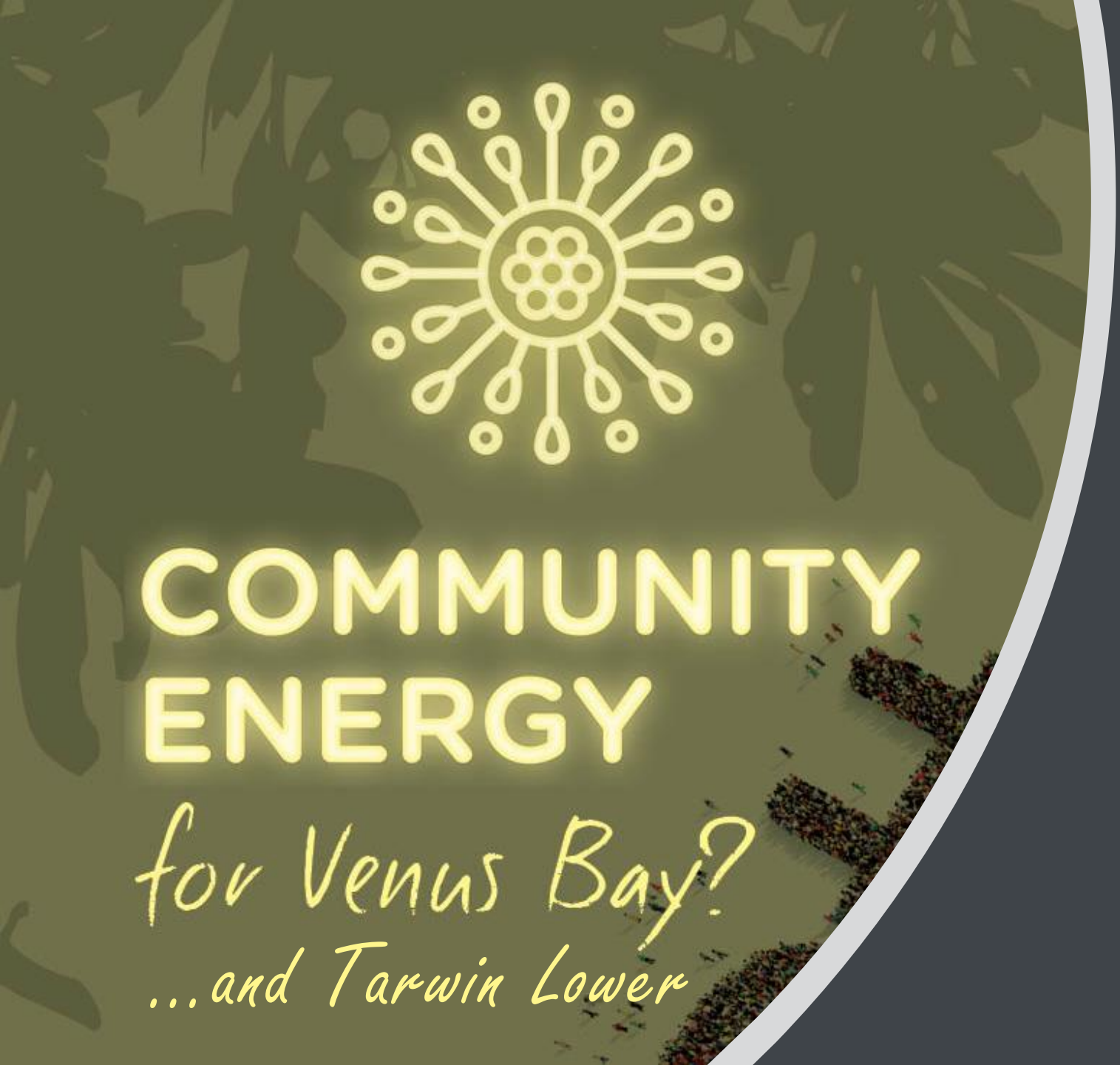
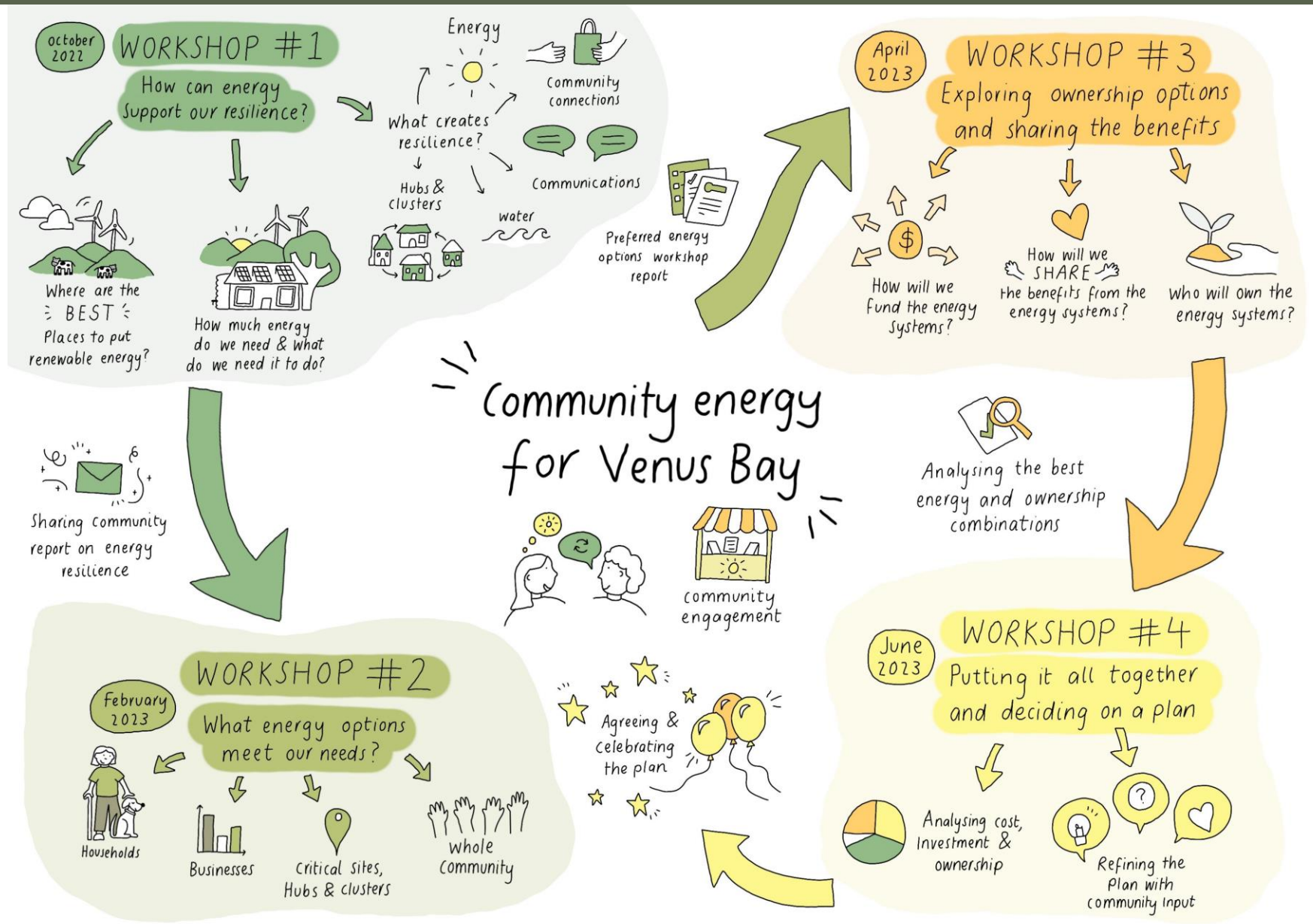


Exploring our energy pathways and locations

Harvest Report
Workshop #3 –
April 15th, 2023



We had shifted our focus in workshop #2 to discussing community values and how they need to be applied to our energy options.

We had to pivot in our original workshops plan because of delays in receiving community energy data.

The team has since analysed these data and presented some of the findings at Workshop #3, including energy options under Essential, Enough and Everything scenarios and the pathways we might take to realise these options.

Summary of Workshop #3 – Exploring possible pathways for implementing energy options for Venus Bay and Tarwin Lower

36 people participated in a 4-hour workshop - biggest attendance yet, with people that hadn't been before representing a range of businesses, community groups, part-time and full-time residents.

We began with a recap on the framing of reliability, resilience and the community values that are guiding the Study and informing our Action Plan.

Information was then presented on the five possible energy pathways that could take us to a full microgrid for Tarwin Lower and Venus Bay

The engagement in and enthusiasm for this Community Energy Study continues to grow, as participants find ways of collectively making sense of complex energy information from individual and community perspectives. Excitement about Community Wealth Building is also growing due to how this emphasises the role of and benefit for all in community that can arise from Community-owned renewable energy assets.

