

Clean Energy: summary

- **Bringing forward our 100% renewable electricity generation target by five years to 2030**
- **Further investment in a dry year storage solution to enable New Zealand to achieve 100% renewable electricity**
- **Accelerate the electrification of our transport and industrial sectors**
- **Increase support to businesses to drive energy efficiency and help switch to renewable sources**
- **Invest in emerging technologies, such as green hydrogen, to position New Zealand as a world leader in renewable energy**

New Zealand has a unique opportunity to shift away from fossil fuels in favour of renewable energy and build a new low-carbon economy. While New Zealand produces 84 percent of its electricity from renewable sources, as a proportion of all energy only 40 percent is renewable.

Replacing imported oil and coal with domestic renewable electricity will improve our environment and deliver sustained economic benefits. It improves New Zealand's resilience, makes us less reliant on imported energy from overseas, and supports a cleaner environment and improved air quality.

The decarbonisation of New Zealand's wider energy system will increase demand for electricity. From electric vehicles, to heat pumps and industrial process heat, electrification will unlock the next generation of low-emissions innovation. New Zealand's reputation is already helping us attract world leading innovations, such as a trial of next generation electric-powered aircraft. Being at the leading edge of the energy transition means we'll not only see widespread benefits within New Zealand, we'll also build our global reputation and help our exporters.

The COVID-19 economic recovery represents a once in a generation opportunity to reshape New Zealand's energy system to be more renewable, affordable and secure, while creating new jobs and developing the high skill workforce our future economy needs to thrive.

Labour will **invest in infrastructure to enable widespread investment in renewable energy** for the benefit of all New Zealanders. Labour will bring forward our target of 100% renewable electricity generation by five years to 2030, and support the development of pumped hydro schemes.

Labour will drive innovation by investing in **new innovative energy technologies**, and remove regulatory roadblocks to support the transformation of our economy, putting New Zealand at the leading edge of the energy transition. Labour will invest in accelerating the uptake of low-emissions transport and support businesses to electrify their factories and shift towards lower cost and emissions free industrial process heat options.

Labour will **support affordability for consumers** and addressing energy hardship will bring much broader benefits to New Zealanders by way of health and wellbeing.

Investing in infrastructure to electrify our economy

Labour will invest in renewable energy infrastructure to enable widespread electrification of transport and industry, create jobs, and deliver more affordable power for New Zealanders. Labour will:

- **Commit to a target of 100% renewable electricity generation by 2030 with a review at the 2025 emissions budget**
- **Commit to the second stage of a pumped hydro scheme at Lake Onslow and other smaller schemes in the North Island with a \$70 million investment, subject to a suitable business case**
- **Remove regulatory barriers to renewable electricity generation and restore the ban on building of new thermal baseload generation**
- **Remove barriers to investment in solar generation**

100% renewable electricity generation by 2030

- Labour will commit to a target of 100% renewable electricity generation by 2030 with a review at the 2025 emissions budget – five years earlier than planned.

By prioritising renewable energy, we will be doing our part to prepare for the future, while protecting New Zealand and our Pacific neighbours from the impacts of increased warming and rising sea levels from climate change. New Zealand produces 84 percent of its electricity from renewable sources, but we can do better.

The 2025 emissions budget will be an important opportunity to assess New Zealand's progress on reaching our climate targets and therefore it makes sense for us to check in on how our renewable energy strategy fits with the wider decarbonisation plan. We're confident that, if the pumped hydro business case stacks up, reaching 100% renewable electricity generation by 2030 will be achievable.

“Greening the Grid” through pumped hydro

In our first term we have begun investigating options to ‘green the grid’ as part of a new, transformative infrastructure plan for renewable energy. This plan will enable widespread electrification of transport and industry, create thousands of jobs, and deliver more affordable power for New Zealanders.

