SOUTHERN COUNCILS CLIMATE COLLABORATION

# COMMUNITY CARBON EMISSIONS AND ENERGY FOOTPRINT

## BRIGHTON LOCAL GOVERNMENT AREA 2023

Brighton Council

Southern Tasmanian Councils Authority

Regional Climate Change Initiative

# ABOUT THE COMMUNITY CARBON EMISSIONS AND ENERGY FOOTPRINT

The Community Carbon Emissions and Energy Footprints (community footprint) have been developed as part of the Southern Councils Climate Collaboration. The Collaboration is an initiative of the Southern Tasmanian Councils Authority's (STCA) climate program, the Regional Climate Change Initiative (RCCI). It is supporting the 12 southern councils to build capacity and capability to develop climate responses, to reduce carbon emissions and energy use, and respond to the challenges and opportunities of a changing climate.

The Collaboration uses a common and consistent approach to work with councils to find local solutions. The approaches and resources used in the Collaboration have been developed specifically to meet the role and functions of councils and enable actions to be scaled between councils or regionally resulting in greater efficiencies and avoid duplication.

To support councils in understanding carbon footprints and energy use within their municipal areas the Collaboration developed a peer reviewed open-source model that uses reliable historic and current energy trends, which uses publicly available Australian Energy Statistics and National Greenhouse Accounts Factors data and is supported by other key government datasets. It is freely available to the Australian local governments, Australia-wide, to encourage common and pragmatic reporting and scalability of actions across the sector.

The Community Footprint uses national carbon accounting methods set out by the Australian Government in its National Greenhouse and Energy Reporting (Measurement) Determination 2008 legislation.

This project complements the Council Carbon and Energy Footprints that support Councils in understanding their own corporate emissions and where there are opportunities exist to reduce these.

## METHOD

This report has been created by local government, using national and State Government statistics.

Southern Tasmanian and Launceston City councils have worked with TasNetworks to publish data on electricity used by households and businesses and show localised electricity generation, which is not widely available in other jurisdictions.


### This Carbon Emissions and Energy Footprint has been prepared by:

**LEAD ANALYST and PROJECT COORDINATOR:** Alison Johnson, Climate Change Officer, Brighton Council.



### Acknowledgments

The STCA acknowledges organisations that assisted with the finalisation of the community greenhouse gas and energy profile:

- City of Hobart developed and piloted the initial methodology for community emissions
- TasNetworks provided residential and commercial/industrial sector electricity data
- Brighton Council, provided in-kind expertise and technical support
- TasWater, providing water and sewerage emissions data
- STCA RCCI provided waste data for councils across the southern region
- Katrina Graham, Ex-Project Coordinator, Regional Climate Change Initiative, STCA – for the guidance and assistance delivering community emissions profiles across the southern region for many years (2016–2023)

# CONTENTS


**KEY MESSAGES** 4

**BRIGHTON LGA COMMUNITY CARBON EMISSIONS AND ENERGY FOOTPRINT** 6

WHAT IS AN EQUITABLE WAY TO ALLOCATE EMISSIONS FROM INDUSTRY AND TRANSPORT? 7

WASTE AND SEWERAGE EMISSION SOURCES 7

KEY INDUSTRIAL TRENDS FOR TASMANIA, AUSTRALIAN ENERGY STATISTICS 8

TRANSPORT ENERGY USE AND EMISSIONS TRENDS 10

BRIGHTON LOCAL ENERGY USE TRENDS 11

**FREQUENTLY ASKED QUESTIONS** 15

METHOD CHANGES 17


## FIGURES


**FIGURE 1.** Community greenhouse gas emissions in tonnes of carbon dioxide equivalent ($tCO_2$-e) 6

**FIGURE 2.** Industrial emissions by energy sources in tonnes of carbon dioxide equivalent ($tCO_2e$-) 2020-21 8

**FIGURE 3.** Emissions by energy source in the residential sector in Gigajoules (GJ) 11

**FIGURE 4.** Electricity use across the residential and business sector in Kilowatt hour (kWh) 12

**FIGURE 5.** Renewable electricity generation across the residential and business sectors in Kilowatt hour (kWh) 13

# KEY MESSAGES

**The 2023 Community Carbon Emissions and Energy Footprints, produced for the 12 southern Tasmanian councils highlights more needs to be done to reduce emissions.**

Higher impact emission reduction efforts are required as more than 139,000 tonnes of carbon dioxide equivalent ($tCO_2$-e) are released into the atmosphere every year from activities in the Brighton Local Government Area (LGA). This is equivalent to 30,932 petrol/diesel vehicles driving around for one year.

**Greenhouse gas emissions, mainly come from burning fossil fuels (coal, petrol and diesel, gas), and must *urgently* be reduced if we are to avoid the worst impacts of climate change.**

Industrial and transport sector energy use are clearly the largest emitters (over half of community emissions) and a key focus for government, community, and private sector emission reductions. Combined the commercial and residential sectors contribute 15% of community emissions and the waste, sewerage and agricultural sectors contribute 10%. Emission reduction actions are needed across all sectors to meet Australia's goals of a 43% reduction from 2005 levels by 2030 and net zero emissions by 2050.