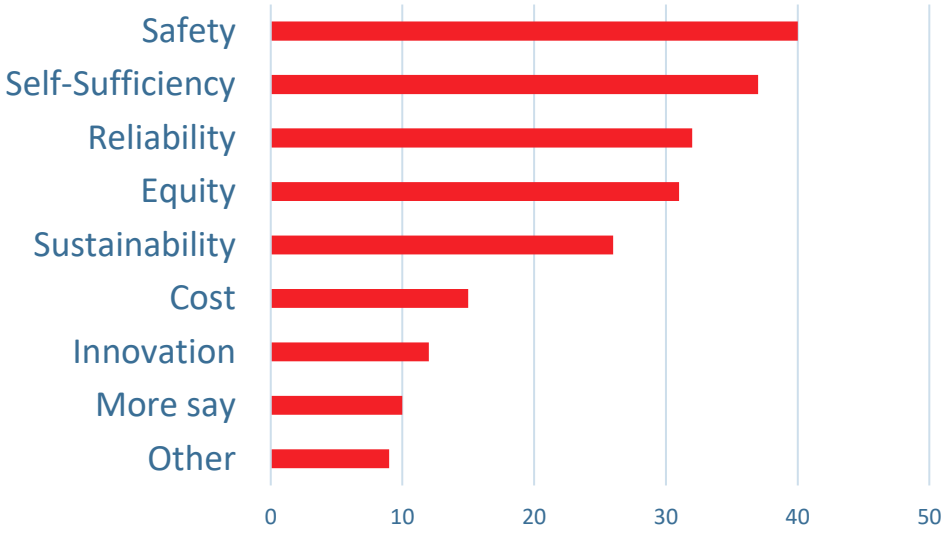
Our Agenda for the day

Time	Item
12 to 12:10pm	Welcome and Acknowledgment. Overview and recap.
12.10 – 12.30	Values – Community perspectives from Wkshp#2, markets and online survey.
12.30 – 1pm	Introduce Activity #1 Pathways and metrics to capture each pathway's contribution
30 mins	Break for lunch
1.30 to 2.20pm	Activity #1 Possible pathways for achieving our energy objectives – Households, community facilities, businesses, small clusters, whole of community.
2.20 – 2.50pm	Report back and general discussion
2.50 to 3.20pm	Community Wealth Building concepts and examples from Ethical Fields
3.20 – 3.50pm	Activity #2 Adding community wealth building to our pathways
3.50 – 4pm	Wrap up, next steps, wine and cheese

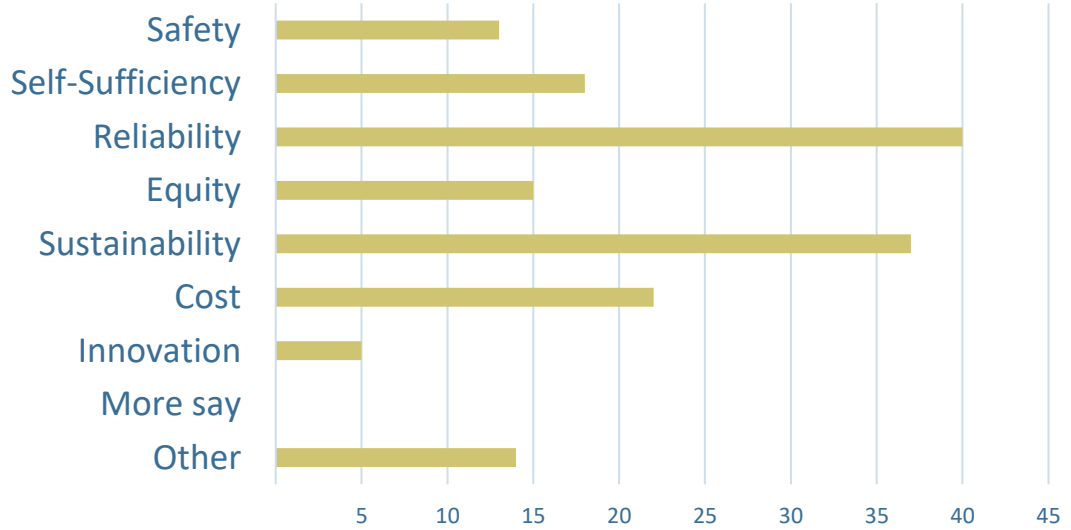
Our Community Values that are guiding our energy choices, were discussed at Workshop #2 and shared widely since at market stalls and through an online survey. They were ranked consistently but slightly differently through each of the engagement opportunities

COMMUNITY ENERGY for Venus Bay?

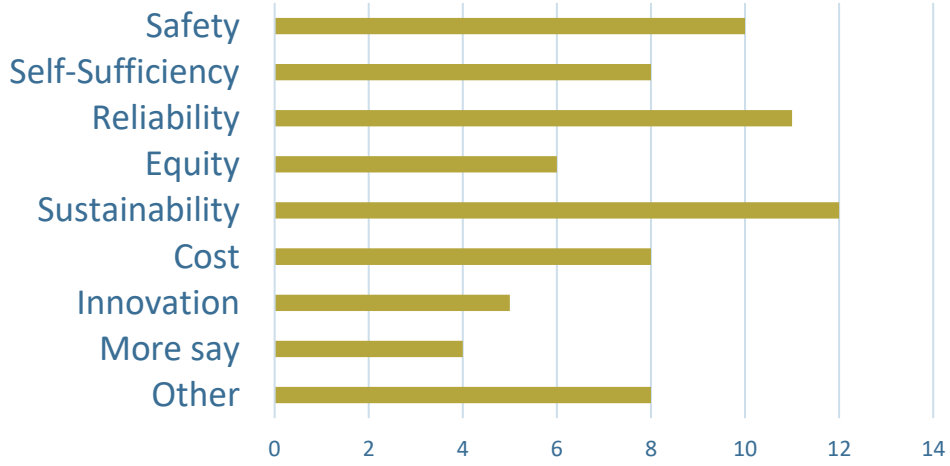
Workshop 2



Tarwin Markets



Votes against different values - Online Survey



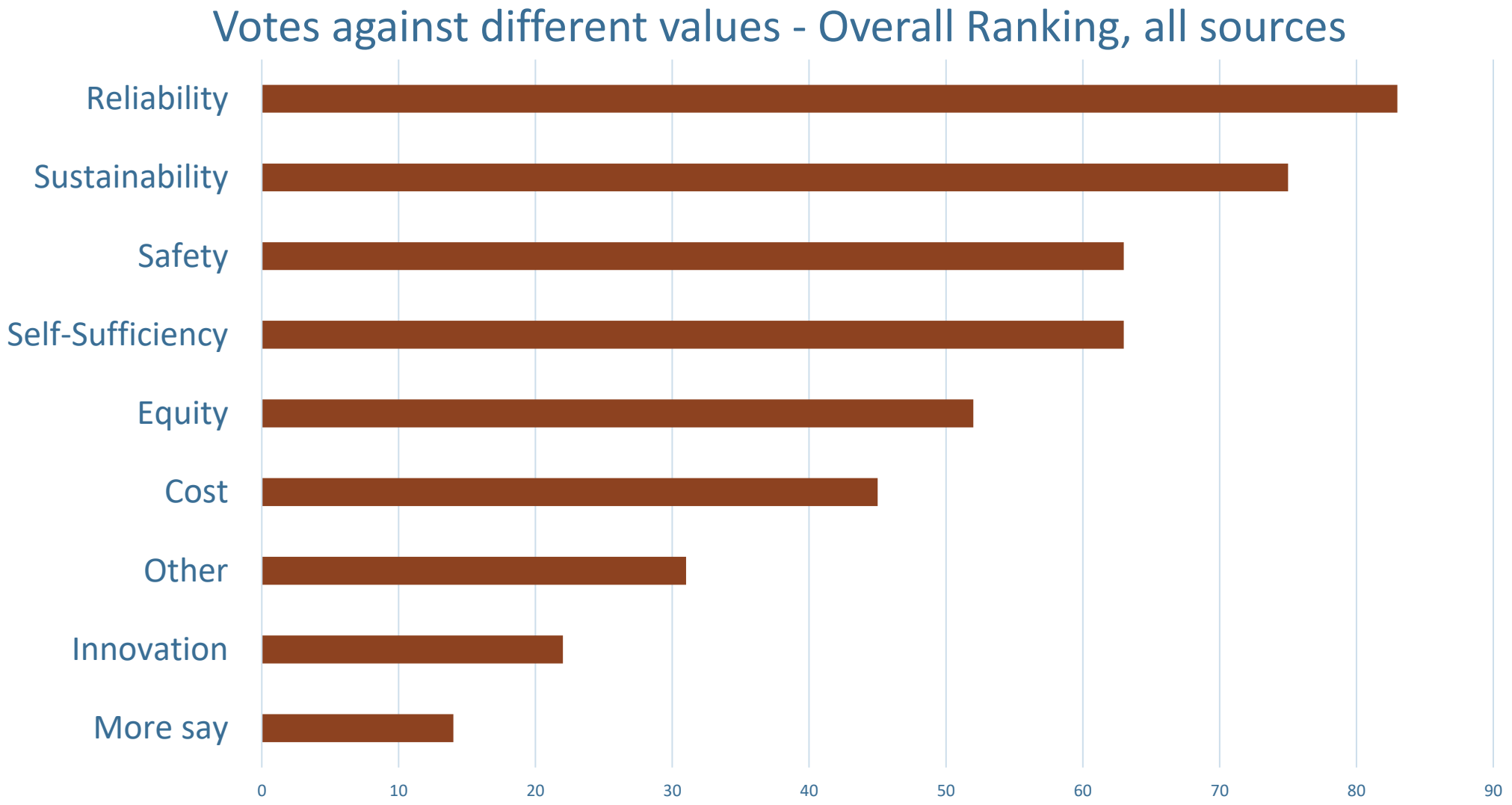
The Safety value ranking at the Venus Bay Workshop #2, was possibly due to the impact of the 2021-22 New Years Eve fire and the stark reminder of the vulnerability from one road in and out of this community.

The higher ranking of Reliability at the market stall was possibly due to the hot topic of outages and their impact on people and community.

