Valley Community Power (VCP)

Waterworks Valley Landcare Group

Final Report to Tasmanian Climate Change Office

Opportunities for and barriers to an urban community renewable energy project

25 November 2013

http://waterworksvalley.com/vcp

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Overview

The Valley Community Power (VCP) project came from the Waterworks Valley Sustainability & Landcare group's wish to investigate possible options to generate our own community renewable energy (CRE) locally. This work builds on the success of our bulk solar purchase, Climate Friendly Home and behaviour change project in developing a sustainable, caring and resilient community.

Thanks to the Tasmanian Climate Change Office (TCCO) we received $10,000 seed funding to conduct a pre-feasibility study to assess three components:

- identification of **technologies** and sites feasible for a community scale project;
- Community **consultation** regarding interest in, preferred technology, size of project, and capital and fund raising possibilities and
- documentation of the potential and existing **barriers**, particularly regulatory and financial.

Our work should assist other Tasmanian groups wanting to do small renewable energy projects and we hope that our identification of barriers will lead to associated policy changes.

Our Steering Committee (Attachment 1) has overseen the project, which has been managed by Jack Gilding (former Executive Officer of Hepburn Wind) and Amanda Sully (Conservation Consultant & Fundraiser). The project has focused on meeting with a large number of identifiable stakeholders (See Attachment 3: Summary of Interviews & Events).

We have been thrilled by the overarching support from every sector we have had the pleasure to meet over the last four months and hold great hopes for continuing this project to Stage 2 – the development of a detailed business model. Our findings outlined below provide three excellent renewable energy options with particular excitement over the ground breaking potential for harnessing currently unutilised hydro power potential in the water supply system with a project that could consistently power between 50 and 120 houses.

The final Waterworks Community meeting where VCP presented our findings and sought feedback, was extremely heartening with 38 interested and motivated locals (this is approx. 10% response rate!) venturing out to join us on a stormy and freezing mid-winter evening. We have been instructed to go forth and take this project on with their unanimous support and thanks.

Summary of Recommendations

Methodology

Project development and management

The Waterworks Valley community comprises approximately 400 homes with a diverse spread of people and a strong sense of identity, community and place. The amenities of the area are highly valued as is the sense of caring cooperation and the need to reduce our carbon footprint.

Since 2006 we can be proud of a significant number of achievements: we spearheaded solar bulk purchases, have run energy saving education campaigns, run two beautiful and well attended harvest fairs (over 500 people), we operate a shared community garden, undertook a major energy use behaviour change educational project, we've campaigned for traffic calming, have run a school walking bus all that time and, for our efforts, have won two environmental awards.

In 2013 our community's next step became the need to ascertain our renewable energy options. After a meeting with several relevant local experts we created our fittingly, highly skilled Steering Committee (Attachment 1). We were then successful in our application to the Tasmanian Climate Change Office for seed funding for a pre-feasibility study of which this report is the major outcome.

Community consultation

Study area

The study area consists of the geographical boundaries of Waterworks catchment down to Lynton Avenue and includes Ridgeway and Turnip Fields, Waterworks Rd and Romilly St up to Stoney Steps and Caroline Avenue. We letterboxed all 400 plus houses twice (Attachment 2), firstly to introduce the project in March and then to report back and consult in July.

Figure 1: Map of study area

Website and email lists

A project web page was set up on the Waterworks Valley website at http://waterworksvalley.com/vcp/ and in conjunction with this an email announcements list was established for people to register their interest in receiving updates about the project. We already had an extensive email contact list of people living in the Valley as a result of previous projects.

Community meetings

Open invitation meetings of the Waterworks Valley Community are held approximately quarterly. The meeting on 12 February was briefed on the proposed project.

We decided to focus most of the community consultation towards the end of the project when we would have more concrete proposals to put to the community. The meeting was unanimous in wanting to see the project proceed to the next stage. The three possible projects described below were summarised to the meeting. Detailed business cases for the various projects are not part of this stage of the project however a show of hands was taken to see which projects people would like to see proceed. The strongest support was for the hydro project although there was also strong support for the solar project. There was much less enthusiasm for the wind project.

A more detailed report of the 2 July community meeting is at http://waterworksvalley.com/reporting-to-community/

Interviews

Our first full Steering Committee meeting following our successful funding application was held at pitt&sherry and spent considerable time identifying all possible stakeholders. We have since met at least once with 12 of these stakeholders including Aurora, Southern Water, Princes St Primary School, DIER, the Tasmanian Planning Commission, DEDTA, Hobart City Council and our local community. See Appendix 3 for a full list of interviews.

Potential projects explored

Context for project identification

Investigation of possible projects was based on several factors:

- exploring a range of possible technologies
- preference for a physical location in the vicinity of the Waterworks Valley
- size of project
- ability to use energy on-site
- any obvious 'show-stoppers'.

Exploring a range of possible technologies

We wanted to investigate all feasible renewable energy technologies, particularly wind, solar and hydro. Lack of any source of biomass waste in the local area precluded this option. There was also some interesting discussion of waste-heat recovery possibilities from the water supply and sewerage system. This was not investigated in detail because there was no obvious large user of heat in the community, but could be explored further, for example through a district heating system.

Physical location

In keeping with the aim to develop a local community project we started out with the intention to find a project within our geographical boundaries. Once we started investigating actual possibilities

we realised this was unlikely to be practical. The best site for a solar project was on the Princes Street Primary School, just outside the study area. The likely best site for a wind project was on Mt Nelson and although Ridgeway Reservoir is in the Waterworks catchment, the actual site of proposed project is in the adjacent valley. This issue was discussed at the community meeting on 2 July with clear consensus that the exact physical location was not important – the community was more concerned to create a viable community renewable energy project that would act as an example to others.

Size of project

There was a general intention to have a project that would be bigger than household scale but affordable for those interested in the Waterworks Valley community to fund. The size of a suitable project is also influenced by the potential for renewable energy to be created with the physical factors (viz: available water flow, size of wind turbines, available roof space for solar) and by economic factors as described in the next section. It is therefore open to review in the second phase of this project.

Ability to use energy on-site

Owing to the way the electricity market works, the potential financial gain from small renewable energy projects is enhanced if the electricity can be used on-site rather than exported to the grid. (See section *Payment for electricity generated* p.14 for details.) As a result it is desirable to find sites which are significant users of electricity. Several other possible locations were discussed for placing a community solar project (above the quarry in Waterworks Rd, or one of several possible private land locations) but because these sites do not have the ability to use electricity generated, they are unlikely to be as viable financially.

