



# COMMUNITY ENERGY the Blueskin Experience

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Blueskin Energy Ltd

# Scope

1. Our developmental story
2. The Blueskin situation now
3. Our vision
4. Mini-grid pathway
5. Summary

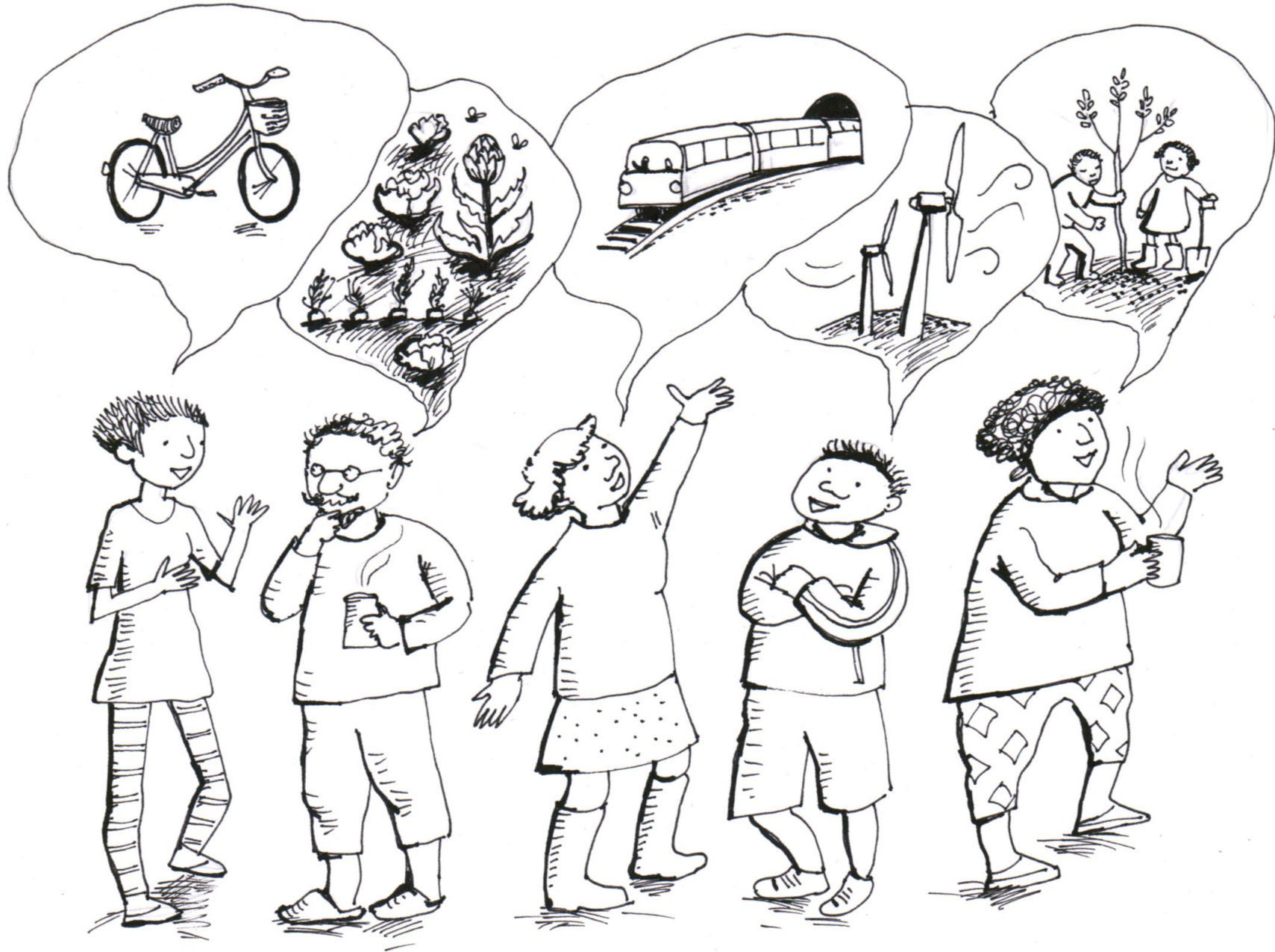


# 1. Our Story



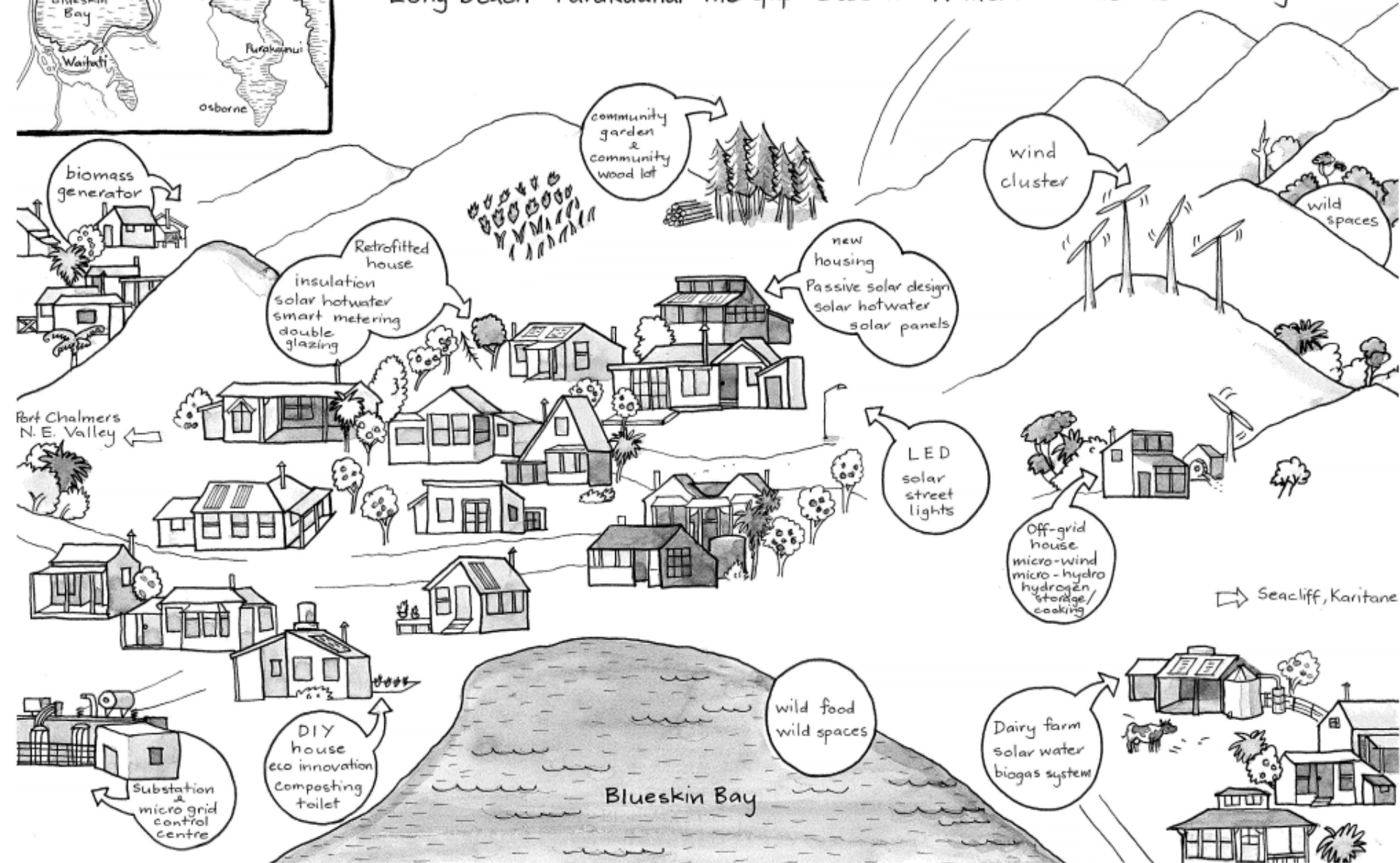
# April 2006





# BLUESKIN ENERGY PROJECT

Long Beach Purakaunui The Gap Osborne Waitati Evansdale Warrington



# Energy Literacy



# Energy Demand Reduction



# prosumer



## 2. Blueskin now





**POSSIBLE LOCATIONS**

**CENTERA SITES INVESTIGATED**

LOCATION	AREA	STATUS
1. BARNET	1.1	1.1
2. BARNET	2.1	2.1
3. BARNET	3.1	3.1
4. BARNET	4.1	4.1
5. BARNET	5.1	5.1
6. BARNET	6.1	6.1
7. BARNET	7.1	7.1
8. BARNET	8.1	8.1
9. BARNET	9.1	9.1
10. BARNET	10.1	10.1



