



Jon Gregg CEng MCIBSE

Founder/Director

Neual Consulting | Renewed Climate Thinking

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Years of Experience: 14+

Professional Memberships

- MEng (Hons) Mechanical Engineering
- Member of the Chartered Institution of Building Services Engineers (CEng MCIBSE)

Education

- MEng (Hons) Mechanical Engineering, University of Sheffield, 2012

Positions Held

- CIBSE Homes for the Future Group, Committee Member 2019 – Present
- CIBSE Young Energy Performance Group, Chair 2015 – 2018

Professional History

- Neual Consulting Ltd, Founder/Director 2022 – present
- Contractor – for BuroHappold and Hoare Lea, Part-time, 2022-2024
- BuroHappold Engineering, Sustainability & Physics Group 2013 – 2024
- Carbon Footprint Reduction through Individual Behavioural Change in the Faculty of Engineering, University of Sheffield, 2012 – 2013

Professional Summary

Jon has an **MEng in Mechanical Engineering** from The University of Sheffield and is a **Chartered Member of CIBSE**. He has worked as a sustainability engineer for over a decade now, contributing to a wide range of built environment developments. Jon has extensive experience in designing low carbon buildings, assessing and recommending energy systems such as district heat networks, and defining company-wide net zero carbon strategies. He has also been involved in local authority policy, notably the GLA London Plan.

Jon specializes in developing and **defining Zero Carbon strategies** for the built environment, including new and existing buildings, developer asset portfolios, and London Boroughs through their climate emergency response.

In 2022, **Jon founded Neual Consulting**, where he serves as the Director. Through Neual Consulting, he provides sub-consultancy to some of the UK's largest engineering practices and offers trusted advisor consultancy to leading developers and asset holders regarding net zero carbon strategies.

While at Buro Happold Engineering, Jon worked on many of London's largest masterplan redevelopments, including Wembley Park and Battersea Power Station. Since 2022, as a contractor for Buro Happold and Hoare Lea, Jon has provided advisory support to the PIC pension fund and worked on delivering the Earl Court Masterplan to planning application in 2024.

Key Strengths

- Experienced in managing large developments with **complex engineering and sustainability challenges**, driving sustainable design outcomes while balancing client needs.
- Defining **Net Zero Carbon strategies for some of the UK's largest developers and asset holders**, setting targets and approaches to decarbonise developments to meet reduction goals for both operational and embodied carbon.
- Conducting **evidence-based analysis and develop policy strategies** and recommendations, executed through the Greater London Authority New London Plan, Cambridge City Council and OPDC Supplementary Planning Guidance.
- Skilled in **communicating complex ideas** and concepts to all stakeholders across the built environment, using engaging **visual communication** to make these ideas relatable and understandable.
- Leading sustainability and energy strategies for developments comprising over **30,000 homes** across London, which receive successful planning permission.
- **Chair professional body groups** such as the CIBSE YEPG and serve as a member of the UK Green Building Council (UKGBC) Advancing Net Zero Carbon Framework steering group, among others.

Project Experience – Strategy & Policy

Pension fund investment strategy & monitoring

In-house ESG built environment advisor

Pension Insurance Corporation (PIC)

Jon was the lead in the creation, development and implementation of a new ESG due diligence process for PIC. Pension Insurance Corporation Plc (PIC) is a specialist pension insurer, investing in long term built environment assets to pay policyholders. His role was twofold: at an organisational level, he assessed and optimised PIC's ESG strategy, policies and procedures; at asset level, he created a new ESG due diligence process. In addition, he worked with individual investment teams to implement the asset rating process, to provide simple and understandable outputs in order to make more informed investment decisions.

The ESG toolkit created, benchmarked and rated each asset on a scale from D to A+, providing key ESG opportunities and risks across Environmental, Social and Governance themes, feeding recommendations back into investment decisions. Ratings are created based on a series of KPIs across each theme, scaling performance in line with Building Regulations to truly pioneering industry practice. KPIs and ratings were created from a thorough assessment of peer review and best practice, which could inform categories and explore targets in particular ways.

