who have designed and specified the totally new Tesco Environmental Format Store which is at the cutting edge of sustainable design.



3.3 The first Eco Store opened in January 2009 at Cheetham Hill in Manchester. Tesco cut the carbon footprint of the store by 70% compared to an equivalent store built in 2006. Lessons will be learnt from this prototype and the Tesco Eco Store will be available throughout the country to dramatically reduce the buildings build, operational and decommissioning impact on the environment. The technologies have been tried and tested and are robust. This is a major consideration for Tesco as they recognise that the reliability of equipment can have a large impact on its environmental life cycle, and in the worse cases could actually have an overall negative affect.

3.4 Ramsey is Tesco's first zero-carbon store which was built in Cambridgeshire in 2009. It is

designed to use as little energy as possible. The energy that is required is generated on site from renewable fuel, and any excess energy is exported to the National Grid. The store uses a mix of environmentally friendly design, materials and technologies, including:

- Sustainably-sourced timber frame.
- Roof lights and sun pipes that allow natural daylight into the sales floor and staff areas.
- Energy efficient heating and air conditioning systems.
- Combined Heat and Power plant to generate electricity using renewable fuel.
- Refrigerant gases in the fridges, heating, ventilation and air conditioning systems that have virtually no environmental impact.
- Energy-efficient equipment such as low energy bakery ovens.
- Flooring tiles made from local materials.

3.5 Tesco have a series of Corporate Key Performance Indicators, reported annually. Those which will influence and provide sustainability benefits of the store from design into the operations include:

Tesco Corporate Key Performance Indicators	2009 Performance	2010 Target
Reduce CO ₂ e emissions from our 2006/7 baseline portfolio of stores and distribution centres by 50% by 2020. Annual target reported as percentage reduction against previous year	7.8%	5.5%
Reduce CO ₂ e emissions from new stores and distribution centres built after 2006 by 50% by 2020, compared to new stores and distribution centres built in 2006.	28.8%	30%
Reduce the amount of CO ₂ used in our distribution network to deliver a case of goods compared to previous year.	6.4%	10%
Percentage of store waste recycled	100%	n/a
Staff fund-raising (£)	£7.4m	£7m
Donate at least 1% of pre-tax profits to charities and good causes	1.94%	1%

4.0 Relevant Planning Policy

National Guidance

- 4.1 **PPS1** Delivering Sustainable Communities sets out the Government's overarching planning policies on the delivery of sustainable development through the planning system. The national guidance seeks to facilitate and promote sustainable and inclusive patterns of development.
- 4.2 Adopted **PPS1 Supplement** Planning and Climate Change sets out how planning should contribute to reducing emissions and stabilising climate change (mitigation) and address its unavoidable consequences (adaptation). Designing for environmental performance is highlighted as important in the design of new development. The document seeks to promote the use of decentralised and renewable technologies in new developments. The guidance requires LPA's to have a sound and tested evidence base prior to setting minimum requirements for renewable energy targets.
- 4.3 The UK government's **Climate Change Act** has established legally binding targets for an 80% reduction in carbon dioxide CO₂ emissions by 2050, with a 34% reduction by 2020. The Government has already established targets for 10% of all UK electricity to be generated from renewables by 2010 and 20% by 2020. **PPS22** Renewable Energy, published in 2004 encourages local authorities to include renewable targets for new developments.
- 4.4 **PPS4 - Planning for Sustainable Economic Growth Policy EC10.2** requires all planning applications for economic development to consider whether the proposal limits carbon dioxide and minimises vulnerability to climate change.
- 4.5 **PPS9** Biodiversity and geological conservation requires Local Authorities to fully consider the effect of planning decisions on biodiversity, and considers the potential gains which can be secured within developments
- 4.6 The overarching objective of **PPG13** is the continued integration of planning and transport at the national, regional, strategic and local level. Main objectives of this guidance aim to promote more sustainable transport choices, reducing the need to travel, especially by private car.