**Leading International Climate Change Bodies, scientists, and governments around the world have determined that greenhouse emissions must *urgently* be halved if we are to limit more than 1.5C of warming.**

The Intergovernmental Panel on Climate Change (IPCC) is the leading international body for assessing climate change science. In the most recent, the Sixth Assessment Report March 2023, there are warnings that urgent action is required to cut emissions by nearly half by 2030 to limit warming to 1.5C for a safe and liveable planet.

**Local governments throughout Australia are acting to reduce greenhouse gas emissions and prepare for the changing climate.**

The 12 southern Tasmanian councils, collaborating through a regional climate alliance, developed a community (municipal) emissions methodology for waste and energy based on current reporting methods and protocols. Community greenhouse and energy footprints were completed for each of the councils in 2019 and updated in March 2023.

**This report identifies emissions sources that require substitution with low emission fuels, products, and services.**

Recording and reporting community emissions, technology adoption and energy use can reveal successes over time, highlight the role of emerging industries, and increase accountability towards a low to zero emission future.

**Energy statistics show emerging technologies that are making a difference.**

Rooftop solar installations have more than doubled across the LGA in the last nine years and provide 5.2 million units generated locally back to the grid.[1] Electric vehicle adoption is low with 7 registered vehicles in 2020, growing from 4 in 2018.

**We all have a role to play to reduce emissions. The world is moving towards zero emissions, achieving this is a huge challenge that requires all members of the community to do their part.** Local governments have a key role increasing public understanding by being a corporate leader in the commercial sector, and through communicating successful local initiatives to our households and communities.

1 Standard electricity meters only provide exported electricity to the grid, this is the majority of the dataset available. This means onsite rooftop solar technologies contribution to the energy mix is underrepresented as there is electricity (can be the same amount as exported) used onsite generated by rooftop solar. Smart meters are becoming more prevalent and measure onsite use as well as exports.

| Community energy use and waste greenhouse gas emissions footprints | Community footprint 2023 tonnes of carbon dioxide equivalent ($tCO_2$-e) |
|---|---|
| Brighton community | 451,003 |
| Regional community | 2,795,680 |
| Tasmanian community | 4,010,000 |

Sources (left to right, top to bottom): Regional Community Energy Use and Greenhouse Gas Footprint, STCA, 2023; Australian Energy Statistics, Australian Government, 2023; Australian Greenhouse Gas Accounts Factors (Tasmania) 2022. Tasmanian Greenhouse Gas Emissions Report 2023, Renewable Energy Climate Future Industries Tasmania 2023.

### Small actions together can have a large impact.

The southern Tasmanian local government areas are responsible for over half of Tasmania's energy and waste emissions.

### We can make a difference – our combined efforts have flow on impacts around the world.

Switching away from fossil fuels and other emissions sources such as coal (from manufacturing) continues to contribute the most, as well as gas, diesel, petrol, and wood, will work to reduce the impact of climate change. While Tasmania is a smaller contributor to Australia's emissions, than other states and territories, due to a high percentage of renewables in the electricity mix, greenhouse gas emissions are currently contributing to global warming across all sectors.

**Southern Tasmanian councils are leading and encouraging permanent community emission and energy reductions.**

There are key areas for climate action moving forward:

1. Warm healthy homes
2. Low carbon transport
3. Energy efficient businesses
4. Minimise methane emissions from waste and sewerage

### Individual households can reduce their emissions through the following measures:

- Switching from wood fires or gas heaters to heat pumps
- Electrifying all appliances i.e. replacing a gas water heater/cooker with electric equivalent
- Installing rooftop solar
- Reducing vehicle trips with cycling, walking or car sharing
- Replacing a petrol or diesel vehicles with lower emission vehicles (such as electric options)
- Home composting or using a Food Organics and Garden Organics (FOGO) service

There are always options to reduce emissions. These range from low-cost measures such as switching to energy efficient light bulbs, through to behaviour change actions such as influencing friends and family to switch to lower emission products, services and technologies.

On behalf of researchers, public officials, decision makers, community sustainability champions and students who can all access this information to help inform the debate on best practice abatement (emissions reductions), Tasman Council makes special acknowledgement of:

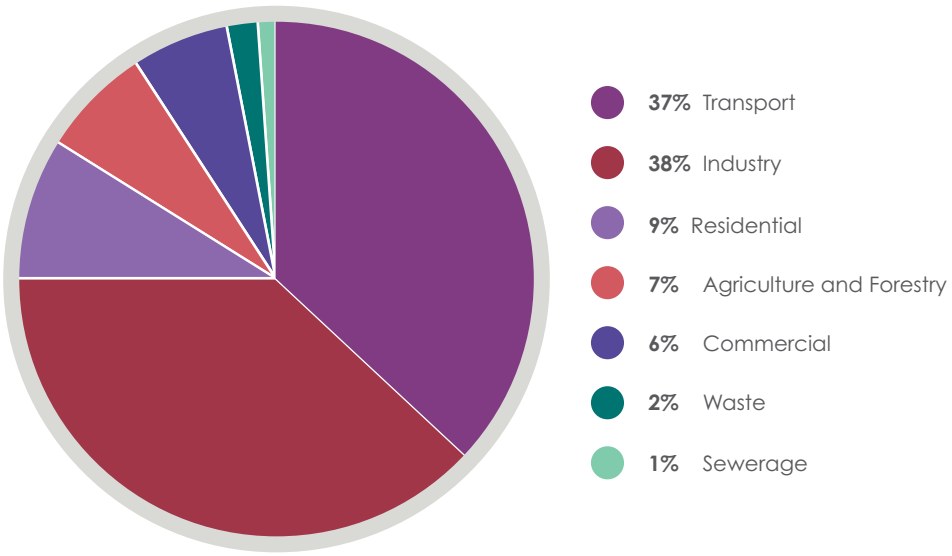
- TasNetworks for providing metered electricity data for the residential, commercial (and industrial sectors as part of the commercial data);
- RCCI members for ongoing review, support and data testing; and
- The Local Government Association of Tasmania for advocacy.

