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## Executive summary

As the world begins to recover from the Covid-19 pandemic, there is a historic opportunity to tackle the climate crisis and build a more sustainable future.

The United Nations' 26th Climate Change Conference (COP26), taking place this autumn, is seen as a pivotal moment to accelerate action through collaboration between governments, businesses and civil society.

Higher education institutions are critical players; through their research, teaching and outreach, they can have a transformational impact on society and help the world transition to net zero emissions – one of the key goals of COP26.

But universities are also large organisations with significant carbon footprints of their own. Drawing on *Times Higher Education* data, largely from the *THE* Impact Rankings 2021, this report examines how well higher education institutions across the globe are performing when it comes to reducing their own greenhouse gas emissions and transitioning to net zero.

It finds that:

- Sustainability seems to be a big concern for university leaders, with 80 per cent of respondents to a THE survey saying pursuit of the SDGs informs how their institution operates, although just 7 per cent list environmental sustainability as among their three highest priorities
- Only just over half of universities participating in the THE Impact Rankings table on SDG 13 (climate action) have a target to reach net zero, and most of those institutions plan to meet the goal within the next 20 years
- Universities in Australia and New Zealand are the furthest ahead in their commitment to net zero
- South American universities are most likely to be targeting all three emission scopes (see glossary)
- The world's top research universities do not necessarily have the most ambitious plans to reach net zero
- Universities with a large proportion of international staff and students tend to have ambitious targets for achieving net zero
- Almost a quarter of universities participating in the *THE* Impact Rankings table on SDG 13 (climate action) reported no use of low-carbon energy.



# Glossary

**Carbon footprint:** the total amount of greenhouse gases produced, both directly and indirectly. It is usually expressed in equivalent tonnes of carbon dioxide ( $CO_2$ ).

**COP26:** the United Nations' 26th Climate Change Conference, taking place from 31 October to 12 November 2021. Countries are being asked to come forward with ambitious 2030 emissions reduction targets that align with reaching net zero globally by the middle of the century.

Greenhouse gas (GHG): a gas that contributes to the greenhouse effect that drives global warming by absorbing infrared radiation, such as carbon dioxide, methane or nitrous oxide.

Greenhouse Gas Protocol (GHGP): a global standard, developed by the World Resources Institute and the World Business Council for Sustainable Development, that informs organisations about how to measure, manage and report greenhouse

### Net zero and related terms

gas emissions.

- Net zero emissions: a state in which the greenhouse gases going into the atmosphere are balanced by the removal of greenhouse gases out of the atmosphere.
- Absolute zero emissions: no greenhouse gas emissions (across all scopes). No use of offsets or balancing of residual emissions with removals.
- Carbon neutral: a state in which the amount of carbon dioxide entering the atmosphere is balanced by the removal of CO<sub>2</sub> from the atmosphere.
- Zero carbon: no carbon dioxide emissions (across all scopes). No use of offsets or balancing of residual emissions with removals.

#### Offsetting and carbon credits

- Offsetting: reducing greenhouse gas emissions or increasing greenhouse gas removals through external activities to compensate for emissions made elsewhere. Offsetting is typically arranged through a marketplace for carbon credits or another exchange mechanism.
- Carbon credit: a permit that allows an institution to emit 1 tonne of carbon dioxide (or the equivalent amount of a different greenhouse gas) because the equivalent amount of emissions will be reduced elsewhere. The purchaser of a carbon credit can "retire" it to claim the underlying reduction towards their own greenhouse gas reduction goals.

**Science-based target:** target is aligned with what the latest climate science deems necessary to meet the goals of the Paris Agreement – limiting global warming to well below 2°C, preferably to 1.5°C, compared with pre-industrial levels.

#### Scopes

- Scope 1 emissions: direct institution-owned or -controlled emissions occurring at source, eg, fuel combustion or institutional vehicles.
- Scope 2 emissions: emissions associated with the production of energy consumed by an institution, eg, purchased electricity.
- Scope 3 emissions: indirect emissions associated with institutional activities from sources not owned or controlled by the institution, eg, purchased goods and services or business travel.



# Analysis

# 3.1

### INTRODUCTION

The United Nations' 26th Climate Change Conference (COP26) being hosted in Glasgow this autumn is seen as a make-or-break event for the world to address global warming and the catastrophic consequences it is already having on our planet, which are only predicted to worsen.

Through decades of academic research, universities have been at the forefront of tracking the changing climate of the planet and warning human-kind of the potential repercussions of failing to act. In many cases, they have also tried to lead by example by committing to net zero emissions targets, promoting energy sustainability on campus and re-evaluating where they invest their money.

But as the world looks to COP26 to accelerate nations' progress towards a low-carbon future, how is the higher education sector actually performing? Is it really setting a leading example for other industries by establishing ambitious targets and meeting them? Are current frameworks for measuring and accounting for emissions fit for purpose when it comes to their use by universities? And to what extent is internationalisation – and especially student and staff mobility – hampering or helping the net zero quest?

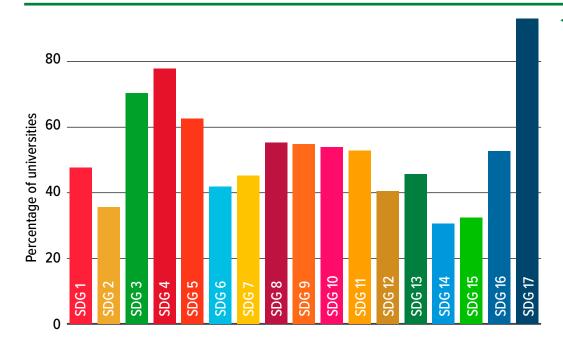
Answering at least some of these questions requires taking the temperature of the sector in terms of its approach to tackling climate change. However, while a number of countries have now established the datasets they need to analyse universities' performance, international comparisons remain difficult. This is where *Times Higher Education*'s Impact Rankings – which use the UN's Sustainable Development Goals (SDGs) as a global framework for assessing how universities are tackling global problems – can help to give a glimpse of the wider picture.

Several of the 17 SDGs incorporate elements that link to climate change and the environment, but SDG 13 – taking urgent action to combat climate change and its impacts – explicitly addresses the issue. In total, 566 institutions featured in the Impact Rankings table on SDG 13 in 2021; 400 of them were institutions that also appeared in the World University Rankings 2021. Although this represents less than half the number of universities participating overall in the Impact Rankings, and is still a fraction of all higher education institutions worldwide, they hail from 81 different countries or territories,

**566** 

institutions featured in the *THE* Impact Rankings table on SDG 13 in 2021 providing a useful international snapshot of how the sector is performing.

