NET ZERO AND DATA
Net zero carbon and data analytics

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Stuart explains the necessity for controlling energy consumption. "Net zero carbon energy software like Autonomy Energy is a foundation of modern day sustainability efforts."

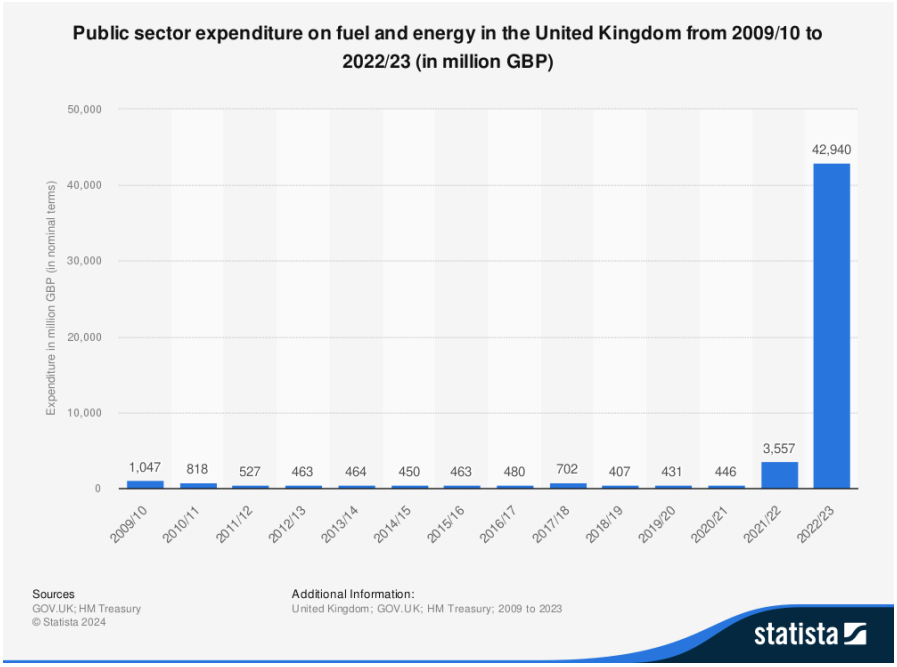
Stuart has 25 years' experience in the mechanical and electrical consultancy field, encompassing dilapidations and property pre-acquisition/pre-lease advice and reporting to financial institutions, landlords, managing agents and tenants across a wide range of sectors including office, retail, industrial, hospitality, leisure, heritage assets and healthcare.

His experience within the healthcare and heritage asset sectors has incorporated professional advice to central government clients including Defra and various executive agencies and consultancy on behalf of the Royal Household Property Section.

Context

As the global population wrestles with the unrelenting challenge of climate change, the journey towards net zero carbon emissions has become an essential focus for governments, businesses and individuals. Achieving this balance is essential for mitigating the adverse effects of climate change and ensuring a sustainable future for humanity. An essential tool in this challenge is energy management/monitoring software, which is revolutionising the way we approach energy management and sustainability.

With increasing government budgetary burdens, due to higher borrowing costs and the overburdened public services, the cost of gas and electricity to the UK government has increased dramatically. Between 2009 and 2022 the cost of energy and fuel for the public sector increased by 339% to £3.557bn. Between 2022 and 2023 this increased to £42.49b. The huge hike in 2022/23 was a result of the government energy assistance scheme for the general public and businesses, with enormous price increases in the retail energy market as a result of global events.



The introduction of legislation committed to driving the United Kingdom's net zero carbon goals, such as the Minimum Energy Efficiency Standards, has placed further burdens on public and private sector budgets, requiring high levels of capital investment to improve the carbon footprint of public and private sector property and improve overall energy efficiency. This new legislation requires property owners to improve the energy efficiency of their properties by implementation of energy efficient equipment and systems and construction techniques, to reduce Energy Performance Certificate ratings, with the overall goal to reduce carbon emissions.

The Internal Energy Agency states, *"the operations of buildings account for 30% of global final energy consumption and 26% of global energy-related emissions (8% being direct emissions in buildings and 18% indirect emissions from the production of electricity and heat used in buildings)".* Reduction of the carbon footprint in the operation of the built environment is fundamental to every net zero carbon strategy, as is sustainable

construction practices and techniques in reducing embodied carbon.

