



Implications for heat pumps under revised GLA planning policy

Snigdha Jain, WSP

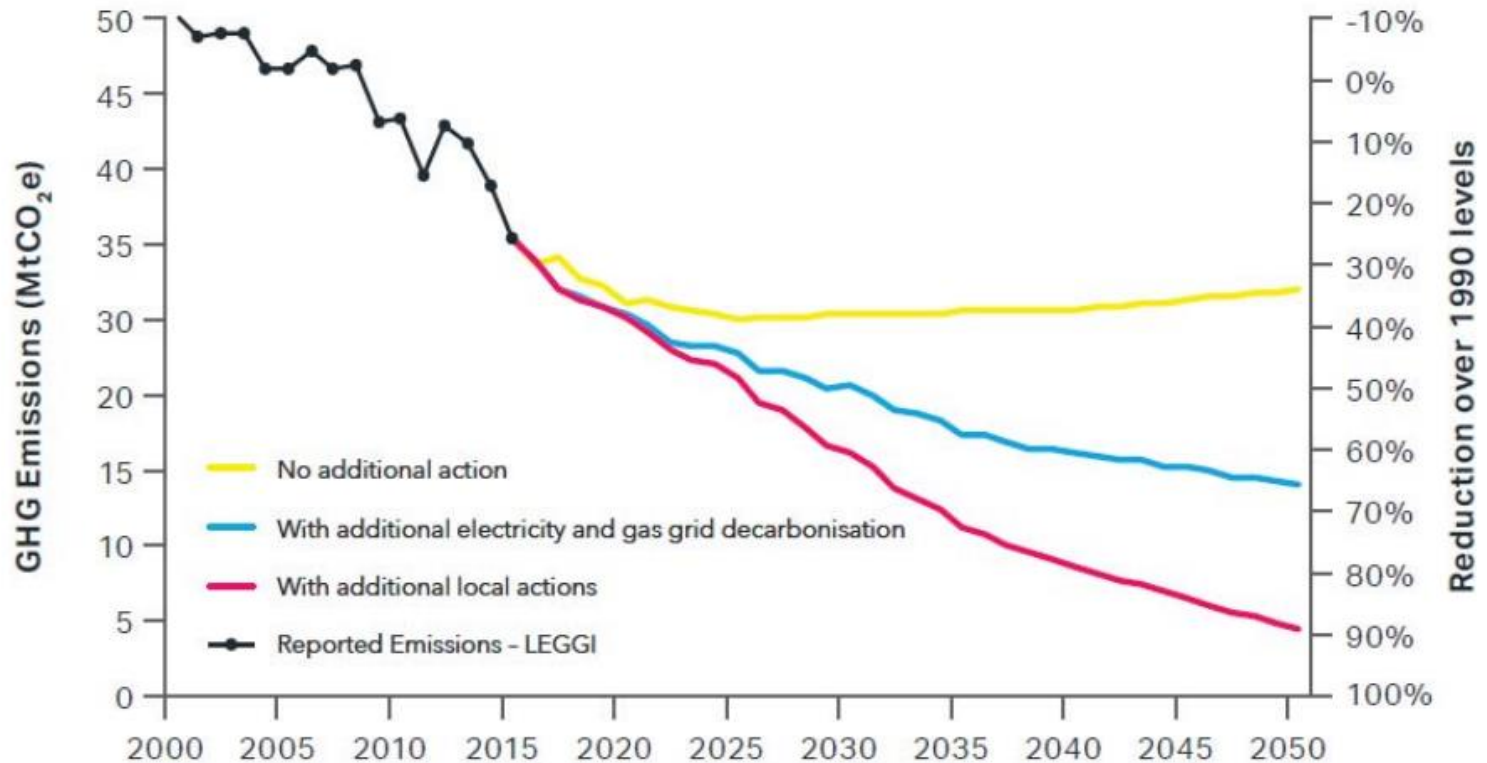
Driving Forces

Climate Change Act:
minimum
~~80%~~ 100%
reduction in
carbon
emissions

GLA Act:
Mayor has a
legal
responsibility
to address
climate
change

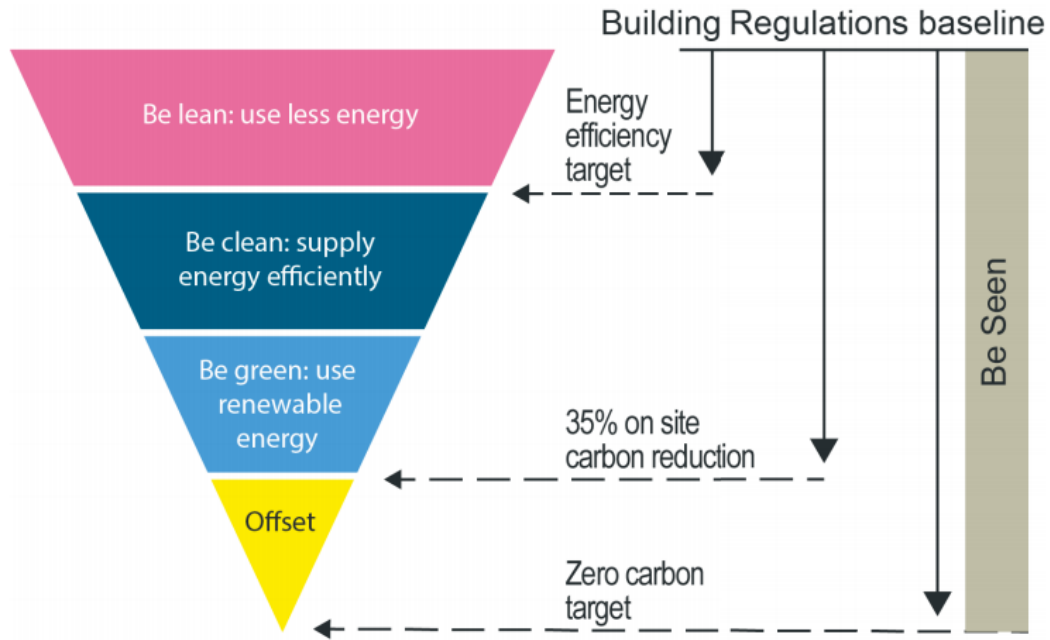
Paris
Agreement