Merton Substation Area

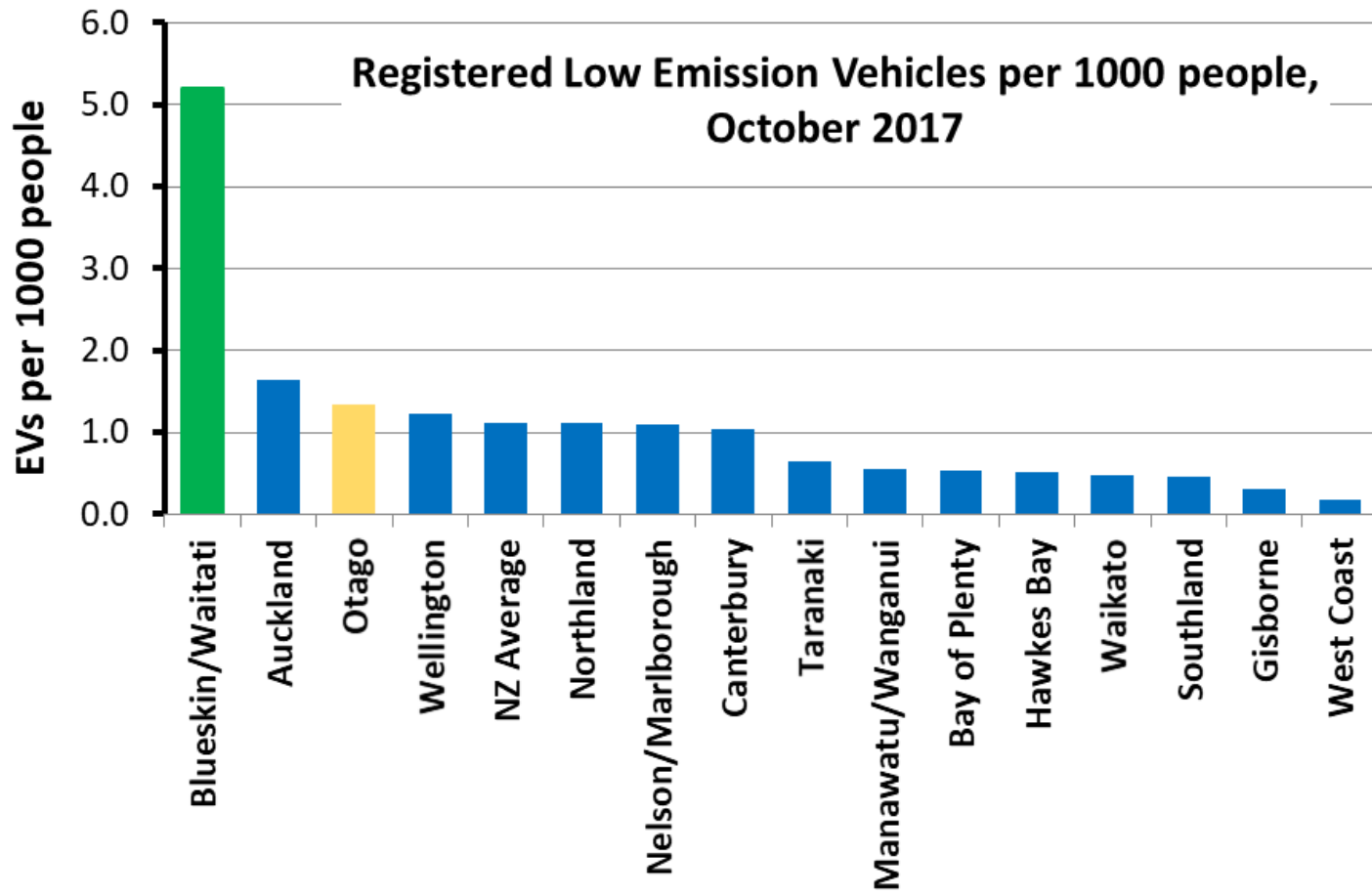
Waitati Substation Area

Otago Harbour

# PV penetration

- 38 DG installations, out of 981 customers connected to the **Waitati** substation. (**3.87% penetration**)
- 17 DG installations, out of 1,348 customers connected to the Merton substation (**1.26% penetration**)
- 114 DG installations, out of 14,869 customers connected in the whole of OtagoNet (**0.766% penetration**)
- 287 DG installations, out of 68,728 customers connected in the whole the PowerNet managed networks (**0.418% penetration**)

# EV ownership



# Community wind

- Is wind in Blueskin viable? **YES**
- What will it cost? **\$5.5 million - \$6 million**
- Reform of the NPS-REG needed ....

