

TOWN OF BASSENDEAN
LIVEABLE TOWN ADVISORY COMMITTEE
RENEWABLE ENERGY WORKING GROUP MEETING
COMMITTEE ROOM, 48 OLD PERTH ROAD, BASSENDEAN
THURSDAY 18 MAY 2017 at 4.00PM
Meeting Notes (*italics*)

1.0 DECLARATION OF OPENING

DOS welcomed everyone to the meeting.

2.0 ATTENDANCES, APOLOGIES

Working Group Members

Kathryn Hamilton
Caroline Eaton
Melissa Mykytiuk
Tim McLennan
Cr Renee McLennan

Officers

Jeremy Walker, A/Manager Asset Services (A/MAS)
Simon Stewert-Dawkins, Director Operational Services (DOS)

Apology

Susan Reader
Brian Reed, Manager Development Services (MDS)

3.0 ACCEPTANCE OF MEETING NOTES

That the meeting notes of the Renewable Energy Working Group held 15 March 2017, be accepted.

Meeting Notes of the Renewable Energy Working Group meeting held 15 March 2017, were accepted.

4.0 DECLARATIONS OF INTEREST

Nil

Agenda suspended for discussion on progress of REWG tasks.

REWG members discussed the slow progress of the LGA Renewable Energy Policies & Initiative tasks, that were set down by the Liveable Town Advisory Committee and suggestions were proffered to improve productivity.

The Group discussed productivity of REWG meetings, in terms of:

- Some community members may be time-poor to review the previously tabled energy policy literature, in order to provide feedback.*
- Benefits of Council officers providing policies common to ToB, for review and feedback.*
- Benefits of community member after hours informal meetings.*
- Idea of Group putting forward ideas and Council officers preparing policies.*

DOS commented that, in relation to policymaking, from a local government perspective, Officers prepare draft policies for Council consideration, which if deemed appropriate, then are advertised inviting public and stakeholder comment. Officers assess the comments received and amend the draft policies accordingly. The revised draft policy is presented to Council for consideration and adoption.

The Liveable Town Advisory Committee set the tasks for the REWG to come up with a draft Renewable Energy policy for Council's consideration.

To assist the community representatives with this process, the inaugural REWG agenda included examples of LGA Renewable Energy Policies & Initiatives and community representatives were asked to provide feedback, which would assist in the preparation of a potential policy.

As no feedback had been provided, a spreadsheet was prepared for the community representatives to provide feedback on tabled literature regarding LGA Renewable Energy Policies & Initiatives.

DOS commented that at the previous REWG meeting, Brian Reed, MDS, and Tony Dowling, DSP, discussed Town Planning Scheme (TPS) and indicated that part of the Town adopted programme for improving the Town's planning process is local

TPS policies and the Town's policies . This is an opportune time for the REWG to provide input to MDS and DSP.

Further discussion ensued and the following points raised:

- *Encourage renewable energy in the planning/development process.*
- *Improve efficiency and productivity of the REWG to reflect aspirations of the Group.*
- *Look at initiatives – people are keen to have some input; application incentives that people in general can get excited about.*
- *Direction needed in order to proceed.*
- *Break up tasks into manageable sub-groups*
- *REWG not meant to be a long ongoing project.*
- *Terms of Reference – enormous project.*
- *Give ourselves a timeline of tasks to commit to that will assist the Group to achieve results.*
- *Broad categories (Refer notes emailed to REWG members for consideration, 18/5/17, by Community Representative, Kathryn Hamilton.)*
- *Work within the scope of the REWG*
- *Benefits of holding after hours meetings to facilitate greater input from REWG members.*

DOS reported that Tony Dowling, DPS, will be employing a consultant to prepare policies and would value feedback from this Group. He further commented that some REWG tasks have been completed; however, policies have not progressed at this point, and asked the Group how it would like to proceed?

