



# Daring Cities 2020

**Decarbonizing Cities: How to Build Coalitions and Get People on Board  
City of Newcastle - 2025 Climate Action Plan**

**Lord Mayor Nuatali Nelmes  
Chair - GCoM Oceania Steering Committee  
Member – ICLEI Oceania’s Regional Executive Committee**

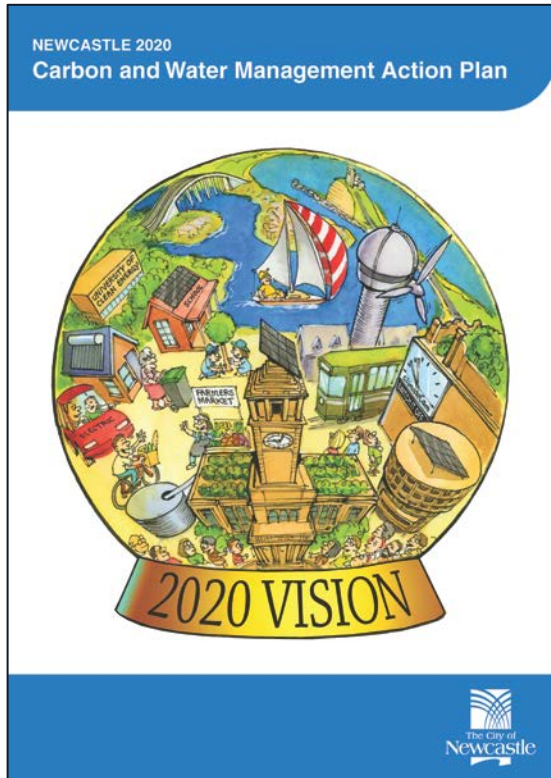


# 2020 CWMAP End of Delivery

Commenced 2012

Covered areas such as:

- Energy
- Water
- Waste
- Liquid Fuels



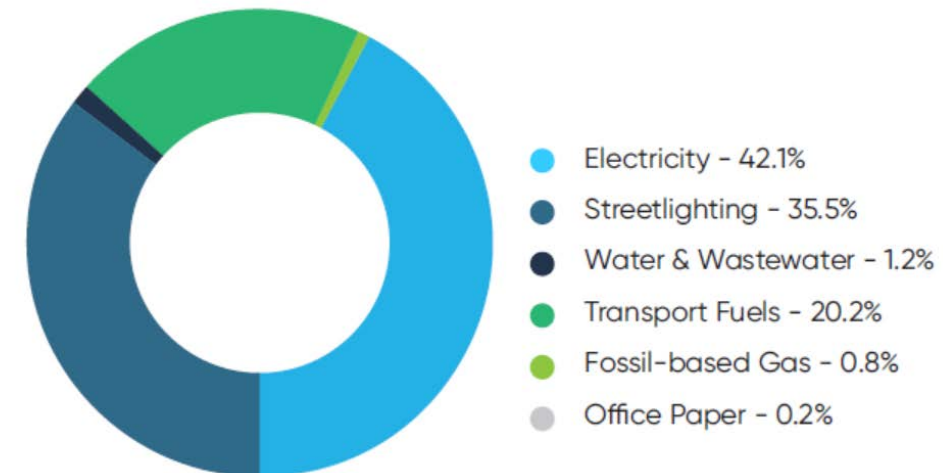
Targets for 2020:

**30%** reduction in Council's electricity usage

**30%** of NCC electricity supplied from low carbon sources

**30%** reduction in Carbon footprint

Newcastle City Council scope 1 & 2 emissions breakdown baseline year 2008/09



\*Excludes emissions Summerhill Waste Management Centre

# Renewable Energy Systems

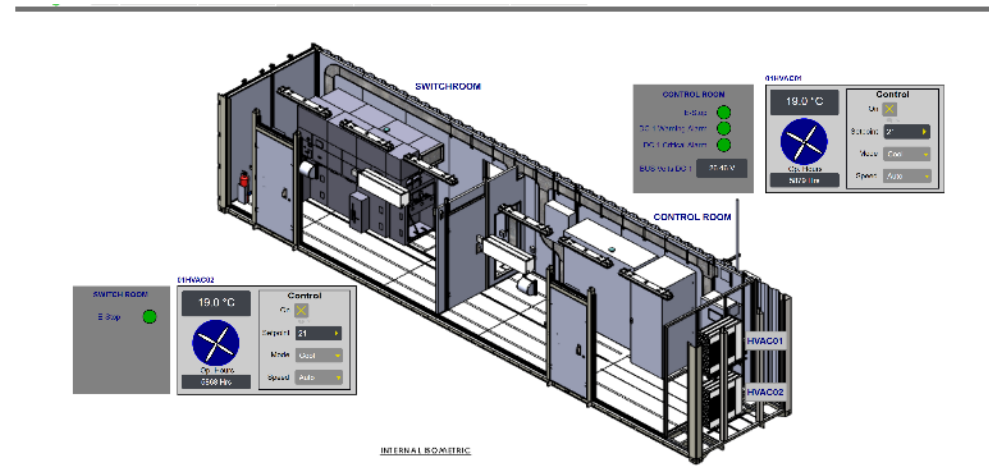
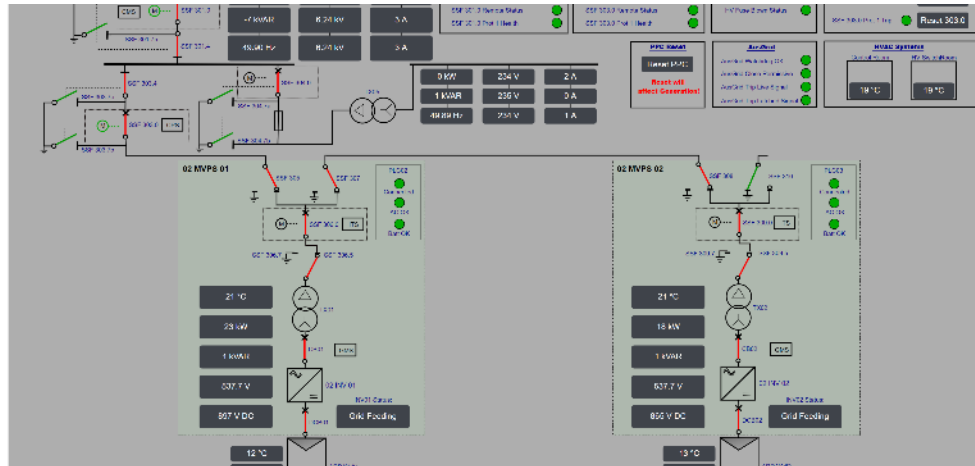
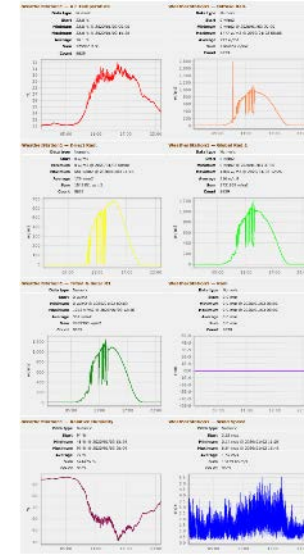
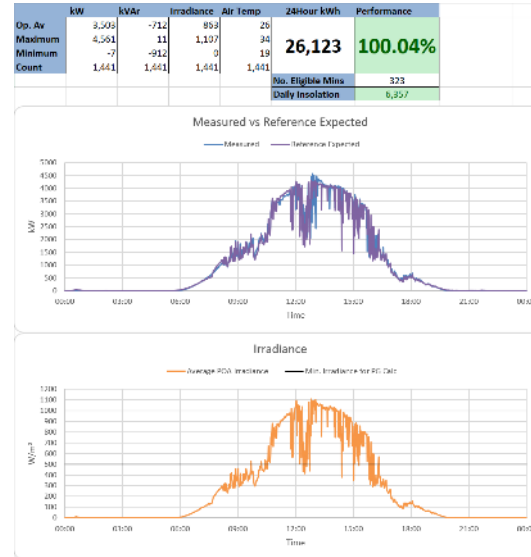
LOCATION	System size (kW)	Electricity generated (kWh) pa
War Memorial Cultural Centre	44.28	64,000
Regional Art Gallery	86.25	124,000
Wallsend Library	80.08	115,000
No.1 Sportsground	10.2	14,800
No.2 Sportsground	64.44	94,000
New Lambton Library	9.9	14,300
City Works Depot	192.06	277,000
Newcastle Regional Museum	99.75	146,200
City Administration Centre	77.22	100,000
<b>TOTAL</b>	<b>664.18kW</b>	<b>949,300 kWh</b>