&
need for
deep and
urgent cuts to
CO2 (e.g.
IPPC & CCC)

London Environment Strategy



Zero carbon city by 2050 - trajectory

Current Guidance



4

Energy Assessment Guidance

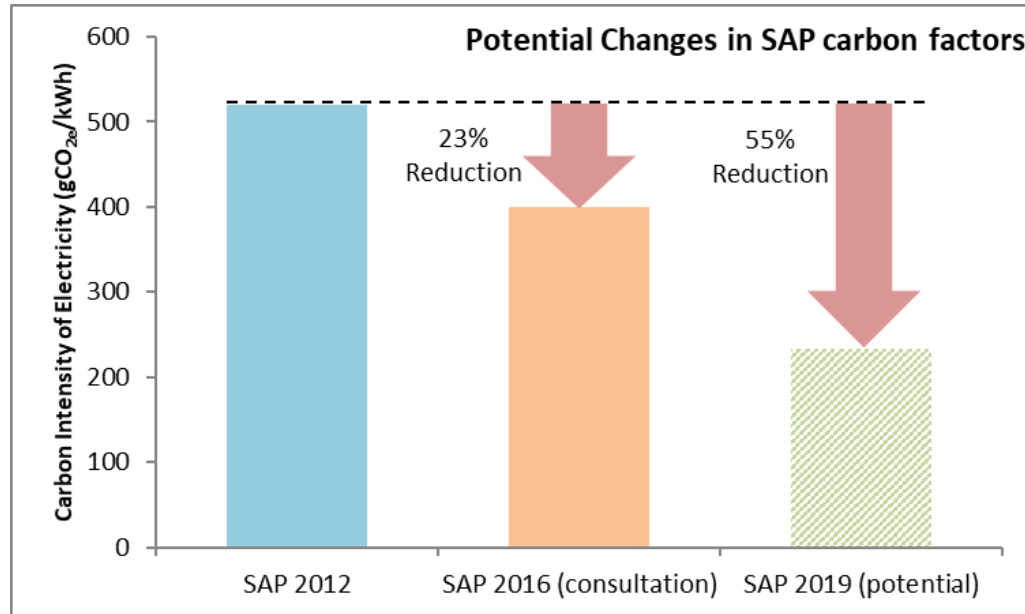
Greater London Authority guidance on preparing energy assessments as part of planning applications (October 2018)