OUTCOME OF DISCUSSIONS:

- *The tasks listed in the Terms of Reference be referred back to LTAC for review and consideration.*
- *Report to LTAC that the Group has experienced a few issues in terms of addressing the tasks, and the Group is currently reviewing its processes.*
- *First task accomplished: Currently looking at the solar uptake and initiatives the Town is already involved in.*
- *Considering introducing new initiatives.*
- *Notes that developing policy guidelines is very time consuming and there should be wording change to task listed in Terms of Reference:*

From: “Develop policy guidelines about the installation and uptake of renewable energy in the Town of Bassendean.”

To: *“Provide feedback and input for staff to develop policy guidelines about the installation and uptake of renewable energy in the Town of Bassendean.”*

Agenda resumed.

Simon Stewart-Dawkins, Director Operational Services, welcomed Mr Bruce Armstrong to the meeting and thanked him for coming along to address the REWG.

5.0 BUSINESS DEFERRED FROM PREVIOUS MEETING

5.1 Town of Bassendean – Carbon Reduction Plan

The Renewable Energy Working Group's Terms of Reference outlined seven actions under the heading “Purpose (task and aims/outcomes)” with one of these being:

Review what renewable energy initiatives have been undertaken in the Town to date and evaluate the success of those initiatives.

At the inaugural Renewable Energy Working Group (REWG) meeting held on Thursday 3 November 2016, information was tabled for consideration, concerning the following:

- The Town’s Carbon Reduction Plan. This Plan supports strategic objectives within the Strategic Community Plan, Environmental Management Plan, Local Climate Change Adaptation Action Plan and Carbon Reduction Strategy.
- The Town is currently not obliged to report emissions under the National Greenhouse and Energy Reporting System (NGERS) or any other legislative framework; however the Town has chosen to adopt a best practice approach to carbon management.
- In 2014 the Town of Bassendean set a carbon reduction target to reduce corporate carbon emissions by 7.5% (99.6 tCO₂-e) from 2011/12 emissions (1,328.0 tCO₂-e) by 2016/17. At this time Australia’s commitment to the second period of the Kyoto Protocol, the Australian Government had determined to reduce its greenhouse gas emissions by 5 per cent compared to 2000 levels, by the end of 2020.
- Recently the Australian Government’s Department of Environment & Energy has advised that emission target of between 26 and 28 per cent reductions on 2005 levels by 2030.

- Due to the emission target changes, the Town has commenced reviewing the emissions target to identify the cost benefits of additional projects suitable for future budget consideration in order to achieve the increased target levels by 2030.
- To improve the carbon emission data collection and reporting process, the EMRC, on behalf of the Town of Bassendean and other member councils, purchased the “Planet Footprint” software program and Town is currently reviewing its emissions target to identify the cost benefits of additional projects suitable for future budget consideration in order to achieve the increased target levels by 2030.

At the 15 March 2017 REWG meeting, the Town of Bassendean’s Emissions Report Card was tabled for consideration, along with comments that the Town was working to achieve new carbon emissions target to align with the Australian Government’s Department of Environment & Energy revised emission target of between 26 and 28 per cent reduction on 2005 levels by 2030.

In order to achieve these proposed targets, the REWG was advised that funding would be listed for consideration in the 2017/2018 draft budget to prepare a draft Carbon Reduction Plan.

DOS gave an update, and in response to questions, provided the following information:

- *Funding to develop a draft Carbon Reduction Plan has been included in the draft 2017/2018 budget for Council consideration.*
- *Review of targets will have new actions on how we can achieve 26 or 28 per cent reduction on 2005 levels by 2030, whether we purchase green power, install solar panels on all the Town’s buildings or retro fitting lighting.*
- *The plan will identify where the highest level of carbon emissions are, flag those as potential projects, and indicate estimated costs of those projects to achieve those targets. Currently we have some idea about some of the projects.*

Further discussion on budget issues:

- *Implementation of initiatives for the coming year.*

- *Provisional funding (allocated to projects) put aside to keep projects on track. AMAS advised that Council would require more information and estimate of costs.*

Further initiatives discussed:

- *Solar panels on Library are at maximum. We can look at whether there are any of the Town's buildings that are not at maximum. An analysis needs to be undertaken.*
- *Concept plans can go outside that focus and include for instance, reticulation management, sports lighting on reserves, and others.*
- *Analysis to include energy use, cost to implement and benefit, and should look at whole picture of carbon emissions.*
- *Dollar cost analysis – identify what needs to be done – is that not justification for putting funds aside?*
- *Capacity to install additional solar on Town's buildings.*
- *Fleet vehicles – changing over to electric.*

Mr Armstrong offered to provide information on electric vehicles (EV).

