Surrey schools going solar

Schools across the county are having their outdated end-of-life gas boilers replaced with new solar heating systems to help combat "skyrocketing" energy prices.

The £6million project is split between time-sensitive Government cash coupled with **Surrey County Council's** "greener futures" fund which it says will be "effectively repaid' via £1.6m in overall savings from cheaper fuel bills – or through reduced energy tariffs to schools.

The work will be carried out over the summer and is scheduled to be completed before the start of the new school year. This is not only to minimise disruption but also because the Government contracts are time-bound, meaning if it is not used, the cash is lost.

Surrey County Council's greener futures strategy says evidence that climate change is real is beyond doubt and its effects are already being felt.

It says an increase in man-made greenhouse gases will impact on the "health, wellbeing and finances of Surrey's residents, businesses, landscapes and biodiversity for many years to come" and as such, the county intends "to play its part by reducing its dependency on fossil fuels".

The Tuesday, July 25, environment meeting heard from lead councillor **Marisa Heath** who said one of the chosen schools told her they were "absolutely thrilled because they've got skyrocketing energy prices and can't even get the temperature right". She said: "They're really excited that we're working with them on this. It's a great program proposal. We need to move it on as we've been successful in getting government money."

The first set of schools to benefit from the new heating panels are: Beauclerc Infant School, in Sunbury, Kingswood Primary School, in Lower Kingswood, St Peters Centre, in Englefield Green, Worplesdon Primary School, in Worplesdon, and Park Mead Primary School, in Cranleigh.

Image – example of school with solar panels $\ensuremath{\mathsf{cc}}\xspace$ ZSM

Greener solution for white goods?

When a housing association tenancy comes to an end what happens to the fridges, washing machines and carpets? Invariably, they are removed before the new tenants move in. Is this not a waste and could they not stay in place, if in good condition, for the benefit of the new tenants moving in? Especially those who are struggling financially?

This was the subject of a question posed to Epsom and Ewell Borough Council by Cllr **Alison Kelly** (LibDem Stamford). In answer Cllr **Clive Woodbridge** (RA Ewell Village Ward and Chair of the Community and Wellbeing Committee) stated "I have asked that officers write to all our local Housing Associations to ask them not to remove good quality and clean carpets/flooring during the voids process and for these then to be gifted to the incoming tenant. Hopefully, this will help our residents further during what is a very challenging time"

At the Full Council meeting of 25th July Cllr **Julie Morris** (LibDem College) asked Cllr Woodbridge to accept that the reasons for this included "the need to re-use these goods and not be so much of a disposable society". Cllr Woodbridge agreed saying "each case had to be treated on its own". He added "the Council were working much more closely with **Town and Country Housing** that had taken over from Rosebery Housing Association."

London Mayor confirms drive of ULEZ to Epsom border. ULEZ explainer.

Sadiq Khan confirmed today the Ultra-Low Emission Zone (ULEZ) will cover almost all of Greater London, pushing it right up to the Surrey border.

The Mayor of London's decision was made within minutes of the High Court decision to rule against Surrey County Council and four London boroughs' joint bid to halt its controversial roll out.

The local authorities argued that the Labour mayor Sadiq Khan lacked the legal power to order the expansion. **Mr Justice Swift**, who heard the case, disagreed.

It means the new zone, where drivers of non-compliant vehicles will be charged £12.50 very time they cross the ULEZ border, comes up to Elmbridge, **Epsom and Ewell**, Reigate and Banstead, Spelthorne, and Tandridge.

How likely is it that ULEZ expansion will go ahead?

On July 28, Mr Justice Swift published his High Court ruling. He said the process to expand the ULEZ, including the public consultation, was thorough and the decision was completely legally sound.

The coalition of councils had been given leave to challenge the expansion on three grounds based on whether it was lawful for the mayor to extend ULEZ, the consultation process, and the scrappage scheme.

The Judge sided with the Mayor of London on all matters, prompting Sadiq Khan to say: "This landmark decision is good news as it means we can proceed with cleaning up the air in outer London on August 29.

"The decision to expand the ULEZ was very difficult and not something I took lightly and I continue to do everything possible to address any concerns Londoners may have. "The ULEZ has already reduced toxic nitrogen dioxide air pollution by nearly half in central London and a fifth in inner London. The coming expansion will see five million more Londoners being able to breathe cleaner air.

"I've been listening to Londoners throughout the ULEZ rollout, which is why from next week I am expanding the scrappage scheme to nearly a million families who receive child benefit and all small businesses with up to fifty employees. I will continue to look at new ideas to support Londoners.