Current Guidance

- From January 2019, planning applicants are encouraged to use updated (SAP 10) carbon emission factors to assess the expected carbon performance of a new developments.
- Applicants should also consider how the development will be future-proofed to achieve zero carbon emissions on-site by 2050 and provide proposals setting this out.

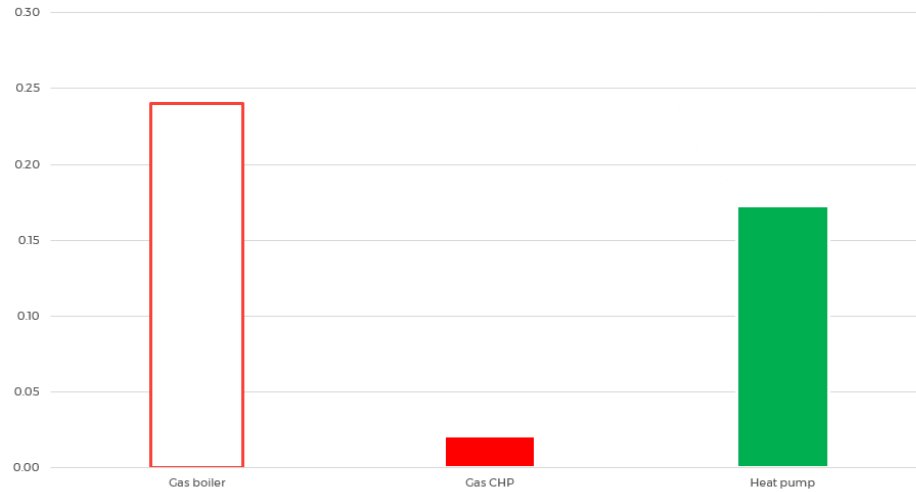
Current Guidance

	A	B	C
1	Table 1. CARBON (CO₂) FACTORS		
2	Fuel type	Fuel Carbon Factor (kgCO₂/kWh)	
3		SAP 2012	SAP 10
4	Natural Gas	0.216	0.210
5	Grid Electricity	0.519	0.233