DOS invited Mr Bruce Armstrong to talk to the meeting about EVs. Mr Armstrong provided the Group with an overview of his background and his work with Australian Electric Vehicle Association (AEVA) (WA Branch), and Sustainable Energy Now (SEN). (Refer attached information provided by Mr Armstrong.)

4.45pm Melissa Mykytiuk left the meeting and did not return.

Mr Amrstrong made the following comments in relation to EVs:

- *Current cost and availability of EVs*
- *Range not an issue for within the Town of Bassendean*
- *Price rapidly changing. Price probably around \$10,000 more than internal combustion at the moment.*
- *Over a ten-year period low maintenance and running costs.*
- *Tesla should be available soon.*

In relation to REWG tasks in general, Mr Armstrong commented:

- *One problem is working groups can become bogged down.*
- *Many of the projects will change from time to time.*
- *Costs will change.*
- *Solar cost recovery – 5 years.*
- *Solar storage gets around limits.*
- *LED lighting:*
 - *Variable intensity in the light during the night – drop down to 50 or 30 percent late at night can make quite a difference. (Railway consulting services off-shoot is LED lighting)*
 - *SEN in the past has advocated to Western Power to convert the lighting*
 - *SEN trying to get Western Power to convert lighting with a longer transition plan (Modelling was done for the Greens)*
 - *It is worth lobbying the State in relation to Western Power LED lighting.*

During the above discussions, DOS commented that the Town replaced lighting in Old Perth Road under the Solar Cities Programme; and for the underground power proposal for Eden Hill, the Town looked at LED lighting.

DOS also remarked that one of the initiatives he would like to look at is dealing with waste products generated at end of life of solar installations

Mr Armstrong offered to assist with policy development and answer any questions on renewable trajectories for the Town, should the REWG request his help at any time.

5pm – Jeremy Walker, A/MAS, left the meeting and did not return.

DOS thanked Mr Armstrong for attending the meeting.

5.3 Other LGA Renewable Energy Policies & Initiatives

The Renewable Energy Working Group's Terms of Reference outlined seven actions under the heading "Purpose (task and aims/outcomes)" with the following being:

Investigate and review renewable energy initiatives across other Australian jurisdictions and identify those that may be applied to the Town of Bassendean to increase renewable energy uptake and reduce the Town's carbon footprint

Develop policy guidelines about the installation and uptake of renewable energy in the Town of Bassendean

Collate and package information on renewable energy that the Town's residents may find valuable

Prior to the inaugural Renewable Energy Working Group (REWG) meeting held on Thursday 3 November 2016, the Town had conducted a literature review and presented 11 policies and guideline documents to assist community representatives with the above tasks.

Attachment 1: Examples of Policies and Guidelines

Below are some examples of policies and guidelines, which the REWG may wish to consider to when developing draft renewable energy initiatives:

- ACT Government – ACT Sustainable Energy Policy
- City of Joondalup - Local Planning Policy - Small Scale Renewable Energy Systems
- City of Melbourne - Zero-net-emissions
- City of Melville - Sustainable Building
- City of South Perth - Local Planning Policy - Environmentally Sustainable Building Design
- City of Stirling - Local Planning Policy - Renewable Energy Systems
- Shire of Margaret River Local Planning Policy - Renewable Energy System Policy
- Town of Bassendean - Local Planning Policy No.2 – Energy Efficient Design
- Town of Bassendean Policy 2.8 Energy Use
- Town of Bassendean Policy 2.1 - Sustainable Bassendean

At the inaugural Renewable Energy Working Group meeting, the community members discussed the Council (OCM-15/09/16) adopted Bassendean Strategic Planning Framework 2016-2019 and the indicative Implementation Plan.

