

Responding to Climate Risk

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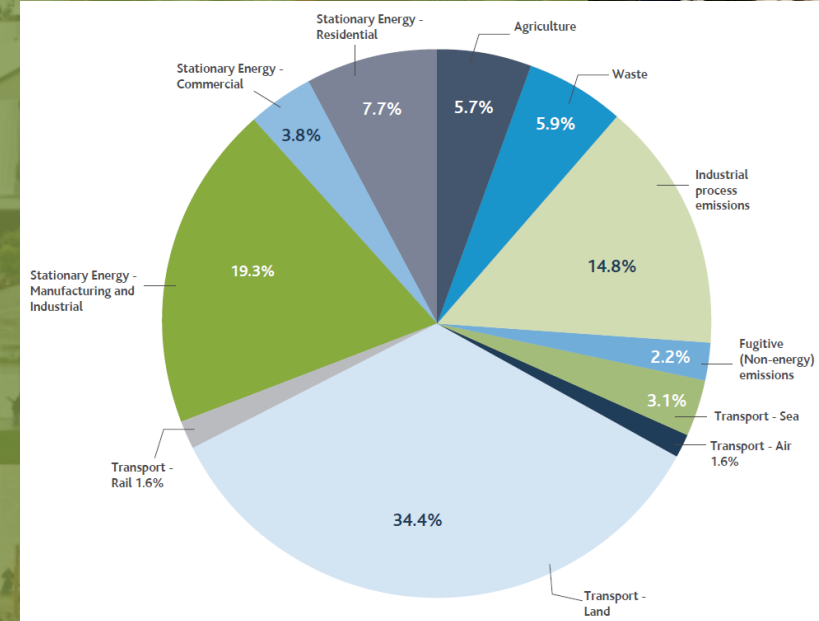
The Vision for Auckland