"Nine out of 10 cars seen driving in outer London on an average day are already compliant so won't pay a penny – yet will still see the benefits of cleaner air. Air pollution is an urgent public health crisis – our children are growing up with stunted lungs and it is linked to a host of serious conditions, from heart disease to cancer and dementia.

"This unambiguous decision today in the High Court allows us to press on with the difficult but vital task of cleaning up London's air and tackling the climate crisis."

What does it mean for people in Surrey?

The extended zone will directly bring in a further 5 million people under ULEZ, this is in addition to the four million Londoners within the existing clean air zone.

According to the Mayor's office the decision to make ULEZ London-wide was "difficult and not something he takes lightly – and he continues to do everything possible to address concerns (people) may have.

Official figures say the "highly targeted scheme" will help take the the most polluting vehicles off the roads with estimates suggesting "nine out of ten cars seen driving regularly in outer London on an average day are already ULEZ compliant and will not pay a penny when the zone expands, while still benefiting from cleaner air".

Freedom of Information figures for people living within Surrey postcodes suggest there will be far more people impacted by the changes with as many as a quarter of a million cars potentially falling short of emission standards.

Meanwhile, the mayor's office estimates the £1million combined cost to councils for bringing the case would paid for more than 350,000 free school meals.

It could also impact the parents, teachers, and staff at more than 50 schools on the Surrey-London border from the next academic year.

Why does the Mayor and TfL want to expand ULEZ?

Air pollution is linked to asthma, cancer, heart disease and dementia among other conditions. Each year about 4,000 die in the capital prematurely due to causes linked to air pollution – this, the Mayor's office says – is even more prevalent in the outer boroughs.

At the same time every outer London borough exceeds the World Health Organisation's recommended guidelines for nitrogen dioxide and particulates. Since the introduction of ULEZ, the number of children admitted to hospital with asthma and other respiratory diseases has failed by 30 per cent in central London.

The RAC meanwhile has suggested other factors such as lockdowns, the cost of living crisis, fuel shortages, fuel prices, and the

weather have all contributed to these reductions.

Others have suggested ULEZ is being used as a means of bridging TfL's £1.2bn funding gap.

Will I have to pay?

Vehicles that meet required Euro emissions standards do not have to pay. This means that the majority of petrol vehicles from January 2006 onwards and diesel vehicles from September 2015 will be exempt from the charge.

The standards are:

Euro 3 for motorcycles, mopeds, motorised tricycles and quadricycles (L category)

Euro 4 (NOx) for petrol cars, vans, minibuses and other specialist vehicles

Euro 6 (NOx and PM) for diesel cars, vans and minibuses and other specialist vehicles

The majority of petrol vehicles that are less than 16 years old or diesel vehicles under six years old already meet standards.

People who are clinically assessed as too ill to travel to medical appointments on public transport may also be be eligible to claim back any ULEZ charge.

Not-for-profits that run community minibuses can register for exemptions until October 26, 2025. Grace periods also exist for people whose vehicles are registered with the DVLA as having 'disabled' or 'disabled passenger vehicle'.

Scrappage

The Mayor of London launched a £110m scrappage scheme to help people dispose of the highest polluting vehicles but this is currently only open to people living in London Boroughs.

What about if I decide to just not pay?

Transport for London will be using autonomic number plate recognition cameras to spot people entering the zones. People who fail to pay the £12.50 charge will be slapped with a fine of £160 - half if they pay it within 14 days.

Can I check if my vehicle is ULEZ compliant?

Transport for London has set up a website to allow people to check if their vehicles meet the emission and safety standards required to drive in London without having to pay a charge.

https://tfl.gov.uk/modes/driving/check-your-vehicle/?intcmp=52335

Related reports:

High Court gives ULEZ the green light to Epsom's borders

ULEZ court challenge begins

ULEZ driving old cars to Epsom market

Challenge to ULEZ gaining grounds

Many Surrey motorists will be paying the ULEZ charge.

ULEZ Court battle looming

High Court gives ULEZ the green light to Epsom's borders

The controversial **ULEZ** scheme can now be expanded to the border of Surrey after a coalition of councils lost their High Court battle.

Surrey County Council, together with the outer London boroughs of Bexley, Bromley, Harrow and Hillingdon launched legal action in February over **Sadiq Khan**'s proposals to extend ULEZ beyond the North and South Circular roads.

The local authorities' lawyers argued that the Labour mayor Sadiq Khan lacked the legal power to order the expansion.