Also, at the November 2016 REWG meeting, the Director Strategic Planning advised that as part of the review of the Town's Strategic Planning Framework (SPF) that it is intended to consider the requirement for higher design standards as part of the revision of the Town's local planning policies and formulation of desired local planning policies. The Director Strategic Planning indicated that as part of the review of the Local Planning Policies (e.g. Energy Efficient Design & Credit Point Checklist), that these policies will be amended when all the other local planning policies are reviewed.

As outlined above, at the inaugural Renewable Energy Working Group meeting, the Town tabled the examples of different renewable policies, together with the Town's existing policies for discussion. Community Representatives were asked if they were aware of other renewable policies to forward these to the Director Operational Services and these documents would then be distributed to all members for consideration.

In December 2016 at the Ordinary Council Meeting, a report was presented concerning the review of the Policy Framework, along with a list of all existing policies that are subject to review. Council (OCM-14/12/16) resolved in part to adopt the revised policy and referred all policies to a Councillors' Workshop to be held in early 2017 for review, and where necessary, amendment.

On the 15th March 2017, the Renewable Energy Working Group agenda, again tabled the above examples of different renewable policies, together with the Town's existing policies for discussion and for community representative comments in regards to the above policies or any other renewable energy initiatives, which community representatives liked and wished to be considered as part of a draft Town of Bassendean Renewable Energy Policy and or guidelines.

The community representatives discussed some features of the policies and initiatives that the Town of Bassendean and other Local Governments had implemented, however the feedback was general in nature and was not sufficient to development of a policy position.

To assist community representatives, the Director Operational Services suggested that the Town could prepare a spreadsheet for community representatives to provide their comments. Alternatively, community representatives could provide feedback in a format that was suitable to them. All in attendance at the March 2017 REWG meeting welcomed the spreadsheet and community representative were requested to provide their feedback 2 weeks in advance of the May 2017 REWG meeting (4 May), so that the Town could collate

comments and include in the 18 May 2017 agenda for discussion.

At the time of preparing the May 2017 Agenda, no community representative feedback had been received.

DOS asked if there is anything in the documents (distributed) that Group members believed the Officers could be directed to when reviewing and preparing the Town's policies for the REWG's consideration.

Cr McLennan provided the following feedback:

- *Melville is an ambitious statement – the details of what they are achieving is not so good.*
- *Melbourne transition to electric or hybrid – key points worth looking at.*
- *All others are just very generic.*

DOS commented that if Council is looking to have a Local Planning Strategy, then this Group can influence and progress improvement.

Tim McLennan provided the following feedback:

- *Remove from the Town's policy, the wording: "solar panels and solar hws must not obstruct or detract, cannot be visible from the street".*
- *Point System: points given for double-glazing, pv installation etc.; negative detractors for things that are inefficient. Detraction point for high-energy consumption.*
- *Renewable energy should not be limited – e.g. grey water does not have a great uptake.*

Caroline Eaton provided the following feedback:

- *Point system does not always work – R codes trump energy efficient design.*
- *Lot orientation – width of block, solar setback and how it will work on the block - trigger a detailed area plan to show setback and overshadowing.*

Caroline Eaton provided the following initiatives:

- **City of Vincent: Green Building Council of Australia**
 - *Rating system;*
 - *Staff courses, also really good for Council*
 - *Encourage builders to move in that direction.*
 - *Education and knowledge*
 - *Become a member.*

Post meeting: (website: <http://new.gbca.org.au/>)

- **City of Vincent: Incentives to encourage developers**
Developers were attracted to the incentives and this filtered down. You need incentives to make it happen.
- **Green Power** – invest into own infrastructure.

Post meeting: (website <http://www.greenpower.gov.au>)

- **Travelsmart**

DOS advised that the Town promoted Travelsmart to all schools in the Town and one of the Town's officers worked with the schools and with the Department of Transport.

