H1 ELEPHANT PARK

ENERGY & SUSTAINABILITY – FACT SHEET

November 2021

1. **What are Decentralised Energy (District Heating) Schemes?**
   A Decentralised Energy (or District Heating) Scheme is a higher efficiency, lower carbon and lower cost energy supply. Instead of installing individual heat sources (e.g. gas boilers) in each property, a district system relies on a centralised, common energy source, with the heat energy delivered to a community of buildings as hot water by a distribution network of super-insulated pipes. As is the case on Elephant Park, such schemes are generally owned and operated by an Energy Services Company (ESCo) on behalf of stakeholders. The ESCo takes all responsibility for the management and operation of the energy system. An added benefit of a decentralised scheme is that the central generation technology can be improved, upgraded or replaced with a cleaner alternative without causing disruption to each and every customer home and building.
2. **When and why do the GLA prioritise these schemes?**
   The London Plan 2016 first stipulated the GLA's preference for prioritising decentralised energy schemes. Paragraph 5.9: *Tackling climate change will also require a move towards more sustainable energy sources, and the London Plan seeks to support the development of decentralised energy systems, including the use of low carbon and renewable energy and the greater utilisation of energy generated from waste. This will also allow London to generate more of its own energy needs and enhance the security of its energy supply*

3. **What are the main purposes of the Elephant Park energy system?**
   The Elephant Park energy system connects all the new buildings within the development to its own dedicated local and low-carbon energy centre. The energy plant used s a high efficiency combined heat and power plant (meaning it uses one process to generate both heat and electricity at the same time). The gas used within the energy centre is offset by the nearest available green gas sources. That means for every unit of gas used in the energy centre, E.ON makes sure the same amount of green gas – which comes from renewable sources such as biomethane from animal waste – is injected into the UK's gas grid.

As the energy plant for the whole network / Elephant Park development is housed in the centralised energy centre, each building does not need its own, smaller and more inefficient energy source such as electric heating or a gas boiler. In addition, the Elephant Park energy system has been designed so other local developments can connect to the network and receive the benefit of this more efficient, low-carbon energy supply. It has the capacity to provide the heating and hot water to around 1,000additional homes or other future developments such as Delancey's Town Centre development.

4. **Does H1 need to connect to Elephant Park Energy System?**
   Within the London Plan 2016, Policy 5.6 sets out the requirements regarding the connection to decentralised energy.
   This was reinforced within the Draft London Plan 2021, covered in policy SI 3 C3, which states that the "*priority is for new developments to connect to local existing or planned district energy networks*."
   Furthermore, H1 is situated within a Heating Network Priority Area (HNPA). The GLA defined HNPAs as areas in London where the heat density is considered sufficient for communal heat networks to provide a competitive solution for supplying heat to buildings and consumers. In addition to this clarification, the guidance also stipulates that, for all new developments within the HNPA, a single connection point should be provided to facilitate a future connection to an area-wide district network.

5. **Why does this matter?**
   H1 has defined terms of how its heating and hot water must be sourced. The energy centre at Elephant Park provides H1 with a lower carbon source of heating and hot water which has considerable carbon savings compared to other decentralised energy (using natural gas without green gas offset) or more traditional gas boilers located within the building. The current setup also offers equivalent carbon savings at a lower cost compared to using other localised solutions such as air-source heat pumps running on grid electricity.
   H1 does not need to use local plant such as air source heat pumps running on grid electricity to generate the heat. Furthermore, the GLA Guidance also states which carbon factors need to be adopted for this type of energy ensuring compliance – this is contained within SAP2012 and SAP10.

6. **Will the Elephant Park energy system always run on 100% natural gas?**
   No. In addition to the current biomethane green gas offset, the ESCo provider, E.ON, is considering a decarbonisation strategy to further reduce future emissions. E.ON is currently assessing the potential for capturing waste heat (e.g. from nearby industrial or commercial processes) and other renewable heat sources within the local area. One option being assessed is to utilise waste heat from the nearby TfL station, but this

still needs to be explored further. Connecting more buildings and customers to the Elephant Park energy system allows stronger options for future improvements.

7. **Is there anything E.ON/ Lendlease have done in the meantime to decarbonise the network?**
   Yes. To progress towards decarbonisation, Lendlease and E.ON voluntarily goes beyond our energy strategy commitment by procuring sufficient biomethane green gas to cover 100% of gas demand on the development, also including all back-up boiler use.
   Through negotiations with E.ON, Lendlease has ensured that the emissions from burning natural gas within the network are offset through biomethane green gas (with associated Green Gas Certificates) at no extra cost to the customer. This results in a significantly lower carbon footprint associated with heating network than is captured by Part L modelling, as SAP 2012 or SAP10 figures must be used.

8. **Does H1 comply with the GLA reduction target policy?**
   Yes, H1 achieves a 38% reduction to Part L 2013, which is 3% more than the required 35%.