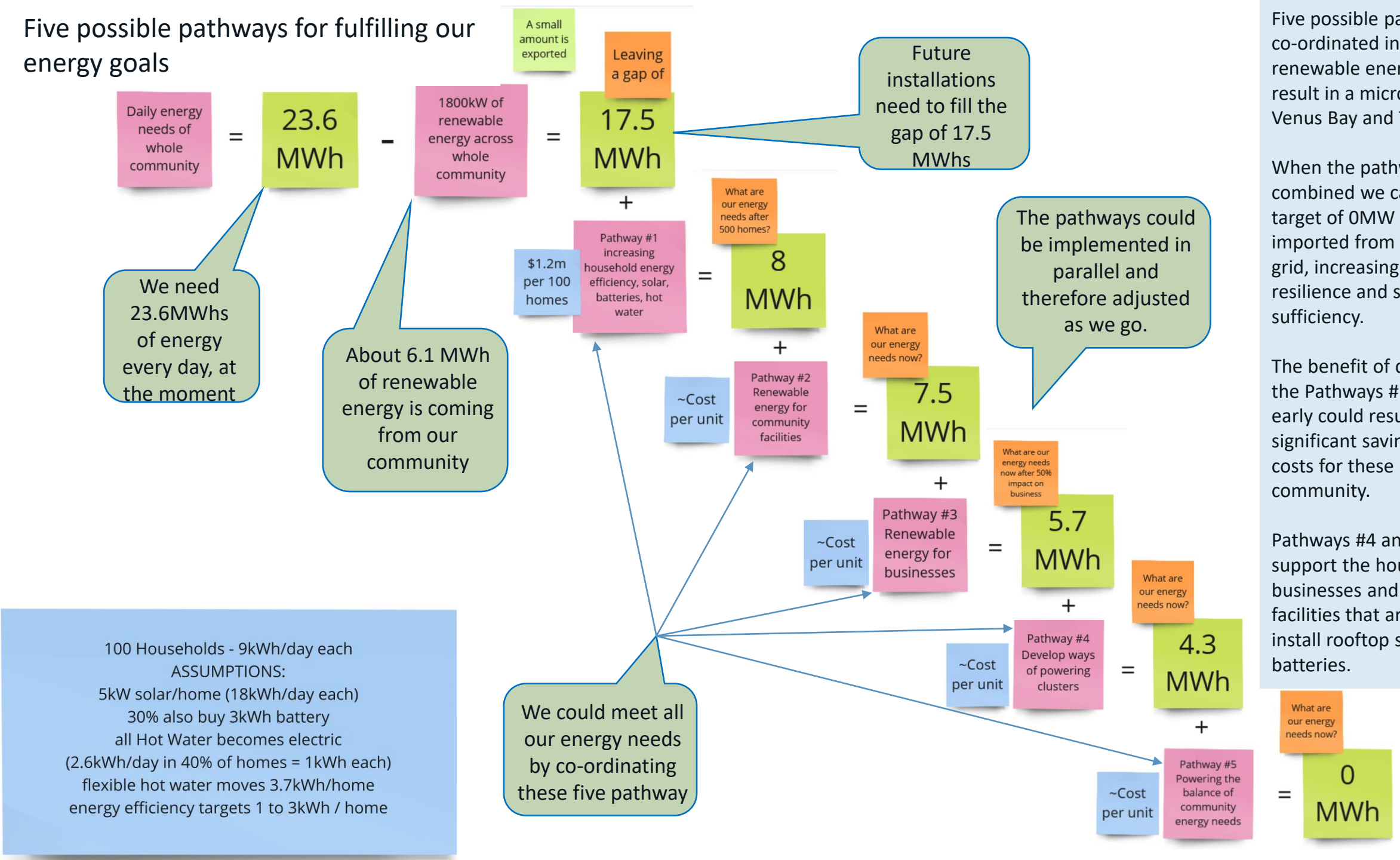
Whilst Self-sufficiency and Sustainability were fairly consistent across the board which reflects this rural community's identity as and desire to be more self-reliant and resilient.

Overall community values ranking when all results from all sources are combined. This ranking is our guide for ongoing analysis of energy options and business models, as we put together the business case for a resilient Community Energy Plan

COMMUNITY ENERGY for Venus Bay?



Five possible pathways for fulfilling our energy goals



100 Households - 9kWh/day each
ASSUMPTIONS:
5kW solar/home (18kWh/day each)
30% also buy 3kWh battery
all Hot Water becomes electric
(2.6kWh/day in 40% of homes = 1kWh each)
flexible hot water moves 3.7kWh/home
energy efficiency targets 1 to 3kWh / home

Five possible pathways for co-ordinated installation of renewable energy that could result in a microgrid for Venus Bay and Tarwin Lower.

When the pathways are combined we can reach a target of 0MW of energy imported from the main grid, increasing our resilience and self-sufficiency.

The benefit of developing the Pathways #1, #2 and #3 early could result in significant savings in energy costs for these members of community.

Pathways #4 and #5 can support the households, businesses and community facilities that are not able to install rooftop solar and batteries.

Potential pathways for pursuing our energy goals can be implemented at the same time, as long as this is done in ways that compliment efforts in each pathway and express our community values.

Our starting point

Daily energy needs of whole community = 23.6 MWh - 6.1 MWh of renewable energy across whole community = 17.5 MWh

A Community Fund, like the Southern CORE Fund, could offer low interest loans to Community Groups to install rooftop solar and batteries at no-upfront-costs. Groups pay off the loan using savings in electricity costs

Pathway #2 Renewable energy for community facilities = What are our energy needs now? ? MWh

Pathway #1 increasing household energy efficiency, solar, batteries, hot water = What are our energy needs after 500 homes? ? MWh

Energy efficiency upgrades first. Bulk buy solar and batteries can be co-ordinated to help with understanding technical issues and may help reduce costs

The Community Fund could offer rooftop solar and batteries to businesses at no-upfront-costs. Businesses buy energy at low-cost through agreements with the fund, gaining reliable energy and saving money on energy bills.

Pathway #3 Renewable energy for businesses = What are our energy needs now after 50% impact on business ? MWh

We also need to keep in mind and size our energy needs to cater for electric vehicles and our increased reliance on electricity

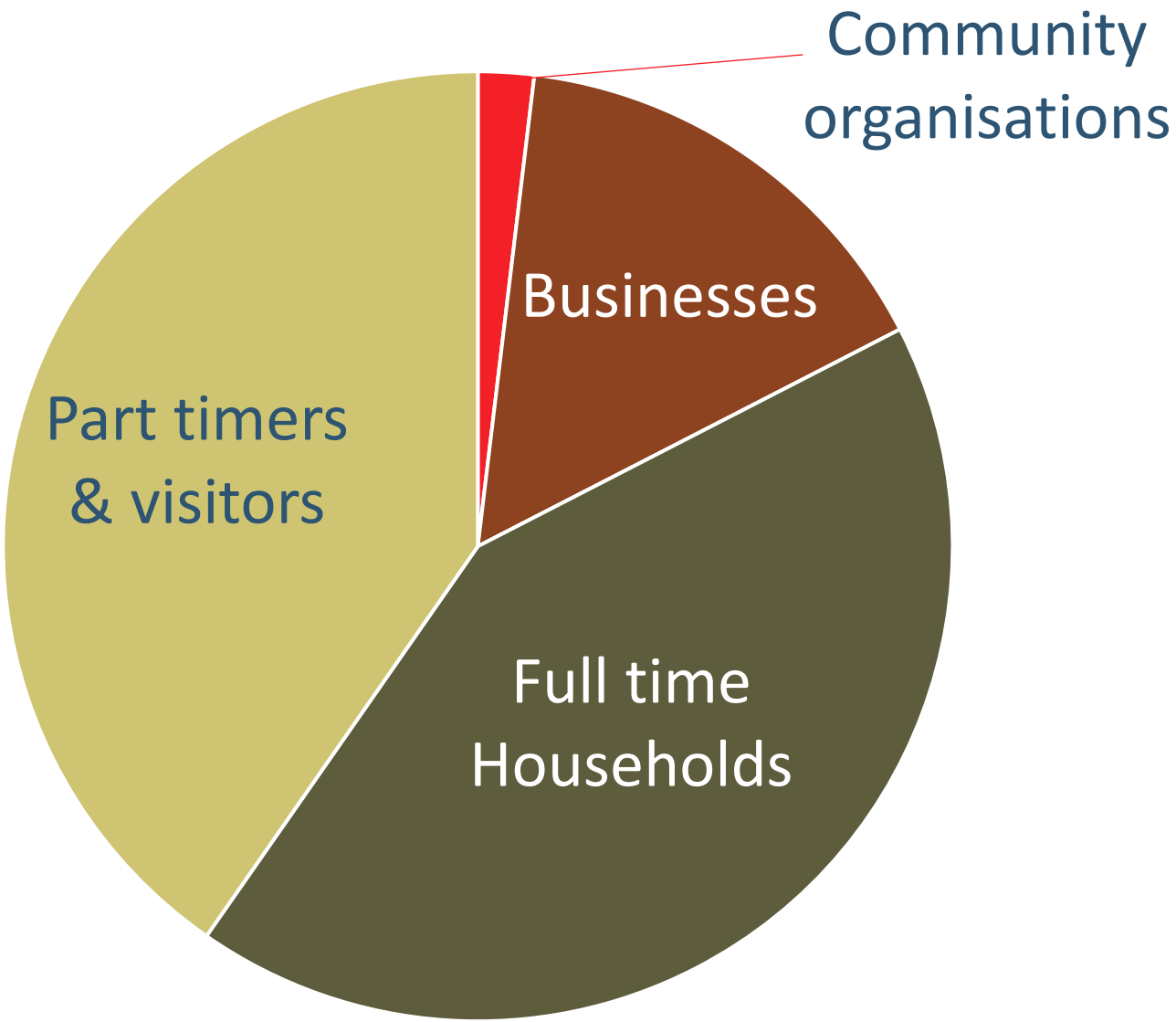
Pathway #5 Powering the balance of community energy needs = What are our energy needs now? 0 MWh

A small solar farm or one or two small wind turbines with batteries could be critical for supplying energy to households, community facilities and businesses that can't install their own energy systems and could make a microgrid possible.

Neighbourhood batteries in strategic locations around the community could help soak up excess solar and share it back out when it's needed, also important for anyone who can't install their own system

Pathway #4 Develop ways of powering clusters = What are our energy needs now? ? MWh

Who uses the energy now?



Understanding who uses energy helps us to think about which pathways might achieve the best outcomes.

With households as a group being the biggest energy consumers in our community, Pathways #1 and #4 are likely to yield the best results for energy use at this scale.

Renewable energy for community buildings and businesses will address the community desire for increased resilience, through the goods and services they provide and the people they employ within the local community.

The inclusion of energy efficiency in all pathways ensures the investment in renewable energy will be more cost effective at any scale and offers savings for households, community groups and businesses that can't install rooftop solar or batteries.