- **Car Sharing Initiative** – *If one wants to set up a car sharing initiative, they will be supported. For instance, if you are going to the tip you might need a ute – car sharing can be a viable alternative.*
- **Green house energy audits** – *environmental house. Put house on register and do retro fit of certain things, and then next year do another audit to see improvement. Changes behaviour.*
- **Retrofit Workshop** – *Someone comes out and gives workshop to retrofit house to save energy.*
- **Future Bayswater Workshop** – *3 speakers on best practice, water consumption, energy use, good way to involve community and Council.*

Cr McLennan commented that Future Bayswater came from the community.

- **E-Charging Location** – *Town of Vincent has an e-charge location.*
- **Home energy audit kit** – *community resource – measure footprint.*
- **Sustainable Expo** – *hold a sustainable expo*

The Group discussed the following initiatives:

- **Carbon Neutral Fleet** – *DOS advised that the Town has been in partnership with Men of the Trees for a number of years with the aim of providing environmental and business benefits, compensating for the Town's fleet.*

- **EMRC** meet with staff to look at bigger projects.
- **Smart Cities – e-charging stations**
- **Electric Highway** – Cr McLennan commented that RAC has been installing e-charging points.

Mr Armstrong advised that Tesla are better and we should be asking Western Power. Locations are 70 m apart; a lot of them not well located and subject to vandalism. Principle is good as it means you can use EVs for extended trips.

- **Driverless Bus** – DOS: Build neighbourhood and communities. Envisage driverless bus travelling around the Town. Work with Department of Transport on issue. Local Government take it up for private enterprise.

MR Armstrong predicted seeing something quite credible in the next few years or so. Driverless bus – quite economical.

- **Bulk-buy Solar Panels** – Kathryn Hamilton commented that this would be a scheme Council could implement as the Town has buying power to negotiate with suppliers. Best price could be passed on to householders.
- **Budget for Maintenance** – Tim McLennan: budget for maintenance at point of purchase of the solar panels for new buildings, then get quote for residential take up of panels.

DOS commented that the Town was involved with Solar Cities Program – solar panels plus smart metering.

OUTCOME OF DISCUSSIONS

- *As Officer time is limited, and interval between meetings is long, progress loses momentum; therefore, beneficial for Group members to meet outside the REWG meetings and have informal sessions between the scheduled REWG meeting dates.*
- *Group members forward information for inclusion in the REWG agenda, for discussion, providing time for Officers to research and bring back to the table.*

- *Review Development point system and report back to this group.*

POST MEETING

Manager Development Services provided comments concerning the point system and issues raised at the meeting.

See addendum

6.0 Proposed future REWG meetings

9:30am or 4pm	Thursday	17 August
9:30am or 4pm	Thursday	9 November

If required, additional meetings can be scheduled, or should these meetings not be required, participants will be advised accordingly.

7.0 CLOSURE

Meeting concluded at 5.30pm

Manager Development Services comments below:

There was some discussion regarding the above policy at the last meeting of the Renewable Energy Working Group, which unfortunately I did not attend.

I understand that there were a number of questions asked, which I have attempted to answer below:

The first point I would like to make relates to the application of the policy. The policy only applies where a development is lodged at the higher density code in the Split Coded areas of the Town. This means that the majority of single houses and grouped dwellings that are built within the Town are not affected by the policy.

The policy is aimed at encouraging passive solar design, rather than energy efficient design and while its aim is to encourage good passive solar /energy efficient design, it is administered through the use of a check sheet which require a minimum of 70 points out of a possible 100 points to confirm compliance with the policy.

A good solar design would involve a house's longest axis facing east-west and therefore a maximum 10 points are awarded for this category.

Linked to the above is the desire to get a courtyard or balcony on the northern side of the dwelling with dwellings maximising glazing to living rooms facing north. The windows/eaves need to be designed to allow passive heating in winter, but restrict solar gain in summer. Points are added or deducted against these principles. The maximum 25 points in this category are split evenly between the courtyard/balcony location, and window treatment.