9. **3% improvement above policy seems minimal and does not represent a building targeting exemplary sustainability performance. How do you reconcile this?**
   3% improvement is not as strong as some single building developments recently consented in Southwark, but not yet delivered. However, given the reasoning above, the building is constrained by the decentralised energy network and how the GLA stipulates the carbon emissions factors from those networks (i.e. does not include our biomethane green gas commitment which in practice increases savings to more than 60%). The 38% represents an improvement only in regulated energy. This is the energy used for heating, cooling lighting, ventilation, fans and pumps, and excludes the electricity required to power small appliances, IT equipment, catering facilities (etc.) known as unregulated energy. Unregulated energy within a commercial office building usually represents more than 50% of the total share, which aligns with our modelling for H1. The key to truly decarbonising a building in operation is to tackle emissions from both regulated and unregulated energy, which H1 is doing.

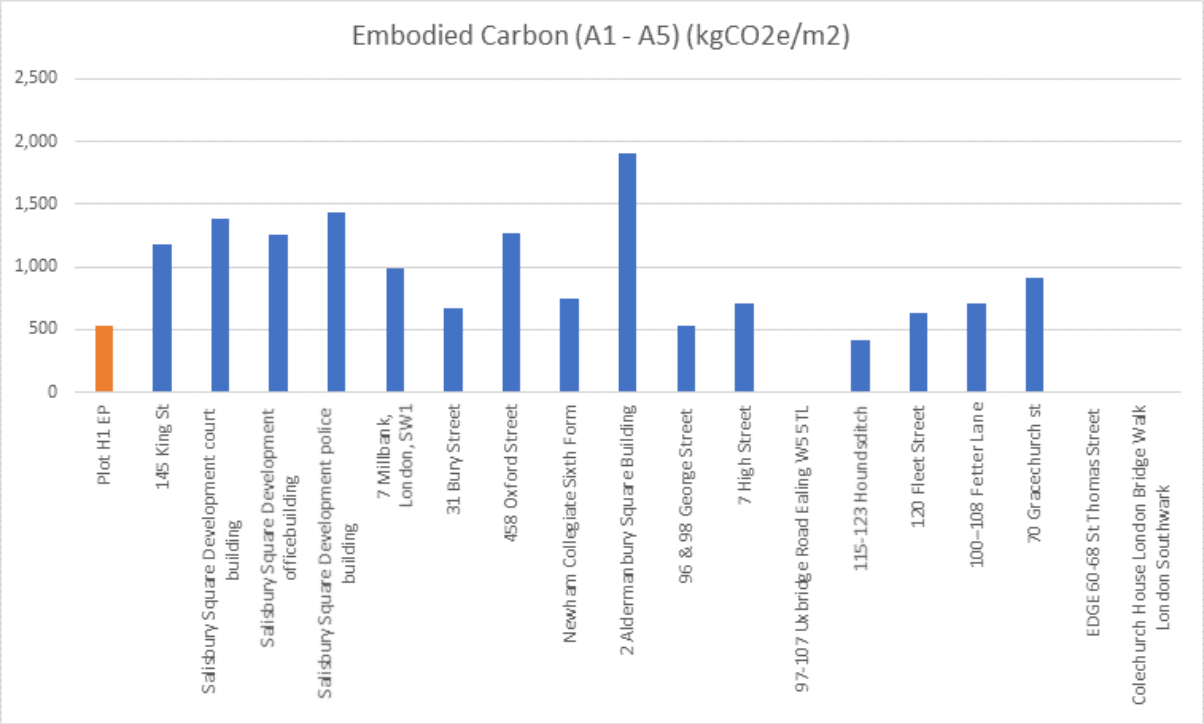
10. **How can Lendlease decarbonise the operational energy of H1 further then?**
    Lendlease has committed to purchasing 100% renewable electricity through REGO-backed energy tariffs, ensuring that all the electricity is zero carbon. Within the proposed H1 S106 agreement, we propose an inclusion mandating that any tenants (and future owner) of the building will commit to purchasing the same zero carbon electricity. Under the UKGBC's Renewable Energy Procurement & Carbon Offsetting Guidance, and by implementing these measures, H1 would meet the stringent requirements in order to define the building as Net Zero.

11. **Has the design considered internal heat pumps and what would impact of this be?**
    This has been modelled as a hypothetical design option in response to the planning authority queries. If this were incorporated the impact against the GLA policy would achieve between 50-52% improvement against Part L, equating to an additional 14-16% improvement against the H1 design as proposed.
    This would be detrimental to the project as whole, by not using the benefits of the existing Elephant Park district heating network, or using the benefits derived from our procurement of 100% UK derived biogas. In addition, significantly more plant would be needed, much of which would need to sit on the H1 roof, compromising the overall design of landscaped terraces and reducing the quality of the aerial view from surrounding buildings.

