

A Science Based Target Tool for the Cambridge Colleges

Briefing note and FAQs for users

Version 2: August 2020

Introduction

Background and context

In 2019, the University of Cambridge adopted a Science Based Target (SBT) for carbon reduction, which commits the University to reducing its scope 1 and 2 (energy-related) emissions to absolute zero by 2048. The University also expressed an aspiration to achieve zero carbon at least 10 years ahead of the target date.

The adopted SBT applies only to the academic portion of the University – that is, the departments and buildings that provide and support teaching and research. In adopting its SBT, the University also committed to developing SBTs for the wider University, including Cambridge University Press, Cambridge Assessment and the North West Cambridge Development.

In addition, the University's Environmental Sustainability Strategy Committee (ESSC) expressed a desire to provide the Cambridge Colleges with the resources they needed to develop their own SBTs, if they wished to do so. This idea has been discussed at the Bursars' Environment Sub-Committee (BESC) and has been enthusiastically welcomed by the College representatives on the Committee. There is also a shared aspiration between the University and the BESC to move towards more aligned and coordinated carbon emissions reporting.

With this in mind, the University's Environment and Energy Section (E&E) have commissioned Advancing Sustainability Ltd to develop a tool that enables each College to generate its own SBT. The tool also includes a template for producing an annual carbon emissions report, in line with best practice¹, and will – once fully populated with the required data and information – automatically generate a bespoke annual report for 2019/20. The tool has been developed with input and support from six of the Colleges – Christ's, Corpus Christi, Clare Hall, Darwin, King's and St John's. We are very grateful for their support.

What is a Science Based Target?

The starting point for SBTs is the 2015 Paris Agreement. The Agreement aims to limit the increase in global average temperature during this century to well below 2 degrees Celsius (measured against pre-industrial levels), ideally limiting the temperature increase even further to 1.5 degrees Celsius. 1.5 degrees is the temperature increase limit that would prevent the worst effects of climate change².

Achieving this aim requires global emissions of carbon dioxide to be dramatically reduced over the course of this century, and to reach zero by the turn of the next century, at the latest. Please see Figure 1 for illustration.

SBTs are developed using models that calculate the level of carbon reduction *a particular organisation* needs to achieve, in order to do its 'fair share' in reducing global emissions in line with

¹ <https://ghgprotocol.org/>

² <https://www.ipcc.ch/sr15/>

the aims of the Paris Agreement. To put it another way, a SBT shows what contribution a particular organisation needs to make towards the levels of carbon reduction needed globally to ensure the temperature increase is limited to less than 2 degrees.

The Warming Planet

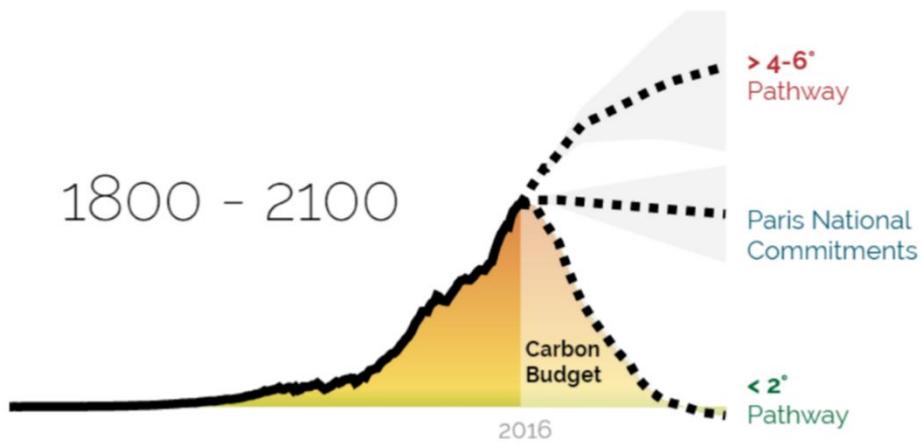


Figure 1: Schematic of global emissions of carbon dioxide to date, and forecast levels under business as usual (top dashed line), the levels of emissions reduction pledged by signatories of the Paris Agreement (middle dashed line) and the reduction pathway required to limit global temperature increases to less than 2 degrees Celsius (bottom dashed line). By the Science Based Target Initiative.

What's the advantage of adopting a SBT?

The main benefit of a SBT is that it is not an arbitrary target; it is developed using models that are informed by the latest climate science.

In adopting a SBT, you can be confident that your organisation is doing as much as it can and needs to do to reduce its direct climate impacts – your ‘fair share’.