Windows to bedrooms are required to be minimised in area and south facing. The south side of a house receives a small amount of direct sun in summer, and therefore by locating bedrooms to the south, will be more comfortable for sleeping in summer. The Town's policy allows one bedroom window to face north. Points are added or deducted against these principles.

60% of bedrooms and living areas are required to be cross-ventilated to allow for cooling breezes in summer. If a proposal does not meet this requirement, no points are awarded on this category.

Eastern and western walls are not allowed to contain windows unless those windows are to non-habitable utility rooms such as laundries. East and west facing windows can provide unwanted solar heat gain during the summer months and therefore, if excessive, can contribute significantly to an inefficient house design. A maximum of 20 points are awarded in this category.

ADDENDUM

10 points are awarded for the provision of a solar pergola or for a solar hot water system. A solar pergola is designed to allow passive heating in winter, but restrict solar gain in summer. If the Policy is to be retained in anything like its current form, this category could be expanded to include PVC panels.

10 points are awarded for landscaping, with a maximum 5 points for the provision of a deciduous tree to provide window shading in summer and 5 points for native/low water use plants.

In terms of energy star ratings, the Building Code of Australia requires all new residential development and additions to dwellings to achieve a 6 star rating. Generally, applications for building permits are accompanied by an independent report confirming compliance with this requirement.

There are no star energy rating applied to commercial buildings as these buildings are assessed against technical requirements; however, it is understood that the technical requirements equate to a 5 star rating.

There is a growing trend to reduce the amount of regulation placed on the building industry, and the Town has only been able to introduce the controls that it has in place, by the use of split coding through the Local Planning Scheme, which requires development to comply with policies adopted under the Scheme. It may be possible to prepare a new policy relying on a higher green star rating; however, such a policy would need to be publically advertised, probably need the support of the Western Australian Planning Commission, and could only be applied in specific areas, rather than applying to all forms of development throughout the Town.

In terms of energy star ratings, the Building Code of Australia requires all new residential development and additions to dwellings to achieve a 6 star rating. Generally, applications for building permits are accompanied by an independent report confirming compliance with this requirement.

There are no star energy rating applied to commercial buildings as these buildings are assessed against technical requirements; however, it is understood that the technical requirements equate to a 5 star rating.

Renewable Energy Considerations

Town of Bassendean REWG

Author: Bruce Armstrong

15th May 2017

Thank you for this opportunity, via Cr Renee McLennan, to contribute to your Renewable Energy Working Group.

I am a computer scientist with a commitment to sustainable, effective design. My career spans 35 years in an arc from reduction and analysis of recorded meteorological & ocean data, to design and implementation of underwater instruments (the F-probe at the UWA Centre for Water Research), freight rail protection, and the design & implementation of the system providing train schedule electronic information at Perth's rail stations.

I am Treasurer of both AEVA (WA Branch) and SEN (Sustainable Energy Now).

"The SEN team consists of volunteers from a wide range of backgrounds, including energy, science and policy, physics, geophysics, engineering, computer programming, information technology, management, graphic design, marketing and media. We all share a passion for sustainability and renewable energy. We are not aligned with any political party and are keen to broaden our membership and committee." SEN

Recent SEN projects include:

- Development of the WA Greens renewable energy roadmap "Energy 2030". We modelled the effect of energy sourcing and security over a 15 year transition period. One interesting finding is that the cost of energy delivery in WA would actually be lower.
- The town of Collie faces an unsure future as coal supplies diminish, and rooftop and other solar PV satisfy 100% of daytime demand most days. SEN has been active in developing and costing an energy transition plan that would result in a sustainable, renewables-powered Collie with new local employment in the wind and solar industries.

Most of SEN's work has been in a larger scale than towns (the entire WA grid). The modelling and costing tool (SIREN), developed by SEN, is applicable from a single household upwards and can be used to help evaluate solar proposals at a town or city scale. This is important in an environment where the cost of renewable energy technology (PV panels, batteries and management) is declining rapidly, opening up many new possibilities.

The Town of Bassendean can certainly fulfil obligations and save money by informed purchasing and habit modification.

This effect will be profoundly magnified when policy and education assist residents to do likewise. It must be noted that Town of Bassendean is already well on this path, with many impressive strategies already in place.