# BRIGHTON LGA COMMUNITY CARBON EMISSIONS AND ENERGY FOOTPRINT

**Brighton Community Carbon Emissions and Energy Footprint results show that 139,000 tonnes of carbon dioxide emissions ($tCO^2$-e) were released in 2021-22.**

The municipality's biggest source of energy and waste emissions continues to be transport (37%), followed by the industrial (38%) residential (9%), and commercial (6%) sectors and then agriculture and forestry (7%), waste (2%) and sewerage (1%) sectors.

**Figure 1. Community greenhouse gas emissions in tonnes of carbon dioxide equivalent ($tCO_2$-e)**




Source: Southern Tasmanian Councils Authority, 2023.
Data sources: Australian Energy Statistics, 2023, TasNetworks, 2023.

**Overall energy and waste community greenhouse gas emissions have decreased by 19%.**

Energy emissions have decreased by 14%, the reductions were most significant from industry (19,707 $tCO_2$-e), followed by the commercial (3,383 $tCO_2$-e) and residential (2,701 $tCO_2$-e) sector. Waste emissions have decreased by 8,228 $tCO_2$-e.

## What is an equitable way to allocate emissions from industry and transport?

**Transport emissions** are created from passenger vehicles (travelling to work and play), travelling by road, as well as rail, freight, by boat and by aeroplane travel.

The challenge is location specific models will allocate airports to the LGA they are located, when emissions here are the responsibility of everyone who flies.

In the future there may be highly accurate mobile phone data on journey's travelled and locations, this is still in its infancy for smaller cities such as Brighton.

Road transport is the largest creator of transport emissions, particularly from petrol and diesel. In this community profile transport emissions are allocated based on per capita, rather than location. It is likely that the larger cities have more of an emissions footprint, due to the volume of people.

**Industrial emissions** are also allocated per capita across municipalities, even though a few key locations are responsible for a large portion of industry sector emissions.

Industrial and transport emissions might not reflect local trends as data sources are based on Statewide trends. Until all local industrial companies volunteer their emissions data to a central reporting agency or the Australian Government regulatory reporting bodies negotiate commercial in confidence concerns for public data release these datasets will be largely inaccessible.

### Waste and sewerage emission sources

**Emissions from waste are sourced from kerbside collection figures and Waste Transfer Station tonnages from council records.** The Australian Government provides a waste emissions methodology that outlines the emissions from organic matter rotting in landfill that creates emissions. Community (including corporate) waste emissions are:

| Financial Year | Total waste emissions ($tCO_2$-e) |
|---|---|
| 2019/20 | 11,253 |
| 2020/21 | 11,253 |
| 2021/22 | 3,025 |

Source: Brighton Council and Southern Tasmanian Councils Authority 2023

Waste emissions increase due to a range of factors, however, population growth from 17,674 in 2019-20 to 18,995 in 2021-22 is likely to have an impact.

Sewerage emissions estimated are calculated on a per capita basis. TasWater provides an estimate for water, sewer, and other emissions per capita for Tasmania, then this factor is multiplied by the population.

The biggest contribution to emissions from waste are from methane generated from organic wastes going to landfill.

However, as the process does not capture 100% of methane emissions the most effective way to reduce overall emissions is to reduce the amount of organic waste going to landfill.

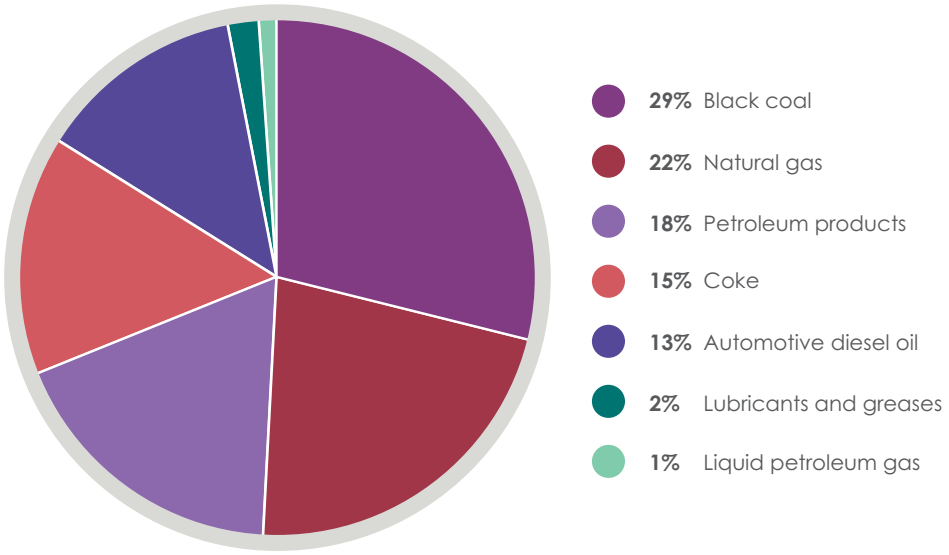
**Emission reductions occurred in the industrial, commercial, and residential sectors, in part due to Covid lockdowns.**

