SOLARISE NEW ZEALAND

A plan to install solar and batteries in half a million homes over the next ten years

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AN AMBITIOUS PLAN

- Delivering clean solar power and storage to half a million New Zealand homes over ten years.
- Through an interest free loan on solar panels and a battery, with no upfront costs for the homeowner.
- Financed by diverting the $88m a year of public money that is currently spent on subsidies for the oil and gas industry.
- Contributing 1.5 GW of new clean power and 3 GW of grid-stabilising battery storage to New Zealand's electricity grid in the next decade.
- Putting power back in the hands of New Zealand households.

WHY IT'S TIME TO SEIZE THE SUN

When the Government decided to call time on offshore oil and gas exploration, it sent a clear message: the time has come for us to look elsewhere for the energy required to run our homes, cars, businesses, and economy.

New Zealand will need to embark on an ambitious programme to build the new clean energy needed to replace the fuels of the past. National grid operator, Transpower, forecasts a doubling in demand for electricity in New Zealand over the next thirty years, driven by the electrification of transport and industry[1]. Significantly increasing the amount of homegrown clean power we generate from the sun sits at the heart of this transition. We will need as many as 1.5 million solar households, according to Transpower.

There has never been a better opportunity to also address the power imbalance that has created massive profits for energy companies while regular New Zealanders suffer from soaring energy bills. Every winter, there are families shivering in cold, damp homes while power companies profit to the tune of hundreds of millions of dollars. As many as a quarter of New Zealanders live in energy poverty[2] .

By giving New Zealanders the chance to own and control their energy, this is the best opportunity we've had in a generation to give people back the power.

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UNTAPPED POTENTIAL

Solar photovoltaic energy (Solar PV) is the world's fastest growing source of energy. Eighteen gigawatts of distributed solar were installed worldwide in the year 2016 alone[3] - almost twice the capacity of New Zealand's entire national grid[4].

However, in New Zealand, we've met less than four percent of our solar potential[5]. Most households would prefer to generate their own energy from the sun and be in control of when and how they use energy. Yet, those who have installed solar have had their 'buy back' rates slashed by the big power companies, or have been slapped with discriminatory charges.

Threatened by the idea that New Zealanders could generate their own power at home, large energy companies have benefited from delaying and preventing solar uptake. We can't let these big utilities stand in the way any longer.

It's time to kickstart New Zealand's solar revolution, by solarising half a million homes over the next ten years.

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BENEFITS FOR EVERYONE

Locally produced energy paired with storage has benefits for everyone. By supporting 500,000 New Zealand households to install solar panels and batteries, we can tackle the existential threat of climate change, increase the resilience of our power grid, and lower energy bills for everyone.

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Reducing peaks and avoiding capital investment

At a time when electricity demand is set to increase significantly, installing more solar and batteries is a smart choice. The way our energy system works now, the whole grid is scaled to be able to meet demand during the few hours a day when it's highest. But it's inefficient and costly to build that much infrastructure when, most of the time, it's not being used. By installing 500,000 batteries in homes, we can ensure that energy is stored when it's most abundant and then deployed when it's most needed. This reduces the enormous cost of building more local distribution and transmission lines to meet the higher peak load that we would otherwise face. The benefits will be felt in lower energy bills for everyone who uses and pays for the distribution network.

Reducing lines losses

Our electricity grid was built to carry electricity generated in centralised power plants in rural areas to our homes and businesses far from where it was produced. As electricity travels on the grid, a portion of the electricity is "lost" as heat. In New Zealand, around seven percent of electricity is lost, which is a considerable amount of electricity that households end up covering the cost of generating, but never get to use[6]. Solar panels generate power right at the place where it can be used, reducing these lines losses and their costs.

Increased household solar uptake can particularly help reduce the cost of transmission and avoid lines losses for New Zealanders in the North. Northland electricity customers face some of the highest power prices in the country,[7] partly because of their distance from our biggest power plants. But Northland also has great sunshine hours and could benefit substantially from more locally-produced energy.

Increasing resiliency

Centralised power grids, such as New Zealand's, are vulnerable to frequent and prolonged outages. Solar, paired with battery storage, can increase grid reliability when designed to do so. This is particularly beneficial in a country prone to earthquakes and storms, and will be increasingly beneficial as we face increases in extreme weather due to climate change.

Solar and batteries are enabling the development of micro-grids, which are small-scale power grids that operate independently or in conjunction with the main electrical grid. Micro-grids provide additional resiliency, and can power important community facilities such as emergency shelters during natural disasters.

SOLARISING HALF A MILLION HOMES

Clean, locally-produced energy from the sun, paired with storage, benefits everyone. But it's too much to ask households to front up the capital all at once. That's where the Government comes in.

With an interest free loan for a household solar and battery installation, we can empower 500,000 homes to go solar, adding enough new capacity to the grid with storage to smooth out the daily peaks, and lowering power costs for all New Zealanders.

By providing grants that pay for at least half of the system cost to 100,000 of these households, we can make this game changing technology even more accessible for families on lower incomes.

The zero interest loans would be attached to the house that receives the solar panels and batteries, not to the individuals who own it or rent it. They can be administered through Regional Councils and be paid back through rates, in much the same way that home insulation loans have been managed to date.

As part of a wider programme of regulatory reform, doubling down on energy efficiency, and increasing support for community energy schemes, this a once in a generation opportunity to ensure New Zealanders live more comfortably while increasing clean homegrown electricity for everyone's benefit.

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DOING THE MATHS

We have calculated that this programme will cost less than the $78-88m a year currently spent on subsidies to the oil and gas industry[8].

At the forecast government borrowing rate of 2.3% [9], the Government would be able to provide loans for 500,000 solar and battery systems over ten years, at a cost to Government of less than $665m in interest. Split over the 20 year loan and payback period, this would equate to around $33m a year.

This is based on each household installing a small system with 3kW of grid connected solar panels and 6kW worth of battery storage. Such a system would cost about $17,000 installed today[10]. The cost of batteries is forecast to reduce at a rate of 10% per year[11] and solar panels are predicted to drop in price by a further 37% by 2025[12]. Factoring in the cost of installation, we estimate an overall reduction in cost of around 6% per year.

As the programme rolls forward, individual households repay 10% of the principal each year through their rates, and these repayments can be recycled by Government to pay for more installations so that the cost to Government is reduced.

This still leaves funds over to provide additional support to 100,000 lower income homes with a government grant, covering at least half of the system cost.

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Endnotes

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This report was made possible through the generous support of the Greenpeace Educational Trust