Reduction

A very useful concept is the 'negawatt', originally coined by Amory Lovens of the Rocky Mountain Institute. The principal is simple: "It is better to save fuel than to burn it".

At a household and municipal level, we can apply this most efficiently because we are in full control of our purchase decisions and usage behaviour.

- a) LED lighting is an example. The up-front cost of LED luminaires and lamps may be higher (the difference is diminishing), but they are more efficient and longer-lived than their counterparts, making them the best choice in most building and outdoor security applications.
- b) In Perth, insulation and design can readily result in near zero energy buildings with very low heating and cooling costs, making good sense if the life of the building is considered over the initial purchase price.
- c) Electrification of the vehicle fleet. Electric vehicles are typically much less expensive to fuel and can be charged from ecologically sustainable electricity. Present day (expensive) EVs have a similar lifetime cost to fossil fuelled vehicles.
- d) HVAC
- e) At a city level, making decisions based on lifetime equipment costs may result in better choices being made, to the benefit of the town and its residents. This could be implemented through tender evaluation criteria that require long term, say 30 year, costs of a proposal to be evaluated.

Production

Within an urban setting, this means solar, although some biogas and biomass possibilities exist around rubbish disposal.

I feel that biomass (waste to energy) has the potential to be a minefield that many towns will come to regret if waste reduction plans are thwarted by binding quota agreements with W2E incinerator owners.

When solar is used to displace imported energy, as would be the case for council buildings and many houses that are occupied during the day, the economic case is compelling. For others, where daytime self-consumption is low, batteries are about at break-even now and will be clearly viable after the next tariff increase and/or battery price decrease, likely within 2 years.

Householders apparently don't need any encouragement to install solar now. The former state treasurer, Mike Nahan, has estimated that so much will be installed in the next few years that 100% of daytime demand could be supplied by roof-top solar.

The two imperatives, roof-top photovoltaics (PV) and trees, would seem to be incompatible because of shadowing. However:

- a) With smart design, larger properties may have both PV and trees.
- b) Town of Bassendean's Urban Forest Strategy optimises verge and public area plantings.
- c) Where population-driven urban density must increase, sensitive design along public transport corridors yields triple bottom-line benefits. Town of Bassendean is already mapping the possibilities. Creating medium density, acoustically respectful, attractive and affordable dwellings a few levels high can have multiple benefits, one of which would be freeing up greenspace. Also, reduced car ownership/use yields constructive energy impacts.

- d) With a community power project, those that can generate, share with those that cannot (refer below).

A local energy business

One change to Western Power is the concept of "full contestability" in the electricity market. This removes Synergy's monopoly and allows other retailers into the market, which may quickly resemble the mobile phone provider market with a myriad of offerings and 'virtual power stations' to choose from.

I feel that this is likely to also make it much easier to build community energy projects that have local people as the shareholders, generators and customers. There are indications as to how this may evolve being played out in projects and trials:

- a) Small (40KW) community generators being offered and fully sold.
 - The projects don't need to be multi-megawatt.
- b) A peer to peer energy trial being run by Power Ledger in Busselton WA.
 - Both the seller and buyer get a better price for their energy.

I can envision a community power project where:

- The city owns part of the co-op and makes use of public spaces for power generation. This could be in the form of rooftops, solar shades on car parks or along footpaths, providing both revenue and social amenity.
- The above could be part of a public subscription, allowing residents in higher density precincts to participate in renewable energy, and minimising the city's outlay.
- Residents are invited to subscribe as both generators, selling their excess, and customers, buying when needed.
- Western Power's poles and wires are used to 'trade' electricity between the participants. The Power Ledger trial only had a few cents per unit for the poles and wires component, far lower than that 16 cents difference currently seen by most solar households.

Education

The media abounds with misinformation, and the Town of Bassendean may choose to use its website, social media, forums, library boards and newsletters to empower residents' consumer capacity to make informed choices.