# The City of Newcastle 5MW Landfill Solar

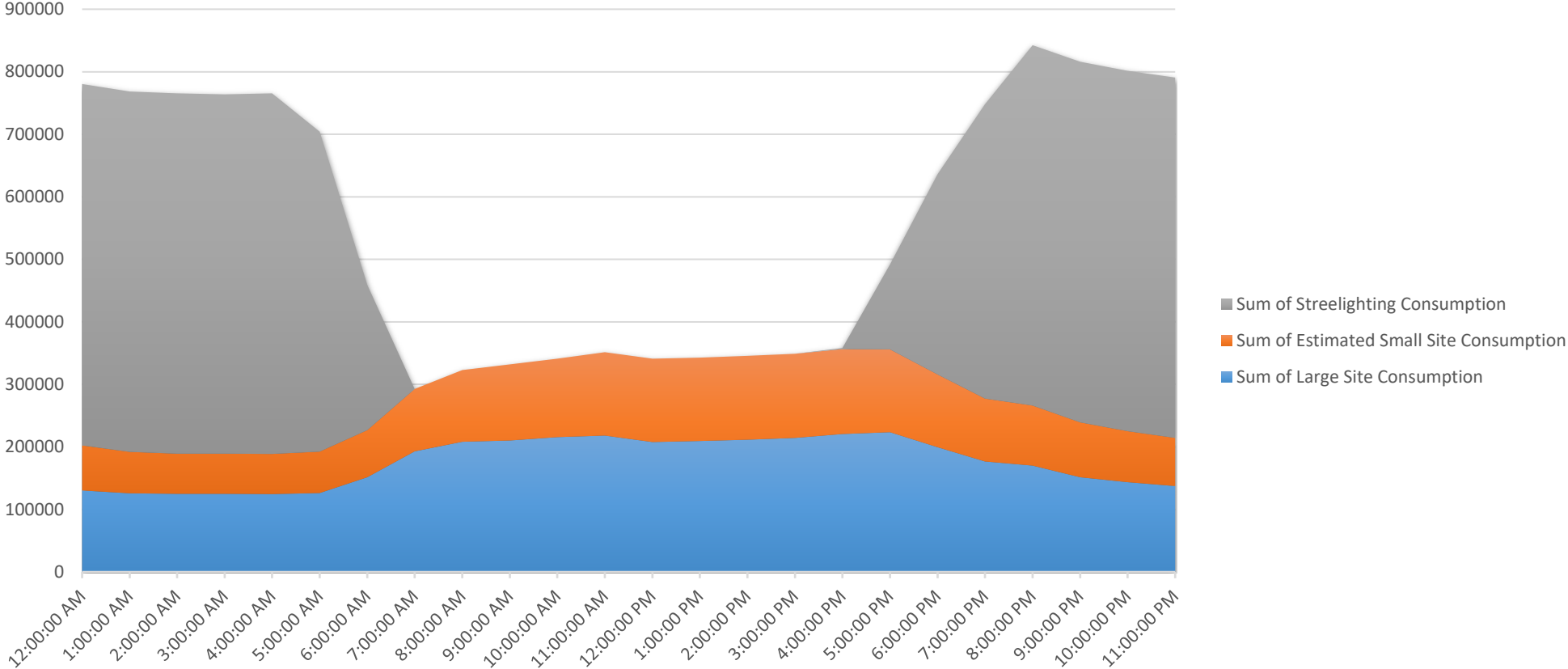
# Operational Since November 2019



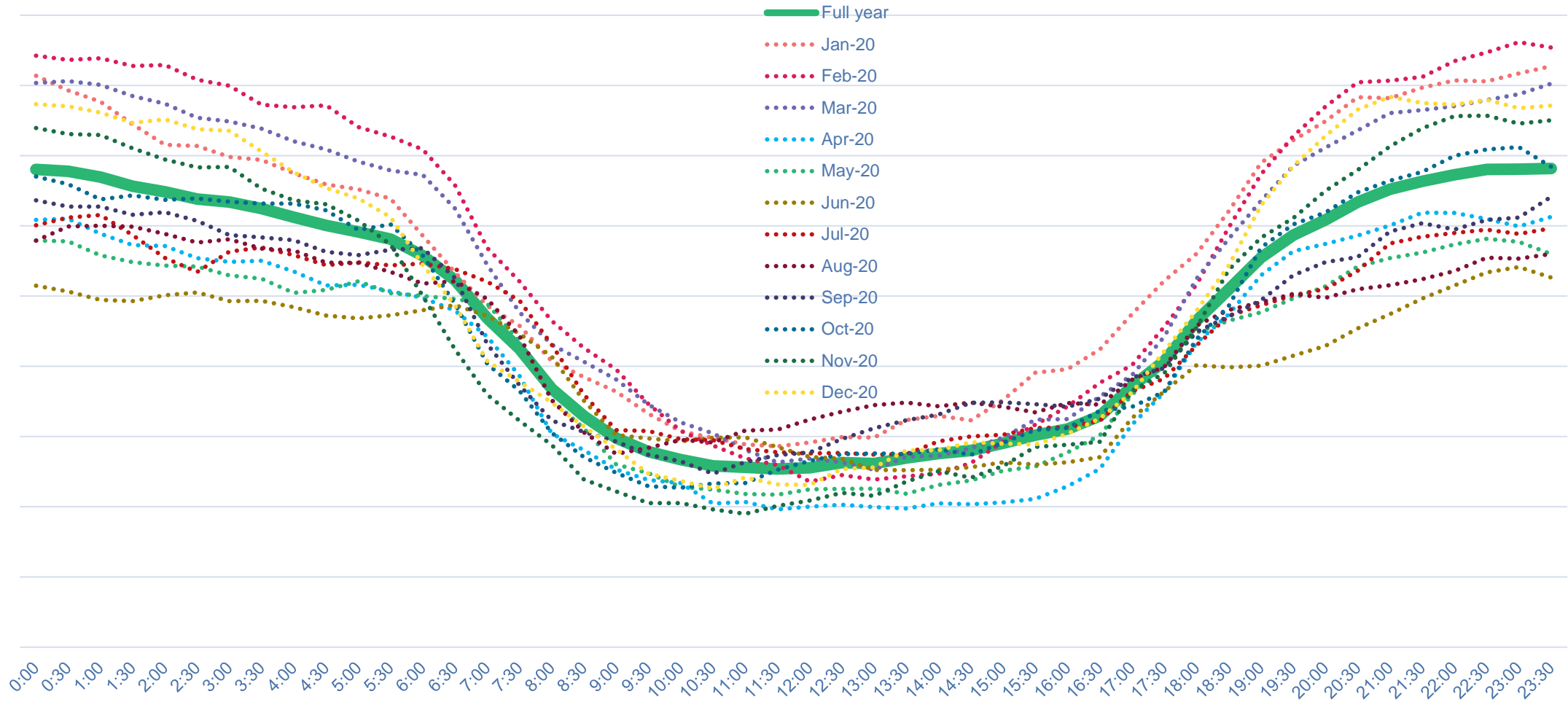
# April 2019 – Shifting to 100% RE

- In April, Council resolved to undertake a Business case for CN to move to 100% renewable electricity
- Consultation undertaken with community groups, unions and industry including survey question in Winter Community Survey
- Business case completed by external consultant and copy provided to Councillors in workshop.

