February **2014**

Green Party of Aotearoa New Zealand

Solar Homes

Green Party Policy paper

Energy Freedom

Smarter Greener Economics

*Solar power means cleaner, **cheaper** power for Kiwi homes*

Introduction

Solar power is one of the greenest forms of electricity generation we have. It gives families independence from the big electricity companies. With no fuel cost, it insulates families against future power price rises.

Solar is cheaper and more efficient than ever, which is driving a solar power revolution around the world. But New Zealand is lagging behind.

The Green Party will make solar power an affordable option for New Zealand households.

Under the Greens' Solar Homes initiative, Kiwi families and households will be able to get low-cost loans from the government to pay for solar power installation, repay the loan via their rates, and enjoy free, sustainable solar power for decades. We will also ensure that families get a fair, dependable price for energy that they sell back to the grid and fix the regulatory framework to make plugging into the grid easier.

Solar Homes will create jobs in the burgeoning solar sector. Like the Greens' successful home insulation scheme, Solar Homes will help families save money. It will reduce the impact of electricity on the environment because we will need fewer new power plants and less fossil fuel generation.

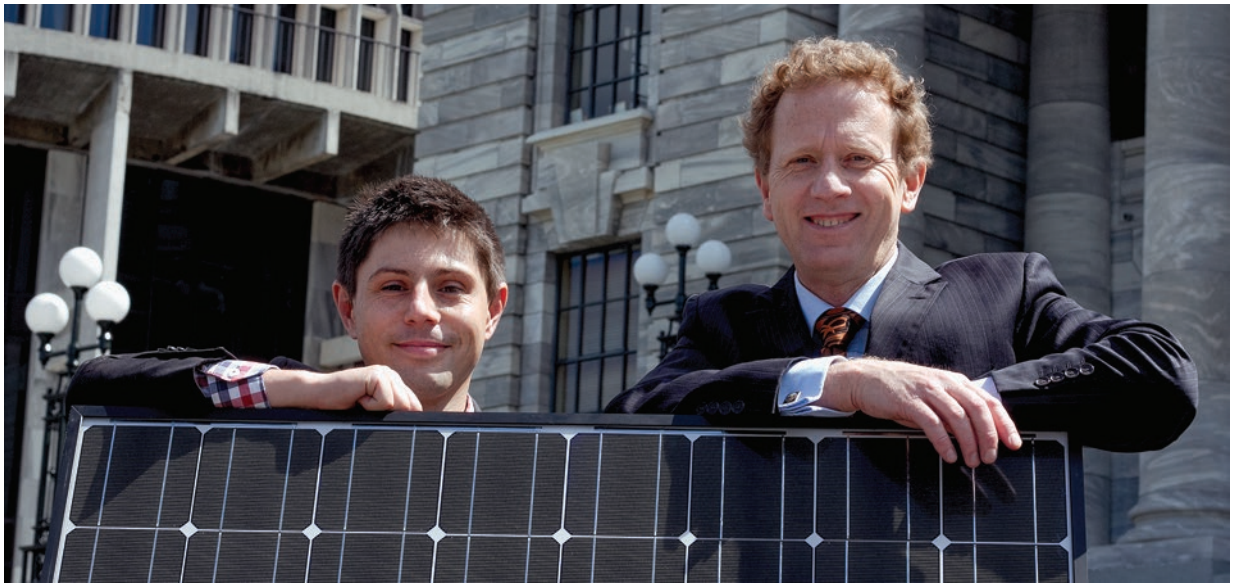
It is part of the move towards a smarter electricity grid with more distributed renewable generation and more power in the hands of households and businesses. It's all about energy freedom.

Green goals

- Reduce fossil fuel use by increasing renewable generation
- Reduce costs to households
- Build a smarter more efficient electricity grid that works for families
- Create 1,000 jobs and boost regional economic development
- Empower families to produce their own electricity and create an alternative to the electricity giants

Green solutions

1. Affordable solar power for homes, financed by low-interest government loans
2. A fair deal for home electricity generators to sell their excess electricity
3. Putting in place the tools for a smart grid to reduce electricity waste and save money
4. Target of 30,000 solar power installations in our first three years



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The situation

Household electricity bills are rising rapidly. The price of power for families has risen by over 67% after inflation since National's failed market reforms were started in 1992.[1] The Greens' NZ Power plan will fix that broken market and save families around $300 a year by creating a single buyer that will eliminate the monopolistic profits of the power companies and pass the savings on to consumers.[2]

*The price of power has risen by **over 67%** after inflation since National's failed market reforms started in 1992*

But for the Greens, it's not only about making electricity affordable. It's also about reducing the environmental footprint of the electricity industry by cutting greenhouse emissions and reducing the need for more big dams on our majestic rivers. It's about giving households and businesses more energy freedom – more control over their use of power, and the option to be small scale generators.

