

How we helped Vistry cut fuel and emissions

Meridian Water needed a low-emission, more efficient way to power cranes and hoists while reducing its impact on nearby residents. We combined peak power support, battery storage, hybrid lighting and environmental monitoring to reduce generator use. The solution saved 27,536 litres of fuel and delivered £43,287 in commercial savings over two months.

- Over 27,500 litres of fuel saved
- Over £43,000 commercial savings in two months
- 10,850kg carbon saved weekly
- Generators downsized by up to 50%
- Over 50% lower lighting fuel consumption

Meridian Water is Enfield Council's £6 billion, 25-year regeneration project, which will create 10,000 homes, including 4,000 affordable homes, helping to ease the London housing crisis with an emphasis on prioritising housing for local residents and generating thousands of new jobs that all benefit the local economy.

The first phases of Meridian Water will be delivered by a development agreement between the client, Enfield Council and lead contractors, Vistry Partnerships London, now Countryside Partnerships, who are committed to building in a low carbon way and seeking solutions that will minimise the impact on the environment and the surrounding areas.

The Challenge

The project began early 2021, with the Accommodation team initially supplying 22x site welfare units as part of the group supply agreement between Countryside Partnerships (Vistry Group) and Sunbelt Rentals UK.

Soon after, the project team at Meridian Water requested a sustainable temporary power solution for the site. Focusing on reducing the need for large generators in applications such as cranes, hoists, and welfare.

Following early engagement between the Countryside Partnerships London and the Sunbelt Rentals Vistry Group account team, with support from the Power and Clean Energy specialists, multiple power applications were identified that would benefit from a clean energy upgrade, providing both commercial and environmental savings.

The Clean Energy team identified multiple applications across the site that would benefit from the addition of Peak Power Support systems (Punch-Flywheels) and Battery (Energy) Storage Units (BSUs) that across site could:

- Reduce generator sizes
- Reduce fuel consumption
- Reduce generator run time
- Reduce emissions
- Reduce noise pollution
- Reduce costs

The Solution

At this time the site had 4 tower cranes and 2x twin passenger and goods hoists. All dynamic load applications that traditionally require a large generator to power them, running inefficiently on idle (often 24/7), until the crane or hoist is called into action, needing a huge burst of energy for a short period of time.

However, when you ADD a peak power support system to the application you can significantly reduce the size of generator needed to support the start-up of the hoist or crane motor. Which in turn reduces fuel consumption and therefore lowers emissions and fuel costs.

In addition, tower cranes have a smaller overnight power requirement for aviation lights, so by adding a battery (energy) storage unit to any application with a lower overnight load requirement you can further reduce generator run time.

The site adopted multiple Energy Solutions:

- Energy Solution 1: By adding a peak power support system and BSU the two 250kVA generators originally powering tower cranes 1 & 2 could be downsized to a single 250kVA. The battery (energy) storage unit was added to power the aviation lights overnight, meaning the generator was only turned on when site was in operation, reducing run time by over 50%.
- Energy Solution 2: Tower crane 4 had a BSU added to its existing 250kVA generator that reduced generator run time, fuel, and emissions. Adding a BSU meant the generator could be turned off overnight with the BSU able to power the aviation lights.
- Energy Solution 3: The Generator to power tower crane 5 was downsized from a 300kVA to a 200kVA with the addition of a peak power support system, and a BSU was added to power aviation lights outside working hours, again meaning a reduction in generator run time, fuel and emissions.
- Energy Solution 4: The two double hoists would have traditionally required a 500kVA generator, but by adding a peak power support system to the set up the power supply was downsized to a single 250kVA gen set, providing significant fuel and emission reductions.
- In addition, Countryside Partnerships (Vistry

Group) adopted several other solutions from Sunbelt Rentals that enabled them to lower their emissions and monitor their environmental impact:

- Hybrid Lighting: 10x Hybrid lighting towers provide over night lighting for security purposes and will enable continued working in the winter months. They typically reduce fuel consumption by over 50% when compared with standard fuel powered models.
- Environmental Monitoring Solution: Due to the proximity to residential areas site chose to install 3x solar-powered Casella Guardian monitors, so air quality, vibrations and noise can be recorded and monitored, enabling the contractors to see the impact of the site and make informed decisions on whether they need to review their impact on the immediate surroundings.

And finally, in line with Countryside Partnerships' national social impact initiative which aims to give back to the local communities they're working in, a Skills Academy was set up on site as part of the Vistry Plus National Skills Academies initiative

The Academy provides a range of courses to the local community, equipping them with some of the essential skills needed to enter careers that support both this project and the local area. As part of a working partnership agreement between Sunbelt Rentals and Countryside Partnership's numerous storage units and low emission power solutions have been provided by Sunbelt Rentals to support the Academy.

The Results

Based on conservative estimates, the team at Sunbelt Rentals have established that without adopting Energy solutions (1-4) the site would have consumed an additional 76,180 litres of fuel in the period between January 1 and March 1, 2023. This would have contributed to over 202,780 kg of carbon being emitted into the atmosphere.

However, because of the low emission energy applications deployed, the site saved 27,536 litres fuel (January 1 and March 1, 2023).

Technology has had a significant impact on this project. By deploying the peak power support systems and battery technologies Countryside Partnerships (Vistry Group) have been able to turn off large generators for overnight aviation lights, downsize generators by up to 50%, reduce fuel consumption and the number of delivery vehicle movements, while reducing the number of generators on site for both crane and hoist applications.

Commercially, this has reduced the fuel spend (during this period) from £112,911.88 to £72,432.78 (based on an average fuel price of £1.47 per litre during this period).

Giving a total fuel savings for a 2-month period (January 1 and March 1 2023) of £40,479. After subtracting the hire cost for the addition of clean energy equipment for this period (£29,145) Vistry achieved a weekly commercial saving of £1,691, and a carbon saving of 10,850 kg's per week.



Assess energy demand across busy sites.

Combine battery storage with peak power.

Cut emissions, fuel use and costs.

Leave the how to us.