# Council Average Daily Consumption Profile



# Average daily wind generation profile







**100% renewables from 1 January 2020**

# Renewable PPA with PPPT



MWhs ↑  
↓ \$ Spot price (+ trade fee)



(supplementary agreement)



\$ Spot price ↑  
↓ Fixed PPA Price \$



Virtual Generation Agreement (VGA)

\$ Spot price ↑  
↓ Fixed PPA Price \$



Sapphire Wind Farm

\$ Spot price ↑  
↓ MWhs



NEM Spot Market



\$ Spot price (- trade fee) ↑  
↓ MWhs



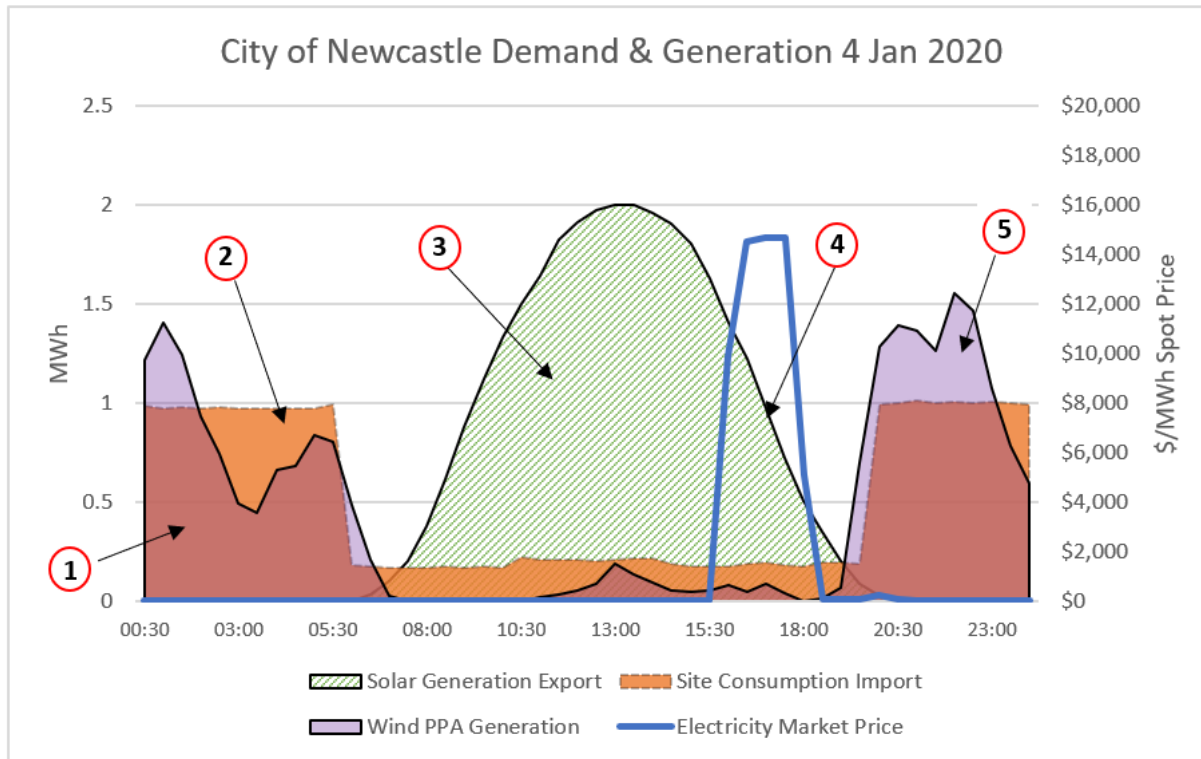
Energy Generation Agreement (EGA)

