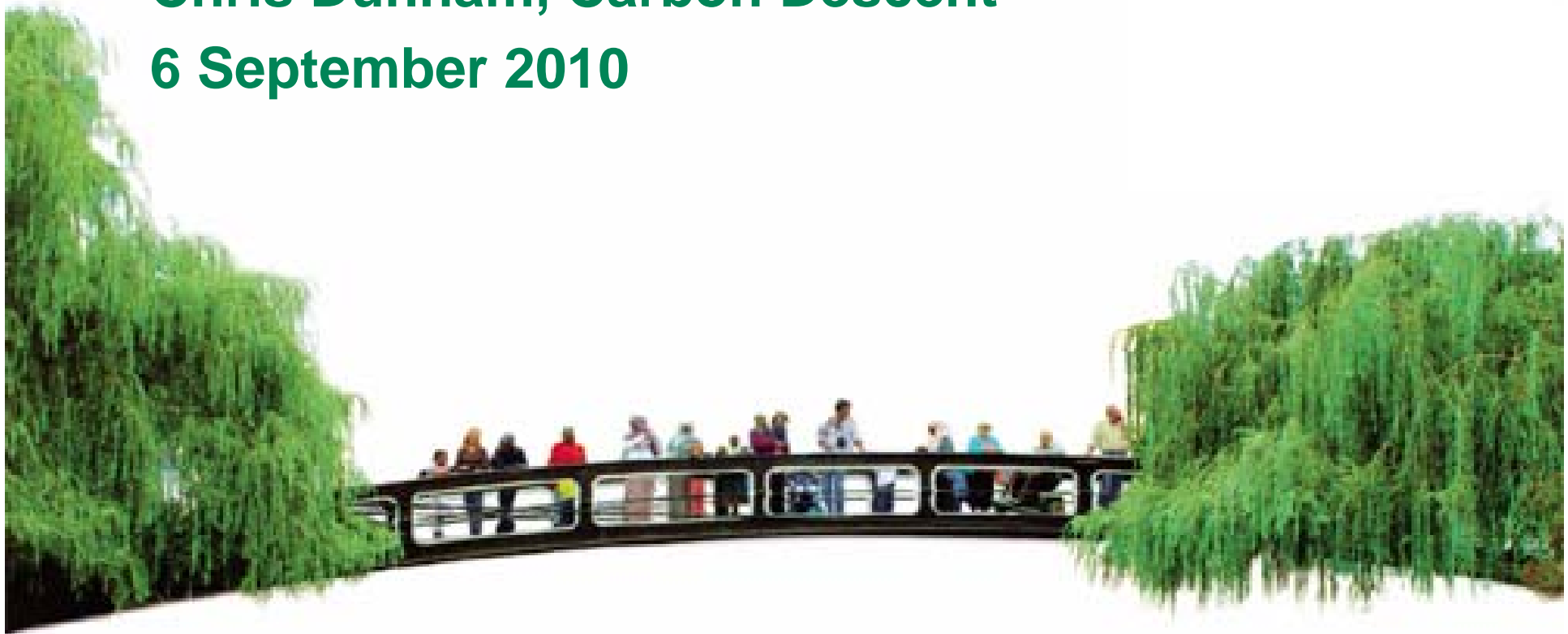


# Cutting Camden's CO<sub>2</sub> by 2020



**Chris Dunham, Carbon Descent**  
**6 September 2010**



# The Brief

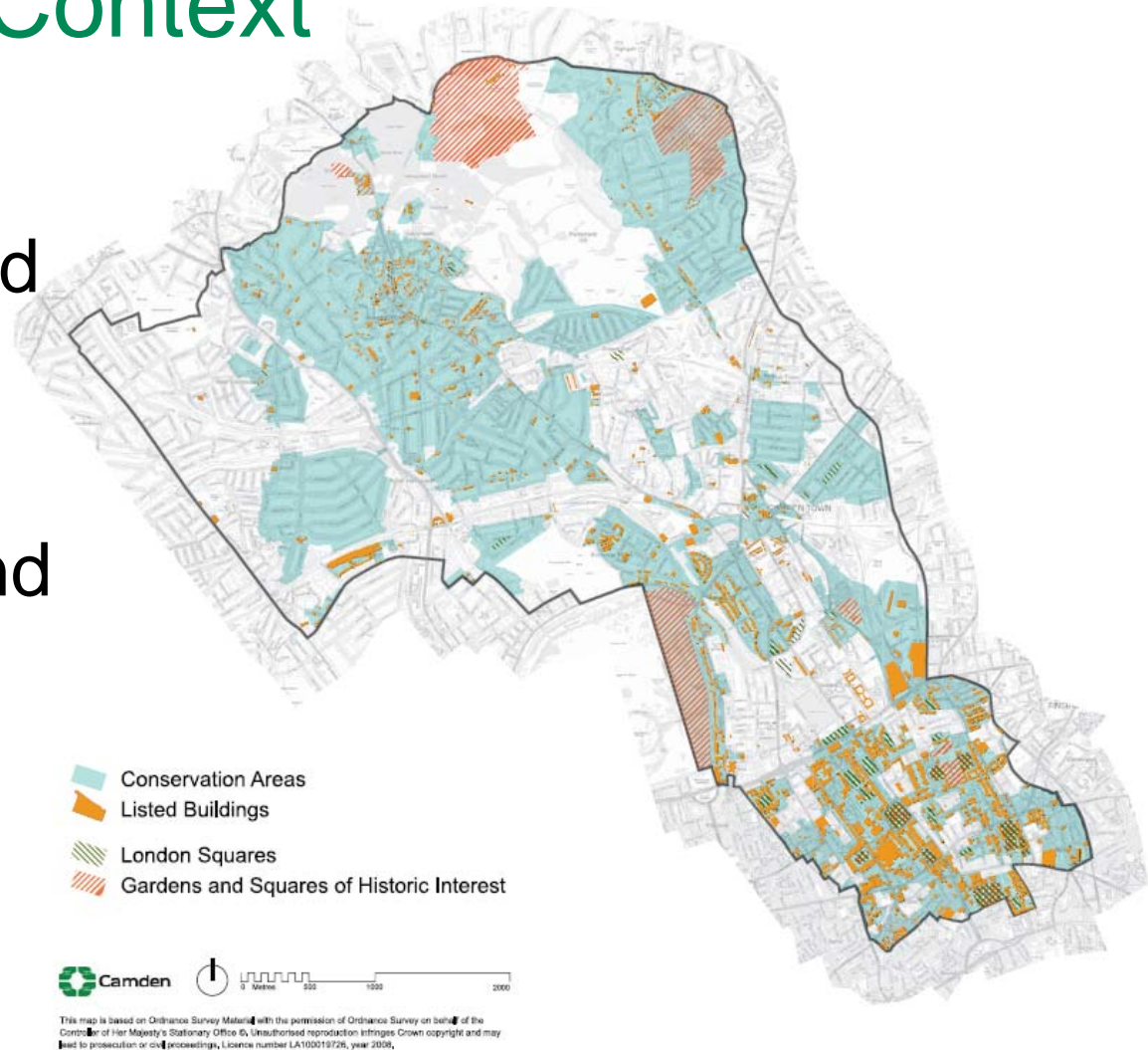
- Assess the feasibility of achieving a 40% CO<sub>2</sub> reduction across the borough by 2020.
  - Friends of the Earth “Get Serious About CO<sub>2</sub>” campaign
  - For community-wide CO<sub>2</sub> emissions

