GREENTECH COLLABORATION SERIES

HALSTON GROUP X HEATIO

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HEATIO

ENERGY MANAGEMENT IS HEATING UP

How Heatio is Pioneering Home Energy Modelling

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HG **Energy will be a topic we are all very familiar with, whether that is discussing energy bills or looking into renewable alternatives. Energy remains prevalent amongst many media headlines and has been since autumn 2021, when the Energy Crisis emerged. A surge in wholesale gas prices and inefficiency in much of the UK's housing stock has left millions struggling to pay for their energy bills which, as of October 2023, sees the number of UK households in fuel poverty rise to 6.3 million.**

But whilst we can see the prices rise, there is a severe lack of transparency when it comes to individual homes' energy use. How much do we really understand about our home's energy consumption?

Transparency, efficiency, and transitioning to a greener future are just three areas that Heatio is looking to support with their solution.

Halston Group spoke with Thomas Farquhar, Commercial Director and one of the Founders of Heatio, to explore their solution further and how their pioneering approach to renewable energy use will support the transition to a net zero future.

HT My Co-Founder and I have worked in the energy market for over 15 years, specifically in renewables. We formed Heatio in 2022 to address the issue of accessibility to domestic consumers on the journey to net zero.

Our technology will improve consumers' confidence in fitting energy efficiency measures and renewable technology, alongside supporting installers' transition into low carbon technologies.

EXPLORING ECO-SMART TECHNOLOGY

HT What we've developed is a home energy management system, which provides consumers with a roadmap of improvements to make within their home, based on actual data and the households energy usage patterns. At the moment in the UK, the only method of assessing energy performance in a home is to have a domestic energy assessment completed, which predominately occurs when you move home. The vast majority of homeowners don't have confidence in Energy Performance Certificates (EPC ratings) which come from a domestic energy assessment as they are based on a wide range of assumptions, and a lot of the measures that are recommended are inaccurate or unviable. Beyond this, they don't recommend the installation of renewable technologies or even switching to alternative heating systems."

There are quite a few downfalls with the energy assessment process, particularly around accuracy, and what we wanted to do was address this with a data-driven approach. So, you could have two houses that score exactly the same on an energy assessment,but we know that how the houses are run has a huge bearing on energy consumption. With our Heatio Flexx solution, homeowners will have access to a home energy management system that they can self-install themselves. They will also be able to log into the Flexx platform where data from their smart meter is connected, and they'll be able to view an accurate representation of their energy use and energy profile, alongside a suite of recommendations for how they can improve energy usage and begin a journey to low carbon. Once they move into the second phase of utilising low carbon technologies such as heat pumps, solar, and EV chargers, we will be able to connect these to the platform as well.

PUTTING DATA IN HOMEOWNERS' HANDS

HG Considering the context of the introduction, the energy crisis is still a concern for many homeowners, and therefore cost is a main driver behind their energy usage actions. Wholesale gas prices have risen dramatically over the past two years, with the peak being in August 2022 at 592 pence per litre. Whilst these prices have fallen this year, homeowners are still seeking alternative energy sources to avoid being caught out by a gas price spike.

HT From the consumer research we've done on pilots, we know consumers are very driven by costs, particularly with what's happening globally around energy. For example, solar is on for a record year, with more solar systems being fitted than ever before because electricity costs have gone up so much. The low carbon element is a sort of by-product, but the general driver is around cost and efficiency.

HG Yet there are those that are trying to promote more sustainable practices but may not know where to begin.

HT Fundamentally, people don't know how to address energy management, and those that do end up having an assessment that doesn't really drive them to do anything. We want to give people an app that tells them what to do next, what they can do better, and notify of best practice. For example, getting a notification saying 'we charged your car for free last night as there was excess power on the grid'. The data is derived from IoT sensors in the home measuring things like temperature alongside connecting to smart meters and low carbon technologies.

TRANSITIONING TO A GREENER FUTURE

HG As Thomas mentioned previously, the solar market has experienced its sixth consecutive record year in 2022, growing 40% over 2021 with 6GW installed. Although statistics like this are positive and progression is being made, there is still considerable growth needed alongside a diversification in the type of green technologies being adopted. Yes, solar will be a key player, but we must introduce a plethora of technologies and practices to achieve that crucial net zero.

HT I think a lot of what we're doing is quite old school, relying on someone to come to your house once every 10 years to assess versus presenting homeowners with a live view of their home energy usage.