Covid restrictions reduced travel, reduced the viability of some commercial businesses, and shifted electricity use from the commercial sector to residential as more people worked from home. National and state policies, market trends and commercial supply lines have been having a large impact on industry trends, while local electricity use trends reflect population growth, local climate conditions and economic growth. The emissions coming from Tasmanian electricity use also decreased over the last decade, even though this rose slightly in the last year.

### Key industrial trends for Tasmania, Australian Energy Statistics

**Industrial emissions mainly come from burning black coal (29%), coke (15%), petroleum products (18%) and diesel oil (13%).**

**Figure 2. Industrial emissions by energy sources in tonnes of carbon dioxide equivalent ($tCO_2$-e)**




**Industrial emissions** are also allocated per capita across municipalities, even though a few key locations are responsible for a large portion of industry sector emissions.

Industrial and transport emissions might not reflect local trends as data sources are based on Statewide trends. Until all local industrial companies volunteer their emissions data to a central reporting agency, or the Australian Government regulatory reporting bodies negotiate commercial in confidence concerns for public data release, these datasets will be largely inaccessible.

**Table 1: Community greenhouse gas emissions in tonnes of carbon dioxide equivalent ($tCO_2$-e)**

| GHG emissions | 2010-11 ($tCO_2$-e) | 2020-21 ($tCO_2$-e) | Growth % over the decade | Total difference between 2010-11 and 2020-21 ($tCO_2$-e) |
|---|---|---|---|---|
| Agriculture and Forestry | 5,825 | 10,429 | 57 | 4,604 |
| Commercial | 11,216 | 7,833 | -36 | -3,383 |
| Industry | 73,112 | 53,405 | -31 | -19,707 |
| Residential | 15,108 | 12,407 | -20 | -2,701 |
| Transport | 52,331 | 52,267 | 0 | -64 |
| Waste | 11,253 | 3,025 | -115 | -8,228 |
| Sewerage | 1,025 | 1,492 | 37 | 467 |
| **Grand Total** | **169,870** | **140,859** | **-19** | **-29,011** |
| **Subtotal energy** | **157,592** | **136,341** | **-14** | **-21,250** |

Source: Southern Tasmanian Councils Authority, 2023. Data sources: Australian Energy Statistics, 2023, TasNetworks, 2023. Australian Greenhouse Gas Accounts Factors (Tasmania) 2022.The Midpoint method for determining growth rates is used.

**Brighton community energy use has slightly increased by 5% from 2010-11 to 2020-21, down to 2,604,284GJ.**

Industrial energy use decreased by 36% and transport decreased 0% and slightly reduced (-1,033GJ), residential energy use increased by 65%, as well as agricultural (57% growth) and commercial (16% growth).

**Table 2: Community energy use in Gigajoules (GJ)**

| Energy use (GJ) | 2010-11 | 2020-21 | Growth % over the decade | Total difference between 2010-11 and 2020-21 |
|---|---|---|---|---|
| Agriculture and Forestry | 83,186 | 149,035 | 57 | 65,849 |
| Commercial | 150,890 | 176,386 | 16 | 25,496 |
| Industry | 1,028,810 | 718,099 | -36 | -310,711 |
| Residential | 362,647 | 710,894 | 65 | 348,248 |
| Transport | 850,903 | 849,870 | 0 | -1,033 |
| **Grand Total** | **2,476,436** | **2,604,284** | **5** | **127,848** |

NB: change in residential energy use is in part due to increasing the accuracy of postcode energy use divisions between shared postcodes.
Source: Southern Tasmanian Councils Authority, 2023. Data sources: Australian Energy Statistics, 2023, TasNetworks, 2023. The Midpoint method for determining growth rates is used.

## Transport energy use and emissions trends

**Emissions from transport have changed over time.** Before the year 2020-11 transport emissions consistently increased over time. Since 2020-11 emissions fell to an all-time low in 2017-18. Emissions rose since then and decreased during the covid period of 2019-20, then increased again in 2020-21, yet overall led to a decrease compared to a decade ago.

**Table 3: Transport sector greenhouse gas emissions in tonnes of greenhouse gas emissions equivalent $tCO_2$-e**

| Brighton I Transport GHG emissions $tCO_2$-e | | | |
|---|---|---|---|
| **Transport energy sources** | **2010-11** | **2020-21** | **Difference between 2010-11 and 2020-21** |
| Auto gasoline – unleaded | 29,044 | 19,748 | -9,296 |
| Aviation gasoline | 75 | 20 | -55 |
| Aviation turbine fuel | 2,230 | 1,215 | -1,015 |
| Fuel oil | 225 | 382 | 157 |
| Natural gas | 0 | 0 | 0 |
| Petroleum products | 0 | 0 | 0 |
| Kerosene and heating oil | 145 | 39 | -106 |
| Lubricants and greases | 4 | 0 | -4 |
| Liquid Petroleum Gas | 604 | 0 | -604 |
| Automotive Diesel Oil | 20,004 | 30,745 | 10,741 |
| Liquid/Gas Biofuels | 0 | 117 | 117 |
| **Total GHG emissions** | **52,331** | **52,267** | **-64** |

Source: STCA, RCCI, 2023. Data sources: Australian Energy Statistics, 2023.

