



# Environmental Management Plan 2017-20



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# Executive Summary

We know that environmental sustainability is important to our community, and that our community looks to us for leadership. At this time of increasing climate crisis, it is important to us that we have a clear framework to rapidly improve our organisational climate impacts, and work with community on collective solutions.

As an environmental organisation with a clear mandate to *protect and enhance the natural environment, including by providing information and education to increase understanding of human impacts on the natural environment*, CERES has achieved an incredible amount in the environmental sustainability space over the past 35 years. In many cases we have been early adopters of technology and are leaders in the environmental education sphere, both at the park and beyond our borders.

Our updated Environmental Management Plan (EMP) will implement actions and targets to help further reduce our organisation's environmental impacts. This document is a strategic plan that provides a starting point for detailed action plans to be developed within Year 1 and implemented by Year 3 of the EMP. Over this time, it is expected that a whole-of-organisation approach will be rolled out, and actions included in budget planning.

This plan sets out our goals and objectives across four themes:

- Energy
- Waste
- Water
- Biodiversity

We have a holistic approach to achieving these goals, and our Action Plan includes activities across our physical environment, internal culture, formal education programs and community engagement activities.

**The primary focus of this plan is reducing energy use in line with the CERES Carbon Budget Policy (CCBP, Appendix 2) which outlines a target of 40% reduction in emissions by the end of 2020 and zero emissions by the end of 2025.**

The CCBP target provides a clear goal to rapidly improve our organisational climate impacts, to innovate and for stories to be shared on our journey to zero emissions.

In addition to introducing energy targets, actions in our EMP support continued biodiversity improvement, reductions in water use, and further analysis and reduction of waste.

By the end of 2020 we aim to see significant improvements in our energy impacts, clear and developed action plans including budget allocations from each area of CERES, and a community engaged in our sustainability journey.

# Background & Overview

CERES occupies and operates a 4.5 hectare park alongside the Merri Creek, in Brunswick East, Victoria. During European settlement the land was quarried for basalt and on completion of this activity the quarry hole was used as a tip (a landfill site for household waste). The tip was eventually capped and since the establishment of CERES in 1982, the site has been progressively rehabilitated to a high standard including a certified organic farm, and provided with a built environment that includes classrooms, offices, cafes and meeting rooms.

In addition to this park, CERES manages a one hectare market garden located at Edna Grove in Coburg and leases a warehouse for Fair Food - the largest of the CERES social enterprises - in Preston.

CERES' main park receives an estimated 450,000 visits per annum. It caters for approximately 60,000 student visits a year and provides many other environmentally-focussed services to the local and wider community. Park infrastructure includes resources to support a variety of social enterprises and operations including a cafe, organic grocery, plant nursery, offices, venue hire, sustainable technology demonstrations and broad-based sustainability education and training for all age groups. It also includes specific infrastructure to reduce organisational resource use such as water sensitive urban design, metering and monitoring of electricity, and closing the loop on waste to landfill including 100% recycling of organic matter.

CERES' *EMP (2014–16)* provided an initial framework and reporting structure for baselining the environmental impacts of our activities. Achievements included:

- Established baselines in energy use, water use, waste management and biodiversity quality.
- Monitored our renewable electricity generation
- Greatly improved monitoring systems which led to the discovery of several major water leaks

The report on *EMP (2014–16)*, included in our Annual Report 2016–17, revealed that although we strive to be efficient in our use of resources, increases in visitation activity have generally led to increases in resource use and waste production.

*EMP (2017–20)* builds on the previous achievements to provide a framework and guidance for staff to work internally towards improving our environmental performance. We will be sharing our actions, targets and performance with our community in our Annual Reports and via other suitable channels.

## RELATIONSHIP TO OTHER POLICIES & PLANS

- CERES Strategic Direction 2017-19 (Appendix 1)
- CERES Carbon Budget Policy 2017 (Appendix 2)
- CERES Sustainable Purchasing Policy (Appendix 3)
- CERES Environmental Best Practice Policy 2016
- CERES Occupational Health and Safety Policy and Procedures - detailed information on emergency management, and environmental hazard management.

Some of these policies and plans will be updated as part of the EMP Action Plan.

## GOALS

Our overarching organisational goal is true environmental sustainability - the ability to maintain or improve standards of living without damaging or depleting natural resources for present and future generations.

In EMP (2017-20), we aim to reduce our ecological footprint by continuing to integrate sustainability into all areas of operations, through organisational culture and by continuing to take a leadership role in demonstrating exemplary practices in waste management, water and energy usage and biodiversity improvement against our baseline measurements.

