

Historic sea port city moves closer to net zero goals

Case study

Southampton City Council

Like many local authorities, Southampton City Council (SCC) has set itself an ambitious target of achieving net zero emissions by 2030.

"We settled on a 2030 deadline back in 2019," explains SCC Energy Manager Jason Taylor. "And since then, we've been working hard to put together an indicative programme that covers enhancing the efficiency of our buildings and making use of renewables."

Now thanks to a programme of work recently completed by the team at E.ON Control Solutions, working on behalf of SCC supplier and sister organisation npower Business Solutions (nBS), the historic waterside city has taken some significant steps closer to its goal.

So if you happen to visit the city's Lordshill Library, you may notice new double-glazed windows reducing heat loss and noise, or LED lighting providing improved illumination at nearly half the cost of the previous inefficient fluorescent lighting.



Solar PV panels now adorn the roof of flagship council building One Guildhall Square (pictured above, with SCC Energy Manager Jason Taylor). As they do at the city's main household waste and recycling centre, City Depot, where a new air source heat pump and LED lighting further support significant cost and carbon savings.

Behind the scenes in various public buildings—including the Sea City Museum, which tells the story of the Titanic – modified air handling units are increasing efficiencies and reducing maintenance bills. Variable speed drive technologies are also cutting costs and emissions by enabling operations such as air conditioning to be tailored to occupancy.



Air source heat pump pipework at City Depot



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Saving 150 tonnes of CO₂ a year

"All these improvements have only been in place for about three months now, but our initial calculations suggest they will collectively reduce our CO₂ emissions by a minimum of 150 tonnes each year and save us £140k worth of energy at 2019 prices, which is significantly more today as prices have since doubled," says Jason.

To fund these decarbonisation measures, Southampton City Council secured a Public Sector Decarbonisation Scheme (PSDS) grant. As a member of the LASER framework – a public sector energy purchasing organisation – Jason was able to utilise existing framework arrangements to support the council's PSDS application.

"As soon as we successfully secured the initial low-carbon skills funding, LASER put us directly in touch with nBS and E.ON Control Solutions to help develop our PSDS business case," explains Jason.

Developing decarbonisation funding case

For this, Jason worked with Strategic Account Sales Manager Mark Griffin, Energy Manager Brian Taylor and the wider E.ON Control Solutions team. "To develop SCC's funding case, we started with feasibility audits of each of the buildings Jason and his team selected, to identify the most suitable technologies to include in their PSDS phase one application," explains Mark.

"This began with a desktop review, including analysing half-hourly electricity and gas data to identify any abnormalities in the energy usage profiles for each site. This information helped us identify potential high-level interventions that our team could explore in more detail during the site audit stage."

A team of energy managers then visited each site. "These on-site audits included a thorough walk through inside and outside of every building to identify potential energy conservation measures and assess suitable interventions, such as the installation of carbon/energy-saving technologies and renewable generation assets," says Mark.

The sites were also revisited at different times during the day to identify any differences in usage, and to highlight where energy-consuming equipment was still running when it was not required. "Basic energy efficiency measures alone identified annual savings of around 12 tonnes of CO₂, or £12k in energy costs," says Energy Manager Brian Taylor.



An air source heat pump condenser at City Depot

Tailoring interventions site by site

From these audits, a report was generated for each building with specific interventions and technologies recommended, including efficiency measures, air source heat pumps, roof-mounted solar PV, LED lighting, building fabric insulation, and new controls and upgrades to building energy management systems. Detailed analysis including forecasted energy and carbon-saving calculations were also submitted.

"We then took these reports and formulated our stage one PSDS funding application," says Jason. "This was a complex process as we also had to secure agreement from internal stakeholders, including the people who managed and occupied each building."

But Southampton's application was successful and the council was awarded £1.7m for work across seven key buildings in their estate.

"Once we had the funding, Mark, Brian and the team completed a detailed design plan before the actual work began," says Jason. "But they had to be flexible in their approach and work to tight timescales – for example, needing to fit around business occupants," explains Jason.



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Preparing to lift solar panels onto the roof at One Guildhall Square

Overcoming unforeseen challenges

Over the course of the project, there have also been other challenges to overcome.

"For example, the colour of new window frames that were to be installed at one site had to be changed at short notice, because the original white wasn't in keeping with the brick building. But the team at E.ON Control Solutions resolved this, working with all stakeholders, and sourcing a more acceptable colour," says Jason. "They calmly worked through any other issues too."

During various project installations, the team at E.ON were also able to resolve unrelated operational issues.

"For example, we reset air handling units that were running 24/7, ensuring they operated around building occupancy times, so reducing running costs," explains Energy Manager Brian Taylor.

"And while installing a new solar array at the City Depot, we noticed an existing 55kW array wasn't generating across two inverters, so we fixed these, reinstating 20kW of generating capacity, saving around £2.5k and 3.5 tonnes of CO₂ each year."

These savings are in addition to those generated by the installation of all the measures included in the PSDS funding programme.

"Throughout the delivery phase, we worked collaboratively with the council's appointed Project Manager, Shiro Pillay and Technical Assessor, Richard Hemmings of Faithful & Gould," adds Mark Griffin. "Their input helped to ensure that the project was delivered to Salix agreed programme and budget."

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New LED lighting illuminating Lordshill library

Delighting stakeholders

Now the work is complete, Jason says his stakeholders are delighted with the results.

"For example, the team at Lordshill library are absolutely chuffed to bits with the finished work," he says. "When they left their site for the two-week installation project, they had old, noisy single-glazed windows and dated lighting. But they returned to a quieter, warmer building with smart new doubled-glazed windows and brighter modern LED lighting."

Salix Finance, the body that oversees the funding on behalf of the government, has also now evaluated all the work to check each intervention post installation. "I've been really impressed by Salix Finance," says Jason. "Their process is very robust but we've been allowed to get on and do the work, as long as it meets the criteria we originally specified."

Jason is now focussed on the next stages of SCC's net zero project. "We achieved some impressive savings over seven flagship buildings. But to put this in context, we have more than 140 public buildings in our portfolio – everything from a public toilet right up to a huge civic centre. So we still have a long way to go! But we've made an excellent start. And we're now looking at projects for the next round of PSDS funding, as well as those we intend to finance ourselves out of future budget allocations."

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