

Totarabank – A resilient community case study

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What is a resilient community?

- Resilience is a term that's meaning depends on the context. As a community provides both mental and physical support, a resilient community can be thought of as ***one that has ability to provide and maintain the physical and emotional wellbeing of its occupants during, and following, periods of duress.***

- A community's resilience relates primarily to core requisites that sustain its inhabitants, namely the provision of;
- Shelter & warmth
- Water & food
- Refrigeration
- Light
- Safety
- Communication
- Community support

Totarabank



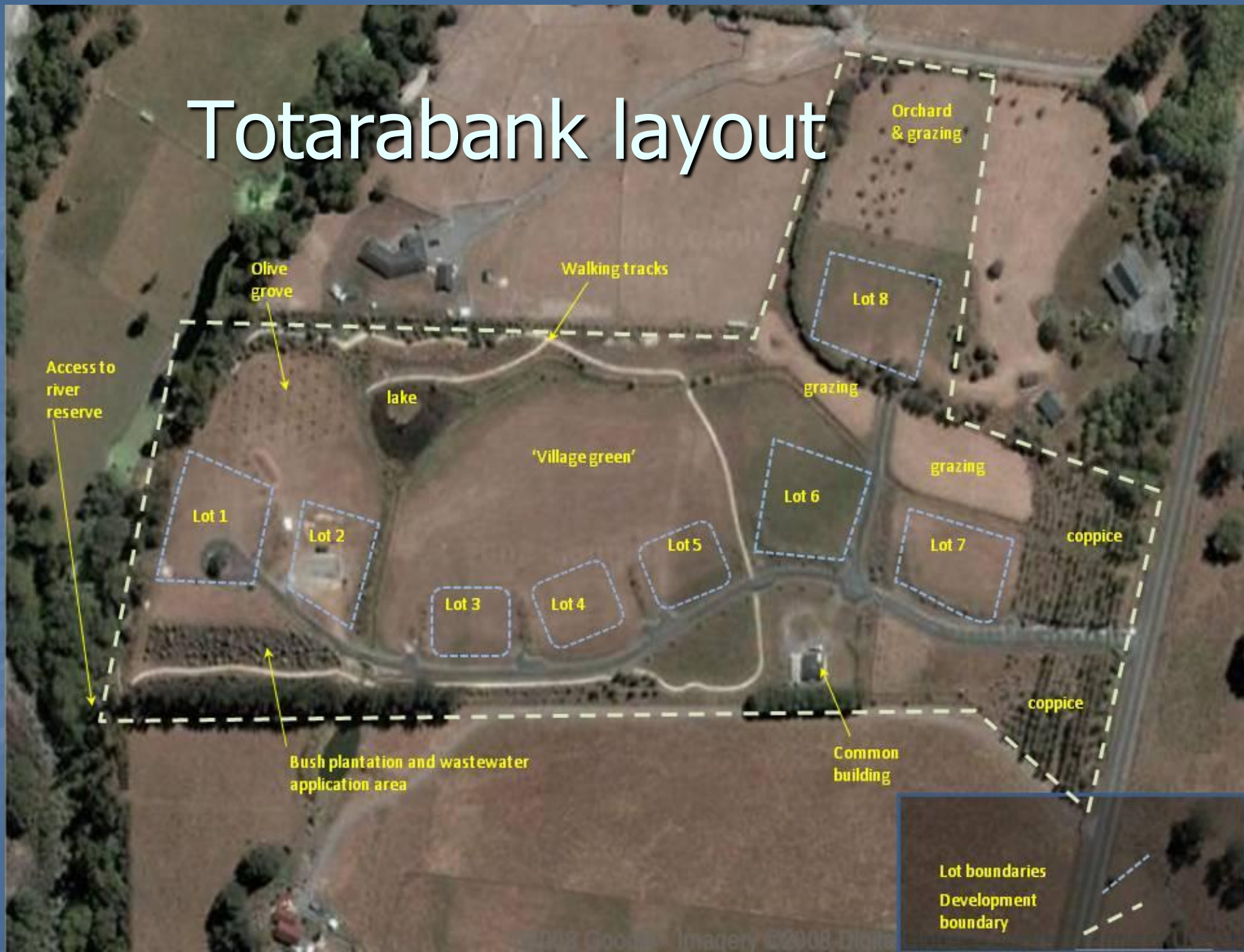
The concept and practice of enabling resilience

- An appropriate analogy of resilience is that of 'float' – a margin of safety above and beyond the expected operational parameters.
- The practice of enabling resilience is about providing the physical and legal infrastructure to allow this to happen, and then to systematically work towards providing a float in each of the relevant criteria.