To be the world's most liveable
city

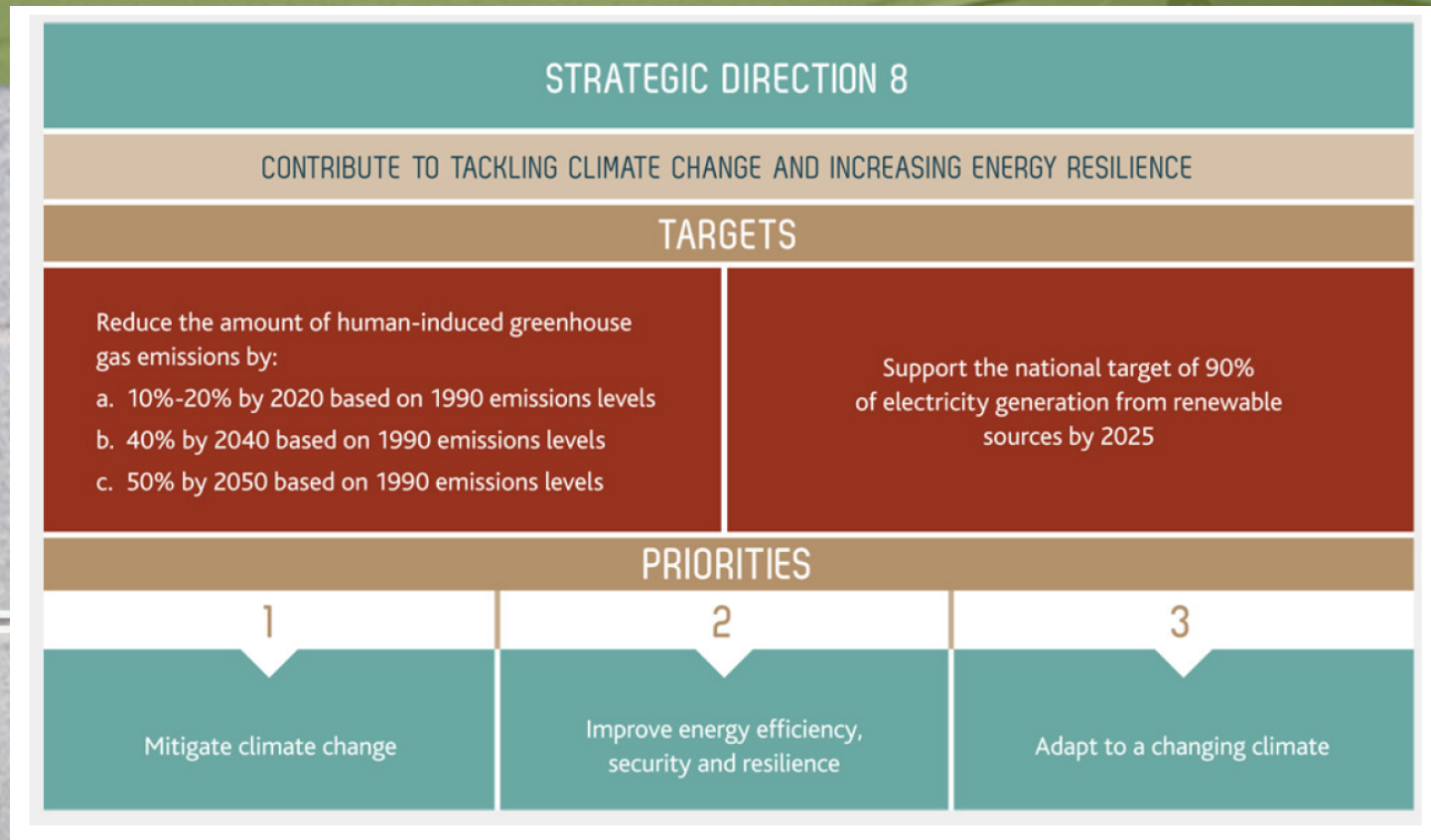


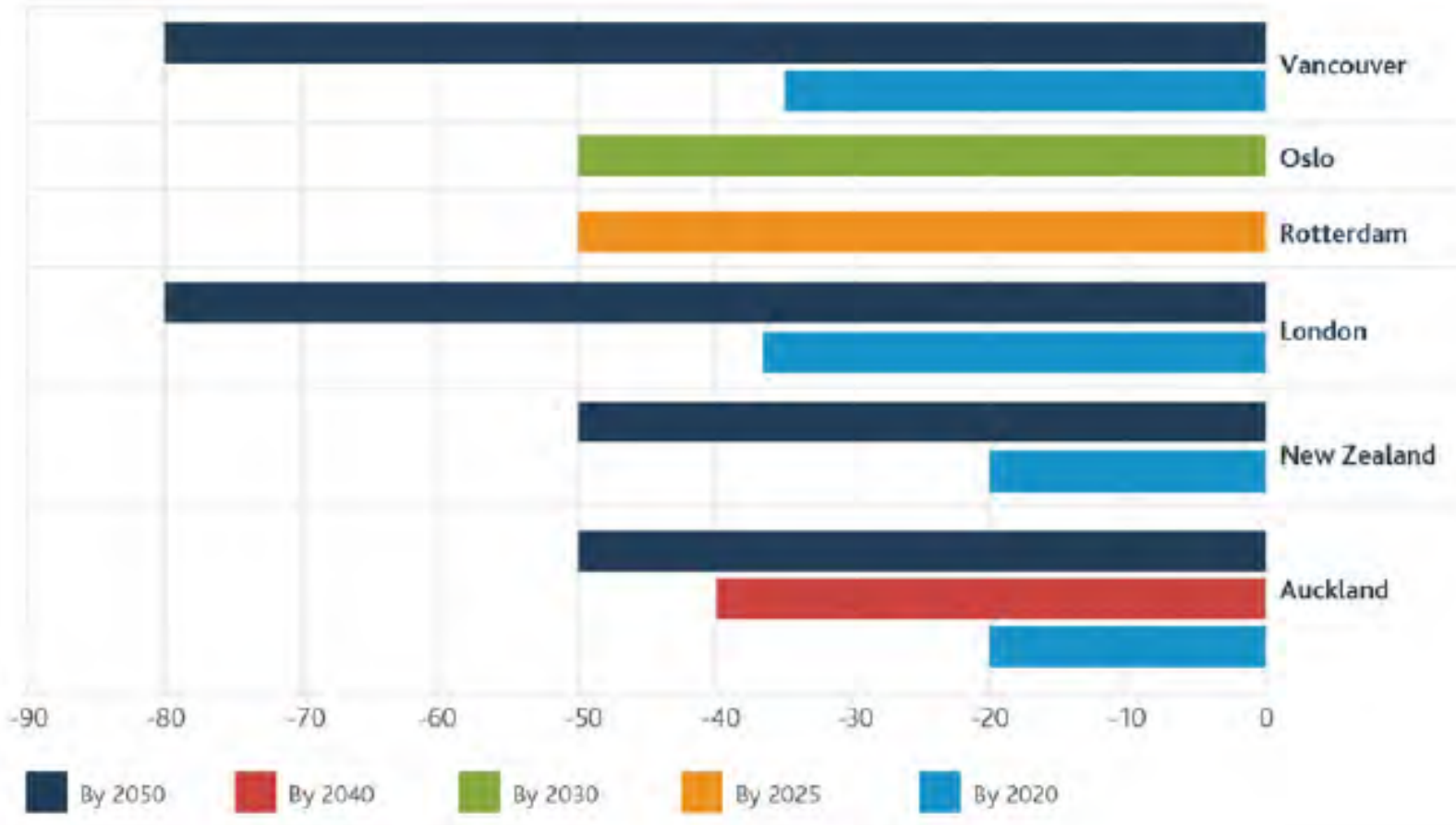
Challenges and Opportunities

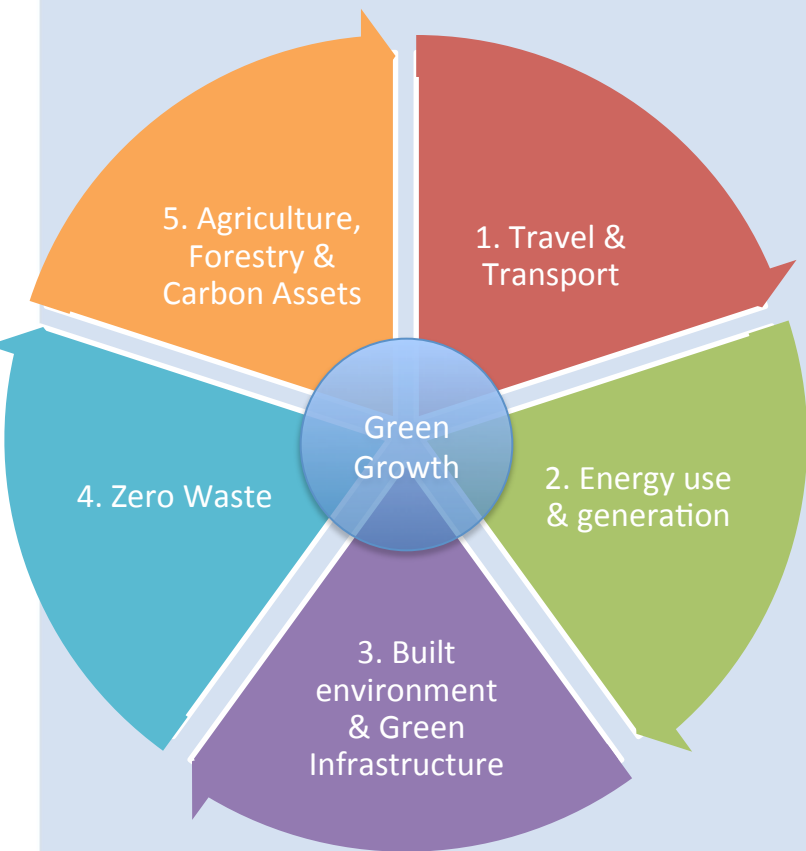
- GHGs projected to increase upto 46% by 2025.
- Stationary energy & transport account for 71% of emissions
- 68-79% of NZ's electricity supply is renewable.
- Auckland's energy vulnerability:
 - Only 29% of energy demand is generated in the region.
 - Energy use projected to rise by upto 65% over the next 25 years.
 - Projected doubling of annual energy spend by 2031.
 - Fossil-fuel dependent transportation.
- Key drivers for trends:
 - Growing population and associated development.
 - Fluctuating energy prices.
 - Affluent lifestyles/growth offsetting energy efficiencies
 - NZ Green Growth Opportunities - NZ\$7.5–22 billion annually.



