

Lower Hutt's key emission sources, and measures to reduce them

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What I will cover

- Recap on Lower Hutt's footprint & Climate Action Pathway
- The key opportunities in each sector
 - Transport
 - Stationary energy
 - Waste
- Final reflections



Lower Hutt's footprint & Climate Action Pathway

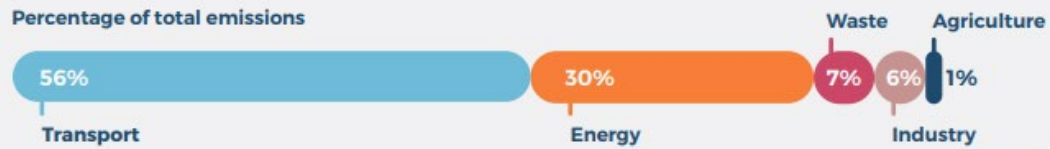
What we would like to avoid



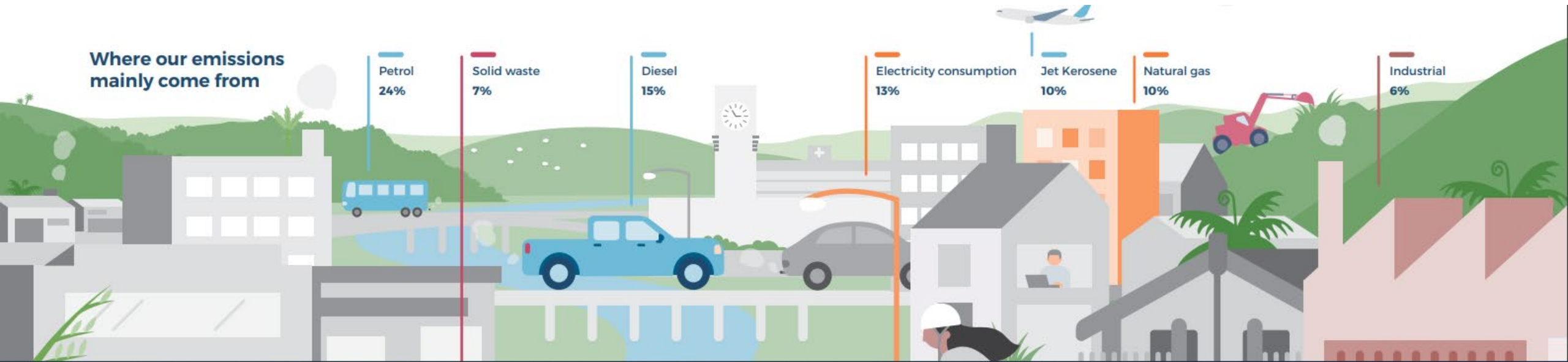
Lower Hutt “community” footprint

Lower Hutt total direct emissions

Percentage of total emissions



Where our emissions mainly come from



Choices affect the rate of decarbonisation



Te Ara Whakamua o Te Awa Kairangi ki Tai

Lower Hutt Climate Action Pathway

2030
50% reduction in city emissions, 30% reduction in biogenic waste emissions (methane)

2050
Net zero carbon emissions and a climate resilient city

Where we are heading

Net zero emissions by 2050. Building community resilience

This climate action pathway provides direction on where we need to target our future effort to reduce our transport, energy and waste emissions. It also focuses on wairuatanga - connecting with our natural world and preparing for the adverse effects of climate change.

2022-2024

Act now and connect what's underway

As a community we are clear about where we are going and what we need to do to get there. We acknowledge the climate crisis, take responsibility for our contribution and understand the strength of our collective response.

2025-2029

Accelerate Action

We will continue to challenge the status quo, accelerate climate initiatives and measure our collective impact. Our firm action will ensure we are on track to halve our emissions by 2030. As a future focused and innovative city, our courage and effective climate action will lead Aotearoa.

2030-2050

Delivering for the future

We are on the Race to Zero with climate action delivering a steady and substantial reduction in emissions. We will be prepared for the impacts of climate change, with connected and resilient communities. Our connection to the natural world is a part of our everyday lives; Papatūānuku and Ranginui are acknowledged and celebrated throughout the city.

Collective Focus and Community Response

Transport

Walking and cycling

- Expand the walking and cycling network
- Improve access to bikes and bike parking
- Support tamariki to safely walk, cycle or scooter to school
- Encourage people to walk and cycle short trips

Electric Vehicles

- Develop a low carbon public transport network
- Encourage government and large businesses to switch to EV fleets
- Expand the electric charging network

Public Transport

- More reliable and frequent services
- Improve access to public transport
- Make it easier to connect to different forms of public transport

Reduce Car Use

- Remote working at home and local co-working spaces
- Encourage businesses to support reduced vehicle use
- Support innovative new ways of moving around
- Investigate how we can reduce driving in urban centres

Energy

Energy generation and use

- Encourage actions to reduce energy use
- Support lower carbon building practices
- Transition out of fossil fuels
- Explore local renewable energy generation

Consumption & Waste

Refuse, reduce, reuse, recycle

- Support the development of a circular economy
- Embed and improve HCC's kerbside rubbish and recycling
- Reduce food and green waste
- Improve methane capture at landfills

Te Taiao

Connect with our natural world - Wairuatanga

- Strengthen our connection with te Taiao
- Restore biodiversity and improve carbon sequestration
- Develop nature-based solutions to tackle the impacts of climate change

Future City Design

Living well locally

- Encourage living well locally
- Strengthen communities through connected neighbourhoods
- Ensure Papatūānuku is acknowledged through the city

Climate Adaptation

Preparing for the future

- Improve our understanding of risks of sea-level rise and flooding
- Plan and continuously adapt
- Build community resilience

Percentage of total emissions

56%

30%

7%

Immediate action on reducing carbon emissions

Adapting and building resilience for the future

Ka whati te tai, ka pao te tōrea!