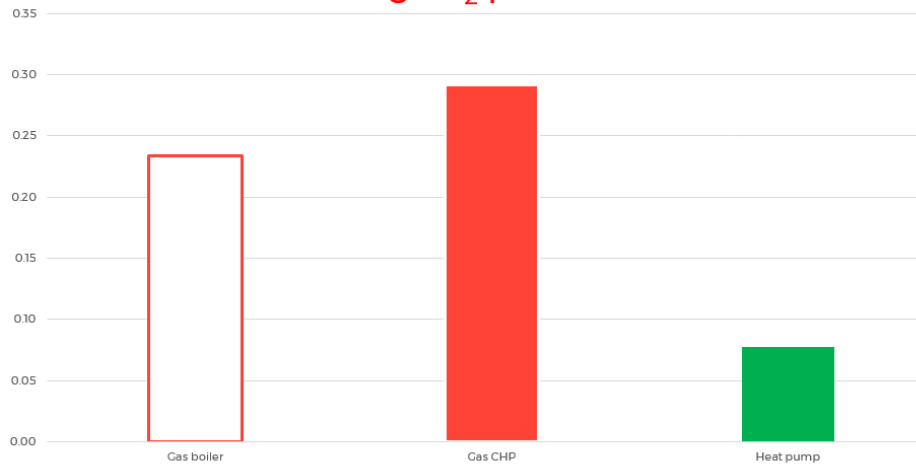


SAP 2012 vs SAP 10

SAP 2012 kgCO₂ per kWh thermal



SAP 10 kgCO₂ per kWh thermal



