Snapshot Webinar November 2019: How Councils and Communities can use Snapshot to Drive Climate Action

Detailed QA Report

Prepared for
Australian Councils and Communities

Version	Author	Date	Description of changes
V0a	Ronald Lee	26/11/2019	First draft
V0b	Hannah Snape	26/11/2019	Review and update
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About Ironbark Sustainability
Ironbark Sustainability is a specialist consultancy that works with government and business around Australia by assisting them to reduce energy and water usage through sustainable asset and data management and on-the-ground implementation. Ironbark's mission is to achieve real action on sustainability for councils and their communities.

About Beyond Zero Emissions
Beyond Zero Emissions is an internationally recognised climate change think tank. BZE produce independent and innovative research solutions demonstrating that a zero emissions Australia is achievable and affordable now. BZE reports provide detailed pathways for a ten-year transition in each major sector of Australia's economy.

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1. Introduction

On Thursday 14th November 2019, Ironbark Sustainability and Beyond Zero Emissions hosted a webinar for around 80 stakeholders from state and local governments, community organisations and academia across Australia. The subject of this webinar was to hear how councils and communities around Australia can use Snapshot to drive action. With special presentations from BZE, Cities Power Partnership and Ironbark, the webinar explained how Snapshot works; how to get the best out of it for your council or community; how to turn community emissions profiles into action; look to the future of Snapshot and emissions profiles; and ended with a Q&A session.

Both before and during the webinar there were a number of questions that weren't able to be addressed on the day, so this document has been developed in follow up.

If you have any questions or want to discuss further, please contact Snapshot via hello@snapshotclimate.com.au.

2. Questions and Answers

The following questions were brought up before, during and after the webinar held in November 2019.

Note that these questions have been copied and pasted straight from the questionnaire, so any errors are not ours! (any errors above or in the *answers* below we will happily claim).

Ideas relating local greenhouse gas issues to the big picture of climate change and what needs to be done at a government level.

The profiles displayed through Snapshot will help people to understand the impact of various stakeholders in managing greenhouse gas emissions. For example, Snapshot highlights the role of the industrial sector at a local level in overall emissions. It can also highlight the role of the state and federal government, who can support reductions through transport systems and decisions that impact the energy grid.

Snapshot demonstrates the scale of the action required, especially when viewed with an understanding of a municipal science-derived target, carbon budget or goal to get to "zero emissions" as soon as possible. Snapshot clearly demonstrates that the scale of the climate challenge is something that cannot be tackled at the level of the individual or household, rather it must be viewed as a collaborative effort across all levels of government, industry, energy providers and the community.

How are the profiles developed?

The method and data sources behind the numbers in this tool is available to download. This methodology will be enhanced as improved data sources become available.

Will the data created be an ongoing resource to enable monitoring & evaluation of wider community efforts to curb emissions?

As a general rule, municipal-wide emissions profiles (whether through Snapshot or other programs) are not appropriate tools to monitor the impact of a project. The impact of community or council-led projects will fall within the margin of error of an emissions profile. The data and methodology underpinning Snapshot are as robust as you can find in Australia, but there is not enough granularity and too much susceptibility to change from external factors to allow for monitoring of community projects. For example, even with extremely detailed activity data on energy use, if a state government undertakes an action tomorrow that changes the state emissions factor (for example, closing a coal-fired power station) this would have a significant impact on emissions without any changes having been undertaken in the community. Therefore, the Snapshot profile is not suitable as a monitoring tool. We recommend targeted monitoring of the actions itself once implementation of actions has commenced.

How did you source the information data, and have you sense checked it?

Yes! Snapshot profiles have been developed in accordance with the GHG Protocol Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC). The GPC Protocol is designed to promote best practice greenhouse gas accounting and reporting.

The back-end data (spreadsheets) was originally developed by Ironbark through work with over 100 councils and other stakeholders (such as state governments, ICLEI, C40) since 2015. This data was sourced from publicly available government data, distributor data and other reliable sources that have been verified. This has all been shared with BZE and other third parties involved in reviewing Snapshot such as Sustainability Victoria, Renew and a few other consultants.

The method and data sources behind the numbers in this tool is available to download. This methodology will be enhanced as improved data sources become available.

