KelTech IoE
THE NET ZERO NETWORK

A CONVERGENCE OF ENERGY AND DATA BROUGHT TO

MILL HILL SCHOOL

BY KELTECH IOE

Mill Hill
EDUCATION GROUP

EXECUTIVE SUMMARY

At Mill Hill Belmont School in North London, who were recently awarded an Eco-Schools Green Flag, one of the key values is to "Embrace Challenge". In line with this, the Estates team embarked on a project to enhance the safety and accessibility of the outdoor spaces at the school.
The urgent requirements were to install:

➡ Enhanced levels of lighting for the road and parking areas at the school.

➡ A new Wi-Fi network

➡ New Digital Signage

➡ Enhanced CCTV network.

A key goal was to deliver this project in the most energy efficient way, that aligned to the schools Eco-Schools Green Flag ethos.

Following a review of the available technologies, KelTech IoE award-winning Dual Distribution Network technology, DDN, was deployed to meet the energy efficiency and data requirements of the school. The following case study will highlight the objective of the school and detail the benefits of the KelTech IoE DDN over traditional design and deployment methodologies.

THE CUSTOMER

Set in a tranquil location in the heart of London, Belmont Mill Hill Preparatory School occupies a 35-acre site. The school is part of a family of schools, which were founded in 1807 and consist of seven schools in total.

Sean Ryan, Director of Operations at the school states:

'At Mill Hill our objective is to provide excellence in education. One of the ways in which we achieve this is by providing an optimum environment in which outstanding learning can take place. Several enhancements to the school were required to increase the safety and connectivity of our students, parents and employees. KelTech IoE's Dual Distribution Network technology not only met our power and data requirements but exceeded them. KelTech IoE's solution meant a quicker, more cost-effective and safer implementation was achieved compared to traditional methods.'

MILL HILL BELMONT PREPARATORY SCHOOL

THE OBJECTIVE

The school wanted to make several enhancements to the property with a view to increasing the safety of their students, parents, and employees but also to provide better connectivity to staff and students throughout the Campus.

The project objectives were then to provide both power and data to aid in the deployment of public lighting, CCTV and Wi-Fi along several interconnected paths. This had to be achieved in a highly energy efficient way, in line with the Eco-School status.


ORIGINAL SOLAR POWERED LIGHT

ORIGINAL NON DIGITAL SIGN AND SOLAR POWERED LIGHT

THE CHALLENGE

01 Deliver the project within a 4-week lead time due to the return of students to the school after summer break.

02 Reduce installation and operating costs.

03 Ensure minimal disruption to school grounds, staff and students.

04 Provide infrastructure that would future proof additional applications and upgrades.

05 To meet or exceed the Eco-School ethos that supports the schools' journey towards decarbonisation.

THE SOLUTION AND IT'S BENEFITS:
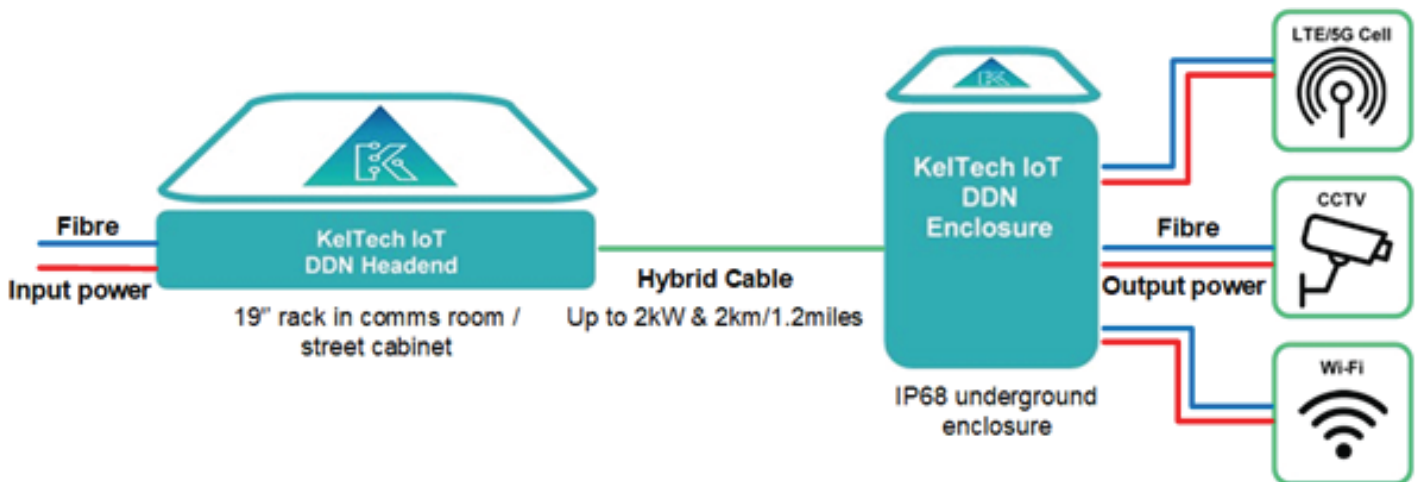
Dual Distribution Network technology, providing a single integrated cable solution for both data and power, meeting the requirements needed to deploy public lighting, CCTV and Wi-Fi deployment at the school.

DDN as an architecture and deployment methodology provides clients with a faster, more cost-effective and safer way of deploying public realm infrastructure. Being a single cable solution for both data and power, there is a significant reduction in the materials and labour required in comparison to current deployment methods and therefore reducing the projects' costs.

