Carbon Report

for the

LIVING GREEN FESTIVAL 2011

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Contents

1. Introduction

This carbon report has been prepared for the Living Green Festival, a festival event held in the ACT on Sunday 16 October 2011 from 10am to 4pm.

The report covers the day of the Festival.

This report has been developed with close reference to the standards for greenhouse gas (GHG) emissions reporting set out by the Greenhouse Gas Protocol (GHG Protocol) and ISO 14064-1:2006.

1.1 Background information

The Living Green Festival is an annual event organised by the Living Green Festival (ACT) Inc (the Festival organisers). This incorporated association is a local not-for-profit organisation committed to bringing green and sustainable events and choices to the Australian Capital Territory (ACT). The Living Green Festival was staged for the first time in 2011, and will be held again in 2012.

The purpose of the Living Green Festival is to bring innovative green and carbon-reducing practices to the Canberra community, with an emphasis on low-carbon food and products. The Festival aims to raise awareness of the environmental consequences of human choices and to show Canberrans how simple and enjoyable it is to live a sustainable and compassionate lifestyle. It does this by providing a forum in which leading environmental, conservation, and sustainability organisations and businesses come together and raise awareness about their aims and products amongst a diverse audience. The Festival also showcases ethical, fair trade, sustainable, and cruelty-free food, products and practices – hence its motto: 'a kinder shade of green'.

In 2011 approximately 2,000 people attended the inaugural Festival. The event was held in the refurbished Albert Hall, a well-known heritage building in central Canberra. The building is administered by the ACT Property Group in the Territory and Municipal Services (TAMS) Directorate. The same venue has been booked for the Festival in 2012 and 2013.

In 2011 the Living Green Festival (ACT) Inc. applied for and received a Climate Change Grant from the ACT Government. Under the terms and conditions of the grant, recipients were required to demonstrate how their project contributed to meeting the ACT's greenhouse gas emissions targets, and how the emissions reductions were quantified.

1.2 Purpose of the carbon inventory and report

In developing the carbon report and inventory, a Property Officer from the TAMS' Directorate supplied the required data about emissions sources at the venue itself.

In completing a carbon inventory, the Festival organisers' primary objectives were to:

1. Measure GHG emissions, as required under the Climate Change Grant awarded to the Living Green Festival; and

2. Create a point of 'product differentiation' in the 'green festival' space, with the Living Green Festival's particular focus on low carbon food.

In future years the Festival's carbon inventories and reports will aim to demonstrate how effective a low carbon, plant-based diet is in reducing greenhouse gas emissions. This focus is supported by recent studies that have shown that animal products such as meat and dairy require more resources and cause higher emissions than plant-based alternatives, and that global plant-based diets could do more than any other single action to reduce greenhouse gas emissions. It is estimated that a plant-based diet is seven times more effective at reducing emissions than eating a local meat-based diet.[1]

In completing the carbon inventory, the top four emissions sources for the Festival were identified as:

1. Purchased electricity (Scope 2; 56%);
2. Waste to landfill (Scope 3; 17.5%);
3. Office paper consumption (Scope 3; 15%).
4. Transmission and distribution losses associated with purchased electricity (Scope 3; 11%).

The purpose of this report is to document and explain the methodology used in preparing the carbon inventory and explain the main findings, including opportunities for expanding and improving reporting procedures in future years.

[1] See *Assessing the Environmental Impacts of Production and Consumption*, United Nations Environment Programme 2010, pp 79-80, and Wedderburn-Bisshop, G & Pavlidis, L. (2012) 'Shorter Lived Climate Forcers: Agriculture Sector and Land Clearing for Livestock,' *The International Journal of Climate Change: Impacts and Responses*, Volume 3, Issue 2, pp 129-144.

2. Boundaries

The following diagram depicts the boundaries of the event observed in undertaking the carbon inventory.

The boundary of the event has been defined in accordance with the National Carbon Offset Standard as it relates to events (section 4.4).

Major emissions sources included and excluded from the inventory are shown, along with their Scope. Scope is used to classify emissions sources into three main categories, defined by the GHG Protocol as follows:

Scope 1 – Direct GHG emissions: These are emissions from sources that are owned or controlled by the subject of the report, for example, emissions from combustion in owned or controlled vehicles.

Scope 2 – Electricity indirect GHG emissions: These are GHG emissions from the generation of purchased electricity, consumed by the subject of the report.

Scope 3 – Other indirect GHG emissions: These emissions are a consequence of the activities of the report subject, but occur from sources it does not own or control.