# About Carbon Descent

- Carbon Descent developed the technical case for the FoE 40% by 2020 campaign
- Extensive previous work with Camden
- Have developed software to undertake work quickly & robustly (used by one third of English authorities)

# The Camden Context

- Over 5,600 listed buildings
- Over 50% of land area in designated conservation areas





# The Camden Context

- Very significant commercial emissions
- Arguably the most challenging sector to influence



# Emissions by sector in Camden

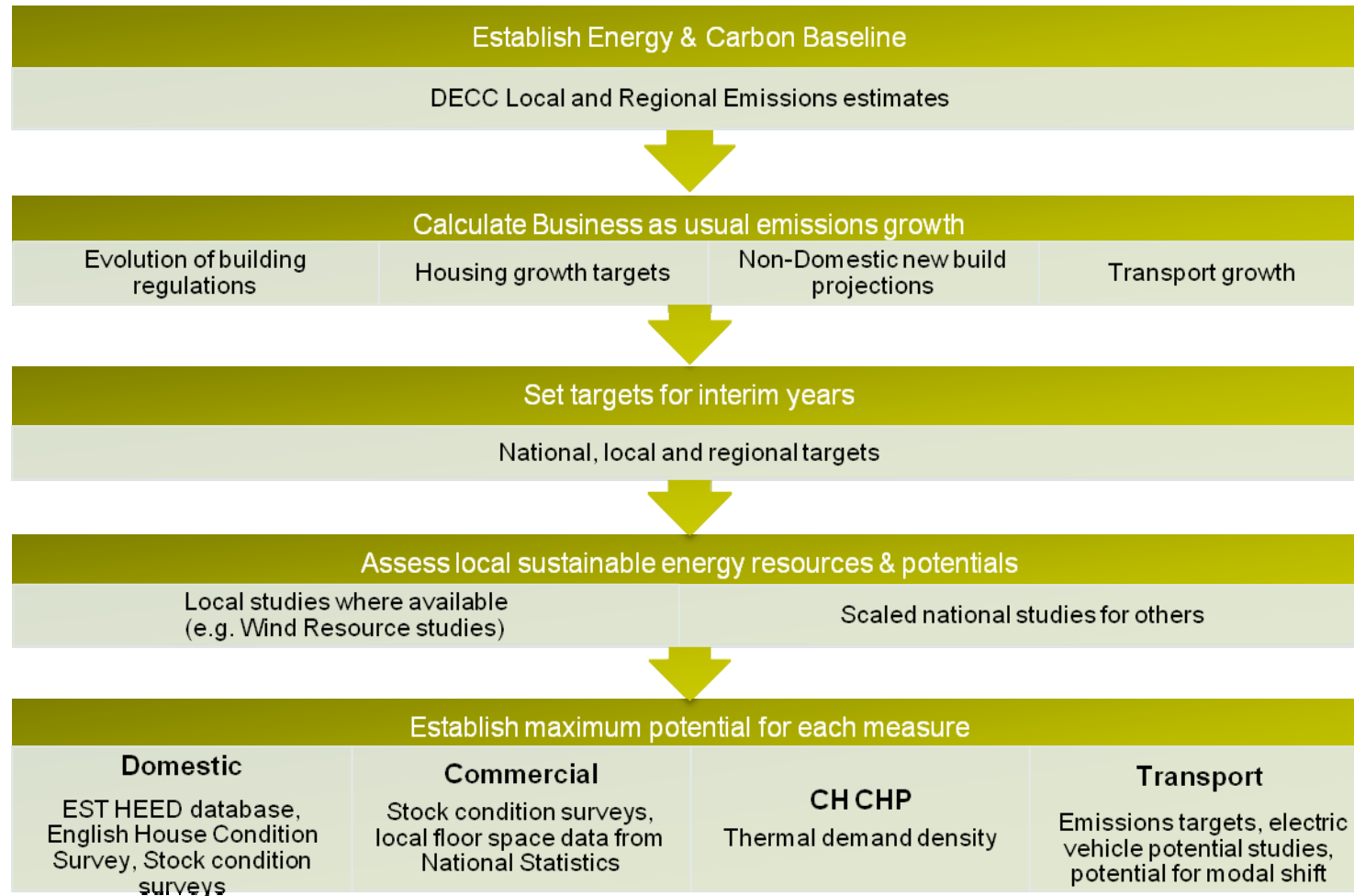
Sector	2005
Domestic	413
Commercial & Industrial	1,029
Transport	171
Total	1,613 ktpa