Our race against time

Te Ara Whakamua o Te Awa Kairangi ki Tai
Lower Hutt Climate Action Pathway

March 2022



Transport

Some factors to facilitate emission reductions

Avoid

- Housing and key services close to employment or near public transport networks, to reduce the need for travel

Shift

- Connected network, attractive for people to cycle and walk
- People focused streets
- Making it easier for people to use public transport

Improve

- Electrification of transport



What's already happening

At HCC

- Investments into walking and cycling links (Te Ara Tupua, Tupua Horo Nuku, etc), placemaking (parts of Riverlink)
- Additional EV charging infrastructure for residents and businesses
- Procuring services with a lower carbon footprint
- Bus priority measures

Others

- Rail and bus improvements, integrated ticketing
- Bus fleet to be fully electric by 2030, electrification of passenger ferries
- Clean car discount scheme, Low Emission Transport Fund, encouraging the electrification of vehicles
- Rollout of EV charging stations by private providers

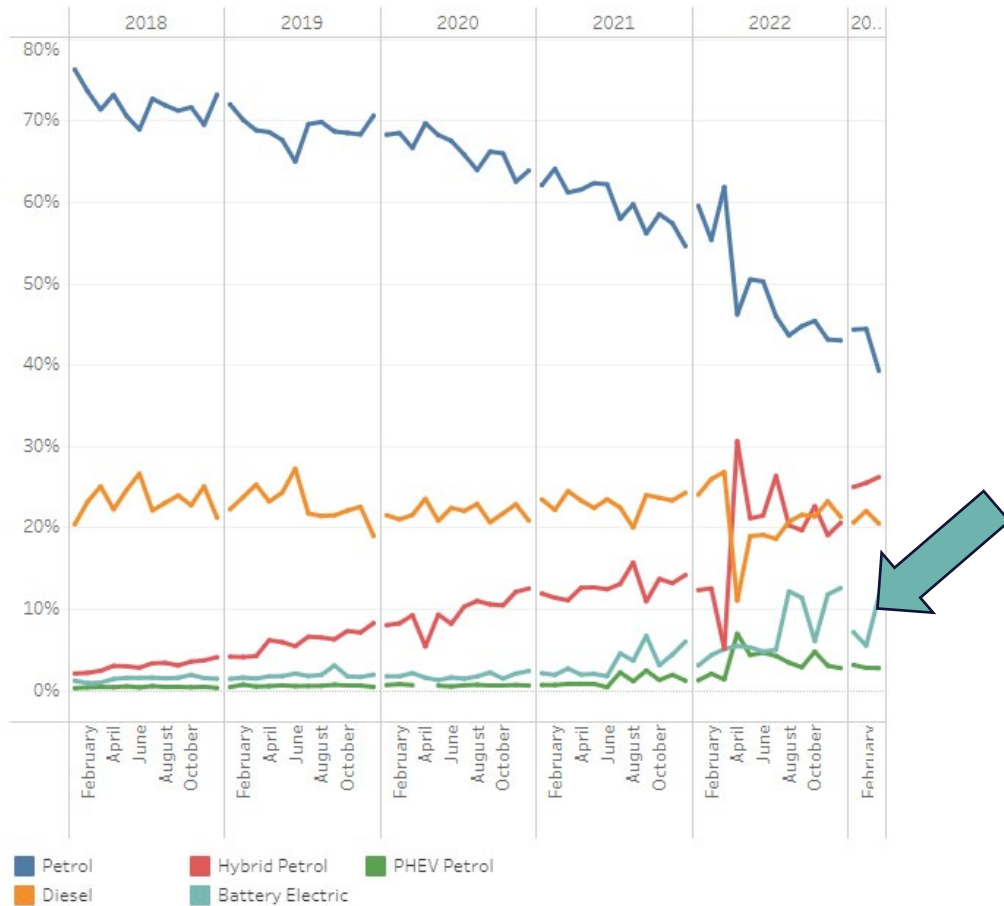


A closer look at electrifying transport