As this is the first carbon report for the Festival, the activities that have been included as part of the event boundary are limited to those that occurred on the day of the event, and that were under the control or influence of the Festival organisers.[2]

The Event Boundary

[2] This approach to defining the boundary of an event is recommended in section 4.4.1 of the National Carbon Offset Standard.

2.1 Included emissions sources

The following table details the reasons for including particular emissions sources within the Scope of the inventory.

Table 1 Included emissions sources

Emissions source	Scope	Reason for inclusion
Refrigerant emissions	Scope 1	As a Scope 1 emission, refrigerant leakage is classed as a mandatory reporting item under the GHG Protocol, the National Greenhouse and Energy Reporting Scheme and ISO 14064:1-2006. Therefore it is good practice to include this source within the inventory.
Purchased electricity	Scope 2	As a Scope 2 emission, purchased electricity is classed as a mandatory reporting item under the GHG Protocol, the National Greenhouse and Energy Reporting Scheme and ISO 14064:1-2006. Therefore it is good practice to include this source within the inventory.
Waste disposal to landfill	Scope 3	Most of the Festival's waste was not sent to landfill and is therefore not an emissions source. 251.3 kg of organic waste was collected at the event and taken to a worm farm. This compares to only 45 kg of recyclable waste, which was taken to a recycling facility, and to 30 kg of solid landfill waste. The landfill waste collected at the event was sorted on site. Approximately 75% of the landfill waste was inert and therefore not an emissions source.
Office paper: embodied emissions	Scope 3	Approximately two reams of office paper were used on the day, consisting of Festival programs and surveys.
Full fuel cycle emissions for purchased electricity	Scope 3	This emissions source has been included to highlight the upstream emissions associated with the purchase of electricity.

A prominent 3-bin station at the venue, with separate bins for landfill, recyclable, and compostable waste

2.2 Excluded emissions sources

The following table details why some emissions sources were excluded from this year's inventory. The Festival organisers intend to report on these emission sources in future years.

Table 2 Excluded emissions sources

Emissions source	Scope	Reason for exclusion
Event catering	Scope 3	It is the intention of the event organisers that food consumed at the event will be included in future carbon inventories. This is in line with the aims and objectives of the Festival itself, focusing on low carbon, plant-based food. Emission factors for these Scope 3 emissions will be sourced from EPA Victoria's Greenhouse Inventory Management Plan: 2010–11 Update.
Organisers' travel to/from the event	Scope 1/3	Data for this emission source was not available for this year's inventory. It is the intention of the event organisers that the source will be included in future years' inventories.
Coloured publications	Scope 3	Coloured publications such as event posters would account for a small but calculable proportion of the event's indirect emissions. Data for this emission source was not, however, available for this year's inventory. It is the intention of the event organisers that the source will be included in future years' inventories.

Some of the many 100% plant-based food stalls at the event

The following table details the emissions sources that will be excluded from the event boundary for the foreseeable future.

Table 3 Out-of-scope emissions sources

Emissions source	Scope	Reason for exclusion
Event participants' travel to/from the event	Scope 3	Stall-holders and general festival participants attended the Festival from the ACT and other parts of Australia. While their travel to the event is likely to account for a large proportion of the Living Green Festival's indirect emissions, it has been excluded. This is because it would require more detailed data collection than is possible by the Festival organisers for the foreseeable future. We are, however, committed to ensuring the Festival is held in a location that is accessible by public transport and by bicycle or on foot, which is one of the many advantages of Albert Hall. The Hall is located in the centre of Canberra, and is on the most frequent bus route in the ACT. Bike racks were also hired for the Festival in 2011. Information about getting to Albert Hall by public transport, bicycle or walking is included on the Festival's website.

3. Inventory

The Living Green Festival's emissions are shown in the carbon inventory summary table in Figure 1 below. Emissions factors were taken from the National Greenhouse Accounts Factors (Australian Government, June 2011) and from EPA Victoria. Complete references are included in the inventory.