ktpa = kilo tonnes per annum

# Current CO<sub>2</sub> reduction commitments

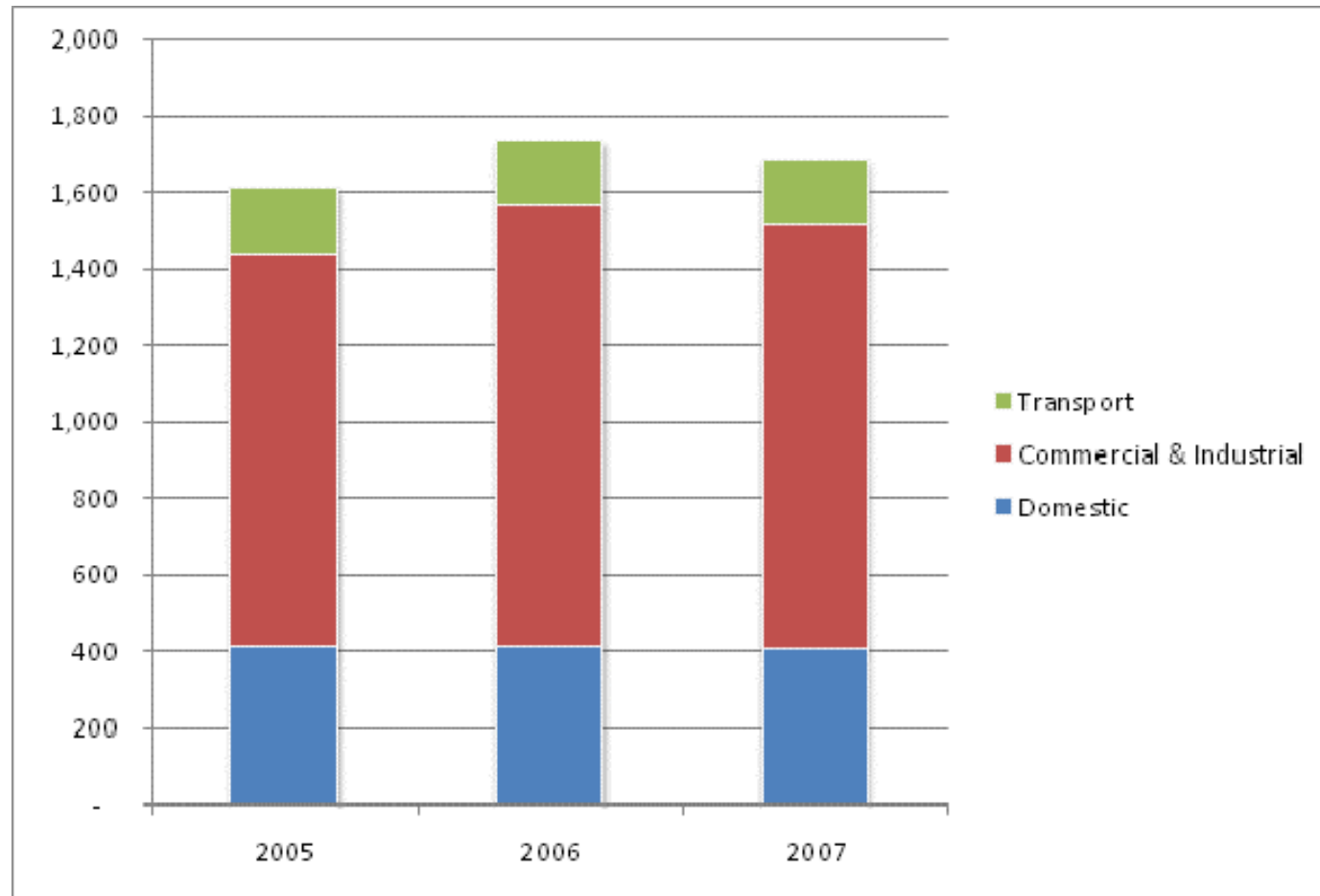
- Camden's Local Area Agreement committed to a 8.5% reduction in per capita CO<sub>2</sub> by 2010/11
- Progress currently measured by National Indicator 186
- Despite reductions in domestic and transport sectors, commercial emissions have grown

# Methodology





# Baseline emissions in Camden



# Business As Usual Growth

- Camden infrastructure study: projected gas and electricity growth
- Population growth
- National transport projections scaled to Camden
- 2020 impact: 2% growth