### 3. Our Vision




# Collaboratively creating local climate solutions.

## By 2025 Blueskin will:

Be free of fuel poverty, with energy efficient homes, have low CO2 emissions, and derive all electricity from local renewable generation sources.

Own and operate a local energy company generating modest investment surpluses, used to fund sustainable initiatives within Blueskin Bay and supporting other communities when desired

Eat predominantly from within our local food web, have a thriving local economy, and broad intergenerational gardening and farming skills



# energy Vision: a resilient community ^

Energy efficient houses  
Energy conserving behaviours  
Distributed generation  
Developing & trialing new technologies  
Transactive grid & electricity marketplace

## 4. Mini-grid



# Partnership for a Blueskin mini grid



Active consumers & advocates

Consumer feedback (TOU pricing, etc)



Rich & reliable metrics, signals feed

Automated analytics with optimisation



"New" technologies, ongoing innovation

## Partners Creating Value Together

Investment in a mini grid is costly for any one party

Collectively (**PowerNet**, **emhTrade**, **BRCT**, **Otago University**) we possess significant and complementary resources

Additional contributors can:

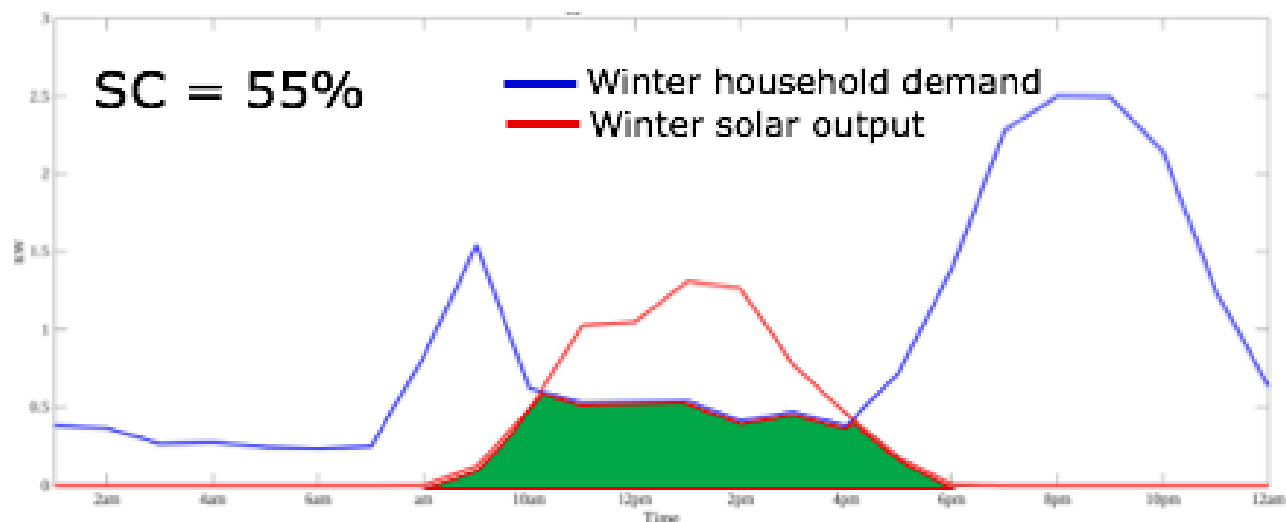
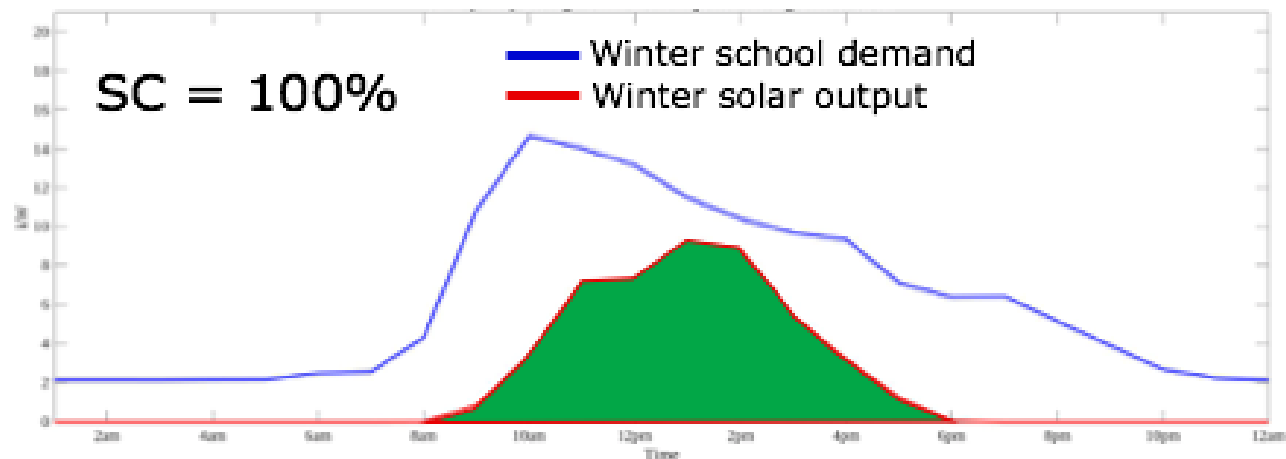
1. "free ride" making considerable savings
2. add a little for even better outcome (V2G..)