The current Government is not on track to meet its target of 90 percent renewable electricity generation by 2025.[3] We have an opportunity to make our electricity generation 100 percent renewable and use that to bolster the '100% Pure' brand that we sell to the world - but we need the right policies in place to do it.

Much of New Zealand's generation is in the South Island, yet most of our electricity demand is in the North Island. This leads to large transmission costs both in maintaining the transmission grid as well as transmission losses. To reduce costs and waste, we need renewable generation located close to areas of demand.

Solar power is one part of the solution to these issues.

The cost of solar panels is falling rapidly and it is now competitive with other generation options.

Installation of solar power in New Zealand is increasing rapidly (by 370 percent in the last two years)[4] but is still low by international levels. Installations currently number around 50 a month, although that number will soon be substantially boosted by a 3,500 house project in a new sub-division in Christchurch.[5]

More than a million Australian homes now have solar power.[6] Solar power supplies 5 percent of Germany's electricity needs and up to 50 percent of electricity demand on summer days.[7] The huge increase in solar installations around the world has increased production and driven prices down.

The rapid uptake of solar power in other countries has been driven by significant Feed-In Tariffs that pay homeowners more than the market price for electricity that they produce. The Greens do not think that is the right choice for New Zealand. We can support solar without subsidies.

There is a large solar resource in New Zealand. Our major cities receive over 2000 sunshine hours per year, which is about the same as Melbourne and significantly more than German cities.[8]

There are some schemes to promote solar power installation at present, including Kiwibank's Sustainable Energy Loan and Vector's Sungenie, but these are small-scale and aren't open to all households nationwide.

*There are **three** main barriers remaining to New Zealand families installing solar power:*

1. The up-front capital investment
2. Concerns over whether value of solar power will be added to the value of house
3. Uncertainty over the ability to sell excess power back to the grid at a fair price

The Green Party's policies will fix each of those problems and save families money.

How Solar Homes works

The Green Party provides affordable financing for houses to install solar power

The Crown puts up the cash, homeowner repays via rates

The debt is attached to the house not the person

Families get reduced power bills and more independence

The Electricity system is more sustainable with lower infrastructure costs

Target of 30,000 solar systems installed in our first term

The Green solution

The Green Party will provide low-cost loans to families to purchase and install solar power in their homes using approved suppliers and installers. The loans will be for a term of 15 years and at the Crown's low sovereign interest rate, which is currently 4.1 percent.[9]

Families will be able to borrow the full cost of the solar power system installation, up to $15,000, and then repay it via their rates. The loans will be cost neutral to the Crown, with an estimated administration cost to Energy Efficiency and Conservation Authority (EECA) of less than a million dollars a year.

Once the low-interest loan is repaid, the family will own their solar power system outright. Families will be able to earn money by selling excess electricity back to the grid.

A typical $10,000, 3 kilowatts (kW) solar array, generating approximately 3,500 kilowatt hours (kWh) of electricity per year, produces $1,000 of electricity a year at current prices, and will cost $900 a year over 15 years to pay off under Solar Homes.[10]

Over 25 years, a 3kW unit would produce $28,000 worth of power.[11] As technology improves and Solar Homes grows the market, prices will continue to improve.

As with the Greens' successful home insulation scheme, Solar Homes will not only help families save money, it will provide the impetus to grow a smart, green industry and increase employment.

How Solar Homes works for your household

1

Visit the EECA website where there is information about the costs and benfits, both financially and environmentally.

You can plug in your address and look at the probable solar resource on the roof of your house.

Then you can look at the panel size options and likely payback periods based on average prices.

2

If you decide to proceed, you register your interest on the website. You are given a list of approved installers for your region or town.

You decide on the company you want to use to install the system and the size of the system, and agree on a price.

3

You tell EECA what you've decided and the wheels are set in motion.

You agree with EECA on the amount you want to borrow from EECA for the solar panels, at a low interest rate, to be paid back via council rates.

EECA informs the installer and they communicate with you to arrange the installation.

The installer coordinates with the electricity companies.

EECA contacts your local council to add the repayment amounts to your quarterly rates bill. These repayments are forwarded to EECA to pay back the loan.

The local council also places a note about the loan on the Land Information Memorandum and rates report for your property.

4

Your solar panels are installed and you start enjoying the savings while doing your bit to save the planet.

How investment is made easier by Solar Homes

It takes advantage of the Crown's low borrowing rate, meaning the cost to the household will be significantly reduced compared to taking a commercial loan.

- The loan for the solar power attaches to the house, not the homeowner, and is paid back via rates. This allows families to invest without the concern that they might lose their investment if they move house within a few years.
- It won't crowd out private sector solar installers. Homeowners will choose an approved private company to install the panels. Councils and government won't buy the equipment or do the installations.
- Families will enjoy dependable, low-cost electricity and be protected against future power price rises. This will benefit all consumers by providing price pressure on the electricity giants.
- Landlords will benefit from added value to their rentals, which will become particularly relevant with the progressive introduction of a rental Warrant of Fitness sceme.