By investing in a solution to New Zealand's dry year problem and shifting our reliance away from fossil fuels, we have the opportunity to provide New Zealand consumers and businesses a more reliable and stable electricity system. Because we will no longer have to rely on expensive fossil fuels, wholesale electricity rates should better reflect the rapidly falling cost of renewables. This will incentivise sectors across our economy to decarbonise, while delivering more affordable power to consumers.

Pumped hydro works like a battery by moving water to an upper reservoir when there is surplus renewable energy generation and demand for electricity is low. It is released back down to a hydro power station to generate electricity when demand is high. Investigating pumped hydro was a key recommendation of the Interim Climate Change Committee. It will enable us to manage peak demand, dry hydrological years, and the intermittency of renewable energy sources such as wind.

A pumped hydro scheme at Lake Onslow has been identified by experts as the renewable project most likely to address New Zealand's dry year needs. It is predicted Lake Onslow would be capable of storing up to 5000GWh – the same amount of all of New Zealand's existing hydro schemes combined.

Construction of such a project would create significant employment. For example, the full Lake Onslow project at its peak could employ 3,500-4,500 skilled and semi-skilled workers, as well as thousands more in indirect jobs. The business case process will also support hundreds of engineering and consulting jobs at a time when the private sector is using these services less.

In our first term in Government, we committed \$30 million into a detailed development of a business case for pumped hydro at Lake Onslow and other smaller schemes in the North Island. The business case will also explore alternative technologies, and we'll consider any that offers better pathway to achieve 100% renewable target while solving our dry year storage solution.

- Labour will invest a further \$70m in detailed design and engineering work based on the findings of the business case. Construction would be able to begin within 4-5 years if the scheme is found to be viable.

Supporting renewable energy

National Direction under the Resource Management Act 1991

As the electrification of our economy steps up a gear, it's important we ensure the right settings are in place to enable accelerated deployment of new renewable electricity generation. Transpower estimates that demand for electricity will increase by approximately 55 per cent by 2050. This means we will need significantly more renewable generation in the coming years.

A new National Policy Statement for Renewable Electricity Generation will improve certainty for developers of new renewable electricity generation by providing guidance to local authorities when consenting hydro, wind, geothermal, solar, biomass, and marine energy projects so the processes are less costly, consistent, clear, and faster.

Restore Part 6A of the Electricity Act 1992 to ban the building of new thermal baseload electricity

There is simply no need to continue to build thermal baseload electricity and, as we work towards 100% renewable electricity, it's important we send a clear message that additional thermal generation for baseload electricity generation has no future in New Zealand.

- Labour will restore Part 6A of the Electricity Act 1992 to ban the building of new thermal baseload electricity.

Boosting solar generation

There are roofs all over the country that could contribute to our goal of having 100% renewable electricity through the installation of solar panels.

- Labour will investigate regulatory or market barriers to the uptake of solar micro-generation for residential and commercial buildings. In our first term, we have already removed the requirement for a building consent for ground mounted solar array panels.

We know that households with distributed generation such as solar can encounter difficulties in connecting to the grid and receiving a fair price when they are generating excess electricity, so we'll investigate how to streamline the processes associated with connecting and pricing, and consider what other changes are needed to encourage greater uptake.

In Government, we recently invested \$28m to trial renewable energy technology for public and Māori housing to test new and innovative ways to make energy affordable and support our renewable energy and climate change goals.

- Labour will encourage Kainga Ora, the Ministry of Education and other state agencies to investigate how best to reduce energy costs through energy efficiency measures and the installation of solar power generation, and to implement these measures where practical, especially in new buildings.

This builds on the Government's State Sector Decarbonisation programme and the contestable fund for schools established to support innovative energy projects in schools, such as installing solar panels, LED lighting, and replacing inefficient heat sources.