Jon's work allowed multiple internal and external stakeholders to understand the ESG credentials of an asset and have clarity on design solutions to reduce future risks, providing greater long-term asset stability. This process also allowed for multiple sites to be compared across asset classes, against the same set of criteria.

The framework Jon created has been used to assess £2 billion worth of assets. Link to case study: <https://www.burohappold.com/projects/pension-insurance-corporation-plc-pic/>

Landsec Urban Opportunities – Net Zero Carbon Strategy

Project lead

Land Securities (Landsec)
Urban Opportunities

Whilst at BuroHappold, Jon was the lead consultant for the development of the Urban Opportunities Net Zero Carbon strategy for Landsec's new mixed-use developments. The appointment was to develop a framework for Landsec to achieve a cost-effective pathway to net zero carbon, considering embodied and operational whole life carbon emissions.

Jon provided visual reports and 'design guides' that easily communicated the targets to design and client teams. The guides included design strategies and the performance required from each building element that would combine to achieve the targets set.

Jon had to develop a comprehensive and robust set of targets to help Landsec developments feasibly achieve Net Zero carbon. Targets were underpinned by parametric analysis of structural, façade, and MEP systems for both their embodied carbon impacts and potential operational energy savings. Targets were defined based on feasible technical solutions from analysis and aligning with UK GBC frameworks, RIBA 2030 climate challenge, and LETI targets.

Jon collaborated with external cost consultants to provide an understanding of cost-plan impacts. From this, measures were proposed that saved both carbon and capital costs to developments, providing the most cost-effective routes to NZC.

With Jon's deep knowledge of the commercial and residential sectors, the challenges of whole life carbon, and his involvement in the UK GBC steering group, he was in a unique position to support this work.

Berkeley Group Science Based Targets initiative strategy

Lead consultant

Berkeley Group

Berkeley Group had set a Science Based Targets initiative (SBTi) target to reduce the carbon impact of their material and service usage by 40% between a 2019 baseline and 2030. Jon led a team across multiple workflows and studies to set baseline emissions, as well as reduction targets and strategies for 2030. Targets included both embodied carbon and operational carbon emissions of their developments.

Jon led a team that investigated the embodied carbon of 15 sites from across the Berkeley portfolio, undertaking life cycle assessments (LCA) to understand the impact of the current practice. From this, Jon set 2030 targets for different housing typologies, identified key carbon contributors that should be addressed in the future. In addition, he provided a series of in-depth recommendations for Berkeley Group to reduce the carbon emissions associated with their developments and to enable them to achieve their targets.

He also led the operational carbon workstream, considering the role that future Building Regulations Part L requirements would drive reductions in operational carbon until 2030 for the SBTi. Jon developed a series of energy models for varying housing types to understand the impact of differing decarbonisation strategies. He provided visual guides on the required design changes and specification choices for Berkeley Group to make over the coming years, for a pathway to 2030.

Berkeley Homes zero carbon transition plans

Lead consultant

Berkeley Group

Jon was the lead consultant for the development of the business-wide transition-plan guidance, which will be followed and applied at all Berkeley Group sites going forward. This role entailed working directly with the client team to understand how the UK GBC Net Zero Carbon definition could be applied to the Berkeley Group business, undertaking a transition plan for an example live site, and developing the guidance documentation.

Jon provided guidance on the procedures and structure for plans across all scales of development, from single homes to 10,000-home major mixed-use regeneration schemes. He did this by bringing the best ideas from the other consultants and writing a cohesive strategy document to be followed by consultants and design teams.

The aim of the plans is to identify the key decisions to facilitate long-term carbon savings for 2030 and beyond, instigate key changes to the current scheme to facilitate zero carbon developments, outline and reduce barriers for future retrofitting of developments, and clarify internal and external stakeholders' roles. It was challenging to write an overarching guidance document to cover all these topics for any type of site. Jon proposed a Berkeley Group and external collaborator workshop to rapidly generate ideas across all site types.

With Jon's deep knowledge of the commercial and residential sectors and due to his longstanding relationship with multiple parts of the Berkeley Group business, he was able to tackle the key issues that he knew were important and achievable for them, as well as pushing forward the decarbonisation agenda.