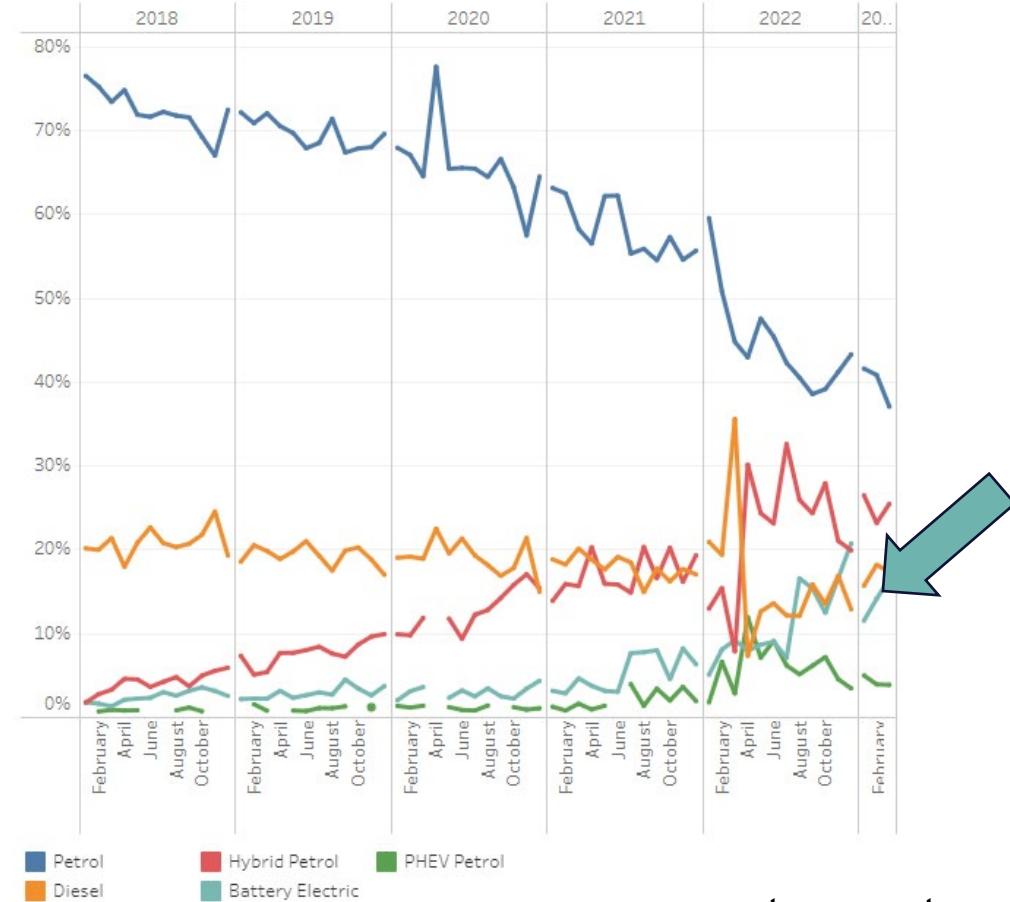


EV market share increasing

NZ



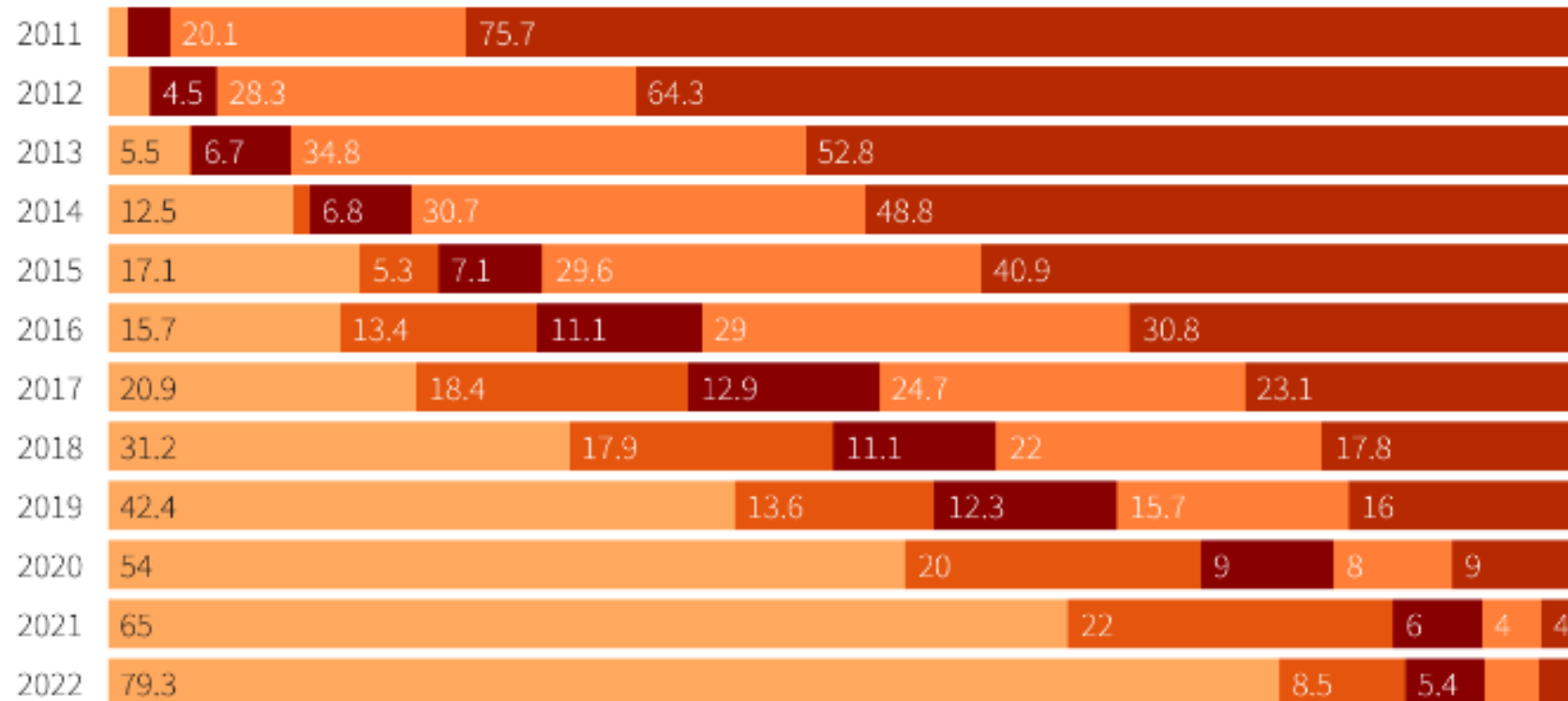
Wellington region



Disruption: electric vehicles in Norway

Years 2011-2022 in percentage of market per car type

● Electric ● Plug-in hybrid ● Non-plug hybrid ● Petrol only ● Diesel only



Disruption: horses vs motorcars

1900

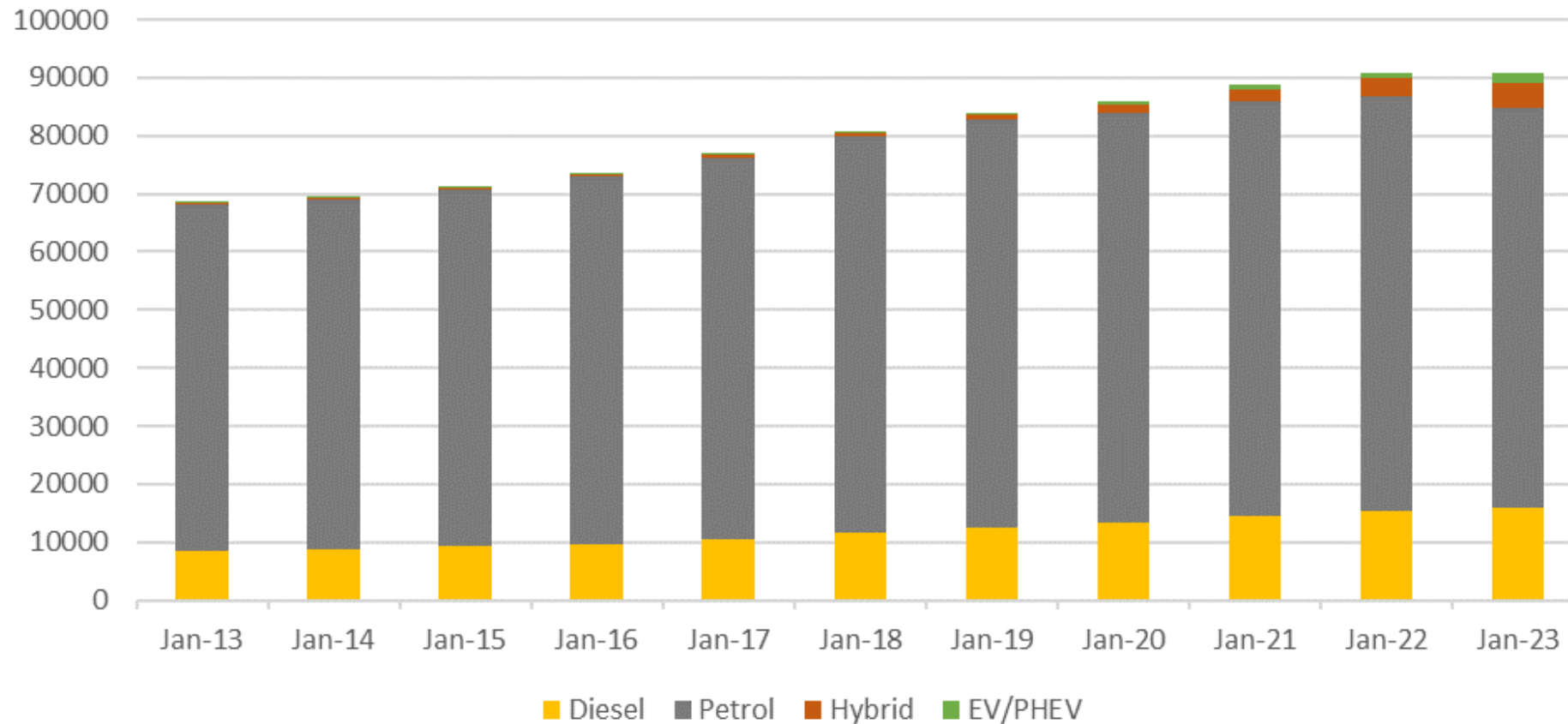


1913



New York 5th Avenue

Light vehicles in Lower Hutt



So what may be needed



What's needed to shift the dial: Climate Commission advice

- Support for improved urban form
- Simplified planning and increased funding of integrated transport networks that optimise public and active transport
- More support for car sharing and ebikes
- Sustained support for EVs, including a phase out date for ICE vehicles
- Investment and removal of barriers regarding charging infrastructure
- Support and incentives to decarbonise freight and commercial vehicles



To affect emissions in Lower Hutt...

- Further urban renewal and network improvements (eg cycle way connectivity)
- Going faster and further on encouraging the electrification of vehicles used in HCC contracts