Regional Spatial Strategy for the West Midlands (2008)

- 4.7 In a letter to Chief Planners on the 6th July 2010 the Government confirmed their revocation of RSS's with immediate effect. For the purposes of Section 38(6) of the Planning and Compulsory Purchase Act (2004) RSS's no longer form part of the adopted development plan. Since then however the High court has revoked the revocation. The RSS is still a material consideration, and reflects the Government's commitment to reducing carbon, minimising the use of non-renewable materials, and maximising the energy efficiency of buildings.
- 4.8 **Policy EN1 Energy Generation** encourages local authorities to promote proposals for the use of renewable energy resources. Whilst in **Policy EN2 Energy Conservation** measures that minimise demand and encourage combined heat and power, district heating and energy efficient design should be supported.

East Staffordshire Local Plan (2006)

- 4.9 East Staffordshire Borough Council is preparing its Local Development Framework (LDF) and in line with the PPS25 requirements a Level 2 SFRA report has been published.
- 4.10 With regard to sustainability the current Local Plan **Policy BE1** requires all new buildings to take into account the impact upon the environment.
- 4.11 **Policy T1: Transport: General Principles for New Development** outlines that the Borough Council will not permit development where it is likely to impact on the implementation of the Local Transport Plan Area Strategies. It also requires consideration of public transport services and facilities, walking and cycling facilities and the preparations of a 'Green Transport Plan'.

5.0 Management

- 5.1 Tesco have incorporated good sustainability management practices as part of a standardised approach to the delivery of new stores. They ensure the criteria forms part of the agreement with the approved constructors to achieve the highest possible standards. This ethos is applied to the existing building stock to meet with Tesco stated ambitions to be ultimately a zero waste and zero carbon business together with providing sustainable stores. This approach will also be applied to the delivery of the proposed Hawkins Lane site.
- 5.2 In relation to management of the proposed development, commissioning is a standard requirement of Tesco Stores Ltd for all new stores at both handover and during the first year of operation to ensure the building operates as efficiently as possible. Again this commissioning standard will apply to the new retail development on the site.
- 5.3 Commitment to the Considerate Constructors Schemes is also a Tesco standard requirement whereby all constructors on the approved supplier list must achieve the necessary criteria. The considerate constructor's scheme will apply site wide.
- 5.4 Monitoring construction site impacts also occurs with each new store, with a comprehensive set of environmental impact and pollution measures recorded throughout the construction programme.
- 5.5 Together with the commissioning, a simple building user guide for the retail operating team will be provided to ensure the buildings operate to maximum efficiency.

6.0 Health and Wellbeing

- 6.1 **The PPS1 Supplement** states that opportunities for walking and cycling should be maximised, along with secure parking where appropriate (para.42).
- 6.2 Linkages are proposed between the store and surrounding areas. These provide good, safe and comprehensible pedestrian routes to the dual entrance points of the store, and between the main site into the Town Centre.
- 6.3 Pedestrian access to the site which is approximately 1km from the town centre is via footpaths which run along Hawkins Lane. Further details can be found within the Transport Assessment submitted with this application.
- 6.4 The incorporation of roof lights within the design will result in a high quality environment for customers and staff, enabling natural daylight to filter down to the sales floor. In addition there are extensive views out for staff.
- 6.5 It is a Tesco design standard to install high frequency lighting on all fluorescent and compact fluorescent lamps. It is also a Tesco design standard to specify internal and external lighting that is compliant with the maintained illuminance levels recommended by CIBSE.
- 6.6 Thermal comfort is highly regarded by Tesco; a feasibility study aimed at optimising thermal comfort is likely to be carried out using software compliant with CIBSE AM11. VOC emissions will also meet best practice levels.

7.0 Energy

7.1 Local Plan Policy BE1 requires new developments to promote more efficient buildings, maximising energy efficiency and minimising environmental impacts. This commitment to reducing emissions and making the best use of resources is embedded in PPS1 and PPS1 Supplement.

