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A Sustainable Digital World

Concert

Sustainability is at the forefront in the evolution of data centres, whether that's in terms of heating, cooling or water usage, as well as the overall life cycle management. At Concert, these are all innovations that we manage and cost for our clients.

Although both are fossil fuels, gas is generally preferred to diesel in the life cycle of data centres these days as gas generators are running with less emissions.

Some of our clients are even making the switch from diesel generators to biodiesel. There is also a drive towards data centres purchasing carbon-free or renewable energy.

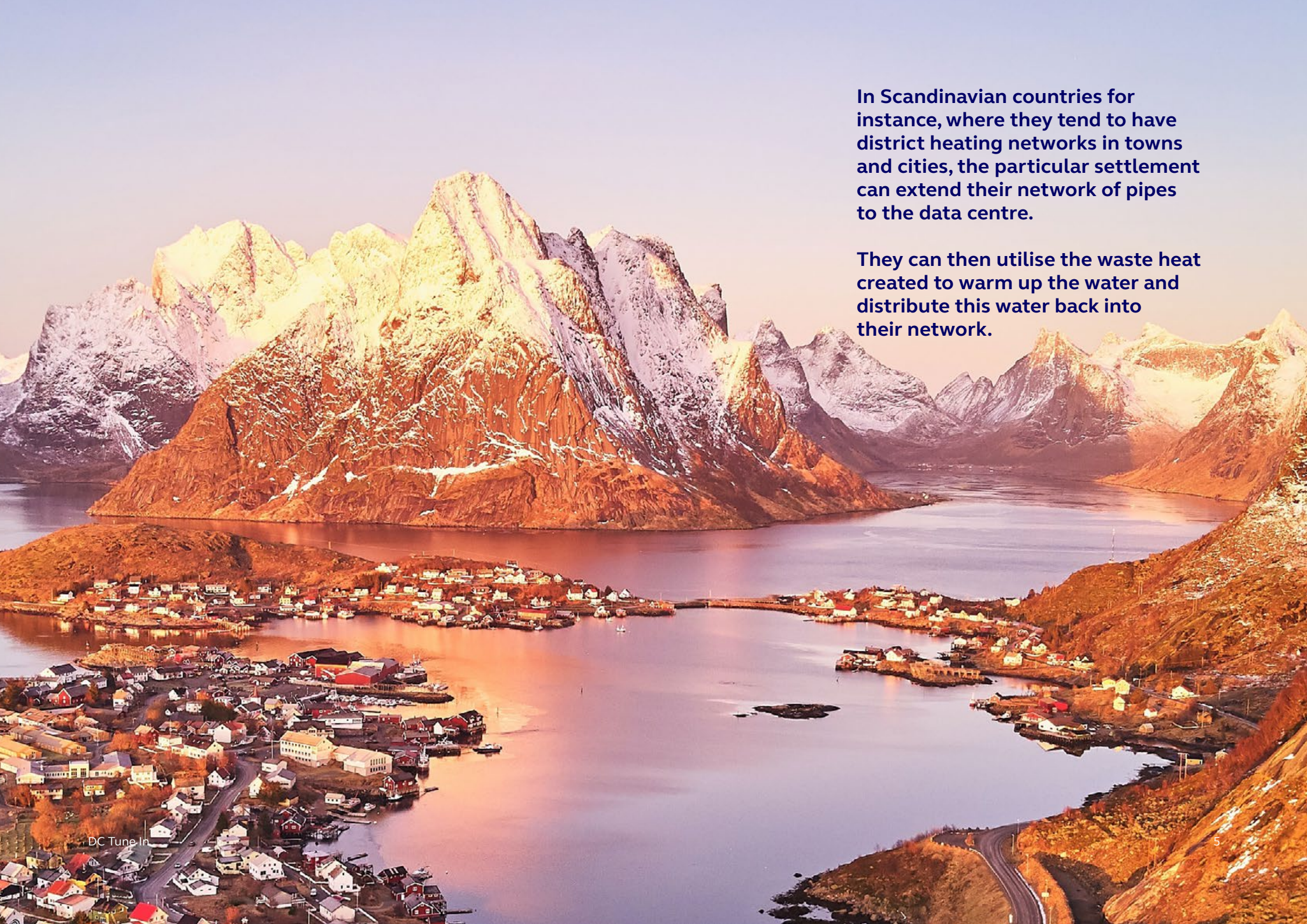
Nuclear, wind or hydroelectric are all options in terms of power sources but location might determine which option works best. Water usage is dependent on the type of equipment installed in a particular data centre and the client's approach to the amount of contingency supply they keep on site, whether that's 24 or 48 hours' worth.