GLA Report Results

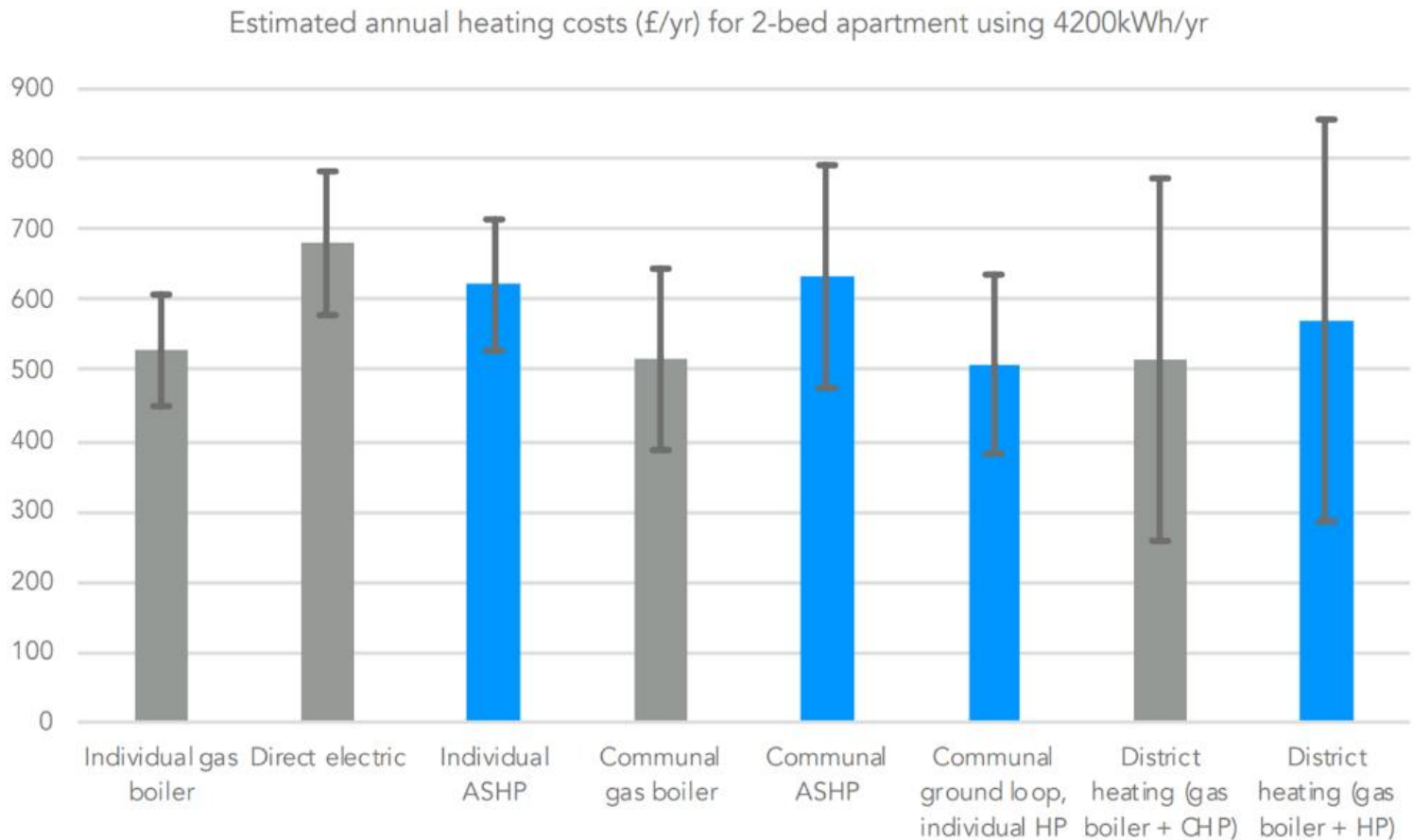
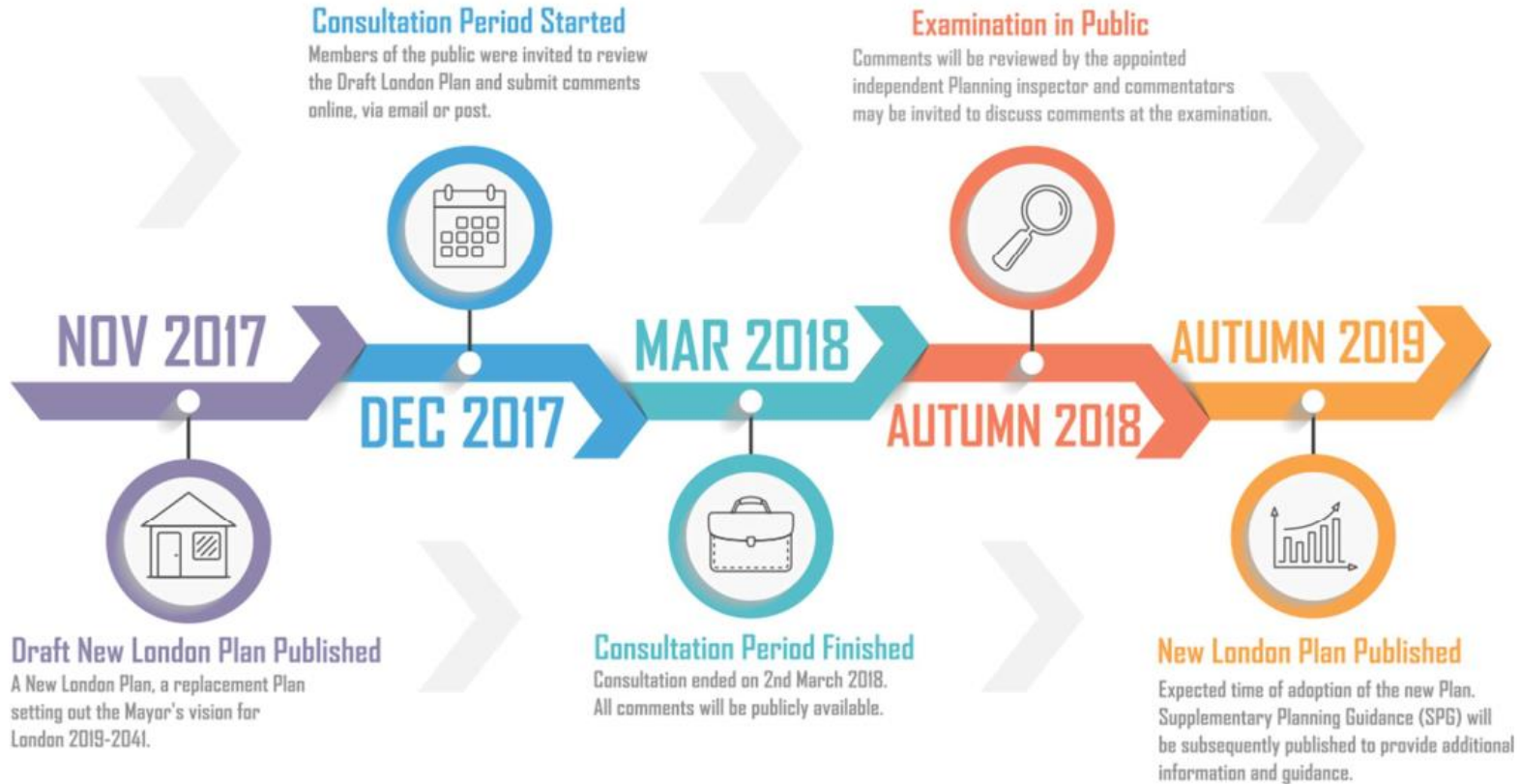