Fair price when families sell power to the grid

Solar Homes will work in conjunction with the plan that the Greens announced last year to ensure that small household or business generators get a fair price and contract certainty when they sell excess renewable power back to the grid.

Under this plan, the Electricity Authority will create a default contract allowing households to sell their power to retailers, setting a fair and reasonable minimum price between the retail and wholesale electricity price.

Currently, families with solar power are subject to one-month contracts that change on the whims of electricity retailers. The Greens will provide stable, fair, long-term contracts for families that produce their own electricity.

Additional details:

- The programme will have a target of 30,000 solar installations over its first three years. The total amount of loans will be capped at $300 million over that period. 30,000 3kW systems will produce over 100 gigawatt hours (GWh) of electricity a year. Our aspiration is to increase this significantly over time, once the solar market's capacity has ramped up.
- Both 'grid-tied' and battery systems will be eligible for this programme. Maintenance and insurance will be the responsibility of the homeowner.
- A government website and advertising campaign will provide independent information and advice to families considering Solar Homes.
- The programme will be administered by EECA in conjunction with local councils, which will be reimbursed for any administration costs they incur collecting the solar payments, funded by a small

surcharge on loans. Several councils already run 'loan repaid via rates' schemes for home insulation and heating.

- Over time, we envisage this programme will be extended to other small-scale generation (e.g. micro-hydro and micro-wind). We also envisage extending support for solar to social housing, community groups, and marae, as well as government departments, schools, commercial properties, and farms.

- To assist in the function of Solar Homes, the Greens will introduce national technical standards for grid feed-in, as are currently being considered by the Electricity Authority, with an emphasis on resilience for households while ensuring network safety.

Benefits to families

Solar Homes will empower families and help to give them some independence from the electricity companies. Families will enjoy free power for the life of their solar power system.

Families don't have to produce the cash up-front but, instead, get to pay for their solar power system through a low-cost loan via their rates.

Households will have a fair and dependable price for excess electricity that they sell back to the grid.

Green jobs

Solar Homes will turbo-charge the growing solar power industry in New Zealand. Well-paid, skilled jobs will be created in making parts for solar arrays and inverters, assembling systems, and installing them.

We estimate that this programme will create 1,000 jobs by its third year.[12]

Environmental benefits

Solar Homes will help to replace polluting fossil fuel power plants with clean, solar power. It will reduce the need to build big, new power plants in the future. A 3kW unit will eliminate 5 tonnes of greenhouse emissions over 25 years.[13]

Even on the days that favour renewables the most, New Zealand still burns fossil fuels to supply electricity, and solar power can reduce the need for these polluting power sources.

Solar power, especially when used with batteries, reduces the need for fossil fuel 'peaker' plants, especially in summer. As batteries become cheaper and electric vehicles become part of the developing smart grid, the opportunities for household power storage will increase.

Solar works in tandem with hydro. In dry summers when hydrowater needs to be preserved, solar power generation is at its best.

Solar power reduces the need to dam any more of our wild rivers to meet localised or national power needs.

System benefits

Key to reducing electricity system costs and carbon emissions is flattening 'peak' demand in the mornings and evenings. Lines companies have to build their infrastructure to meet these demand peaks and generators need expensive, usually gas-fired, 'peaker' plants to provide electricity at these times. New Zealand's transmission infrastructure is ageing and distributed power will save the network substantial upgrading costs.

Solar power with batteries provides a source of electricity that households can draw down during the morning and evening demand peaks. This reduces the peak-load on the electricity network, meaning lower system costs, especially for lines companies. We expect that lines companies will be interested in assisting with funding for solar panels and battery systems, building on the success of Vector's Sungenie pilot.

Towards a smart power future

Solar Homes coupled with NZ Power are the building blocks of a cleaner, cheaper, smarter electricity network that returns the power to New Zealanders.

The Greens envision a smart, sustainable, and resilient electricity network. The option of smart meters and smart appliances along with differential residential rates depending on the time of day will reduce waste and spread load to lower peak demand.

Distributed generation, including home solar power systems, will free families from reliance on the big electricity companies, and reduce the environmental impact of electricity generation.

Solar power with battery systems that build up charge during the day then use that power at the peak times when electricity is most expensive, will save money and infrastructure costs.

Ultimately, plug-in hybrids and electric cars will become part of this mix. They will provide a clean energy transport alternative to the $8 billion a year of oil that New Zealand imports, as well as serving as batteries for the electricity system to even out load, reducing the need for fossil fuel peaker plants.

Energy freedom is all about giving power back to households and businesses. It is the freedom to control your own consumption and to choose whether to consume at night or during the day. It is the freedom to generate your own power. It is freedom from fossil fuels and climate disaster.

This is an example of smarter, greener economics in action.

Sources

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