Topic of interest: gaining access to public land to plant trees and build eco systems

Snapshot is a great tool for communicating the scale of the impact of a municipality and the need to take action to reduce or offset emissions. It can facilitate collaborative planning between councils, private stakeholders, government-business enterprises and other levels of government. Land use change to urban or rural forestry is one action that can reduce emissions and lower local temperatures and could be a key part of that planning.

Please focus on how tool can be used by Council for action in the community, rather than the intricacies of the tool itself

Good point. However, as this webinar was attended by a broad range of attendees, we have to provide some underlying technical information to explain how the tool works and the underlying standards, data, methodologies, etc. For this tool to be utilized, it is necessary to establish its credibility.

There are several great hubs and portals where community groups and councils can share ideas and learnings around emissions reduction. Have a look at the information on the Snapshot Resources page to get you started.

I'm interested to learn how the data is collected, particularly when the postcode extends outside the municipal boundary.

Good question/comment! To identify the specific area of a given region (e.g. ABS Statistical Area Level 2 (SA2), Bioregion (IBRA7), etc.) that applies to a municipality, an intersection is plotted between the region boundaries and the LGA municipal boundaries to identify the concordances by postcode. With this concordance information, emissions are estimated. Don't forget the complete methodology and data sources behind the numbers in this tool is available to download.

We're keen! Need data! We're 3hrs from the shire's main population. Our snapshot is VERY different. When can we get community level snapshot?

Love your enthusiasm! The municipal level is the smallest scale for which Snapshot profiles are available. While town level profiles may be useful in some cases, your municipality is a very valuable scale to work at for a number of reasons.

Local governance structures function at the municipal level; namely your local council. They provide numerous support and administrative services - from planning permission to funding opportunities – which are invaluable to communities seeking to reduce emissions. By working at the municipal level, it ensures emissions reductions are at an appropriate scale and that there is a good platform for advocacy and stakeholder engagement.

If you feel that your council is not supporting effective change in your community, then using the municipal emissions profile is a great way to start a conversation, highlight your concerns and drive action. Contact BZE for advice, they can help you on this journey.

Composition of the individual "greenhouse gas footprint" of the average Australian (e.g. electricity, food, transport car/air)

We'll take this as a comment. Sort of. Ironbark's Climate Team have been immersed in this topic and others for several years now, and for the purposes of Snapshot, we are moving away the focus from the individual for the following reasons:

- Climate change isn't going to recognise how many people are on the planet, it recognises the collective emissions
- Focussing on individuals can make it sound like each person is responsible for a certain proportion. We support a move away from this way of thinking to recognising the role of governments, industry, systems, etc.
- It naturally leads to comparisons between incomparable situations (our per capita emissions vs. your per capita emissions sounds more comparable than our rural council vs. your metro council)

It's an interesting area with a lot of competing views and we're open to other ideas, but this is where our advice and thinking is at the moment on tackling the challenge of our times.

How the figures came about - what's in scope and out of scope. So, a rough idea of how robust the data is would be good.

As mentioned previously, the back-end data (spreadsheets) was originally developed entirely by Ironbark through our work with over 100 councils and other stakeholders. This data was sourced from publicly available government data, distributor data and other reliable sources that have been verified. This has all been shared with BZE and other third parties involved in reviewing Snapshot such as Sustainability Victoria, Renew and a few other consultants.

The Snapshot methodology document outlines the methods employed for calculating emissions for municipalities as used by Snapshot. There are multiple objectives for these methods:

- They are compliant with the GPC Protocol for Cities, meaning that the outputs are compatible with international conventions such as the Global Covenant of Mayors for Climate and Energy
- They are consistent for municipalities across Australia, meaning that different towns and cities can compare, aggregate, and track emissions with other localities
- They 'sum to one', meaning that the individual municipal totals can be added together to equal the emissions for the whole country (only including the categories that are within the scope of these profiles)
- The methods only use data that is available for common usage, ensuring that others can duplicate the outcome of the approach, improving transparency and verification options

The emissions included in the Snapshot profile are as follows:

Stationary Energy: Stationary energy sources are commonly one of the largest contributors to a municipality's GHG emissions. These emissions come from the combustion of fuel (e.g. natural gas) in residential, commercial and institutional buildings and facilities, and manufacturing industries and construction, as well as power plants to generate grid-supplied energy. This sector also includes fugitive emissions, which typically occur during extraction, transformation, and transportation of primary fossil fuels, and emissions resulting from the generation of electricity which is lost during transmission and distribution.