Climate risk management and energy resilience: *Critical to our liveability*







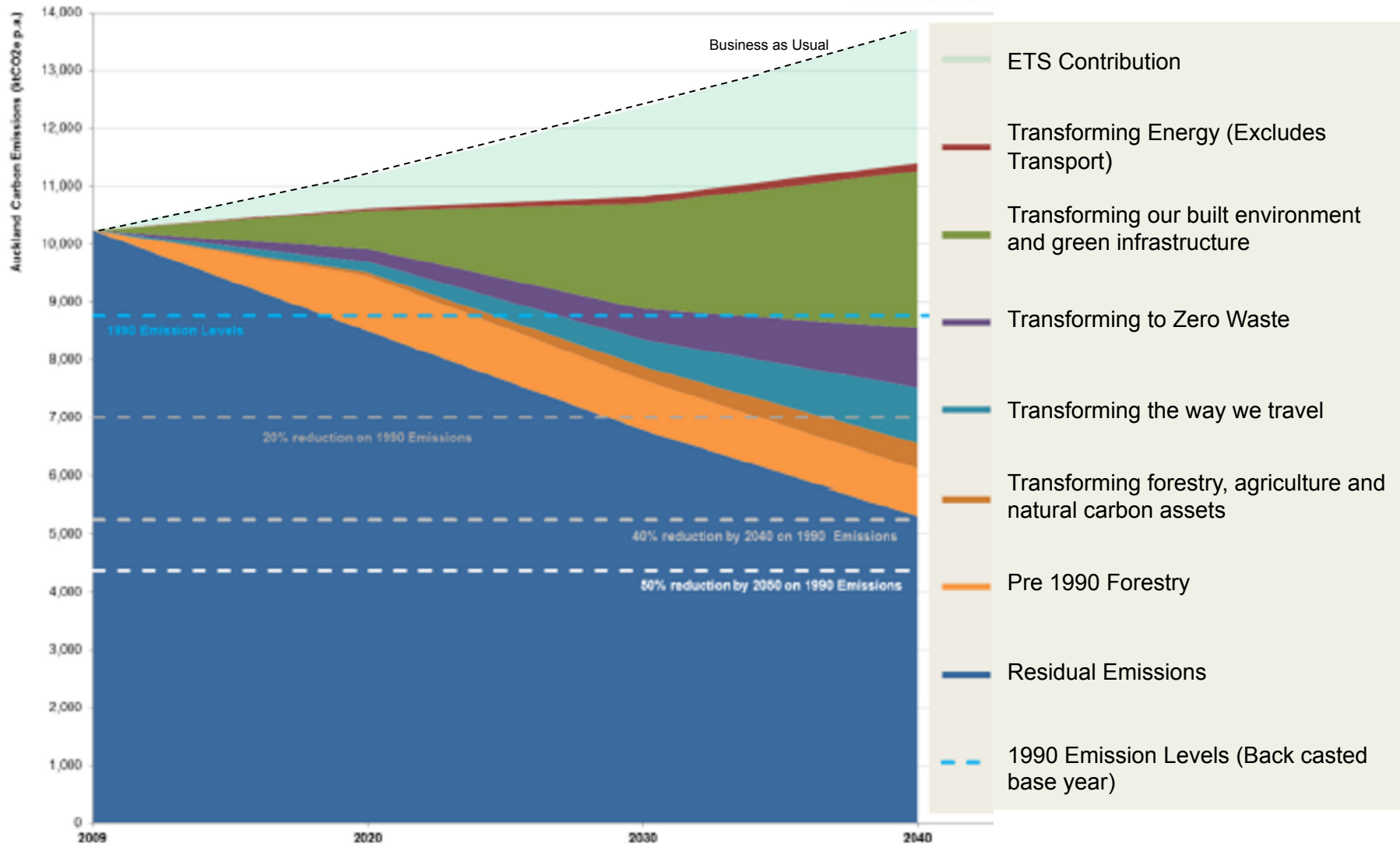
Low Carbon Auckland:

- Launched on 1 July 2014.
- A plan for Auckland, collaboration is key.
- 30 year pathway & 10 year action plan.
- Visionary and evidence-based.
- Five areas of transformation.
- Green Growth – a cross-cutting theme.
- 112 Actions - approximately 80 underway

Downloads available: www.aucklandcouncil.govt.nz/lowcarbon



Auckland's Emissions Abatement Pathway



Implementing Low Carbon Auckland:

Proposed Auckland Unitary Plan

- **Diversify energy generation options, focusing on an increased uptake of local renewables (e.g. solar and wind)**
 - Micro generation (now a permitted activity); community-scale energy schemes.
 - Energy efficiency measures,
 - Secure, resilient transmission and distribution network.
- **Quality urban form**
 - Integrated land use and transport enabling reduced trip length; > PT use, active transport, and reducing reliance on car travel.
 - Reduced minimum/ off-street car parking requirements.
- **All development managed to achieve best practice sustainable design**
 - Office and industrial buildings (5000m² or more) need to obtain a 4-star rating
 - Residential development (5+ dwellings) needs to achieve a 6-star rating
 - Retrofitting of existing buildings to achieve best practice sustainable design.
- **Protection/promotion of existing/new carbon sinks (e.g. forestry)**
- **Other provisions: Resource efficiency, waste minimisation and local food production**

73% National average
Only 68-79 per cent of New Zealand electricity supply is generated from renewable sources.