- Low Carbon Acceleration Fund can accelerate electrification by helping businesses and other organisations
- EV car sharing
- More “hyper” charging stations for EVs
- “Roaming” for EV charging



Stationary energy

Some factors to facilitate emission reductions

- Density of urban form
- Improving energy efficiency
- Transitioning out of fossil fuels such as fossil gas
- More renewable & low carbon energy generation



What's already happening

At HCC

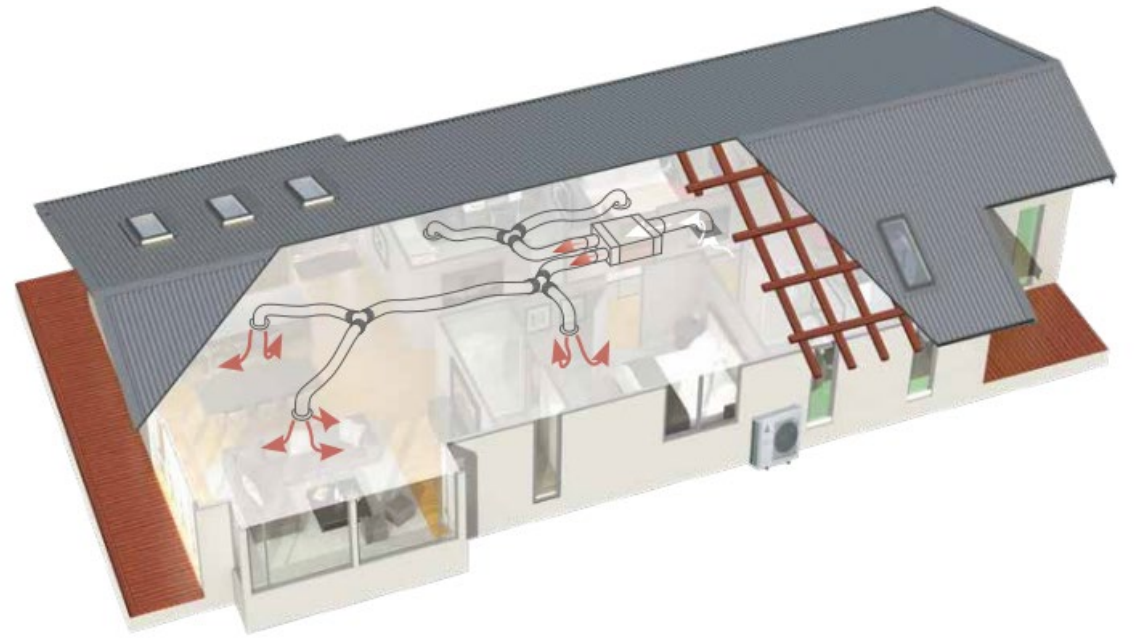
- Investment into placemaking and increased urban density (eg parts of Riverlink, Plan change 56)
- Free home energy efficiency advice for residents
- New Naenae pool - work to achieve GreenStar rating and no fossil gas for heating
- All Council facilities to phase out fossil gas by 2030 (Eastbourne pool already completed, Dowse and McKenzie pool under way)
- Urban Plus Ltd: no fossil gas in any of their new developments

Others

- Warmer Kiwi Homes grant funding
- Support for decarbonisation of process heat
- Minimum energy efficiency performance for various products
- Kainga Ora: no fossil gas in any of their new developments



