

## Aberdeen Standard Investments Partners on Energy Efficiency and Wellbeing Pilot

### Client Summary:

**Customer:** 

**Project Partner:**

**KJ TAIT**  
ENGINEERS

**Building:** One Trinity Gardens

**Installation date:** November 2019

**Building Framework:** Brick/Glass Atrium

**Type of Building:** 14,500m<sup>2</sup>, Multi-let Office Building



### Overview:

Aberdeen Standard Investments has partnered with KJ Tait Engineers to trial Ecopilot at One Trinity Gardens in Newcastle. In addition to enabling energy and carbon savings, the pilot project has identified opportunities to improve the working environment for occupiers, connecting various building systems so they work collaboratively together and making greater use of the building's thermal storage capability. Building on this success, the team is now progressing opportunities for wider rollout.

### The Assignment / Solution:

Aberdeen Standard Investments (ASI) is dialling up integration of environmental, social and governance (ESG) into real estate management through its bespoke ESG Impact Dial. This focuses on four forces that ASI believes are affecting global real estate investment, including changing environment and climate. KJ Tait Engineers provides mechanical and electrical building services for several ASI buildings. To support ESG goals, ASI and KJ Tait agreed to trial Ecopilot at One Trinity Gardens in Newcastle.

Ecopilot was developed at KTH Royal Institute of Technology in Stockholm. It coordinates how heating, ventilation, air conditioning and cooling (HVAC) systems work together, taking into account the building's thermal storage capacity, along with indoor temperatures and air quality. It also imports local weather forecast data, including sunshine hours, temperatures, wind speed and wind direction. This data is used to optimise how the connected HVAC systems operate for efficiency and comfort, looking up to five days ahead.

One Trinity Gardens is a 14,500m<sup>2</sup> multi-let office building managed by JLL. Engie provides Building Management System (BMS) services. It was already a well performing building for energy efficiency, outperforming the REEB good practice benchmark for electricity consumption and typical practice benchmark for gas consumption, with the potential to achieve the UK GBC target of 70kWh per m<sup>2</sup> by 2025. This made it a good place to test Ecopilot for wider rollout.

**Ecopilot's initial assessment guaranteed an ROI of 1.8 years or less.**

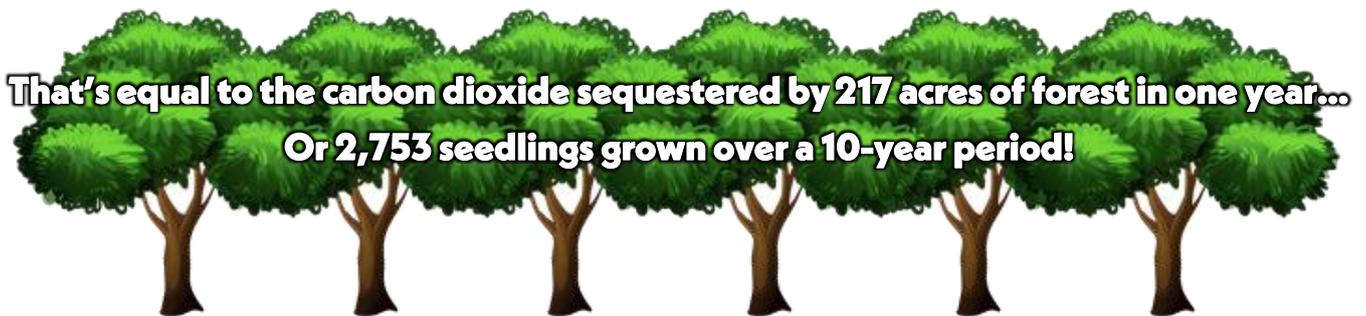
**The results confirmed that the payback on ASI's investment was less than 12 months...  
...and the savings keep coming!**

**Results:**

As part of the verification process, KJ Tait Engineers analysed the historical building and tenant consumptions versus the first 12 months since Ecopilot was integrated into the BMS. They then eliminated the reductions delivered from COVID related occupancy reductions, to ensure the results only showed the savings that could be attributed to this project. These confirmed that Ecopilot had significantly overachieved against the savings it originally promised to deliver.