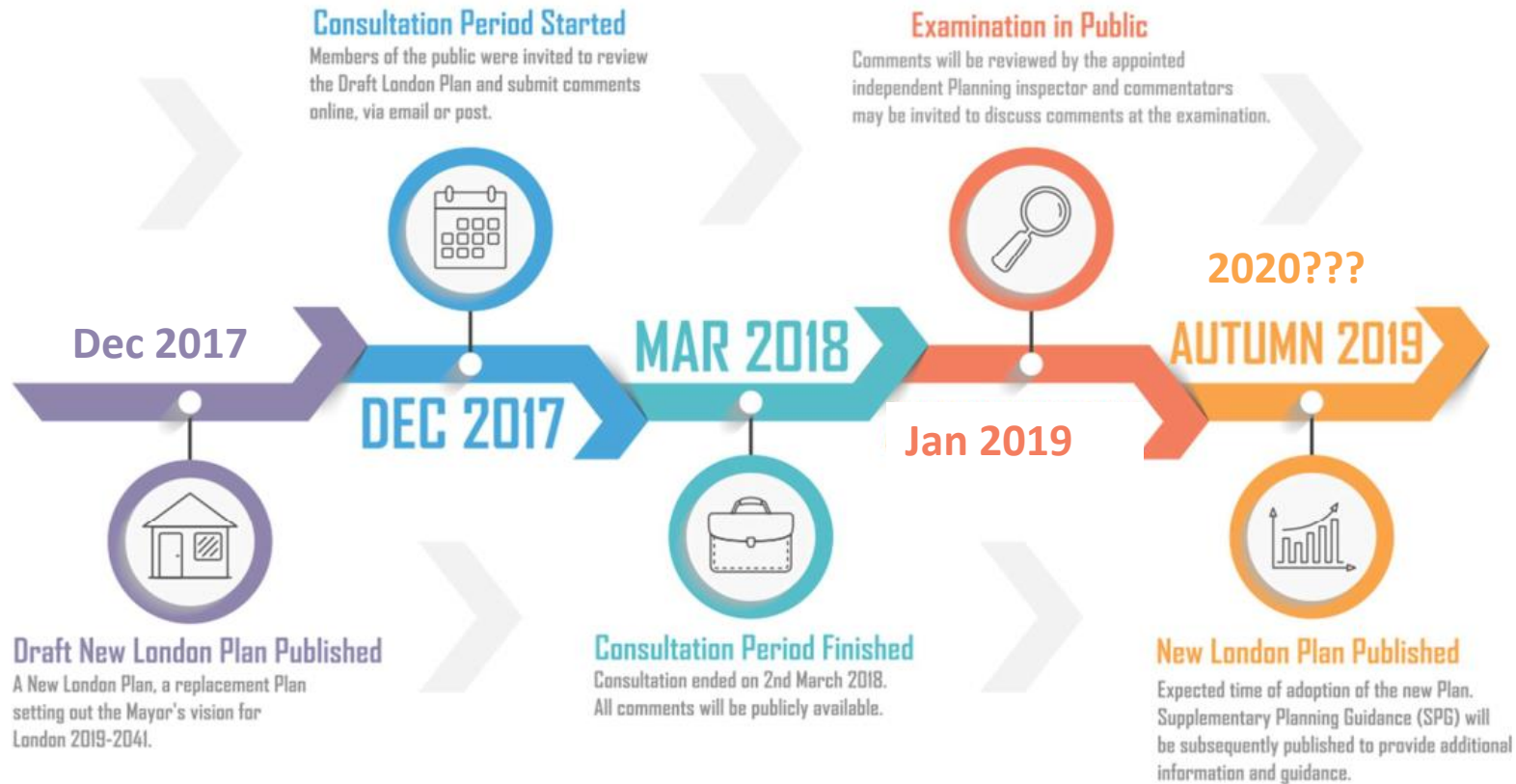
Figure 1.05 - Comparison of predicted heating costs for the resident of a 2-bed energy efficient apartment