Adopting a SBT also brings reputational benefits, as it puts you at the leading edge of actions that organisations around the globe are taking to reduce their carbon emissions.

How is a SBT developed?

Companies that wish to develop a SBT can turn to the [Science Based Target Initiative](#) (SBTi) for guidance and support (unfortunately, the SBTi does not currently offer support to the education sector). A company seeking to develop its own SBT would need to undertake the following steps:

Step 1: Set their boundary: With reference to best practice defined by the Greenhouse Gas Protocol, they would need to decide which approach to adopt for setting the boundary around their company's carbon emissions (more is said about this under Question 1, below).

Step 2: Establish their carbon footprint: Once their emissions boundary has been set, they then need to collate energy and fuel consumption data and, if they have it, fugitive emissions data, for buildings within scope of their boundary; and use this to calculate their scope 1 and 2 carbon emissions.

Step 3: Decide which decarbonisation pathway is appropriate: There are several different assumptions that can be made when developing a SBT – for example, around how quickly a company's electricity supply will decarbonise, which is in part dependent on which country/countries the company is based in. The company needs to identify the assumptions that are most applicable to them, which in turn helps to build up a picture of the decarbonisation pathway that is most appropriate to them.

Step 4: Set a baseline year for your target: Every SBT needs a baseline year, against which progress is measured.

Step 5: Run the numbers: Take all of the above into account to generate their SBT.

Step 6: Submit the SBT for validation: The SBTi will undertake validation of a company's SBTs, which allows the company to publish their target with confidence. Unfortunately, this service is not currently available for the education sector.

What you need to do – Frequently Asked Questions

The section above shows 'in a nutshell' how a company would typically go about developing a SBT. You will be pleased to learn that much of this work has already be done for you by Advancing Sustainability. The SBT tool that has been developed addresses steps 3 and 5. The tool has been developed in line with the latest guidance from the SBTi³, and the decarbonisation pathway applied by the tool is aligned with the UK's net zero objectives.

E&E will be providing each College with data to help you complete step 2 (although you may also need to collate some additional data yourself); and some advice and specific recommendations regarding steps 1 and 4 are provided below. The recommendations have been developed in discussion with members of the BESC.

If needed, we will periodically add additional FAQs to this briefing note, and recirculate it to the Colleges making use of the SBT tool.

Q1: How do I set a boundary for my College's emissions? (Step 1)

The [Greenhouse Gas Protocol](#) is the internationally accepted standard for carbon emissions accounting and reporting. The Protocol provides clear guidelines around carbon emissions accounting, to ensure that:

- a. An organisation fully accounts for the carbon emissions that it is responsible for.
- b. There is no double counting of emissions between different organisations.

³ <https://sciencebasedtargets.org/wp-content/uploads/2019/03/SBTi-criteria.pdf>

The Protocol identifies three different ways for setting the boundary around ‘your organisation’s’ emissions – the Operational Control approach; the Financial Control approach; and the Equity Share approach.

In developing its SBT, the University has adopted the Operational Control approach. *We strongly advise each College to adopt the Operational Control approach, as we believe this approach is the most appropriate for educational institutions.*

This will also allow for consistency between the University’s reported emissions and your College’s reported emissions – and, if all Colleges adopt the Operational Control approach, across all of the Colleges.

What this means in practice is that, when adding your College’s energy consumption data into the SBT tool (Step 2), you should enter data for those buildings that your College has the authority to use and maintain according to its own operating policies and procedures. This may include College-owned buildings that are occupied by third parties, depending on the lease arrangements/agreement between your College and the third party (which will in turn determine which organisation has operational control).

Q2: How do we get hold of the energy and fuel data the tool needs? (Step 2)

E&E has produced a bespoke energy consumption report for each College. This report has been emailed to your Domestic Bursar.

The report:

- Provides a summary of your College’s electricity and gas consumption in KWh for 2018/19 & 2019/20.
We recommend that the reporting year is defined as the period from April to March. This is the default accounting period specified in the SBT tool, and your annual energy consumption figures have been calculated on this basis.
- Uses a ‘best of data’ process to use all available sources (invoices, direct readings and automated meter readings) of information to produce the most accurate consumption report possible for the reporting year.
- Also draws on meter reading data for college supplies that are not part of the college consortium energy contract.

When you receive your energy data report, one of the first things you will need to do is check whether it covers all of the buildings over which your College has operational control. If it does, then you can be confident that your SBT and annual emissions report is capturing all of your College’s energy-related emissions.