Solar panels on Princes Street Primary School

Princes St Primary School (PSPS) lies at the northern end of Waterworks Road in Sandy Bay with approximately 300 students enrolled and the majority of local children attending. Our community has worked well for decades with the school to promote environmental sustainability and incorporated them into our local Harvest Fair. Rebecca Boyle (currently employed at Sustainable Living Tasmania and a parent of the school) did an energy audit in 2011 with many fundamental improvements recommended including installing new and vastly more efficient heating and ceiling insulation. The school's new principal Lyn Goodwin is very supportive of our project. The school hosted our very well attended July community consultation event. The school Parents and Friends Association is very encouraged by our project and keen to see it go to the next level.

Solar supplier *I Want Energy* has provided a quote of $34,817 for a 21kW solar PV system (70 panels and 2 x 12.5kW inverters) on the roof of Princes Street Primary School. The system is expected to generate 25,550kWh of power every year.

Due to space constraints and visual impact *I Want Energy* suggested placing 30 panels on the north facing roof and 40 panels on the internal east facing roof of the main building. The school requested that solar panels not be located on the original 1934 building because of its heritage values.

The energy audit conducted by Rebecca Boyle identified that ceiling insulation was a higher priority than solar panels to improve the energy performance of the school. As part of the VCP process we held a meeting at the school with Chris Jacobs, a Senior Facilities Officer from the Department of Education. Fortunately this led to a greater awareness in the Education Department of the school's priorities and led to a grant for the ceiling insulation being made available.

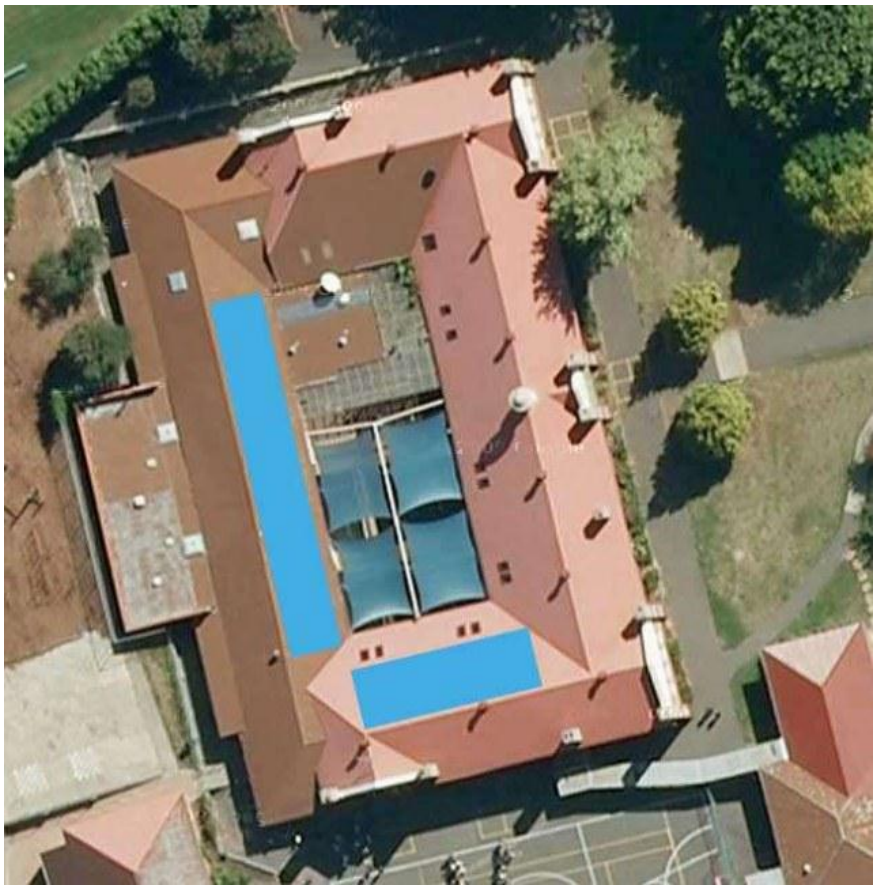

Figure 2: Proposed solar panel location Princes Street Primary School (*'I Want Energy' ***quote)***

Advantages of this project:

- Well understood and straight forward project.
- Financial benefit fairly easy to quantify (apart from feed-in tariff).

Challenges of this project:

- Uncertainty of feed-in tariff under new Education Department common use contract from January 2014 (see p.20).
- Need to negotiate with Education Department about retention of financial benefits so as to recoup cost of investment.
- Heritage constrains on which roofs could be utilised.
- Need to establish and get Education Department approval for a model where school pays community investors for local electricity generated.

Small hydro below Ridgeway Reservoir

We contacted Southern Water to discuss the possibilities for small hydro projects located on existing infrastructure in the Waterworks Valley, including Ridgeway Reservoir and the two reservoirs in the Waterworks Reserve. The water infrastructure in the area is complex with many operational constraints about how water is moved around and used at different times of the year. The most promising opportunity is 'break pressure' tanks. These are placed where there is a large vertical drop in the water supply and excessive pressure would build up in the pipes. In such circumstances, water is released into a holding tank along the route and then placed back into a pipe to continue downhill. In the process, the energy in the water is dissipated and not utilised.

Figure 3: Initial meeting with Damian Devlin from Southern Water

A particular and potentially ground breaking opportunity has been identified at the Browns Hill Reservoir, a break pressure tank on the pipeline from Ridgeway Reservoir to Kingston. The electricity that could be generated depends on water flow. Initial calculations suggest that this could be around 60 kW in winter and up to 130 kW in summer.

Figure 4: Browns Hill break pressure tank

Harvesting this energy would require installing a turbine, generator and associate electronic control equipment adjacent to the break pressure tank. Power would be fed back into the Aurora 11 kV distribution network – there is already a 240 V single phase power connection to the site but Aurora advise that a new three-phase 415 V to 11 kV transformer would be required to feed this amount of power back into the grid (unless the connection was made as an 11 kV three phase connection).

We explored with Aurora whether this location would provide benefits to the electricity network as the Kingston-Margate area has medium term supply constraints, however we have been advised that this location is serviced by the Sandy Bay feeder and not the supply to Kingston.

Advantages of this project:

- Water pipe and electricity infrastructure are already in place.
- Power generation would be fairly continuous and generated whenever water is flowing which would tend to match times electricity is required.
- Minimal environmental impact since all the pipework is already in place and the turbine is on a water supply system, not a natural waterway.
- A public relations advantage to the state water utility, being able to demonstrate an environmental ethos.

Challenges of this project:

- Because there is no demand for the electricity on-site the benefit would only be the wholesale value of the electricity and RECs (around 8c/kWh) rather than offsetting retail electricity purchase (around 16-28c/kWh).
- The project would require negotiating rights to access the water and place infrastructure with TasWater (which took over Southern Water assets from 1 July 2013). As this would be a first for Tasmania there will be issues of ownership and operational protocols to be negotiated.
- As the tanks are sited on TasWater land there may be implications if we wish to apply for funding from the Renewable Energy Loan Scheme (see p.21).

