

# Be efficient, cool and smart: tackling climate change in a post-Covid world

by Jonathan Maxwell, CEO of SDCL

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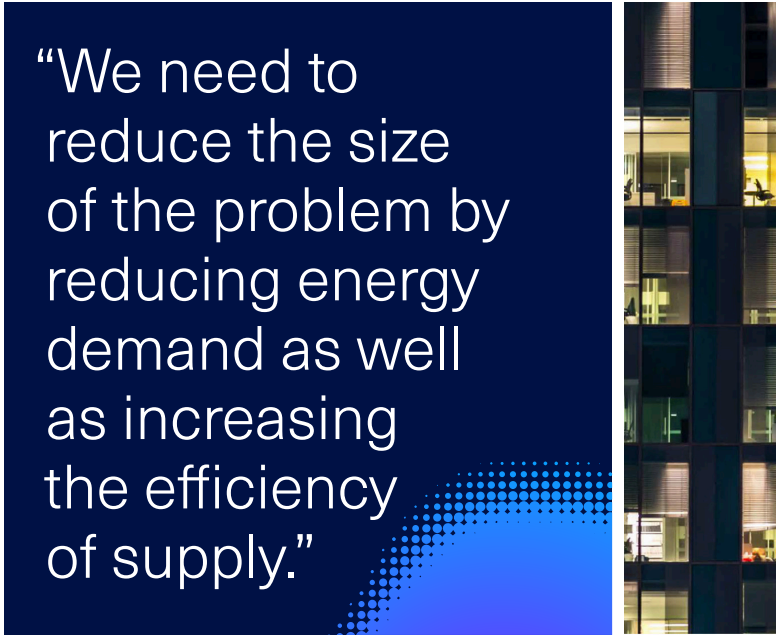
Efficiency, performance and productivity are the opportunities that we, quite literally, cannot afford to lose as the world seeks to adjust and recover from a decade framed by a global financial crisis that defined its beginning and a global crisis, fuelled by the Covid-19 pandemic, that was the legacy of its end.

We have the opportunity and the need to start the new decade with a renewed focus on pathways to growth that are fundamental, sustainable, ambitious, and new. The solutions for this next decade will be different, and in some ways more challenging than the last, but the opportunities and achievements may be all the greater.

We have begun this decade responding to the effects of the end of the last. After a familiar period of denial, the world debated for as long, if not longer than it was possible to do so, over action to respond to Covid-19. Governments eventually took, in many ways, unprecedented and simultaneous action to deal with Covid-19. Parallels were drawn widely between the health crisis and the climate crisis, while we watched the skies and waters clear, pollution fall, and nature reclaim the streets. Of course, the crises associated with the environment and climate change are comparable to the pandemic. They are universal challenges that require governments to take simultaneous, planned and coordinated actions.

The actions that we need to take for the environment and climate change in the next decade will be different to the past. To limit warming to 1.5 degrees - perhaps comparable in today's "Covid-speak" to an R below 1 - we need not just to double our efforts on cleaning energy, but to increase them by at least 5 times from current levels. We must make no mistake that at these levels, we are acting to give the planet - like our hospitals in the case of Covid-19 - the best chance of coping. Just as Covid-19 will still claim lives and wreak economic havoc, so will environmental degradation and climate change. However, perhaps more than Covid-19, we do have the technology to anticipate, mitigate and adapt to our environmental challenges.

We will not, though, achieve our targets for the next decade by using the same tools as the past. We need continued investment in and deployment of clean energy generation on a massive scale. But our objectives will not be reached through supply side measures alone. We need to reduce the size of the problem by reducing energy demand as well as increasing the efficiency of supply. The same may be said of water, waste, transport, and food. However, in the energy sector, we now have the technology and the opportunity to reduce carbon through step changes in improvements in efficiency of supply, through decentralisation and by reducing demand, by reducing waste. These measures reduce costs and improve profitability.



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## Be efficient

Energy efficiency means using less energy to achieve the same outcome; it saves money, reduces carbon and increases productivity and growth – it's a win-win, good for the environment and good for the economy.

40% of the world's energy is used in buildings, but more than half of that energy can be lost or wasted in poor generation, transmission and distribution systems – more once it's in the building. Those losses account for about a third of global greenhouse gas emissions, more than any other sector. Energy efficiency is the business of using that lost energy, such as heat generated from electricity, instead of wasting it.