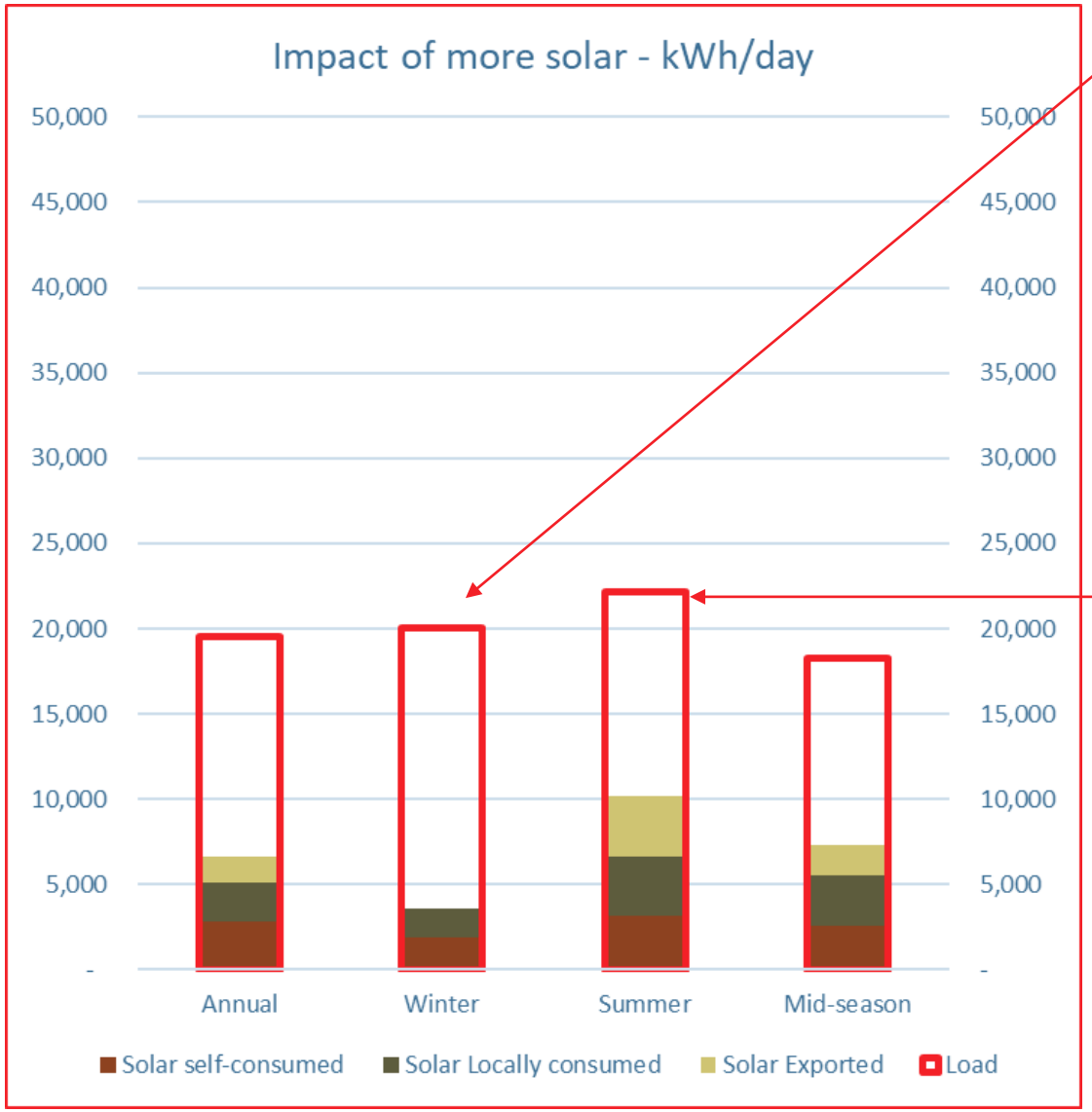
Pathways #4 and #5 also offer access to renewable energy for everyone, including households, community groups and businesses that can't install their own systems. This demonstrates that Equity is a strong value in the Venus Bay and Tarwin Lower communities.

When energy is used influences our options

Current situation
617 homes with solar
+ some businesses

At the moment Venus Bay and Tarwin Lower uses almost all the solar energy that it produces.

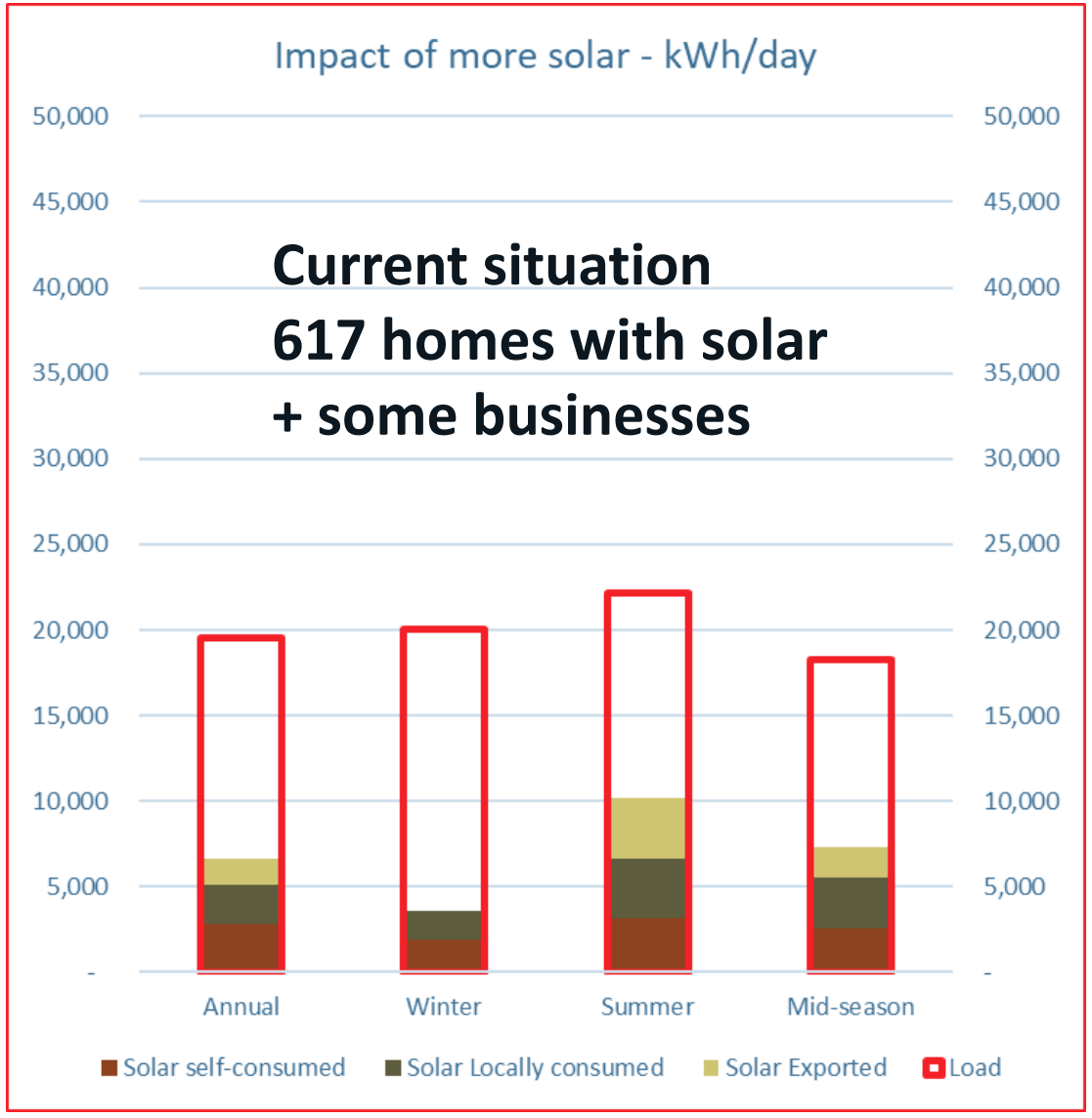
Many households export solar at times and it is soaked up by their neighbours. We don't see this on our electricity bills because it is difficult to identify who uses which source of energy. So, we currently pay for a *system* of energy production where everyone's surplus solar electricity is simply absorbed into that system.

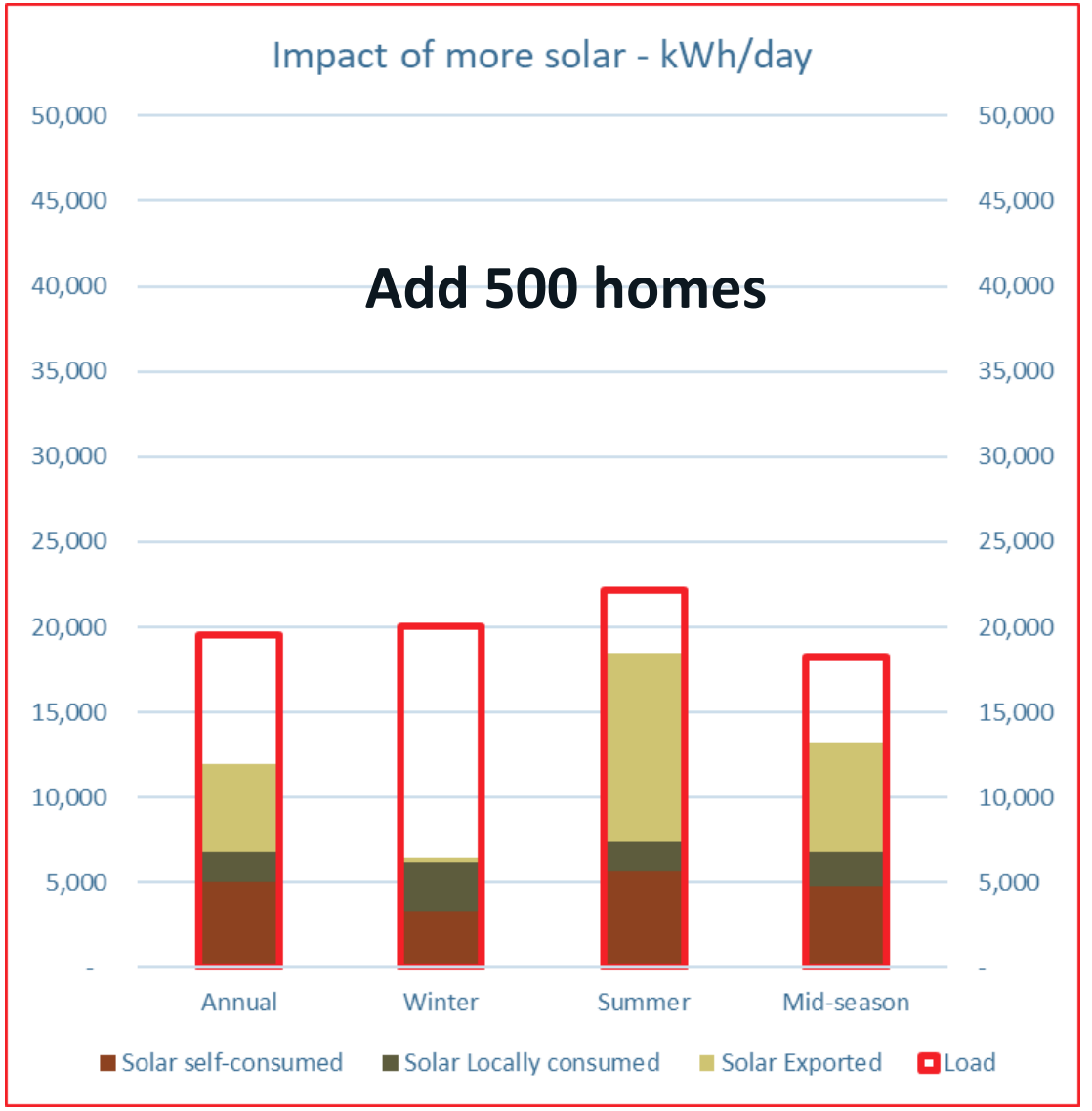


During winter, energy consumption is higher because there is less solar energy generated, more heating is needed and people spend more time indoors