Figure 1 Summary of the Living Green Festival's carbon inventory

Emissions source	Scope	Activity Data	Data Units	Emissions (kg/CO_2-e)	Emissions (tonnes/ CO_2-e)	Proportion of Total Inventory (%)
Direct emissions (Scope 1)						
Kitchen refrigerant leakage - Kyoto gases	1	0.4	kg	0.33	0.0003	**0.64%**
Total Scope 1				0.33	0.0003	**0.64%**
Indirect emissions (Scope 2)						
Electricity	2	33	kWh	29.03	0.03	**56.36%**
Total Scope 2				29.03	0.03	**56.36%**
Optional emissions (Scope 3)						
Municipal solid waste (generic)	3	30	kg	9.00	0.01	**17.48%**
Office paper	3	2	reams	7.60	0.01	**14.76%**
Electricity – full life cycle emissions	3	33	kWh	5.54	0.01	**10.77%**
Inert recyclable waste (comingled)	3	45	kg	0	0.00	
Total Scope 3				22.14	0.02	**43.00%**
Scope 1 + 2				29.35	0.03	**57.00%**
SCOPE 1 + 2 + 3				51.50	0.05	
Reduction Measures Greenpower		10	kWh	-9	**-0.01**	
NET EMISSIONS				43	**0.04**	

Figure 2 shows that the highest proportion of emissions within the boundaries of the Festival's carbon inventory is Scope 2, representing over 56% of all emissions.

Figure 2 Emissions in tonnes CO_2-e by Scope

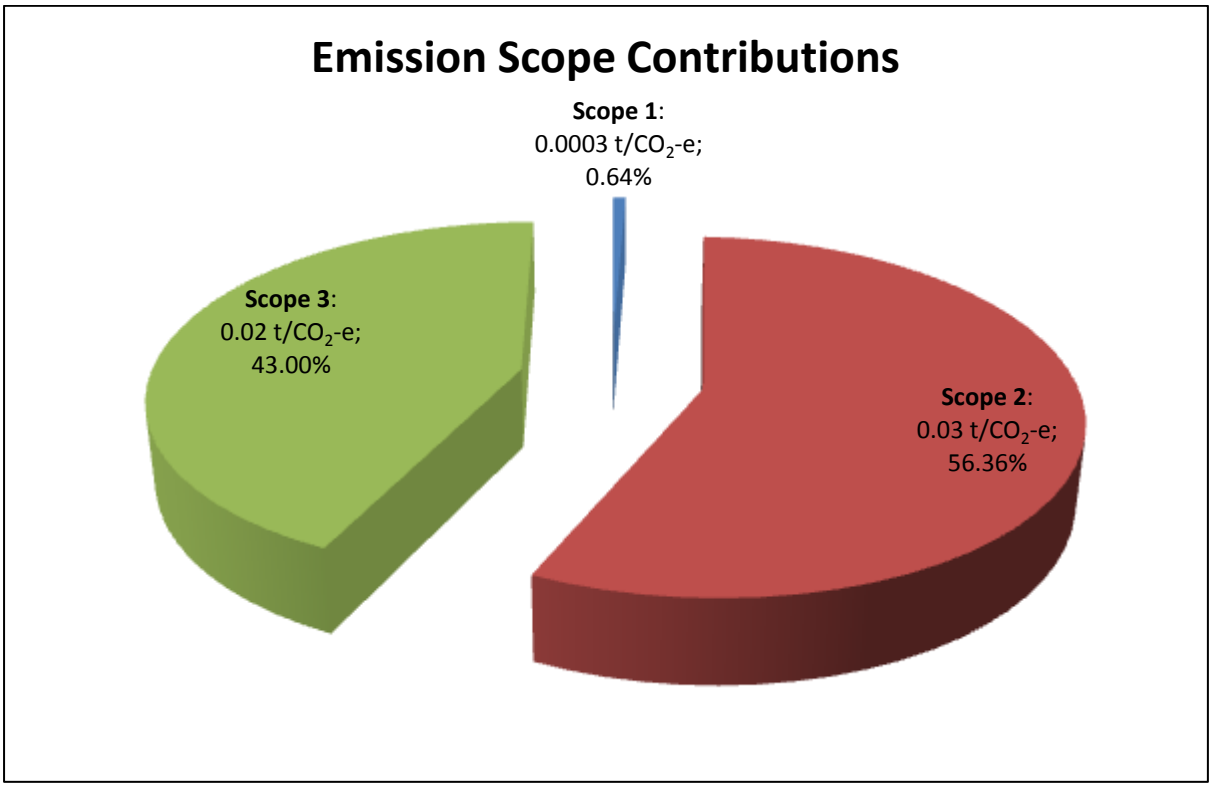
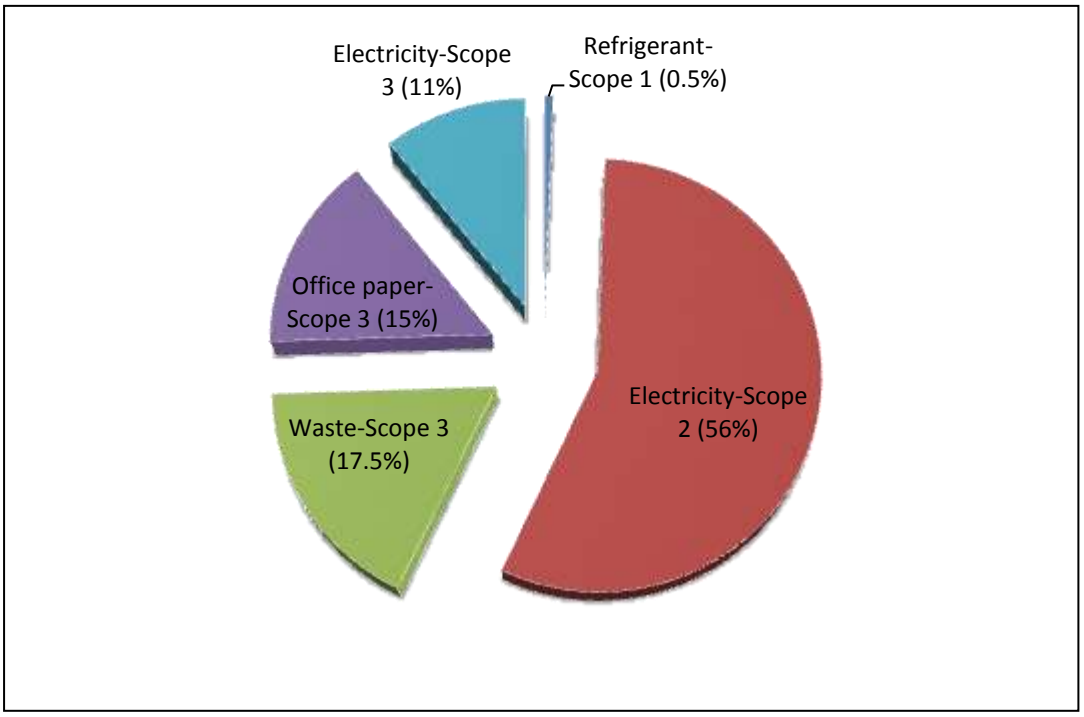