A closer look at electrifying homes

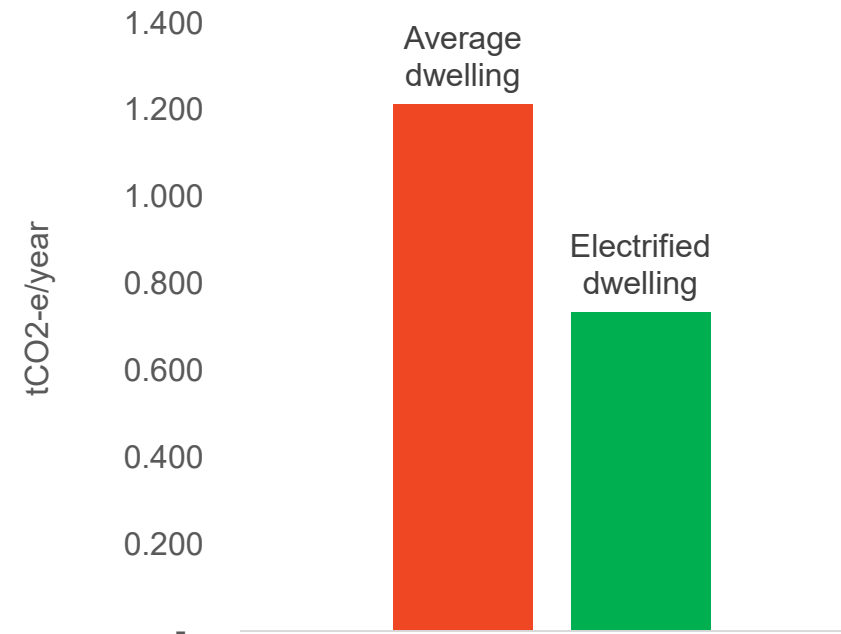
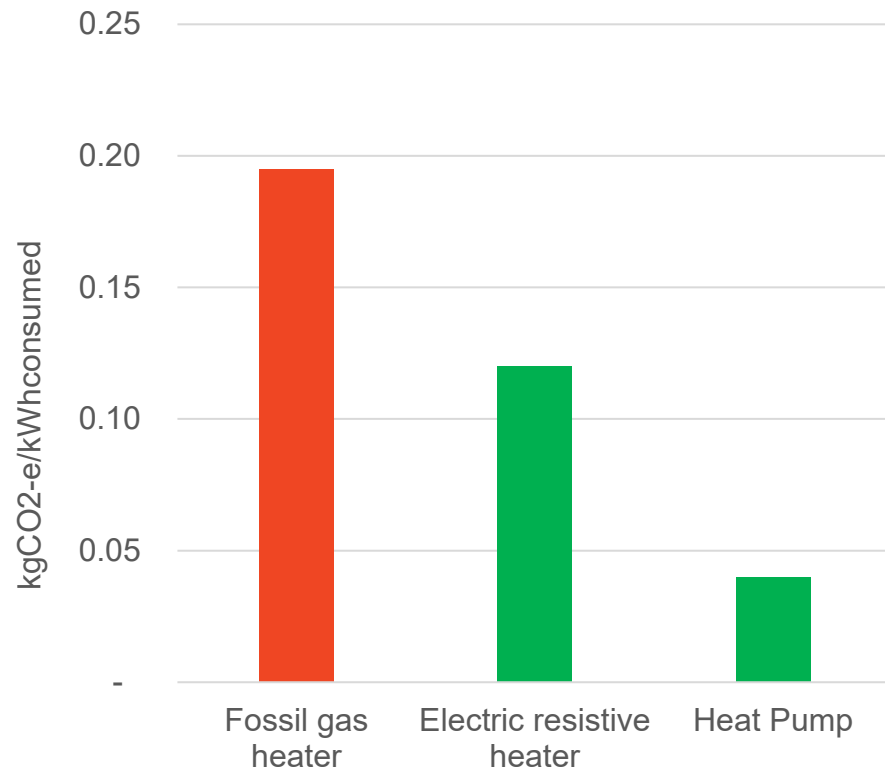


Types of heating used in Lower Hutt

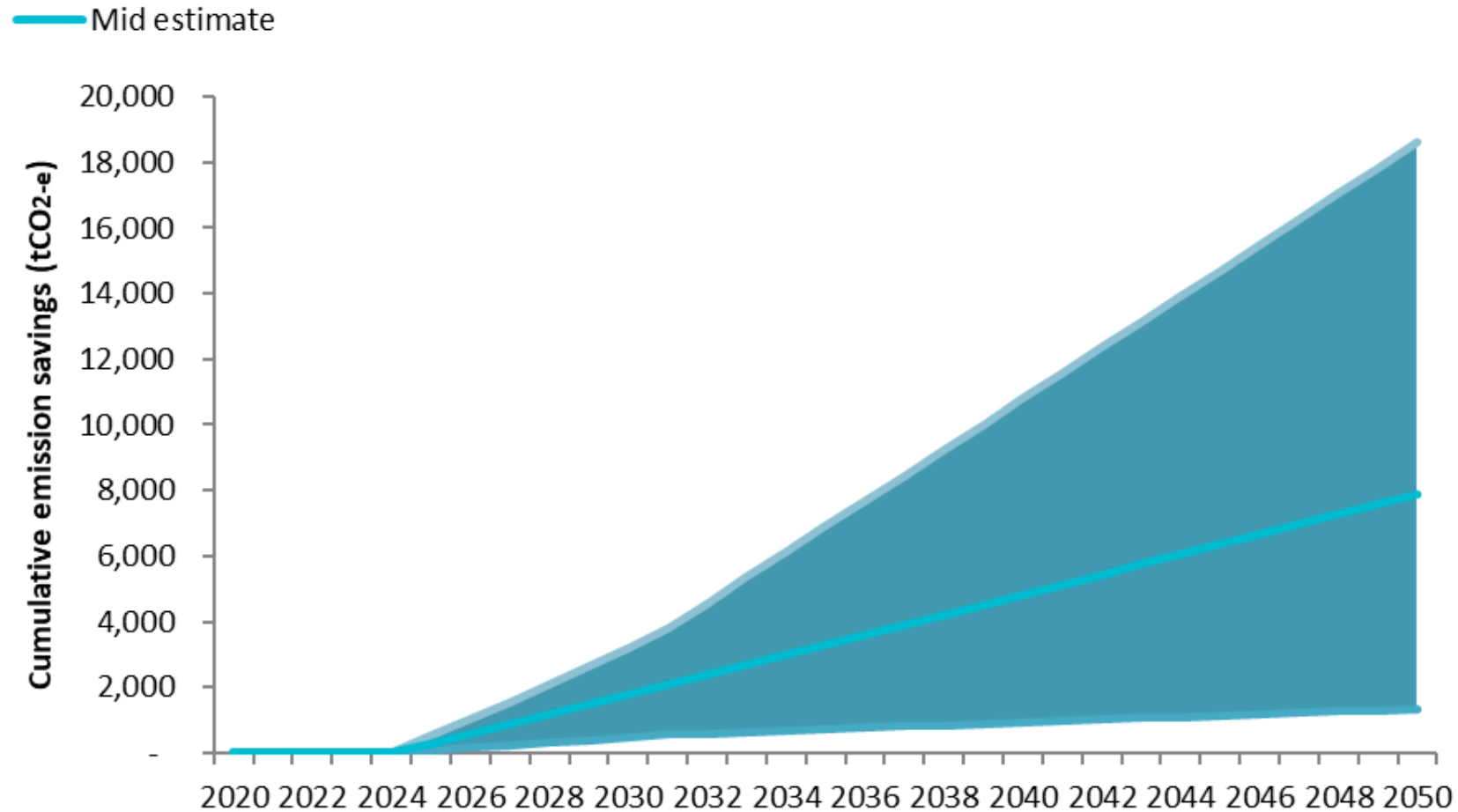
Category	Lower Hutt (%)	New Zealand (%)
No heating used	2.0	4.0
Heat pump	46.8	47.3
Electric heater	52.2	44.1
Fixed gas heater	24.8	11.7
Portable gas heater	5.6	6.3
Wood burner	22.5	32.3
Pellet fire	0.5	1.0
Coal burner	0.2	1.2
Other	4.5	3.0