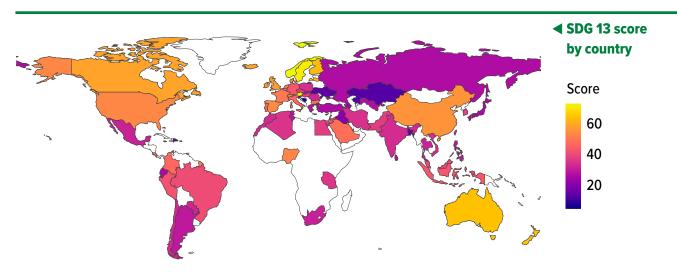
However, it is also worth noting that participation in SDG 13, and other environment-related SDGs in the ranking like SDG 7 (affordable and clean energy) and SDGs 12 (responsible consumption and production), 14 (life below water) and 15 (life on land), is relatively low compared with more social-related SDGs such as 3 (good health and well-being), 4 (quality education) and 5 (gender equality). This already suggests that universities may have more work to do in terms of being transparent on data.



### Share of universities in Impact Rankings participating in each SDG

Note: Universities must submit data to three SDGs (and SDG 17) to be eligible for inclusion in the overall Impact Rankings

For SDG 13, each university participating was scored across four different metrics: its research into climate action (based on bibliometric indicators); its low-carbon energy use; the steps it takes on environmental education; and its commitment to achieving net zero greenhouse gas emissions. While performance across the world, and within nations, varied, overall pockets of excellence seemed to emerge in northern Europe and Oceania, as this map of average scores in the SDG 13 ranking by country demonstrates.



However, the score for some nations may be skewed if only one or two universities from a country are represented in the ranking. It is also difficult to get a real sense of universities' performance on emissions targets from the overall SDG 13 score because of the influence of scoring on climate change research and environmental education measures. Therefore, in this paper, we mainly aim to drill down into the two metrics in the SDG 13 ranking that best reflect universities' own institutional work to tackle climate change: their net zero targets and their use of low-carbon energy.

A Times Higher Education survey of 180 university leaders from 43 territories across six continents, conducted in June, reveals that SDG 13 is viewed as the third-highest priority SDG, having been selected by 35 per cent of respondents, below SDG 4 on quality education (59 per cent) and SDG 3 on good health and well-being (37 per cent) (leaders could select up to three SDGs).

Asked to name the most important goals for their university in relation to environmental sustainability and the climate crisis

specifically, the highest share of respondents cite energy-efficient buildings (79 per cent), followed by a zero-carbon or carbon neutral commitment (57 per cent) and a plastic-free campus (34 per cent). Just 25 per cent believe that sustainable travel policies are one of the most important goals.

Overall, only 7 per cent of university leaders (13) cite environmental sustainability as among their three highest priorities, with quality of teaching and research, balancing the budget and student satisfaction coming

out on top.

However, an overwhelming majority of respondents agree or strongly agree that pursuit of the SDGs informs how their institution operates (80 per cent), and believe that the SDGs will affect their institution's research priorities over the next five years (79 per cent). When asked "What is the most important thing for your institution to achieve in the next 10 years?", 6 per cent mentioned something

to do with sustainability.

◆ Global university leaders' views on sustainability

# 3.2

### **COMMITMENTS TO NET ZERO EMISSIONS**

The SDG 13 Impact Ranking metric on carbon neutrality is split into two indicators: first, institutions are scored on whether they have a target date for net zero emissions, based on carbon accounting rules set out in the Greenhouse Gas Protocol (GHGP); and second, they are evaluated on when net zero is expected to be achieved (or whether it has already been achieved) in terms of what are known as Scope 1 and 2 emissions in the protocol. The evidence is provided directly by universities but evaluated and scored by *THE*.

A net zero target simply means a date by which an institution aims for its measured emissions to be zero, once any allowance (known as offsetting) is made for efforts to remove greenhouse gases from the atmosphere. If applied correctly, it would mean

that an institution is not adding more emissions to the atmosphere. Carbon neutrality is a different way of expressing the same concept for carbon emissions.

This kind of target has become the norm because reaching absolute zero emissions would be unrealistic in most cases. However, it means that there needs to be a particular focus on how an institution is measuring its emissions (to ensure that they are being assessed accurately) and on what methods it is using for offsetting.

■ What is meant by net zero emissions targets?

According to the protocol, which has become an established standard for carbon accounting by organisations in the private and public sector, Scope 1 emissions cover direct emissions from sources that are "owned or controlled" by the university, such as the institution's own vehicles or on-site power generators. Scope 2 covers

the emissions from electricity used by the institution that were generated off-site.

Scope 3 is an "optional"

Scope 3 is an "optional" reporting category that covers all the indirect emissions that occur as a result of the "consequence of the activities" of an institution, such as the emissions associated with the production of purchased materials. This

third scope – and what it should contain – is arguably the most important for higher education, given that activities such as business travel (eg, academics flying abroad to conferences) and international student mobility (mainly students flying to and from host countries) produce a substantial amount of emissions.

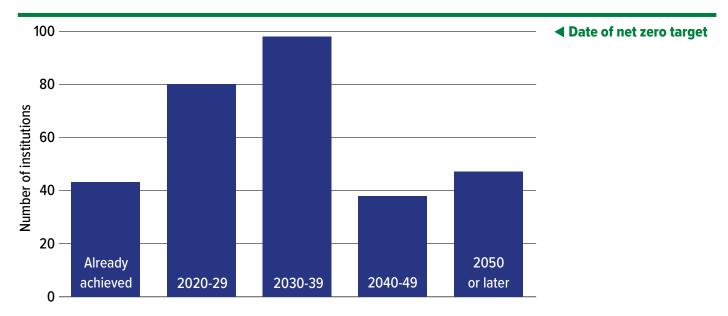
■ What are the different scopes of the Greenhouse Gas Protocol? One caveat to the data is that, like other evidence-based metrics in the Impact Rankings, there is likely to be a bias towards countries where English is the main language. For evidence-based data in the Impact Rankings generally, universities in English-speaking countries provide evidence in 75 per cent of cases versus 38 per cent for other nations.