Figure 3 highlights the proportion of all included emissions sources relative to the Living Green Festival's gross CO_2-e emissions.

Figure 3 Emissions sources as a percentage of total CO_2-e emissions



4. Indicators

According to the GHG Protocol, ratio indicators 'provide information on performance relative to a business type and can facilitate comparisons between similar products and processes over time' (p 65).

In the context of carbon inventories, ratio indicators are used as a measure of carbon emissions intensity or productivity and efficiency relative to organisation-specific metrics. Simple percentage ratios, such as those depicted in Figure 2 and Figure 3 above, are also useful for identifying and targeting the largest emissions sources for reduction.

In addition to the percentage indicators, the following intensity ratios for the Living Green Festival have been derived on the basis of emissions in kilograms CO_2-e per number of Festival attendees on the day of the event.

Figure 4 Intensity ratio indicator

Basis	Value	Units	Emissions (kg/CO_2-e)
Festival attendees	2,000	People	0.02

5. Assessment

5.1 Analysis relative to event drivers

The Living Green Festival's carbon inventory shows that the event already has a low carbon footprint.

This is vitally important given the Festival's rationale as a leader in low carbon, environmentally friendly events, and as a recipient of an ACT Government Climate Change Grant in 2011.

5.2 Financial implications and risks

As a not-for-profit community organisation consisting entirely of volunteers, the Living Green Festival (ACT) Inc. is not in a financial position to purchase its own carbon offsets.

Rather, the objective of the Living Green Festival is to show the community how simple and enjoyable it is to live a sustainable and low-carbon lifestyle, with a particular focus on dietary choices.

6. Regulations

The Living Green Festival is an event that occurs in Canberra and is therefore within the jurisdiction of Australian Capital Territory and Commonwealth GHG carbon and energy reporting legislation.

The relevant regulations and associated reporting thresholds within these jurisdictions are listed in table 4 below.

Table 4 Regulatory obligations

Regulation name	Jurisdiction	Reporting threshold	Applicable to the Living Green Festival?
National Greenhouse and Energy Reporting Act 2007	Commonwealth	Section 13: 50 kt CO_2-e of GHG emissions or 200 TJ of energy produced or consumed per FY	No
Clean Energy Act 2011	Commonwealth	Section 20: entities emitting more than 25 kt CO_2-e per year	No
Climate Change and Greenhouse Gas Reduction Act 2010	ACT	NA	Yes indirectly; condition of ACT Government 2011 Climate Change Grant that grant recipients promote the Government's objectives on climate change as set out in the Act.
Energy Efficiency (Cost of Living) Improvement Act 2012	ACT	NA	No – commenced in May 2012; applies to electricity suppliers.