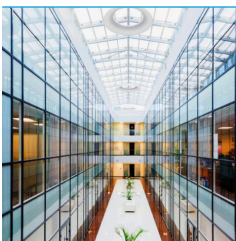
Improving the efficiency of high energy consuming products such as air conditioners, refrigerators, lights and motors will be critical to managing future energy demand and emissions. The United Nations Environment Programme's "minimum ambition" model points to potential for annual savings by 2040 equivalent to 480 power stations, or 970 million tons of carbon dioxide. A 2015 report by Climate Works and the Fraunhofer institute showed that energy efficiency could save between 2.5 and 2.8 trillion dollars by 2030, including up to 150 billion per annum in Europe and the USA. The International Energy Agency has long held that a \$ invested in energy efficiency generates \$2 of savings. It estimates that the global market for energy efficiency is more than \$300 billion; the UK market alone is £20-30 billion p.a.

## Be cool

Energy efficiency is as much about heating and cooling as it is about power.

Air conditioning and refrigeration are the biggest opportunities for greenhouse gas emission reduction and improvements in efficiency and performance globally. We will see a billion new air conditioners in the next 5 years. Demand for cooling is set to triple by 2050 and if we do nothing will be equivalent to all energy used by China and India today. Investment in electric infrastructure and energy efficiency are going to have to be double that of renewable energy.

Notwithstanding record levels of investment in clean energy globally, levels of investment in energy efficiency are lagging while investment in many areas of the most heavily polluting energy is increasing fast. In the first 5 months of 2020, investments in new coal fire power plants were 2x faster than the same period in 2019. The number one driver of demand for their electricity is power for air conditioning. Seizing on this problem, the International Energy Agency insists that with the right policies, we can double the efficiency of air conditioners, requiring less power plants, reducing emissions. All of the global growth in buildings' energy demand to 2050 can be fully met through energy and cooling efficiency improvements.



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## Be smart

**The good news is that we can use the best available technology today to create most if not all of the gains we need in the coming decade.**

We can reduce the amount of energy that buildings use with more efficient use of electricity, more efficient heating and cooling solutions, more efficient lighting more efficient industrial processes and more efficient transportation solutions. Solar panels, engines and turbines using waste gases, natural gas and hydrogen, boilers, heat pumps and batteries can significantly improve the efficiency of supply of energy to buildings, avoiding the generation and transmission losses associated with the grid. Motors, LED lights, heating, air conditioners, boilers, batteries, building management systems and controls and insulation panels reduce demand for energy in the buildings themselves.

Buildings – and the way that energy is supplied to and used by them – can also be made smarter. On-site generation can be varied according to the capacity and carbon intensity of the grid and even used to export to the grid when needed. Solar panels can be used in conjunction with other technologies and relied on more or less depending on the weather, which they can predict with increasing accuracy. Batteries can help buildings draw energy from the grid only at times of day when it is economic and efficient to do so, charging up and storing energy when it is cheap and carbon efficient to do so. Energy efficient products can vary their use to conditions, for instance with lights switching themselves on or off as directed by sensors, air conditioners adjusting the temperature of a room to needs of the equipment or weather conditions, motors working at variable speed depending on the work they are expected to do.

Indeed, one of the largest energy users of this decade is going to be datacentres. In certain markets, they will represent the fastest growing and largest user of energy. For example, in Ireland, the transmission systems operator, Eirgrid, estimates that electricity demand from data centres and other large energy users could more than double in the next decade to account for almost 30% of the country's electrical demand by 2028.

In Denmark, data centre consumption is set to grow from less than 1% today to 15% of total electrical consumption in 2030 according to the Danish Energy Agency.

Introducing energy efficiency solutions, both on the supply and the demand side for datacentres, which themselves are measured in MWs more often than square feet due to the amount and cost of energy that they use, will be a determining factor in how certain economies manage the carbon intensity and security of supply of energy.

Security of supply, as well as carbon and cost efficiency, are major priorities for healthcare and industry, two of the other principal cohorts that remain ripe for efficiency improvements. Hospitals are usually one of the top two energy users in any country. With the current focus on healthcare and the incredible priority demand that they put, rightly, on public finances, achieving higher levels of performance, let alone minimum standards of energy efficiency, must surely increase in urgency for the sector. While it is to be celebrated that the National Health Service in the UK has already achieved 25% of its target to change its lighting estate to LED, the rest of it must be completed without further delay. Massive backlog maintenance accompanies increased patient waiting lists and waiting times. Neither patients nor the climate deserves the wait or the waste. Likewise, in industry, shareholders suffering tight margins should be assured that every measure is being taken to reduce waste related energy costs and carbon, let alone paying for emissions or 'compliance'.