If the report does not cover all of the buildings over which your College has operational control, then you have two choices:

- a. You can try to obtain energy consumption data for the buildings not covered by the report – for example, by speaking to your utilities supplier(s) or, if relevant, tenants.
- b. If you are not able to obtain energy data for these buildings, you must add some commentary to your carbon emissions report to highlight these exclusions from your reported figures (an example is provided in the report template). Similarly, if you develop

your SBT without these buildings being taken account of, you should be clear when you announce or publish your SBT that it excludes some of your Colleges operations or premises.

Please note, if your College uses purchased heat and/or oil, you will need to obtain consumption figures for these yourself, as they also need to be entered into the SBT tool.

The other data that you will need to provide yourself, is on the amount of fuel used in any vehicles owned by your College. Ideally, this data would be entered as litres of fuel (petrol/ diesel/ red diesel) consumed per year. However, if you don't hold this data, you can estimate the mileage travelled in your College vehicles each year.

Q3: How do I populate the SBT tool with the energy consumption data E&E have provided? (Step 2)

Your energy consumption report is divided into 3 main sections:

- The Summary Report (Blue tab).
- An electricity and gas report (Yellow tabs).
- Electricity and gas raw data (Pink tabs).

The Summary Report is what you should use for populating the SBT tool. It provides a breakdown of your College's energy consumption (electricity and gas) by site, for 2018/19 and 2019/20.

To transfer the information in the Summary Tab to the SBT tool, you should do the following:

1. Add each of the sites listed in the Summary Report to the 'Floor Areas' tab of the SBT tool.
The SBT tool will automatically copy these sites into the 'Electricity' and 'Gas' tabs.
2. Copy the electricity consumption figures for each site (as applicable) into the 'Electricity' tab of the SBT tool.
3. Copy the gas consumption figures for each site (as applicable) into the 'Gas' tab.
4. *We recommend that you adopt 2018/19 as the baseline year for your target;* therefore, you only need to add data for 2018/19 and 2019/20 into the SBT tool. However, you can add data prior to that (as far back as 2015/16), if you have it, in order to establish historical trends in your emissions.

The yellow tabs and pink tabs of your energy consumption report are not needed for populating the SBT tool, but have been provided so that you can interrogate your consumption data in more detail, if you choose to do so. Please refer to the Annex for more information on this.

Q4: What are fugitive emissions and how do I get data on those? (Step 2)

Fugitive emissions are greenhouse gases that are emitted into the atmosphere via leaks from air conditioning and cooling units. Under the Greenhouse Gas Protocol, they should be reported as part of your scope 1 emissions.

If your College has air conditioning units in any of its buildings, it should have a service contract in place. Your service provider should be able to provide you with records on how much refrigerant they have replaced in your College units each year, and which refrigerants they have used to 'top up'.

If your College has air conditioning units but you are unable to source emissions data for these, then you should add some commentary to your carbon emissions report to highlight these exclusions from your reported figures.

Q5: How do I set a baseline year for my Colleges' SBT? (Step 4)

Members of E&E and the BESC have considered this issue in discussion with Advancing Sustainability and with reference to guidance from the SBTi.

We recommend that the Colleges adopt April 2018 – March 2019 as the baseline year for their SBTs.

This means that you will need to fully populate the tool, with all of the data it requires, for 2018/19.

You will also need to add energy and fuel data and, if you have it, data on your College's fugitive emissions, for 2019/20, if you want the tool to generate your carbon emissions report for 2019/20.

Please note, if you wish to populate the tool with data prior to 2018/19, the tool enables you to do this (going as far back as 2015/16), however you will need to provide this data yourself and make sure it has been collated according to the Operational Control approach.

Q6: What information do I need to provide around future changes to my College's estate?

The SBT tool requires you to list your College's main buildings, with a breakdown of area (Gross Internal Area, GIA) by function (residential or non-residential). This should reflect your College's estate in 2019/20. Some further guidance is provided within the tool itself.

In addition, the tool also requires you to indicate any planned changes (increases or decreases) to your College's estate, between 2019/20 and 2030. These changes should be entered as changes to GIA in residential and non-residential areas, and entered according to the expected year of completion. These changes should reflect currently planned changes or, if future plans are not known at this stage, be based on assumptions around how the estate may change over the next 10 years or so. For future reference, your assumptions should be noted in the tool.

Entering this data will not determine your SBT, but it will enable you to use the tool to explore how your emissions may change in future, and if your College implemented a number of different mitigation measures (see Question 8).