Following very productive discussions with TasWater staff, we wrote to the CEO of TasWater and received a positive reply saying that they see mutual benefits in a meeting and in making information available to other groups in Tasmania.

As we are keen to further progress this project we have sought a quote for a suitable turbine and supporting infrastructure and have organised a meeting with TasWater to begin discussions on the issues that would need to be resolved if the project were to go ahead.

Wind turbine(s) on Hobart College campus

Our initial investigations of possible wind projects were based around suggestions that UTas had already investigated some local wind projects. The only investigation on which we were able to get concrete information was a student project to investigate the implications of installing a WindSpot 3.5kW turbine on the Accommodation Services Building at the Sandy Bay Campus (Luu 2011). As this was a project for a mechanical engineering project, the report was mainly concerned with estimating wind speeds and the structural requirements for mounting the turbine.

We met with Corey Peterson, the Sustainability Officer at UTas who alerted us to the Sustainability Learning Centre site at Mt Nelson.

We have had initial discussions with both the staff of the Sustainability Learning Centre and the Principal of Hobart College about the possibility of a small wind turbine being located on the site, but have not taken the investigation beyond this point.

The site in Olinda Grove, Mt Nelson contains 65 hectares of bushland and houses the Sustainability Learning Centre and Hobart College. The Sustainability Learning Centre[1] was developed as a partnership between Greening Australia, CSIRO, Tasmanian Department of Education, Catholic and independent schools, as well as corporate supporters and private donors. The Centre was opened in November 2012 and contains offices and education facilities for both Greening Australia and a CSIRO Science Education Centre. Hobart College is a year 11-12 state senior secondary college.

The site is on a relatively flat hilltop at an elevation of around 270m without higher topography to the West, North and East. A ridge at around 340m is approximately 1km to the South and the Mt Nelson Signal Station, also at around 340m is located approximately 2km ESE.

Figure 5: Aerial view of Hobart College site (exaggerated vertical dimension)

The site may be suitable for a single or a small number of medium scale wind turbines which could offset some of the electricity consumption of Hobart College. A project to investigate the practicality of this would need to investigate:

- Possible location within the site.
- Collection of wind speed data over at least a year.
- Suitable choice of turbines.
- Any grid connection issues and estimated cost.
- Business case involving estimated cost of the project, electricity generated, saving on electricity purchase and sale of electricity to the grid.
- Likely noise and visual impact.
- Potential for bird impact, in particular Swift Parrots.

[1] see http://www.education.tas.gov.au/parents_carers/schools-colleges/Programs-Initiatives/Pages/Sustainability-Learning-Centre.aspx and http://www.greeningaustralia.org.au/our-services/education-and-training/sustainability-learning-centre-in-hobart

There are already strong partnership arrangements between Greening Australia, CSIRO, Tasmanian Department of Education and the University of Tasmania. An investigation of a wind project would be able to build on these relationships and could provide a valuable opportunity for students at Hobart College to participate in a real-life action learning project by being involved in the investigation of the above areas.

The Sustainability Learning Centre provides a practical demonstration of a number of technologies incorporated into the building[2]; include passive solar design, a 24 kW solar PV array on the roof, rainwater collection, on-site processing and re-use of waste water and hydronic heating fired by waste cooking oil. If a wind power project on the site proves viable, it would be an excellent addition to the sustainability education opportunities already on the site.

Advantages of this project:

- Electricity would be used on-site at Hobart College.
- Educational opportunities for Hobart College students in being involved in project development.
- Educational and demonstration opportunities to a wide audience through the Sustainability Learning Centre and CSIRO Education once the project is operating.

Challenges of this project:

- Wind projects generally require much more environmental assessment than solar and hydro projects.
- Economic benefit assessment more complex and uncertain – generally require a year of wind monitoring data.

Swift Parrots at the Mt Nelson site

Swift Parrots are listed as endangered on the Australian Environment Protection and Biodiversity Conservation Act 1999. It is thought that only 1000 pairs remain in the wild.

The Swift Parrot migrates across Bass Strait between Tasmania and the mainland of Australia. They arrive in Tasmania during September and return to south-eastern Australia during March and April.

BirdLife International has identified the following Tasmanian sites as being important for Swift Parrots:

- Bruny Island and Maria Island
- the South-east Tasmania Important Bird Area (IBA) , a large (3358 km^2) area comprising wet and dry eucalypt forests. It includes the Mt Nelson area.

Swift Parrots feed on flowering blue gums and black gums. Flowering is highly variable from year to year, as is the location of most flowering. As a result the Swift Parrots congregate in different locations in different years. While Bruny and Maria islands are the most important site for feeding and nesting, there can be years where the area around Mt Nelson is the most significant feeding and nesting area in Tasmania. On these occasions there can be around 2-3,000 birds in the area.

Swift Parrots are prone to flying into both stationery and moving objects. In peak times it is not uncommon for 10-20 dead birds to be reported in the Mt Nelson area as a result of collisions, most notably with building windows.

Modelling by Smales (2005) using Biosis Research's Avian Collision Risk Assessment Model suggests that the overall risk to Swift Parrots from wind farms in SE Australia is extremely low, from a total of

[2] https://www.education.tas.gov.au/documentcentre/Documents/Sustainability-Learning-Centre-Features.pdf

1226 turbines contained in 39 wind farms (Smales, p.19-20), the total Swift Parrot deaths is estimated at around one death every ten years.

Such a broad scale modelling cannot of course take into account detailed local circumstances. Nevertheless it is clear that deaths from one or two small turbines (given the very low death rate from a much larger number of large turbines) are likely to be very rare.

Micro-siting could be used to further reducing the potential risk from turbines in the Mount Nelson. Examples of micro-siting include:

- choosing a particular location on the site that is not close to stands of mature blue and black gums that are likely to contain nesting hollows
- setting turbine heights to avoid typical flight height of birds at the specific location.

Overview of barriers

Part of the brief for this project was to:

- "Document barriers, describing those specific to Waterworks Valley community, those specific to Tasmania and those affecting all CRE projects in Australia
- For barriers amenable to being addressed by Tasmanian state and local government and statutory authorities, identify policy initiatives that could address these barriers."

The barriers identified by this project are summarised below. The following section provides more detail and possible actions to overcome these barriers. In line with the action-research nature of our brief we have reported mainly on those barriers which we became aware of in the process of investigating projects and as such this is not a comprehensive review of possible barriers.