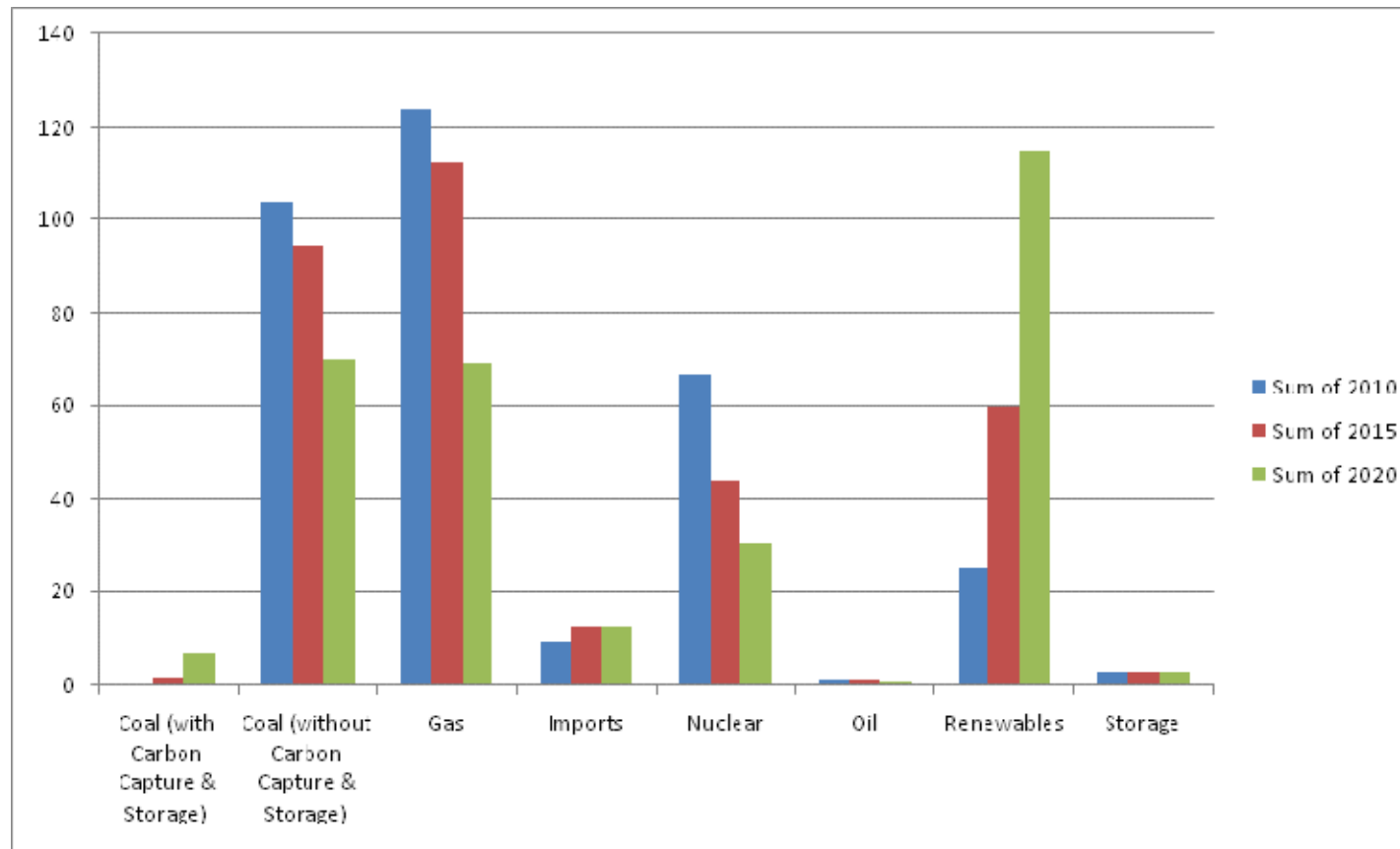
# What is the target?

- 40% target by 2020 on 2005 baseline  
= 42.6% by 2020 on 2007 baseline
- In absolute terms emission reduction of 744 ktpa CO<sub>2</sub> by 2020
- Saving required equivalent to 665MWe of offshore wind