Fossil gas has a high carbon footprint

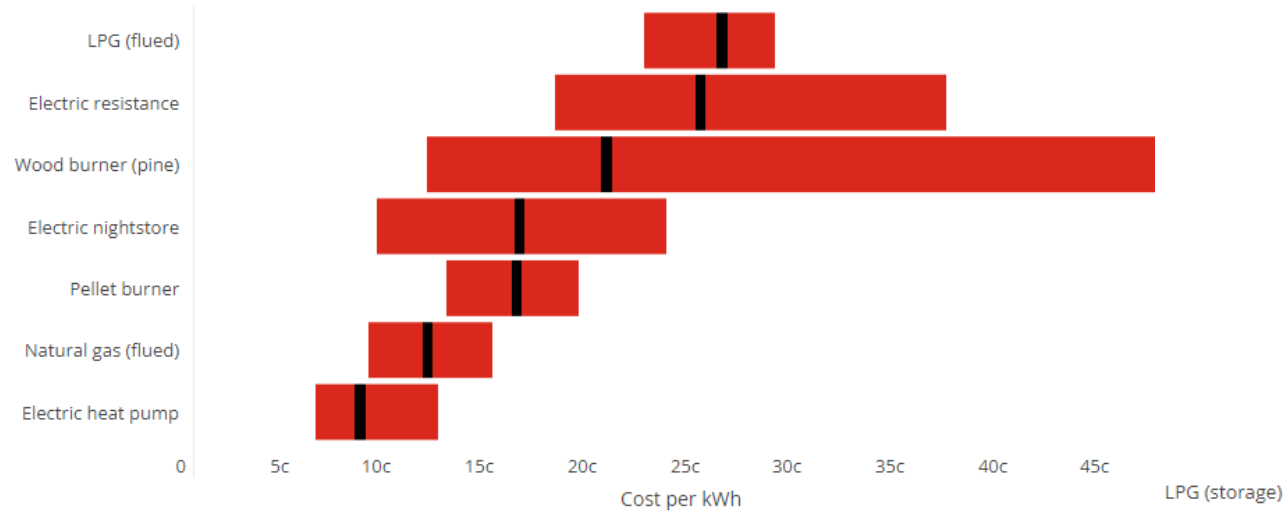


Growth in gas use will increase emissions

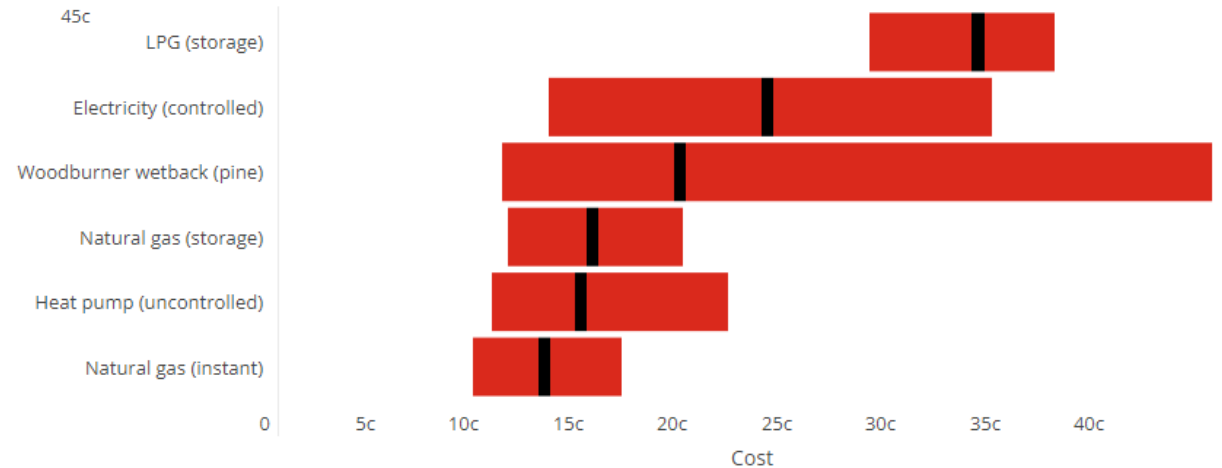


Electricity is viable and cost-effective

Cost of one kilowatt of heat for one hour



Cost to heat 20L of water by 50°C



Why not hydrogen?

- Emits only water when burned

But:

- Not yet available, so has no role to play in halving emissions by 2030
- Significant challenges and costs to feed into the gas network
- Can be blended with fossil gas, but appliances will need to be replaced for blends higher than about 20% → cost implications
- Subject to leakage → extends lifetime of other GHG
- Energy intensive to produce, significantly more electricity is needed to produce the same result (heating or powering a home)
- Should be used for hard-to-electrify applications (steel, urea, ...)