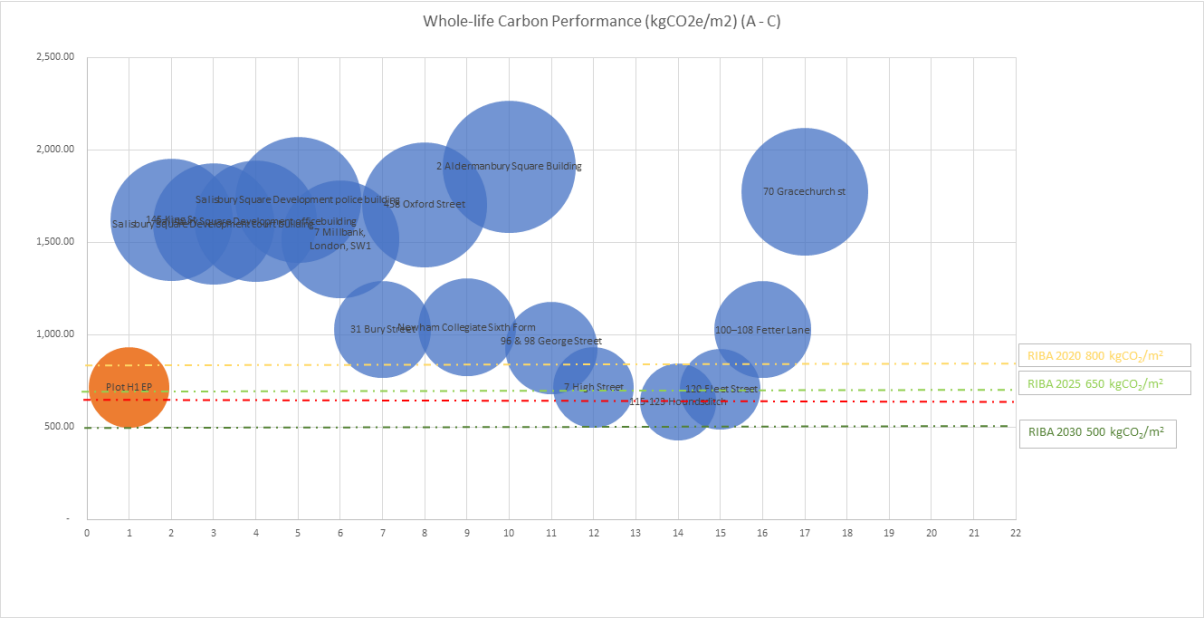
12. **Is reducing (and procuring 100% renewable) operational energy the most important way to frame the overall carbon credentials of the project?**
    No, operational carbon is only one metric which you be used to examine the overall carbon performance of the building. As the UK electricity has decarbonised substantially over the past 10 years, there has been a shift in focus towards understanding the Whole-life Carbon impacts buildings, to include both operational carbon and embodied carbon. Embodied carbon is the carbon associated with extracting and transporting the raw construction materials as well as the emission from the manufacturing and construction processes. These emissions can now represent around 50% of the emissions over the life of a building.

13. **How does H1 perform from an embodied carbon, and then whole-life carbon perspective?**
    H1 has been designed to deliver one of London's most innovative timber office buildings, with a hybrid steel-CLT design. The current design reflects best practice principles for embodied carbon by combining cross-laminated timber (a naturally low carbon building material) with innovative low carbon steel. In comparison with a concrete framed office building, H1's embodied carbon impact will be reduced by 54%, representing a major step change in delivering a truly sustainable product within the GLA's aspirational benchmarks and the LETI targets for buildings
    .
    Accompanying this is a façade package that aims to use at least 60% recycled content, with an upper target of 75%. This will help achieve a façade embodied carbon target of 60kgCO2e/m2 GIFA (gross internal floor area). The building's embodied carbon up until practical completion achieves a LETI score of 'C' (at

531kgCO2/sqm), which is considerably better than many of buildings with recent WLC planning statement submissions (See chart below which compares all other buildings across London which have submitted a Whole Life Carbon Assessment). Other buildings submitted / consented in 2021 in Southwark, such as The Edge and Colechurch House, have yet to disclose either their embodied or whole-life carbon results.



From a Whole-life carbon perspective, the building performs very well as shown in the graph below:



14. Aside from carbon, how else does H1 propose to deliver sustainability Improvements?

H1 is committing to meet the BREEAM Outstanding rating, the highest certification level possible. Furthermore, Lendlease is pursuing the new Design for Performance (or NABERS UK) certification pilot programme for offices, ensuring that operational energy performance in-use aligns with how the building was conceived and designed. We will target 5 Star performance, making the building one of the first few in the UK at 5 Stars.

H1 will also achieve a WELL Gold rating, which is the worldwide industry measure for occupant health and comfort – which includes aspects such as high quality air and water filtration, high quality low energy lighting and ongoing assessments of comfort through the building's life.