



## Energy strategies impacted by updated GLA guidance

Updated GLA guidance on energy statements will have significant impacts on all planning applications in London. All energy statements in London should be developed in line with this updated guidance, on which the GLA and Boroughs place significant weight.

It is applicable to all applications from the October 2018. The single exception to this is the carbon factors which they are seeking to apply from January 2019.

Below is a summary of the main changes in the updated guidance and the impact it will have on energy strategies. In summary, a variety of challenges are set for applicants to respond to.

### Non-residential Zero Carbon Target

Whilst policy already requires residential units to be zero carbon, the current target for non-residential is 35%. The London Plan schedules this to escalate to zero carbon in 2019.

In the updated guidance, it is specified that this will come into place along with the publication of the new London Plan (expected late 2019), rather than January 2019 as previously assumed. This will start to incur carbon offset payments in much the same way as for residential. The amount will vary depending on Use Type.

### Energy Efficiency

The updated guidance seeks to enforce the enhanced efficiency targets set out in the draft London plan prior to its adoption as formal policy. It is expected these targets are achieved before the inclusion of any heat networks and renewables. The targets are:

- Residential: 10% CO<sub>2</sub> reduction over Part L 2013;
- Non-Residential: 15% CO<sub>2</sub> reduction over Part L 2013.

Previous guidance was to achieve 0%.

These targets are technically and economically challenging to achieve and will require improved fabric efficiency measures, such as improved U-values, bespoke thermal bridging calculations, lower air permeability rates and possible inclusion of heat recovery systems. More information on achieving the 10% target is in our [article](#).

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### Contact Us



If you would like us to quote for a project, no matter what size, please contact Donald Sinclair

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## Carbon Factors

From January 2019, the GLA now encourage the use of SAP10 carbon factors in Energy Statements. It is important to note that SAP 10 and the new carbon factors will not be enacted until the revised Part L is in place. As this is yet to be consulted on, this isn't expected to be until around 2020.

In advance of a revised Part L, the consequence of the GLA's encouragement is therefore to require dual compliance: Part L compliance would still be using SAP2012. This creates challenges in developing energy strategies that work with both as well as working for the residents and developers. This is further exacerbated by the potential for SAP10 to be revised to align with the currently unknown future Part L. The SAP10 emission factors reflect the rapid decarbonisation of grid electricity due to a shift towards lower carbon generation from renewables and nuclear, rather than coal. This is illustrated in the table below:

	SAP 2012	SAP 10	Change
Gas carbon factor (kg CO <sub>2</sub> /kWh)	0.216	0.210	3% reduction
Electricity carbon factor (kg CO <sub>2</sub> /kWh)	0.519	0.233	55% reduction

There are a variety of impacts of the above:

- Electric based strategies will be as favourable as gas in energy strategies in terms of CO<sub>2</sub> emissions;
- Heat networks that consist of **CHP and gas boilers** will achieve much lower carbon reduction savings under SAP 10 methodology. This is discussed in more detail later in this article.
- The **PV requirement** will be higher to meet CO<sub>2</sub> reduction targets. In one example for a development with individual gas boilers, the amount of PV requirement to hit the required 35% CO<sub>2</sub> reduction was 40% higher with SAP 10 carbon factors compared to using SAP 2012 carbon factors. Where there are roof space constraints, this will reduce the CO<sub>2</sub> reduction available.
- **Zero carbon payments:** for equally performing strategies (i.e. 35% reduction over baseline), a reduction in zero carbon payments of c.£200/dwelling is expected. Note that this will be a short-term gain until the price of carbon increases by 50% when the draft London Plan becomes policy (there are Borough specific differences already).

Therefore, developments may have to seek alternative or additional technologies to meet the required 35% reduction in CO<sub>2</sub> emissions. Potential alternatives include heat pumps and where roof space is available, greater amounts of PV, in combination with enhanced energy efficiency.

## Should SAP10 carbon factors be used?

The guidance does not require the use of SAP10 carbon factors, only encourages, so should they be used? And if so, in what circumstances?

For new applications, not using SAP10 would be pushing against the reality of grid decarbonisation and would therefore probably induce a significant planning risk if this approach were to be adopted. Furthermore, in this scenario there is time to design the entire development to a strategy that works with SAP10.