Financial barriers

- Uncertainty about future feed-in tariff arrangements, both in relation to eligibility of projects over 10 kW and the rate that will be paid.
- Difficulty in assessing the financial benefit of projects because financial viability is highly dependent on the ability of projects to offset retail electricity purchase at the same location, but this in turn is dependent on time of generation versus time of use, and on tariff arrangements in a contestable market.
- Finding a source of funding for VCP Stage 2 for project development including expert advice on technical possibilities.

Organisational barriers

- Complexity introduced by the number of planning and environmental regulations that have the potential to impact on projects.
- Lack of specific guidance for small renewable energy projects in the new Planning Scheme Template for Tasmania and complexity introduced by the process of different parts of the state implementing new planning schemes at different times.
- Institutional arrangements such as the requirement that all state school purchase electricity from a single retailer.
- For state school locations, Education Department funding arrangement which mean that if a school reduces its electricity purchases (through either energy conservation or local generation) future funding may be reduced and so the benefit does not flow back to the school.

- Negotiating shared use of infrastructure where there are multiple organisations with different requirements and accountabilities.
- Difficulty obtaining relevant information, for instance confidentiality clauses in Aurora contracts regarding rates for purchases of electricity from distributed generators.

Political and regulatory change

The electricity supply industry is highly regulated and the financial success of renewable energy projects in particular is heavily influenced by political and regulatory changes. Changes which might affect the success of small renewable energy projects (positively or negatively) include:

- Changes to the national Renewable Energy Target, including both the overall goal both in the near term and post 2020, and the detailed operation of the small and large system components (see p.17).
- The existence and level of a carbon price which affects the wholesale price of electricity and relative value of renewable and fossil fuel based electricity.
- State policies on feed-in tariffs.
- Operation of the national electricity rules, particularly in relation to grid connection and costs for grid usage.
- Other financial or regulatory advantages or disadvantages that stem from national and / or state climate change policy prescriptions, such as renewable energy grants, rebates, tax advantages or mandates.

Discussion of issues

Payment for electricity generated

There are three main potential sources of income from electricity generation for a community renewable energy project:

- financial benefit of electricity used at the site of generation
- payment for electricity exported to the grid (which can be accessed in several ways)
- sale of renewable energy certificates.

Ensuring a fair and predictable income from these sources is probably the most significant factor in encouraging the deployment of distributed renewable energy. Many of the other barriers can be overcome if the end result is a viable business case with a predictable income.

Each of these revenue sources are discussed below and the barriers to each are identified.

On-site use of electricity

If the project is located at a site where the electricity generated is used on-site ("behind the meter") the electricity generated reduces the purchase of electricity at retail rates. For residential projects in Tasmania this is currently 28c/kWh (tariff 31). Larger projects are likely to be located on commercial premises which will be on a variety of tariffs but the electricity generated and used on-site will still be worth more than the wholesale price.

There are no significant barriers to accessing this benefit once an installation is in place, however there are sometimes suggestions that even this benefit should be restricted. For example in September 2012 the Queensland Competition Authority released an issues paper which argued that solar PV owners should receive only the wholesale price of around 8c/kWh for *all* the electricity they generated, even when they used this electricity themselves.

Options for payment for electricity fed into the grid

There are three ways a community scale renewable energy project can be paid for the electricity it feeds into the grid:

- Under a legislated feed-in tariff arrangement in which a standard rate is set by regulation and is paid by the retailer as a credit on the electricity bill for the site.
- By a negotiated power purchase agreement (PPA).
- On the national wholesale electricity market either directly or through an intermediary.

Payment for electricity exported to the grid under feed-in tariff (FiT) arrangements

If more electricity is being generated at the time than is being used on the premises the balance of the electricity will flow back into the grid. For small scale renewable energy generation in Tasmania (less than 10 kW) this is currently covered by a feed-in tariff arrangement offered by Aurora. As a result of the introduction of full retail contestability for Tasmanian electricity retailing from 1 July 2014, new arrangements have recently been announced by the state government[3].

There are two major policy mechanisms that the Tasmanian Government can adopt to ensure that feed-in tariff arrangements support the development of community renewable energy projects:

- Increase the size of system eligible for the FiT from 10 kW to 100 kW (as is the case in South Australia for example) so that it covers community scale as well as domestic installations.
- Ensure that the calculation of the FiT rate takes into account the many benefits of distributed generation for the electricity system as a whole and for the state, and not just the wholesale value of the electricity for retailers[4].

R.1 That the state government legislate that the new feed-in tariff apply to projects up to an installed capacity of 100kW.

This could operate as a general limit. Alternatively the limit could be raised from 10 to 100 kW, as an exception, for community-based and non-profit projects.

R.2 That the terms of reference for the Tasmanian Economic Regulator determination of a future feed-in tariff takes into account the benefits of distributed generation for the electricity system as a whole and for the state, and not just the wholesale value of the electricity for retailers.

The Government *Response to Consultation* document of 18 August 2013 rejects the arguments for increasing the limit from 10 kW to 100 kW saying (p.20) that "*Customers investing in large systems are better placed to negotiate a favourable outcome with a retailer and should not need to be protected by the regulated FiT 'safety net' that is provided to small customers*". We do not accept this argument and believe this should be reviewed when legislation is introduced. With the current situation there is a complete imbalance of bargaining power between Aurora as the monopoly retailer and a small generator. This may improve if innovative retailers enter the market from July 2014. A legislated minimum FiT for projects up to 100 kW would provide a base level of income to allow small projects to plan with more certainty and would avoid wasteful individual negotiations between each small project and the retailers. If the legislated minimum FiT reflects the financial benefit to the electricity system and the state then this does not constitute an impost on either the energy retailers or other consumers.

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[3] http://www.electricity.tas.gov.au/new-feed-in-tariff-arrangements-announced/

[4] See for example the arguments and Appendix 1 of the Joint submission by Save Solar Tasmania and Alternative Technology Association to the Tasmanian Government's Electricity Reform Project. http://www.solarcitizens.org.au/tas_docs/

The Government Final Position Paper proposes Terms of Reference for the review by the Tasmanian Economic Regulator that are substantially similar to those in the Feed-in Tariff Issues Paper of May 2013 and we believe do not adequately require the consideration of wider benefits. The proposed Terms of Reference also substantially reduce the requirements for public consultation in the setting of the future feed-in tariff. We believe the Terms of Reference and the requirement for consultation should be reviewed when legislation is introduced.

Payment for electricity exported to the grid under a Power Purchase Agreement (PPA)

For installations above 10 kW, payment for power fed into the grid currently has to be negotiated with Aurora on a case-by-case basis. This is a complex process which introduces uncertainty into the planning of small renewable energy projects and in which project proponents have little or no bargaining power. With the introduction of full retail contestability we hope that the entry of new retailers may provide small renewable energy projects with more options for negotiating favourable PPAs.

R.3 As part of the introduction of full retail contestability, the government should actively encourage the entry of new retailers who demonstrate they will pursue innovative arrangements with small renewable energy projects and their supporting communities.