Our clients are also increasingly aware of the need to conserve water where possible and are applying some innovative thinking to reducing their water consumption.

Turning heat into energy

One of the other focuses is on energy from what would otherwise be waste heat produced by data centres, through, for example photovoltaic panels.

There are obviously seasonal variations in the amount of heat produced, with more in the summer period. It might be possible to reuse this heat throughout the rest of the building or even repurpose it for the benefit of the local community.



In Scandinavian countries for instance, where they tend to have district heating networks in towns and cities, the particular settlement can extend their network of pipes to the data centre.

They can then utilise the waste heat created to warm up the water and distribute this water back into their network.

Rainwater harvesting can be used to capture water from data centres' roofs which can then be filtered and stored plus there are commitments by some to using only fresh air cooling.

There are efforts underway in terms of:

Waste reduction

Encouraging recycling

Composting or energy recovery

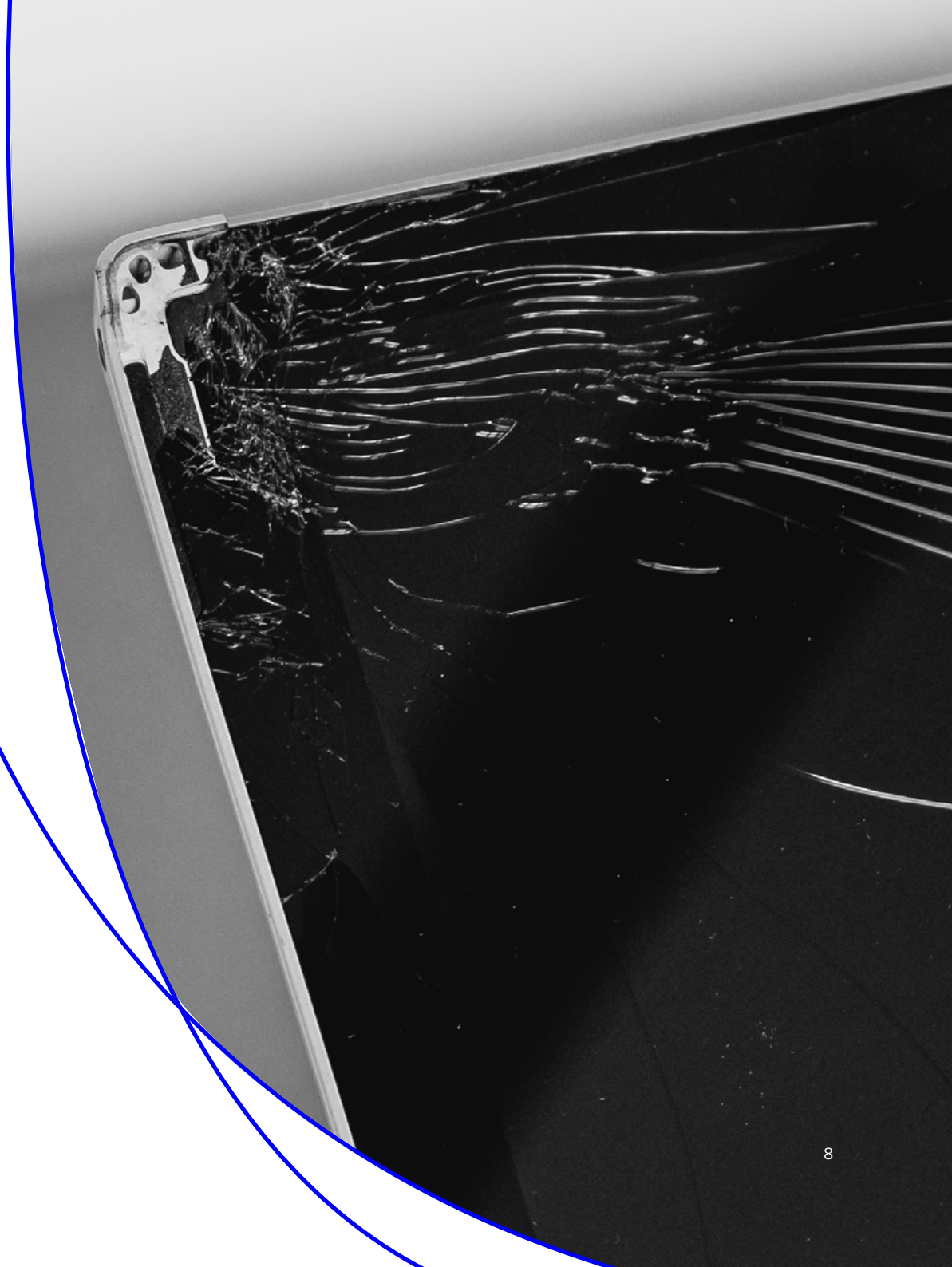
Increased provision for electric vehicles