7.2 For the purposes of this report the application of a 10% energy saving from decentralised and renewable or low-carbon sources across the site will be applied. This is in line with the government target. A saving across the site will ensure that the best fit renewable or low carbon technology is applied.

Energy Baseline

7.3 The likely annual energy consumption and associated CO₂ emissions from the proposed development is based on modelled industry benchmarks for energy use obtained from CIBSE Guide F. The data sets in CIBSE Guide F are becoming out of date due to the changing building regulation requirements. The Merton Rule policy guidelines suggest that benchmark figures should be reduced by 8% to compensate for the reductions.

7.4 The energy consumption and CO₂ emissions for the development as based on industry benchmarks can be seen in the table below.

	Energy (kWh/yr)	Emissions (kgCO ₂ /yr)
Site Baseline	9,386,477	3,733,338

Energy Efficiency

7.5 Tesco have set themselves a number of long term targets for store construction specification and are considering the implementation of a number of these at the Hawkins Lane store. These measures are aimed at reducing the energy consumption and carbon emissions of the site.

7.6 Since 2006 the standard Tesco store has improved energy efficiency through a range of

measures including more energy-efficient ovens, refrigeration and air-conditioning - the big users of energy in stores. In addition standard lighting schemes include efficient lighting, timers and motion detectors that switch off the lights when unused. Further work has enabled redesigned fridges to keep more of the cold air in - cutting energy use by 10% to be included along with equipment that retrieves cold air from the chiller cabinets to use as an energy-efficient alternative to air-conditioning on the sales floor where appropriate.

7.7 At Hawkins Lane design innovations that are likely to be introduced to reduce the energy consumption are based on the principles of natural daylight maximisation and the improvement of building air tightness. The following list explains some of the measures that are being considered for inclusion and are expected to improve the overall energy efficiency improvements of the store:

Internal Lighting

- Energy efficient lighting which has external Passive Infra Red (PIR) sensors or time switch controls that switch off the lights when they are not needed;
- Low energy LED lighting in refrigeration units to reduce energy consumption;
- Roof lights to the sales floor allowing influx of additional daylight and reduce the need for artificial lighting in store.

External Lighting

- Zoned car park lighting scheme to reduce unnecessary lighting when the store is less busy;
- External lighting uses energy efficient luminaires that provide a more even light distribution thus reducing the number of lights required and so reducing the energy requirement across the site.

Building Integrated Measures

- Draught lobbies between the exterior and interior of the store and also between the sales area and storage area to reduce heat loss when doors are opened;
- Mixed mode ventilation with mono draught roof ventilation to provide natural ventilation, which increases the flow of air through the building whilst reducing the reliance on the mechanical system;
- Rainwater recycling will include harvesting the water to use for toilet flushing, this

- saves both energy and water;
- Low Pressure Hot Water used for Door & Warehouse Heating to reduce demand from mechanical heating.

Power Management

- Energy Efficient Small Power Items to reduce unnecessary waste;
- Improved monitoring & metering of energy use to optimise consumption.

Refrigeration Measures

- Low energy LED lighting in refrigeration units to reduce energy consumption;
- Refrigeration systems that are cooled with carbon dioxide rather than more harmful traditional refrigeration gases.

7.8 The table below shows the predicted site energy consumption and renewable energy target, whilst the following table shows a more detailed breakdown of the energy and carbon figures.

	Energy (kWh/yr)	Emissions (kgCO₂/yr)
Site Baseline	9,386,477	3,733,338
10% Carbon Target		373,334

Baseline Building

Building type	Use	Class	Gas (kWh/m ² /yr)	Electricity (kWh/m ² /yr)	M ²	Total Gas (kWh/yr)	Total Electricity (kWh/yr)	Total Energy (kWh/yr)	Gas CO ₂ (kg/CO ₂)	Elec CO ₂ (kg/CO ₂)	Total CO ₂ (kg/CO ₂)
Supermarket	Retail	A1	358	530	10,570	3,785,223	5,601,254	9,386,477	699,698	3,033,639	3,733,338
TOTAL						3,785,223	5,601,254	9,386,477	699,698	3,033,639	3,733,338

Low and Zero Carbon Technology Options

7.9 An assessment of the various technologies was performed to understand their commercial and carbon benefits at Hawkins Lane. Certain technologies are only suitable for certain applications. The viability of each technology to be used at the Hawkins Lane is scored against a traffic light system to focus attention on where greatest benefits can be gained:

Red – not viable

Amber – not currently viable but potentially in the future

Green - viable.