But as long as this is borne in mind when analysing the data by geography, the results still give interesting insights into the progress that universities are making.

More than half (311) of the 566 institutions participating in SDG 13 (55 per cent) said they had a target to reach net zero; of those, almost half (151, or 49 per cent) said they were targeting all the scopes in the GHGP.

At first glance, having only a little over half committing to a target in a category of the ranking (SDG 13) that explicitly focuses on climate change seems low. But it immediately raises questions about the suitability of the GHGP for higher education, especially in countries where this is not being used as the standard tool for carbon accounting. It is possible that many of the 255 institutions – 117 of which are in Asia – that did not have a target are taking action outside the GHGP framework. Interestingly, in addition to these institutions, another 10 per cent (57, mainly in Europe and Asia) said they were committed to a net zero emissions date but did not know which scopes they were including, perhaps suggesting that use of the GHGP might not always be standard practice for universities.

For those institutions that said they did have a target for net zero emissions, most (71 per cent) said they planned to reach net zero within the next 20 years (or, for 43 institutions, had already achieved their target), with the most common target dates being in the 2030s.

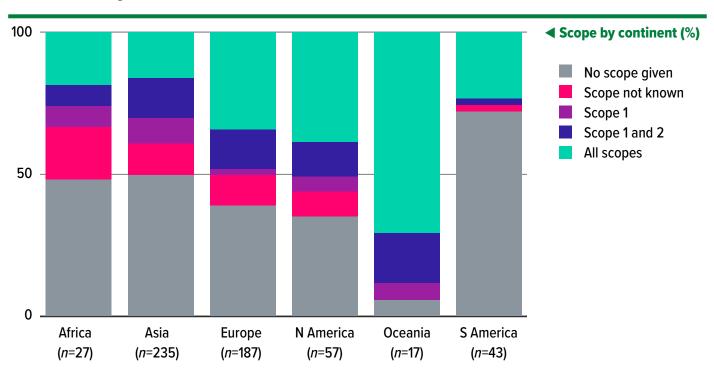


Looking at how the data break down by world region, Oceania (made up of 11 institutions in Australia and six in New Zealand for SDG 13) appears to be the furthest ahead in the commitment to net zero emissions — all but one university has a target date under GHGP standards. Twelve institutions are also targeting all three scopes.

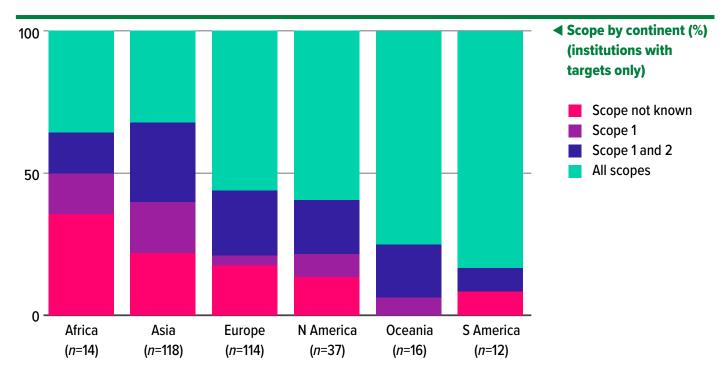
Institution	Country/region
Acharya Nagarjuna University	India
Aix-Marseille University	France
American University	<b>United States</b>
Arizona State University (Tempe)	<b>United States</b>
Bakrie University	Indonesia
Charles Sturt University	Australia
Comillas Pontifical University	Spain
Federal University of Mato Grosso do Sul	Brazil
Kaohsiung Medical University	Taiwan
University of Malakand	Pakistan
National Changhua University of Education	Taiwan
Pontifical Bolivarian University (UPB) – Medellín	Colombia
Universiti Sains Malaysia	Malaysia
Simon Fraser University	Canada
University of Tasmania	Australia
Tecnológico de Costa Rica	Costa Rica
University of Victoria	Canada

 Universities claiming to have achieved net zero emissions for all scopes

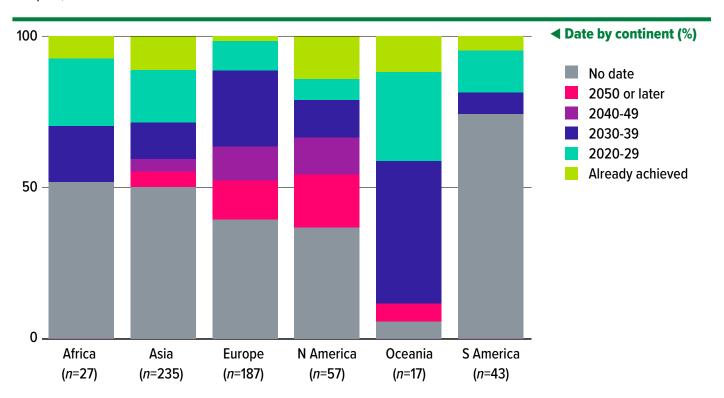
Africa, Asia, Europe and North America have between half and two-thirds of institutions with a target date (56 per cent across the four continents), while less than a third (28 per cent) of the 43 South American institutions have a net zero goal.



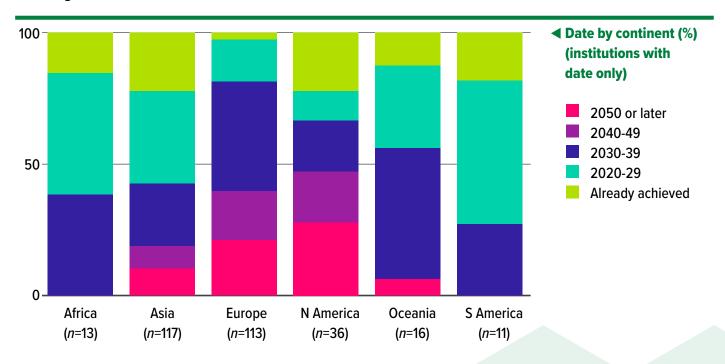
However, when the institutions without a target (which may reflect their not using the GHGP rather than a lack of a net zero commitment) are removed from the analysis, South American universities fare much better, with most of them targeting all three scopes. North American institutions also show a larger proportion of all institutions targeting all three scopes, as does Europe.



When looking at target dates, Oceania is also leading, with seven out of the 17 institutions having already achieved their net zero goals or planning to do so by 2030; six of those say that they are targeting all three scopes, too.