**The primary and most ambitious goal of this plan is to meet our target of 40% reduction in carbon emissions by the end of 2020.**

Specific goals for each of the four environmental aspects of our activities outlined in the Action Plan are guided by the following principles and values:

### A. Energy

Our central principle is that serious action must be taken to keep global temperature increase this century to significantly less than 2 degrees celsius above the pre-industrial level. The CERES Carbon Budget Policy (Appendix 1) is informed by the Paris Agreement at COP21.<sup>1</sup>

### B. Water

We aim to be efficient with water use and to keep as much water that falls or flows into the site within the park, following the water conservation hierarchy.<sup>2</sup>

### C. Waste

The waste hierarchy<sup>3</sup> provides a framework for setting strategic directions for resource efficiency. CERES strives for actions at the top end of the waste hierarchy to gain the best value from resources.

### D. Biodiversity

CERES is privileged to have an open space within an urban setting. Stewardship of the land is the guiding principle behind regeneration and increasing biodiversity actions.

1 [http://unfccc.int/paris\\_agreement/items/9485.php](http://unfccc.int/paris_agreement/items/9485.php)

2 <http://www.epa.vic.gov.au/your-environment/water/reusing-and-recycling-water>

3 <http://www.epa.vic.gov.au/your-environment/waste>

## Background & Overview CONTINUED

### TARGETS

In EMP (2014–16), CERES established its baseline data, and based on performance against these, we will create and maintain a program of annual improvements, thereby continually reducing environmental impacts.

**TABLE 2: ACTUAL DATA FROM EMP (2014–16)**

	BASELINE YEAR		
	2014–15 ACTUALS	2015–16 ACTUALS	2016–17 ACTUALS
Gas (MJ)	200,101	188,160	112,917
Net electricity (kWh)	288,304	318,227	322,499
Waste to landfill (m <sup>3</sup> )	100	119	129
Water (kL)	5,381	5,959	6,013
Biodiversity (# native plants)	NOT MEASURED	NOT MEASURED	1,700
Carbon emissions CO <sub>2</sub> -e (gas, electricity and travel)	NOT MEASURED	545	556

**TABLE 3: TARGETS 2017–20**

	2017–18 TARGETS	2018–19 TARGETS	2019–20 TARGETS
Gas (MJ)	94,080 50% reduction from baseline	84,672 55% reduction from baseline	75,264 60% reduction from baseline
Net electricity (kWh)	286,404 10% reduction from baseline	238,670 25% reduction from baseline	190,936 40% reduction from baseline
Waste to landfill (m <sup>3</sup> )	107 10% reduction from baseline year	95 20% reduction from baseline year	83 30% reduction from baseline year
Water (kL)	5,661 5% reduction from baseline year	5,363 10% reduction from baseline year	4,766 20% reduction from baseline year
Biodiversity (# native plants)	1,785 5% increase from 2016-17 year	1,819 7% increase from 2016-17 year	1,870 10% increase from 2016-17 year
Carbon emissions CO <sub>2</sub> -e (gas, electricity and travel)	473 13% reduction from baseline year	401 26% reduction from baseline year	329 40% reduction from baseline year

## **ACTIONS, MONITORING & EVALUATION**

Working from baseline measurements in *EMP (2014-16)* and 3-year targets in this EMP, the *Action Plan* outlines our actions for reducing impacts in the areas of energy, water, waste and biodiversity. It also describes how we will measure our success in achieving each of these targets.

We have a holistic approach to achieving these goals, and our Action Plan includes activities across our physical environment, internal culture, formal education programs and community engagement activities.

CERES will monitor, measure, analyse and evaluate nominated environmental aspects of its infrastructure and operations at CERES main park, CERES Joe's Market Garden and CERES Fair Food. Performance will be compared against baseline data and nominated targets, which will guide environmental management, along with performance against activities included in the Action Plan.

This monitoring and evaluation will provide criteria for annual review of the EMP which will be published in the Annual Report. A major review will be carried out in 2019.

## **REPORTING & RESPONSIBILITIES**

Delivery on the EMP is reported in the CERES Annual Report. Refer to the Action Plan for ongoing reporting on effectiveness of the implementation plan.

The Environmental Management Team is responsible for overseeing the implementation of *EMP (2017-20)* and regularly reporting to the CEO and Board.

### **Physical Environment:**

Habitat Manager

### **Internal Culture:**

Education and Training Manager

### **Formal Education:**

Outreach Manager

### **Community Engagement:**

Communications Manager

The team will work collaboratively across all areas of the organisation to ensure goals and targets are set and reached.