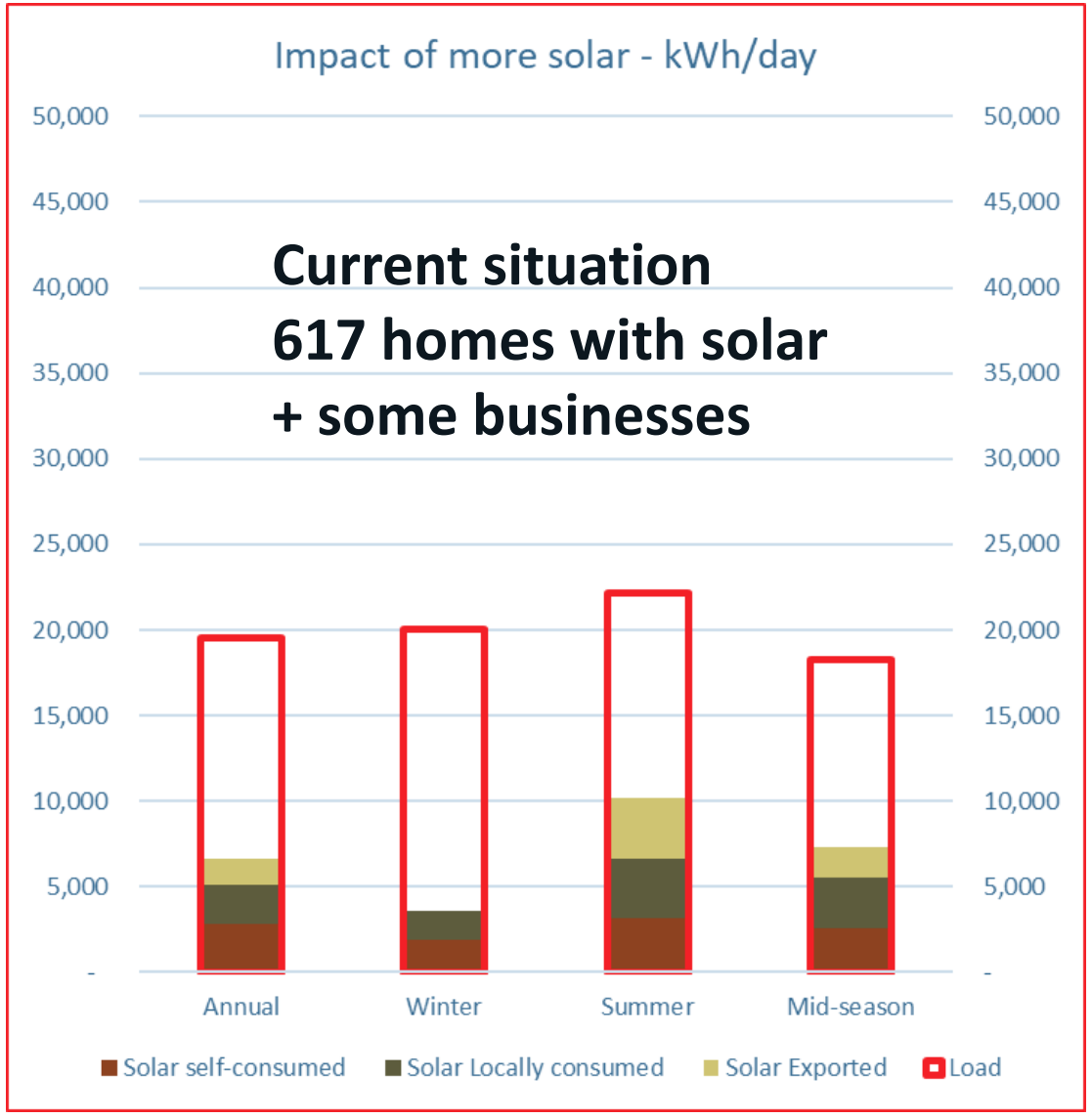
During the summer peak, energy consumption is higher because there are so many visitors

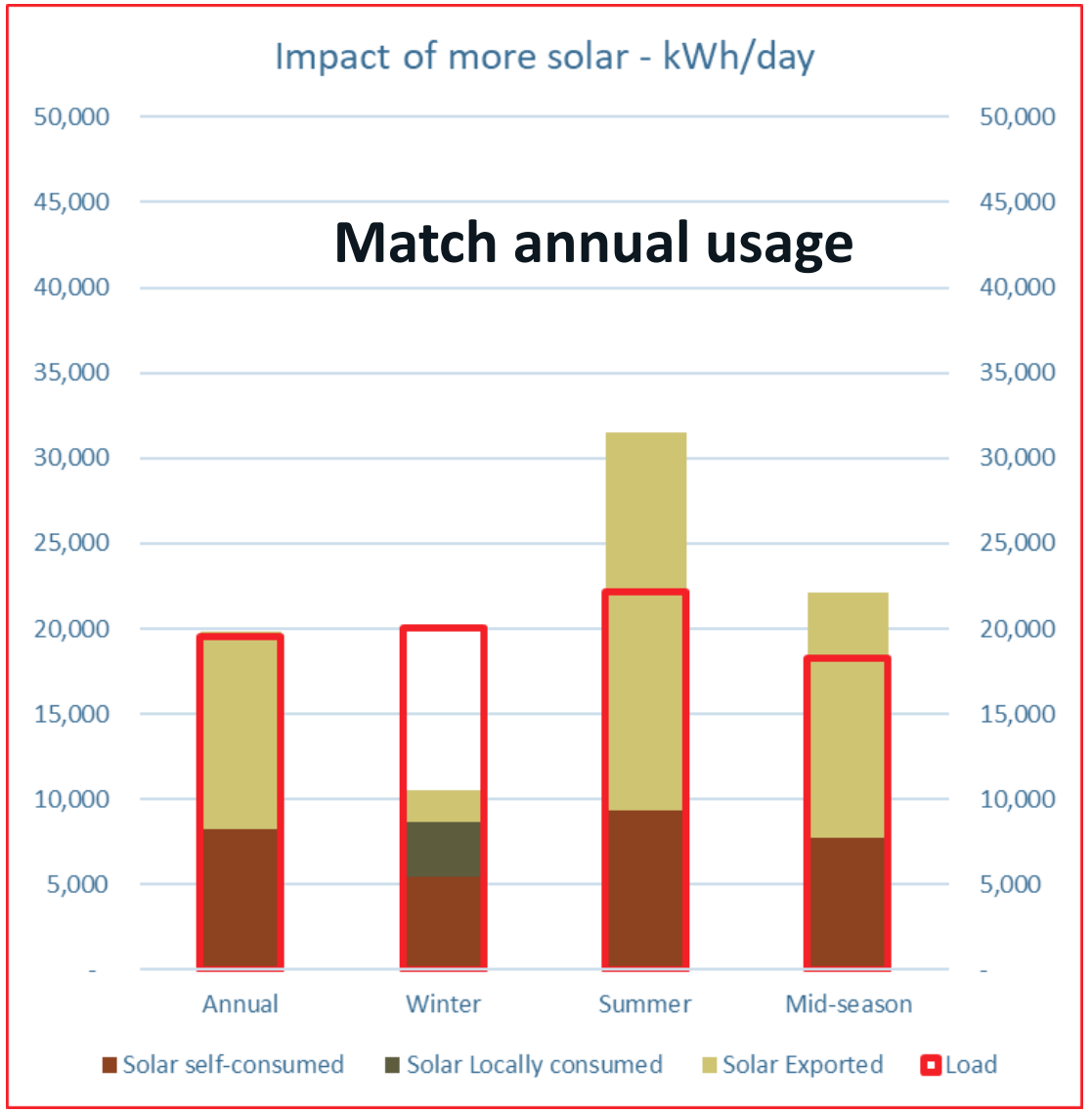
Adding solar to 500 homes means we could generate what we use in summer