**The clear switch from petrol to a higher emission fuel, diesel, led to an increase in emissions.** The table above shows that there is a technology/user preference trend towards diesel vehicles, driving up diesel fuel use, while petrol use has decreased.

| Emissions footprint from each Gigajoule generated | | |
|---|---|---|
| **Energy sources** | **Emissions per unit of energy used** | **Footprint from example 60,000 GJ per annum** |
| LPG | 61.5 $kgCO_2$-e /GJ | 3,690,000 $kgCO_2$-e |
| Auto gasoline-unleaded | 67.42 $kgCO_2$-e /GJ | 4,045,200 $kgCO_2$-e |
| Diesel | 70.5 $kgCO_2$-e/GJ | 4,230,000 $kgCO_2$-e |
| Electricity (Tasmania) | 39 $kgCO_2$-e /GJ | 2,340,000 $kgCO_2$-e |

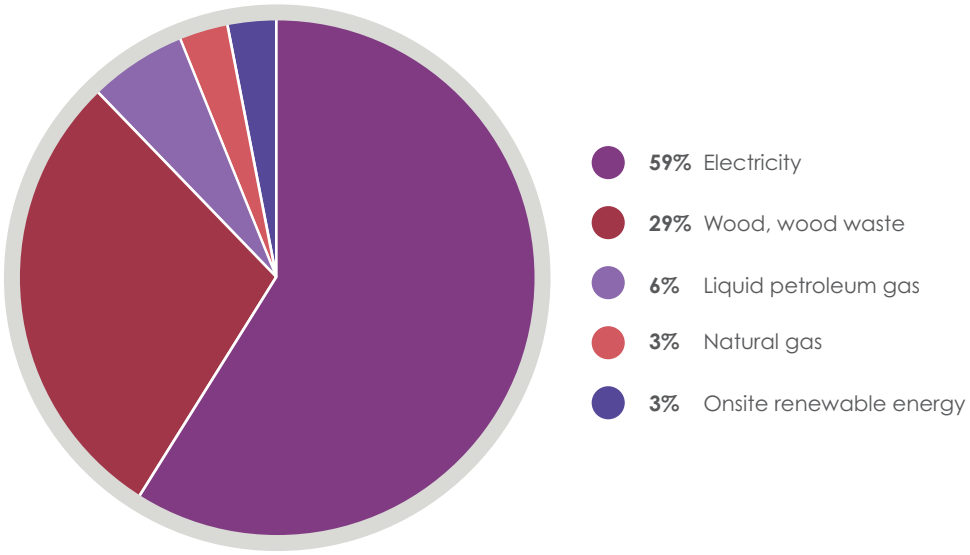
Diesel emissions are 184 tonnes of $CO_2$-e more than petrol in the example used in the table above. If vehicles use electricity the emissions footprint is even lower, saving an estimated 1,890 tonnes of $CO_2$-e per annum.

Source: National Greenhouse Accounts Factors, Australian Government 2022

**Electricity use is more than half of residential and commercial sector energy use, providing a good indication of energy trends in the sectors.**

Metered electricity use and generation data provides high accuracy localised energy use information, improving insights into local electricity use.

**Figure 3. Energy use emissions sources in the residential sector in Gigajoules (GJ)**




Source: Southern Tasmanian Councils Authority, 2023.

Data sources: Australian Energy Statistics, 2023, TasNetworks, 2023.

## Brighton local energy use trends

Emissions factors have decreased significantly from 2010-11, which has the greatest effect (mainly due to electricity use being the main residential sector energy use) on an overall emissions reduction.

Average residential electricity use has remained relatively similar over the last 5 years, while average commercial electricity use has increased in 2021-22, after a steady increase in the Covid lockdown period. New business meter connections increased by over 58 connections after Covid lockdowns, at the same time there was a steady overall increase in the total amount of business electricity use.

Contrary to the Tasmanian Energy Statistics, which suggest a halving of wood use over the last decade, Brighton, as a peri-urban area, is likely to have larger wood heating use due to wood technology preferences in more rural areas. LPG use has doubled over the same time across Tasmania in the residential sector. Hot water systems, cooking and barbeques are likely to be the main gas users in homes.

Brighton LGA has a more moderate local climate as it experiences a moderating effect from proximity to the ocean, though there is the localised Derwent River jerry, creating a cooler microclimate and there is farmland in Tea Tree further inland.

### Total electricity was higher in 2021-22 compared to 2018-19.

Households are using on average slightly higher amounts of electricity in 2021 compared to 2016 in Brighton and total residential electricity use is slightly higher, though in 2021-22 electricity use reduced from the year before. There was an increase of 1,977 household meter connections since 2016 and 58 commercial meter connections.