MILL HILL DDN DEPLOYMENT METHODOLOGY

Power and data (required for the introduction of public lighting, CCTV and Wi-Fi) are deployed along several interconnected paths that lead past the tennis and cricket pitches to the car park which is the furthest point from the entrance to Mill Hill school.

We located the DDN head-end at the optimal location in relation to the poles; reducing the amount of cable required by 50% (less carbon footprint). The design has taken into consideration the existing solar installation which will be repurposed as an input to the DDN, reducing reliance on the grid.

400 meters of Keltech DDN hybrid cable was then laid from the head end, through both the existing and new ducting infrastructure, finishing at the lower carpark. This cable connects the DDN headend, located in a cabinet to each of the street pole locations which have on them the highly energy efficient DC powered LED streetlights, Wi-Fi and CCTV
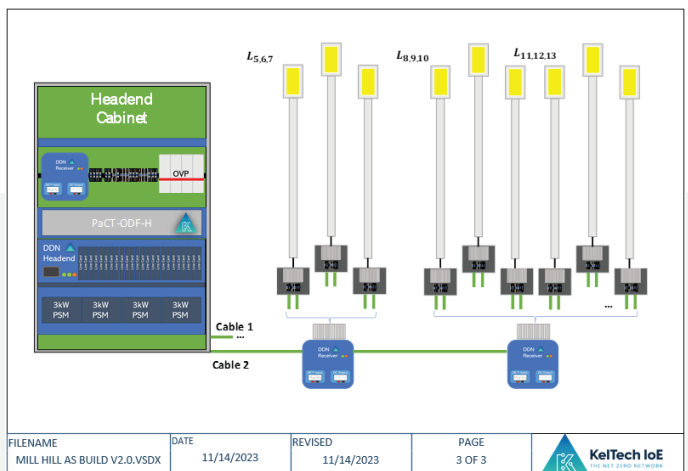

A KelTech IoE product called the ODF-H (Optical Distribution Frame – hybrid version) was installed at the headend in a cabinet to combine power and data for onward distribution.

At 3 locations, a KelTech IoE DDN product called an "Hybrid Enclosure" provides the distribution of power and data from the DDN headend onwards to the end devices, e.g. CCTV camera.

At each pole location, DC power and data is distributed to the Energy efficient LED lights as well as data and power required for CCTV, Wi-Fi and digital display functionality.

Finally, KelTech IoE asset identification solution, LOC, was used to record all cabling routes and assets deployed, providing the school with an invaluable tool for asset location, fault finding and the addition of new assets.
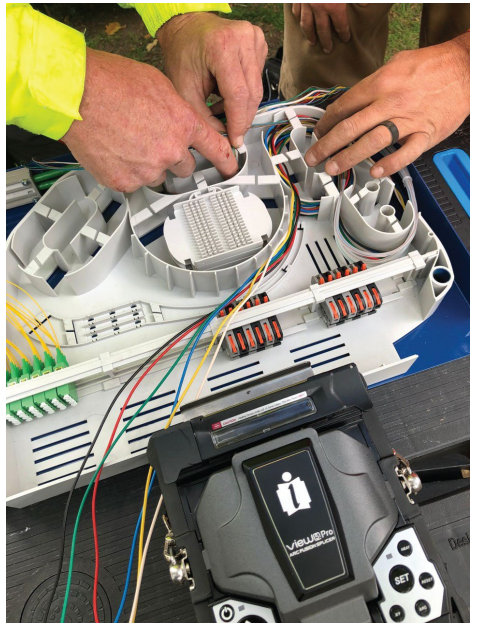
CONCLUSION

By combining data and power, in an 'all-digital' solution this Dual Distributed Network (DDN) approach resulted in a quicker, more cost-effective and safer network implementation. CAPEX savings of this implementation were between 40% - 50%, with anticipated OPEX savings of at least 15% with the potential to run the entire system in an "off grid" mode, i.e. 100% Energy from Renewables.
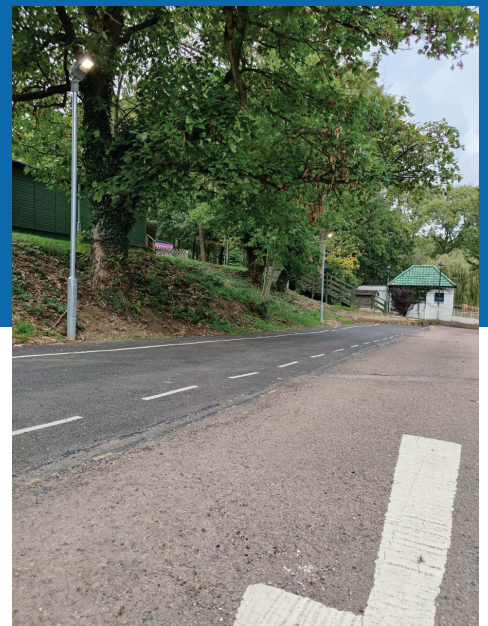
ABOUT KELTECH IOE

Our goal is to transform the sustainability and economics of modern public realm infrastructure. The world is facing its greatest energy challenge and at KelTech IoE our vision is to enable 'The Net Zero Network' transforming how first and last mile public realm infrastructure is connected and powered in a more sustainable and energy efficient way.

THANK YOU