\$ Spot price ↑  
↓ MWhs



NEM Spot Market

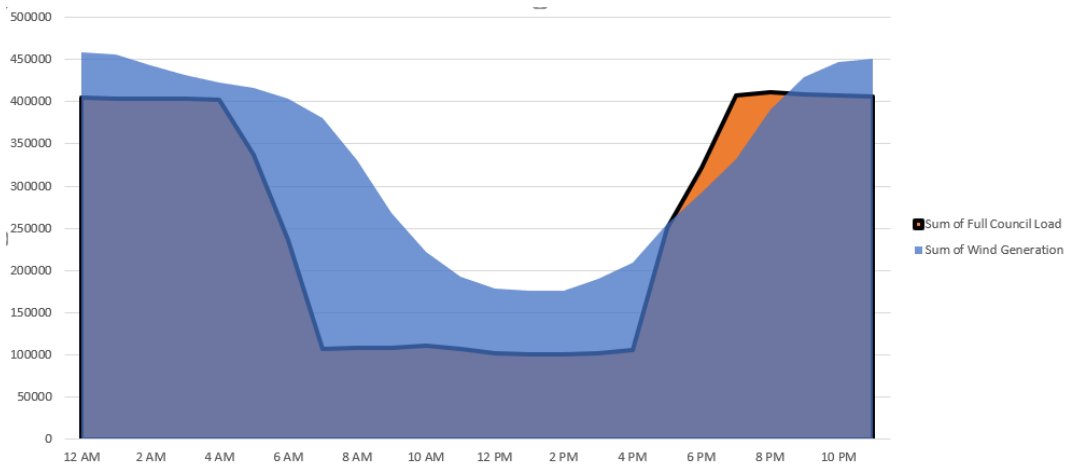
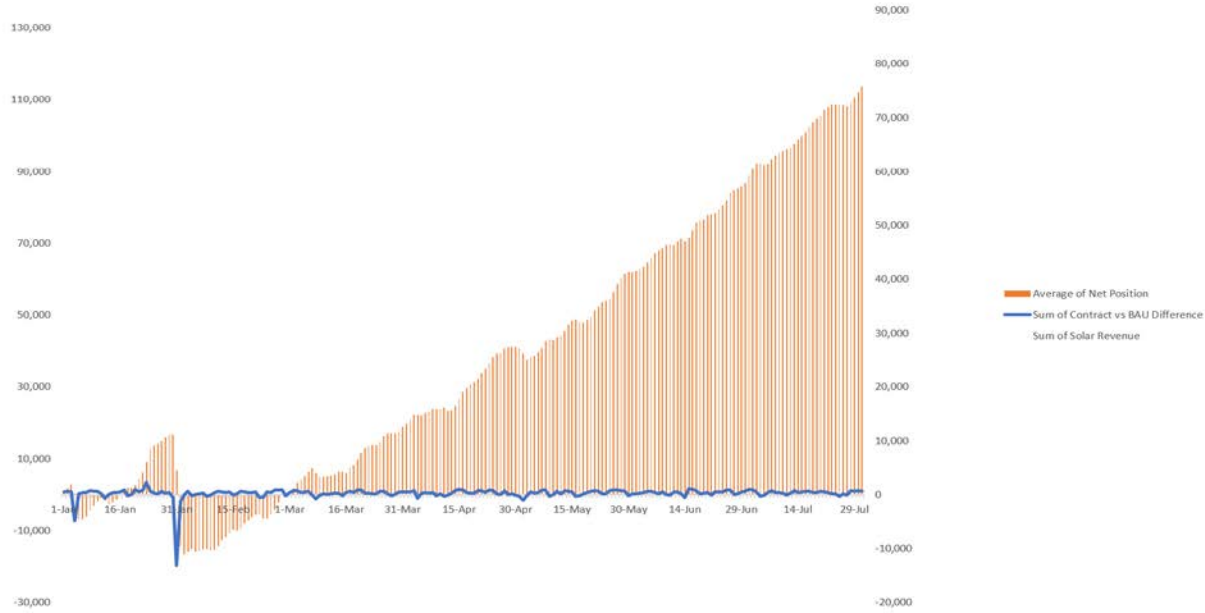
# Tracking Performance



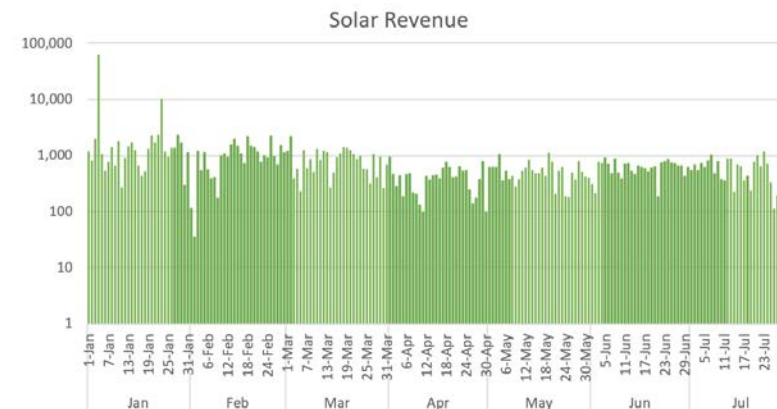
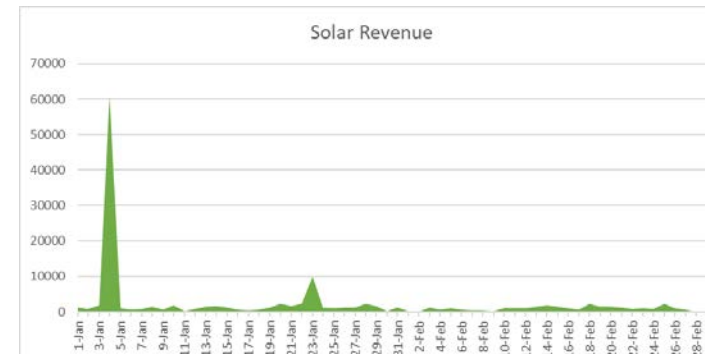
## *A detailed examination of City of Newcastle Supply and Demand Profile Jan 4, 2020*

1. Electricity Demand across all sites is matched or covered by the Wind PPA (Hedged), Electricity cost = Fixed PPA price.
2. Site Electricity Demand exceeds generation (Unmatched) so exposed to spot price = Market Price (Cost)
3. Solar Generation Export exceeds Site Electricity Demand = Receives Market price (revenue)
4. During High Price Event, City of Newcastle is supporting grid as a Net-Generator = Revenue at Market Price
5. Wind PPA generation exceeds Site Electricity Demand (Unmatched) = Excess exported at Market Price