Again, however, the picture is skewed slightly by including universities that did not give a date. Leaving these aside suggests that universities in Europe and North America, while more likely than institutions in Asia, Africa or South America to have a GHGP target, are less ambitious when they do. For instance, 34 institutions in the two continents had a goal to reach net zero by 2050 or later, which may be regarded by many climate change scientists as too late to have the impact required to militate against catastrophic global warming.





### UNIVERSITY CLIMATE EMISSIONS: COMPARING APPLES WITH ORANGES

### lain Patton, chief executive of the EAUC, the UK's Alliance for Sustainability Leadership in Education

With the UK-hosted COP26 on the horizon, the recent Intergovernmental Panel on Climate Change (IPCC) report spelling "code red for humanity" and no end of extreme weather events being a daily news story, the climate gloves are off. The pandemic taught us much about the resilience and agility of our sector, but are we ready to apply that experience and insight to the fight for our lives?

As it turns out, we are profoundly ill-equipped for the task.

The profile of UK universities and colleges committing to emissions reduction and net zero has never been higher. But with commitment comes accountability. While the commitment is encouraging, it highlights the inconsistent approach to emissions scope-setting, measurement and reporting across our sector. We are comparing apples with oranges. Not only does this impede institution comparison and collective progress, it is also a risk to our sector's credibility and reputation.

And what is worse, right now we are seeing the disintegration of the one all-sector emissions reporting mechanism: the Higher Education Statistics Agency's (Hesa) Estates Management Record (EMR). Now that it is no longer mandated in England and Northern Ireland, more than 30 institutions have taken the opportunity to opt out. For their modest institutional saving, the entire sector is paying a huge price. Just when we need it most, we have lost the national picture, not to mention the benchmarking, peer

ambition checking and, worst of all, public accountability.

University and college emissions must be measured and reported, and done so consistently over time so that progress is transparent and understandable to key stakeholders, students in particular. As anchor, catalytic and cross-sector collaboration builders in our communities, further and higher education institutions must take on a societal climate leadership role. It is our universities and colleges that have to be at the forefront of zero carbon innovation, researching circular and clean production, teaching green skills and demonstrating innovative fossil-free campuses.

As the sustainability leadership alliance for education, the EAUC believes that a key focus should be on the environmental data that help us to set and reach net zero carbon targets. We have less than 30 years until the UK government's 2050 net zero carbon target, and for most of us, that target is unrealistically generous.

This autumn, we launched the Advancing Sector Emissions Alignment Research Project. Drawing practical and academic expertise from across our sector and others, the EAUC aims to take on the big, hairy emissions questions and establish consistent responses to: what is really in and out of emissions scope; do we include student travel and homeworking emissions; is our goal ambitious enough and "science-based target" aligned? We propose to create a sector reference tool to compare performance, as

well as a checklist to assist with peer validation.

We are recruiting steering group members now alongside a Good Practice Institution Group (institutions that have comprehensive GHG inventories and/or have included uncommon sources of emissions, such as investments) and an Independent Validation Group comprising institutions keen to test our output and improve their reporting practices.

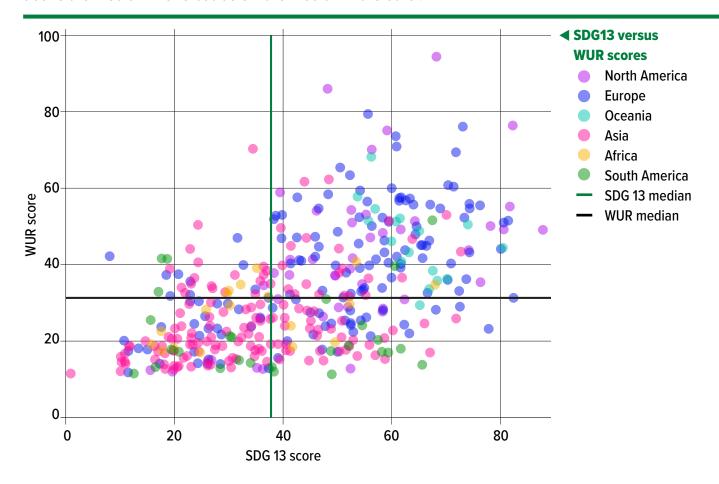
Draft proposals will be shared with key sector stakeholders including the Department for Education, the Office for Students, Universities UK and the Association of University Directors of Estates. And you can be sure that we will be involving Hesa as we progress. The EMR is certainly due an update, but it is all we have got, just when we need it most.

■ If you are interested in contributing to the project, contact ipatton@eauc.org.uk.

# 3.3

### **COMPARISON WITH THE WORLD UNIVERSITY RANKINGS**

The data that *THE* collects through the Impact Rankings demonstrate that it is not necessarily the world's top research universities that have the most ambitious plans to reach net zero emissions. For instance, although there does appear to be a correlation between the scores in the World University Rankings and SDG 13 for the 400 universities in both, a large number score above the median in one but below the median in the other.



The chart above, which shows the scores in each for these institutions, colour-coded by region, together with the overall median scores in the World University Rankings and SDG 13, clearly shows that this variation between the

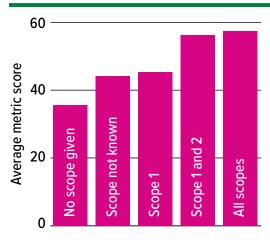
two rankings is different by region, too. Australasian universities are almost entirely in the top-right quadrant, showing that they perform strongly in both, but a scattering of institutions, mainly in Asia and Europe, are lagging on their SDG 13 scores compared with their overall World University Rankings performance. Conversely, most South American institutions are in the lower quadrants of the chart, so below the median in the World University Rankings, but about half a dozen perform strongly in SDG 13.

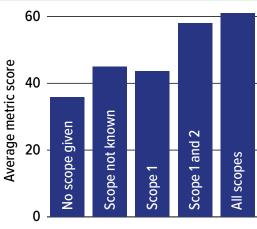
Continent	Above median in both rankings (%)	in WUR but below median	below median	Below median in both rankings (%)
Africa	11	28	22	39
Asia	15	13	23	50
Europe	57	7	17	18
North America	66	2	18	14
Oceania	94	0	6	0
South America	7	11	44	37

■ Distribution of universities that feature in both the World University Rankings and in SDG 13 by continent

Overall, this suggests that even in parts of the world where university systems are still very much developing, a few vanguard institutions are pushing the boundaries on climate change action and, it is hoped, providing an example to other institutions in their countries and regions of the ambitious goals that can be set.