**A globally significant project (i.e. Brooklyn Smart Grid trial)**

# Mini-Grid requirements

- Network owners able to manage the network isolations and reconfiguration (whether this needs to be seem-less or not depends on community needs and the nature of the resources);
- confidence that the resources - generation, storage and flexible demand - are sufficient to maintain a balanced system and can all work;
- an engaged community - mini-grid resources will generally not be capable of meeting peak loads so folks need to co-operate and adjust (and be rewarded or penalised accordingly)

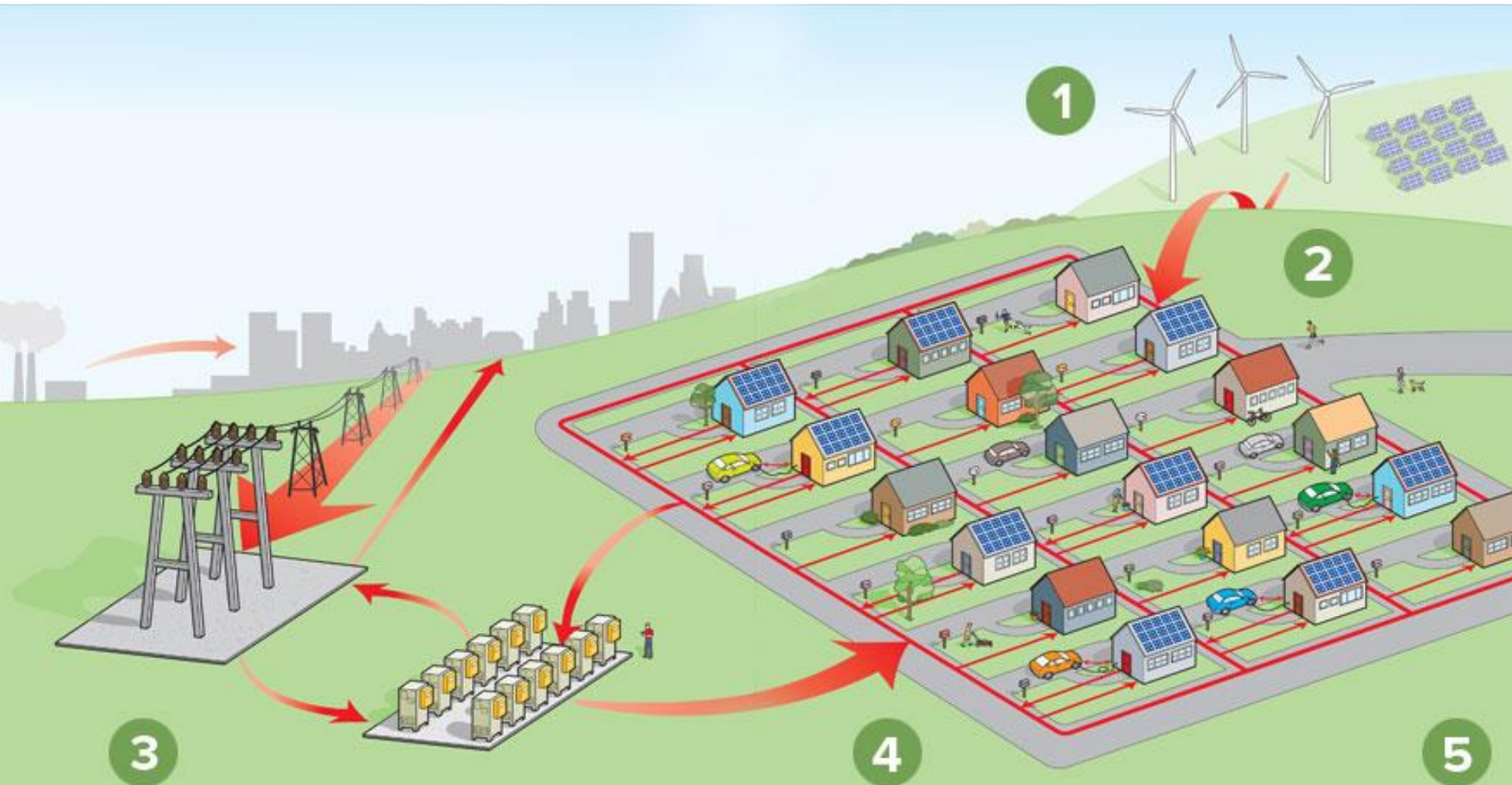
# Matching of supply and demand



## Data used:

- Solar irradiance data (NIWA) – one year, hourly interval
- Household (x 20) demand data (Green Grid Project)
- School demand data, scaled for Waitati school