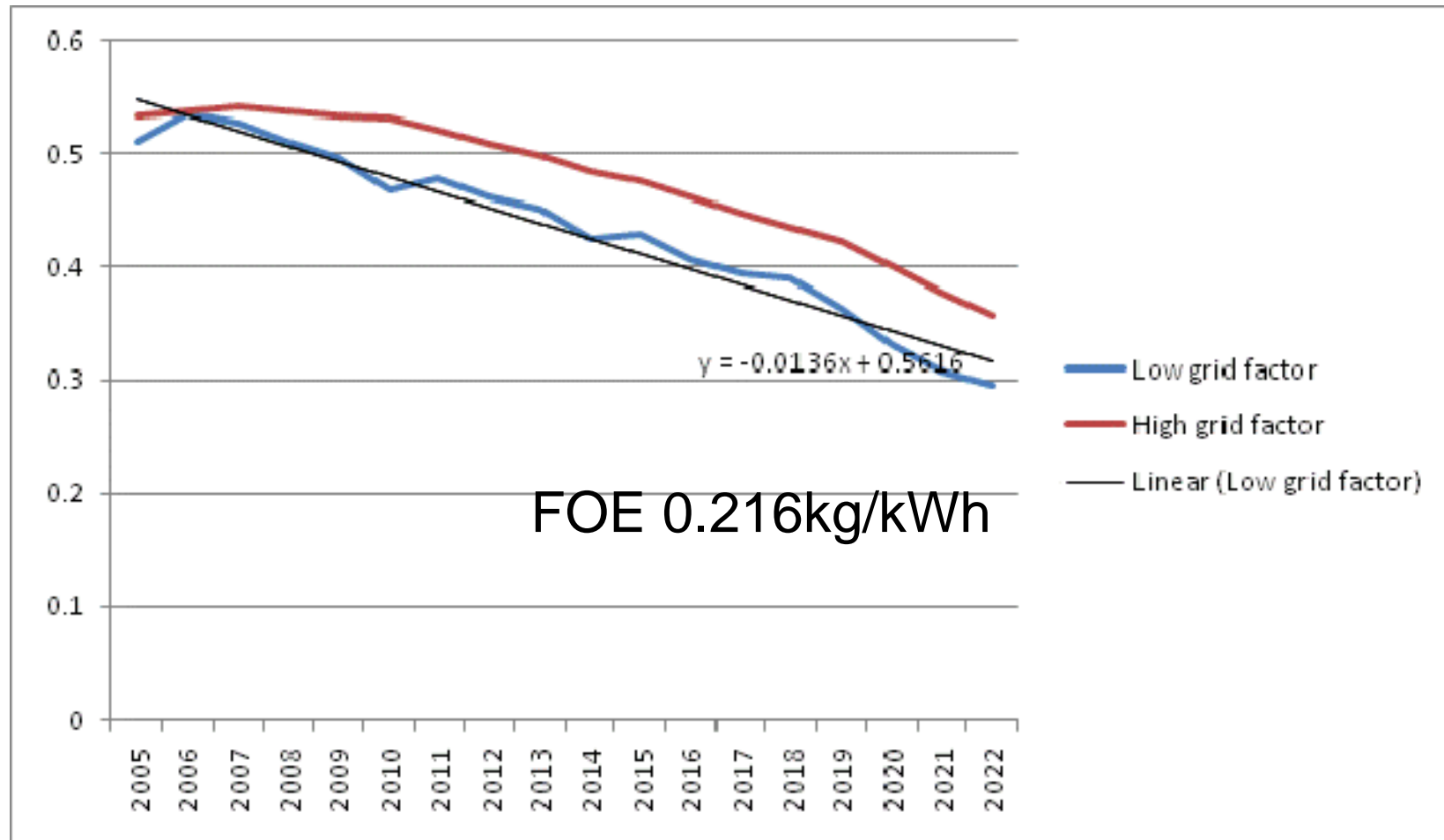
# The Role of the Grid

- Very significant methodological issue
- Local generation, whether renewable or not, only counts where it offsets demand
- Changes in generation nationally therefore have huge impact on Camden

# DECC Electricity Generation Projections (TWh by source for 2010, 2015, 2020)



# Declining Carbon Intensity of Electricity





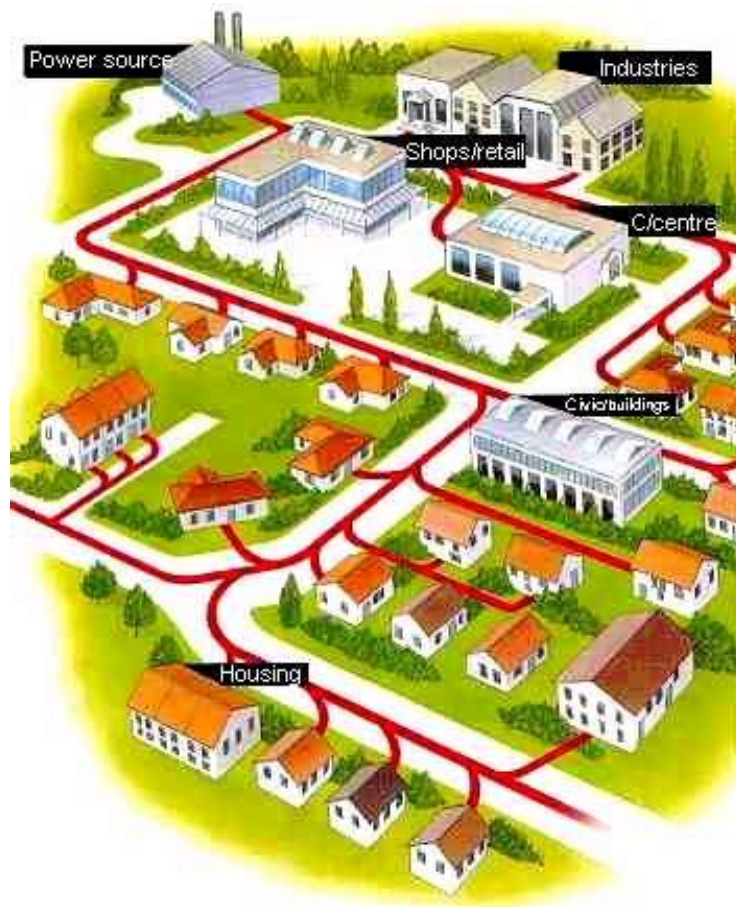
# Camden's Maximum Resource Potential

Measure	Unit	2005 - 2020
PV Domestic	Homes	33,000.00
PV Non domestic	MWe	60
Wind large	MWe	2
Wind medium	MWe	1
Solar thermal domestic	Homes	33,000.00
Cavity wall insulation domestic	Homes	24,218.00
Loft insulation domestic	Homes	15,191.00
Double glazing domestic	Homes	38,944.00
Solid wall insulation domestic	Homes	59,994.00
Energy efficient lighting commercial	000's m <sup>2</sup>	1,500.00
Double glazing commercial	000's m <sup>2</sup>	90
Street lighting efficient lamps	Lamps	9,865.00