Craig Howell Williams KC, for the councils, said there was an "unfair and unlawful" approach to collecting views on the plans

and that "key information... was not disclosed" during previous consultation.

Today, July 28, the High Court ruled against them saying there was no legal impediment to the mayor's expansion.

Councillor **Tim Oliver**, leader of Surrey County Council said: "Whilst we respect today's court decision, it is incredibly disappointing. This has always been about protecting Surrey residents, many of whom will now be significantly socially and financially impacted by the Mayor's decision as they go about essential, everyday journeys, without any mitigation in place to minimise this.

"Our concerns, which have never been addressed by The Mayor despite our continued efforts, forced these legal proceedings to ensure we did all we possibly could to have the voice of our residents heard.

"We met with Transport for London on 14 July 2023 in the hope of agreeing mitigation for Surrey residents. Sadly, nothing was offered."

The councils said that, while the Mayor of London and Transport for London may now have the legal right to impose the scheme, questions remained over whether the public would agree that he had the moral right to do so – particularly in light of the Uxbridge by-election which they said was a "referendum on the expansion of ULEZ".

They argue that this shows a lack of realisation on the part of the Mayor of London and TfL over the "damage the extension will have to the lives of residents and businesses in outer London as well as those outside of its borders".

According to the the Mayor's office, air pollution causes thousands of Londoners to die prematurely each year and develop life-changing illnesses like cancer, lung disease, dementia and asthma.

Expanding the Ultra Low Emission Zone across all London boroughs will bring clean air to 5 million more people, it said.

The expansion of ULEZ is now expected to go ahead as planned on Tuesday August 29.

People driving non-compliant vehicles in the zone are expected to be charged £12.50 per day.

Related reports:

ULEZ court challenge begins

ULEZ driving old cars to Epsom market

Challenge to ULEZ gaining grounds

Many Surrey motorists will be paying the ULEZ charge.

ULEZ Court battle looming

Sanity for the "mad mile"?

Lower speed limits along a notorious "high risk" danger road, dubbed the "mad mile", are to come into force from next year.

Surrey County Council has agreed to restrictions on the **A217 between Sutton and Banstead** in the new financial year after receiving a petition calling for greater safety measures.

The dual carriageway currently has a speed limit of 60mph which petition papers presented to the council said were "often abused" with cars even "racing" with "no heed to other road users".

This, it said, "led to severe accidents on that stretch, most of which could have been avoided if there was an imposed limit of 40 mph."

In March this year a woman died in hospital three weeks after a crash happened involving two cars along the A217. Both vehicles were travelling south from Belmont Rise roundabout towards the traffic lights at Fir Tree road.

Website crashmap shows the junctions at either end of the "mad mile" are particular hotspots.

The petition added: "There is no valid reason why this short stretch of road should allow a limit of 60 mph, when the rest of the A217 stretch has a limit of 40 mph."

Ram Nandula who led the efforts, addressed the Tuesday, July 25, cabinet meeting. He said: "We've seen how dangerous the

road is because of the change over from 40 to 60 and then back to 40 as people git the road they start racing with each other on both lanes. It's a high risk road, and it's not safe for pedestrians or cyclists."

He added that the rest of the road was 40mph and changing this stretch would allow for "a smoother flow of traffic".

The meeting was chaired by cabinet member for highways and community resilience, Councillor **Kevin Deanus**. He said: "Yes we agree and we will do it. We've looked at the number of collisions, there are collisions at either end. Partially due to people approaching too fast. There are crossing points and a 60 mph dual carriageway is not a nice place for a pedestrian to cross the road."

He said that long term the council was minded to introduce a signalled crossing on the road and that speed data collected along the road backed up the need for tighter controls there.

The council understands the road "a history of collisions including some resulting in serious injury". As for time frames, Cllr Deanus said that highways money had been budgeted for so the new measures would be introduced and evaluated in the 2023/24 financial year.

According to the county council, its road safety engineering team has already allocated its central road safety budget on schemes across the county with a history of collisions.

The official response to the petition read: "Therefore, we would be able to tackle this stretch with our central budget to implement a lower 40 mph speed limit in the following financial year starting in April 2024.

"Once implemented we will undertake similar speed surveys to check on the success of the scheme and compliance with the new speed limit. This will inform on the need for any additional measures to manage speeds successfully on this stretch."

Mr Nandula said: "Thank you so much, I understand how important getting the budget is, and better late than never."

Related report:

Time for us all to slow down?