17% of carbon emissions come from domestic heating, so there is a huge drive just on that one element for reaching net zero. 40% of carbon emissions come from homes in total. In the UK, we still fit 1.7 million boilers every year, 45,000 heat pumps, and that heat pump figure needs to go up to 600,000 installs a year in the next five years. Whereas when you look at countries like Norway, they've already installed heat pumps into 64% of homes.

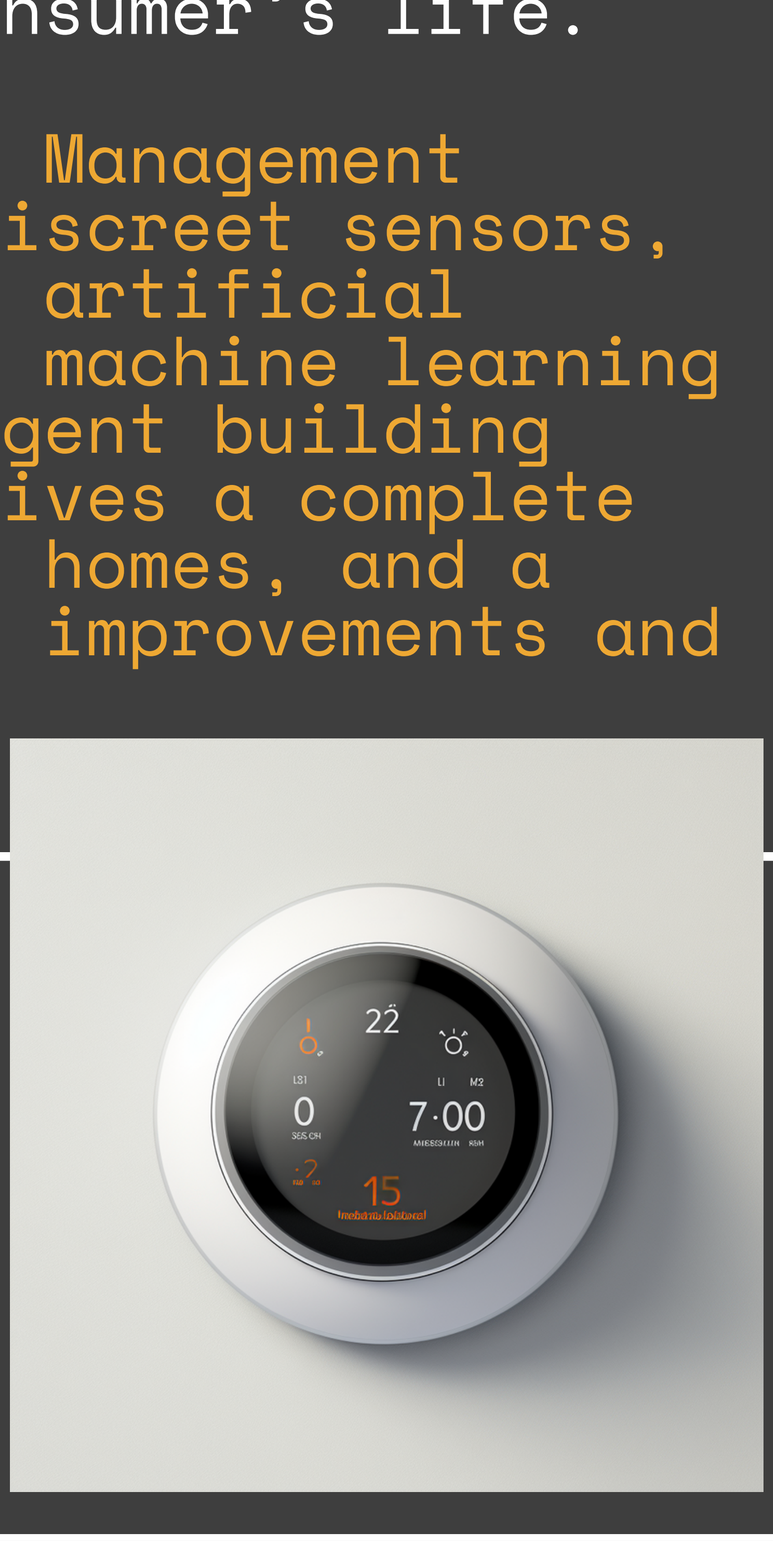
We've always had an abundant supply of cheap gas in the UK, we're very resistant to change compared to other counties, and therefore we've got quite a steep curve to go.

VISIBILITY IN ENERGY USAGE & GRANULARITY

HG You can't fix what you can't see. A simple concept, but one that is especially true with energy management. Homeowners require insight into their current energy consumption in order to action change and implement more sustainable technologies and practices.

