

Grove Park

Renewable Energy Statement

SOUTHWARK COUNCIL PLANNING <b>CASE FILE COPY</b>	
DATE RECEIVED	DECISION AND DATE
<b>01 FEB 2011</b>	
REGISTERED NUMBER	
<b>10 AP 37 <del>41</del></b> 51.	

London Borough of Southwark  
Received on:  
**31 JAN 2011**  
Development Management

SCANNED ON  
**31 MAY 2011**  
PLANNING (JR)

Grove Park

Renewable Energy Statement



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**Audit Sheet**

Rev.	Description	Prepared and checked by	Reviewed by	Date by
-	Draft Issue	VL	RE	26.01.2011

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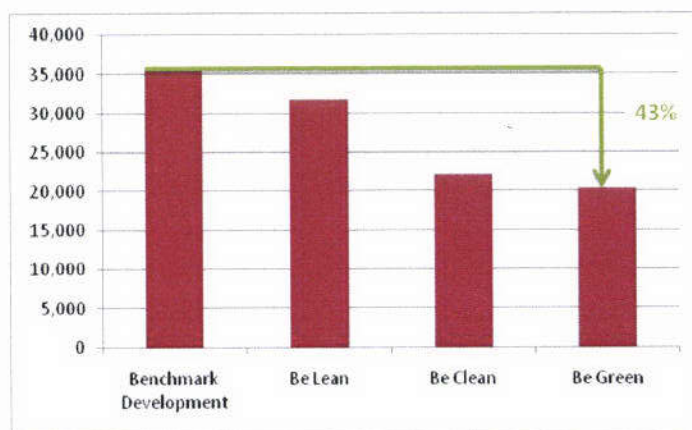
## ENERGY STATEMENT

This statement has been produced by Hoare Lea Consulting Engineers to support the planning application for the proposed development at Grove Park, London. The development comprises 5 new build luxury 4 bedroom houses to the rear of the existing house which is to be refurbished to provide 4 luxury apartments and two 4 bedroom luxury houses. The purpose of the report is to demonstrate compliance with the objectives of the London Borough of Southwark, the London Plan, Mayor's Energy Strategy and London Renewable's strategy.

The energy strategy has been developed in line with the Mayor's Energy Hierarchy of "Be Lean", "Be Clean" and "Be Green" scenarios to reduce the energy consumption of the development. Low carbon technology (i.e. Air source heat pumps), renewable technologies, energy-efficient equipment and passive design will be incorporated into the scheme.

The London Borough of Southwark requires a minimum of a 20% reduction in CO<sub>2</sub> emissions after energy efficiency measures. The energy strategy for Grove Park will incorporate both air source heat pumps and solar hot water which will make a combined reduction in CO<sub>2</sub> of 36% over those of the development after application of the energy efficiency measures.

This will contribute to the overall anticipated reduction in CO<sub>2</sub> emissions of 43% less than the Part L1A 2006 benchmark.



## 1.0 ENERGY REDUCTION CALCULATIONS

### 1.1 Low Carbon Technology (Be Clean)

Air source heat pumps utilise low grade energy in the air as the heat source in a refrigeration process enabling them to produce hot water, typically at around 45°C, that can be used as a heating medium in buildings. This temperature is ideal for use with the underfloor heating being installed within all the dwellings. Due to the fact a small amount of electrical energy can be used to transfer heat from the atmosphere to the building this technology provides carbon emissions savings over a gas-fired boiler. This technology is well understood and reliable so can be used at Grove Park with confidence of achieving the required carbon reductions with negligible technical risk.

The installation would consist of individual units to serve each dwelling and provide heating and hot water. This will provide a large reduction in energy consumption due to the high Coefficient of Performance (CoP) of this technology. A more modest carbon saving is achieved due to the relative carbon emissions factors for electricity and gas, but this is still significant.

By utilising the increased efficiency from utilizing low grade heat in the air this measure can provide an additional 27% carbon saving.

Carbon Emissions kg CO <sub>2</sub> /Annum		
	Total	Reduction%
Benchmark Development	35,743	
Benchmark Development + Energy Efficiency	31,811	11
Benchmark Development + Energy Efficiency + Air Source Heat Pumps	22,160	27

### 1.2 Renewable Technology (Be Green)

It is proposed to install solar hot water panels to serve each of the dwellings. Due to the air source heat pumps being electrically powered there will be CO<sub>2</sub> savings in offsetting some of the electrical power required to provide hot water to the dwellings and this has therefore been found to provide the most favourable CO<sub>2</sub> reductions and to be the most practical solution for the development.

Each new 4 bedroom house and the two 4 bedroom houses within the refurbishment will be provided with 5m<sup>2</sup> of solar hot water panels. Each single storey apartment will be served by 3m<sup>2</sup> of solar hot water panels with 5m<sup>2</sup> provided for the two and three storey apartments.

By providing a proportion of each dwelling's hot water via solar thermal systems a predicted CO<sub>2</sub> saving of a further 5% is anticipated to be achieved across the development.

Carbon Emissions kg CO <sub>2</sub> /Annum		
	Total	Reduction%
Benchmark Development	35,743	
Benchmark Development + Energy Efficiency	31,811	11
Benchmark Development + Energy Efficiency + Air Source Heat Pumps	22,160	27
Benchmark Development + Energy Efficiency + Air Source Heat Pumps + Solar Hot Water	20,373	5