New London Plan - Timeline

9



New London Plan – Timeline (Actual)

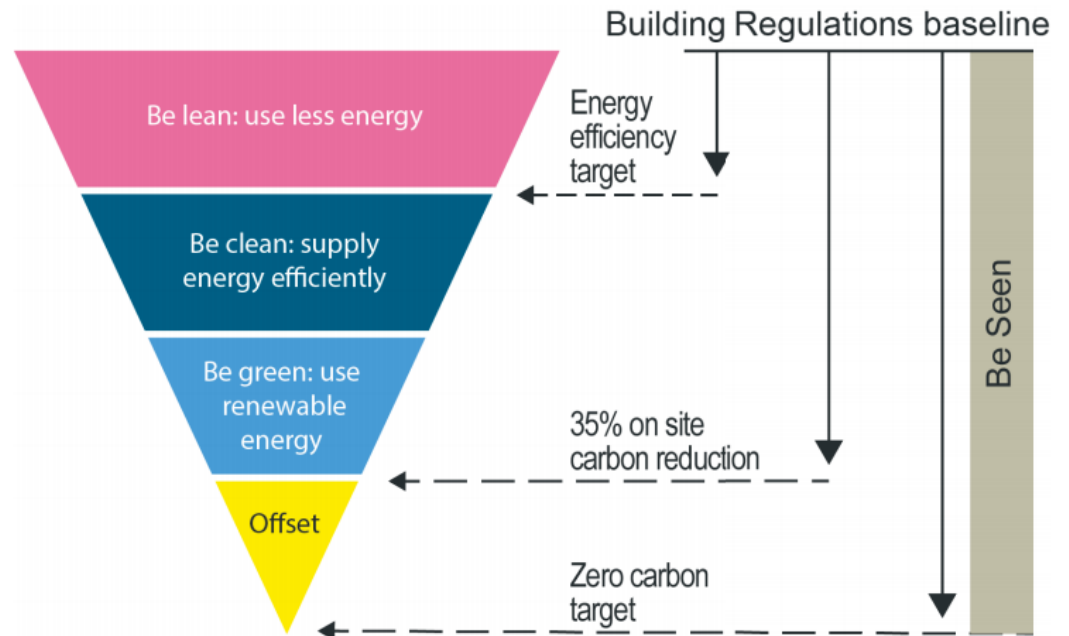


Proposed Policies

- Policy SI1 Improving air quality
 - 1) Development proposals should not:
 - a) lead to further deterioration of existing poor air quality
 - b) create any new areas that exceed air quality limits, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits
 - c) reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality
 - d) create unacceptable risk of high levels of exposure to poor air quality.
 - 3A) major development proposals must be at least air quality neutral and be submitted with an Air Quality Assessment

