Job Description

Job Title	Carbon Modeller
Directorate	City Development
Service Area	Economic Strategy, Skills and Sustainability
Grade	9
Competency Level	2
Salary	£51,356 - £56,673
Job Type	Hybrid
Location	Cunard Building
Disclosure and Barring Service (DBS)	Not Required
Job Evaluation Ref No	

Job Purpose

The Carbon Modeller will play a pivotal role in designing and building the next generation of sustainability analytics.

The role will use quantitative skills in economics, statistics, data science, and Python (or other programming languages such as R), to develop and maintain scalable, data-driven solutions for carbon reduction, capital costs and social & economic impacts. The Carbon modeller will also maintain and improve the model codebase, converting business requirements into modelling problems, and engage with business stakeholders to explain model insights.

This role will drive actionable insights for our analytics subscribers and empower strategic decision-making.

Directly Responsible For:

Not applicable

Directly Responsible To:

Net Zero Commercial and Partnerships manager

Main Areas of Responsibility:

- Lead the development, enhancement, and maintenance of the core modelling framework for carbon market analytics, ensuring robust integration with related analytics suites and alignment with council objectives
- Design, implement, and optimise mathematical and economic models to address complex real-world challenges, applying advanced quantitative techniques and economic principles
- Collaborate closely with product managers, engineering teams, and stakeholders to define modelling objectives, integrate analytics into broader technology ecosystems, and communicate technical findings effectively
- Maintain high standards of code quality throughout model development, including rigorous testing, validation, and peer reviews to ensure accuracy, reliability, and adherence to industry best practices
- Demonstrate expertise in carbon accounting principles and carbon market mechanisms, keeping abreast of developments in both voluntary and compliance markets and incorporating relevant innovations into modelling practices

- Utilise advanced data visualisation skills to convey complex modelling results and insights to technical and non-technical audiences, preparing detailed documentation and presentations as required
- Manage and integrate emission and financial data across platforms, ensuring input data, assumptions, and extrapolations are regularly updated and stakeholders are informed of their impacts on modelled forecasts
- Identify opportunities to optimise model scalability and performance, working with engineers to efficiently handle large datasets and intricate market scenarios
- Supply comprehensive data and specialist advice on city emission performance, financial impacts, and programme management methodology to support strategic decision making, particularly for Net Zero and Decarbonisation initiatives
- Support the leadership team by providing robust evidence and recommendations derived from financial and carbon assessments, monitoring programme progress, and directly influencing strategic choices for long-term council planning

Supervision and Management Responsibility:

- No supervisory or line manager responsibility

Budget and Financial Responsibility:

- Being fully accountable for managing the council's resources well and complying with statutory requirements. This includes managing time, avoiding unnecessary waste, reuse and recycle resources to reduce personal impact
- Provide broad financial propositions in line with emissions through various insights and data backed evidence

- Provide inputs in financial decision making for Net Zero and Decarbonisation projects and assets to the leadership in the council
- Collaborate closely with relevant departments to ensure financial planning integrates sustainability objectives, enabling the alignment of budgetary decisions with the council's Net Zero ambitions and carbon reduction targets

Social Value Responsibility:

- Drive for social value through all activities, ensuring wider social, economic and environmental benefits for the council, residents and communities

Physical Demands of the Job:

- This position involves using a computer screen and sitting at a desk for prolonged periods of time

Corporate Responsibility:

- Contribute to the delivery of the Council Plan
- Delivering and promoting excellent customer service, externally and internally
- Commitment to customer excellence by dealing with customer feedback, including complaints, and learning from feedback in the drive for continuous improvement
- Making the council a great place to work, living the council's values, actively engaging in regular communications including team meetings, undertaking training as required and being responsible for managing own performance
- Develop the City Council's commitment to equal opportunities and to promote non-discriminatory practices in all aspects of work undertaken
- Ensure inputs to the City Council's leadership teams in decision making for both financial and technical functions

- To ensure that all work functions are undertaken in accordance with health and safety legislation, codes of practice and the City Council's safety plan

Competency Framework:

We operate a competency framework, a set of core behaviours which define how we are expected to approach our work, how we perform in certain situations and how we treat each other. Each competency details the standards of behaviours and skills required by all staff and this in turn supports delivery of our aim and our council plans linking them together with our values.

The post holder will be required to demonstrate the ability to perform at the following competency level **2**.

[The competency framework can be found here](#).

This job description is not intended to be either prescriptive or exhaustive. It is issued as a framework to outline the main areas of responsibility. You will be expected to carry out any other duties that may reasonably be required in line with your main duties and changing priorities of the organisation.

Person Specification

Assessment methods used: I = Interview, P = Presentation, A = Application, E = Exercise, T = Test, AC = Assessment Centre

Qualification and training

Essential

- Degree/certification in carbon accounting or Sustainability or GHG accounting or equivalent relevant experience (A/I)

Experience

Essential

- Proven experience in economic and/or mathematical modelling, including advanced proficiency in Python or similar programming languages and familiarity with common data science packages (A/I)
- Demonstrated expertise in carbon accounting standards such as GHG Protocol or PAS2060, with a strong grasp of emission Scopes 1, 2, and 3 and the ability to statistically analyse and record emissions (A/I)
- Experience utilising optimisation modelling tools and packages (e.g., PuLP, Pyomo, Gurobi), as well as cloud-based computing services for hosting, deployment, and execution of models (A/I)
- Proficient in using version control systems (e.g., Git, Bitbucket) and collaborative platforms (e.g., GitHub, Jira, Asana) to support effective team-based development (A/I)
- Comprehensive knowledge of carbon markets, regulatory frameworks, and emissions trading systems, with an ability to stay informed of evolving sector requirements (A/I)

- Proven capacity to communicate complex technical concepts clearly and effectively to both technical and non-technical stakeholders (A/I)

Desirable

- Experience of working in a Carbon modeller role within an environmental sustainability setting
- Experience of working SCATTER (Setting City Area Targets and Trajectories for Emissions Reduction) or equivalent, for city level carbon baseline and scenario modelling
- Experience of project management within local government
- Experience and understanding of financial implications such as cost benefit analysis, social value analysis
- Exceptional analytical thinking, critical problem-solving abilities, and meticulous attention to detail in the interpretation and application of complex data
- A self-motivated individual with robust project management skills, capable of handling multiple priorities and delivering results in a dynamic, fast-paced environment

Skills/Abilities

Essential

- Advanced critical thinking and problem-solving abilities, with a capacity to interpret data trends, assess modelling uncertainties, and formulate robust solutions for complex urban carbon scenarios using quantitative and qualitative reasoning (A/I)

- Excellent verbal and written communication skills, with an ability to produce tailored reports, presentations, and other written material to a range of key internal and external stakeholders (A/I)
- An ability to analyse and summarise highly complex information into clear and manageable priorities (A/I)
- Excellent time management skills and an ability to prioritise own workload and that of others (A/I)
- Able to provide justification for undertaking a project/programme. Can evaluate the benefits, costs and risks of alternative options and gain management commitment and approval for investment in the project/programme (A/I)
- An ability to determine, communicate, and manage risks, issues, and opportunities, as well as their implications, ensuring identified programmes are delivered in efficient and sustainable ways (A/I)

Commitment

Desirable

- An understanding of and a personal commitment to the Vision and Values of Liverpool City Council