

Using digital innovation
to deliver a generation
of zero carbon schools





The Government's commitment to achieve a Net Zero economy by 2050 will require innovative solutions and dynamic thinking across the public and private sectors. One of the most important things that will need to be achieved is a fundamental transformation in the way that vital public services are delivered.

Rethinking school estates and the way that technology is integrated into them will be a foundational part of this process. This paper outlines the need for innovative solutions in schools to meet sustainability challenges and the policies and technologies that can help them meet this need.



Schools are ready to go green

77% of teachers interviewed said their school should be doing more to address climate change

Online survey of teachers conducted May 2022

The benefits of decarbonising school estates are clear. The Sustainable Development Commission found that schools in England emit 8.5 million tonnes of carbon dioxide each year.

The people working in schools recognise the challenge this creates and are willing to be a part of the actions to address it.

New research commissioned by Cisco gathered views from teachers and school administrators and found that 77% of teachers believe their schools should be doing more to address climate change.

However, 9 in 10 teachers said they feel that they need more support in teaching about climate change and its impact across varying subjects.



Schools are ready to deliver on climate change action, but that they are not yet being provided with the full set of resources required to do so.

Cisco is looking to support schools by providing technology that can help them decarbonise their estates at the same time as creating new educational platforms to enrich teaching on climate change.

If such technology can be delivered at scale, it can produce tangible benefits across the school system: cleaner estates, more creative learning and more comfortable learning environments. Cisco stands ready to support the Government in any way we can to make these benefits a reality.



The domestic and international vision for greener school systems

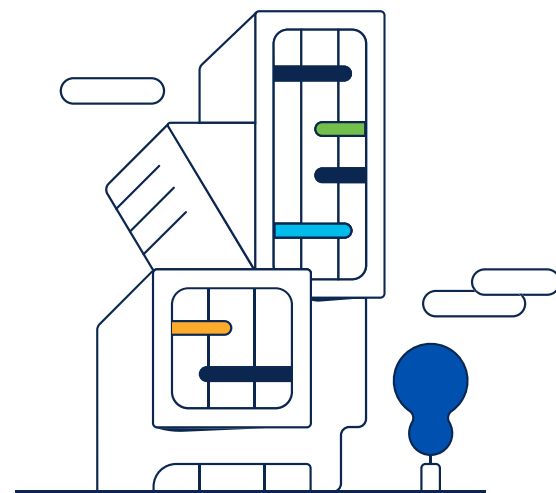
The Government is rightly focused on decarbonising the UK's economy and public services. There is also a welcome drive to put climate change at the heart of education, including through new T-Levels. At the same time, Ministers are thinking of ways to level up the economy and bring effective and integrated digital services to parts of the country that lag behind.

This is the time to not only be promising change but to be delivering on it. The international policy landscape for making schools sustainable, as well as developing innovative methods to teach students about climate change, is rapidly expanding (see case study boxes). Similar steps need to be taken in the UK to ensure that we are not being outperformed by international counterparts.

The Department for Education's (DfE) recent report on “sustainability and climate change” showed that it is thinking the right way about the impact of school estates and learning environments on climate change.

Case Study

The European Commission recently launched the Education for Climate Coalition, creating a community of learners and teachers to drive sustainability issues. The European Commission at the beginning of 2022 also published recommendations for educational facilities on how they can improve the sustainability of their facilities, as well as how sustainable goals can be incorporated into school curriculums.



The target, outlined in the paper, to build at least 4 schools and 1 college using the Gen Zero Platform will begin the process towards making every school resilient to climate change and more carbon friendly. It is hugely welcome that the DfE have clear policy ambitions in the sustainable school infrastructure space.



We also applaud the Department's commitment to “pilot the use of smart air and environmental quality monitors” by 2023, something that will not only contribute to school's environment performance but provide a clean air learning environment for students.

Case Study

The United States has recently enhanced its policies to promote teaching about climate change in schools, as well as aiming to reduce carbon emissions from schools. Their Environmental Protection Agency encourages middle school teachers to introduce a Greenhouse Gas Emissions Calculator which would encourage students to learn how they can actively reduce carbon emissions.

Technology can make this vision a reality

Having targets and policy goals in place is undoubtedly necessary, but the greatest challenge will always be ensuring that these goals are met. In the case of sustainable schools, technology will be absolutely central to ensuring that the Government delivers on its ambitions.

The Government recognises this: the Digital Data and Technology Playbook it published in March 2022 seeks to streamline investment in digital products which will make public services more efficient, including in educational facilities. Cisco seeks to work with DfE to achieve exactly this; cost-effective technology to support its sustainability goals.



Sustainable technologies also need to be supplemented with platforms that help students build their digital skills in a way that can be applied in the sustainability space. The findings of recent reports produced by the Skills Productivity Board showed that digital and data skills are in high demand and that ambitions to reach net zero are boosting the need for investment into green tech training. It also found with the development of research in AI, that recruiting individuals with the right digital skills could become even more competitive.

We believe Cisco technology can contribute to the Government's ambitions in holistically reducing carbon emissions, and develop policies set out by the international counterparts. This would stand the UK out as a key trail blazer in the international community for implementing effective policy to initiate direct action in the education system.



The methods to do this in both building *IT infrastructure into new school buildings and existing estates will put new, sustainable technology at the forefront of reaching the Government's Net Zero goals by 2050.*



This is a proven approach

We know *the technology required to accelerate the drive towards Net Zero schools* works because we have already begun implementing it in schools in England.



Cisco can already provide the technology to both monitor CO₂ levels in a classroom and keep them at a safe level. Cisco's Meraki operates the industry's largest-scale cloud networking device. Using Meraki technology, schools can use wireless access points to combine environmental data with physical monitoring, to indicate when carbon emissions have reached a high level. This cloud technology activates automatic sensors and IoT devices which immediately reduce Co2 levels by automatically opening a door, for example.

The technology will also record and monitor data on the environmental impact of a school, in order to allow school staff to actively be involved in monitoring the carbon emissions of their environments. The smart device will also act as a learning platform, where teachers will be encouraged to use the device and the readings it gives, to teach their students about the impacts of their school's environmental footprint.



Cisco's Meraki technology has already been analysed for its *cost-effective benefits* in its use in existing infrastructure. Overall, a new report found that the sensors lowered a building's maintenance costs and reduced insurance premiums, all important costings for schools to bear in mind.

Meraki also includes cyber security and data protection measures, to mitigate the threat caused by expanding cloud technology.

This technology is leading in sustainable initiatives to *reduce the carbon emissions of schools*, will contribute to a *safe learning environment* for students, as well as provide an *educational platform for students to engage more with green tech*.

The Government can use *effective partnerships with the private sector to introduce advanced technology into the school system*, which can help schools contribute to NetZero targets and become safer learning environments that foster understanding about the importance of sustainability in the next generation.





The bridge to possible