4.4.5 Energy

Scope of the system

This system relates primarily to the infrastructure on Callan Pak providing power, heating and cooling to buildings and site structures. Much of the infrastructure will be below ground level, although the inclusion of roof mounted panels for solar power generation and hot water supply will have a visual impact across Callan Park.

Existing condition and situation

The condition of much of the site's power infrastructure is currently unknown. Power is provided through four on-site substations with high voltage links to the local Energy Australia network. Metering is centralised and maintenance is currently undertaken on an ad-hoc basis with work carried out in response to break downs in the system rather than as part of an on-going maintenance program.

Master Plan objectives and targets

The overarching objective of the Master Plan is to create a zero carbon park, providing a high quality environment for its users and opportunities for education in sustainable living.

The sustainability target in relation to carbon is to achieve Carbon Neutral for Operational Energy by 2030.

The zero carbon targets will be achieved in the following ways:

- ❒ through the sustainable refurbishment of existing buildings and the use of low energy fittings.
- ❒ through on-site power generation, OPV and tri-generation.
- ❒ through the use of solar hot water.
- ❒ through the purchase of electricity from green power providers.
- ❒ through continued education of visitors and users of Callan Park.
- ❒ to use best practice heritage techniques when developing strategies for incorporating sustainability measures to exceptional and high significance heritage buildings.
- ❒ by providing on-site recharge points for electric vehicles including the electric shuttle bus that will be implemented.
- ❒ to instigate building performance monitoring of energy use and production.

Implementation

Figure 4.6 Energy in Callan Park

ENERGY OVERLAY

- energy loop
- gas loop
- indicative energy poles to be removed
- small scale localised combined heat power
- potential location for photovoltaic panels

Remove and located all energy poles and overhead service lines below ground as part of the infrastructure upgrade - incorporate into shared services trench

Use heat exchange system to utilise waste heat generated from the SCA Kiln as part of the site wide energy strategy

New shared trench infrastructure loop providing water, power, gas, recycled water and IT to buildings and site facilities

Substation to be replaced an relocated into building B498 as part of site-wide infrastructure upgrade

Substation to be replaced and relocated into adjacent buildings as part of site-wide infrastructure upgrade

Provide recharge point for electric vehicles in the proposed car park

Substation to be replaced as part of site-wide infrastructure upgrade

0 50 100 200

CALLAN PARK MASTER PLAN

ENERGY

REVISION A
1:300 @ A2

MCGREGOR COXALL
LANDSCAPE ARCHITECTURE
URBAN DESIGN
ESD
PO Box 1083 Manly NSW 1655
t +61 2 9977 5853 f +61 2 9976 5501
www.mcgregorcoxall.com

Table 4.6 Energy actions in Callan Park

No.	Action	Staging	Responsibility	Performance target	Method of measurement
5.1	Carry out full condition audit of all site wide services and infrastructure.	Initiation	PA/PP	Service and infrastructure condition audit completed.	Condition audit report.
5.2	Develop a decommissioning and upgrade strategy.	Initiation	PA/PP	Decommissioning and upgrade strategy prepared.	Strategy report.
5.3	Establish an energy monitoring and performance strategy for all buildings on Callan Park.	Initiation	PA	Energy monitoring and performance strategy for all buildings on Callan Park prepared.	Strategy report.
5.4	Establish a Carbon Fund.	Initiation	PA/PP	All stakeholders consulted. Carbon fund established.	Support from all stakeholders.
5.5	Replace substation and relocate it into building B498 as part of site-wide infrastructure upgrade.	Short term	PA/PP	Coordinate work with Energy Australia. Carry out work in accordance with upgrade strategy.	Signoff from Energy Australia.
5.6	Replace substations and relocate them into adjacent buildings as part of site-wide infrastructure upgrade.	Short term	PA/PP	Coordinate work with Energy Australia. Carry out work in accordance with upgrade strategy.	Signoff from Energy Australia.
5.7	Remove and locate all energy poles and overhead service lines below ground as part of the infrastructure upgrade. Incorporate into shared services trench.	Short term	PA/PP	Coordinate work with Energy Australia. Carry out work in accordance with upgrade strategy. Energy services placed underground in shared services trenches.	Signoff from Energy Australia.
5.8	New shared trench infrastructure loop providing water, power, gas, recycled water and IT to buildings and site facilities	Short term	PA/PP	Coordinate work with Energy Australia. Carry out work in accordance with upgrade strategy.	Signoff from Energy Australia.
5.9	Provide recharge point for electric vehicles in the proposed car park.	Medium term	PA/PP	Coordinate work with Energy Australia. Carry out work in accordance with upgrade strategy.	Signoff from Energy Australia. Use of recharge point for electric

No.	Action	Staging	Respons-ibility	Performance target	Method of measurement
					vehicles.
5.10	Use heat exchange system to utilise waste heat generated from the SCA Kiln as part of the site wide energy strategy.	Medium term	PA/PP/ ES	Coordinate work with Energy Australia and SCA. Carry out work in accordance with upgrade strategy.	Signoff from Energy Australia. Support from SCA.
5.11	Install site wide tri-generation system for use by all site tenants.			Coordinate work with Energy Australia and SCA. Carry out work in accordance with upgrade strategy.	Signoff from Energy Australia. Support from SCA.