New timetable for ticket office consultation

Train operators are extending the time available to respond to a consultation reviewing "how tickets are sold" at stations by an extra five and a half weeks. It means passengers will now have until 1 September to complete the consultation, which they can do online on their local train company website or by visiting www.transportfocus.org.uk or Londontravelwatch.org.uk Operator information about the consultation will be made available in accessible formats.

In increasing the time available, train operators are "listening to feedback and hope that more people will have the opportunity to have their say in to changes to how tickets are sold at stations".

The **Rail Delivery Group** added: "Together with the extensive and on-going engagement with accessibility groups, as well as the independent passenger watchdogs scrutinising the proposals, the responses will shape final plans so that all passengers are supported as railway retailing is updated for the smartphone era. In addition to these proposals, the rail industry continues to roll out improvements to ticketing such as pay as you go and single leg pricing."

"Although local plans vary, overall the proposals aim to bring staff out from behind ticket office windows to provide more support for customers buying tickets and navigating stations, as they move in to new, multi-skilled 'customer host' roles.

"An estimated 99% of all transactions made at ticket offices last year could be made online or on ticket vending machines (TVMs). Where needed, TVMs across the network will be upgraded to sell a greater range of tickets and in rare cases where customers are unable to buy the ticket they need at a station, they would be able to buy on their journey, at a ticket selling facility en-route or at their end destination. Across the network as a whole, many ticket retailing facilities will remain open at busy interchanges, smoothing the transition.



Rail union, RMT hits back and declared today the consultation extension on the future of rail ticket offices is wholly inadequate and called for the whole "disastrous closure programme to be abandoned".

Following mass campaigns by RMT, disabled and passenger groups, the train operators and their "paymasters in government have been forced to extend ticket office closure consultations until September 1."

According to the RMT over 1,000 ticket offices are due to be closed with the loss of over 2,000 railway station staff.

RMT General Secretary **Mick Lynch** said: "Campaigning by our members on stations across the country alongside tenacious disabled peoples groups and passenger bodies has forced rail bosses and ministers to admit the original consultation was not fit for purpose and must be extended.

- "Although our pressure has forced their hand, it is still a deeply flawed and a wholly inadequate consultation process which we are considering challenging legally in the courts.
- "Our campaign to save ticket offices, protect our members jobs and look out for the best interests of all rail passengers will only intensify in the coming weeks.
- "20,000 rail workers will walk out on 29 July in pursuit of a negotiated settlement on job security pay, conditions and saving ticket offices."

Would you like to see ticket offices at Epsom, Ewell East, Ewell West and Stoneleigh stations closed? Write in your view to Epsom and Ewell Times.

Image: Epsom Railway Station ticket office today.

Scrap on charges for DIY rubble waste

The **Liberal Democrats** on **Surrey County Council** claim the Conservative administration have ignored their own Government's demand to stop charging local residents for bringing DIY waste to local tips.

In 2018, the Surrey Lib Dems used a motion to call on the County Council to "Listen to the Government and drop the DIY charges" and the Lib Dems are again calling on the Council to do just that.

Five years on from that motion Surrey County Council is continuing to charge householders who bring DIY waste to their local community recycling centre for disposal, even though the practice contravenes government policy.

A statement published by **DEFRA** last month clarified that there should be a distinction made between the waste generated by a householder undertaking minor works to maintain and enhance their property and that emanating from the professional construction of buildings, demolition etc.

Leader of Surrey Lib Dems, Will Forster said:

"I don't normally agree with a Conservative government, but for once it does seem to be on the side of normal residents. The Tory administration in Surrey decided to interpret the rules differently from some other waste authorities and will now have to admit they were wrong. It is quite clear that Surrey residents should not be subject to these charges, and it is unacceptable that the County Council is continuing to make them pay. It is a shame that they didn't listen to us back in 2018"



Epsom recycle centre.

A spokesperson for **Surrey County Council** responded to the **Epsom and Ewell Times**: "On 18th June the Government announced that it was proposing to change the law to require local authorities to accept small amounts of construction waste from 'do it yourself'(DIY) activities, from householders, free of charge. Surrey County Council, like most of our neighbouring authorities currently make a charge for all rubble and plasterboard.

"As part of the announcement, the Government has set out the quantity of construction waste that will have to be accepted free of charge – up to two 50-litre rubble bags or one large item no larger than $2m \times 0.75m \times 0.7m$ per household at a maximum

frequency of 4 visits over 4 weeks.