Driving the energy transition

- **Prioritising the electrification of process heat and extending support for businesses to become more energy efficient**
- **Increase funding to accelerate the uptake of low emission vehicles through EECA's Low Emission Vehicles Contestable Fund**
- **Requiring new-to-New Zealand vehicles to meet vehicle efficiency standards**

Supporting businesses to reduce costs, be more energy efficient, and electrifying process heat

Replacing fossil fuel boilers with low emission options

Many factories across New Zealand are unconnected to the electricity grid and rely on coal boilers to generate their electricity. 60 percent of process heat in New Zealand is supplied using fossil fuels such as gas or coal which generated 8.3 million tonnes of greenhouse gas emissions in 2016. Replacing coal boilers with electric alternatives will reduce emissions and ensure those businesses are prepared for the future.

- Labour will invest in the electrification of industrial and process heat, with a particular focus in the lower South Island as the potential closure of Tiwai Point's aluminium smelter provides an opportunity to use electricity to switch coal boilers to low emissions alternatives. Other low emissions options, such as biomass, will also be explored.

Our plan will start by rolling out the recently announced \$70m Government investment to support large businesses to replace the use of fossil fuel in industrial heat processes and connect to the grid. This includes transmission line upgrades, and direct support to industrial users to convert their coal boilers to electricity or other renewable alternatives

The \$70m investment will be administered by EECA. We expect funds will be distributed via a competitive process. This will enable us to leverage private sector co-funding opportunities and ensure successful projects are delivering the maximum benefits for the economy and our environment. Opportunities include replacing boilers used to turn wood into pulp and paper or to dry milk.

Supporting businesses to save money and reduce emissions

EECA's business funding and support programmes are successfully helping businesses to trial new low emissions technologies and help with the transition away from fossil fuels. They're also driving energy efficiency initiatives across a range of industries.

These programmes are highly regarded and making a big difference. Dozens of projects have been supported – such as the installation of New Zealand's first large-scale electrode boiler at Synlait's Dunsandel plant and a high-temperature heat pump that recycles waste heat from refrigeration systems at the Alliance Group's Nelson plant. Many businesses have also worked with EECA to better understand their energy usage as a first step towards becoming more energy efficient.

- Labour will boost these programmes with direct funding for EECA's Business funding and Support programme to help businesses identified opportunities to improve energy management

and switch to renewable energy, and the Energy Transition Accelerator programme to help businesses make long term emission reductions.

The Government currently invests \$4.6m in these programmes. Labour will nearly double the funding available to \$8m per annum. This will enable more businesses to trial new technologies and for EECA to undertake more intensive engagement, ensuring businesses don't deprioritise decarbonisation and energy efficiency as we emerge from the current economic uncertainty.

Supporting the uptake of low emissions vehicles

Transport accounts for about 20 percent of New Zealand's domestic greenhouse gas (GHG) emissions and has been the fastest growing source of our emissions. Over the past thirty years, GHG emissions from transport grew by about 71 percent and according to Statistics New Zealand, household transport emissions increased by 15 percent between 2011 and 2017. Electrifying the transport sector represents a huge opportunity to reduce the country's emissions, and encourage more efficient and healthy modes of transport.

Increasing funding for the EECA's Low Emission Vehicles Contestable Fund to accelerate the uptake of low emission vehicles in New Zealand

EECA's contestable fund encourages innovation and investment to accelerate the uptake of low emission vehicles in New Zealand. The fund offers up to \$6 million a year to co-fund projects in areas where commercial returns aren't yet strong enough to justify full private investment.

To date, 163 projects have been approved through the fund supported by \$27 million in Government funding matched by \$55 million in applicant funding. The fund has enabled businesses to trial electric trucks for refrigerated goods, shift away from diesel busses, and pilot vehicle-to-home charging systems. The fund has even supported the development of EV servicing skills through new training modules, to ensure our mechanics have all the relevant skills they will need in the coming years.

The fund has also enabled more than 1000 EV chargers to be rolled out across the country.

- Labour will progressively increase funding to a total of \$25m per year, evenly shared by Government contributions and sector levies to fund more EV chargers and support the purchase of more low emission vehicles.