HT If you went to the average consumer, they probably don't know in detail what their energy use is, they may know what they spend each month but not when energy usage is at its highest. However, if you showed them where they got an energy spike, they will have a much clearer realisation of the impact of the things they do. Even little things like leaving Sky boxes or microwaves on standby can be increasing the energy bill, and moving to a timer plug could be beneficial for savings and have no impacts on the consumer's life.

HG The Heatio Energy Management System utilises discreet sensors, smart meter data, artificial intelligence, and machine learning alongside intelligent building modelling. This gives a complete energy profile of homes, and a roadmap of energy improvements and new technologies.



EDUCATION ON HEAT PUMPS

HG Countries like Norway are really at the forefront of heat pump adoption with over 60% homes having already installed them in a notoriously cold location that plummeted to -20 °C this November! Yet, here in the UK, there still remains a lot of misconceptions surrounding renewable technologies, in particular heat pumps. This negative prejudgment is further amplified by media outlets with headlines like ‘Why heat pumps will never work in Britain.’

Thomas examines where this misconception surrounding heat pumps has come from and what we need to do to educate consumers.

HT There’s a lot of disinformation here in the UK. Heat pumps have been around for years, we all have a heat pump in our car and use it when we turn the air conditioner on. Nobody questions how the food in their fridge stays cold, and that’s a heat pump. But when we approach using heat pumps for heating a home, they assume it wouldn’t work. It’s a very efficient electric boiler, but people’s view is that it wouldn’t insulate homes well.

HT A lot of this stemmed from when the government started incentivising people to fit heat pumps. As at the same time, they made requirements to insulate your property, so if you wanted a subsidiary or grant you needed minimum levels of wall and loft insulation. This created a new barrier, because if you are looking to replace your boiler with a heat pump, homeowners would be required to buy and install insulation as well. It also led to the misconception that heat pumps need to be in well insulated properties. Whereas to even the playing field, it should have been from this point onwards, if you want to install a replacement heating system, a boiler, or heat pump you need to insulate.

Another misconception is that green equals more expensive, the immediate assumption is that it must cost more as that is the trade-off for being more sustainable, whereas that's not always the case.

BARRIERS TO THE GREEN TRANSITION

HG Transitioning to a clean-energy economy is no easy feat, but there are some common barriers that are impeding the adoption of renewable technologies and therefore our transition to net zero.

HT The main challenge is still capital cost, because even though savings are there and so is the motivation, the capital cost of fitting these technologies is a barrier. People don't necessarily have the capital, and it's not the most exciting purchase - if you've got the choice between a holiday or solar panels, a lot of people will choose the exciting option.

We've got to address this, and this is what we are looking to do. Heatio was announced the winner of two innovation contracts awarded on the UK Government's Green Home Finance Accelerator (GHFA), part of the Net Zero Innovation Portfolio. This government programme is a way to develop innovative ways of financing energy efficient measures and renewable technology, to unlock it for the average consumer.

1. One of the programmes is the development of a green mortgage where essentially you would take out a mortgage and be given access to our platform to show what improvements are needed. If the homeowner actions these improvements, they will see energy savings, but they will also be given a discounted interest rate on their mortgage.

2. The second is a pilot of an energy subscription service where homeowners gain access to solar, heat pumps, and other technologies with no capital cost requirement and instead pay a monthly service fee."

PUBLIC AWARENESS OF PROJECTS

HG The awareness surrounding climate change and renewable technologies is high as both have become mainstream topics, however the knowledge surrounding how the public can action change or implement low carbon technologies is limited.

HT Public awareness is very low. Because until very recently, there hasn't really been the driver to become aware. In the next few years, I think it is going to increase dramatically. We're now getting to the crunch time in terms of net zero but what we need is people who are at the trigger point to be talking to consumers about low carbon technologies. For example, when the government said everybody needs to introduce heat pumps, nobody listened. But when a heating engineer turns up when your boiler is broken and mentions a heat pump as a replacement option, that's when we'll start getting real traction.