Payment for electricity exported onto the National Electricity Market (NEM)

Electricity generators have the option of registering as participants in the National Electricity Market (NEM) and being paid the wholesale price for the electricity they feed into the grid. There are two main disadvantages of this:

- The setup and compliance costs can be a significant barrier for a small project.
- Wholesale prices change every half hour and are subject to wide fluctuations. This makes it difficult to predict future income, which in turn makes it more difficult to establish a viable business case for a project. This is particularly a problem if the business case is based partly on borrowed capital as banks will generally require a guaranteed income source to ensure that loan repayments can be made.

In November 2012 a new category of participant in the NEM called a "Small Generation Aggregator" was created[5]. This allows electricity output from a number of small generators to be aggregated and sold in the national market. Commercial or community based market aggregators could make it easier and cheaper for small CRE projects to sell into the national wholesale market and to get a better price for their energy.

R.4 The state government should encourage the establishment of a Tasmanian based entity that can aggregate generation from small renewable energy projects that wish to sell their electricity on the NEM or to negotiate collective Power Purchase Agreements with retailers.

While there is no requirement that a market aggregator be based in a state, there may be promotional advantages in a Tasmanian based aggregator that could promote the sale of renewable energy based on the Tasmanian 'clean and green' branding if the energy was sourced from small community based projects.

If such an entity was set up it could also provide advice and support to community groups wishing to undertake small scale renewable energy projects.

[5] http://www.aemc.gov.au/electricity/rule-changes/completed/small-generation-aggregator-framework.html accessed 28 Aug 2013

Sale of renewable energy certificates

The national Renewable Energy Target (RET) sets a certain amount of electricity that energy retailers must purchase from renewable energy sources each year, which increases annually until 2020. Current arrangements are that the scheme continues until 2030 and is reviewed every two years by the Climate Change Authority. To meet this target a market of renewable energy certificates (RECs) was created, where each certificate accounts for 1MWh of renewable energy generation. This provides renewable energy generators with a second income stream in addition to selling their electricity. The price of renewable energy certificates depends on supply and demand – that is the price is set by the market, however the amount of generation (i.e. the size of the market) is set by policy. In 2011, the Renewable Energy Target was split into two:

- The Small-scale Renewable Energy Scheme (SRES) for which certificates are called "Small-scale Technology Certificates" (STCs) and
- The Large-scale Renewable Energy Target (LRET) for which certificates are called "Large-scale Generation Certificates" (LGCs).

Which scheme a project is eligible for depends on both the size of the project and the technology used. The SRES has the advantage that certificates can be created and sold as soon as the project starts generating, based on the predicted generation of electricity over a future period of 5 years (hydro and wind) or 15 years (solar PV). This provides both certainty and up-front income. To be eligible for the SRES, installed capacity of projects must be below 6.4kW for hydro, below 10kW for wind, but can be up to 100kW for solar PV.

Above these sizes it is necessary to register as a power station and become eligible to create and sell LGCs on the basis of actual electricity generated. These schemes are administered by the Clean Energy Regulator[6].

The SRES provides a much simpler approach for small projects. This is a national scheme and is therefore not directly able to be changed by the Tasmanian Government. However it does seem anomalous that the limits for wind and hydro are so much lower than those for solar projects. As Tasmania has particular advantages in both wind and hydro projects it is worth exploring the possibility of increasing these limits.

R.5 The Tasmanian Government should advocate that the size limits for wind and hydro projects under the SRES be increased to 100 kW consistent with the limits for solar projects.

Planning rules

New planning schemes are currently being introduced across all of Tasmania. Previously each of the 29 municipalities had their own (sometimes more than one) planning scheme. The Tasmanian Planning Commission (TPC) issued *Planning Directive No 1* (TPC 2012) in December 2012 which included the *Planning Scheme Template for Tasmania*. All local government areas are in the process of introducing new planning schemes based on this template which will bring much more consistency to planning control across Tasmania.

The Template does not directly address issues for smaller renewable energy projects except that section 6.1.3(c) provides a limited exemption for "*Minor structures that are incidental to any use or development including … solar collector panels and photovoltaic cells on a roof.*"

Renewable energy projects would generally be dealt with in the Template under the "Utilities" Use Class which included "electricity generation", however this is likely to be unduly restrictive for smaller renewable energy projects as it intended to cover much larger projects.

[6] http://www.cleanenergyregulator.gov.au/

Because of the relative novelty of smaller distributed energy projects, there would be great benefit in the TPC producing a State Code covering renewable energy projects which would address the appropriate treatment of renewable energy projects taking into account both the size of proposed projects and the different impact issues for different technologies. Without such guidance, council planning departments are likely to find it difficult to fairly and consistently assess small renewable energy projects.

We believe that both political leadership (see p.22) and clear guidance in the planning scheme are necessary to ensure that relatively minor aesthetic and other concerns do not become an excuse to block projects which have a clear economic and environmental benefit.

R.6 The Tasmanian Planning Commission should develop a State Code for renewable energy projects, which should specifically address issues related to smaller scale renewable energy projects.

The proposed State Code could cover:

- appropriate treatment of small renewable energy projects in various zones
- the planning issues which need to be addressed taking into account both the size and technology of the proposed project
- examples of appropriate Use Standards for each planning zone including Acceptable Solutions and Performance Criteria
- comprehensive integration of climate change mitigation into the planning system so that renewable energy is not relegated in status below other planning prescriptions.

Grid connection

Under Australian national electricity rules, connecting to the electricity grid (either to import or export electricity) requires permission from the local Distribution Network Service Provider (DNSP) which is Aurora Networks for all of Tasmania (excluding the Bass Strait Islands). With the introduction of full retail contestability from 1 July 2014 Aurora's role as a retailer will reduce, but the DNSP function will continue to be carried out by a single government owned entity called TasNetworks to be formed by the merger of Transend and the distribution arm of Aurora.

The process for connection of small solar PV systems and other embedded generation up to 10 kW is fairly standardised and generally does not require individual negotiation with Aurora.

The process for connection of distributed generators over 10 kW is considerably more complicated and does require individual negotiation. The process is summarised on the Aurora website[7] and documented in detail in "*Guideline for the Connection of Embedded Generators to the Aurora Distribution Network*" (Aurora 2012).

This process can provide considerable barriers for a small generation project:

- When making an application for a connection the customer may be charged an "Application to connect fee" to cover Aurora's costs in investigating and designing the required network connection. This must be paid even if the investigation results in a connection cost that makes the project not viable.
- Generators greater than 10k W (single-phase) and 30 kW (three-phase) must contribute the full cost of any network augmentation required to allow the connection of the generator to the network.