So what may be needed



What's needed to shift the dial: Climate Commission advice

- More renewable energy generation, terminate electricity generation with coal
- Support for energy efficiency, and improved demand side management (reducing peak demand)
- Address barriers, and provide support for decarbonising low to medium temperature heat applications
- Targeted support for replacing fossil gas for some households and businesses
- Prohibit new gas connections, as electricity is a more efficient and lower emissions source of energy for heating homes and businesses than fossil gas



To affect emissions in Lower Hutt...

- Low Carbon Acceleration Fund can accelerate electrification by helping businesses and other organisations
- Encourage alternative low-carbon heating technologies
- No new fossil gas connections
- Phase out use of coal for residential heating
- Solar PV on all key Council facilities
- Solar PV on residential properties and for businesses



Waste

What's needed to shift the dial: Climate Commission advice

- Transition to a more circular economy, avoid waste at source
- Resource recovery network and infrastructure for organic waste, and construction and demolition waste
- Best practice waste treatment and disposal practices
- Incentivise greater landfill gas capture performance and efficiency
- Clear long-term pricing signals regarding future waste levy increases



What's already happening

At HCC

- Flare installed in 2021, performance contract with LMS to maximise methane destruction
- New kerbside service, including optional green waste collection. The number of subscribers continues to grow.
- Development of business case for food and green organics collection, both residential and commercial
- Interim upgrades to Silverstream transfer station, diversion of green waste at Silverstream
- Development of a new Waste Management and Minimisation Plan under way

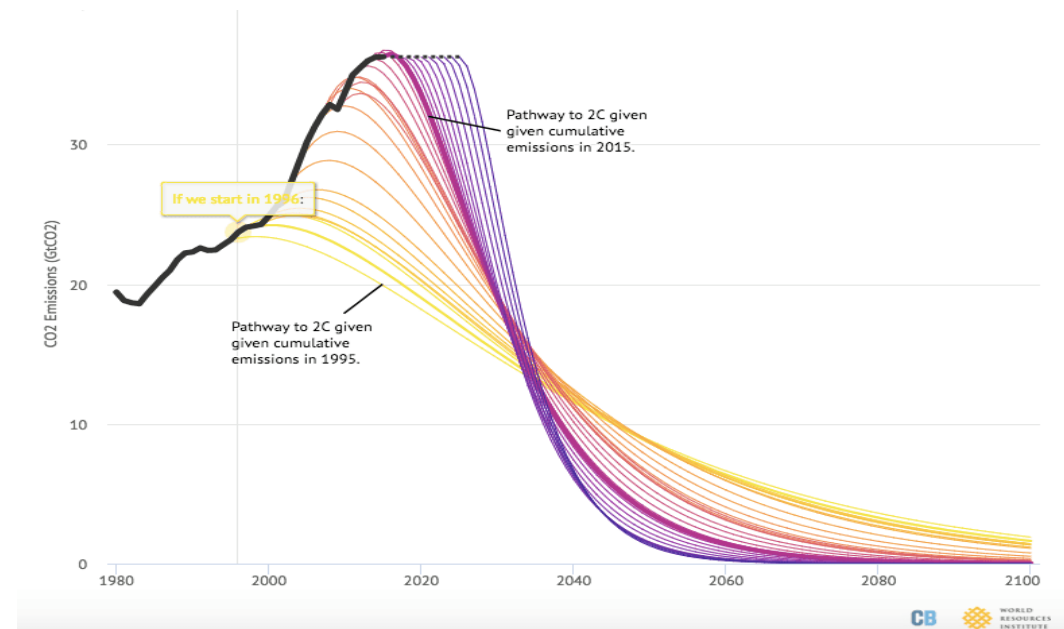
Others

- Waste levy increases (\$30/t in 22/23, increasing to \$60/t in 24/25)
- Waste Management planning a new Resource Recovery Park in Manor Park, including recovery of Construction and Demolition waste
- Wellington Water working on options for managing biosolids/sludge from Seaview WWTP



Final reflections

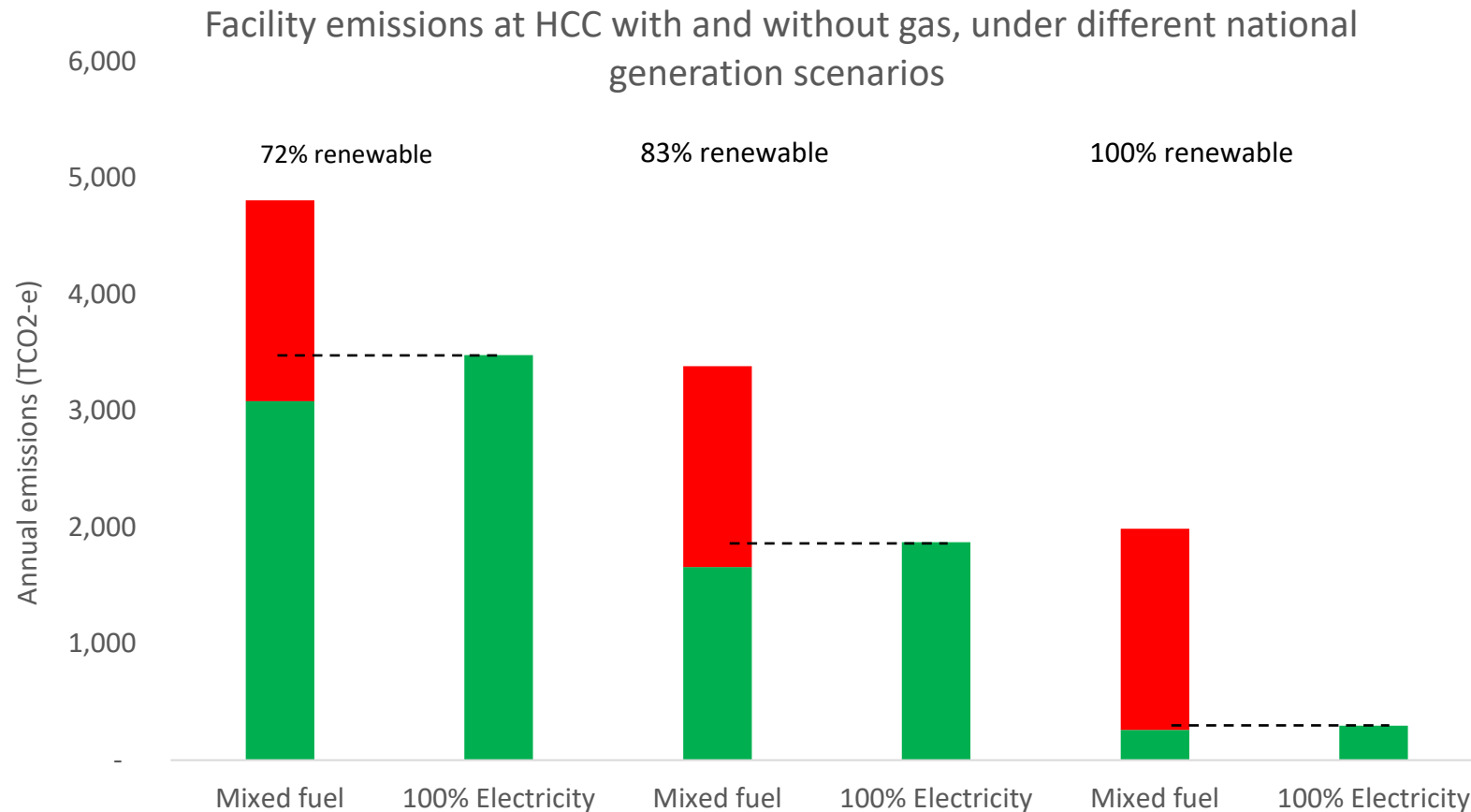
- We are still only at the beginning of our carbon reduction journey
- Delay now will make it harder later
- But change can also happen quickly