There are sustainability issues around legacy data centre facilities too. There are a lot of centres built over the last ten, fifteen or even twenty years that are now running inefficiently. From a performance point of view, the equipment in these older data centres needs to keep pace with the competition and the latest industry advances, especially as the sheer demand for data and therefore data centres from around the world has gone up significantly. By way of example, after its launch in 2013, Zoom had 200 million annual meeting minutes within its first year of operation compared with 3.3 trillion annual meeting minutes now.

Repair & Re-use

There is, however, a drive to reuse or repair equipment rather than throw it away, which ties in with the resistance to built-in obsolesce in other areas of our lives from the tech in our hands to white goods at home.

This newer school of thought leans towards a circular-economy style approach to data centre life management and also extends to the building itself. While previously, demolition might be considered the only option for an outdated brick data centre, now the implications of the embodied carbon it represents means that a more sustainable approach of retrofitting it would be considered instead.



The Greener Approach

The greener approach to operating data centres throughout their life cycle can best be seen in the Climate Neutral Data Centre Pact (CNDC). This is an initiative that a number of major operators have signed up to and represents a significant sustainable step. It was prompted by what is known as the ‘European Green Deal’: the goal of making Europe the world’s first climate neutral continent by 2050.

It was felt by the data centre industry that it must play its part and lead by example. This is why those cloud infrastructure players who have signed up to the CNDC have agreed to climate neutrality by 2030.

The industry is continuing to make inroads towards efficiency standards ahead of any formal external regulation.

For example, the target for power usage effectiveness (PUE) which is a ratio of energy consumption target versus energy debt has been set at 1.3, which is easily achievable, particularly for hyperscale operators such as Amazon, Google or Microsoft or even colocation companies. The CNDC continues a trend of self-regulation by the data centre industry towards a more sustainable future.

Local authorities also have a key role to play in terms of data centres' sustainable future.

Areas like the London Borough of Hillingdon are leading the way in terms of its energy strategy and approach to sustainability, committing to minimising the carbon footprint of data centres by making sure they implement energy-efficiency measures.

In summary, our data centre clients are making public commitments to minimise their environmental footprints, investing in renewable energy, and devising long-term plans to improve their sustainable efforts.

Contact

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Helen is an architecture and interiors journalist with over 15 years' experience. She specialises in writing about how well designed workspaces can make people happier and more productive.

She edited workplace design magazine OnOffice for three years from 2015-2018, winning one International Building Press (IBP) Award, with the magazine picking up four PPA nominations and two nominations in the British Society of Magazine Editors awards (BSMEs) in that time, including being in the running for Trade & Professional Editor of the Year in 2017.

She has also co-authored a book by Thames and Hudson called 'Total Office Design'. She is currently a freelance editorial consultant, writing for magazines such as Blueprint, OnOffice, Property Week and (chartered surveyors title) Modus.

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