Proposed Policies

– Policy SI2 Minimise GHG Emissions



Proposed Policies

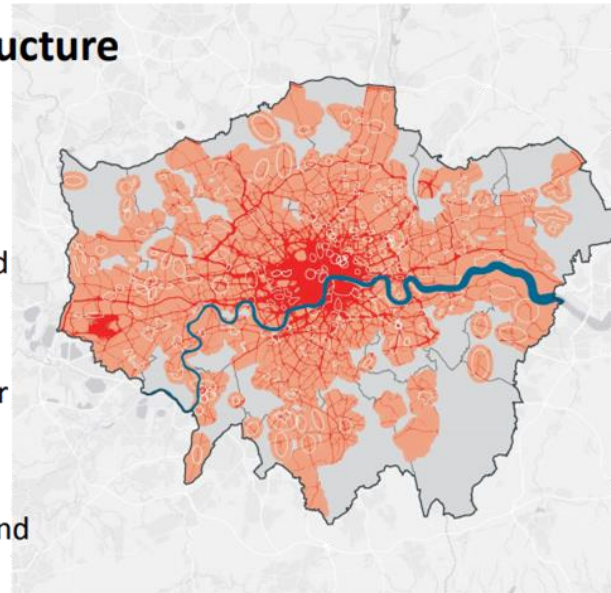
– Policy SI3 Energy Infrastructure

- Major development proposals within Heat Network Priority Areas should have a communal *low-temperature* heating system

Policy SI3 – Energy infrastructure

New heating hierarchy for developments in Heat Network Priority Areas:

- connect to local existing or planned heat networks
- use available local secondary heat sources generate clean heat and/or power from zero-emission sources
- use fuel cells
- use low emission combined heat and power (CHP)
- use ultra-low NO_x gas boilers.



Heat Network Priority Areas and Heat Density in London
Relative heat demand based on fuel use kWh/m²/year

- Heat Network Priority Areas
- Areas where legal air quality limits are exceeded
- Local Authority Heat Network Studies

Source: GLA
Environment
Contains OS data
Crown copyright
database right

Proposed Policies

- Many of London's existing heat networks have grown around combined heat and power (CHP) systems.
- However, *the carbon savings from gas engine CHP are now declining* as a result of national grid electricity decarbonising, and there is increasing evidence of adverse air quality impacts.
- Where there remains a strategic case for low-emission CHP systems to support area-wide heat networks, these will continue to be considered on a *case by case basis*.

Proposed Policies

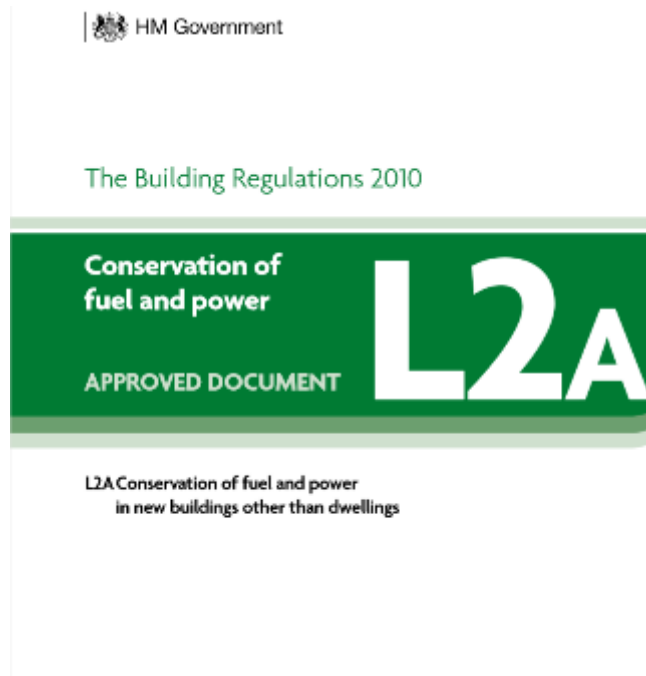
- The Mayor also supports the development of *low-temperature* networks for both new and existing systems as this allows cost-effective use of low-grade waste heat.
- It is expected that network supply temperatures will drop from the traditional 90⁰C-95⁰C to less than 70⁰C depending on system design.



Can we go even lower? Yes!

Coming Next: Part L of Building Regs

- Consultation due in 2019
- Update due to take effect in March 2020
- Still a lot of questions unanswered



The Chancellor of the Exchequer has announced new standards *'mandating the end of fossil fuel heating systems in new homes from 2025 delivering lower carbon, and lower fuel bills too'*

Conclusions

- Policy is shifting towards:
 - Zero air quality impacts
 - Long term carbon savings / Zero carbon technologies in 2050
 - Lower temperature systems