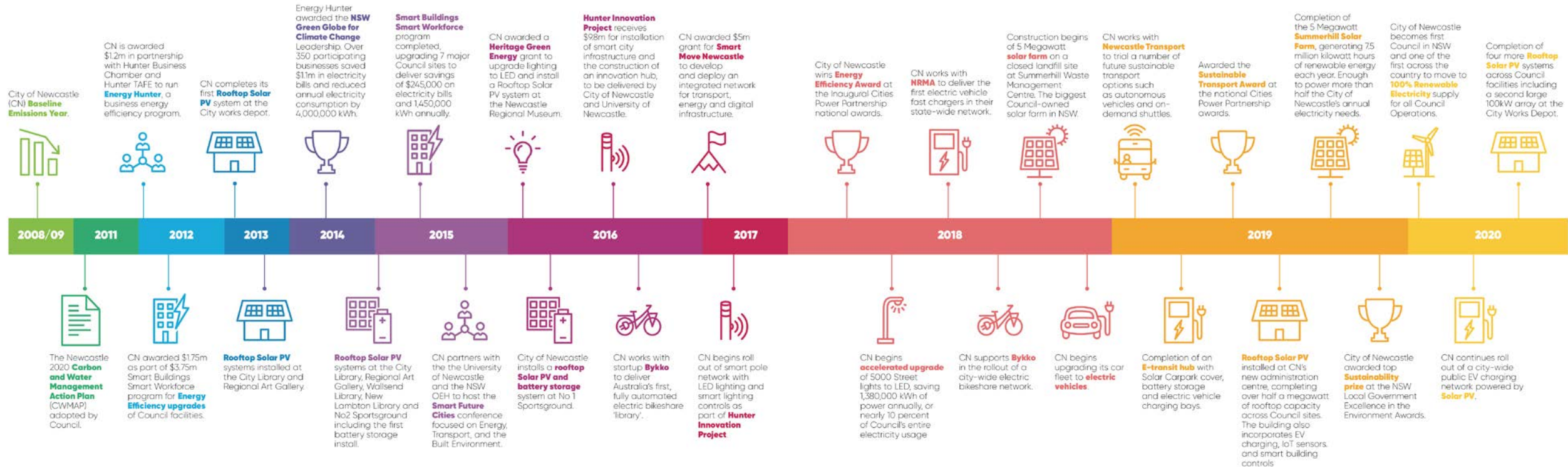
# Tracking Performance



- Despite a Volatile January period (particularly Jan 4 and Jan 31), Contract is still tracking well against BAU and is back in front. Long term modelling shows clear benefit against BAU.
- Future demand response and storage will take further advantage of the opportunity from volatile pricing.
- Conversely, revenue from solar farm, which has not been included in graph on left, has done exceedingly well from the high price events (as seen below).



# Taking Action to reduce emissions





## Current Status of CWMAP

17.39% Reduction in Electricity use

13.89% Reduction in Water use

6.8% Reduction in Fuel use

100% Renewable Electricity supply

77% Reduction in Carbon Emissions\*

\*excludes City emissions from Summerhill Waste Management Centre



# Developing the Draft Climate Action Plan





# Newcastle 2030 (Community Strategic Plan)

## Newcastle Environmental Strategy (under review)

### 2025 Climate Action Plan

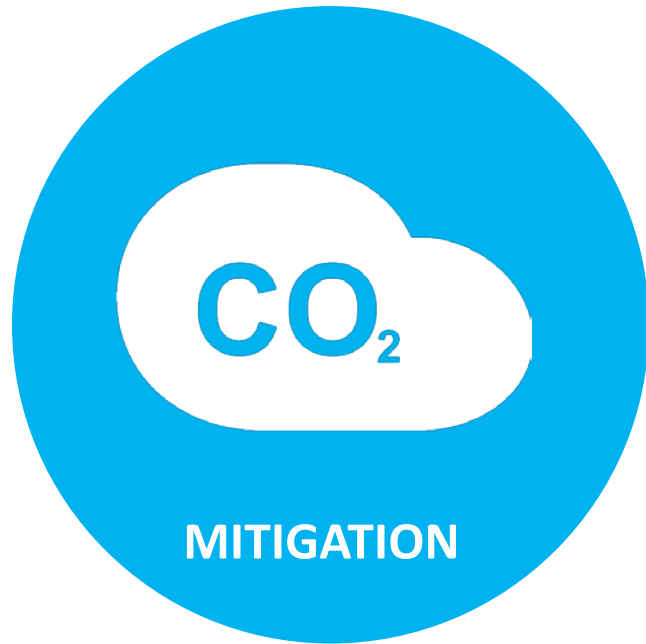
- #### Complementary Plans:
- Waste Management
  - Urban Forestry
  - Biodiversity
  - Coastal Management