7. Voluntary reporting

As a 2011 ACT Government Climate Change Grant recipient, the Living Green Festival was required to demonstrate how the carbon emissions caused by the 2011 event were measured and any reductions quantified.

The Festival organisers plan to continue to report on the event's carbon emissions in future years, as a means of demonstrating continued leadership in environmental and sustainability performance in the 'green festival' space.

8. Carbon management

This inventory is the first that the Festival organisers have prepared and will constitute the base year against which future carbon emissions can be assessed.

The purpose of the Living Green Festival is to showcase innovative green and carbon-reducing practices to the local community, with a particular emphasis on low-carbon plant-based food and products. The Festival also aims to raise awareness of the environmental consequences of human choices and to show the community how easy and enjoyable it is to live a sustainable lifestyle.

In light of these objectives, and the Festival's already low carbon footprint, the Festival organisers will continue to focus on showcasing low-carbon products and practices as well as seeking ways to reduce the event's emissions. We will also seek to add new emissions sources to our inventory, such as food consumed at the event, and organisers' travel to and from the event on the day. Future carbon reports will specifically aim to demonstrate how effective switching to a low-carbon, plant-based diet is in reducing greenhouse gas emissions.

According to the Carbon Management Principles developed by EPA Victoria, the best option for the Living Green Festival to lower its emissions would be ***to reduce*** its Scope 2 and 3 carbon emissions.

In terms of emissions reductions, the event's capacity to reduce emissions associated with purchased electricity (Scope 2) is limited due to the fact that the electricity is purchased by the ACT Government, and the venue itself is heritage listed. The age and heritage value of the venue means that there is limited scope for improving its energy efficiency. On the positive side, however, approximately one-third of the power purchased by the Government and used at the venue at the time of the 2011 Festival was from renewable sources.

Reducing electricity consumption on the day of the event would nonetheless help the Living Green Festival lower its overall carbon footprint, and would be another way of demonstrating the event's commitment to sustainability. Measures could also be taken to ensure that electrical equipment at the venue is switched off when not in use. Air conditioning was not used during the 2011 event, and it is anticipated that this will continue to be common practice at future festivals. Stall holders who require power for their stalls will be encouraged to use energy efficient appliances. Power use at the 2012 Festival will also be capped at a maximum of 3 powerpoints per stall.

Opportunities to reduce emissions associated with the use of paper will also be considered. These may, however, be limited as the Festival already uses domestic recycled paper, and produces double-sided copies of event documents such as programs and surveys.

9. Reporting procedures and improvement

Calculating the carbon footprint of events is still a relatively new practice. While the Living Green Festival was required to quantify its emissions as part of the ACT Government's Climate Change Grant, the Government did not require any particular format for the carbon report or inventory.

Opportunities to improve the carbon reporting process in future years will centre mainly on emissions source data collection and maintenance. Electricity consumption for this report was based on an averaged amount for the month in which the event was held. If possible, the venue property manager will be asked in advance to collect data specifically relating to the consumption of electricity on the day of the Festival for future events.

The weight of waste taken to landfill and recycling facilities was also estimated after the 2011 event. In future, the requirement for this information will be clearly stipulated in contracts with service providers.

The main new emissions source to be included in future reports will be catering.

The Living Green Festival will estimate the amount of GHG emissions which have been released to produce and prepare all food offered for immediate consumption at the event.

For example, food vendors will be asked to keep track of the quantities of, and dollar amounts spent on, the ingredients that they use to prepare food for the Festival.

The calculation of the emissions associated with food served at the event will then be based on the catering categories and emissions factors used by EPA Victoria and calculated by RMIT's Centre for Design.[3]

It is anticipated that the emissions will be relatively low, as **the Festival only offers plant-based food, which is the least greenhouse intensive type of food**.[4]

Festival organisers will also be required to keep a record of their travel to and from the venue on the day of the event, so that this indirect emissions source can be included in future reports.

A stall showcasing 'low-carbon cupcakes' (ie made without the use of animal products)

[3] See section O of EPA Victoria's Greenhouse Inventory Management Plan: 2007–08 Update.
[4] Ibid, 'Green Catering', Appendix H.