# *Blended return:* social, environmental, and economic benefit



# 5. Summary

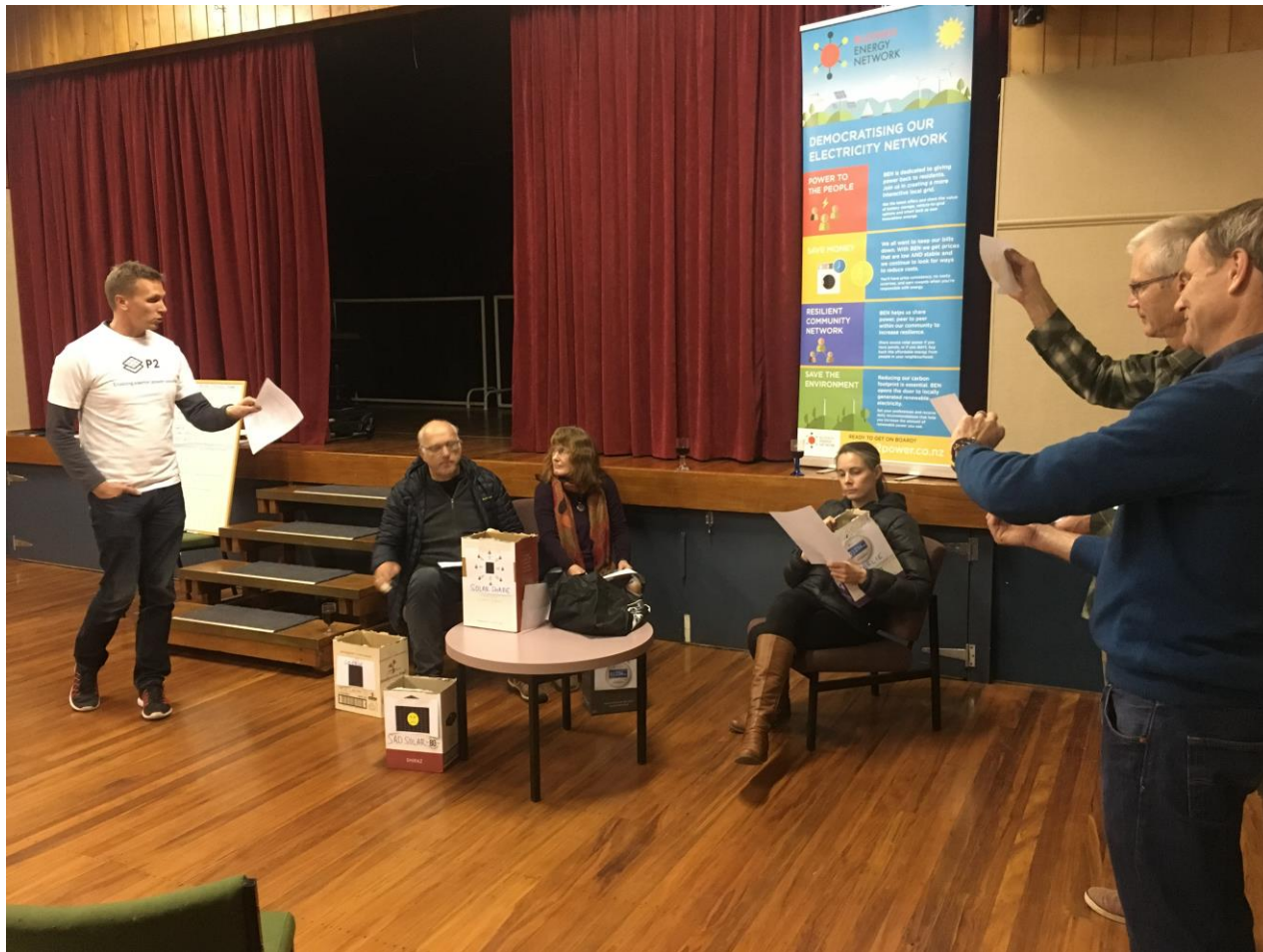


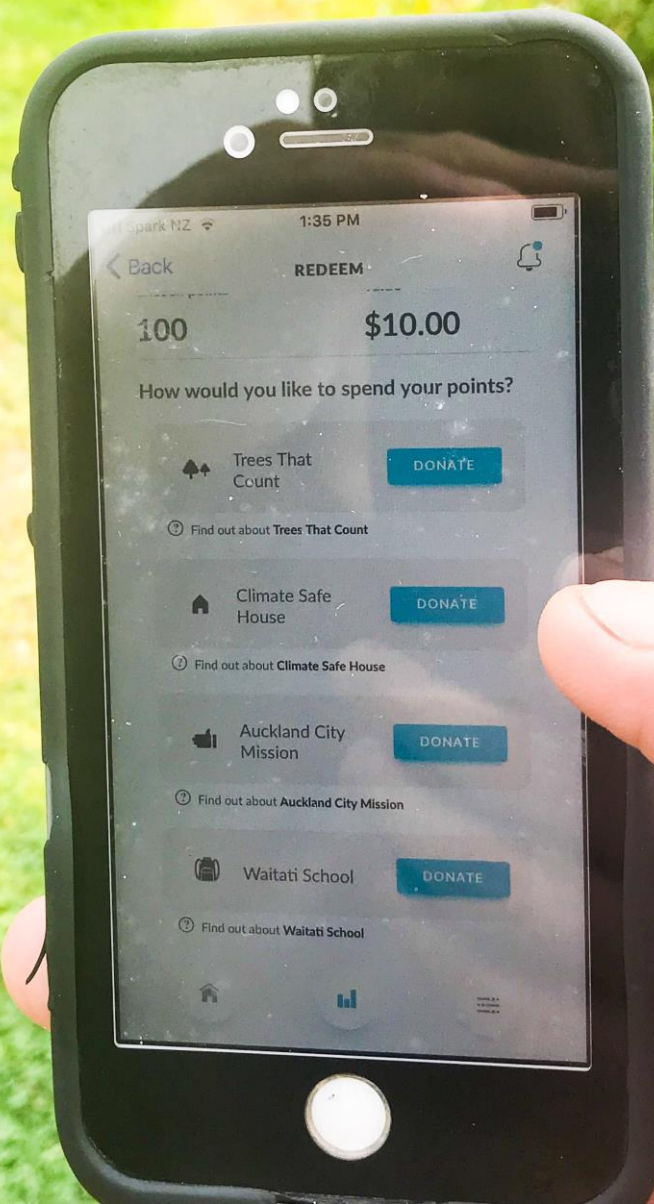
# Creating a NZ blueprint

A landscape photograph of a grassy hillside. In the foreground, there is a field of dry, yellowish-brown grass with scattered dark rocks. A fence line with wooden posts runs across the middle ground. To the right, a tall, thin metal antenna tower stands vertically. In the background, there are rolling hills and mountains under a bright blue sky with wispy white clouds.

Blueskin Energy Network (Smart Grid)  
First customers April 2018

# Workshopping peer to peer







mum, is our fridge wind powered now?