- #### Other Strategies:
- Cycling Strategy
  - Transport Strategy





# The difference between mitigation and adaptation



Reduce greenhouse gas emissions to limit global warming and climate change

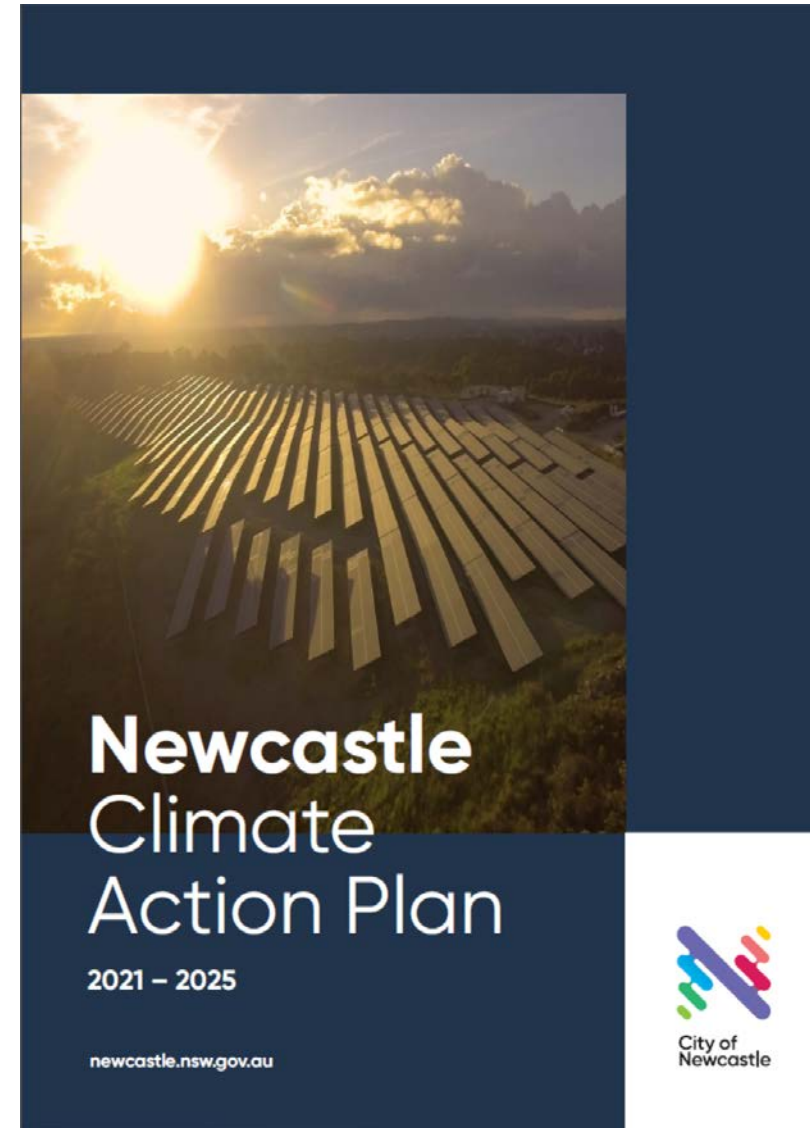
VS



Prepare for the changes that come with climate change

# Developing the New Plan

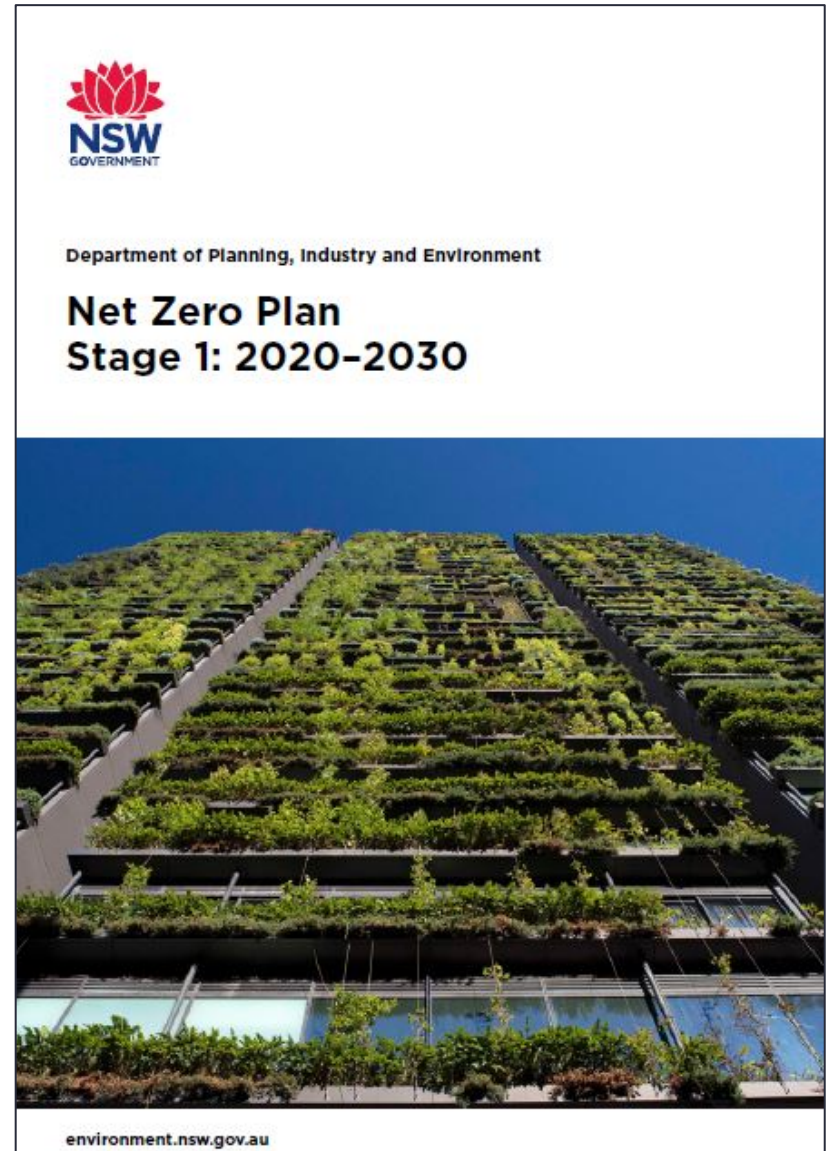
Schedule	Timing
Early Engagement	May 2020
Finalise Draft Document	June 2020
Presentation to Council for Draft Exhibition	July 2020
Public Exhibition	3 August – 31 August 2020 Public Exhibition
Finalise Document	September 2020
Return to Council for Adoption	October 2020



## NSW Net Zero Plan Stage 1: 2020-2030

Four key priorities

1. Drive uptake of proven emissions reduction technologies
2. Empower consumers and businesses to make sustainable choices
3. Invest in the next wave of emissions reduction innovation
4. Ensure the NSW Government leads by example

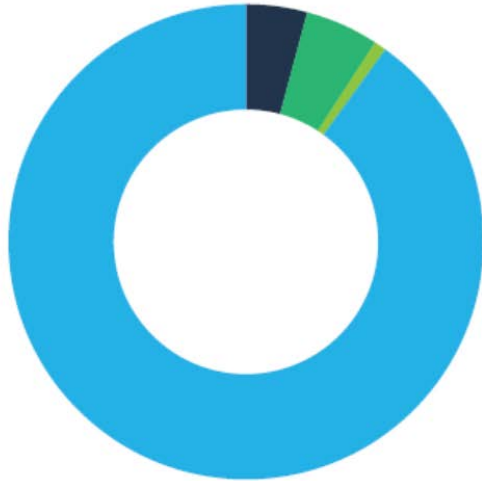


# Sustainable Development Goals the city should focus on, according to a recent community survey



# 2020 Updated Emission Profile – to date

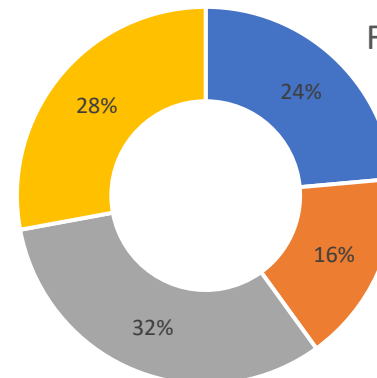
City of Newcastle 2020 Snapshot  
Scope 1, 2 and 3 Emissions  
(Excluding Summerhill WMC)



- Transport Fuels - 90%
- Fossil-based Gas and LPG - 4.0%
- Water & Wastewater - 5.0%
- Office Paper - 1.0%