The fund currently is fully funded by sector levies. Labour will match the sector's investment and widen the scheme to include both demonstration projects and wider *diffusion of low emissions technologies* in the transport sector.

In addition to EECA's current programme, the fund will be able to support:

- commercially available low emission vehicles and associated infrastructure (including electric vehicle charging systems and infrastructure for biofuels/hydrogen). This funding will help to reduce the capital cost of low emission vehicle fleets, as the higher upfront costs of cleaner vehicles are a barrier to quicker uptake.
- the decarbonisation of bus fleets by replacing existing older diesel vehicles with a high emission profile with new zero emission electric buses.

Clean Car Standard

New Zealand is only one of three OECD countries without any vehicle fuel efficiency standards. As the average light vehicle entering New Zealand is driven until it is over 19 years old, the emissions from the 1.3 to 1.5 million vehicles entering New Zealand over the next five years will be locked in until around 2043.

New Zealand imports light vehicles that are less efficient and more costly for their owners than most other countries. The average fuel efficiency of a car in New Zealand in 2017 was 9.5 litres of petrol per 100km. In contrast in the UK it was 5.8, in the EU 4.9, in the USA 8.6, and in Japan 6.2. This means New Zealanders are spending more on petrol than their overseas counterparts. On average New Zealanders pay 65 percent more than the average person in the European Union, even though petrol prices are higher in Europe.

- Labour will introduce a vehicle fuel efficiency standard for new and used light vehicles entering New Zealand of 105gCO₂ /km, gradually phased in from 2021 to 2025. The standard would apply only to the supply of new and used vehicles entering New Zealand and not the re-sale of existing vehicles in New Zealand, which account for 74 percent of annual vehicle sales.

There are many cars already on the market that would meet this standard and if we look at the countries we often import second hand vehicles from it shows we would continue to have a supply of affordable second hand vehicles. For example, the average vehicle entering the fleet in 2014 in Japan already had an emissions intensity of 105 g CO₂/km meaning second hand vehicles from Japan would typically meet the standard.

The Ministry of Transport estimate that the Clean Car Standard would result in average fuel savings for families of \$6,810 per vehicle over its lifetime or \$3.5b across New Zealand, with a cost benefit ratio of 3:1.

It is estimated to reduce the average emissions of vehicles entering our fleet by 40 percent by 2025.

We estimate that it will cost \$15.5m in operating funding and \$16m in capital funding over four years to establish the regulations

Innovation and Green hydrogen

Energy Innovation

During our first term in Government, Labour prioritised programmes to boost innovation and new technologies, such as via our \$1b investment into a new R&D tax incentive scheme. We have also invested directly into energy innovation, because we recognise the vital role the energy will play in tackling climate change and transitioning our economy.

This included \$20 million in a new science research fund for cutting edge energy technology. The fund aims to support some of New Zealand's leading researchers working with emerging technologies such as super conductors and hydrogen.

We also invested \$27 million in the establishment of Are Ake (formerly known as the National New Energy Development Centre) in Taranaki. Are Ake will facilitate research, investment and deployment of emerging clean energy options such as offshore wind, solar batteries, hydrogen and new forms of energy storage.

- Labour will continue to support these initiatives and explore other opportunities to build New Zealand's research and innovation capability in the energy sector.

Green Hydrogen

We have also had a particular focus on green hydrogen.

When compressed, hydrogen can be a clean and versatile fuel source fulfilling a role similar to that which hydrocarbons play today. However, as the use of hydrogen fuel cells emits only water – with no particulates - it can improve our air quality and reduce emissions.

Green hydrogen will help reduce global emissions, reduce New Zealand's dependence on overseas energy sources, create significant export revenue, and create new jobs. New Zealand has a strategically important comparative advantage if we use our abundance of renewable energy to produce hydrogen without using fossil fuels. We can produce some of the cleanest green hydrogen in the world, and potentially receive a premium for it in international markets.