[7] http://www.auroraenergy.com.au/electricity-network/your-supply/connect-embedded-generators accessed 28 Aug 2013.

The process and requirements for grid connection are largely determined by national rules with which Aurora must comply.

Supporting actions from the Tasmanian government could include:

- Ensuring that Aurora provides indicative information on likely connection costs without requiring a full technical investigation that the applicant has to pay for.
- Supporting future NEM rule changes that facilitate standardised connection processes for embedded generation such as the current proposed rule change on Connecting Embedded Generators[8].

Potential for distributed generation to avoid network upgrades

One of the potential benefits of distributed renewable energy projects is that, by generating electricity close to the point of use, they are able to avoid or defer upgrades to the network infrastructure which can result in considerable cost savings. In principle, this potential is recognised in the national electricity rules. When network operators are proposing grid upgrades they are required to investigate what are called "non-network alternatives" consisting of options such as demand management and embedded generation. The methodology used for this assessment does provide a useful estimate of the value of deferred network upgrades. For example the 2010 report of options for upgrading the electricity supply network for Kingston (one of the main area of grid constraint in Tasmania) calculates a value of $232 per annum per kW for reduction of the winter peak in the Kingston area (Aurora Networks 2010, p.22).

In both the Kingston report and a similar 2009 report for the supply to the Hobart Eastern Shore, a variety of reasons are given as to why non-network solutions are not viable alternatives such as:

- lack of large industrial customers that could participate in demand side management projects,
- inability of renewable sources such as solar PV to reliably reduce peak demand,
- lack of gas supply (Eastern Shore) to support embedded generation.

In the context of immediate solutions that would avoid the need for network upgrades, all of these reasons have validity. However in the longer term it is clear than more creative solutions to demand management and embedded generation could result in significant financial savings, as well as the other social and environmental benefits which these projects have.

R.7 A more active approach should be taken by the government and Aurora/Transend Networks to encourage demand management and distributed generation projects in locations where these could avoid significant network upgrade costs.

Education Department policies on energy projects

There are several reasons why educational institutions are particularly suitable locations for community based renewable energy projects:

- schools provide a natural base for organising community projects as they already have well developed links into their local community
- schools have significant daytime electricity use which is an advantage for solar PV projects
- schools generally have large roof areas appropriate for solar installation

[8] http://www.aemc.gov.au/electricity/rule-changes/open/connecting-embedded-generators.html accessed 28 Aug 2013.

- renewable energy projects located on school premises provide an excellent focus for involving students in learning about energy conservation and renewable energy generation.

An impediment to realising this potential is that, to date, the practical issues of maintaining school facilities and paying energy bills tends to overshadow the valuable curriculum and learning opportunities that energy projects offer a school community.

Almost all Tasmanian state schools are required to buy their electricity from ERM Business Energy. Schools are invoiced individually for their consumption which does provide important usage information and an incentive to save energy. However in discussing the possible solar project at Princes Street Primary School we were alerted to the fact that schools are allocated money for energy bills based on the last five years consumption. This means that if a school invests in energy conservation or energy generation, thereby reducing their electricity bill, this could result in them being given less money in future years. Solar panels typically take longer than five years to repay the investment so it is important that the school is able to retain the benefit of its investments.

We have been informed that the Department is conducting a review of energy funding at some stage this year.

An alternative policy approach would be for the Education Department to take responsibility for these initiatives and target solar power on every school around the state recognising the overall financial advantage to the Education Department budget. This may facilitate faster installation of solar power on schools, but would reduce the engagement of school communities in the valuable learning opportunities that can be implemented around a solar project.

The pricing structure used by the ERM contract provides a significant benefit from installing solar panels. This is because both energy and network components of the charges are based on consumption rather than fixed charges, so solar electricity generated on-site offsets purchased electricity at either 22.26c/kWh (7am-10pm weekdays) or 16.09c/kWh (7am-10pm weekends). In addition, any net export of electricity (which would typically be on weekend when the sun is shining and school consumption is low) is directly deducted from imports effectively providing a 1:1 feed-in tariff at the weekend rate.

Contracts with charges that depend mainly on amount of energy used encourage conservation and provide a greater return on investment in solar panels.

The contract for supply of electricity to schools expires on 31 December 2013 and a new common use contract is currently open for tender. It is intended that this contract will replace the current ERM contract.

With the introduction of full retail contestability from 1 July 2014, it is possible that innovative new arrangements will be offered for purchase of electricity. In addition some models of community investment might result in a school purchasing power from a community entity that has installed solar panels on the school premises (rather than the school having to pay for panels). To facilitate innovations such as this, it is desirable that at least some schools have the option of entering into purchase and contract arrangements outside the common use contract.

Contracts that aggregate the usage of multiple sites do provide the ability to negotiate more favourable rates, however there is also value in some flexibility for schools to negotiate innovative arrangements.

R.8 Education Department policies on purchase and funding of energy should be reviewed to ensure that they support local energy generation and continue to support energy conservation.

The Tasmanian Renewable Energy Loan Scheme

The Renewable Energy Loan Scheme (RELS)[9], administered by the Department of Economic Development, Tourism and the Arts, provides low interest loans to renewable energy projects in Tasmania. Loans generally range from $50,000 to $1m and can be for up to 70% of the cost of the project. In addition grant contributions of up to 10% of the value of the project (capped at $100,000) can be made on successful commissioning of the project. Grants have been made for projects across a range of technologies including solar, wind and hydro.

The scheme was established in 2010 and is due to be reviewed at the end of four years operation in June 2014.

To date, grants have been made to commercial projects and there have not been any applications from community-based projects. The guidelines allow applications from community and not-for-profit organisations but explicitly exclude charitable organisations and joint enterprises involving government agencies or government business enterprises.

Staff administering the scheme have extensive knowledge of the economics and issues of renewable energy projects in Tasmania and would be a valuable source of information for communities considering such projects. At the moment there is little public material about projects funded by RELS. As a result, little of the knowledge being gained from operation of the scheme is being shared publicly. Sharing of information about funded projects and lessons learnt would greatly assist the development of future projects.

R.9 DEDTA should make available to the public information about projects funded by Renewable Energy Loan Scheme (RELS) and the lessons learnt from the implementation of these projects.

Part of the condition of loans is that the entity receiving the loan is the owner of the land on which the project is located. This simplifies the loan security for the government but could work against community projects. For example all three of the possible Waterworks Valley projects would be located on land owned by the Education Department or statutory authorities.

R.10 The operational guidelines of the RELS should be reviewed to ensure that they operate to include and encourage community based projects.

Applications to RELS need to have a documented business case that provides a suitable payback period.

As has been extensively documented (see for example Ison et al. 2012), a major impediment to successful development of community renewable energy projects is access to funding for the early stage of project development.