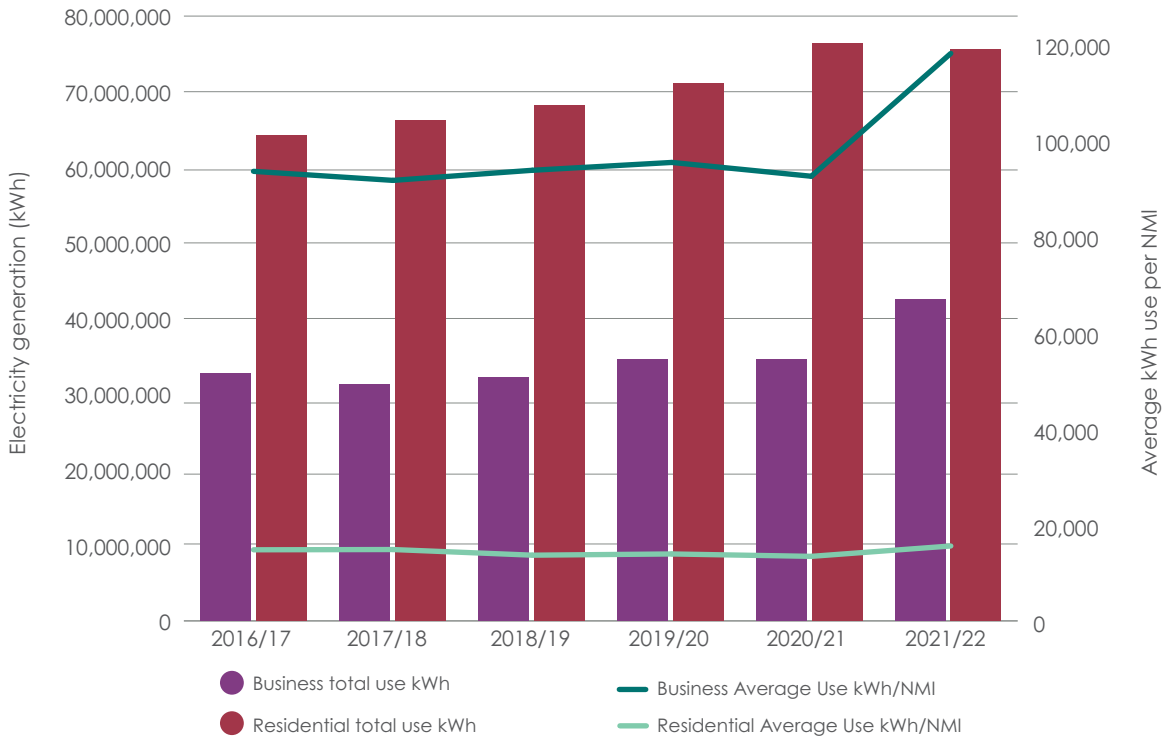
**Table 4: Residential and commercial electricity National Meter Identifiers (NMI) connections**

| Values | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | Growth |
|---|---|---|---|---|---|---|
| Business NMIs | 822 | 841 | 840 | 873 | 880 | 58 |
| Residential Use NMIs | 7,400 | 7,596 | 8,745 | 8,731 | 9,377 | 1,977 |

Data source: TasNetworks, 2023.

NB: Electricity meter connections are based on National Meter Identifier (NMI) data. Electricity use is represented as kilowatt hour (kWh). One kWh is equal to one unit on electricity bills. This includes both commercial and industrial facilities to protect the identification of facilities at a local level. Boundary adjustments of the data sets where shared postcodes exist across LGAs can alter the number of metered households and businesses.

**Figure 4. Electricity use across the residential and business sector in Kilowatt hour (kWh)**



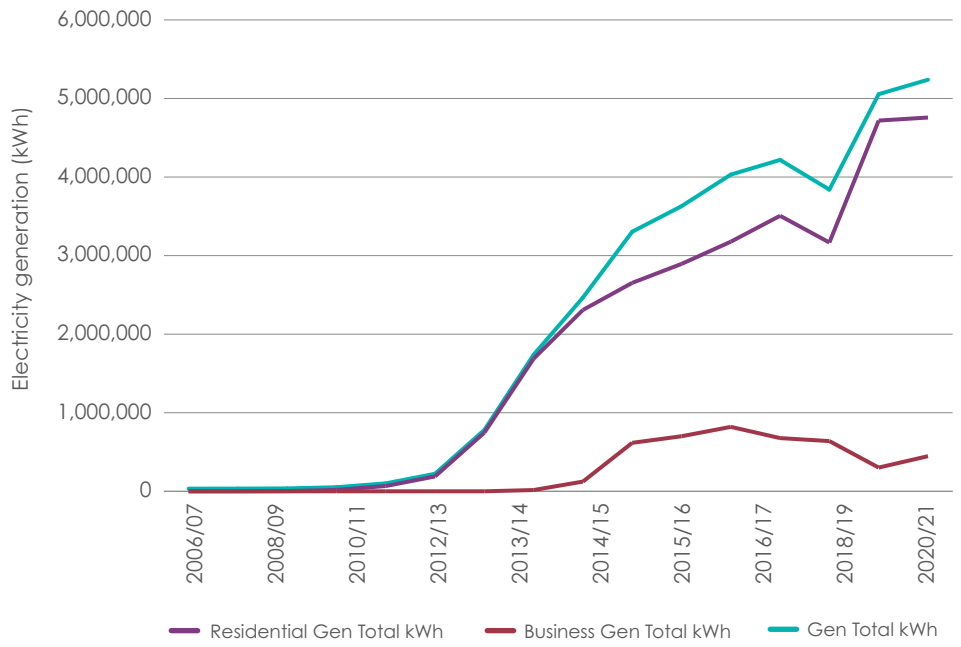

Data source: TasNetworks, 2023.