An even more interesting comparison between World University Rankings and SDG 13 institutions emerges when some individual metrics, especially on internationalisation, are examined. For instance, WUR scores for two metrics – international staff and international students, which reward universities with a high proportion of each – seem to correlate with SDG 13 scores for the existence and scope of net zero emissions targets. In other words, universities with a large proportion of international staff and students tend to have ambitious targets for achieving net zero.

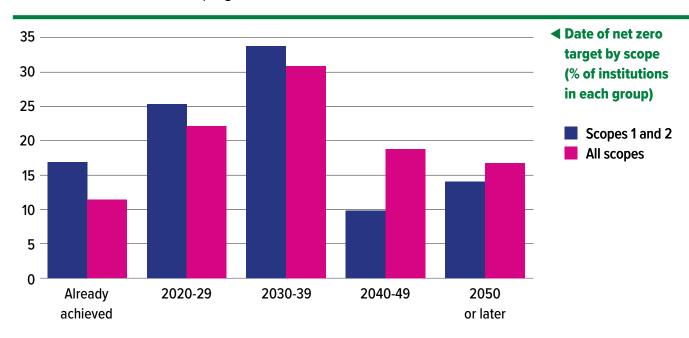




- Average international staff score in WUR versus net zero target scope
- Average international students score in WUR versus net zero target scope

This raises a number of intriguing issues and questions: is it simply a coincidence that many of the universities in the best-performing countries for SDG 13 (such as Australia and New Zealand) are also highly international? Is there an extent to which universities in countries wanting to attract the top international talent want to demonstrate their environmental credentials as a selling point (in a recent *THE* survey, prospective international students said they were more likely to choose a university based on its commitment to sustainability than for its location)? And perhaps most importantly, are these universities also factoring in their reliance on international staff and students (and the emissions associated with this activity) when setting net zero targets and evaluating their progress towards them?

The flights that international students take to study in another country, and the worldwide travel by staff – both in terms of being employed abroad or, more frequently, trips for academic conferences and other events – should arguably be designated as Scope 3 emissions because they are the indirect result of universities' activity. However, as we have already seen, less than a third of institutions (151) entering SDG 13 have a net zero goal that includes Scope 3 (although this does represent about half of those that said they did have a GHGP target). The target dates for universities that include all the scopes also tend to be less ambitious: 17 per cent of institutions with just Scope 1 and 2 targets have already achieved their goal, compared with 11 per cent of those with Scope 3 targets. And 76 per cent of Scope 1 and 2 institutions are targeting dates within the next 20 years against 64 per cent of institutions with an all-scope goal.



But even given these lower ambitions for Scope 3, it is not clear how many institutions even include student flights as part of their plans. A key paper published in January 2021 by the COP26 Universities Network, a group of more than 80 UK-based universities and research centres, points out that student flights alone could account for 2 metric tonnes of  $CO_2$  emissions, or 18 per cent of the UK higher education sector's total even though they are

currently seen as "out of scope". The figures – for the 2018-19 academic year – had to be estimated because, the group states, the vast majority of universities currently do not report on student flights. Even in parts of the UK such as Scotland, where there is a public reporting duty for carbon emissions, there are scant examples (Glasgow Caledonian University and the University of St Andrews are two that do report on the impact of student travel). Even without counting student mobility, business travel such as academics flying to conferences around the world, which does tend to be more widely counted as Scope 3, still contributed 0.5 metric tonnes, or 4 per cent of emissions in 2018-19, while Scope 1 and 2 emissions combined only represent 1.7 metric tonnes, or 16 per cent.

The COP26 Universities Network says "it seems appropriate" to include student flights in Scope 3 if institutions want to "embrace the challenge of counteracting the overall carbon impact of their activities". And examples from the GHGP itself suggest that even though it is a framework designed for the corporate sector, "customer" travel can be included when companies assess their emissions: the furniture retailer lkea calculated that about two-thirds of its emissions came from customer travel, for instance. Therefore, there seems little reason why the flights (or other journeys) that international students take to study abroad should not be included; and if they are not, there is an argument that carbon emissions are being significantly undercounted.

The paper from the COP26 Universities Network also focuses discussion on the importance of the other side of the equation in reaching net zero – carbon offsetting – another grey area in terms of sustainable and meaningful approaches. It argues that universities using offsetting as part of their targets need to seek approaches that offer removal of carbon from the atmosphere and long-lived storage. However, it also raises crucial questions around whether such schemes quantify carbon removal effectively and the risk that they can undermine the motivation of universities to minimise the emissions they are producing in the first place.



### OFFSETTING FRAMEWORK FOR DELIVERING A CREDIBLE NET ZERO TARGET

Piers Forster, professor of climate physics at the University of Leeds and co-author of a COP26 Universities Network briefing on carbon offsetting

Offsets have been losing credibility. They can be seen as greenwashing or as excuses to delay action. Further, even some of the most thoughtful offset schemes have run into difficulty in quantifying the degree of carbon removal they are able to provide. Rather than give up on them, we argue instead that the higher education sector has an important role to urgently get them working properly.

Higher education is a global marketplace fuelled by attracting the best students from all over the world. With the jet plane underpinning our business models, delivering a net zero education poses some serious challenges. Offsetting our way out of this predicament is not an option. Rather, we need comprehensive emission reduction delivery programmes that intelligently develop and use net zero-compliant offsets.

Governments and businesses around the globe have responded to the climate challenge by setting net zero emission targets, and many higher education institutions have set a stretching target of net zero by 2030. August's Intergovernmental Panel on Climate Change (IPCC) report doubled down on the need for such targets, confirming that they were the right choice. It showed that by achieving net zero greenhouse gas emissions globally, we can begin to reduce global warming and the weather extremes that go with it. Importantly, the report showed that carbon dioxide removal works similarly to an emission reduction in addressing climate

change. This means that net zero emission targets, where any remaining emissions are offset by removals, are physically equivalent to zero emission targets. So if offsets can be designed to be a credible carbon dioxide removal, they will work.

#### When to offset?

Recognising that offsets can work, there are two credible reasons for using them: 1) covering for emissions that are truly unavoidable, which may be student flights or your university's pig farm; and/or 2) getting to net zero emissions as soon as possible to halt your contribution to warming. These decisions need to be part of a transparent framework of decision-making that puts maximum emphasis first and foremost on emission reduction.