Net zero due diligence audits for existing asset portfolios

Site auditor and Net Zero strategist

BMO (Bank of Montreal)
Real Estate Partners and
Aviva Investors – Sub
consultant for Carbon
Intelligence

Jon provided specialist sub consultancy services for Carbon Intelligence to support net zero carbon due-diligence audits for multiple portfolio asset holders. These portfolio owners wanted to understand the potential of their buildings to reach Net Zero carbon, as well as retrofit measures to help them achieve it.

Through his role, Jon undertook in-person site audits, reviewing existing building fabric, HVAC/control systems and operation patterns. Alongside this, he interviewed building operations managers to understand how the buildings are occupied and any challenges they have around operation and maintenance. He developed audit reports, outlining observations, opportunities and constraints affecting the buildings' ability to achieve net zero.

From the site audits, alongside metered energy data, Jon developed a roadmap to achieve net zero for each building. Based on what he had witnessed in the building and using his engineering knowledge, he developed a series of practical and appropriate operational changes and retrofit recommendations to decarbonise the building. He outlined the potential energy, carbon and cost savings of each measure if it was to be implemented. He also provided capital cost ranges for each measure based on robust industry metrics.

Finally, he outlined an asset risk rating, based on its potential to achieve net zero carbon as defined from the UKGBC. Ratings were based on quantitative data analysis, as well as qualitative judgement established on site visits and interviews.

Waltham Forest Climate Change Strategy

Carbon Modeller

London Borough of
Waltham Forest

The London Borough of Waltham Forest (LBWF) appointed Buro Happold to review their Climate Change Strategy, including production of an Action Plan for Climate Change and Carbon Reduction across the borough. Jon's role was to model the historic and projected carbon emissions of the borough, in line with UK Government and BEIS standards, and to develop actionable ideas to reduce carbon by 2030.

Jon worked as part of the project team to develop a carbon emission reduction target of Net Zero by 2030 for the borough with the Climate Local Governance Board and Councillors. The target will be challenging as LBWF has substantial growth aspirations for the next 10-15 years. Jon worked closely with LBWF, their key internal and external stakeholders to understand the key subjects and possibilities in each emissions sector. From here he created an action plan that addressed the most impactful and achievable measures, while also outlining secondary co-benefits.

Jon brought deep understanding of the UK decarbonisation landscape and the key challenges that the country faces to achieve its goals. He brought ideas to the fore that the council will have control and influence over to tackle the biggest issues, such as energy poverty, electrical infrastructure and decarbonisation of heat.

Hackney Climate Emergency Strategy

Lead consultant

London Borough of Hackney

Hackney Council announced a climate emergency in 2019. To help them mainstream the climate emergency in their policies and procedures, Buro Happold has supported the council with a wide range of evidence, research and policy support.

Jon worked on both the Hackney Council Green Energy Strategy (for council functions) and Hackney Borough Wide Net Zero Pathways Study modelling emissions reductions and possible policy interventions. This has involved a critical review of Net Zero Carbon definitions, frameworks and datasets to help develop bespoke monitoring and strategic direction for the project, and to support stakeholders in engaging with this work. Since then, Jon has led a team that supported Hackney with its Climate Action Plan development, convening staff and project teams to collaboratively plan their strategic direction for the next three years.

To model baseline energy scenarios and potential zero carbon pathways, Jon led a team that disaggregated borough activities across different emissions areas, and projected future emissions based on the expected decarbonisation of the national electricity grid, current strategies and policies. This was achieved through reconciling multiple national and sub-national datasets and an understanding of socio-political trends in climate action.

Jon developed strategies to assess and scope possible embodied emissions sources to include in the modelling. This has enabled the Hackney team to better understand their Scope 3 carbon footprint and begin to develop strategies to handle these emissions. He prepared clear, visual reports to communicate findings for multiple stakeholder groups.

Climate action plan here: <https://hackney.gov.uk/rebuilding-a-greener-hackney> .