The CERES Carbon Budget Policy Working Group is an initiative of the CERES Board that will support the delivery of the EMP by providing guidance on inter-departmental practice and learnings working towards a zero carbon future

# Action Plan Summary

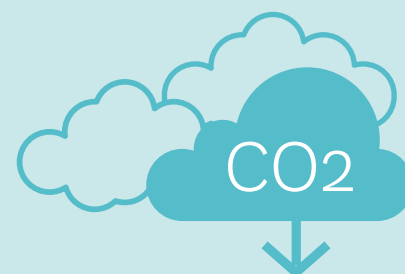
The following section provides a snapshot of key actions across our three year detailed EMP Action Plan. The detailed Action Plan is a live document that will be continually updated over the period of the *EMP (2017-20)*.



# Carbon Emissions

## GOAL

CERES Emissions reduced by 72t CO<sub>2</sub>-e per year to reach 40% reduction by 2020.

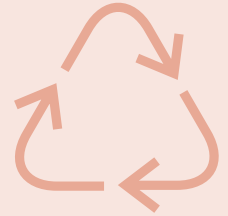


FOCUS AREAS	ACTIONS	OPPORTUNITIES	IMPACT
<b>CARBON-FREE ENERGY</b>	<ul style="list-style-type: none"> <li>Increased Solar Generation</li> <li>Purchase GreenPower</li> </ul>	<ul style="list-style-type: none"> <li>Visitor Centre: 15KW solar</li> <li>Fair Food: 80KW solar</li> <li>Van Raay office: 18KW solar</li> <li>Energy Park: develop into 99KW Urban Solar Farm</li> <li>Re-purpose solar panels from aquaponics</li> <li>Clean existing panels</li> <li>Purchase certified GreenPower</li> </ul>	HIGH ●●●
<b>REFRIGERATION</b>	<ul style="list-style-type: none"> <li>Where possible, upgrade fridges to highest energy rating label</li> <li>Remove unnecessary fridges</li> </ul>	<ul style="list-style-type: none"> <li>Merri: re-gas kitchen fridge to a hydrocarbon refrigerant; service glycol refrigeration plant; and replace doors on fridge (coffee area) with opaque ones or replace seals at a minimum</li> <li>Grocery: Re-gas reefer (container) fridge to a hydrocarbon refrigerant; use curtains on outdoor display refrigerator and turn off during winter</li> <li>Site wide: Attach timers to all fridges to turn off overnight where possible</li> <li>Kitchens: Check seals on all chest freezers</li> </ul>	HIGH ●●●
<b>TRAVEL</b>	<ul style="list-style-type: none"> <li>Minimise air travel</li> <li>Replace standard vehicles with electric for Outreach education and Fair Food deliveries</li> </ul>	<ul style="list-style-type: none"> <li>Global: Replace long haul international trips with regional and domestic trips. Use in-country facilitators rather than extra flights for Australian facilitators</li> <li>Develop and implement green travel policy</li> <li>Form partnerships with electric vehicle manufacturers</li> <li>Explore potential hydrogen commercial vehicle transport currently being trialled by Moreland City Council</li> </ul>	HIGH ●●●
<b>HEATING/ COOLING</b>	<ul style="list-style-type: none"> <li>Reduce demand for mechanical heating and cooling site-wide</li> </ul>	<ul style="list-style-type: none"> <li>Site-wide: Install draught proofing</li> <li>Site-wide: Install double glazing where possible. Prioritise staff offices &amp; venue hire spaces</li> <li>Van Raay office: Install control probe to control hydronic heating</li> <li>Grocery: Remove internal cooling system</li> <li>Eco House: Investigate more efficient heating</li> <li>No new installation of mechanical heating and cooling systems</li> <li>Review all heating and cooling systems</li> </ul>	HIGH ●●●
<b>GAS</b>	<ul style="list-style-type: none"> <li>Electrification program to replace gas</li> </ul>	<ul style="list-style-type: none"> <li>Energy Park: Generate bio-gas through new anaerobic digestion system</li> <li>Van Raay office: Investigate alternatives to gas for the hydronic heating system</li> <li>Learning Centre &amp; Ecohouse: Replace gas appliances</li> </ul>	HIGH ●●●
<b>LIGHTING</b>	<ul style="list-style-type: none"> <li>Upgrade lighting to LED</li> </ul>	<ul style="list-style-type: none"> <li>Site-wide: LED replacement</li> <li>Delamp where possible</li> <li>Explore possibility of master switch for lighting</li> </ul>	HIGH ●●●
<b>TRAINING &amp; ENGAGEMENT</b>	<ul style="list-style-type: none"> <li>Promote energy efficient practice within CERES</li> </ul>	<ul style="list-style-type: none"> <li>Educate for everyday behaviours: switch off regime, passive heating &amp; lighting, draught proofing</li> <li>Install signage in staff offices for energy reduction guidelines</li> <li>Engage community (communications &amp; signage) about CERES energy reduction and guidelines</li> <li>Report carbon reduction actions to CERES and community through the Annual Report and via communication channels</li> <li>Initiate regular engagement activities eg 'Earth Hour,' 'Green travel to work'</li> <li>Celebrate achievements</li> </ul>	MEDIUM ●●○