Applicability Assessment						
Renewable Technology	Description	Design Constraints	Application	Indicative costs	Emission Reduction Potential	Viability at Hawkins Lane
Small Scale Wind Turbines	Produce electricity by using the natural power of the wind to drive a generator capable of 6kW to 50kW	Small scale turbines require clear access to wind flow and wind speeds need to be at least 6m/s. Urban areas are not ideal.	Can be installed on the development site. Wind speeds at the development will be variable	Medium capital costs with long paybacks.	Average – offsets electricity which has a high CO ₂ content. Wind speeds may not produce large amount of electricity.	Would not be appropriate for energy demand of site.
Large scale wind turbines	Produce electricity by using the natural power of the wind to drive a generator capable of 250kW to 5MW	Large structures up to 100m in height and need to be away from housing and in areas of high average wind speeds.	Limited location within the industrial development site. Average Windspeed of location 5.3m/s @ 25m agl and 5.9m/s @ 45m agl.	High – wind turbines can cost significantly	High – potentially a large producer of electricity	Wind resource not expected to be sufficient for turbine plus proximity to key road infrastructure precludes inclusion.
Photovoltaics (PVs)	Modules of semi conductor cells that convert daylight into electricity. Generates approximately 850kWh/yr for a 1kW System	Southerly orientation necessary for optimum performance.	Can form part of the roof or wall structure – requires up to 7,688m ²	High – efficiencies and costs have fallen but still very expensive.	High – potentially a large producer of electricity	Likely to be cost prohibitive for development at this stage.
Solar water heating	Energy from the sun heats fluid in a collector, which then heats water, stored in building. Collectors generate on average 550kWh/m ² /yr	Southerly orientation best for optimum performance and a good hot water demand.	Can form part of the roof structure, sized to meet a proportion of the hot water demand.	Low – additional equipment required minimal and can be easily installed	Limited to the amount of hot water stored. Lower CO ₂ reductions than electricity offsetting technologies.	Insufficient demand to meet the policy requirement.
Biomass heating	Utilises energy from boilers or local district scheme	Connection to existing grid network to access district heating scheme	Biomass boilers can be used commercially for district heating	Medium – removes the need for a gas supply in some cases. Cost to connect to the grid can be expensive	High – low carbon fuel used	Potential to utilise the energy for heating & hot water on site. Compact site should consider fuel storage.
Gas Combined Heat and Power	CHP generates electric and thermal energy in a single system, satisfying two energy demands. Gas CHP converts	Needs to serve a high electrical and heat demand all year round. Running hours	Due to the nature of the scheme, CHP will need to be available to each	Medium – cost savings can be considerable if the system operates for most of the year.	High – using natural gas as the fuel input results in large amounts of electricity and heat	Most suitable when buildings have high electrical and gas usage patterns

