

## 4.1 IMPLEMENTING ZERO NET CARBON INFRASTRUCTURE

Responsible Director: Ossie Martinz

### **RECOMMENDATION**

*That Council:*

- 1. Endorse the execution of an Energy Performance Contract Master Service Agreement with ECOSAVE Pty Ltd to implement energy efficiency opportunities on Council's major facilities as part of the proposed Stage One works.*
- 2. Notes that the Stage One projects will be funded from the adopted 2021/22 budget valued at \$2,726,000.*
- 3. Delegates authority to the Chief Executive Officer to sign the Energy Performance Contract Master Service Agreement with ECOSAVE Pty Ltd to formalise the delivery of priority energy efficiency projects providing guaranteed emission reduction and cost saving, and contribute to our carbon neutral target by 2025.*

*\*\*Note all figures are GST Excl*

### **INTRODUCTION**

The purpose of this report is to seek approval to enter into an Energy Performance Contract with ECOSAVE Pty Ltd to deliver significant energy efficiency works on Council's largest energy intensive buildings, to reduce greenhouse gas (GHG) emissions and help council meet the carbon neutral target by 2025.

### **BACKGROUND**

An Energy Performance Contract (EPC) is a process where a contractor is engaged to design, implement, verify and guarantee the savings from an energy efficiency project of 30% or more. EPCs typically include a holistic set of energy efficiency, renewable energy and distributed generation measures across a number of facilities that are capable of delivering sufficient savings which finance the full cost of the project. When effectively managed, an EPC is a low risk and widely accepted approach around the world to delivering energy efficiency upgrades to buildings.

The following seven Council buildings, use over 50% of the total electricity consumed by The City of Monash and a significant quantity of gas and water:

- Monash Aquatic and Recreation Centre (MARC)
- Clayton Community Centre
- Oakleigh Recreation Centre (ORC)
- Civic Centre Building (including Ibis office)

- Monash Operations Centre (MOC)
- Glen Waverley Library
- Monash Gallery of Art

In 2018, Monash Council partnered with the Eastern Alliance for Greenhouse Action (EAGA) and Whitehorse Council, to complete the first and second procurement stage of an EPC. The procurement process was modelled upon the Victorian Greener Government Buildings program. <https://www.dtf.vic.gov.au/funds-programs-and-policies/greener-government-buildings>

A public tender (# 2018187 Energy Performance Contract) was completed, and five expressions of interest were received. Following the evaluation, a request for proposal was sought from the three shortlisted companies as part of the second stage of the process. On evaluation of the submissions, ECOSAVE ) was the preferred supplier and was appointed to complete a Detailed Facility Study (DFS) on our nominated buildings.

ECOSAVE completed a DFS in August 2019 for each site which identified Energy Conservation Measures (ECMs) to improve their energy efficiency, amenity and performance. Whilst over \$8million in energy efficiency opportunities were identified for Monash Council, this list was prioritised to \$6.5 million less clean energy credits which can avoid 2444 tCO<sub>2</sub>e of GHG emissions and provide a return on investment of 11.6% per annum.

ECOSAVE also completed a DFS for eight Whitehorse Council buildings at the same time, and were able to access funding in their 2019-2021 budget cycle to implement the recommendations.

EAGA members have run similar EPCs including Maroondah and Yarra Ranges, Boroondara, and Knox partnered with Whitehorse.

### ***DISCUSSION***

Upgrading heating, ventilation and cooling systems (HVAC) and improving building management systems (BMS) were identified as key ECMs in the DFS. Many of these have also already been identified in Council's renewal programs, due to aging equipment.

Rather than the traditional replacement of "like for like" under our renewal program, an EPC approach will be applied to deliver these renewal projects which guarantees GHG emission reduction, cost and energy savings, which are verified and quantified by Certified Measurement & Verification Professionals. Renewal or upgrade projects require significant investment and it is important to get a "Best Value" outcome.

For the 2021-2022 budget cycle, the following projects were successful in receiving funding and have been identified as major initiatives as part of the Zero Net Carbon Action Plan and the first year of an EPC.

- Replace the pool water heating boiler at MARC;
- Install a solar system at MARC;
- Install a solar system at Clayton Aquatic & Health Club (CAHC);
- Install a solar system at MOC;

- ORC;
- Building tuning to optimise energy savings; and
- Analyse and report to verify financial and GHG saving.

These projects were prioritised because they provide the most opportunity to reduce GHG emissions (1025 tCO<sub>2</sub>e) and have an average return on investment of 13.3%.

Under an EPC procurement process, Council is able to move to the next stage of the procurement process and appoint ECOSAVE to complete some or all of the proposed ECM presented in their DFS of our seven buildings.

To implement the Energy Performance Contract, Council needs to enter into a Master Service Agreement (Parent contract) with ECOSAVE which includes a schedule of priority projects identified in the DFS (which becomes the child contract). The Master Service Agreement has a term of four years and Council can roll in other identified projects during this term as budget becomes available, but only if they were identified in the original DFS.

The new Zero Net Carbon Program Lead position – also funded in the 2021-22 Budget will lead the project management of the EPC as well as tracking how Monash is progressing to carbon neutrality under the Zero Net Carbon Action Plan.

### ***POLICY IMPLICATIONS***

In February 2020, Council committed to be carbon neutral by 2025. To deliver this a Zero Net Carbon Action Plan was approved in August 2020.

Action 3 under the Plan was: Improving energy efficiency of our largest major buildings which included the setup of an EPC with priority ECM opportunities to reduce electricity, gas, and water use and provide guaranteed savings to improve operations of Council's major buildings.