# Waste

## GOAL

Reduce landfill by 30% from baseline year, by 2020.



FOCUS AREAS	ACTIONS	OPPORTUNITIES	IMPACT
<b>WASTE MANAGEMENT</b>	<ul style="list-style-type: none"> <li>Waste Stream Collection</li> <li>Community waste recycle collection</li> <li>Zero waste policy developed for events</li> </ul>	<ul style="list-style-type: none"> <li>Implement consistent waste stream collection (and signage) of organics, mixed recycling, waste to landfill and paper &amp; cardboard</li> <li>Expand community collection to mobile phones, batteries, printer cartridges, rubber bands</li> <li>Advocate for soft plastic collection by local council</li> <li>Investigate REDcycle Program for soft plastic collection</li> <li>Develop and implement zero waste policy for events</li> <li>Implement waste management guidelines for community groups and external users</li> <li>Audit food wastage across all food systems</li> <li>Audit printing in staff offices and install printing guidelines</li> </ul>	<p>HIGH</p> <p>● ● ●</p>
<b>SUSTAINABLE PURCHASING</b>	<ul style="list-style-type: none"> <li>Sustainable Purchasing Policy</li> </ul>	<ul style="list-style-type: none"> <li>Review Sustainable Purchasing Policy and implement site-wide</li> <li>Audit single use plastic: Remove where feasible and preference bio-packaging</li> </ul>	<p>HIGH</p> <p>● ● ●</p>
<b>RE-USE</b>	<ul style="list-style-type: none"> <li>Systematic re-use of materials</li> </ul>	<ul style="list-style-type: none"> <li>Provide adequate sorting facilities (eg Resource Hub and stationery storage) for staff to re-use materials wherever possible</li> </ul>	<p>MEDIUM</p> <p>● ● ○</p>
<b>TRAINING &amp; ENGAGEMENT</b>	<ul style="list-style-type: none"> <li>Educate and inspire CERES staff and community to engage with the 7Rs (Refuse, Reduce, Re-use, Repair, Re-gift, Recover, and Recycle )</li> </ul>	<ul style="list-style-type: none"> <li>Educate for everyday behaviours: waste stream collection, Sustainable Purchasing Policy, printing guidelines</li> <li>Develop sustainable purchasing guidelines for community groups and external users</li> <li>Install signage for waste stream separation and printing guidelines</li> <li>Host events eg 'Clean Up CERES Day'</li> <li>Engage community (communications &amp; signage) about CERES's waste reduction efforts and guidelines</li> <li>Report waste actions through the Annual Report and via communication channels</li> <li>Celebrate achievements</li> </ul>	<p>MEDIUM</p> <p>● ● ○</p>

# Water

## GOAL

Maintain water quality, be efficient with use and transition to stormwater use to reduce mains water consumption by 20% from baseline water use by 2020 (based on annual rainfall of 650mm).