Cambridge Sustainable Housing Design Guide

Lead consultant

Cambridge City Council

Prior to the adoption of a new local plan, Cambridge City Council appointed BuroHappold to produce a Sustainable Housing Design Guide, to provide a clear and concise 4-step pathway to net zero carbon for their future housing developments. As part of the strategy, issues such as the city's housing crisis, fuel and water poverty, and occupant wellbeing were addressed along with wider sustainability measures to ensure that new homes were fit for purpose and flexible both for residents and to future climatic conditions.

Based on rigorous precedent review and energy modelling, Jon led the authoring of Cambridge's 4-step roadmap to net zero carbon, with a keen focus on simple, visual communication providing the client with engaging and interactive material that can be readily shared with their stakeholders.

As a result, the client not only had a clear understanding of the technical and financial implications of each step to net zero carbon, but they were also equipped with the necessary material to ensure that budgets were put in place to implement change and ready themselves for more stringent performance requirements prior to new policy being adopted.

Future role of London Plan in the delivery of area-wide district heating

Lead consultant

Greater London Authority

Jon led the study on the future decarbonisation of heat networks for the evidence base of the Draft New London Plan. The aim was to guide the Mayor's Environmental Strategy for the long-term decarbonisation of heat whilst ensuring affordability for occupants.

Jon undertook quantitative and qualitative analysis across varying technologies to develop a series of energy strategies. Jon utilised key heat-pump and CHP supplier relationships to understand technical limitations and develop performance proposals for the study. From Jon's extensive knowledge of development energy strategies, decarbonisation pathways and planning permission applications, he was able to provide key policy recommendations.

As a result of the study and policy development, low-carbon heating solutions incorporated into New London Plan, marking a major shift away from CHP and towards heat-pump solutions.

New Energy efficiency policy included in the London Plan based on Jon's recommendations, first of its kind in the UK, found here <https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan/examination-public-draft-new-london-plan/eip-library> (reports NLP/SI/009, 010, 011 and 012)

Driving energy efficiency savings through the London Plan

Lead consultant

Greater London Authority

Jon was project leader for this study, leading a team internally and coordinating the specialist input of the external specialist cost consultant (Currie & Brown) as well as directly reporting and advising the GLA. Jon developed the plan of work and developed the strategy for the innovative data analysis approach.

The key challenge was providing meaningful specialist energy and overheating modelling input from such large data sets. Coordinating GLA historical data with Buro Happold project-testing data presented a unique challenge. This meant parametrically analysing 'Big Data' sets from 3 years of GLA planning applications and over 300 Buro Happold projects. Jon overcame these challenges by proposing the use of Microsoft Power BI. This approach allowed for live testing of data and in meetings, setting technically feasible energy efficiency targets based on macro data analysis. Multiple parameters could be tested with ease showing the most significant factors for energy efficiency.

Balancing Energy, daylight and overheating study in tall buildings

Lead consultant

Old Oak Common and
Park Royal Development
Corporation (OPDC)

Buro Happold was appointed by the Old Oak and Park Royal Development Corporation (OPDC), who are overseeing a development area in North West London covering 650 hectares and valued at £26 billion, to provide consultancy on the energy and wellbeing performance of tall buildings. Jon project managed a study to investigate solutions to balance the new GLA energy efficiency policies that he had previously developed, reduce overheating risk and maximise daylight for challenging tall buildings. Recommendations would form part of the new Local Plan and be enforced by OPDC Officers.

Jon led a team of engineers and data analysts to develop a parametric modelling process that utilised big data analytics, through Grasshopper, IES and Python. Using this approach, he was able to diagnose the root cause and environmental challenges of each factor, as well as the solutions to balance all three. He generated design recommendations that challenged typical design and the status quo. To ensure that these actionable recommendations would be delivered in developments and that they were communicated clearly, he facilitated interactive workshops with key client stakeholders from all OPDC teams. These individuals would be enforcing the policies and guidance on developers. The aim was to gauge input on the most appropriate formats and information as outputs and outcomes of the study.

As a result of Jon's work the study delivered a set of design principles, recommendations and specification requirements to balance operational energy efficiency, reduce overheating risk and maximise daylighting in tall buildings for residential and non-residential buildings. The report can be found here:
https://www.london.gov.uk/sites/default/files/16_energy_overheating_and_daylight_in_tall_buildings_study_2018.pdf.