The majority of the energy used in Auckland is sourced from outside the region.

65%
Auckland's energy demand could increase by up to 65 per cent by 2040.

2.1% annually
1.7% National average
Auckland's electricity demand is forecast to grow on average by 2.1 per cent annually over the next 15 years – higher than the national average of 1.7 per cent.

Average household spending on energy is around 17 per cent of its income.

-40%
New buildings can achieve a 30 per cent to 40 per cent reduction in energy use by applying current technologies.

\$5,000,000,000

Auckland's current spend on energy per year.

Transformation
#2

Transforming the way we use and generate energy

Managing the energy demand

- Develop smart green "zero energy" buildings and development through innovative low impact design.
- Improve the energy-efficiency of existing buildings through retrofitting.
- Invest in smart grid infrastructure and technologies.
- Promote energy efficiency.
- Install energy efficient street lighting.

Developing Auckland's low carbon energy options.

- Remove regulatory barriers to encourage:
 - developing renewable generation (including wind and solar photovoltaics) on a large scale
 - uptake of small-scale distributed generation.
- Protect the key transmission corridors.
- Develop combined heat and power (CHP) schemes and waste to energy (WTE) conversions using residual organic waste.
- Stimulate widespread adoption of low-carbon technologies.
- Apply precinct and district scale approaches to optimise renewable energy generation and smart grid networks.

AUCKLAND 2040

All properties have access to 'smart' grid networks and technologies.

Solar photovoltaics (PV) and wind energy will account for **83%** of energy generated in Auckland.

90% of electricity is generated from renewable sources.

We reduce the energy used in street lighting.

Local large scale wind generation will power the equivalent of **238,909** homes.

Solar photovoltaics (PV) on buildings will power the equivalent of **176,565** homes.

Key Focus:

Building integrated renewable energy (e.g. Solar) into our buildings and development

Key projects:

- Proposed Unitary Plan - enabling development of renewable energy and best practice sustainable building design
- Stimulate uptake of low carbon technologies:
 - Council's procurement and asset management processes
 - Expansion of retrofit your home.
- 'Waste to energy' Feasibility studies.

Implementing Low Carbon Auckland



Proposed Auckland Unitary Plan Approach to Sea Level Rise

Precautionary policy approach including:

- Mapping of areas subject to coastal inundation risk
- A preference for natural defence systems in the coastal environment
- Moderate zoning of coastal land.



Photographs: Coastal inundation event , 23-January 2011.

(Top): City-bound lanes, Causeway, NW Motorway [Image: NZTA, Auckland Motorway Alliance];

(Bottom): Kohimarama Rd [Image: Benjamin Eitelberg]

Proposed Auckland Unitary Plan Approach to Sea Level Rise

Development in existing urban areas:

- Plan generally for a sea-level rise of at least 1.0 metre by 2115
- Controls that raise habitable floor levels of buildings in areas subject to coastal inundation
- Assessment of risks required in areas subject to coastal inundation, which may require further mitigation.



NZTA, Auckland Motorway 23 January 2011



Tamaki Yacht Club, 23 January 2011

Proposed Auckland Unitary Plan Approach to Sea Level Rise

New Greenfields development:

- Plan for a minimum of 2.0 metres above 1990 levels by 2115
- Approach applied given greater ability to incorporate future-proofing into building and infrastructure location and design.



P Heyes, Maratai, 23 January 2011



Maraetai, 23 January 2011

Summary

- Improving energy resilience, reducing GHG emissions and adapting to climate risk are fundamental to Auckland's liveability.
- Enabled through the Proposed Auckland Unitary Plan.
- Low Carbon Auckland – innovative, transformative and models a collaborative approach to accelerate collective action.



For more information on Low Carbon Auckland:
Please visit: www.aucklandcouncil.govt.nz/lowcarbon
Email: 40by40@aucklandcouncil.govt.nz