"Whilst it is as yet unclear as to when the Government intend to change the law to implement the policy change Surrey County Council's Cabinet had already been reviewing the potential to change our policy around charging for DIY waste with the intention of introducing a free allowance for householders in line with the Government's announcement.

"It is proposed to implement this change at the beginning of September this year."

RA and Green motion to improve Surrey's "Green" motion

It could soon be possible to take a "pleasant walk or cycle" along a Surrey road without being "slapped" in the face by "brambles or nettles".

A motion calling on **Surrey County Council** to prioritise the maintenance of walking and cycling routes was passed with unanimous cross-party support – as long as the plans pass select committee.

Introducing the item at the Tuesday, July 11 full council meeting, was **Residents' Association** and Independents Group leader Councillor **Catherine Powell**. She said: "The travel choices people make will be driven by how convenient, safe, easy, and enjoyable the options are. These choices will also impact on the individuals carbon footprint, and their health and wellbeing."

Cllr Powell added: "We must make the most of the infrastructure we have already invested in, by proactively maintaining the surfaces, managing vegetation and prioritising the routes that people value most and use most. That will encourage others to use them too."

The motion, she said, would "ensure our residents are not put off from walking, cycling, scooting because of overgrown paths, poorly repaired surfaces or just the plain absence of a map that shows the cut-throughs through an estate".

The group hopes new and improved routes, in addition to the increased awareness from new maps – created with input from ramblers and cyclists – would reduce the dependence on driving as a default means of transport.

The motion was seconded by Cllr **Jonathan Essex**, leader of the **Green Party** group, who said it would ensure bus and cycle lanes, as well as pavements, were inspected more frequently.

He told the meeting it would "make it possible to do a pleasant walk or cycle without being slapped by brambles or nettles."

The motion will go to the council's highways select committee for approval following an amendment from Surrey County Council leader **Tim Oliver** who told the meeting decisions requiring policy and budget changes needed greater scrutiny and couldn't be made on the hoof- but he supported it in principle.

The motion says that increasing cycling and walking is a key objective of the Council, and forms part of Surrey's Community Vision for 2030 and Local Transport Plan.

All highways policies will be aligned with the council's transport vision but, the motion said, more still needs to be done to develop plans to encourage walking and cycling.

As such the council has agreed, subject to agreement from the select committee, to update transport plans to support a higher priority grading on routes for local walking and cycling journeys, – particularly in areas of high employment, schools, hospitals, and leisure facilities.

It will also ensure walking and cycling routes are not blocked by overgrown plants and that highways inspection, for things such as potholes, are extended to left-behind signs, debris on pavements and cycleways and blocked drains.

Image: Cycle paths beside Christchurch Road Epsom (Google image).

Thames Water among worst in country

Standout levels of pollution and poor monitoring has left Thames Water languishing joint last among the country's "very disappointing" water and sewerage companies.

The damning verdict was delivered in a report by the **Environment Agency** which measured the performance of the nine companies operating in England.

It found that there were 2,026 "pollution incidents" from sewerage and water supply – up from 1,883 in 2021 leading to the EA's chair, **Alan Lovell** to describe the situation as "simply unacceptable". Worse, he said, was that early unconfirmed data for 2023 suggests there has been no improvement this year either.

The report, published July 12, found that for serious pollution incidents four companies performed significantly below target – and none more so than Anglian Water and **Thames water**.

In total there were 44 of the serious incidents – and 38 per cent of those were from Thames Water alone – its worst performance since 2013. Of the six worst polluting incidents, half were from Thames Water.

The beleaguered company, which has faced calls to be renationalised in recent weeks, also led the way in the number of category 3 incidents that caused minor impacts to air, with four.

For planned environmental improvement schemes, 99.5 per cent were completed as part of the Water Industry National Environment Programme however three companies failed to meet all requirements and Thames Water, with its red rating, performed the worst.

In 2019,regulators **Ofwat** set the prices water companies could charge and developed environmental programmes for each firm to follow.. Thames Water was the only one to have performed "significantly below target" due to 12 water-quality schemes not meeting requirements within planned deadlines.

The EA also expects water companies to report pollution to the body first as "without a rapid response, the impact of pollution can escalate and the opportunity for mitigation measures can be lost." The report said that Thames Water was one of four companies to fall below this target, the others being Anglian Water, South West Water, and Yorkshire.

According to the EA, water companies must also install monitoring devices on their storm overflows to capture how often and how long they are used. Thames Water again came last among the utility companies with 61.8 per cent coverage compared with market leader Severn Trent Water which had 99.6 per cent coverage.