Wembley Park District Heat Network Transition Plan

Sustainability lead

Quintain plc

The Wembley Park regeneration has many development zones. Two existing heat networks, which have operated for nearly 5 years, provide heat to approximately 2000 homes in the North West Lands and North East Lands areas of the masterplan.

Jon supported the technical development of a decarbonisation study for the existing Canada Gardens district heat network (DHN) and the Fulton Quarter DHN, which considered technical options and developed solutions to decarbonise the networks.

The study identified the need to consider options for local or sitewide decarbonisation solutions to meet differing policy requirements of the NEL plots. With the upcoming Future Homes Standards expected there is a need to decarbonise the existing gas-fired CHP energy system if these plots are to be compliant. The technical and high-level economic analysis outlined a transition plan and outlined the strategic development of the decarbonisation proposal for the sitewide energy system.

The technical analysis supported the planning application whilst allowing for the client with future flexibility and the ability to accommodate future technology developments.

Project Experience – Design & Planning

Wembley Park Masterplan

Sustainability lead

Quintain plc

The Wembley Park regeneration is a major development in North London, creating a new destination in London, next to the iconic Wembley Stadium. On completion the development will consist of over 7.8 million sq ft of residential, hotels and retail.

Jon led the site-wide energy and sustainability strategy for BuroHappold at Wembley Park from 2014 to 2021. He was overseeing the energy and carbon strategies of all plots coming forward in the masterplan, providing consistency of approach and strategy across the whole site. This includes setting energy, carbon and sustainability ambitions for each plot as well as overseeing and influencing plot design teams to meet ambitions.

In 2020, Jon led the ramping up of ambition to develop a Net Zero Carbon strategy for Quintain across their new estates, driving down embodied and operational carbon in line with UK GBC frameworks. As a result, he helped develop viable district heat network and renewable energy strategies as well as helped the client to understand the technical and financial implications of forthcoming carbon policies. The scenario testing responds to the current energy efficiency regulations and ambitious London carbon reductions targets whilst maintaining flexibility for the developer. Since the masterplan gained planning permission, Jon has remained heavily involved with the project.

Earl's Court Masterplan

Sustainability lead

Earls Court Development Corporation (ECDC)

The Earls Court masterplan is a £10 billion regeneration of the former exhibition centre site in West London, looking to deliver 4,000 new homes and 2.5 million sq ft of workspace, providing around 12,000 new jobs. Sustainability underpins the masterplan with an all-electric 5th generation ambient energy network and a zero operational carbon target as the basis of the development.

Jon was brought in by Hoare Lea to work as a contractor to provide masterplan expertise and to lead the masterplan sustainability strategy. Jon worked for over 2 years providing the full spectrum of design and strategy support, development of the ECDC Sustainable Development Charter, masterplan carbon budgets (operational and embodied carbon), coordination and authoring of masterplan sustainability planning documentation. This included energy, sustainability, circular economy and overheating strategy documents.

Due to the scale and complexity of the regeneration, in Jon's role as the sustainability lead for masterplan (outline elements) he had to work hand-in-hand with Hoare Lea MEP, wider multidisciplinary design team and detailed plot teams. Through this approach he was able to support the application of what will be the UK's largest 5th generation energy network, an ambient loop from ground and air source heat pumps. Providing zero emissions site-wide heating, cooling and hot water, supporting ECDC's net zero ambitions.

Weblinks: [Hoare Lea case study here](#) & [ECDC Sustainability](#)

Portland House Refurbishment

Embodied Carbon lead

Land Securities (Landsec)

Portland House is a large 29-storey office building in Victoria, London, built in 1962. Being 60 years old with increasingly inefficient systems, and a severely weathered façade, Landsec were looking to refurbish and extend the building. BuroHappold were appointed as sustainability and embodied carbon leads for the development. Jon led the embodied carbon workflows.