Applicability Assessment						
Renewable Technology	Description	Design Constraints	Application	Indicative costs	Emission Reduction Potential	Viability at Hawkins Lane
	natural gas into usable energy (e.g., steam and electricity).	of over 6,000 are desirable.	unit.		produced and high emission savings	
Biomass CHP	As above biomass CHP converts organic matter either directly from plants or indirectly from industrial, commercial, domestic or agricultural products	Needs to serve a high electrical and heat demand all year round. Running hours of over 6,000 are desirable. Storage space limited.	Can be applied to district heating schemes on a commercial level	High – biomass CHP is relatively new and based on large systems. Fuel supply is more complex	High – fuel input is normally low carbon and produces heat and electricity efficiently	Technology is not used widely. Space for storage of fuel limited.
Ground source heat pump	Ground source heat pumps (GSHP) transfer heat from the ground into a building to provide space heating and, in some cases, to pre-heat hot water.	Either requires vertical boreholes or a large horizontal area. Can only serve under floor heating. Ground conditions may affect viability.	Can serve the site providing winter heating	Medium – ground works can be costly and savings determined by unit prices. High electricity prices affect payback.	Medium to High – requires electricity to run the heat pump but does produce emission savings. Electricity supply could be renewable.	Use limited to space heating. Insufficient space on site to meet target.
Air Source Heat Pump	Air source heat pumps (ASHP) recover heat from the air and provides water and/or space heating. Some units are also designed to utilise both exhaust air and ambient air.	ASHP's are less efficient than ground source heat pumps, and likely to be more variable because air temperatures fluctuate both daily and seasonally	Can serve the site providing heating and/or ventilation	Medium/Low – Requires large area within constrained site. High electricity prices affect payback.	Medium to High – requires electricity to run the heat pump.	Not viable due to large area which would be required for heat pumps.
Geothermal heat, hot rocks	Use of heat, steam or hot water generated from geothermal reservoirs to provide electricity through generators. Can produce 2mW in conjunction with CHP	Needs a specific source. Only a few locations in the UK	Can provide district heating	Fuel source is free but the infrastructure required is relatively high	Good – displaces the need for large amounts of gas	No source in the development

Technology Review

7.10 This section provides a detailed review on the application of viable technologies in the development to meet with the 10% policy target.

Biomass Boiler

7.11 A biomass boiler providing at least 2,019,658kWh/yr renewable energy would be required to meet the 10% energy target for the site. Biomass boilers replace gas rather than electricity and so have lower emissions savings than electrical technologies.

7.12 Cascading biomass boilers are expected to meet the target¹. Cascading boilers allow for essential servicing and downtime to be carried out and negate the need for alternative more carbon intensive traditional gas boilers as a backup system. Fully installed, such a system connected to an auger and storage hopper and including installation and commissioning, would cost in the region of £750,000.

Technology	Size/output	Apprioximate Capital Cost	Energy Saving (kWh/yr)	Carbon Savings (kg/CO ₂ /yr)	% of Energy Target
Biomass	1,500	£750,000	2,019,658	373,334	100%

7.13 Boilers capable of using pellets, wood chip and cereals are optimal for efficiency and will reduce the potential effects of wood pellet price fluctuations. In addition they are likely to be fully automated including de-ashing and self cleaning thus keeping ongoing maintenance costs to a minimum.

7.14 The site is in a mixed residential and non-domestic location. Care should be taken to ensure that biomass systems accommodate any possible increased NOx emissions. Alongside storage limitations on the site, these issues preclude this option from being investigated further.

¹ Calculation methodology from Organic Energy shows approximate requirement.

Combined Heat and Power (CHP)

- 7.15 An option to meet the required 10% energy target is through a combined heat and power energy centre providing both space heating and electricity to the site, with the
- 7.16 The CHP is able to provide hot water, heating and electricity to the site, typically provided by fossil fuel. The total gas demand is 3,785,223kWh/yr. In addition, the electricity generated will further displace carbon emissions.
- 7.17 The table below describes the total savings that can be achieved from an appropriately sized unit available.
- 7.18 The CHP net CO₂ savings in the table below show a gas conversion of 386,193kWh/yr. This equates to a 10% energy saving from the adjusted baseline across the development.
- 7.19 The anticipated cost of fitting such a unit will be in the region of £400,000 for the installation including placement in an appropriate acoustic enclosure.