Being smart involves thinking of all building types as systems and delivering systems solutions, integrating technologies, creating microgrids. It requires getting technologies to work together and not to fight each other (e.g. one creating waste heat, while the other tries to cool). It involves addressing heat as well as electricity. It involves adjusting supply and demand to different 'shapes' during the day to help relieve and balance the grid. It also involves getting finance to work together with technology to create solutions and services.

## So what and what next?

**As we seek to recover from the Covid-19 crisis, many are calling on governments to focus on green stimulus.**

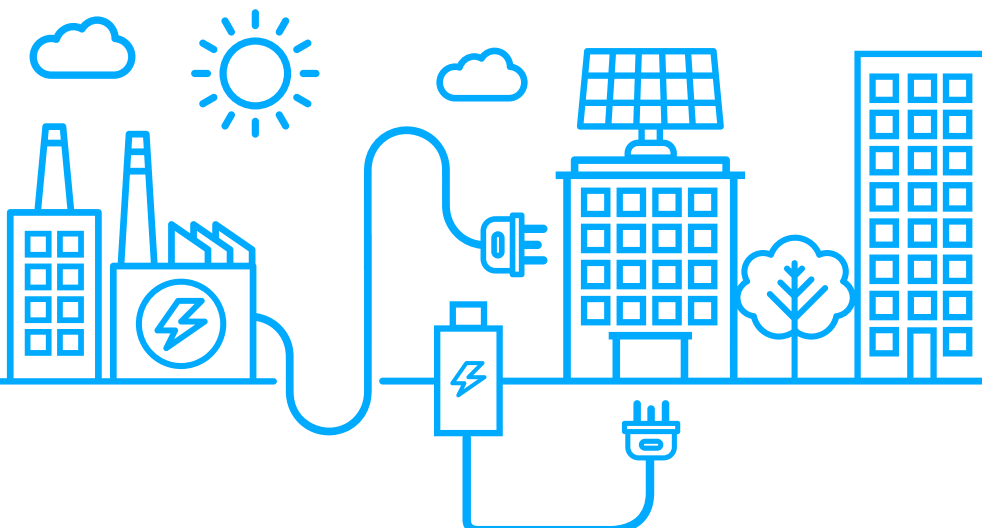
Energy efficiency is likely to get more attention from government in the next decade than the last. The European Commission has put the Green New Deal and, within it, the “Renovation Wave” (a euphemism for energy efficiency) at the heart of its recovery plans.

The levels of investment that this seems likely to be able to unlock will make a substantial difference to the focus put on a potentially underestimated or overlooked sector.

However, unlike actions to mitigate Covid-19 so far, actions associated with energy efficiency do not ask society to make sacrifices but instead help reduce costs, improve productivity and strengthen the security of supply of essential services, while delivering the biggest bang for the buck from a greenhouse gas emission reduction perspective. The cheapest and cleanest form of energy is the energy that we don't use.

Energy efficiency is not about subsidies or market incentives but about doing more with less and capitalising wasted energy and resources. Energy efficiency involves the creation of jobs in construction, manufacturing and services. It reduces pressure on the electricity grid and improves energy security and the resilience not just of the energy system but of society at large. It achieves carbon emission reduction and reduces pollution while stimulating the economy.

Entering the next decade with a clear focus on energy efficiency must go hand in hand with a new lexicon – one of step change, improvement, innovation, creativity, intelligence, precision in engineering, performance, commercial sustainability, profitability and better growth.



## About SDCL

SDCL is the investment manager of the SDCL Energy Efficiency Income Trust plc (SEIT.LN), the first specialist energy efficiency project investment company to have listed on the main market of the London Stock Exchange. It has more than tripled in total assets since IPO in December 2018 through a combination of acquisitions and fresh equity issuance. Its portfolio has delivered cheaper, cleaner and more reliable energy solutions to more than 1,500 buildings in the UK, Europe and the USA so far. The portfolio includes clean energy and energy efficiency projects for buildings like St Barts Hospital and Citigroup's datacentre in London, solar power for Tesco in the UK and recycled energy for Arcelor Mittal's steel mills in the United States.

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