Q7: Can anyone show us how to use the tool?

Yes! Advancing Sustainability Ltd will be providing some virtual training sessions in July – September. These sessions will be presented via Microsoft Teams.

Your College only needs to attend one of the sessions. However, you can enrol more than one College representative on the training and they may attend different sessions if necessary.

Depending on demand, we may need to cap the number of attendees from each College.

Q8: Who should attend the training, and how do they enrol?

The training is intended for the person/ people that will be gathering the data needed for the tool, and populating the tool with this data on behalf of your College.

You should be able to access the training enrolment page directly via this link:

<https://www.training.cam.ac.uk/envenergy/event/3533260>

If not, please follow these instructions to enrol:

1. Visit the University's training website at <https://www.training.cam.ac.uk/>
2. At the very top of the page, where it says 'Select training provider', please scroll down the list and select Environment and Energy.
3. Once you are on the Environment and Energy Training page, in the search box type 'SBT' and press Search.
4. Click on the link 'Science-based Target (SBT) training for Cambridge Colleges'.
5. Book the date of your choice – *please note you only need to attend one of the sessions.*

We strongly recommend that, before attending the training, those wishing to attend read this briefing note in full, and familiarises themselves with the SBT tool that has been provided.

Q9: What should we do with the outputs from the tool?

The tool will provide you with 2 main outputs:

- a. A SBT for your College.
- b. A 2019/20 annual emissions report for your College.

Your College will need to decide whether it wishes to formally adopt the SBT, and whether it wishes to announce that it has done so. This will need to be via your own College's specific approval processes. Members of the BESC may wish to discuss whether the Colleges that choose to adopt their own SBTs announce this jointly.

We encourage your College to publish the annual emissions report produced by the tool, irrespective of whether or not you have adopted the SBT. We recommend you cut and paste the report into a standalone Excel spreadsheet, and save this as a pdf document.

Please note that, whilst the tool will auto generate the report based on the energy data you have provided, some parts of the report do require manual input or manipulation. These are flagged on the report template.

The tool also includes a facility that allows you to see, at a high level, what impact different mitigation measures might have on your future emissions and progress against your target. For example, what impact would sourcing 50% of our electricity from on-site renewables have against our target? This facility is on the Target tab of the tool. It is intended to help you identify the areas of investment that would deliver the most progress against your target. It is not a decision making tool in itself, it will be for each College to decide which carbon reduction measures are most appropriate for them.

Q10: Who should I contact if I have any need for help with the tool in future?

If needed, Advancing Sustainability Ltd will be able to provide a set amount of support to each College, to help them make use of the tool. The purpose of this support is to answer questions that you/ your College may need to ask as you gather the data required by the tool, and go on to populate the tool. Further details will be provided at the training sessions.

Advancing Sustainability Ltd are not in a position to undertake the data collation exercise or populate the tool on behalf of the Colleges.

If your College needs any ongoing support or help with changing the tool in future, this would require additional support, which would need to be arranged directly by your College.

Q11: Help! I still have questions. What should I do?

Firstly, please check that your question is not answered by this briefing note, or the guidance provided in the SBT tool.

There will be an opportunity for you to ask further questions at the training session. If necessary, we will update and recirculate this briefing note in light of questions that could not be addressed at the training.

A note on scope 3 emissions

Scope 1 and 2 emissions are those that arise (directly or indirectly) from an organisation's energy and fuel use. Scope 3 emissions are emissions that arise either upstream or downstream from the organisation, as a result of their activities and operations. They include, for example, emissions from waste, staff commuting, the supply chain and business travel.

The SBT tool developed by Advancing Sustainability Ltd only addresses the Colleges' scope 1 and 2 emissions.

The SBTi guidance requires that, if a company's scope 3 emissions are 40% or more of their total scope 1, 2, and 3 emissions, then they should adopt a scope 3 target.

For most organisations, it is probable that their scope 3 emissions will be significantly greater than their scope 1 and 2 emissions combined. In practice, however, very few organisations have access to complete and robust data on their scope 3 emissions and, without this, are unable to establish scope 3 targets.

When the University adopted its scope 1 and 2 SBT, it also committed to developing targets for its scope 3 emissions. Work is now underway to improve the University's scope 3 data, so that targets can be developed for the most significant scope 3 emission sources. The learning from this work will be shared with the Colleges, with a view to helping the Colleges develop their own scope 3 targets in future, should they choose to do so.