NB: Electricity meter connections are based on National Meter Identifier (NMI) data. Electricity use is represented as kilowatt hour (kWh). One kWh is equal to one unit on electricity bills. This includes both commercial and industrial facilities to protect the identification of facilities at a local level.

**Emerging electric vehicle technologies and the prevalence of rooftop solar continue to have a positive impact, reducing emissions and changing the way the electricity sector interacts with household and business consumers.**

In the Brighton LGA, there were 4 registered electric vehicles in 2018 increasing to 7 in 2020. Locally 1,924 homes and businesses are generating to supply renewable energy onsite in addition to exporting approximately 5.2 million units or kWh to the electricity grid. The bulk of renewable energy systems are likely to be the more dominant technology of rooftop solar photovoltaic systems.

**Figure 5. Renewable electricity generation across the residential and business sectors in Kilowatt hour (kWh)**




Data source: TasNetworks, 2023.

NB: Electricity meter connections are based on National Meter Identifier (NMI) data. Electricity use is represented as kilowatt hour (kWh). One kWh is equal to one unit on electricity bills. This includes both commercial and industrial facilities to protect the identification of facilities at a local level. A decrease in the number of renewable energy generation could mean expanding system sizes in the business sector as larger scale systems are delineated by TasNetworks data. In addition, the accuracy over shared boundaries between LGAs has increased in recent years.

## Southern Tasmanian councils are at the forefront of information provision to target permanent emission and energy reductions.


There are key areas for climate action where energy and greenhouse gas information can assist with community project/program development and implementation:

- Energy efficient businesses – the industrial and commercial sectors can often represent a larger portion of local community emissions. Developing local partnerships via a climate action agreement can help promote local champions, provide data reporting, accountability, and case studies to stimulate further action across the sector.
- Agricultural and forestry energy use is primarily focused on energy use associated with businesses. Energy audits, such as walk through audits, can help identify key areas for energy bill savings, develop case studies, and identify the best possible tariff arrangements, or result in early issue identification. Total commercial electricity use per meter or average electricity use can help measure the effectiveness of any interventions.
- Low carbon transport – Transport is a key area for emission reductions. There is a strong push to change to electric vehicles, yet currently these are a very small portion of the transport market. The Australian Bureau of Statistics provides the number of registered vehicles in local areas, gives an indication of the adoption of electric vehicles, the age of vehicles selected, the number of vehicles per household and user technology/energy preferences. Active transport planning can encourage consumers to choose public transport or walk/ride.
- Warm healthy homes – support measuring the effectiveness of programs that can improve the energy efficiency of the home and improve other health outcomes, such as reduced mould from warmer, drier homes. Mould and asthma can be the cause of underlying respiratory problems in the very young or elderly. Total household electricity use and average household electricity use provides an indication of the effectiveness of home energy use awareness raising programs and alongside the Home Energy Audit Toolkit (HEAT), available for free from councils, can provide the top 10 ways to reduce residential energy use.
- Minimising methane emissions from waste are directly linked to the amount of organic matter rotting in landfill. Greater organic waste recycling will decrease emissions and can be measured via the tonnes of waste to landfill. Food Organics and Garden Organics waste services reduce the total immediate emissions coming from landfill as do awareness raising programs that work with local businesses and schools.
- Sewerage emissions can be reduced through the types of sewerage collection i.e. from remote sewerage tanks to specifically designed treatment facilities that can capture the methane gas or alter the composition of the material to reduce emissions. TasWater is the primary agency responsible for water and sewerage decisions.

# FREQUENTLY ASKED QUESTIONS

### Why report community emissions?

Local governments voluntarily report to a range of bodies on community emissions and answer a range of queries from individual community members, scientists, researchers, policy makers and program developers. Having clear evidence regarding source emissions helps plan and guide decision-making for the transition to a low carbon economy.

### Why provide local energy and emission trends?

Greenhouse gas emissions accounting relies on energy use information, such as measured electricity generation. This project provides community access to local energy use by postcode. Each council is provided with this data from reliable government and government business enterprises so communities across the southern region of Tasmania can access energy and greenhouse gas information compiled at a local level. This includes detailed and accurate electricity data measured at the meter by TasNetworks which provides insights into electricity use and onsite renewable energy generation trends at a household and business level. Completing an initial energy and greenhouse gas snapshot provides a starting point whereby targets can be set, plans developed, and community projects can be evaluated over time. This reflects a well-established international framework for driving and documenting community climate change action to reduce greenhouse gas emissions.