The grant component of RELS provides a useful boost to the finances of proven projects but does not overcome the problem of proving the business case. We believe that for community based projects, available grant funds would be better spend assisting in early stage development.

R.11 Grant funds should be made available in conjunction with the RELS to assist community-based initiatives to develop the business case for renewable energy projects.

Grants might be made available where communities have identified a possible project but need to pay for technical advice to test project viability and develop a business case.

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9 http://www.development.tas.gov.au/economic/funding/loans/Industry_funding_programs/renewable_energy_loan_scheme

We believe the RELS scheme should be extended beyond its current funding period of June 2014 because, with revised guidelines and more public exposure, it could play a valuable role in supporting community based renewable energy projects.

R.12 The state government should continue the Renewable Energy Loan Scheme beyond June 2014.

For wind projects, the issue of assessing available wind resource at a particular location is one of the challenges to developing the business case.

R.13 The state government should work with SenseT to explore ways to create and share publicly available information about the wind resource across Tasmania, particularly for smaller wind projects.

There is potentially interest in exploring in more detail the small wind potential in and around Hobart at a more detailed level due to local interest and the highly variable local geography and constraints. Potential partners include local governments, UTAS and RELS as well as SenseT.

Political leadership

In our interviews with people in various government departments and agencies we were surprised and delighted by the level of support and enthusiasm for our project and for the role in assisting groups throughout Tasmania to undertake similar projects. However it was also clear that all departments and agencies have core functions and priorities that mean that individual approaches for small scale projects such as ours tend to be either very low on the priority list, or seen as worthy but outside the remit of the agency.

This is a common problem for the community renewable energy sector. Collectively the sector has enormous potential to engage the community, generate economic activity, create jobs and address sustainability goals. There is much enthusiasm and energy going into 'bottom-up' organising of the sector – for example recent work (Ison et al. 2012, p.12) identified 25 projects nationally in communities totalling well over a million people that were actively pursuing projects.

What is lacking to really progress the sector is recognition, support structures and advocacy driven from the political level. Tasmania's competitive advantages and potential in renewable energy development at all scales have been excellently documented by the Tasmanian Renewable Energy Industry Development Board (TREIDB 2011), and this specifically included support for community-led renewable energy projects. What is lacking is political support and a policy framework to provide direction, and to give individual departments and agencies the mandate to support small to medium scale renewable energy projects in both community and commercial settings. For example, the Draft Renewable Energy Strategy for Tasmania, recommended by TREIDB more than 2 years ago in 2011, does not appear to have been accepted or formalised by the Tasmanian Government.

R.14 The state government should adopt a formal policy in in support of distributed renewable energy.

Cabinet level support and appointment of a lead agency is necessary for such a policy to be effectively implemented.

Progressing the projects

Priorities for further investigation

Each of the three possible projects has different steps if they are to be progressed. A limited amount of this work can be undertaken voluntarily by the Waterworks Valley community and the project

steering committee; however they will progress much more quickly with funding for business case development.

Solar panels on Princes Street Primary School

- Continue consultation with school community to assess level of school commitment to the project, both in terms of fund raising and in incorporating the project into educational activities within the school.
- Negotiate with Department of Education on:
    - Ability to retain financial benefit of energy savings within the school for other purposes.
    - Assurance that future common use energy contract will continue to provide a reasonable return from solar electricity generated on-site.
    - Permission for the school to contract with a community enterprise to pay for electricity generate on-site if the community enterprise pays for the panels.
- Explore preferred financial models, for example:
    - Combination of grants and school fundraising to purchase outright and be owned by the school.
    - A community enterprise funds the project and is paid by the school for the electricity generated at a rate slightly below what the school would otherwise pay for purchased electricity.
- If the community enterprise model is chosen, develop a business case for capital raising, operation and maintenance of the project.

Small hydro below Ridgeway Reservoir

- Meet further with TasWater and investigate practicality and operational protocols for a community enterprise located on TasWater land and infrastructure.
- Negotiate any capital and ongoing costs with TasWater, eg payment for right to access energy in existing water flows.
- Obtain quote for installation of turbine, control systems and associated civil works.
- Obtain quote from Aurora Networks for grid connection.
- Explore options for sale of electricity (negotiate PPA with a retailer or register as a generator on the NEM).
- Develop business case.
- If business case favourable, investigate preferred legal structure (eg cooperative, trust, use of existing legal entity).
- Conduct survey to investigate potential investor interest.
- Explore sources of loan capital if required.
- Establish legal structure if required, develop capital raising document.

Wind turbines on Hobart College campus

This is the least developed of the three possible projects and the one which received the least support at the Waterworks Valley community meeting. However the project has significant potential. Taking it further would require a commitment from Hobart College and the Sustainability

Living Centre to explore its potential as an educational exercise as well as a renewable energy project.

Steps would be:

- Get indicative costing and sizing information from a supplier of medium scale wind turbines.
- Do a formal presentation to Hobart College and the Sustainability Living Centre and see if they wish to pursue the project.
- Form a working group to further explore the project and the potential to get grant funding to assist with a feasibility study and investigation of environmental impact.

Legal structures

The appropriate financial and legal structures for progressing any of the three projects is beyond the scope of the current project and will depend on the nature of the project (particularly the amount of capital required). Detailed discussion on various possible legal structures is contained in the Community Power Agency guide (Community Power Agency, forthcoming).

Some possible examples follow, which would be investigated in more detail in the next stage of the project.

Examples of legal structures where a return to individual investors is not required

There are some cases where it is not necessary to make payments to individual contributors to a project. Examples might be:

- Solar project at Princes Street Primary funded by grants and school fund-raising. The panels would be owned by the school and the benefits would flow to the school in reduced electricity bills and payment for electricity fed into the grid. The school would be directly responsible for operation and maintenance of the project (checking meter readings and bills, cleaning of solar panels). There would be no need to set up a separate legal entity.
- Project is set up to benefit a non-profit organisation (eg a state or local sustainability group). This would be promoted to supporters of the organisation as an endowment – by contributing to capital cost of the project, supporters would be building a local renewable energy project as well as helping to guarantee an ongoing independent income stream for the organisation. Legal structures might be an incorporated association, which could apply for deductible gift recipient (DGR) status to assist with fund-raising. Alternatively it might be set up as a trust with the non-profit organisation as the beneficiary and the appointment of a person or organisation as the trustee responsible for project operation.

Examples of legal structures where a return to individual investors is required

Where the costs of project establishment are higher than can be raised by donation and grants it will be necessary to have a legal structure which can raise money and make payments to investors. This introduces an extra issue of compliance with laws governing fund raising from the public, which vary for different legal structures.