#### **Ratchet mechanism**

A ratchet mechanism – an approach that cranks up ambition over time – is needed to regularly re-evaluate the decision to offset. Each review would need to raise the bar for making an offset purchase. For example, rather than just agreeing to offset international student flights, could more be done to reduce their flying, such as offering summer accommodation or providing free train tickets?

#### Which offsets?

Net zero can be guaranteed only when the carbon removed by an offset is effectively stored for a century or longer. This is true for a natural solution, such as planting a new forest, as well as a technological solution, such as direct air capture combined with geological storage. Offset schemes are often chosen with multiple sustainability criteria in mind. If offsets can be used to meet biodiversity and other institutional goals, then so much the better. However, their efficacy in providing a permanent removal of carbon must be the prime consideration. Choosing offsets goes beyond just accepting certified stamps of approval. Instead, each scheme needs to be looked at in detail. Earlier this year, Microsoft procured such high-quality carbon removal offsets through a scientifically vetted process. Its offset purchases included projects on reforestation, soil sequestration and direct air capture, proving that high-integrity options already exist that cover a range of approaches.

The higher education sector in the UK, and worldwide, has important roles in the development and purchase of offsets. We can leverage our institutions' scientific expertise and enshrine opportunities for learning and societal contribution. By monitoring and transparently reporting both our emissions and our offsetting choices, we can lead the way in both decarbonising our own sector and supporting the global race to net zero.

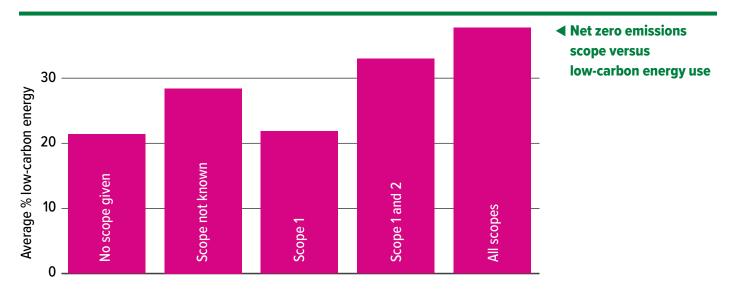
■ This opinion summarises the COP26 Universities Network briefing How can carbon offsetting help UK further and higher education institutions achieve net zero emissions?

# 3.4

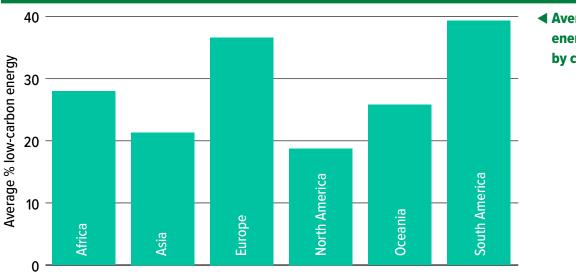
### **LOW-CARBON ENERGY USE**

A major practical contribution that universities can make towards tackling climate change is through ensuring that as much of the energy that they use – whether generated on-site or purchased from outside suppliers – is from low-carbon sources. But perhaps surprisingly, of the 566 institutions participating in SDG 13, almost a quarter (24 per cent) reported no use of low-carbon energy at all (although this is mostly institutions that had also not committed to a net zero emissions goal).

Universities that do have a high share of energy from low-carbon sources – which can include electricity from renewables such as wind turbines or solar as well as nuclear power – are also much more likely to be targeting a wider range of GHGP scopes. Institutions targeting Scope 1 emissions receive only an average of 22 per cent of their energy from low-carbon sources, while the proportion increases to 33 per cent for those with Scope 1 and 2 goals, and to 38 per cent for institutions including all scopes. Interestingly, institutions that have a net zero target but did not report the scopes they included (perhaps because they did not use GHGP definitions) still had an average of 28 per cent low-carbon energy use. This suggests that although emissions scopes offer a useful framework for institutions, some are making significant efforts anyway in their use of renewable energy.



However, the data also highlight that low-carbon energy use may be very much dependent on the mix of the electricity sources used by the country where the university is located. The average in some countries (notably those with extensive nuclear power supply such as France or well-developed hydropower and wind energy sources such as Brazil) is about half of universities' energy coming from low-carbon sources. European institutions overall report an average of 37 per cent, while South American universities lead the globe on this metric with an average of 39 per cent. Their shares are in sharp contrast to North American institutions, which average only 19 per cent, a proportion that is very similar to the national mix in the US.



 Average low-carbon energy use by continent

However, looking more closely at individual countries and seeing how their universities compare with the general low-carbon energy mix in the nation gives some kind of indication of where higher education institutions may be taking steps to boost their use of greener energy. This suggests that universities in Spain are punching well above the national energy picture for use of low-carbon energy, while institutions in Brazil and France are in essence benefiting from the national green energy mix. Generally, apart from Canada, where universities have a slightly lower average low-carbon energy use than nationally, institutions in the ranking seem to be performing above expectations, especially in the developing world.

Country	Number of SDG 13 institutions	Average % low-carbon energy for universities	% low-carbon energy use in nation (2019)
Spain	23	52	26
Brazil	19	51	46
France	13	49	49
Pakistan	20	38	13
United Kingdom	33	31	21
Canada	17	31	34
Egypt	13	28	5
Iran	19	25	3
Russia	30	25	12
India	16	25	9
United States	20	21	17

◆ Countries or regions with highest average low-carbon energy use for universities in the SDG 13 ranking

Source for national data: Our World in Data (https:// ourworldindata.org/energy-mix)

But could universities be pushing even further on the take-up of renewables? A look at the Impact Rankings data from a separate SDG – affordable and clean energy – suggests that although most universities have a pledge to reach 100 per cent of their energy needs coming from renewables, a sizeable minority do not. Only in Europe do more than 80 per cent of institutions have such a pledge.



## Case studies

# 41

## CHARLES STURT UNIVERSITY AUSTRALIA'S FIRST CARBON NEUTRAL UNIVERSITY

Charles Sturt University became Australia's first certified carbon neutral university in 2016, 10 years after setting the goal. It is the largest regional university in the country, with six campuses located in New South Wales and a number of specialist campuses in other states. The university is renowned for its teaching and research in agriculture, the environmental sciences and rural health.