Thames Water scored well for satisfactory sludge use and disposal, as well as for its compliance with permits to discharge treated wastewater.

Concluding, the report read: "The sector as a whole needs to improve in order to achieve and sustain expected levels of regulatory and environmental performance. The majority of water companies are not meeting basic environmental requirements. Although we have acknowledged some improvements, these results cannot be taken in isolation. They are set against the backdrop of poor and inconsistent results over recent years.

"We are concerned that some companies will not or cannot change. Anglian Water and Thames Water repeatedly dominate serious incident numbers." It added: "These water companies in particular need to make radical changes now, but all water companies have areas to improve."

A spokesperson for Thames Water said: "Protecting the environment is fundamental to what we do and we recognise our performance in preventing pollutions is still not good enough. We're committed to turning this around and our shareholders have approved additional funding into the business so we can improve outcomes for customers, leakage and river health.

"Alongside implementing our pollution reduction plan to deliver these changes, we have plans to upgrade over 250 of our sewage treatment works and are striving every day to reduce the discharge of untreated sewage into our rivers. This is a key part of our River Health Action Plan to radically improve our position in order to protect and improve the environment, as we strive to eliminate all incidents in the future."

The company has also announced that shareholders agreed to provide an additional £750m to "further improve operational performance and financial resilience".

Related reports:

Local sewage uploaded

"Garden of Eden" coming to West Ewell as Wetlands Plan is approved. Will this stop pollution? River "Bogsmill" blights Borough An alternative view from Labour

Surrey's triple contribution towards net zero

The **University of Surrey** is playing a role in three new national energy research centres which will boost knowledge, create innovative green technologies and reduce demand for energy to achieve greener, cleaner domestic, industrial and transport energy systems.

Academics at Surrey will help fairly reduce the energy used in the UK, develop hydrogen and ammonia as alternative fuels, and boost bioenergy production.

Professor Jin Xuan, Associate Dean (Research and Innovation) in the Faculty of Engineering and Physical Sciences, said:

"There's no single route to net zero so at the University of Surrey we're involved with a wide range of interdisciplinary projects to find a portfolio of sustainable solutions. This latest funding shows we're at the forefront of creating a sustainable future for everyone."

UK Research and Innovation (UKRI) has today announced a £53 million investment in six research centres which will lead innovation towards a fully sustainable energy sector. Surrey is involved with half of them:

A new national **Energy Demand Research Centre**. Reducing energy use could help meet half of the required reductions we need to reach net zero emissions by 2050 and the University of Surrey is helping ensure that disadvantaged people aren't left behind as the UK's energy demands are reduced. The project is being led by **Dr Lirong Liu** who will use AI to create models to help communities make scientifically informed decisions.

Dr Lirong Liu said: "Our new optimisation model will incorporate multiple objectives to balance society's many needs so we can maximise equity while minimising cost and greenhouse gases. To achieve this, we need to understand technology, economics, environment and behaviour and to recognise different parts of society. It's not just about technological developments, but also about creating a better, more equitable world."

The **Hub for Research Challenges in Hydrogen and Alternative Liquid Fuels**, known as the UK-HyRES Hydrogen Hub. **Dr Qiong Cai**, a research leader in sustainable energy and materials, is working with industrial and academic partners to identify how we can decarbonise transportation and heavy industry by using green hydrogen and hydrogen-based, low-carbon liquid fuels, such as ammonia.

Dr Qiong Cai said: "Hydrogen and alternative liquid fuels, through combustion, can provide clean heat and power sources for decarbonizing heavy industry, aviation, maritime, and haulage sectors that are difficult to decarbonize using electric batteries. We're developing durable and low-cost catalysts to promote ammonia combustion and to enable zero-emission of hydrogen and ammonia combustion. Together with industry partners and academic collaborators, we'll develop innovative solutions that are safe, acceptable, and environmentally and economically sustainable."

The **Supergen Bioenergy Hub**. Surrey's **Dr Michael Short**, one of the technical project leads, will work on the rapid digitalisation of bioenergy, creating a collection of open-source models for enhanced decision-making across the biowaste sector. This will be informed by his work using artificial intelligence to boost biogas production in anaerobic digestors.

Dr Michael Short said: "We can make so much more of bioenergy, particularly if we can develop better predictive models of the complex reactions in bioenergy systems. If we can increase digitalisation and leverage advances in AI and optimisation, we can have more efficient sustainable energy generation from renewable sources, as well as improved energy security and boosted profits for the companies involved."

Katherine Ingram - Surrey University