Annex A: Using the electricity and gas reports and raw data to interrogate your energy consumption

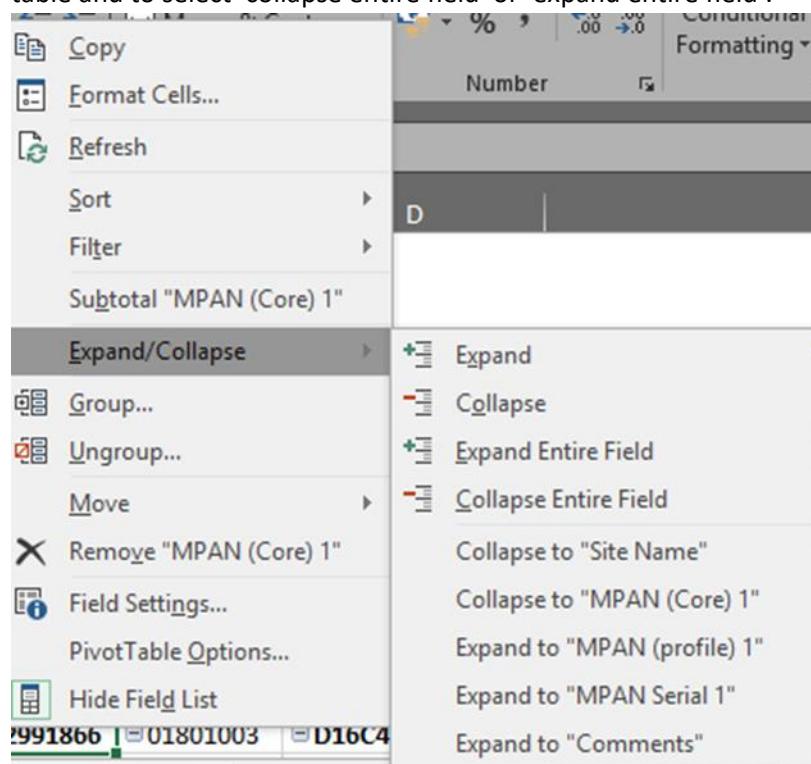
The energy consumption report that has been provided to your College includes a detailed electricity and gas report, and the raw data that has been used to compile your consumption figures. These have been provided so that you can interrogate your consumption in more detail, should you choose to do so.

Electricity and gas reports: These reports have been built into a pivot table, which can be filtered by both supplier and Consortium Contract(s).

College Group	(All)
Supplier	(All)
Consortium Contract	(All)

Please use the filters as you see fit should you want a breakdown by Supplier/Consortium Contract. Some of the College sites may have 'blanks' or 'TBC' where we would need more information from yourselves in order to have as much up to date information as possible. Information that may be required could include confirmation of missing meter information, confirmation of sites on consortium contract and confirmation of supplier.

Your college will have all the sites and MPAN(s)/MPR(s) listed in the table so that you can see the breakdown of consumption by site and by meter. All of the fields should already be expanded, but if you would like to collapse/expand the table you can do so by right clicking anywhere in the pivot table and to select 'collapse entire field' or 'expand entire field'.



The report will display the Total Annual Figures (kWh) by year for each site, followed by a breakdown on a month by month basis. If there is a comment that your College needs to be aware of, it will be listed in the table for the user to see. A breakdown of comments can also be seen in the Raw Data tab.

Some of the data may have been manipulated, if that has been the case please refer to the Raw Data

tab where there will be a colour code for what each comment represents where applicable:

	Data has been manipulated.
	Small error.

Raw Data: The raw data includes all of the information that is in SystemsLink. The data has been generated by invoice, direct and profile data where applicable. In this tab, the data is highlighted by colour:



There will also be other colour codes within the raw data, where comments or information may be required in SystemsLink or comments that will need to be actioned.

800.85	442.74	428.46	442.74	442.74	428.46	1104.61
1060.57	619.34	599.36	619.34	619.34	599.36	986.24
544.95	563.12	551.14	627.10	627.10	606.88	803.86
302.02	364.04	362.50	374.58	277.67	277.93	404.54
424.12	438.25	397.37	408.64	382.35	334.80	345.96
348.49	375.36	361.44	319.23	319.23	308.94	376.23
76.95	67.60	64.95	53.10	53.10	51.38	87.10
98.18	94.12	89.81	54.74	54.74	52.98	115.17
105.05	93.37	91.29	122.02	122.02	118.09	138.77

The colour codes will not appear in the actual report tabs by utility, so if you need a breakdown on where the data is from, the raw data tabs will be the ideal tab so you can get a better indication on the figures.