The university is proud of its history of supporting Indigenous Australians and says its ethos is summarised by the Wiradjuri phrase, "*yindyamarra winhanganha*", meaning "the wisdom of respectfully knowing how to live well in a world worth living in".

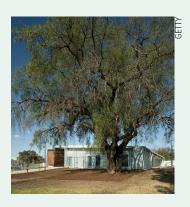
Charles Sturt's latest sustainability project is its Clean Energy Strategy 2030, which includes a commitment to remove all Scope 1 and 2 emissions from its operations by the end of the decade.

### How carbon neutrality was achieved

The university decided that it would work towards the carbon neutrality standard established by the Australian government-backed programme Climate Active. It identified the skills and capabilities that it had in-house and started by implementing a broad range of carbon reduction initiatives, including projects relating to energy efficiency, alternative energy generation and waste minimisation. The institution recruited external consultants to provide additional expertise, particularly around the formal accounting process and paperwork documentation.

Charles Sturt completed the largest single-site rooftop solar panel installation in Australia in 2017, but some less iconic solutions have had an equivalent outcome in reducing the institution's carbon emissions, such as retrofitting more energy-efficient lighting.

Few organisations had achieved carbon neutrality when Charles Sturt set itself the target in 2006, so the university had to determine how to measure and reduce emissions that were unique to its operations or had not previously been incorporated into the carbon footprints of carbon neutral organisations. For example, the institution devised methodologies to quantify



'This isn't
tokenistic or a
programme that
sits left field to
anything else
we're doing. It
works in harmony
with the purpose
and the values of
our organisation,
as well as our
research activity
and teaching
strengths'

Ed Maher, manager, sustainability at Charles Sturt University



emissions from its livestock and its capital construction programme. The latter involved establishing carbon-intensity figures for the construction sector as a whole and estimating Charles Sturt's share based on its annual spend.

The university previously calculated the carbon emissions from business travel by collecting data on kilometres travelled and the number of short, medium and long-haul flights. However, these emissions are now automatically captured by the business travel agency used by the university.

### **Carbon offsetting**

The university still uses offsets to reduce any remaining emissions, and it publishes a list of these, including the amount of emissions it buys. It has a series of principles to help guide decisions associated with the procurement of offsets, including prioritising projects that are locally based, that offer regional connectivity with its international partners, that have co-benefits (benefits beyond the carbon savings that are achieved, such as employment opportunities in rural and regional locations or biodiversity improvements) and that are innovative.

**International students** 

While more than a quarter of Charles Sturt's student population are international students, according to the *THE* World University Rankings 2022, the institution says most of these study within a partner institution outside Australia, or have already immigrated to the country and study from a metropolitan study centre. As a result, the university estimates that less than 1 per cent of its overall carbon footprint is a result of international student travel and does not include this activity as part of its carbon neutrality work.

#### **Lessons learned**

- Strong support from senior management at the university is key
- Draw on expertise from academics from a wide range of disciplines within the institution
- Reach out to other organisations within or outside the tertiary sector for support, guidance and established methodologies for calculating emissions in a given area (these are typically based on the annual spend of the activity to make it a less resource-intensive exercise). The Climate Active programme is constantly building datasets and collecting knowledge and methodologies from certified institutions to make the process easier for new entrants
- Undertake due diligence before working with suppliers to ensure the commercial viability of the partnership and the quantum of carbon emissions that will be saved.

'Offsets are inevitably going to continue to play a role for Scope 3 emissions because there are always going to be services and products that you need from other players that simply don't exist as carbon neutral projects or services'

Ed Maher

'Being the first organisation within the university sector to go down that path meant that there wasn't a carbon copy that we could follow'

**Ed Maher** 

- 1. Calculate quantity of greenhouse gas emissions organisation produces
- 2. Reduce emissions where possible
- 3. Offset remaining emissions by purchasing carbon credits
- 4. Publicly report on carbon neutrality achievement



4.2

## SIMON FRASER UNIVERSITY A 16-STEP PLAN TOWARDS ZERO CARBON



Simon Fraser University (SFU) is an industry leader in ecological, economic and social sustainability, and this work is woven throughout all vice-presidential portfolios, including planning and administration, operations, research and academics, and community and global engagement.

Since 2010, British Columbia's Carbon Neutral Government Regulation has required all public sector organisations to measure, reduce and offset greenhouse gas emissions –

and, therefore, to be carbon neutral. It was the first government at the provincial, territorial or state level in North America to take 100 per cent responsibility for the greenhouse gas pollution in the public sector.

SFU's greenhouse gas inventory includes a full accounting of value-chain emission sources, including Scope 3 emissions.

Developed in 2020, the SFU 2025 Sustainability Plan includes three overarching goals and 16 climate action targets.

#### Three goals

- University services innovation: develop and apply innovations in climate change mitigation to all operational decisions
- University as a living lab: mobilise teams of researchers, instructors, students, staff and community members to identify, test and pilot solutions to climate change at and beyond the university's geographical boundaries
- Climate change leadership: provide opportunities for staff, faculty, students, alumni and external community members to be literate in the causes and impacts of climate change and to be competent in their individual contributions to climate action in their roles as learners, teachers, researchers and employees.

'We, along with many other universities, began by setting grand aspirational plans with lofty long-term goals and it was hard to ever know if we were achieving what we set out to do. So, this current plan was designed to have absolute targets that you could actually measure progress towards and a reporting structure to translate that progress out to the community transparently'

Candace Le Roy, executive director of SFU Sustainability



The targets include reducing operational GHG emissions (Scope 1, 2 and paper-purchased Scope 3) by 50 per cent compared with 2007 levels, shifting 50 per cent of fossil-fuel based energy to renewables and increasing the amount of plant-based food menu items on campus by 50 per cent.

#### Achieving the goals and targets

The university has established one advisory group for the entire plan and corresponding working groups for each target. The first year has focused on formulating these groups, setting baselines for some targets and creating a greenhouse gas emissions inventory. As the strategy is a living plan, it can be revised if the institution finds that it is going off course or new data emerge.

SFU has also looked to carry out its sustainability work in a way that contributes to other goals, such as Indigenous reconciliation goals; equity, diversity and inclusion; and anti-racism projects. As well as ensuring that it is not redesigning solutions that compound justice issues, the university says this approach has contributed to the success of its sustainability work because new and diverse voices, who may not otherwise be environmental advocates, are involved in committee meetings and working group sessions and are helping to guide the plan's implementation.

