

-  Energy Efficiency
-  Energy Resilience
-  Ready for Hydrogen

Public sector *energy security*

Resilient and efficient electricity, heating and cooling.

Clarke Energy is dramatically lowering public sector energy costs and CO₂ emissions, whilst strengthening resilience, with near 200MW of efficient power generation equipment.

The need for energy resilience cannot be overstated, particularly as our public sector works towards ambitious national strategies to achieve net zero emissions.

Recent trends have seen an increase in procurement of “green” certified electricity and limitations on funding and installation of on-site generation, but does this solve all of the problems facing tax-payer funded sectors?

Achieving net-zero requires focus in three key areas; firstly we must look to reduce our consumption, particularly at times of low-renewables penetration, improve our efficiency through modernisation and building fabric programmes and then maximise the use of renewable energy, when it is available.

Key to sustainability however, we cannot ignore the importance of affordability nor reliability, therefore an integrated energy system provides the greatest opportunity for success.

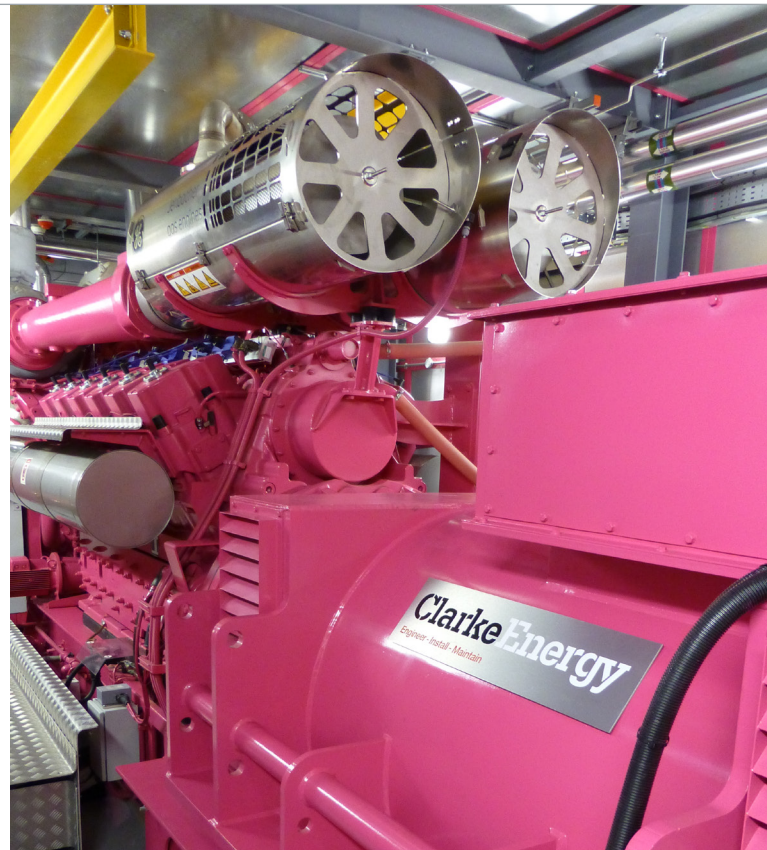
Hydrogen-ready CHP, CHP+ (CHP working alongside heat pumps) and hybridised energy solutions, must form part of the energy-mix to ensure a resilient, net-zero, public sector landscape.

CHP

Existing CHP assets, proven at reducing primary energy consumptions, reducing costs and delivering resilience, can operate utilising blended fuels with up to 20% hydrogen (by volume) without the need for significant upgrades. Government policy is gearing up for a H2 fuelled future and a 20% blend of hydrogen with mains gas provides CO2 savings of around 7%.

Investing in a hydrogen-ready gas engine today will see highest returns on investment, given the relative efficiency of on-site generation with heat recovery; and these savings could be invested into additional low carbon technologies or energy efficiency schemes through the customer estate.

Where hydrogen is not yet available, but the customer has access to local biomethane or green-certified gas supplied through the mains gas network, then the CHP runs as it does today, with a renewable sourced fuel.