Net zero carbon strategies

Before examining the software aspect, it's important to appreciate what net zero carbon strategies are. At their core, they encompass reduction of carbon emissions through various means such as energy efficiency, renewable energy adoption, and carbon offsetting. The ultimate goal is to achieve a net balance where the carbon footprint is minimised or completely neutralised. Without effective data, net zero carbon strategies are impossible to identify, implement and measure.

Energy efficiency - Energy efficiency is the practice of using less energy to perform the same task or produce the same outcome. It involves optimising the use of energy resources to reduce waste, lower costs, and minimise environmental impact. In essence, energy efficiency means achieving more with less energy.

Renewable energy adoption - Renewable energy adoption refers to the increasing use of energy sources that are replenished naturally, such as solar, wind, hydro, geothermal, and biomass. This transition is driven by various factors, including environmental concerns, technological advancements, policy incentives, and economic benefits.

Carbon offsetting - Carbon offsetting is a process that involves compensating for carbon dioxide emissions by investing in environmental projects that reduce or remove carbon from the atmosphere, such as reforestation (planting trees) and carbon sequestration (promoting agricultural practices that trap carbon on soil).

Net zero carbon energy software tools

Software plays a fundamental role in management and optimising of these strategies, providing tools for monitoring, analysis and implementation. Net zero carbon energy software encompasses a range of applications and platforms designed to help organisations and individuals achieve their sustainability goals. These platforms, as well as providing tools for monitoring, analysis, and implementation, are fundamental in providing the granular data required to meet UK reporting standards, such as the carbon reduction commitment (CRC) energy efficiency scheme and energy saving opportunity scheme (ESOS) for businesses and local authorities. Without accurate data provided by interactive bespoke software and hardware solutions, the realisation of net zero carbon strategies for the public and private sectors will be an arduous journey.

Autonomy Energy is a powerful tool designed to streamline energy management for businesses of all sizes. With seamless integration and intuitive dashboard features, our platform offers real-time insights into energy consumption, identifies inefficiencies and suggests actionable strategies for optimisation. From pinpointing energy spikes to forecasting usage trends, our solution empowers organisations to make data-driven decisions, reduce costs, and drive sustainability initiatives. Designed by experienced real estate professionals, Autonomy Energy is a bespoke application that collects and reports continuous energy usage data for properties.

The web-based application monitors, manages and collates energy data within the built environment. The application will report data from the property, properties or portfolios in 24 hours a day, 7 days a week in near real time. Data can be collected via existing hard-wired sensors (temperature, CO2, etc.) and energy meters (pulse, BACnet, Mbus etc.) via existing metering networks or building management systems networks, or through wireless sensors utilising Long Range Wide Area Network. The Autonomy web-based application collates this data into usable/readable graphs or tabular data sets which can be exported from the platform in different formats for legislative reporting such as ESOS and CRC.

Net zero carbon energy software like Autonomy Energy is a foundation of modern-day sustainability efforts. By providing the tools necessary to monitor, manage, and optimise energy use, these solutions empower organisations to achieve their carbon reduction goals effectively. As climate action continues to be a priority, the role software plays will only become more critical, driving innovation and progress towards a sustainable, net zero future.

"If we drive our fellow species to extinction, we will leave a far more desolate planet for our descendants than the world we inherited from our elders." James Hansen (Professor, Program on Climate Science, Awareness and Solutions, Columbia University).

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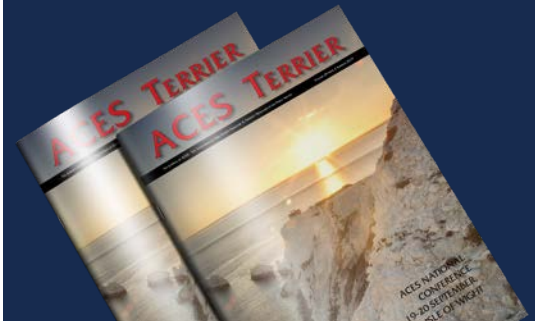

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