Transportation: Transportation covers all journeys by road, rail, water and air, including inter-city and international travel. GHG emissions are produced directly by the combustion of fuel or indirectly by the use of grid-supplied electricity. Collecting accurate data for transportation activities, calculating emissions and allocating these emissions to cities can be a particularly challenging process. To accommodate

variations in data availability, existing transportation models, and profile purposes, the GPC provides flexibility in calculating emissions from transportation.

Emissions for on-road transportation have been calculated using fuel sales data and scaled to the municipal level using vehicle registration data. Fuel sales data often includes fuel used for applications other than on-road transportation, such as small watercraft or domestic lawnmowers. As such, "on-road transportation" may include other activities. Emissions from electricity used in transport such as rail travel is included under Stationary Energy.

Waste (solid waste and waste water): Waste disposal and treatment produces GHG emissions through aerobic or anaerobic decomposition, or incineration. GHG emissions from solid waste are calculated by disposal route, namely landfill, biological treatment and incineration, and open burning. If methane is recovered from solid waste or waste water treatment facilities as an energy source, it is reported under Stationary Energy. Similarly, emissions from incineration with energy recovery are reported under Stationary Energy.

Agriculture, Forestry and Other Land Use (AFOLU): Emissions from the AFOLU sector are produced through a variety of pathways, including livestock (enteric fermentation and manure management), land use and land use change (e.g., forested land being cleared for cropland or settlements), and aggregate sources and non-CO_2 emission sources on land (e.g., fertiliser application and rice cultivation). Given the highly variable nature of land-use and agricultural activity across geographies, GHG emissions from AFOLU are amongst the most complex categories for GHG accounting.

Snapshot does not include emissions from the following sources:

- Industrial processes, such as smelting, chemical manufacturing and others
- Product use, such as the use of solvents, refrigerants and others
- Shipping
- International aviation
- Scope 3 transport (transboundary transportation)
- Certain subsources related to agriculture and land use, including rice cultivation, bushfires and others

Thermal energy, especially seasonal thermal energy storage

We aren't quite sure what the question is here! Please read through these FAQs, explore our further reading and get in touch via hello@snapshotclimate.com.au if you have further questions.

These big emitters often dump very large amounts of thermal energy into the environment. This can be EXCHANGED locally with District Energy solutions. Is that in the tool available in the Snapshot tool?

Whilst the energy use and greenhouse gas emissions of industrial emitters is represented in the Snapshot tool, it does not display other forms of pollution or emissions of any kind, such as heat.

Cruise ship pollution needs to be on every agenda that discusses emissions

Snapshot profiles are municipal profiles and only include emissions generated within the municipality. Therefore, cruise ship emissions are not included.

Further, there is not an agreed way of dealing with international shipping and international aviation within the GPC protocol. An international agreement on how to apportion emissions that are released in international waters and air must be agreed upon before we can understand what Australia's responsibility is in this area. As such, a community emissions profile can exclude these sources and remain compliant with the GPC.

Some domestic shipping can be included in a community emissions profile, however there is not a modelled methodology for including this so it must be done on a case-by-case basis. If you are interested in understanding domestic shipping emissions for your municipality you can contact Snapshot at hello@snapshotclimate.com.au however we'll have to respectfully disagree that cruise ship pollution needs to be on every agenda!

How to liaise with council

Start by talking to BZE for advice. Then we would recommend getting in contact with your local council with an expression of interest to collaborate on community actions to reduce emissions. You can contact the civic center and request for the relevant contact.

There are several great hubs and portals where community groups and councils can share ideas and learnings around emissions reduction. Have a look at the information on our Resources page to get you started.

How is the data collated and what are the data sources?

The method and data sources behind the numbers in this tool is available to download via the Snapshot methodology document.

The Global Protocol for Community-Scale Greenhouse Gas Inventories (GPC) outlines accounting and reporting principles in an ordered hierarchy. Snapshot has been designed to follow these guiding principles when selecting, and modelling data for profiles. These principles, in the recommended order, are:

1. Relevance
2. Completeness
3. Consistency
4. Transparency
5. Accuracy

Adhering to GPC reporting principles enables all emissions released in Australia to be included somewhere and ensures that they aren't included anywhere twice. The benefit of this is that every emissions source is someone's responsibility, so nothing is left unaccounted for nor unmanaged. Further, it enables

collation of profiles across boundaries and lends itself to supporting collaborative efforts of governments and other stakeholders.