DRIVING FORCE BEHIND CLIMATE CHANGE PREVENTION

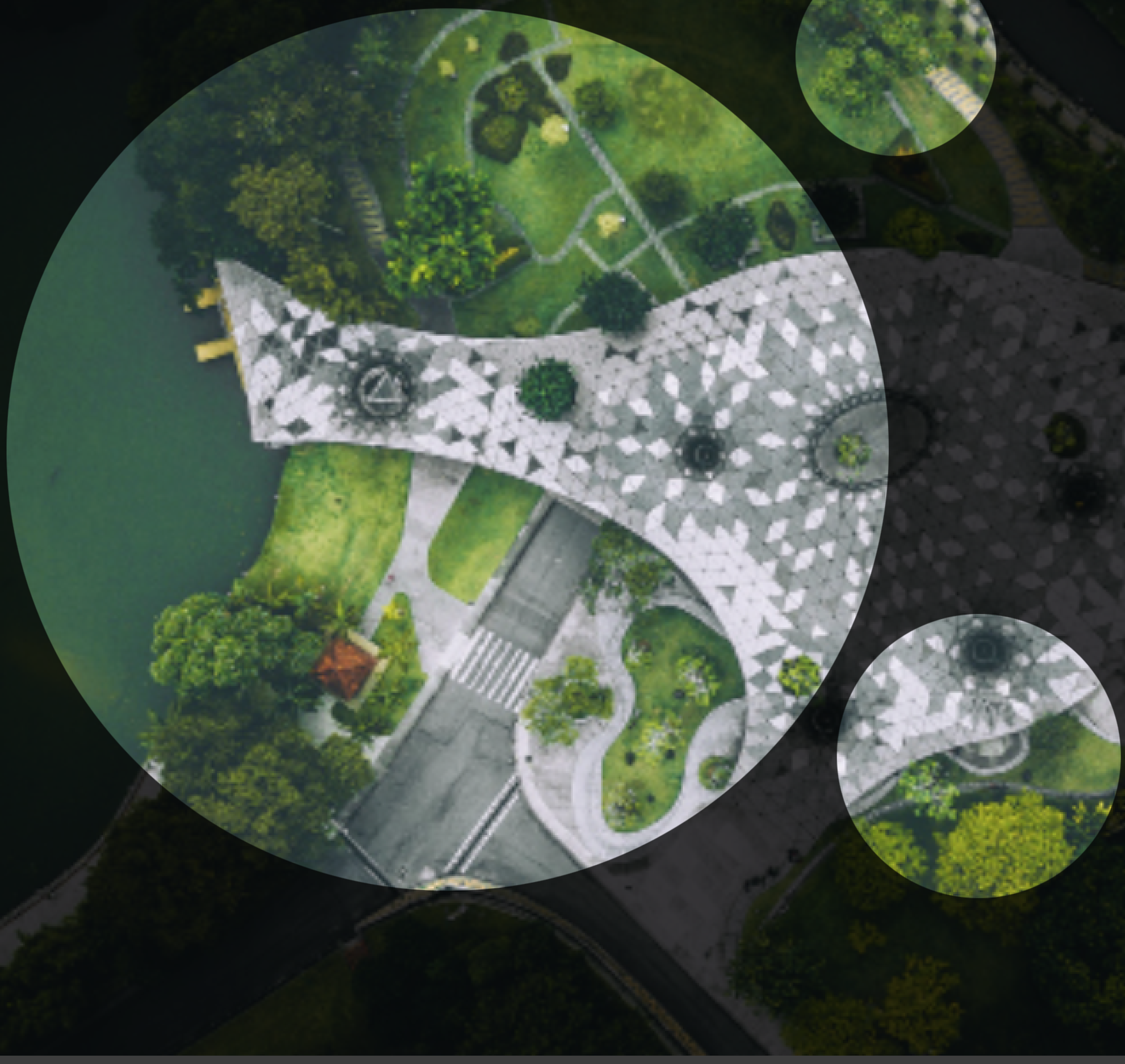
HG As we look to the future, the adoption of green technologies will be critical, but what will be the driving force behind accelerated adoption?

HT I think security will be the main driving force now, having seen what's happened recently and countries being able to better control and secure their energy infrastructure. Then there are the weather changes, where weather events are at more extreme ends of the spectrum, it's beinging people's attention to the climate crisis and how it has real world impacts.

HG The 2023 Net Zero Emissions by 2050 Scenario describes a pathway for the global energy sector to reach net zero and includes deploying a wide portfolio of clean energy technologies which needs to be reflected in homeowner adoption - and fast.

HT I wouldn't say we're running out of time yet, but it's getting to the point where it's getting harder because we keep kicking the can down the road and there's only so long we can do that before we're going to get to that point and miss it. We need to stop thinking it's tomorrow's problem."

Leaving on that point, today is the day for change. To truly drive that transition to a greener future, we must collectively shift our mindset to be less change adverse and deploy low carbon technologies at scale.



HEATIO ARE REINVENTING THE ENERGY MANAGEMENT MODEL TO ENABLE THEIR CONSUMERS TO MAKE IMPACTFUL CHANGE TO ENERGY USE.

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B2B

TECH ORIGIN

MERCURY

SUSTAINABILITY PARTNERSHIPS

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