CHP Unit	
Fuel Input (kW)	718
Electrical Output (kW)	228
Heat Output (kW)	358
Annual running hours	7,665
Annual Electrical Output (kW)	1,747,524
Annual Heat Output (kW)	2,743,920
Efficiency (%)	90%
Operational CO ₂ emissions (kg)	1,017,261
CHP CO ₂ savings (kg)	1,403,454
Net CO ₂ savings (kg)	386,193

8.0 Transport

- 8.1 In line with **Policy T1 'Transport General Principles for New Development'** Tesco have produced and submitted a Travel Plan and Transport Assessment with this application. This will help to reduce travel demand, traffic growth and congestion at the store.
- 8.2 The Travel Plan is intended to provide targets to enable the reduction in car use for both staff and customers and emphasise the benefits for both the store and the health of its staff and customers. Home shopping, car sharing and the organisation of staff shifts, are promoted.
- 8.3 A survey of staff travel patterns will be undertaken 1 year following opening of the store to gain full appreciation of the transport modes used by staff for their journeys to work. This data is integral to the formulation of the Travel Plan. Staff will also be requested to provide an indication of what measures would need to be implemented for them to change their means of travel at that time.
- 8.4 Travel information, measures to promote public transport, measures to promote and facilitate cycling and walking and a Travel Plan Coordinator are also proposed. The Travel Plan Coordinator will help to encourage the use of sustainable transport methods by staff when accessing the store. These measures aim to provide potential elements which will help to shift travel modes away from the private car.
- 8.5 Public Transport accessibility to the store by public transport is provided by one bus service which operates along Horninglow Road adjacent to the site providing access to and from the town centre and train station, as well as Uttoxeter via Tutbury and Doveridge. A bus stop for eastbound buses is located on Horninglow Road 150m from the proposed pedestrian access and a bus stop for westbound buses on the opposite side of the road.
- 8.6 Tesco also recognise the need for the Travel Plan to be regularly updated in addition to the provision of a simple guide promoting sustainable travel to the store to encourage staff to use sustainable transport methods when accessing the store.

8.7 The existing site is located approximately 1km from the town centre, which equates to less than a 13 minute walk (based on an average walk speed of 4.8km/hr). Footpaths are provided along the both sides of Hawkins Lane and street lighting is also present. The application site is also deemed to have a good connectivity to the surrounding area.

8.8 The transport assessment shows that whilst there are currently no official cycle routes running along Hawkins Lane itself the road network in the vicinity experiences little traffic, and due to the topography of the land, lends itself well to being conducive to cycling. The majority of properties in the area have driveways/car parks to park vehicles; hence there are few obstructions to cyclists on Hawkins Lane and its side roads. There are already several sections of cycle paths/signed routes/on carriageway cycling routes in the area, and a plan to show these can be found in the assessment report.

8.9 The key travel plan targets are shown in the Transport assessment and in summary are:

- to reduce the number of single-occupancy staff journeys;
- to increase the number of employees travelling to work on foot;
- to increase the number of employees travelling to work by public transport;
- to increase the number of employees travelling to work by bicycle;
- to increase the number of employees travelling to work by car share;
- to install secure on site bike parking;
- to install a travel awareness notice board;
- to set up a bicycle user group, car share scheme and operate a walking buddy scheme.

9.0 Water Conservation and Flooding

- 9.1 A Flood Risk Assessment (FRA) accompanies this application and concludes that whilst the majority of development site is classified as an Area Benefiting from Defences (ABD) to the 1:200 year standard, although there is an area to the northwest which is in Flood Zone 2. This means that the chance of flooding each year from rivers or the sea is low to medium risk, with annual probability of flooding of 0.1 to 1.0% from rivers and 0.1 to 0.5% from the sea.
- 9.2 The FRA identifies a net beneficial impact on flood risk as a result of measures outlined within the Drainage Strategy which forms appendix F of the document. These will have the effect of reducing runoff volumes and runoff rates, as described below:
- 9.3 Information taken from the Strategic Flood Risk Assessment (SFRA) prepared by Royal Haskoning UK Ltd on behalf of Bromsgrove District Council and Redditch Borough Council shows no specific information on flood risk from surface water and it is therefore assumed insignificant.
- 9.4 The FRA notes that various modelling works reported by competent authorities are normally inclusive of an appropriate allowance for climate change. The proposed drainage system for the development at Hawkins Lane will include a 20% allowance for climate change in any capacity and attenuation calculations.
- 9.5 A Flood risk assessment has been submitted with this application. It outlines that by using the most recent Flood Zone map by the Environment Agency (July 2010) the majority of the site is classified as an Area Benefiting from Defences (ABD) to the 1:200 year standard, although there is an area to the north west which is in Flood Zone 2.
- 9.6 The provision of SUDS is in line with the PPS25 requirement and is the first method of disposal to be considered for surface water runoff. However, infiltration methods of source control are not considered feasible at this site due to restrictions stemming from the protection of groundwater aquifer resources and a relatively shallow ground water table.