In application, this hierarchy means that a higher-level, modelled data set is preferred over a municipal-level data set that is incomplete. For example, data provided directly from Distribution Network Service Providers (DNSPs) such as electricity use according to postcode, has traditionally been understood by many council stakeholders as an accurate source of data. However, if some data is missing (for example, missing a postcode or excluding select industrial customers) then it is an incomplete data set and cannot be considered compliant with GPC. Furthermore, the lack of transparency around DSNP data frequently leads to large energy users or entire suburb's energy usage being removed from data sources without any notification. In this case, state-wide electricity usage data that is scaled down to the municipal level by population or economic activity is considered more complete. In line with the GPC guidelines, this modelled data is used instead of the local DNSP data.

This Snapshot team will continue to seek out GPC compliant data that may be incorporated into future iterations.

Regional GHG Profiles - Case studies of large industry supporting community emission reduction targets (science-based).

There are several great hubs and portals where community groups and councils can share ideas and learnings around emissions reduction. Have a look at the information on our Resources page to get you started.

For a more specific example: Ironbark worked with a council on the NSW coast that has a large industrial base to develop their science-derived target in 2019, but have a challenging job ahead of them as they have one of the country's largest steel manufacturers within their boundary. This organisation, Bluescope Steel, has committed to reducing emissions in-line with the Paris Agreement (see here). This places Council and their major industry in alignment when discussing emissions reduction and considering progress towards targets.

How often will the data be updated?

Snapshot will be updated on an annual basis to incorporate any new methodologies or changes to the GPC guidelines and user feedback collected over the year. This will ensure that the tool continues to meet the needs of councils and community groups.

Hi everyone, how is Snapshot being communicated to Local Government Associations (e.g. LGAQ in Qld)?

In Queensland, we have made available Snapshot to Cairns Council who Ironbark have been liaising with. We have also made available the beta version of Snapshot to LGAQ for comment and testing before the official launch. We plan to engage with the relevant stakeholders in Queensland in the coming months to promote wider adoption of Snapshot and increase the availability of Queensland Local Government profiles. Queensland councils and community groups can help us here – we'd love the support and

resources and a bit of advocacy wouldn't go astray! Contact hello@snapshotclimate.com.au if you want to help us help you ☺.

What defines whether a snapshot community report is available for my community or not?

At the moment, Snapshot profiles are available for municipalities in Victoria and NSW, as well as a select few other Australian municipalities. We are working on getting all Australian municipalities uploaded as soon as possible.

Municipalities are diverse and there will be some which have specific characteristics that set them apart from the majority of municipalities. These characteristics include very high levels of industrial activity or are for very small rural councils.

For these municipalities, a standard modelled profile may not be representative of emissions. In such cases, municipalities can download from Snapshot a state average emissions profile for free, but no detailed report will be available. We will be working in the background to ensure profiles are available from Snapshot for all municipalities as soon as possible. In the meantime, if you would like to discuss options for developing a community emissions profile, please get in touch.

And… councils and community groups in other states can help us too. We'd love the support and resources to build on Snapshot so to get your state's key stakeholders excited contact hello@snapshotclimate.com.au and let's chat.

So at the moment a Comparison Report would be from the pool of existing councils in Snapshot? How many is that again? And would there be enough councils to provide an adequate comparison for a peri-urban council?

The pool of municipalities used in the comparison report covers most municipalities in Australia.

Your municipality's "cohort" consists of other municipalities with a similar social, demographic and economic context. It does not account for 'actions' that are being or have been undertaken, however it is a good starting point to see what other council areas may be good to connect with for shared learning. While there are other factors that will shape the challenges and opportunities facing a municipality in terms of its emissions profile and emissions reduction, the characteristics used provide a basis for high level comparison. To determine a municipality's cohort each council is mapped against every other council on the following areas:

- total emissions
- population
- Gross Regional Product (GRP)
- Socio Economic Indexes for Areas (SEIFA) rating

These comparisons are looking for a percentage variation; this is set at 20% absolute (i.e. positive and negative). Other municipalities that fall within this range are considered "cohorts". Note that this approach does not ensure that the cohort developed for a council will match a cohort for another (i.e., If municipality A has identified municipality B as within its cohort, it doesn't necessarily mean that

municipality B has identified municipality A within its cohort). This is because it's a percentage based approach.)

ours says that emissions have reduced considerably since 2005. How would we find out why that is?