As a refurbishment, there is limited industry knowledge regarding appropriate embodied carbon targets for this scope of development. As such, Jon led a team to develop a set of bespoke embodied carbon targets for the building. He did this by assessing multiple industry sources as well as historic Landsec and BuroHappold developments' whole-life carbon (WLC) findings. Targets were set and further developed with respective design disciplines.

Jon worked to undertake WLC assessments at each RIBA stage. Communicating embodied carbon outcomes, working with design teams to limit embodied carbon in their design and provide practical options to further meet targets.

Battersea Masterplan (Future Phases)

Sustainability lead

Battersea Power Station
Development Company
(BPSDC)

Battersea Power Station is a high-profile mixed-use regeneration programme in the centre of London. Jon was the Project Lead for BuroHappold, overseeing discipline workstreams and coordinating with the design and client teams. He was also responsible for the sustainability and decarbonisation strategy of the new future phases. This formed the delivery of an Energy Statement for a Section 73 planning application for the future phases of the masterplan. The application allows for an extension to the outline permissions whilst meeting new challenging London Plan policy.

Jon supported the strategic development of the decarbonisation proposal for the site-wide energy system. The proposal allows for maximisation of the existing CHP assets and plots a route towards electrification through physical future-proofing as well as technical compatibility. The proposed strategy also includes heat recovery from the site-wide district cooling system. The review of low and zero carbon technologies included consideration of air source heat pumps, water source (river source) and ground energy.

The technical analysis supported the planning application whilst allowing for the client with future flexibility and the ability to accommodate future technology developments.

Blackwall Yard

Sustainability lead

Hadley Group

Jon was sustainability and energy lead for the Blackwall Yard development. He championed the site-wide Sustainability strategy. This consisted of four main sections covering building design, natural capital, social value and integrated urban design principles. Each of these areas addressed elements that are implemented across design, construction and occupation of the site. The aim of the strategy is for a cohesive approach across the site, that will revitalise a brownfield site into a new thriving community. This is to be achieved by bringing best practice building design for occupants to gain benefit from and tie this into the public realm that will provide greater ecological, social and community value to the riverfront.

Jon oversaw the implementation of low carbon design solutions, considering highly energy-efficient design, reduced risk of summer overheating and low embodied carbon design.

Thameside West

Sustainability lead

Silverton Homes Limited

Jon led the production of a joint energy and sustainability strategy for submission to planning authorities. He developed the site-wide energy strategy, and undertook energy and overheating modelling for detailed elements of the site. He also undertook the site wide system design for implementation of a district heating network that was in compliance with local planning conditions and the London Plan.

Achieving a future-proof and flexible design was a major issue for the developer and planning permission. The new London Plan policies require connection to existing heat networks as a priority, however existing local heat networks are CHP driven which will struggle to meet long term carbon reductions. Jon developed a heat network and energy strategy design that would utilise large scale ground source heat pumps which would achieve these long term carbon savings. He developed the design in conjunction with the energy team and wider engineering disciplines, as well as the architects in masterplan design.

As Jon had developed the policies for the Draft New London Plan, he knew them intimately and the sentiments behind them. With this he was able to develop a phased energy strategy to comply with current building regulations, GLA planning policies and provide future heat network procurement flexibility. He also reviewed and negotiated technical and commercial offering with a potential heat network provider.

West End Gate

Sustainability lead

Berkeley Homes Central
London

The West End Green development comprises 696 high-end residential apartments for Berkeley Homes sited at Paddington Green, London. Jon led the energy and sustainability design from planning to construction. Alongside the residential apartments, retail, and commercial office space is proposed to be provided. The development included a Cinema and leisure complex as well as a sky restaurant. The entire development sits over a common basement containing a car park and cycle storage.

Achieving the new Part L 2013 requirements for fabric energy efficiency for a tall residential tower has been a challenge on this site. It has required careful coordination with the façade engineer and the architect as well as much design optioneering to ensure that the final design meets the building regulations with a complex and elaborate façade.

Jon has been working closely with the design team to understand the effect of different façade options on building performance. This is to ensure that building regulations as well as BREEAM targets are met in the challenging construction timeframes, maintaining high quality architecture and providing value for the developer.