It is a different picture when considering Reserved Matters Applications against an Outline Consent. The guidance here is clear: these should demonstrate consistency with the energy strategy provided at Outline stage. The inference of this is that the energy strategy principles, including technologies and carbon factors are determined at Outline stage and utilised through a development. This is welcome consistency that enables forward planning with the surety that plans and installations won't become redundant before they are fully delivered.

## Heating Hierarchy

The updated guidance provides a clear hierarchy for the selection of heating systems:

- Connection to existing or planned heat network;
- Onsite heat network with single Energy Centre;
- Building-level communal heating: for single buildings applications or low-density developments only;
- Individual heating systems: Only for low density individual houses where no heat networks are present or planned and evidence is provided that an onsite heat network is uneconomic.

The guidance is clear that “direct electric heating will not be accepted in the majority of cases as it will not provide any onsite carbon savings in line with the energy hierarchy and it is likely to result in higher energy bills...[and are] also not compatible with connection to district heating networks”.

This represents little change from previous. It is likely that planning authorities will seek for adherence to this hierarchy.

### Heat Networks

Key changes are:

- Use of a substantially higher, and more realistic, heat network loss factor. This reduces CO<sub>2</sub> reductions, thus requiring other measures to compensate. For developments of flats, this is contrary to SAP2012, which provides a default of 5%;
- Where an onsite heat network is planned, the applicant should actively explore opportunities to extend this beyond the site boundaries – historically, this element has not generally been pushed strongly. It remains to be seen if there is a change to this;
- Requirement to explain how the heat network is future-proofed to be zero carbon and the timetable for achieving this. As individual developments are being built with heat networks to provide connection points in the future to much more extensive city-scale heat networks, logically the achievement of zero carbon would be through this connection.

### Gas CHP

The SAP10 carbon factors have a substantial negative impact on the CO<sub>2</sub> performance of gas CHP engines. This is illustrated in the table below for a variety of development sizes. Note that this is the impact of the carbon factors alone, with the heat losses being aligned for comparison purposes.

Number of Homes	SAP 2012 CO <sub>2</sub> reduction	SAP 10 CO <sub>2</sub> reduction
350	30%	-11%
750	32%	-24%
2,000	46%	-19%

In SAP10 methodology a higher distribution loss factor would also be assumed, which would have a further negative impact on the CO<sub>2</sub> performance. Gas CHP is therefore unviable with SAP10 when considered from a purely carbon perspective.

It should be noted that there are other advantages associated with gas CHP that will remain irrespective of the carbon calculations. For instance, on large schemes, gas CHP can deliver the lowest resident heat bills. It is also a robust and known technology.

### Heat pumps, waste heat and other alternatives

When utilising SAP10, heat pump led heat networks perform significantly better in carbon terms than gas CHP. In the near term, and in the absence of connections to more extensive heat networks, communal heat pumps systems are likely to be common in energy strategies. These could be powered by water (e.g. reservoirs, rivers), the ground (with boreholes) or air.

There are several consequences of this:

- Need for additional electrical capacity and potential network reinforcement to provide this;
- Complexities associated with the industry designing, installing and operating technologies that people are less familiar with;
- For large schemes, an increase in resident heat bills over gas CHP led heat networks.

It is also likely that planning authorities will push more strongly for ‘secondary’ heat sources to be investigated. Examples include reservoirs, underground lines and power stations or water treatment works.

Gas boiler only heat networks remain viable under SAP10 from a carbon perspective to meet Part L 2013, but with the greater heat loss require other measures to compensate, e.g. enhanced energy efficiency and renewables. Achieving the 35% target would be challenging and, in some instances, not possible with this strategy.



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## Renewables

The new guidance pushes more strongly for renewables to be provided, even where the 35% CO2 reduction policy target has already been achieved. The current policy basis for this is weak but provides a clear direction of travel. We therefore expect PV to be required on more developments than previously.

## Overheating

- Key changes to the guidance are:
- Use of additional future climate data (DSY 2 & 3), which require more onerous design measures to achieve than the existing DSY1. Where DSY2 & 3 are not achieved it must be demonstrated that the risk of overheating has been reduced as far as is practicable, including reducing glazing areas and using external shading. To assist with this, the guidance now requires the glazed proportion of the façade to be stated within the Energy Statement;
- Discourages reliance on use of blinds to reduce overheating. Where they are specified, they must be included within the base build. Results without blinds must also be presented – strategies that rely on blinds may therefore not be acceptable to planning authorities.

## Active Cooling

The new guidance advises that active cooling should not be installed in any residential developments. This may pose a planning risk where these are specified as sales features.