# Selected measures

Measure	Scale	% of total CO2 saving
CHP led energy networks	120 MW (Camden currently has under 1MW of installed CHP capacity)	19.2%
Solid wall insulation	35,000 homes (58% of solid wall homes)	11.1%
Road transport efficiencies	An increase in new car efficiency to 95kgCO2/km and an increase the biofuel mix in fuels by 10% by 2020	7.4%
Renewables	20,000 domestic installations and 15MW of commercial	2.1%
Behaviour change	Domestic and commercial	11.5%
Green National Grid	Accounting for 974,000 MWh of electricity	43%
Others	Cavity wall and loft insulation; double glazing and energy efficient lighting	5.7%

# CHP & Decentralised Energy Networks

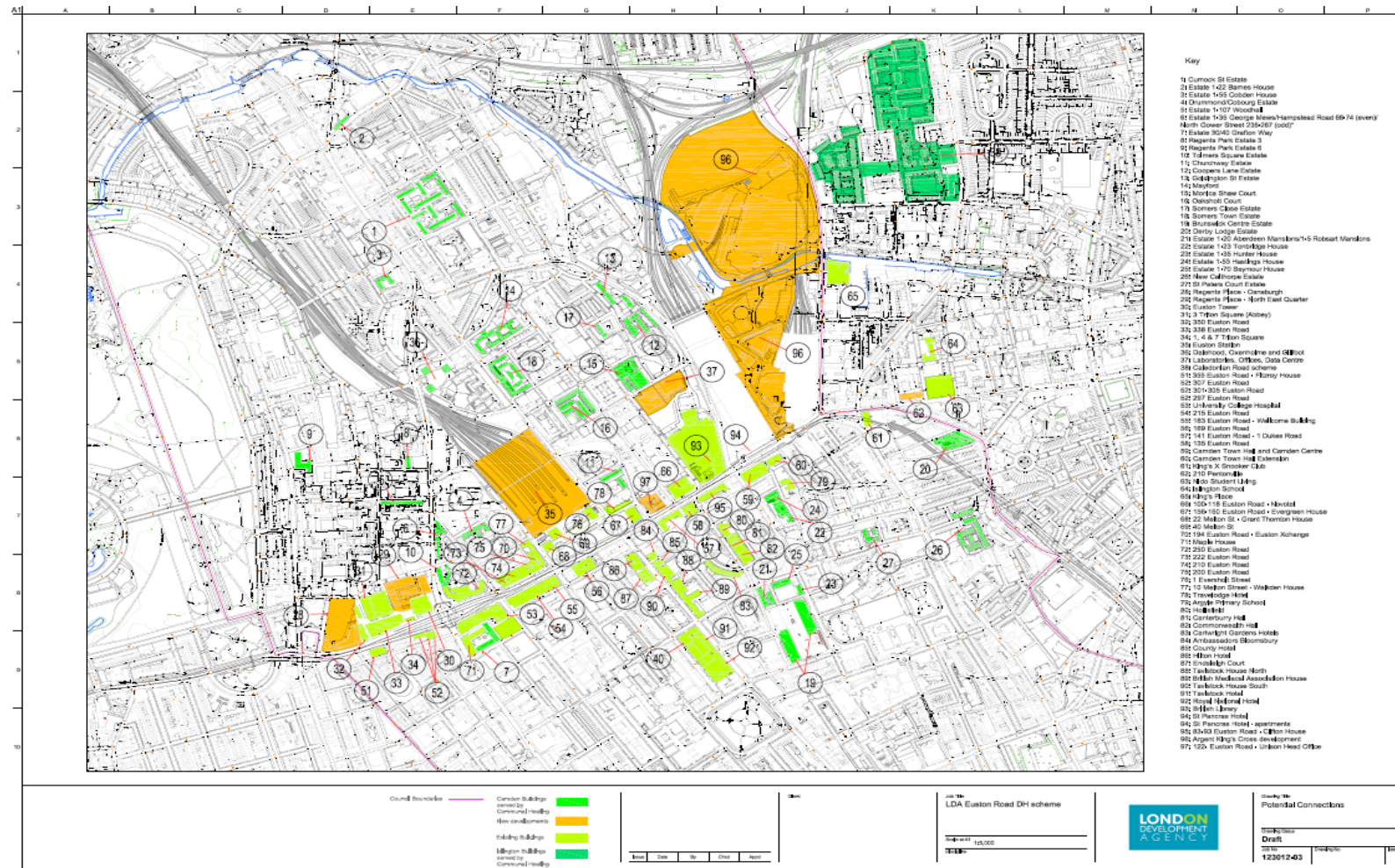


# CHP & Decentralised Energy Networks

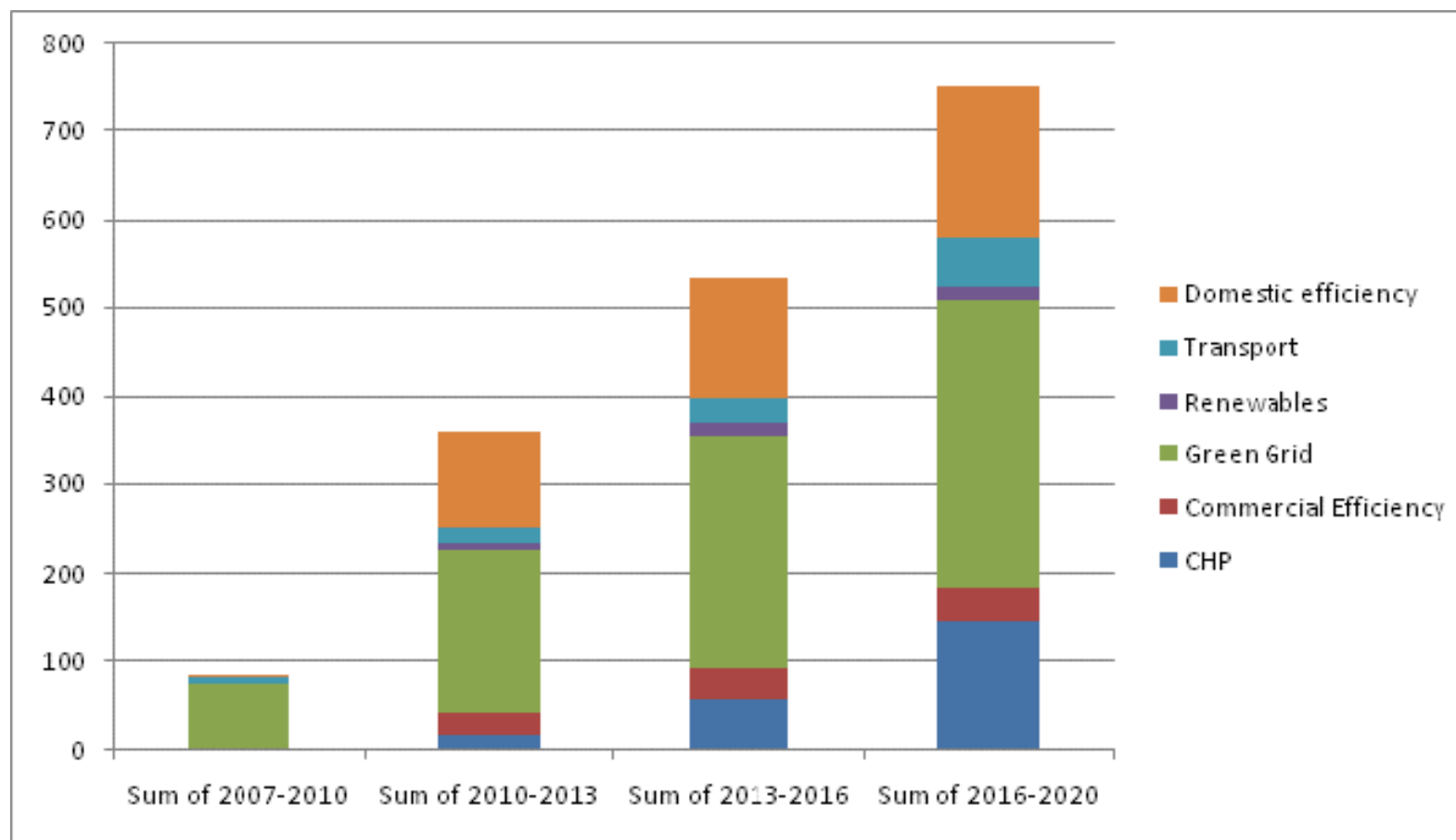
- 120 MWe required – approx. 24,000 homes
- Heat density and existing networks make this measure possible - but still challenging
- Requires developer sector engagement
- Key opportunity areas identified