Many councils will have historical profiles which have been developed using various different methodologies and data sets. There may be differences in the methodologies or data sets applied, but it should be noted that many profiles (non-Snapshot profiles) will not have been developed in line with the GPC standards. As per the questions and answers above, Snapshot has gone through a robust and lengthy verification and peer review process to ensure it meets these standards. It's taken years!

If you have an independently developed profile that you feel presents a discrepancy then please send it to us and we will assess inclusion within the Snapshot database on an individual basis.

There are several municipalities that have completed detailed emissions profiles that have been verified. In their case, the results have been hard coded into the tool, and these results are provided in place of the Snapshot profile.

It's also important to consider that there are a number of changes that have occurred at a state or national level since 2005 that may have impacted emissions, such as changes to the energy grid or fuel efficiency in cars.

What does the 'industry' refer to as this is supposedly our biggest energy user, but there is not any significant industrial area in our LGA

Emissions from industrial energy consumption from is calculated by state-level electricity and gas data being scaled to the municipal-level using numbers of specific job types by location, gross regional product and number of businesses. The industrial sector also includes manufacturing businesses.

Emissions from industrial energy use is often surprising. One reason for this is because industrial energy use is much more intensive than residential or commercial energy use. That is, there is a high amount of energy used for a low number of stakeholders. This is the same reason that it is more difficult to model correctly than any other sector. It also means that it presents a great opportunity for stakeholder engagement and emissions reductions.

Snapshot reports 7,313,100tCO2~e for 2017. The City of Melbourne has reported its community-wide emissions at 4,678,194tCO2~e in 2017. Why the difference?

The profiles developed in early-mid 2018 were developed using version 5 of Ironbark's Activity Data Tool. Ironbark undertakes ongoing research, development, and stakeholder liaison to ensure our

methodologies and tools are in-line with best practice at the time of calculation. This means that when new data sets, sources, methodologies and information becomes available, we will adapt our tools to incorporate these and emissions profiles will change. We remain dynamic, as science always should.

The profiles that are shown on Snapshot are based on version 7 of Ironbark's Activity Data Tool. In the lead-up to the release of Snapshot, there was increased scrutiny on our methods, increased research and the additional funding into and attention on our work meant that new data sets became available, meaning that this version has had a number of updates from the prior versions. This is why numbers will look different for any council who has a profile created in version 4, 5 or 6 of our Tool. Our ongoing development means that as we continue to learn and move onto future versions, profiles will continue to change. This isn't a bad thing - it means we are understanding the problem better and remain at the forefront of emissions data and management.

Many councils will have historical profiles that have been developed using various different methodologies and data sets. There may be differences in the methodologies applied, and it should be noted that many profiles will not have been developed in line with the GPC standards.

If you have an independently developed profile that you feel presents a discrepancy then please send it to us and we will assess inclusion within the Snapshot database on an individual basis.

There are several municipalities that have completed detailed emissions profiles which have been verified. In their case, the results have been hard coded into the tool, and these results are provided in place of the Snapshot profile.

Our council receives waste from surrounding councils. Are the waste emissions based on a per population factor or actual burial data?

Within the GPC waste emissions are apportioned according to where the waste is generated, regardless of where the waste is disposed of or treated. This is different to how most councils account for waste in their corporate greenhouse gas inventories.

The waste emission calculation method takes state level waste tonnage data. This is then broken down into solid waste generation by sector (residential, commercial/industrial, and construction/demolition). State level data is then scaled using relevant factors to represent waste generation for the municipality.

- Municipal: Scaled by ratio of population Municipality/State
- Commercial and industrial (C&I): Scaled by ratio of commercial jobs Municipality/State
- Construction and demolition (C&D): Scaled by ratio of building approvals Municipality/State

More information on this methodology can be found at this link.

Our community inventory was published in the local leader and referenced Monash University, have you been working with them on this project?

Yes, Ironbark developed the community emissions graphs that have been published in Leader newspapers around Melbourne as part of the "Changing Climates: Community newspapers as climate educators" project. This project is part of an ongoing collaboration between Ironbark and Monash University, and there will be more Ironbark data being published in the Leader next year, as well as in Queensland's Quest newspapers. Note that we are continually updating and improving our models, and the best current data on community emissions can be obtained from Snapshot.