Under the Environmental Sustainability Strategy 2016-26, Council has also committed to reducing impacts on the environment through our buildings and infrastructure. This includes reducing GHG emissions, improving energy efficiency and building performance, and reducing overall energy cost liability for Council.

Award of this contract adheres to the Monash Council Procurement Policy.

### ***SOCIAL IMPLICATIONS***

An EPC can deliver projects that reduce electricity, water and gas use, and improve building amenity for the benefit of tenants and community. This is an environmental capital improvement project, with the focus on reducing energy and emissions with no negative impact to the community.

### ***GENDER EQUITY ASSESSMENT***

A gender impact assessment will not be undertaken on this program of works at this time. When this program of works is up for review, Council will reconsider whether or not a gender impact assessment is required.

**CONSULTATION**

Representatives from Capital works, Strategic Procurement, Active Monash, Facilities & Infrastructure Maintenance and City Design have been consulted during the completion of the DFS to identify suitable projects and in preparing the business cases for inclusion in the EPC.

**FINANCIAL IMPLICATIONS**Stage One Projects

Funds for the completion of the selected work for 2021-2022 were approved in the adopted budget (under parent project - CO1303)

Project number	Project name	Return on investment (pa)	2021-22 budget
CO1087	MARC Boiler Replacement & 4 Pipe Heat Pump Installation	11.4%	\$1,105,000
C01788	MARC Solar PV - 220kW	13.8%	\$ 316,903
C01789	ECOSAVE Watch – Building Management System (BMS) & Analytics	10.6%	\$ 222,615
C01790	Clayton Community Centre Solar PV - 200kW	14.4%	\$ 306,674
C01791	MOC Solar PV - 90kW	13.5%	\$ 122,177
C01792	ORC Pool Boiler & heat pump replacement	16.2%	\$ 426,651
C01793	Energy monitoring: EPC Measurement & Verification (M&V)	NA	\$ 225,067
	<b>Total</b>		<b>\$2,718,648</b>

These projects were priorities because they provide the best opportunity to reduce GHG emissions and return on investment. The cost for this collective list of projects is currently outside of the CEO delegation, so council approval is required.

Stage 2 Projects

Other ECMs identified in the 2019 DFS, may be considered to form Stage Two works in future financial years, subject to ongoing business case assessments and budget approval.

Project number	Project name	Return on investment (pa)	Potential 2022-23 budget bid
C01794	Clayton Community Centre Central Plant	9.9%	\$1,437,306
C01795	MARC Chilled Hot Water System - interconnect and optimisation	9.2%	\$ 186,817
	<b>Total</b>		<b>\$1,624,123</b>

*Note: some may have already been completed as part of facilities maintenance.*

Additional Projects identified in Detailed Facility Study 2019*	Estimated Cost
MARC Pool Plant Optimisation & BMS Integration	\$ 130,130
MARC AHU Variable Speed Drives	\$ 38,182
MARC BMS Replacement & Analytics	\$ 317,778
MARC High Efficiency Lighting	\$ 44,595
CAHC High Efficiency General Lighting Upgrade	\$ 132,676
CAHC Hybrid Heat Pump / Condensing Boiler System	\$ 342,236
CAHC High Efficiency Pool Pump Installation & Optimisation	\$ 73,823
CAHC Sub-metering (Gas, Elec, Energy)	\$ 84,808
CAHC Change room Doors	\$ 16,077
Glen Waverley Library Solar PV - 80kW	\$ 108,766
Glen Waverley Library High Efficiency Lighting	<i>.in progress</i>
<i>Glen Waverley Library Heat Pump Install and AHU Refurb</i>	<i>in progress</i>
<i>Glen Waverley Library BMS replacement and analytics</i>	<i>in progress</i>
Civic Centre Heritage Solar PV - 80kW	\$ 110,605
Civic Centre Heritage High Efficiency Lighting	\$ 85,559
Civic Centre Heritage Chilled Water System Optimisation	\$ 49,923
Civic Centre Heritage Heating Hot Water System Optimisation	\$ 29,885
Civic Centre Heritage BMS Optimisation & Analytics	\$ 45,320
Civic Centre Heritage Revolving Entrance Doors & Enclose Offices	\$ 353,056
Monash Gallery of Art Solar PV - 30kW	\$ 40,235
Monash Gallery of Art BMS Fine Tuning & Analytics	\$ 53,275
Monash Gallery of Art High Efficiency Lighting – Gallery	\$ 53,470
Monash Gallery of Art High Efficiency Lighting - General	\$ 66,108
<i>MOC High Efficiency Lighting</i>	<i>complete</i>
<i>ORC High Efficiency Pool Pump &amp; VSD</i>	<i>\$ 113,400</i>
<i>ORC High Efficiency Lighting</i>	<i>complete</i>
<i>ORC Main Building Central Plant/AHU</i>	<i>complete</i>
<i>ORC BMS Replacement &amp; Analytics</i>	<i>complete</i>

\*Window tinting at all sites was considered but payback was more than 15 years so it was not included in this program

## **CONCLUSION**

Since 2018, Monash Council has progressed through the procurement stages of an EPC procurement process and now has budget to implement key ECMs to reduce GHG emissions by 1025 tCO<sub>2</sub>e, increase solar and reduce use of gas. A Master Service Agreement will be put in place to undertake priority projects and guarantee savings.

## **ACRONYMS**

GHG – Greenhouse gas

EPC – Energy Performance Contract

DFS – Detailed facility Study

BMS – Building Management System

PV – Photo voltaic (solar panels)

ECM – Energy Conservation Measures (opportunities)