Land tenure

- There are significant benefits in adapting the development so that the land is used for the purpose for which it is best suited.
- By choosing an appropriate form of land tenure, the use of the land can be optimised.
- Totarabank uses freehold titles for the eight building lots, with a ninth lot (6Ha) being held in undivided shares between the eight .

Totarabank layout



Land Use

- Wastewater
- Thermal energy supply
- Grazing
- Edible landscaping
- Renewable (electrical) energy supply

Coppice





Coppice

Fruit/nut trees



**Community
sleepout**



Pine nuts





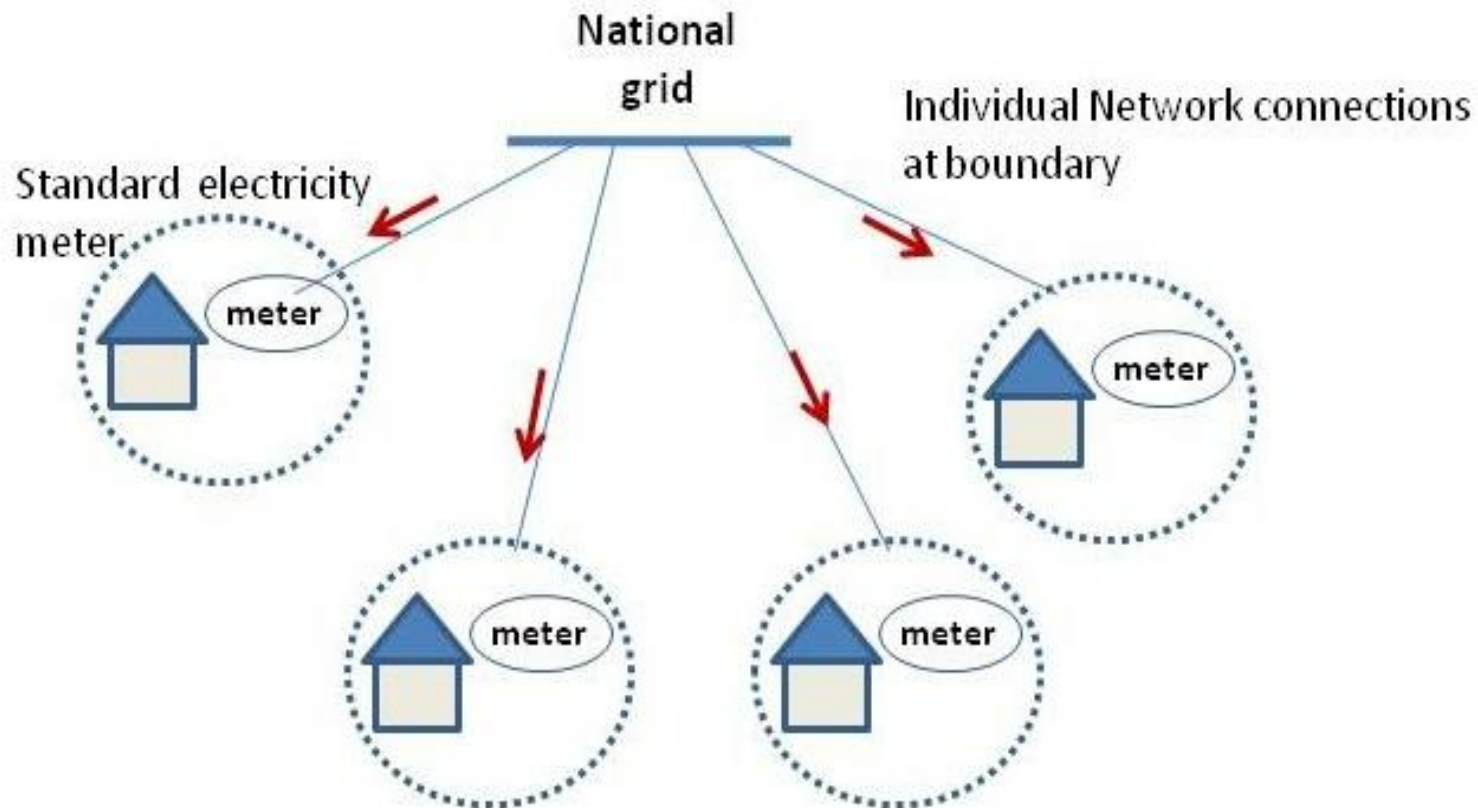


Electrical energy

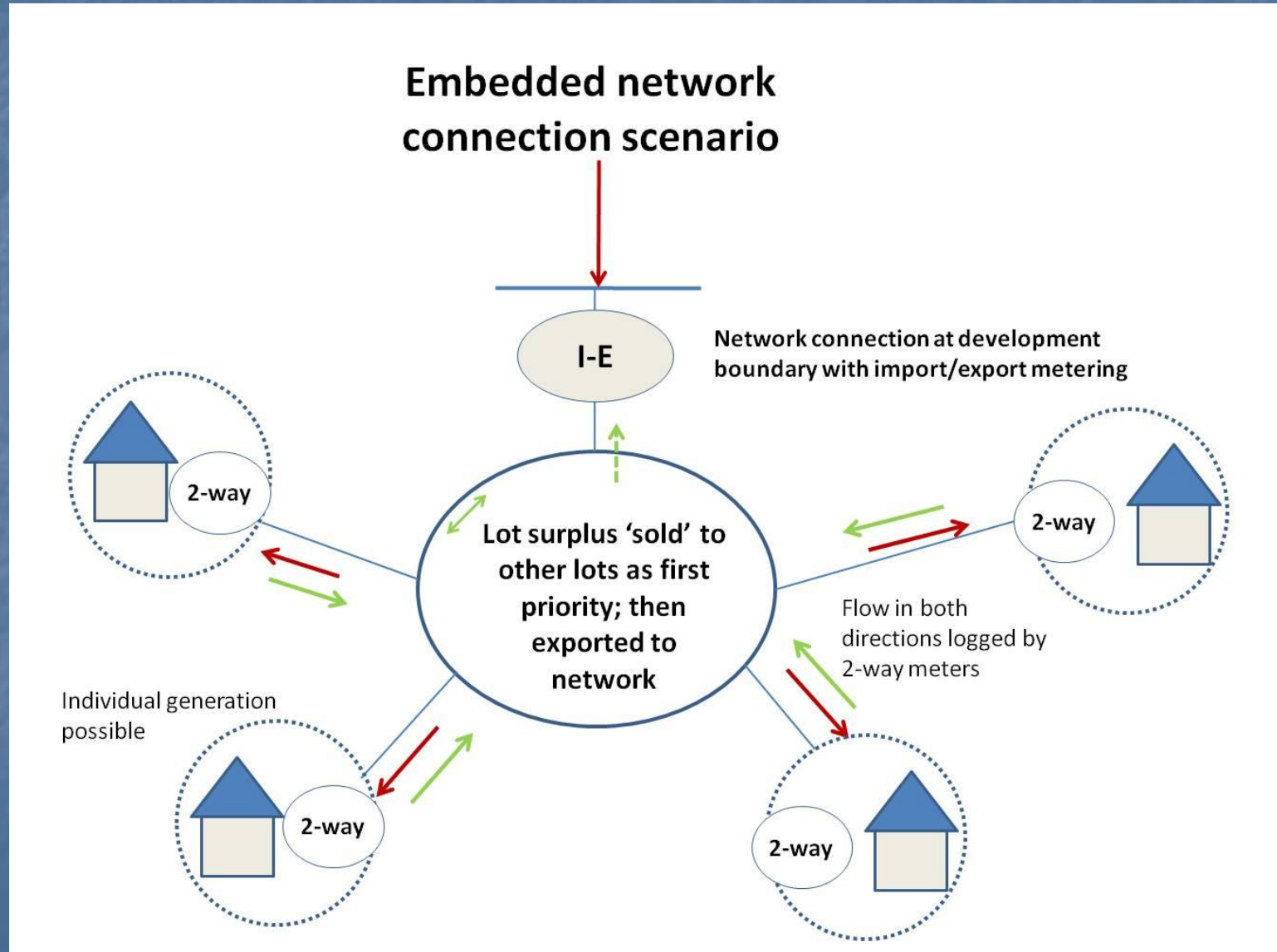
- The most sustainable electrical load, is an avoided one.
- Limited peak electrical loads.
- Minimum building thermal performance .
- Renewable water heating

non-displaceable electrical loads

Standard connection scenario



non-displaceable electrical loads



Renewables

- Some renewable generation will be inbuilt in the development, triggered by the 5th lot sale.
- Multiple locations are available on common land for solar PV and wind.
- 'Local' grid facilitates multiple individual generation and backup possibilities.

Building Design

- Site specific design
- Passive solar plus
- Building Performance Index
- 'Appropriate' building size

Building Design

- Massey University research predicts significant thermal benefits.
- Performance to date corroborates predictions.
- Prototype energy systems









Conclusions

- Uptake of land development techniques are ultimately driven by market perceptions.
- There appears to be a significant educational gap between sustainability practitioners and general public.
- Owner driven perceptions/knowledge base and short-term economics still dominant.
You can lead a horse to water.....

- There are many energy and sustainability pitfalls that effect resilience.
- Large-scale change towards more resilient communities rely more on regulation than a collective understanding of the consequences of our choices.
- There is much scepticism or lack of knowledge amongst the land development and construction industries.
- Also a need for skilled project managers.

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