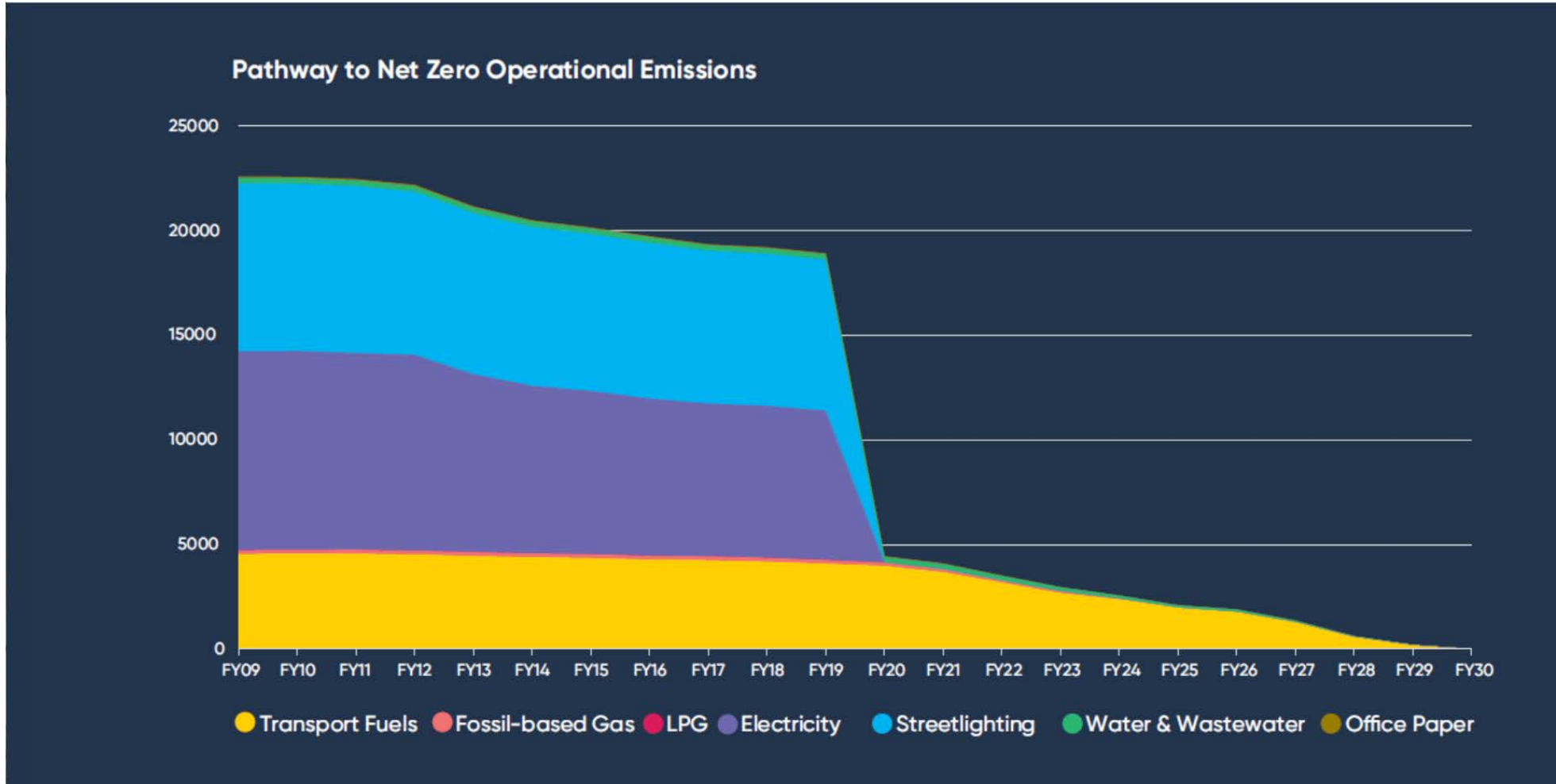


Fuel breakdown per type



- Light Fleet
- Light Trucks
- Stationary Plant and Equipment
- Waste Vehicle Fleet

# The Pathway to Net Zero





## **Net Zero Emissions – no later than 2030**

**By 2025:**

---

- **20% reduction in electricity use**
- **100% of lighting to be LED**
- **50% reduction in Fuel use**
- **50% reduction in carbon emissions**

A photograph of a modern, multi-story building with a glass facade, set against a sky with soft, golden clouds from a sunset or sunrise. The building's windows reflect the sky and the surrounding environment. A white text box is overlaid on the right side of the image.

## **Reducing our Corporate Emissions**

### **Targeting Net Zero Emissions**

---

- **100% Renewable Energy Supply**
- **Best Practice Energy, Water & Waste Efficiency**
- **Reducing Supply Chain Emissions**
- **Zero Emissions Transport**



# 100% Renewable Energy Supply

Objective: To utilise 100% renewable energy supply for City of Newcastle Operations

- 1.1 Continue to source 100% renewable electricity through a combination of onsite generation, battery storage and renewable electricity power purchasing agreements (PPAs).
- 1.2 Transition all plant and equipment to electric and battery powered options or other zero-emission alternatives.
- 1.3 Eliminate the use of fossil-based gas across CN operations. Where electric alternatives are unavailable, investigate the use of renewable gas.
- 1.4 Implement alternatives to reduce and remove the use of fossil-based liquid fuels across CN operations.
- 1.5 Investigate and install megawatt scale battery storage options to firm renewable supply and build resilience across CN operations.



# Best Practice Energy, Water and Waste Efficiency

Objective: Ensure Best Practice use of resources across all CN facilities and operations

- 2.1 Develop and implement a demand response program and increase battery storage across CN sites to reduce peak electricity use and provide grid support.
- 2.2 Ensure all installed building, facility, public and street lighting is LED or best practice equivalent.
- 2.3 Implement ongoing energy efficiency improvements across CN assets and aim for negative emission buildings.
- 2.4 Undertake audit of recycled materials collected and processed at Summerhill Waste Management Centre and identify opportunities for their utilisation within CN operations.
- 2.5 Establish organics processing, materials recovery and other processing facilities at Summerhill Waste Management Centre to provide best practice waste diversion and recovery.
- 2.6 Collect and analyse data on CN operational waste going to landfill and implement strategies to reduce and divert waste going to landfill.
- 2.7 Identify and implement opportunities for utilising water efficient technologies and recycled water.
- 2.8 Investigate opportunities for trialling and demonstrating vehicle-to-grid (V2G) and other emerging technologies.



# Sustainable Supply Chain

Objective: Identify and implement actions to reduce emissions in products and procedures across CN Operations

- 3.1 Set targets and policies for the use of sustainable and recycled materials in procurement, civil and construction works.
- 3.2 Identify and implement opportunities to utilise green concrete and other low emissions materials in CN civil and construction works.
- 3.3 Utilise recycled glass, aggregate and other recovered materials in CN operations.
- 3.4 Identify and implement opportunities to utilise recycled plastics in street furniture, posts, playgrounds and other CN infrastructure.
- 3.5 Remove all single use plastics from operational activities.
- 3.6 Work with local businesses to trial, develop and implement low emissions materials and technologies.
- 3.7 Prioritise low emissions building materials in design and construction of CN assets.
- 3.8 Improve data capture on supply chain emissions, measure embodied energy in materials and develop metrics to improve circularity in CN's supply chain.



# Zero Emissions Transport

Objective: Supporting the transition to clean, efficient, emissions-free transport across City of Newcastle

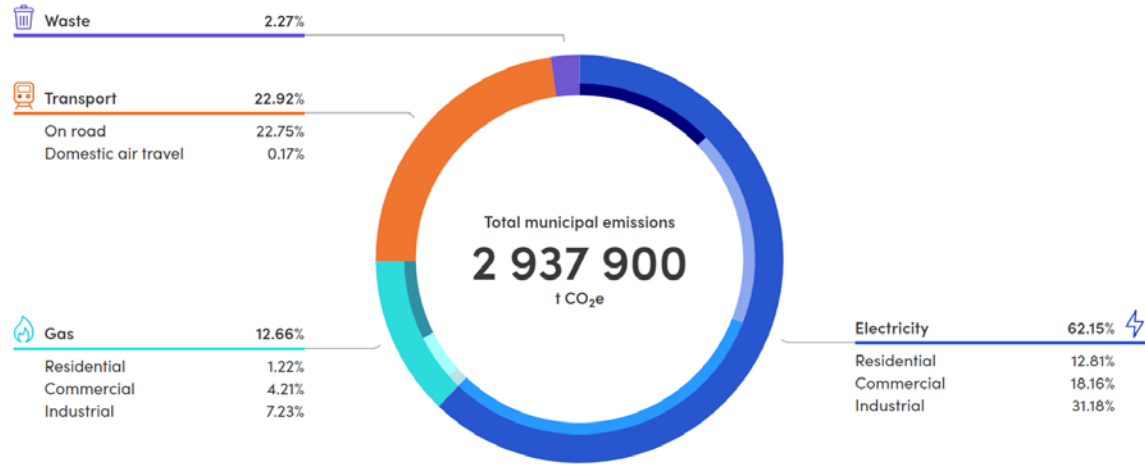
- 4.1 Support cycling through provision of adequate cycle lanes, bike parking and end-of-ride facilities.
- 4.2 Provide publicly accessible electric vehicle charging infrastructure at key locations throughout the city, powered by onsite renewables where possible.
- 4.3 Procure electric vehicles for all passenger fleet replacements where options are available and identify opportunities to accelerate removal of fossil-fuel based vehicles from operations.
- 4.4 Transition all CN light trucks to electric options where available and monitor and trial improvements.
- 4.5 Transition all CN heavy trucks including waste collection vehicles to electric options where available and monitor and trial improvements in technology.
- 4.6 Encourage sustainable transport options for all staff travel and offset emissions where options are not available.