- 9.7 With regard to the irrigation of landscaping and planting at the site, it is a Tesco design standard to specify native plant species which rely solely on precipitation therefore irrigation systems will not be required.
- 9.8 Rainwater harvesting will however be incorporated within the scheme to reduce non-potable water demand, by up to 50%. Rainwater harvesting acts as a form of attenuation by reducing storm water runoff and reducing the flow rate off site, but this added benefit will not be taken into account within the proposed drainage scheme.
- 9.9 With regard to potable water minimisation, it is a Tesco design standard to specify taps, urinals, WCs and showers which consume less potable water in use than standard specification for the same type of fittings.
- 9.10 The FRA also notes that "proposed development will increase the impervious area and whilst infiltration methods of surface water disposal are not considered feasible, it is proposed to install a lined permeable paving system, to provide water quality improvements and reduce surface water discharge rate to greenfield rates.
- 9.11 The normal precautions regarding water quality will be observed by the provision of appropriate petrol interceptors, deep silt trapped gullies and silt boxes to all channel drains."

10.0 Resources and Waste Minimisation

- 10.1 The store will have timber clad frame which will be sourced from sustainable spruce forests. For every cubic metre of steel replaced with timber, almost a tonne of carbon is saved because it is less energy-intensive to produce.
- 10.2 Externally larch cladding is proposed. This is a more sustainable option than metal cladding as it creates less carbon and weathers well. At the end of the store's life, the wood is able to be recycled to be used to build a new store or for use as a fuel source. It is Tesco policy that wood within the roof, frame, external walls, floors, foundations, doors and windows will hold certificates e.g. FSC, FEFC.
- 10.3 Other materials used for the major building materials and external hard standing areas will be responsibly sourced with a high recycled content where possible. These materials such as concrete, metals, brick, stone, glass, composites and plastics used within the roof, frame, external walls, floors, foundations, doors and windows are.
- 10.4 A site waste management plan will be produced by the main contractor at post planning stage. This will control the waste produced by the development and minimise waste to landfill. The main waste arisings will include the earth excavation, and material off-cuts. It is anticipated that much of this will be maintained and used on site and any remaining diverted from landfill.
- 10.5 In 2009 100% of store waste produced was diverted away from landfill. Tesco will continue to work with recycling providers to find new ways to recycle waste from their operations. In 2008 Tesco reduced the amount of waste going into landfill by over a third. Each Tesco store has waste targets that are reviewed and reported against every week.
- 10.6 A dedicated space for organic waste to be stored prior to removal and composting at an alternative site will be provided on site. In addition a compactor baler will be specified for the storage of recyclable waste also. Space will also be provided for organic waste to be stored prior to removal and composting at an alternative site.