Labour will advance green hydrogen opportunities in line with the Green Hydrogen strategy we began work on in our first term. The next step in the strategy will be a roadmap that will help chart the path towards a more renewable energy system and outline how hydrogen can play a role in decarbonisation, and energy resilience. The roadmap will focus on accelerating the establishment of an export orientated green hydrogen sector, optimising the utility of green hydrogen for New Zealand's heavy transport fleet and to better understand other potential uses, such as to support remote communities. The importance of having a strategic roadmap has been underscored by engagements with international partners wanting to invest in green hydrogen projects in New Zealand.

- Labour will set aside \$10 million to develop the roadmap and invest in green hydrogen opportunities, particularly strategic partnerships emerging with other countries interested in partnering with New Zealand.

In the last three years, we have already made significant progress by:

- completing the first stage of our green hydrogen strategy that identified the opportunities in New Zealand and set out the framework for next steps.
- engaging with other countries interested in partnering on green hydrogen opportunities, including reaching agreement with the Government of Japan on a world first Memorandum of Cooperation on Hydrogen.
- investing in a range of hydrogen projects, including a nationwide network of hydrogen-fuelling stations. The Government's recent investment in Hiranga Energy's programme of hydrogen refuelling stations will mean initial stations in the Waikato, Bay of Plenty, Taranaki, Manawatu, Auckland, Taupō, Wellington and Christchurch supplying zero emission fuel to trucks, buses and commercial fleets from 2021. Hiranga estimates the initial network will provide coverage for about 95 percent of heavy freight routes in the North Island and 82 percent of the South Island.

Supporting affordability for consumers

Implementing the Electricity Price Review

The Electricity Price Review found that while overall the market is working well, it is not delivering for everyone. Too many people are paying higher bills than they need to and many people struggle with the cost of power. We already implemented a work programme that saw 20 of the reviews recommendations progressed immediately. Labour will continue this work, including reforming the electricity sector to make it fit for the future.

Earlier this year we also announced \$17 million to support a number of the other recommendations. This funding will support the progressive deployment of a network of community-level services to assist households in energy hardship. A fund will be established to support these services and enable a pilot programmes to improve energy efficiency for households in energy hardship.

The funding will also help establish a cross-sector energy hardship group, as well as an electricity consumer advocacy council.

We will also support the development of an accepted definition and indicators of energy hardship so that programmes can be better targeted and their effectiveness measured.

Alongside these investments, the Electricity Authority is continuing to implement a number of other recommendations of the Electricity Price Review, such as wholesale market reforms and ensuring more transparency.

- Labour will continue to support the roll-out of these initiatives and undertake an assessment of effectiveness and whether further interventions are necessary to better protect consumers before the end of the term

Key spending initiatives

Initiative	Cost	Source
New Zealand's Battery – Stage Two	\$70m (contingency)	Budget 2020 – IRG process
EECA business support programmes	Additional \$3.4m per annum (\$8m total)	New funding (existing sector levies currently contribute \$4.6m)
Low Emissions Vehicle Contestable Fund expansion	Additional \$19m per annum (\$25m total)	\$12.5m from new funding, and \$12.5m via existing sector levies
Clean Car Standard	\$15.5m opex, \$16m capex over four years (\$7.9m avg annual)	New funding
Hydrogen Roadmap	\$10m over four years (\$2.5m avg annual)	New funding

Other funding referenced in the Fact Sheet

Initiative	Cost	Source
Stage one – NZ Battery	\$30m	Budget 2020 – IRG process
Trial of renewable energy technology for public and Maori housing	\$28m over four years	Budget 2020 - CRRF
Major industrial users decarbonisation fund	\$70m over four years	Budget 2020 - CRRF
Renewable Energy Research Platform	\$20m over four years	Budget 2019
Are Ake (New Energy Development Centre)	\$27m over four years	Budget 2019
Hydrogen refuelling network	\$20m	Budget 2020 – IRG process
Electricity Price Review Initiatives	\$17m over four years	Budget 2020 - CRRF