The most likely legal structures are:

- An unlisted public company provide a great deal of flexibility and is a legal structure well understood by investors.
- A trading co-operative gives each member an equal say but allows surplus to be paid back to members in proportion to their investment. The compliance costs for launching a public offer may be substantially lower than for a public company, but there are restrictions on operating outside the state in which the co-operative is registered.

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Attachments

Attachment 1: Project Steering Group

Jack Gilding	Director, Backroad Connections Pty Ltd and former Executive Officer of Hepburn Wind
Amanda Sully	Project Management and Fund Raising
Dave Graddon	Senior Environmental Scientist, Hydro Tasmania
Chris Harries	Member, Tasmanian Climate Action Council
Phil Harrington	Principal Consultant & Manager - Carbon & Energy Team, pitt&sherry
Ruth Painter	Environmental Consultant

Attachment 2: Leaflets letterboxed to neighbourhood

Greetings Waterworks Valley Folks!

Following the success of our bulk solar purchase, climate friendly home and behaviour change projects, we are excited to be moving on to investigate the possibility of generating our own renewable energy locally.

We've received seed funding from the Tasmanian Climate Change Office and over the next few months will be conducting a project in the Waterworks catchment with three components:

- **Technical possibilities:** what technologies and sites are feasible for a community scale project, eg mini-hydro in the Waterworks Reserve, community scale solar, small wind?
- **Community engagement:** consult people in the community about their interest in developing a project to generate our own local renewable electricity, and the community's views about preferred technology, size of project, and capital and fund raising possibilities.
- **Barriers:** we will document the barriers to a community scale project, particularly regulatory and financial barriers that are amenable to being addressed by the state government or other Tasmanian authorities (eg planning approval).

As well as investigating the particular practicality of a project in the Waterworks Valley, our work should assist other Tasmanian groups wanting to do small renewable energy projects. We will produce a toolkit that enables information, experience and contacts gained to be available to other Tasmanian communities. We hope that our work on identifying barriers will lead to policy changes that assist groups throughout the state.

How you can be involved!

Visit our website: http://waterworksvalley.com/vcp/ where you can get the latest news, leave comments and register your interest for occasional email updates.

If you have particular interest or expertise you would like to contribute to any of the three areas above, please email:

Amanda Sully <sully.amanda@gmail.com>
for community engagement areas or

Jack Gilding <jack.gilding@backroad.com.au>
for technical possibilities and barriers,
or text Jack on (0407) 486-651.

Email **Chris Harries** <christharries@gmail.com> if you wish to be informed of other Waterworks community news and activities, as well as this community energy project.

"As well as living in a beautiful valley, we are blessed with a diverse and inspiring mix of people, many of whom have shown a great interest in reducing our pollution creation and demonstrating sustainable living in action."

This project is made possible by seed funding from the Tasmanian Government through the Tasmanian Climate Change Office.

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Valley Community Power Meeting

Tuesday 2nd July

Your Valley Community Power (VCP) team has been busy over the last 4 months investigating options for generating our own renewable energy with some exciting results. We have identified and collected information around potential projects in solar, wind and small hydro and now we'd like to report back to you!

This is your chance to hear the results of our feasibility study and we are super keen to get your views on preferred technology, scale and possible partners. One thing is clear, all of the stakeholders we have met with are very supportive of our project and we would really like to take this further.

What: VCP Community Consultation meeting

When: Tuesday 2nd July at 6:15 – 7:30pm

Where: Princes St Primary School in the main school hall

Drinks and nibbles served — SEE YOU THERE!

For more info contact:
Jack 0407 486 651 (technical) or Amanda 0402 570 788 (general)
or email: vcp@backroad.com.au

Web: www.waterworksvalley.com/vcp

Attachment 3: Summary of interviews and key events

When	Who with	Areas covered
2 Feb	TCCO. Wendy Spencer & Erin Buttermore	Clarify what TCCO wanted in a revised submission.
12 Feb	WW Valley Community meeting	To inform community about proposed project and ask for initial reactions.
22 Mar	First Steering Committee meeting	Agenda: • Timelines and Time Allocation • Geographical limits • Name • Brainstorm stakeholders and contact details • Brainstorm ideas about project science and technologies • Clarify involvement of committee members and level of participation Agreed on name: Valley Community Power
22 Mar	TCCO. Wendy Spencer & Erin Buttermore	Identify contacts of stakeholders in government agencies.
8 Apr	DIER Tim Astley and Marcus McKay	Understanding policy context of national electricity market.
12 Apr	Princes St Primary School (PSPS) Lyndal Herbert and Lyn Goodwin	Looking at possibility of solar panelling on roof of school. Identification of barriers.
17 Apr	Tasmanian Planning Commission. Brian Risby	Outlining the relevant planning documents and policy and process for introduction of state-wide template for local planning schemes.
17 Apr	VCP Steering Committee Meeting	Agenda: 1. Community Engagement - letterboxing 2. Interviews done to date 3. Interview coming up 4. Priorities for future interviews
18 Apr	Hobart City Council. Neil Noye, Jill Hickey (Parks), Richard (Parks), Rowan Moore (Env. Planner), Scott Morgan (Energy Adviser), Katrina Graham (Climate Change), Ian (Planning)	Explain project and seek initial responses and direction for more detailed, relevant information and contacts. Identified council land that was possible sites.
7 May	Aurora. James O'Flaherty & Ewan Sherman	Provided information on local Sandy Bay feeder. Explained future Smart Networks project. Provided information on grid connection.

When	Who with	Areas covered
10 May	PSPS. With Lyn Goodwin (principal), Lyndal Herbert (School Association) and Chris Jacobs, Facilities Services, Department of Education	Get response from Education Department to our questions about solar PV, electricity contracts. Provided information on funding programs. Background on (completed) national Solar Schools projects.
17 May	Southern Water. Damian Devlin	Understand water infrastructure in Waterworks Valley and opportunities for small hydro projects.
20 May	Housing Tasmania. David Graham, Energy Efficiency Project Officer	Existing energy programs. Possibility of doing something at Romilly St Housing site of 40 units. (phone conversation)
22 May	VCP Steering Committee	General update on project progress. Dates for possible community meeting.
29 May	Robert Rockefeller	Explain VCP. Lessons learnt from his renewable energy projects.
4 Jun	University of Tasmania. Corey Peterson, Sustainability Officer	Identified existing student research on a small wind project. Additional contacts at UTas.
14 Jun	Sustainability Learning Centre. Jonathan Duddles and Sebastian Burgess, Greening Australia Tas	Possible use of Sustainability Learning Centre at Mt Nelson as a site for small wind project.
18 Jun	Hobart College. Tracy Siedler, Principal	Explain project. Discuss possibility of student involvement.
31 Jul	DEDTA. Phil Johnson and Stephen Speddy	Renewable Energy Loan Scheme.
23 Aug	VCP Steering Committee	Consideration of draft report.