CHP+

Heat pump technology is being pushed to reduce carbon emissions in the public sector, but what about resiliency and efficiency? By combining heat pumps with CHP; consumers can take advantage of an energy efficient and cost-effective heating and cooling solution.

Excess heat can be used to supplement a heat pump's output. CHP on it's own has a system efficiency or coefficient of performance of 0.8-0.9 – incorporating a heat pump into the scheme increases this to between 2-3.



Hybridised Energy Solutions

Investing in energy storage solutions, such as batteries and thermal storage, in conjunction with CHP and heat pumps, can safeguard energy supply whilst reducing environmental impact.

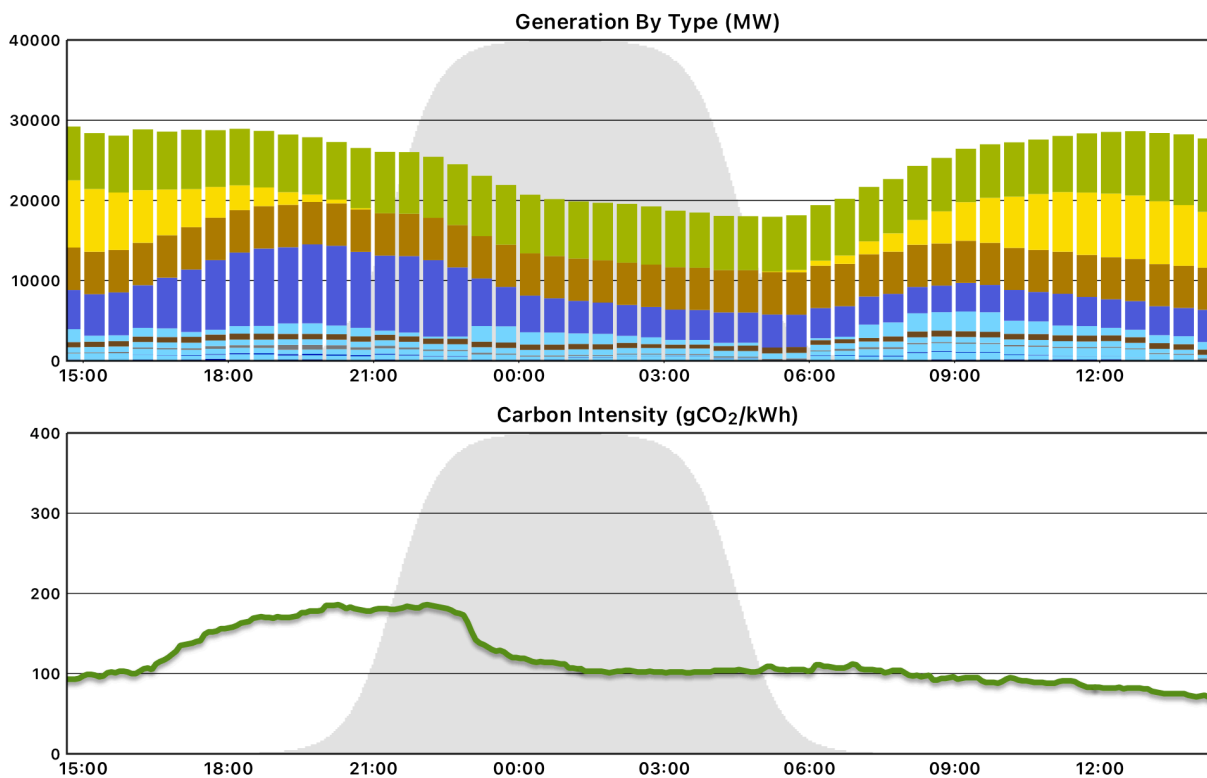
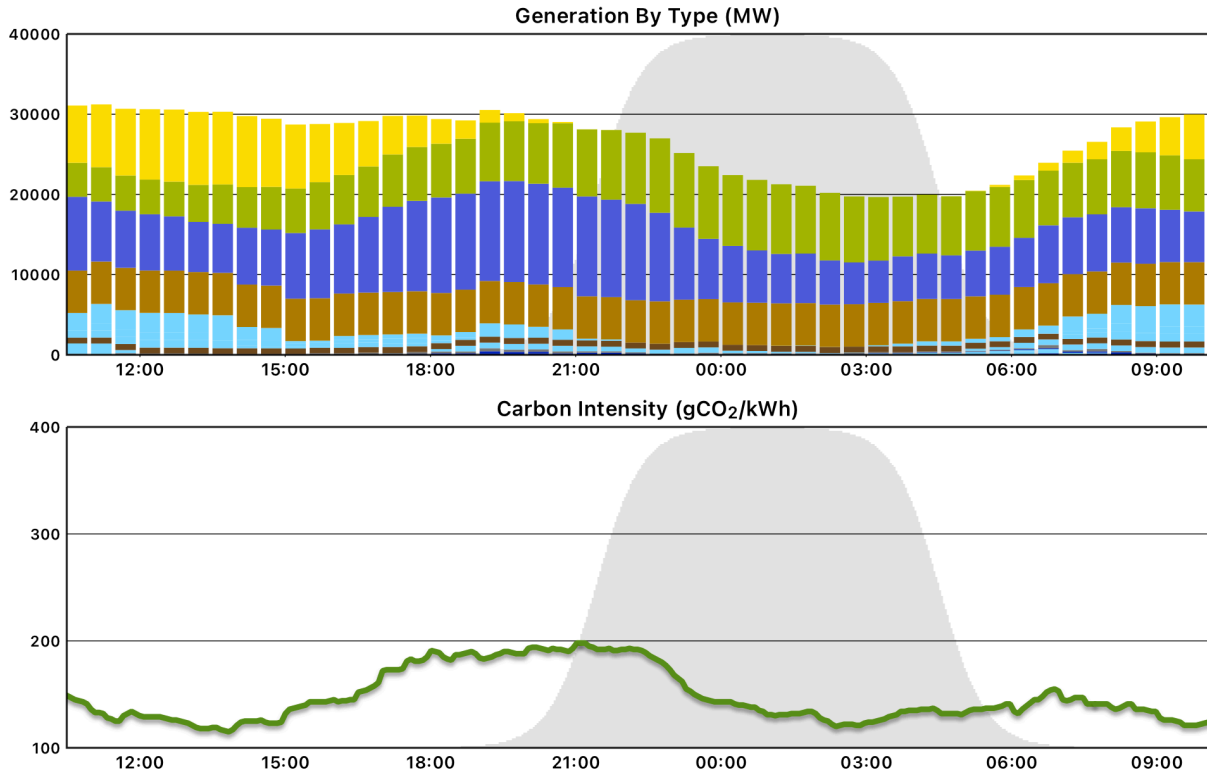
In the net-zero future, digitalisation and optimisation of our energy providing assets will play an increasingly important role, as we balance supply and demand on the back of a system that becomes almost entirely dependent on intermittent generation.



Grid Carbon Intensity

The UK still burns considerable amounts of gas, no matter the amount of renewable energy on the electricity network, resulting in unavoidable electrical inefficiencies during transmission.

The following graphs show UK electricity generation sources on a sunny and windy day. Ignoring CHP can result in pumping more CO₂ into the atmosphere than necessary, plus waste critical money, which could be invested in other carbon saving initiatives.



Clarke Energy has engineered, installed and maintained energy solutions in the public sector for 30 years.

We have the requisite capabilities to assess your existing demands and consult on potential conceptual solutions before engineering and installing an optimised energy solution specific to your requirements.

Our power projects are supported by our market-leading long-term maintenance and aftersales support.



We're here to help deliver net-zero, resilient and cost-effective power, for the public sector.

To discuss Clarke Energy's range of flexible and sustainable energy systems, contact our sales team:

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