The plan has been approved by the university's board as well as its president and its vice-presidents, who are actively involved in its implementation. The sustainability office is looking into integrating the goals into staff's performance development plans, which will allow it to formally become part of their workplans and their performance measures. This means that it would become a factor in promotions, access to new opportunities and, at the senior level, incremental salary raises.

#### **Carbon offsetting**

The university does not do any direct offsetting. It pays the provincial government for its offset costs, and the government applies these to local projects. Offsetting is not mentioned in its strategic sustainability plan.

### **Lessons learned**

- Set absolute, science-based targets that can be measured, not lofty goals
- Regularly report on your progress to encourage momentum
- Build strong relationships with subject matter experts across the university and the senior executive team so they trust the process and are comfortable sharing what is achievable and then committing to working towards it
- Recognise and respect Indigenous knowledge and leadership
- Shift the narrative and the culture of this work away from doing less harm or reductions towards a focus on learning opportunities and designing a better world. Fear stunts creativity
- Have a small dose of competition and a super-high dose of collaboration with the university sector to leverage resources, tools and ideas.
- Have an innovation mindset and a diverse set of contributors. Sustainability work can be a core driver of innovation across all functions of the institution.

'While net zero may be our only option globally, due to the complexity and speed at which we need to act, individual institutions like ours can be more ambitious with an "absolute zero" mindset and action plan'

**Candace Le Roy** 

'I'm not pro offsetting at our scale and for our type of institution. We have such little time left. Offsetting as a practice can distract us from more ambitious targets and it can make things seem more optimistic than they actually are. Those of us in developed nations need to focus on getting the emissions down as fast as possible'

Candace Le Roy



### **AUSTRALIAN NATIONAL UNIVERSITY** THE BELOW ZERO AMBITION

The Australian National University (ANU) has committed to reducing greenhouse gas (GHG) emissions to below zero by 2030 for energy, waste, work travel and direct on-campus greenhouse gas emissions, meaning that it will remove more GHG emissions from the atmosphere than it puts in. It has an interim target of zero net emissions by 2025.

ANU was founded in 1946 in a spirit of post-war optimism, with the role of helping to realise Australia's potential as the world recovered from a global crisis. As such, its mission has a strong focus on societal transformation and national and regional responsibilities.

Its Institute for Climate, Energy & Disaster Solutions has more than 500 researchers working across science, policy, economics, governance, psychology and communications.



'We deliberately set ambitious targets to try and generate really strong action. We'll really have to transform the way we do a lot of things within the university to meet these goals'

Clare de Castella, manager of the ANU Institute for Climate, Energy & Disaster Solutions



#### **Achieving the goal**

The ANU Below Zero Initiative is based on a three-pronged approach:

- 1. On-the-ground emissions reduction and carbon sequestration
- 2. World-leading climate and energy research and teaching
- **3.** Community engagement.

ANU is developing a strategy to transition to a fully renewable university, with a key initial priority being transitioning from gas to heat pumps powered by renewable electricity. The Australian Capital Territory, where the university is based, sources 100 per cent of its electricity from renewable generators.

The largest source of emissions for the institution pre-pandemic was estimated to be business travel, and the university is taking advantage of the Australian ban on international travel and the limit on domestic travel to revamp its travel policy. A key part of this will be embedding greenhouse gas calculations into travel approval forms and the booking process. As part of the approval system, the university will ask staff and students to consider whether travel is essential and will facilitate alternatives to travel, such as virtual conferences and events.

The university's work in moving towards below zero emissions will be integrated into its teaching, while students will have opportunities to embark on internships with climate action teams within the ACT government and within the university.

**Carbon offsetting** 

The university says it will only use carbon offsets that have a research and teaching connection with the university. It will also focus on offsets that have other co-benefits, such as biodiversity benefits or economic or social contributions to local communities. Some offsets include renewable energy projects, but ANU will buy only offsets that actually remove greenhouse gases from the atmosphere.

'A survey last year of our staff and students found that 92 per cent of them were either alarmed by or concerned about climate change, compared with around 52 per cent of the Australian population. We're hoping that there will be a voluntary reduction in travel compared with pre-Covid times'

Clare de Castella

'There are serious questions around the extent to which many offset programmes genuinely reduce or remove greenhouse gas emissions. ANU will increase our research expertise in this sector with a view to advancing innovation and rigour and ensuring that carbon offset programmes also contribute to other societal and environmental goals'

Clare de Castella



## Recommendations

### Set both net zero and absolute zero emissions commitments

These commitments should include target dates and work towards eventually covering emissions from all three scopes. Consider setting stretching goals to achieve transformational change.

### Devise a comprehensive sustainability strategy to achieve those goals

Start by assigning a sustainability champion at the institution, if there is not one already, who will map out the work already under way across the university to reduce emissions and determine what still needs to be achieved, drawing on your academics' expertise. Consider setting absolute, science-based targets.

### Create an agreed framework for measuring emissions from international student travel

This should involve collaboration with higher education institutions across different countries so the framework can be adopted by any university around the world. These emissions should then be included as part of your institution's reporting.

### **Establish guidelines around offsetting**

This should include when to offset, regularly reviewing offsetting decisions and ensuring that offsets permanently remove carbon.

### Involve the entire university community

Bring together students, staff and academics to identify and test potential carbon neutral solutions. Embed this activity into teaching programmes and staff workloads to ensure that it is recognised and valued. Provide senior management team support.

## Participate in the *THE* Impact Rankings to promote your institution's sustainability strategy and measure and report your progress

More broadly, regularly monitor and report your progress on both reducing emissions and offsetting choices.

# Use the data from the *THE* Impact Rankings to identify institutions that could be potential partners or could provide guidance on your road towards becoming net zero

Consider whether it is worth establishing a new network with several of these institutions focused on net zero.

### Engage with sustainability experts in other sectors outside higher education

This could involve discussing the best ways to measure or reduce certain types of emissions.



THE has rich datasets on university sustainability from the Impact Rankings.

Contact data@timeshighereducation.com if you would like to enquire about accessing these data.

### **CONSULTANCY**

THE Consultancy provides strategic, data-driven guidance to universities, governments and organisations working within the higher education sector globally. Building on our vast sector expertise and long history, we support our partners to build effective and sustainable strategies aligned to their unique missions.

Contact consultancy@timeshighereducation.com to discuss how we can support you.