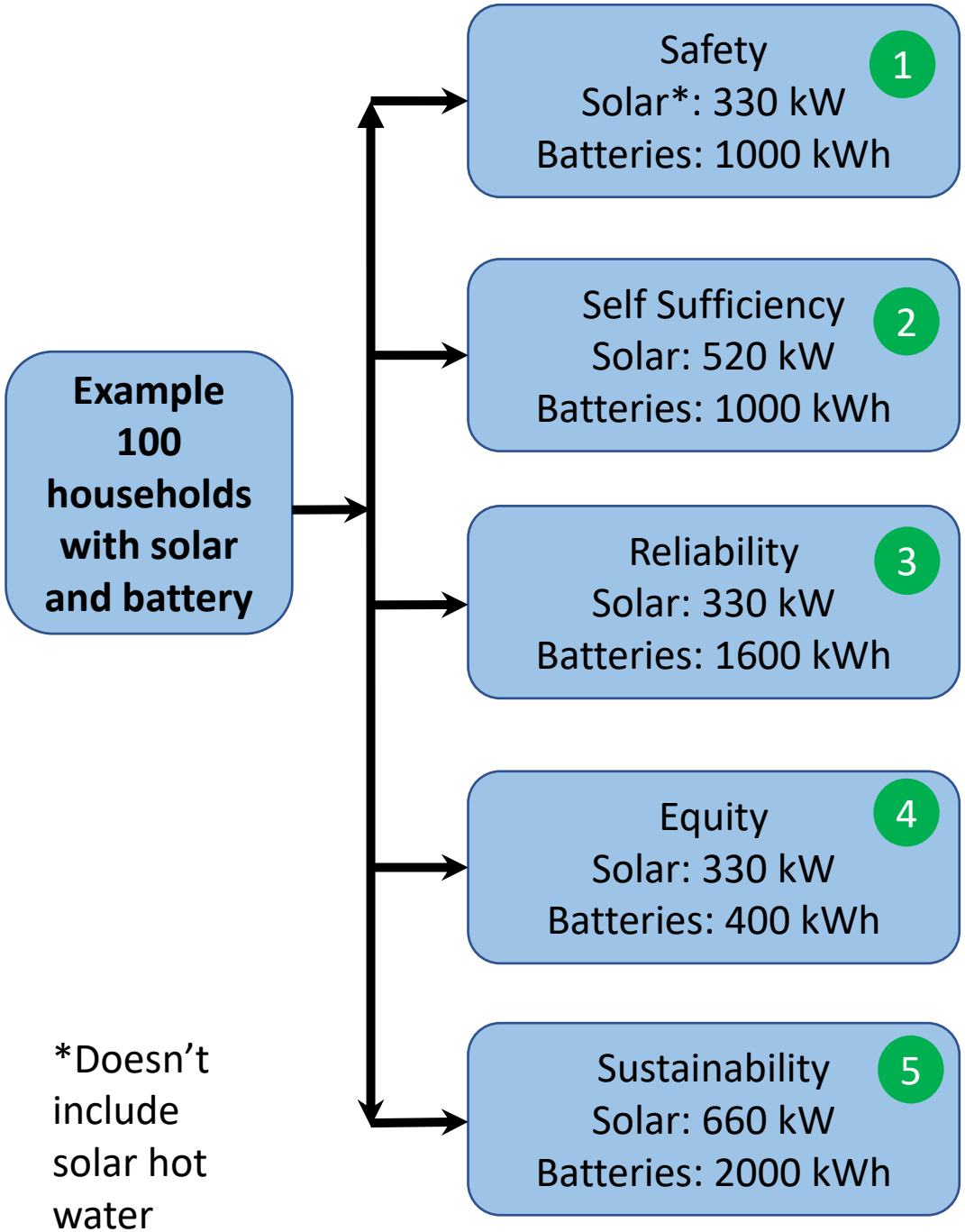
Generating as much solar as we use year round means a surplus in summer and a deficit in winter





When considering any of the pathways, the size and location of systems and how they work together, a key aim is to ensure the following three things guide decision making:

- We need adequate generation
  - Increasing resilience by generating as much electricity as we use. There may be times when we have a surplus and can supply it to our neighbouring communities
- We need adequate flexibility and control
  - Flexibility to use renewable energy when it is available - Creating and storing hot water, for example, allows us to use surplus and cheap renewable energy when the sun is shining.
  - Forms of control can include timers to turn on dishwashers or washing machines during the day
- Adequate storage
  - Storage allows us to absorb surplus solar energy and use it when electricity is more expensive or when the main grid suffers an outage.



*Doesn't include solar hot water

Our values influence how we size systems in each pathway. Our top five community values suggest sizing the total amount of solar and battery capacity differently. For example, under our reliability value we would have more battery storage than under equity.

1. Safety (focus on emergency situations)
   - Large battery to last a long time
   - Not worried if it is charged by solar or grid

2. Self – Sufficiency
   - Large solar and large battery
   - Much better if we can make homes more efficient
   - Much better if we move hot water to use solar

3. Reliability (focus on outages)
   - Large battery
   - Control to limit use to essential loads
   - Need to forecast so we can predict best times to discharge the battery and make some money

4. Equity
   - Investments sized to make money
   - Energy efficiency and flexible hot water are cheaper

5. Sustainability
   - Large solar but could use grid instead of large battery
   - Control to make use of surplus wind on market

Activity 1

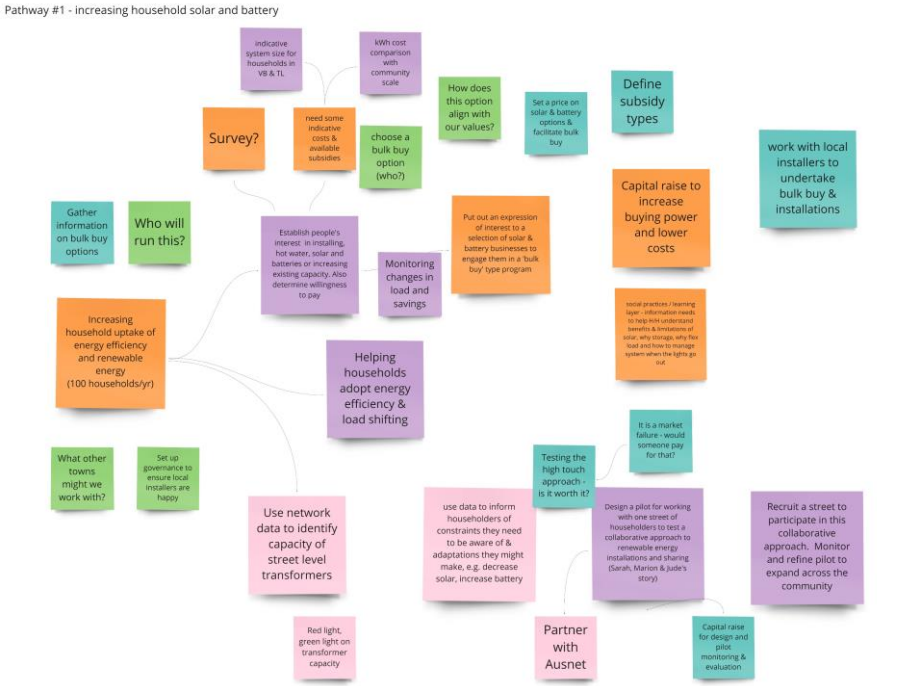
The pathways were presented to the whole group, questions were answered and further ideas discussed before Workshop participants were invited to choose a pathway to work on in small groups. Community buildings

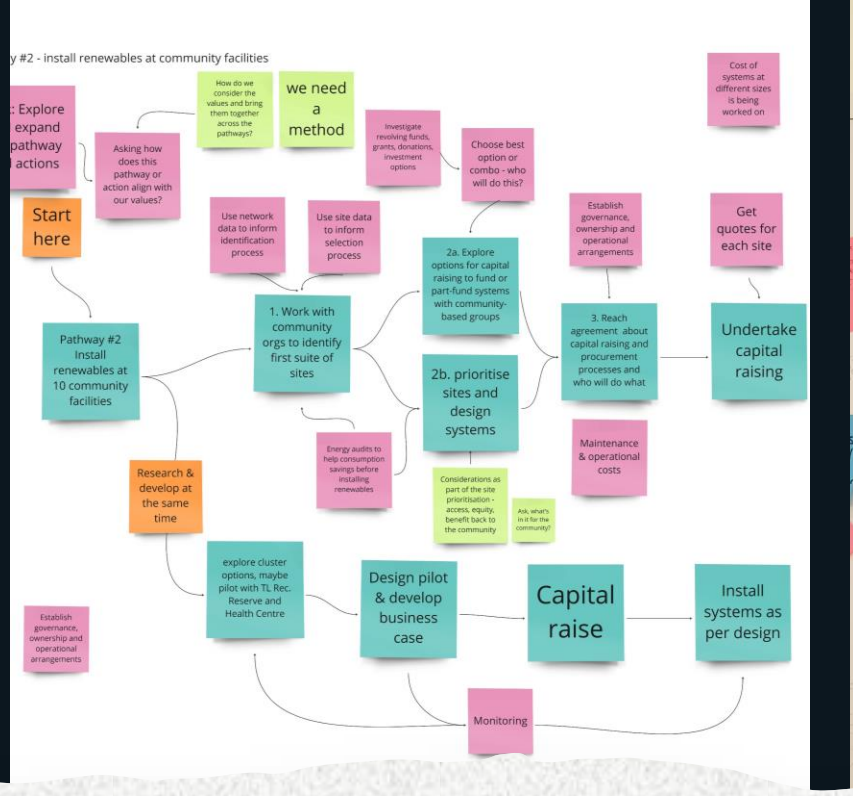
- Businesses
- Households
- Small clusters
- Whole community

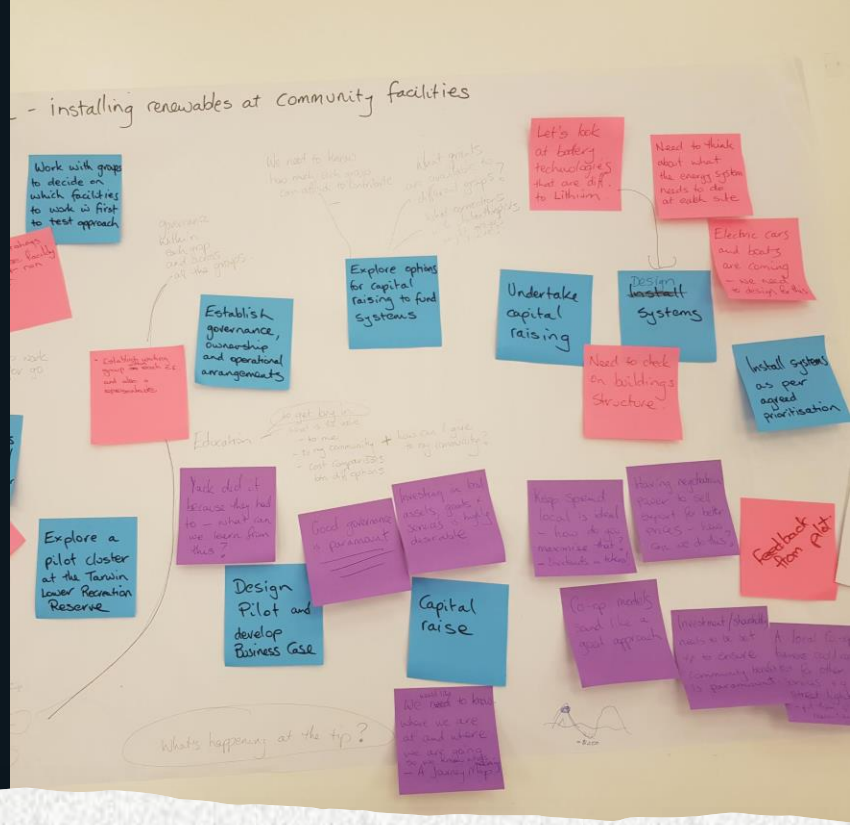
The following slides present the pathways information that were provided to each group and the highlights of their discussions. Full details of the additions to the pathways will be source material for the Action Plan that is being developed and will be shared in draft for people to reflect on and give feedback on:

Pathway #1 – Increasing household energy efficiency and rooftop solar plus batteries

- Everyone relates to the household pathway because we all have homes
- Energy efficiency support is essential so everyone at this scale can benefit and receive costs savings
- Not everyone can install rooftop solar, so the other approaches and pathways are needed to ensure no-one is left behind

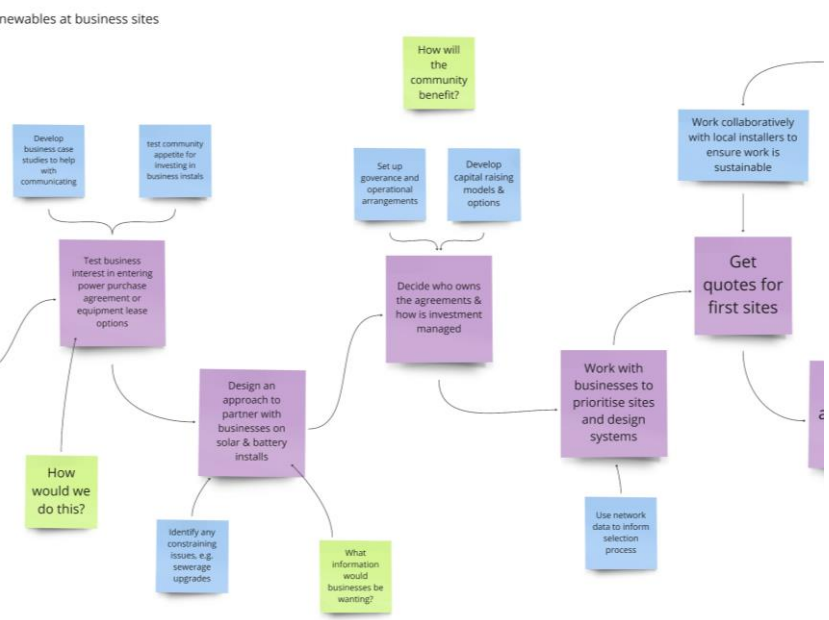


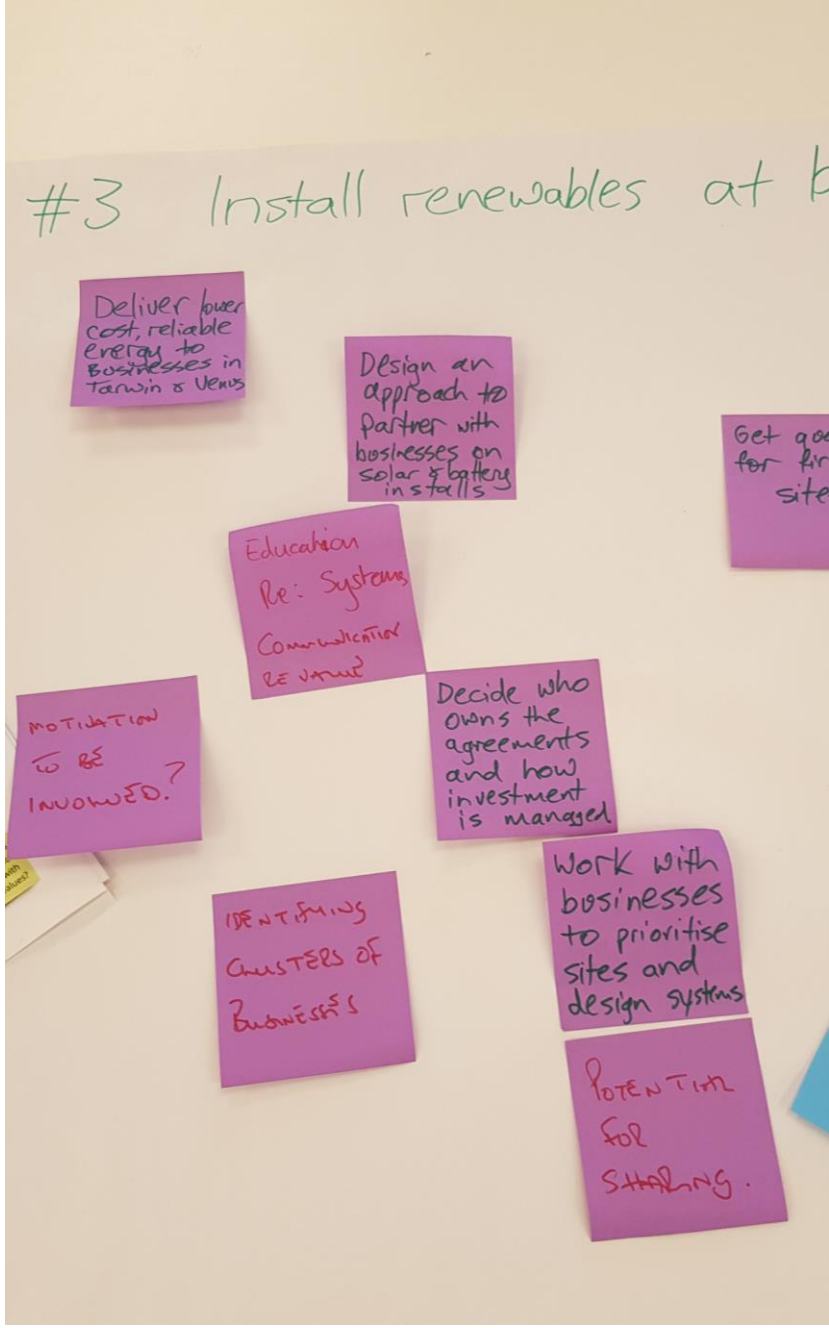




- Pathway #2 – Installing renewable energy on community facilities

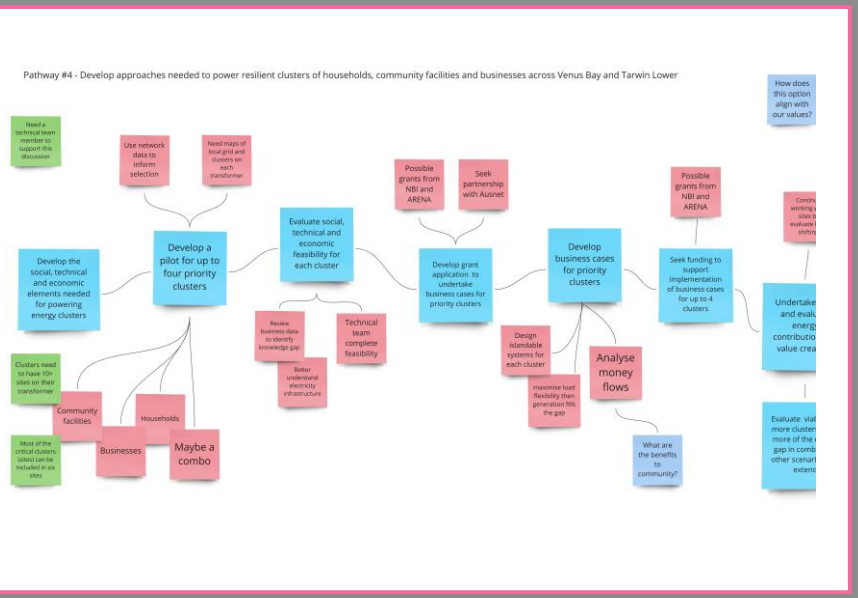
- Community groups across Venus Bay and Tarwin Lower can collaborate to make this pathway supportive and helpful to everyone
- We need a process and criteria, so decision making is fair and transparent
- We need to access knowledge and funding to help, and we need to demonstrate progress





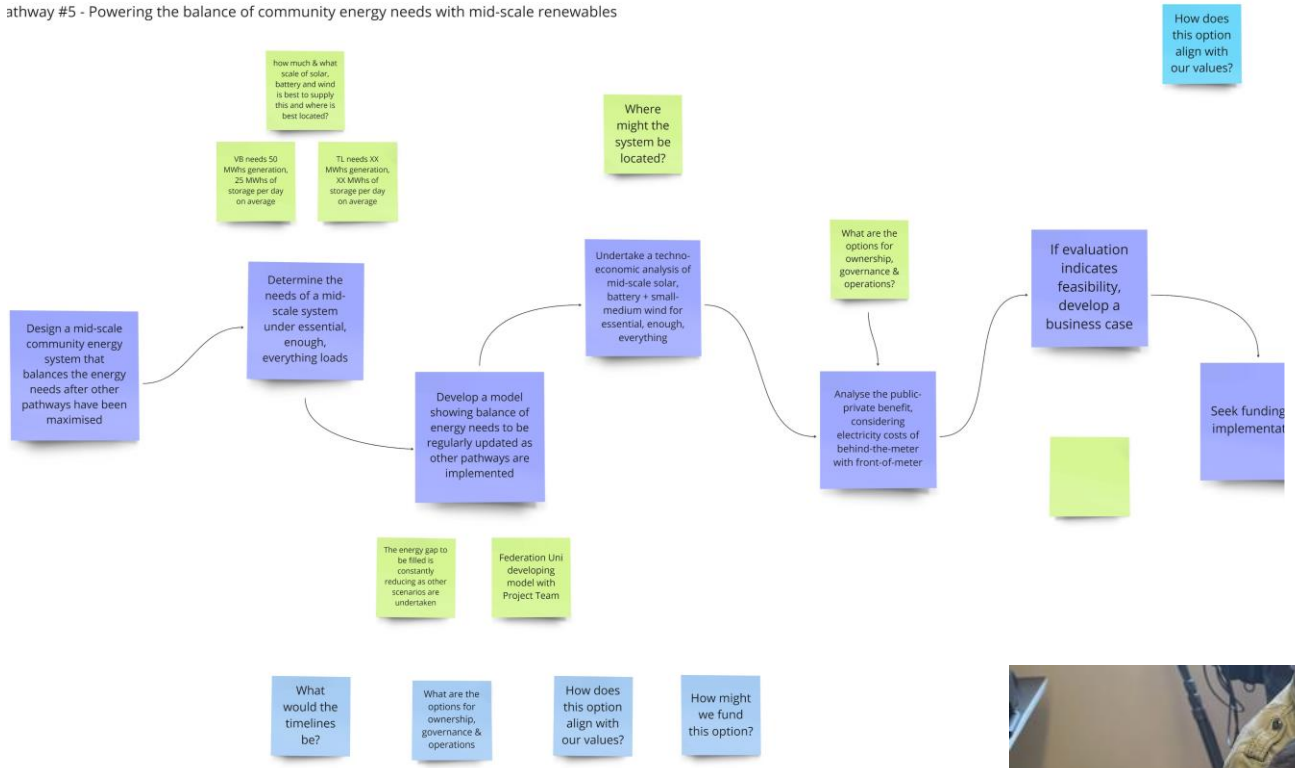
Pathway #3 – Powering businesses with renewable energy