Questions?

Back-up slides

But what about all the coal and gas to make electricity?



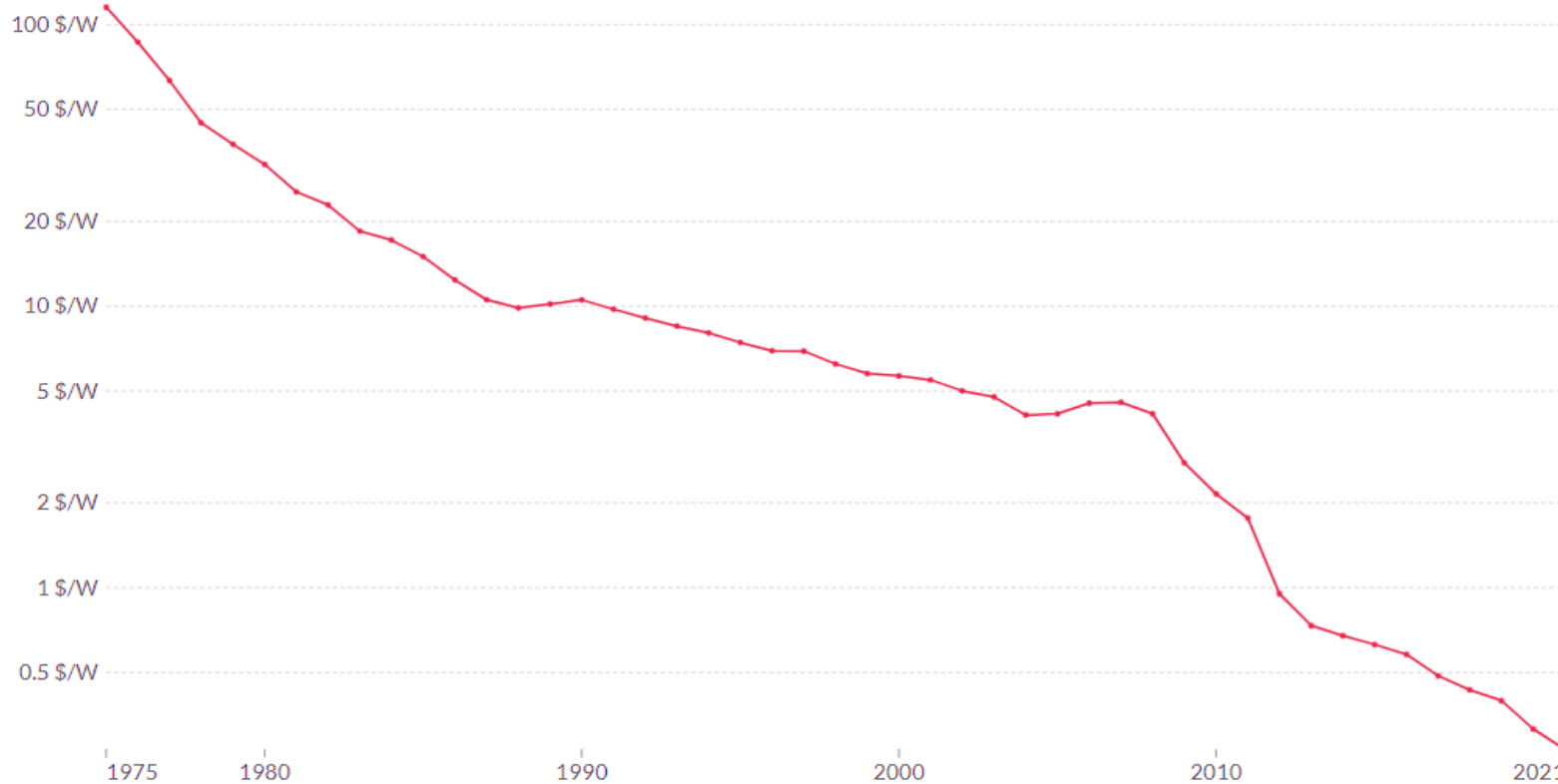
Producing your own low carbon power

Solar (photovoltaic) panel prices

This data is expressed in US dollars per Watt, adjusted for inflation.



LINEAR LOG



Source: Nemet (2009); Farmer & Lafond (2016); International Renewable Energy Agency (IRENA)
Note: Data is expressed in constant 2021 US\$ per Watt.