### What do the changes identified mean for our communities?

The results show common ground and unique energy and greenhouse trends across communities. Common findings across municipalities show average residential electricity use does not jump considerably suggesting households have improved the energy efficiency of buildings or are responding to other factors that drive electricity use to find savings. Consumer behaviour in commercial premises and the home have been influenced by increasing awareness of energy costs and actions as well as factors such as:

- the weather
- population or business growth
- price signals
- the use of energy efficient appliances and materials
- government programs
- energy efficiency measures, such as insulation, buffer the impact of extreme temperature events reducing the demand for heating and cooling, decreasing power use
- renewable energy is expanding in every municipality, with solar photovoltaics (PV) the most popular technology
- electric vehicles are gaining in popularity with exponential growth in the southern region

**For unique trends in each municipality see the individual summary papers or regional summary document.**

### How else can this information be used?

Electricity use data is metered, so it can be used to measure the effectiveness of programs following the installation of energy saving measures such as insulation, efficient heating, and draught proofing. This evidence can then be used to guide program priorities or the development of improved programs. By outlining how energy and greenhouse estimates are made, and providing a clear methodology, the energy and greenhouse gas footprints can be repeated over time. This is a nationally and internationally accepted process. Developing a baseline energy and greenhouse summary is one of the first steps to taking effective mitigation action. To achieve net zero emissions there needs to be a transition from LPG and wood heating to electric options and from petrol/diesel vehicles to low emission or electric vehicles. This is likely to increase residential electricity use (but is an essential step).

### Why are local governments involved in providing climate change information?

Tasmanian councils are required by the Local Government Act to provide for the health, safety, and welfare of their communities. Although not specifically detailed, it is self-evident that climate change impacts on communities, not only in terms of increased temperatures and weather-related events, but also in terms of efforts to reduce energy use and greenhouse gas emissions as we transition to a low carbon future. Therefore councils, as well as considering climate matters in their programs and services, also have a key role in supporting communities to ensure relevant information is available to enable informed decision making. The provision of current and accurate energy and greenhouse data by councils helps the community to know where they can most effectively act, as society transitions to a low carbon future, such as whether to invest in an energy upgrade, or renewable energy technologies, or participate in activities within their communities to facilitate change.

**It is self-evident that climate change impacts on communities, not only in terms of increased temperatures and weather-related events, but also in terms of efforts to reduce energy use and greenhouse gas emissions as we transition to low carbon future.**

### How accurate are the results using this method?

This method is a robust and sound approach as it relies on government verified energy statistics (the Australian Energy Statistics for Tasmania, applied per capita) and substitutes Tasmanian estimates with more accurate local data, where available. The accuracy of the results has been significantly increased by using metered electricity data from TasNetworks. In the residential and commercial sectors this means around half of the energy information provided is very accurate, as electricity use is a large portion of the results. Standard government determined emissions factors (Australian National Greenhouse Accounts Factors), are used for all energy uses, such as electricity, diesel, and petrol, and have been used to calculate greenhouse gas emissions. As with any method for estimating energy use and greenhouse gas emissions there are areas that can be improved over time. These include estimates for wood use and non-energy related emissions (currently excluded) such as industrial chemical emissions, forestry, and agricultural emissions.

# METHOD CHANGES

Since the last reports were completed, councils reporting in 2023 have tried to improve reporting by addressing the following challenges:

**Most up-to-date information –** the Australian Energy Statistics for Tasmania, National Greenhouse Gas Accounts factors and Australian Bureau of Energy statistics (electric vehicles census data) have been updated yearly since 2019, so this round of reporting includes several more years of data.

**Increasing scope of emissions included –** estimates for waste and sewerage have been included for the first time. Both areas do not cover all emissions from each sector, rather a portion. For example, waste emissions are taken from the corporate inventories reported across the region and include only the measured waste to landfill, not commercial waste delivered outside of this. In the sewerage sector an estimate per capita has been used and does not account for the differing sewerage arrangements in regional areas, such as septic tanks, that have differing emissions profiles.

**Population growth now included –** the last iteration of reporting used standard population figures and now these population figures are updated yearly, better reflecting growth and per capita energy use.

**Tasmania's emissions factors fluctuate due to variations in our energy mix** (for example an increase in natural gas due to the Basslink failure saw an increase in the emissions factor for Tasmania) so emissions factors are revised yearly and have been revised historically sometimes changing the total emissions reported in hindsight.

**Factors such as seasonal change continue to be hard to separate out:** It is a significant challenge to identify a single factor influencing yearly electricity use results – this is an area for further research. Heating Degree Days indicate whether there have been seasonal changes to heating and cooling needs. Project data is received on an annual basis, which does not allow for more detailed analysis of the impact of seasonal changes from year to year.

**The range of data on transport is represented in the detailed data rather than summary reports.** The Australian Bureau of Statistics has a range of information on local transport trends such as the southern Tasmanian region age of vehicle stock, fuel choices, commuter choices such as public transport, walking or cycling support.

**State-wide energy statistics have been used for sectors such as industry, transport, and agriculture,** suggesting any change in the larger industries impacts results in all communities. This is due to the lack of complete, up to date, and accurate local data on energy use available. This requires further work and more detailed localised datasets.

Please email if there are datasets available that would be of use to local government community emission footprints going forward:

**greenhousefootprintsstcarcci@gmail.com**

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**BRIGHTON COMMUNITY ENERGY USE AND GREENHOUSE GAS FOOTPRINT SUMMARY**

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