West Thamesmead Gateway

Sustainability lead

Berkeley Homes East
Thames

West Thamesmead Gateway is a mixed use residential development of approximately 1,700 residential units over 10 plots, in the Royal Borough of Greenwich. Jon led the energy and sustainability strategy for the development, considering decarbonisation of heat, site-wide carbon emissions reduction, overheating and climate resilience strategies.

Through his role, he took responsibility for the strategy and coordinating across differing organisations and disciplines to produce successful design outcomes that meet regulation, are affordable and achievable as well as provide long term sustainability for the built environment.

Berkeley entered a Joint Venture for the site with Peabody housing association therefore creating a low-carbon, low-risk strategy to develop with a low operational cost for Peabody, whilst meeting the new strict London Plan Policies, was imperative. Jon led the investigation into a number of different low carbon heating strategies taking into consideration the implications of the New London Plan, Approved Document Part L updates and in-use performance.

He applied a data driven approach to the design by gaining in-use energy data from Peabody's existing building stock and applying the outcomes of the data analysis to the design of the systems proposed. Through this approach all parties were convinced of the low carbon heating and energy strategy developed, consisting of air-source heat pumps and solar PV, across the phased 10-year masterplan build out.

Jon also proposed and led a team of engineers and data analysts to develop a parametric modelling process that utilised big-data analytics, through Grasshopper, IES and Python. This approach modelled daylighting on ~20,000 dwelling iterations and applied machine learning to predict the outcome of overheating and energy modelling. As a result, façade updates were included to balance all factors across multiple blocks and environmental conditions.

Green Lane, Northwood Station Phase 2

Sustainability lead

Transport for London

TfL were looking to redevelop a landholding next to an overground station. Buro Happold were appointed for all technical elements of a hybrid planning application to provide 93 residential units (C3), 1,440 sqm of new retail (A1-A5), a new operational railway station (Sui Generis) with step free access and associated station car parking; new bus interchange, and a new piazza. Outline planning consent for up to 34 townhouse units.

For the planning application, Jon led the Sustainability and Energy assessments. This involved providing several potential viable energy strategies.

As a result, the strategy provided a site-wide strategy with a communal low carbon heat network and solar PV panels to provide a 35% reduction in carbon for a challenging and constrained site. Sustainability elements were incorporated across the whole site in line with the Mayor's Priority standards, including consideration for rainwater harvesting, residential overheating in acoustically sensitive areas and reduction of water consumption.

Brent Cross Masterplan Regeneration

Carbon modeller

Hammerson & Standard
Life

The project represents one of the largest masterplan regenerations in the UK and will incorporate a large district energy network, providing a holistic approach to carbon emission reductions. Jon led a detailed feasibility and viability study into alternative renewable fuels for use in CHP and heat networks. The study included assessment of Liquid Biofuels, Biomass and Gaseous Biofuels, looking at technology feasibility, UK fuel markets, carbon-reduction implications and financial viability.

Somers Town Estate Heat Decarbonisation

Energy modelling

London Borough of
Camden

Buro Happold carried out a study into the decarbonisation of the heating of 6 housing blocks containing 142 residential units. Jon undertook an in-depth site assessment and developed a thermal model to replicate the baseline energy demands of the existing building.

Potential retrofit scenarios were analysed to understand impacts on peak heat demands, total energy consumption and annual energy bills. Techno-economic analysis of fabric and systems retrofit measures was undertaken with Currie & Brown. The most viable options for decarbonisation were air source heat pumps with green electricity purchase / on-site solar PV or connection to an existing heat network. The study outputs will be used as a blueprint for the 30,000 council homes that LBC owns and operates.

To understand the accuracy of modelling Jon utilised in-use energy data collected from the properties to verify modelling. This was proposed to ensure that recommendations would be based on accurate assumptions.

Jon recommended retrofit measures that provided value, carbon reductions and return on investment for the council. Consideration was also given to the hassle felt by occupants and alignment with the local authority's commitment on Net Zero Carbon and Climate emergency.

Jon looked to balance recommendations, proposing an optimum level of retrofit, to balance value and energy and carbon impact.