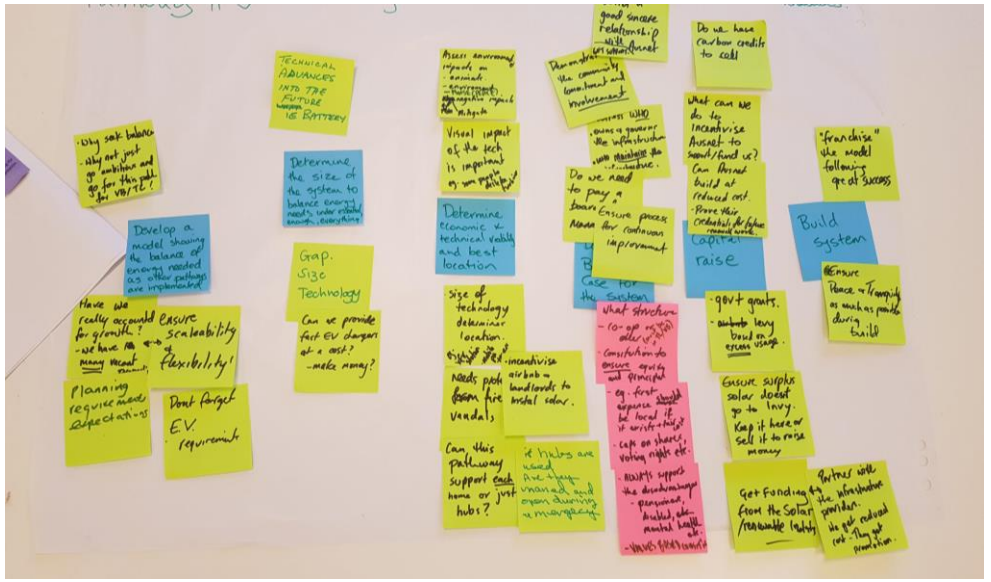
- Keeping the power on at businesses helps them and the community – less spoilage, more service
- Access to local renewable energy for businesses should lower their energy costs, helping with their sustainability
- Need to work with business and building owners to prevent any unintended consequences, like rent rises.



Pathway #4 – Developing approaches for powering clusters of households, community facilities and businesses

- This option is complex and needs lots of thought and discussion
- How do you ensure energy is equitably shared from a neighbourhood battery amongst full-timers, part-timers and visitors?
- Several small trials would be the best way to test different approaches and develop new ways of capturing and re-distributing energy that fulfill our community values





Pathway #5 – Powering the balance of community energy needs with mid-scale renewables

- A locally owned-entity, returning profits to community is what we want to see on this pathway
- This pathway is critical for supplying energy to anyone who can’t install their own system
- This pathway will be important to fulfill our goal of a microgrid

COMMUNITY ENERGY FOR VENUS BAY +TARWIN LOWER

1 INCREASING HOUSEHOLD ENERGY EFFICIENCY

Strong governance

Help households adopt energy efficiency & load shifting

Inefficient housing is very common

Use rates info to contact rate payers

Use existing programs

Baw Baw Sustainability group

Education & Awareness

Utilise Community Houses

WELCOME

Pilot ready streets

BULK BUY!

Equity system could be piloted

2 INSTALL RENEWABLES AT COMMUNITY FACILITIES

Establish working groups & representatives

Check on building structure

Identify groups

Particulars of each

participation

owned/ leased

funding

Install renewables at #10 community facilities

Criteria Ratings to select facilities

Batteries different to lithium

Who do we need to work with

Rethink what the energy system does at each site

Capital raising

3 INSTALL RENEWABLES AT BUSINESS SITES

Education

Deliver

Decide who owns the agreement

1 Reliable energy to businesses

Get quotes for first sites

Approach to partner with businesses

1 2 3 Work with businesses to prioritise sites

Potential for Sharing

VALUES

RELIABILITY

EQUITY

COLLABORATION

ENERGY PATHWAYS

4 POWER RESILIENT CLUSTERS

HOUSEHOLDS

Prioritise

where?

who?

COMMUNITY FACILITIES

BUSINESSES

RELIES on group purchasing

VALUES

SAFETY

COMMUNITY BUILDING

Philanthrapy

Tariff flaws are a big challenge

5 BALANCING COMMUNITY ENERGY NEEDS W/ MID SCALE RENEWABLES

SOLAR BATTERY WIND

Essential Enough Everything

Complement the other pathways

Talk to all household solars

Protection from Vandalism

Size of technology determines location

Ensure scaleability

Why seek balance?

Go ambitious

Can this support all homes or just hubs?

BATTERY

VENUS BAY COMMUNITY CENTRE

Graphic Recorded by Angharad Neal-Williams

Introducing Community Wealth Building

- Sam Doove and Gareth Priday from Ethical Fields have joined the Venus Bay and Tarwin Lower Community Energy Study Project Team
    - They bring knowledge and skills in the area of economic analysis and business case development – through a Community Wealth Building lens
- Two videos were shown to introduce key concepts of community wealth building and how this approach could be applied in our Study. These examples, many of which are in Victoria, and some nearby, made these concepts much more real. Please follow the links below to watch these:
    - Link to presentation video
    - Link to community wealth building video
- A sample of quotes from people below illustrate the positive response to the inclusion of Community Wealth Building as our approach to economic analysis.
    - “Our table was really switched on by the connectedness and success that was created by the other community projects (in the videos). And the idea of a co-op or shareholder type funding structure was an eye opener. We loved that idea but felt that Trust and Equity (especially for the elderly and renters) had to be at the front of whatever we end up doing…”
    - “Format and structure of workshop enabled people to engage and bring a complex story together. Lot of excitement about Ethical Fields, showing the actual value to the community”.
    - “I was blown away by the success of the workshop - at least a dozen new people who all got on board, real engagement around the tables, everyone stayed to the end and not for the wine and cheese - and I think everyone came away with a really clear picture of what might be possible. I know I did. Looking forward to the next one”.

Activity 2

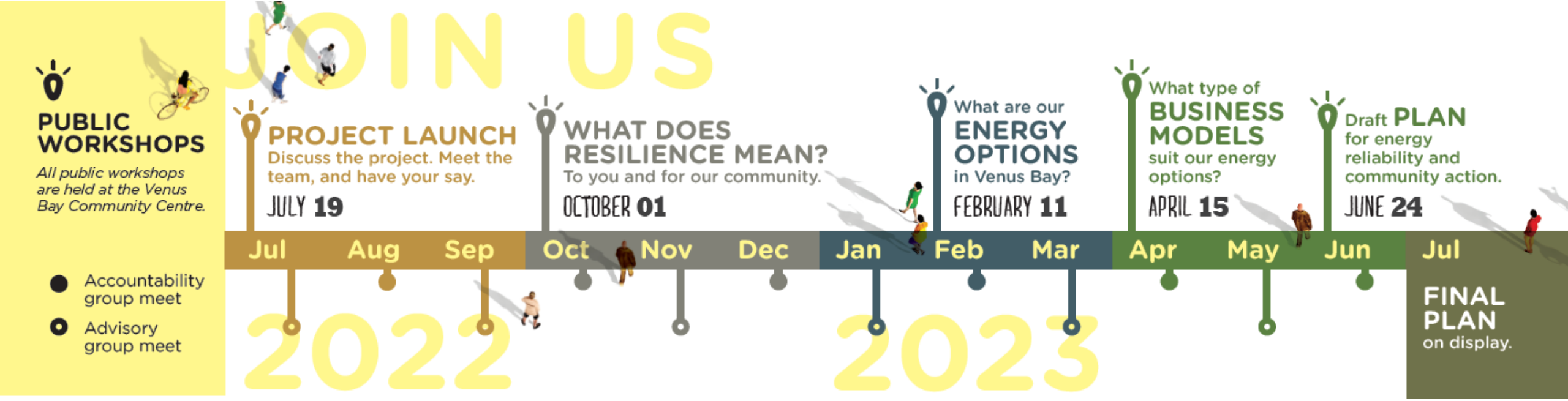
After listening to Sam's and Gareth's presentations, participants were invited to reflect on how they feel the principles of Community Wealth Building could be applied to their pathways.

The small groups reported back their reflections to the whole group on how Community Wealth building could be reflected in each of the Pathways.

The overwhelming response was that this approach to economic analysis and business case development aligns really well with our community values.

The examples provided of community-owned enterprises also helped people see and feel how this community energy study could be implemented, for real!

One critical feature from several groups was that good governance will be key



Next Steps

- Think about:
  - Five energy pathways – what information will enhance your involvement?
  - Organisations and community wealth building – this will be what we work on in Workshop #4
  - Look out for the next video, monthly bulletins and some case studies on business options
  - If you are already involved please reach out to anyone you know who hasn't yet connected with the Community Energy Study and help them to explore and understand this work. Invite them to Workshop #4
- Community Wealth Building - Workshop #4 June 24th, 2023