FOCUS AREAS	ACTIONS	OPPORTUNITIES	IMPACT
<b>INFRASTRUCTURE EFFICIENCY</b>	<ul style="list-style-type: none"> <li>Maintain &amp; upgrade infrastructure to minimise water waste</li> </ul>	<ul style="list-style-type: none"> <li>Audit irrigation system</li> <li>Upgrade irrigation system in Honey Lane Market Garden</li> <li>Install isolating switches in propagation</li> <li>Replace troughs with drippers</li> <li>Implement most efficient chicken watering system</li> </ul>	<p>HIGH</p> <p>● ● ●</p>
<b>COLLECTION &amp; REUSE</b>	<ul style="list-style-type: none"> <li>Reduce mains water consumption through collection of stormwater and reuse of greywater</li> </ul>	<ul style="list-style-type: none"> <li>Increase water collection from roofs by installing additional tanks and raingardens</li> <li>Use water collected from carpark and adjacent surfaces for irrigation</li> <li>Reuse grey water from sinks</li> <li>Use non toxic soaps (Sustainable Purchasing and Green Cleaning guidelines)</li> <li>Investigate E-water system for cleaning</li> <li>Provide water management guidelines for community gardeners and external users</li> <li>Attach the main nursery watering tap to the rain water tank</li> </ul>	<p>HIGH</p> <p>● ● ●</p>
<b>APPLIANCE EFFICIENCY</b>	<ul style="list-style-type: none"> <li>Maintain &amp; upgrade appliances to minimise water waste</li> </ul>	<ul style="list-style-type: none"> <li>Upgrade where needed to low flush toilets and low flow taps</li> <li>Investigate Smart Taps with heat and movement sensing</li> </ul>	<p>MEDIUM</p> <p>● ● ○</p>
<b>TRAINING &amp; ENGAGEMENT</b>	<ul style="list-style-type: none"> <li>Generate water awareness in staff and visitors</li> </ul>	<ul style="list-style-type: none"> <li>Educate for everyday behaviours: wash and irrigation protocols, report leaks</li> <li>Implement water reduction guidelines for community groups and external users</li> <li>Install signage for water reduction guidelines</li> <li>Engage community (communications &amp; signage) about CERES water reduction and guidelines</li> <li>Report water actions through the Annual Report and via communication channels</li> <li>Hold events eg 'Clean Up Merri Creek Day'</li> <li>Celebrate achievements</li> </ul>	<p>MEDIUM</p> <p>● ● ○</p>

# Biodiversity



## GOAL

Increase indigenous and native plant cover by 10% from 2016, to create wildlife habitat, continue regeneration and sequester carbon.

FOCUS AREAS	ACTIONS	OPPORTUNITIES	IMPACT
<b>BIODIVERSITY PLAN</b>	<ul style="list-style-type: none"> <li>Update CERES Biodiversity plan</li> </ul>	<ul style="list-style-type: none"> <li>Increase carbon sequestration through specific planting and soil remediation</li> <li>Increase natural regeneration of vegetation appropriate to the Merri Creek precinct</li> <li>Redevelop Community Gardens</li> <li>Expand Food Forest</li> <li>Investigate creation of wildlife corridors on main site to support Merri Creek habitat</li> </ul>	HIGH ●●●
<b>FLORA AND FAUNA</b>	<ul style="list-style-type: none"> <li>Maintain and increase native plantings to provide habitats</li> <li>Monitor and record native fauna</li> </ul>	<ul style="list-style-type: none"> <li>Remove all environmental weed species</li> <li>Increase native flora to maintain the diversity of indigenous habitats and species</li> <li>Ongoing bird surveying to identify threats to native birds</li> <li>Investigate increase of remnant native habitat to maintain and preserve wildlife corridors along Merri Creek</li> <li>Investigate threatened native species to support through actions and community education</li> <li>Maintain and increase where possible stock of natives in Nursery</li> <li>Increase land allocated to garden beds by formalising more garden beds on site</li> </ul>	HIGH ●●●
<b>SYNERGIES BETWEEN FLORA &amp; CARBON</b>	<ul style="list-style-type: none"> <li>Utilise the bio/physical properties of trees to minimise carbon emissions and sequester carbon</li> </ul>	<ul style="list-style-type: none"> <li>Urban forestry: Increase tree planting/placement to reduce heat island effect</li> <li>Investigate green walls and roofs site-wide</li> <li>Plant 'habitat' trees for ecosystem restoration and carbon sequestration</li> </ul>	MEDIUM ●●○
<b>TRAINING &amp; ENGAGEMENT</b>	<ul style="list-style-type: none"> <li>Generate biodiversity awareness in staff and visitors</li> </ul>	<ul style="list-style-type: none"> <li>Educate for everyday behaviours: Plants in offices, wildlife monitoring</li> <li>Implement biodiversity guidelines (including organic gardening protocols) for community gardeners</li> <li>Engage community (communications &amp; signage) about CERES biodiversity and guidelines</li> <li>Report biodiversity actions through the Annual Report and via communication channels</li> <li>Hold events eg 'tree planting day', 'Clean Up Merri Creek Day'</li> <li>Celebrate achievements</li> </ul>	MEDIUM ●●○

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# Appendix

1. CERES Strategic Direction 2016
2. CERES Carbon Budget Policy (and CERES Carbon Budget Policy Working Group)
3. CERES Sustainable Purchasing Policy