Our Community Emissions says 0 tonnes for Domestic Air Travel. And doesn't mention International travel at all.

There is not an agreed way of dealing with international shipping and international aviation within the GPC. An international agreement on how to apportion emissions that are released in international waters and air must be agreed upon before we can understand what Australia's responsibility is in this area. As such, a community emissions profile can exclude these sources and remain compliant with the GPC.

Snapshot includes domestic air travel within the municipality where data is available (currently the data is available for 44 airports in Australia). For smaller domestic airports that are not included in this data set, the emissions associated with air travel are usually very small as compared to other sectors of the community emissions profile (for example, for one council that we recently looked into this for the impact of their local airport was 0.5%).

It's important to note that domestic air travel is attributed to the municipality in which the aircraft take off and land (i.e. where the airport is). If you take a look at the Snapshot for Hume City Council you will note that emissions for air travel are very high, as Melbourne Tullamarine airport is within the municipal boundary.

re inventory for Communities. The Hepburn Shire has developed a carbon inventory through the Znet project. Is it an inventory or a profile?

By definition, a profile is an outline and an inventory is an accurate account of the exact number of items within a boundary. We have chosen to refer to community inventories as "profiles" for a few reasons:

- "Top-down" data is (e.g. state-level data scaled down to the municipal level) is more commonly used as activity data is not easily sourced. This is especially true for sources such as on-road transport, where sources that meet the GPC accounting principles (relevance, completeness, consistency, transparency, accuracy) are simply not available.
- Sources are commonly excluded from community emissions profiles, such as agriculture, forestry, land use changes, industrial processes and product use.
- Where sources are included, they may be partial. For example, agricultural emissions may include many sub-sources such as enteric fermentation, manure management, use of fertilizers, soil management or rice cultivation. There are not data sets and methods available for all sub-sources in Australia.
- Our understanding of emissions sources is constantly changing and improving through improved data sets, data sources, methodologies and new information.

For these reasons, it is impossible to prepare a community emissions *inventory* at this point in time – for any council or community, including Hepburn.

Multinationals need to report PRIMARY ENERGY usage, and give insights on ENERGY EFFICIENCY. Is that included in the Snapshot?

Snapshot includes emissions associated with commercial and industrial energy use. These emissions are modelled based on state-level data and relevant scaling factors, and may vary from actual emissions. However, they give an indication of the scale of industrial emissions within a municipality. It does not identify individual emitters.

Energy efficiency will be taken into account through reduced energy consumption. However, if an individual industrial emitter has undertaken energy efficiency measures that are considerably outside of the average for their industry (for example, if their site is carbon neutral but they still employ a large number of people) then this will be an outlier and will not be accurately represented by Snapshot.

Australia's largest emitters are required to report their emissions under the National Greenhouse and Energy Reporting Scheme (NGERS). You can find information about NGERS here.

If you want to use this data to communicate directly with residents on how they can change their behaviour to reduce their emissions, Snapshot does not seem very helpful. Is that right? It does not include food choices (e.g. red meat), air travel.

Snapshot can provide a basis to engage with the community. For instance, using the residential emissions from Snapshot can show the relative scale of emissions from the residential sector. This can communicate to residents the emissions reductions as a result of collective behaviour change or other community-wide initiatives/programs. Perhaps the most effective way that a Snapshot profile can be used with the residential sector is to show the impact that advocacy to the State Government, Federal Government or local industries may have.

An important learning from Snapshot is also that the residential sector may not be the best focus area for a Council or an organisation if they are hoping to create large-scale emissions reductions. For most municipalities, there will be sectors such as the industrial sector or the agricultural sector that will have very large portions of emissions but significantly fewer stakeholders. This means that the opportunity per stakeholder is far greater in those sectors than in residential, where there is a very high number of stakeholders and only a small opportunity for reduction from each.

Whilst individual actions demonstrate commitment to a positive cause, climate change will not be resolved by individuals or residents changing their behaviour – we need systematic changes from government and industry.

When looking at emissions from waste, is this the cases from waste, or does it include the transport from the collection of waste

Waste covers emissions associated with the breakdown of waste materials. The transport fuel consumed from the collection waste is included in the transport area.