The measured and verified results confirmed savings from the reference year of:

<b>YEAR 1 SAVINGS</b>	<b>Guaranteed</b>	<b>Actual</b>
<b>Electricity Consumption</b>	<b>9%</b>	<b>15.4%</b>
<b>Gas Consumption</b>	<b>22%</b>	<b>29%</b>
<b>kWh's</b>	<b>479,000</b>	<b>710,000</b>
<b>Tonnes of CO2</b>	<b>111.8</b>	<b>166.5</b>
<b>Commercial</b>	<b>£36,561</b>	<b>£68,943</b>



**Initial Actions:**

Ecopilot went live at One Trinity Gardens in November 2019. E.ON Controls Solutions Ltd completed the installation and produced a commissioning report, which identified upgrade opportunities and suggestions relating to specific Air Handling Units (AHUs). These have since been investigated and approved as appropriate. Actions include fixing air temperature and air pressure sensors, investigating setpoints for underfloor heating and cooling controls, and testing the supply air flow switch. Ecopilot then provided detailed reports on conditions in the building for the first two days after switch-on, identifying concerns relating to AHUs and Fan Coil Units. KJ Tait investigated these and is progressing solutions with ASI, JLL and Engie as appropriate. This resulted in a significant issue with chiller operation being identified and addressed. The chiller was cycling on and off 24/7, in winter in Newcastle, when little cooling should be needed.

Investigation revealed that faulty controllers and actuators on FCUs were overheating spaces on two floors, and the chiller was then turning on to cool these spaces back down. The faulty components are now being replaced, which will deliver substantial electricity savings and contribute to a better working environment for occupiers, with a more consistent indoor climate that supports wellbeing and productivity.

On an ongoing basis, everyone involved can now log onto an online platform to see what is going on in the building, checking temperatures and confirming what plant is operational at any time. This is shortening lines of communication and making it easier for the team to address issues quickly. For instance, if an occupier logs a comment about temperatures being too high or too low, this feedback reaches KJ Tait directly via the online platform. They can then investigate, checking temperatures, reviewing boilers and chiller run times and taking action as needed, such as replacing faulty components, adjusting set points and fine-tuning run times.

The online platform is also feeding into maintenance strategies. For instance, the building has a duty pump and a standby pump that contractors should change over every week. Now, the run times for each pump can easily be checked remotely and any issues investigated and resolved, helping extend the lifespan of the pumps. Building on the success of this trial, ASI and KJ Tait are now investigating the rollout of Ecopilot in additional locations, starting with two London office buildings.

### **M&E Contractor's Perspective:**

"KJ Tait have been working with Standard Life Investments (Aberdeen Standard) for the past decade to reduce energy consumption across their portfolio, together we have a target of a 2% reduction in energy consumption each year from a baseline of 2009. Having completed many of the easy wins including behavioural changes and capital investment, we have been on the lookout for innovative technologies particularly around a buildings BMS system which can be overlooked when it comes to energy savings. Together with the benefits to the occupants, Ecopilot has the potential to save a significant amount of energy both across electricity and gas within a short payback. The added bonus being that the savings are guaranteed over the lifetime of the payback."

**Paul Miller - Energy & Environmental Engineer**

### **Client's Perspective:**

"At Aberdeen Standard Investments, we are committed to help tackling climate change — for our clients, shareholders and the generations to come. We recognise that buildings, by their nature, have a direct impact on the environment — from the carbon footprint of bricks, concrete and steel, to energy use in operations. We welcome the success of the Ecopilot trial in increasing efficiency and improving the working environment. We look forward to further progress in these important areas."

**Dan Grandage - Head of ESG Real Estate at Aberdeen Standard Investment**