11.0 Ecology

- 11.1 PPS9 concerns the biodiversity value and promoting good, well-designed, quality mixed use developments.
- 11.2 The vast majority of the site comprises a mixture of bare ground, re-colonising vegetation and developing grassland that has developed over a stony substrate. A detailed ecology statement is submitted with this application and outlines the following:
- The site currently has a poor quality disused building which has little or no scope for reuse. Developing the area for a retail supermarket will bring the land inline with nearby sites, and at the same time improve the public realm surrounding it;
 - The site itself is not subject to any statutory or non-statutory nature conservation designation and no evidence for the presence of any specifically protected, rare or notable species was recorded at the site;
 - The habitats within the site are dominated by bare, re-colonising ground, ruderal vegetation and developing grassland and scrub following the clearance of previous development;
 - The proposal seeks to reinforce and enhance the existing boundary vegetation;
 - The proposed landscape treatment for the site comprises additional tree and shrub planting along the site boundaries and within the car parking to separate cycle/footpaths from vehicle areas;
 - Formal lines of tree planting in the public realm will provide an attractive frontage to the development, along with opportunities for seating and to gather.
- 11.3 It is a Tesco design standard to specify features to prevent damage to vulnerable parts of the building, and to make sites fit with the local vernacular.
- 11.4 Landscape effects during the construction period would have the greatest impact and may include a minor negative effect to the footpaths and biodiversity of the site as there is likely to be a larger number of vehicles moving about the site.
- 11.5 Post planning works will be carried out to ensure that any loss of biodiversity during construction will be minimised and where possible enhanced.

12.0 Pollution

12.1 A range of potential pollutants have been considered within this section and are outlined below:

12.2 A Noise Assessment has been submitted with this application. This concluded that noise from the development can be controlled within a reasonable limit and provides a number of mitigation measures and methods to ensure that noise levels are kept to a minimum. The potential sources of noise at the site include:

- Noise and vibration from construction activities where residual noise post construction will be negligible;
- Noise from the operation of and mechanical services plant which can be controlled to reduce harm to local amenity;
- Noise from car parking, use of access roads and servicing of the store which is considered to have a negligible impact overall.

12.3 It is a Tesco design standard to specify external lighting designed in compliance with ILE guidance.

12.4 It is a Tesco design standard to ensure that systems using refrigerants are contained in a moderately airtight enclosure and a refrigerant leak detection system is in place for high risk parts of the plant.

12.5 It is a Tesco design standard to specify the use of separators, interceptors or filtration for areas at risk of pollution, However, infiltration methods of source control are not considered feasible at this site due to restrictions stemming from the protection of groundwater aquifer resources and a relatively shallow ground water table.

13.0 Conclusion

- 13.1 There are a number of sustainability initiatives which are proposed within the scheme as illustrated throughout this report to meet with policy requirements detailed in section 4.
- 13.2 Significant improvements to the public realm and pedestrian accessibility between the store and the nearby Town Centre are evident, enhancing the health and wellbeing of both staff and visitors to the area.
- 13.3 The Travel Plan and Transport Assessment submitted with the application also provide details of the proposed targets to ensure the reduction in car use of both staff and visitors to the store.
- 13.4 In addition, the design of the store has incorporated the use of sustainable timber for the frame of the store.
- 13.5 In relation to energy, PPS1 and PPS22 provide a requirement to reduce energy consumption by 10% through decentralised or low and zero carbon technologies. The Tesco store has a baseline energy consumption of 9,386,477kWh/yr and carbon emissions of 3,733 tonnes per annum.
- 13.6 The low carbon and renewable technologies options review identified combined heat and power and biomass boilers as technically viable technologies that would be able to meet the 10% energy target.
- 13.7 The CHP is the recommended technology to meet the policy target. A 228kW_e/258kW_{th} CHP will be able to provide low carbon decentralised energy for the site and is a mature technology suitable for long term investment. CHP energy centres are capable of providing both heat and power to the development and in addition can export excess electricity to the grid.
- 13.8 The table below identifies the energy savings for the site from the energy efficiency and the inclusion of a low carbon decentralised energy supply. It can be seen that the development significantly exceeds the policy target of a 10% improvement.

	Savings kWh/yr Energy	Savings kg/CO₂/yr Carbon
Site Baseline	9,386,477	3,733,338
CHP	1,553,788	386,193
Total Savings		10.34%