The term kilowatt hour needs to be understood, and people should be able to cite their average daily use, and use that metric when making decisions. "Stars" are less useful than comparing estimated kWh. For example, when buying a fridge or air-conditioner, they should divide the annual figure by 365, to identify what fraction of average daily use it would constitute.

Heating and cooling (air and water) currently amounts to more than half of total household energy consumption. Efficiencies here will clearly be worth targeting.

TravelSmart choices of cycling, tele-commuting, car pooling and use of public transport are important for the Town to promote. Appropriate transport is a critical component of decent energy regimes.

RESIDENTIAL:

EDUCATION & TIPS:

Suggestion: Energy saving tips promoted to residents via the Bassendean Briefings. To keep it interesting this could cover topics like tips for energy savings, water wise advice, waste reduction via composting etc. <http://www.sustainability.vic.gov.au/services-and-advice/households/energy-efficiency/at-home/top-10-energy-saving-tips>

INCENTIVES:

Council organised initiatives that encourage the uptake of renewable products/services by private residences in the Town.

* I would direct you to a solar 'bulk buy' initiative in the Shire of Mount Alexander in Victoria. (I forwarded this article to council in September 2015; "Victorian community solar 'bulk buy' offer snapped up-150 households in one month" article via One Step off the Grid... ~ <http://onestepoffthegrid.com.au/victorian-community-solar-bulk-buy-offer-snapped-up-150-households-in-one-month/>

* This council offers cash prizes for a range of things, example paying rates in full by due date. These cash prizes could be converted into gift vouchers for a whole range of products that benefit the environment.

COUNCIL

PROPERTY:

ECONOMY DRIVE:

Instigate an economy drive amongst council staff in an effort to reduce energy usage, & in the process, increasing awareness of wasteful practices. Develop a 'lead by example' approach by council.

INSTALLATION OF RENEWABLE PRODUCTS:

Prioritise installation of Renewable products on & in council buildings by order of which buildings will be retained. In the case of buildings that may be replaced or significantly altered, seek out renewable products that can easily be relocated, for example <https://www.facebook.com/cnbc/videos/10155237230909369/>

GRADUAL REPLACEMENT OF COUNCIL VEHICLES WITH ELECTRIC VEHICLES:

Rationalisation of the council's fleet of vehicles to ensure size fit for purpose, i.e. downsizing the size of the vehicles where practicable, and the number of vehicles if excess to the Towns requirements, together with a gradual changeover to electric vehicles.

AMENDMENTS TO TOWN'S PLANNING SCHEME TO FACILITATE GREATER UPTAKE OF RENEWABLES:

* Reform building codes, and revise permitting and land-use policies to incorporate greater renewable energy requirements.

Local councils overseas are forging ahead with policies designed to improve the uptake of renewables, "Merton Rule is a planning policy, developed by Merton Council, which requires new developments to generate at least 10% of their energy needs from on-site renewable energy equipment, in order to help reduce annual carbon dioxide (CO2) emissions in the built environment. The rule is applied to all types of buildings, not just homes." In our own Town's planning scheme there exist opportunities to improve the uptake of renewables in new builds by tightening up the points system that permits higher density development of split zonings.

STATE GOVERNMENT & COUNCIL:

UNDERGROUND POWER:

Council should lobby our local member of parliament, the Honourable Dave Kelly MLA. Minister for Water; Fisheries; Forestry; Innovation and ICT; Science, for a more equitable system to be implemented by Western Power re the selection process applied to local councils for the installation of underground power.

CHANGING STREET LIGHTING & PARK LIGHTING TO MORE ENERGY EFFICIENT LIGHTING:

* Consider innovative lighting in conjunction with other proposed council installations, example if installing exercise equipment in parks add lighting generated by both exercise & solar <https://www.treehugger.com/clean-technology/street-lamp-and-fitness-equipment-blend-smart-lighting-concept.html>

* Council to collaborate with Western Power to ensure future installation of energy efficient street lighting that takes into account the areas trees. It's pointless installing tall street lights in localities where there are multiple close set verge trees, when a combination of high-set lights at intersections & bollard lighting for footpaths would provide better solutions.