# Euston Road Corridor – DE Growth

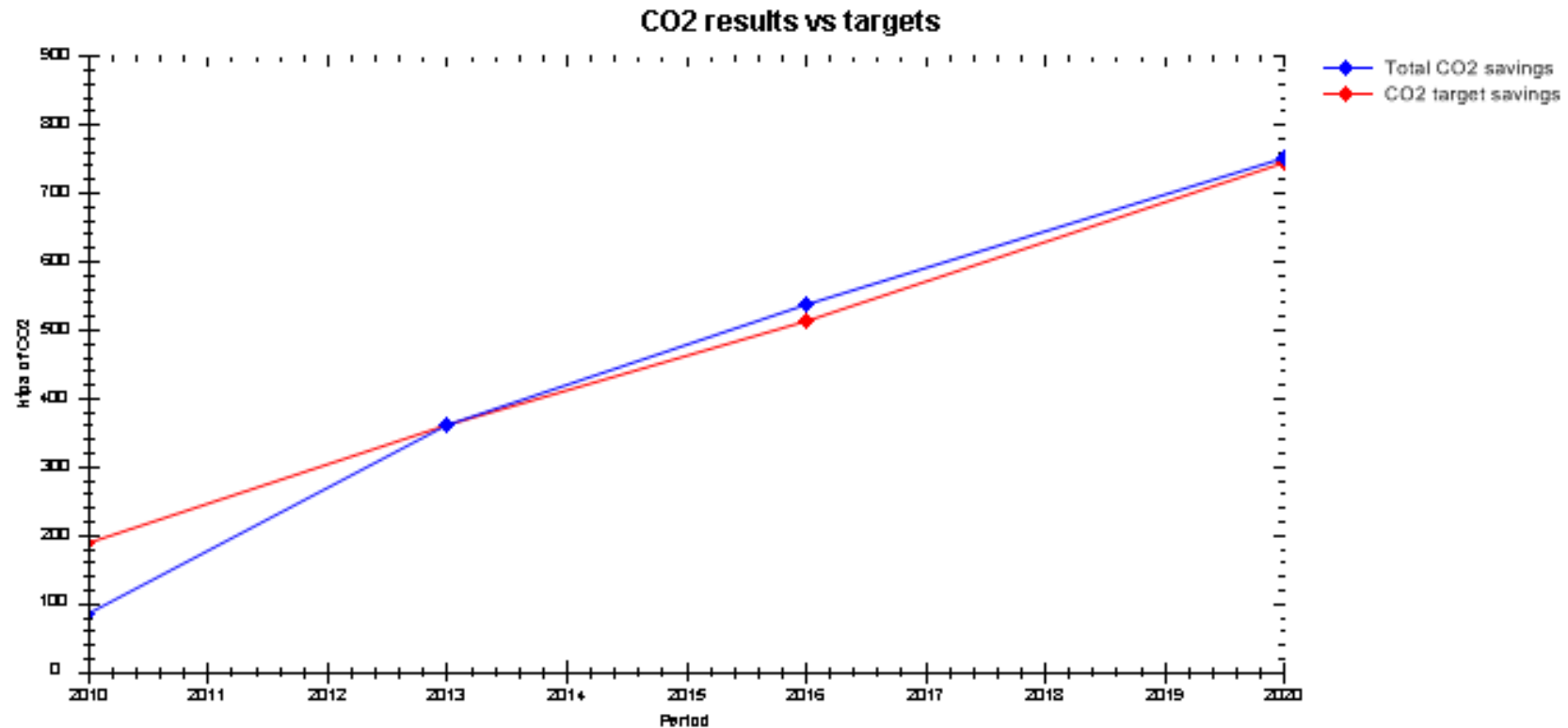


# The Selected Scenario: CO<sub>2</sub> Savings

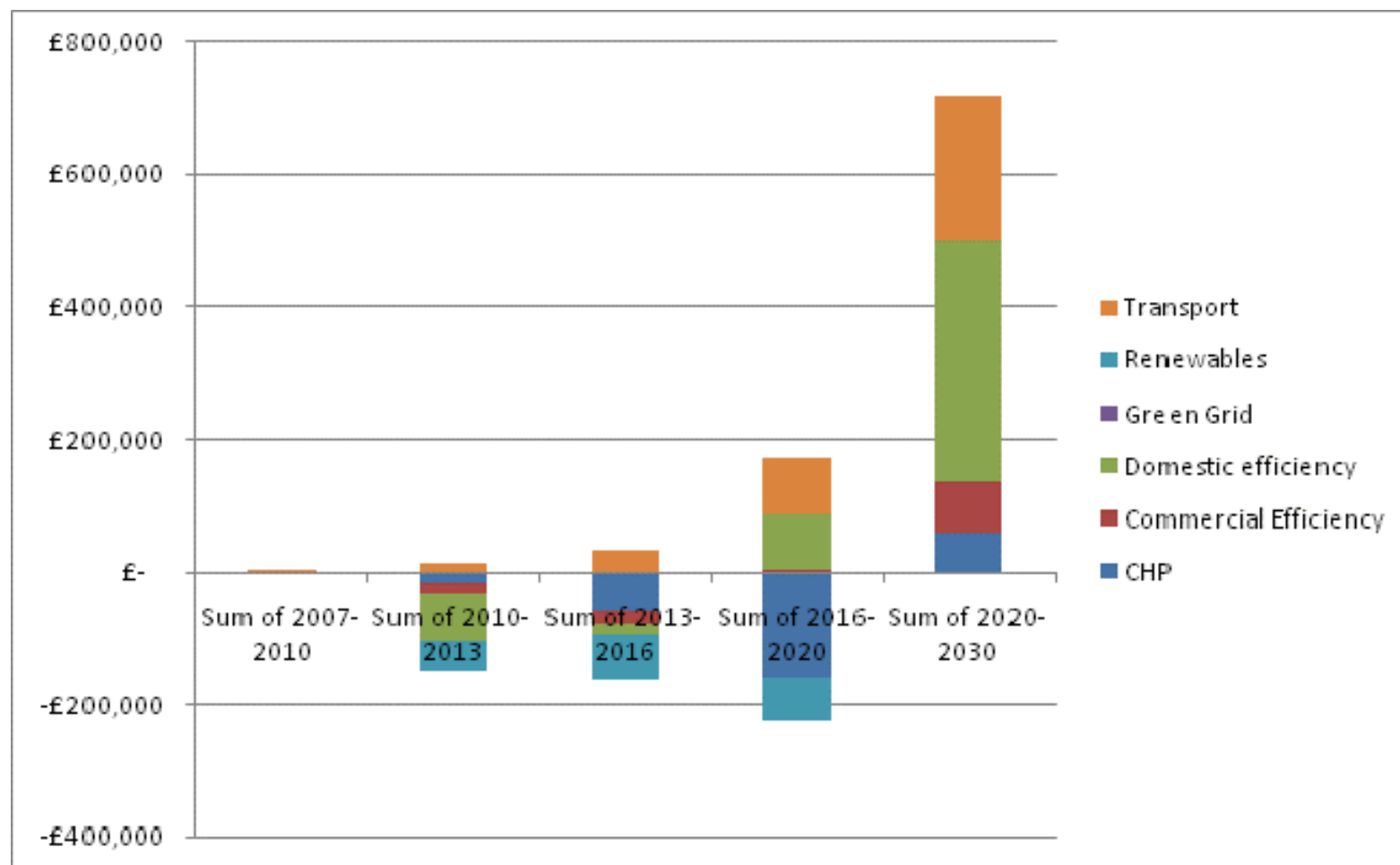




# The Selected Scenario - Results



# Viability: Net Present Value £k



# Key findings

1. £783m capital investment; but positive return over time
2. The importance of the grid
3. The minimal role played by local renewables
4. The need to transform existing solid wall properties
5. The scale of CHP led decentralised energy

# Key Challenges

- Lack of direct influence over commercial sector
- The need for developers to engage in the Decentralised Energy agenda
- The tension between heritage and energy conservation
- The dependency on a decarbonised grid
- Uncertainty around ongoing Government policy in relation to climate change – and funding

# Conclusions

- Target is achievable but extremely challenging
- In theory meeting the challenge is financially attractive but needs longer term investment view
- Not just a challenge to the Council, but a challenge to the whole community

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