# Community Emission Reduction

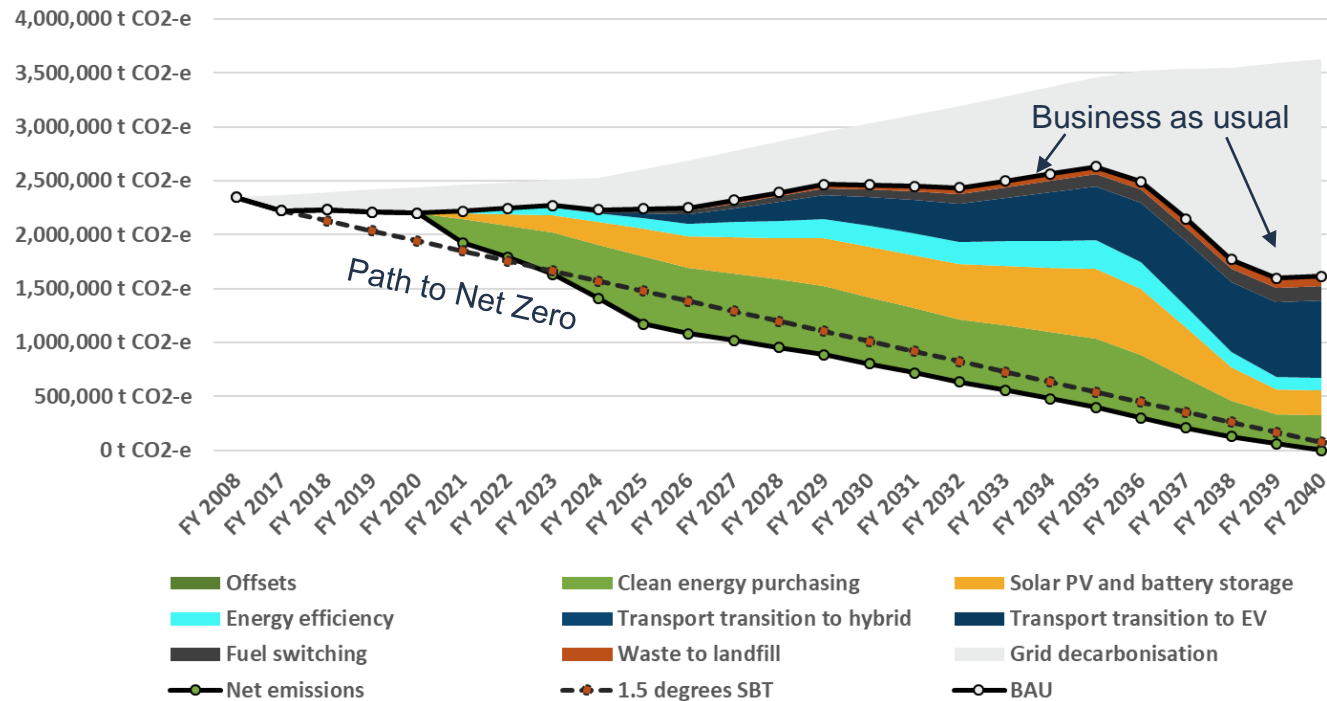
## Newcastle

2018/19 municipal emissions snapshot



# Community Emission Reduction

## Towards a Net Zero Emissions City



- Low Emissions Development
- Encouraging Clean Technology
- Supporting an Electric Transport Future
- Advancing New Zero Emission Industries



# Towards a Net Zero Emissions City

## Objective:

To create a resilient city that reduces its share of emissions to ensure a cleaner and more sustainable future

### Low Emissions Development

- 5.1 Develop and adopt a set of low-carbon and low-water building performance enhancements for inclusion in the City's Development Control Plan (DCP) for all new buildings and major renovations, including encouraging the use of green roofs and solar panels.
- 5.2 Lobby the NSW Government for improvements to the Building Sustainability Index (BASIX) minimum performance requirements, through a combined approach from active Local Governments.
- 5.3 Work with the NSW State Government to identify neighbourhoods and catalyst areas suitable for establishing a low carbon precinct as a demonstration project.

### Encouraging Clean Technology

- 5.4 Support and share knowledge with residents, business and industry to encourage energy efficiency, the uptake of renewable energy and target 100% renewable electricity supply.
- 5.5 Support residents, business and industry in transitioning to low emissions technologies, including development of solar gardens, virtual microgrids, community renewable energy and battery storage initiatives.

- 5.6 Investigate and encourage the opportunity for Newcastle residents and businesses to buy and sell locally produced renewable energy and carbon offsets.

### Building a Low Carbon Circular Economy

- 5.7 Promote and encourage local resilience and a circular economy through sustainable procurement practices, and the local sourcing, production and consumption of materials.
- 5.8 Identify options to encourage and support waste avoidance opportunities for Newcastle residents, business and industry.
- 5.9 Identify and measure the carbon sequestration potential from street and park trees, bushland, wetland and other natural assets and promote the opportunities and multiple climate and resilience benefits of urban blue-green grids.



# Targeting a Net Zero Newcastle by 2040

## Supporting an Electric Transport Future

- 5.10** Work with the NSW State Government, electricity network operator (Ausgrid), technology providers, neighbouring Councils and electricity retailers to provide suitable charging solutions for electric vehicle owners (both off street and on street parking).
- 5.11** Work with the NSW State Government, councils and other stakeholders to encourage and incentivise the uptake of electric vehicles and zero-emission transport.
- 5.12** Actively work with Newcastle Transport, Fleet and Freight operators to reduce transport emissions (including advocating for electric buses, ferries, taxis and delivery trucks in the City).

## Advancing New Zero Emission Industries

- 5.13** Advocate for Zero-emission Industries in Newcastle, the establishment of a low emissions technology development and commercialisation zone and support for a just transition for carbon workers.
- 5.14** Advocate for the creation of renewable hydrogen and ammonia export hubs, a regional bioenergy hub and green metal and mineral processing in Newcastle.
- 5.15** Actively promote Newcastle as a clean tech innovation hub and an international test laboratory for best practice carbon and water reduction technologies and services for the national and international markets.







<https://www.newcastle.nsw.gov.au>