Community Energy

Pathways to a Renewable Future:

Community Energy in Focus

A One Day intensive workshop for CREATE members focusing on Solutions

REPORT ON, AND RECOMMENDATIONS FOR SUPPORTING THE COMMUNITY RENEWABLE ENERGY MOVEMENT IN WESTERN AUSTRALIA

Outcomes of a Workshop held on 24th November 2022 with Representatives of Western Australian Community Energy Groups

Dalmore Farm, Bridgetown, Western Australia

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Contents

TERMS AND ACRONYMS

GLOSSARY - ENERGY TERMS	
Acronym/Term	**Definition**
AMRCCE	**Augusta Margaret River Clean Community Energy** The community group operating within the Shire of Augusta-Margaret River which is dedicated to establishing one or several community renewable energy initiatives and carbon emissions reduction strategies.
BET	**Bridgetown Energy Transition** is a sub-group or 'think tank' within the Transition Bridgetown organization, whose focus is to develop strategies towards carbon emissions reduction via energy initiatives. These include energy audits, advice and discussions on renewable energy technology, and other awareness-raising and community engagement activities.
CC	**Clever CLOGS (Community, Locally-Organized Goals and Strategies)** The name of the community organization in Pemberton which aims to raise awareness about climate change with the intention of establishing a community renewable energy (CRE) project to power the town on renewables (amongst other objectives).
CRE	**Community Renewable Energy** refers to formal and informal, citizen-led initiatives which propose collaborative solutions for local communities to adopt renewable energy technologies and practices. CRE may be shorthand to refer to the community group which is the proponent; or to the project which a proponent group shepherds.
CREATE	**Community Renewable Energy Alliance of Towns and Enterprises** is the full form of the acronym 'CREATE', in CREATE Community Energy, which is the peak body for community renewable energy in Western Australia formed in the final months from August 2022.
DCW	**Denmark Community Windfarm Ltd** The name of the renewable energy project initiated by the community of Denmark through CRE activities. The windfarm was commissioned in February 2013. Its two wind turbines currently supply 40 – 50% of the energy consumption of the town of Denmark.
DER	**Distributed Energy Resources** electricity that is generated from renewable energy sources in close proximity of use by the energy consumer
Duck Curve	The 'duck curve' is the shape of a line graph when energy usage is plotted against time of day. This has become an issue since large amounts of solar-generated electricity has been made available to the grid in the middle of the day when usage is low. Without storage, the midday solar is unmatched by usage, and risks the system becoming overloaded and unstable.
Energy	**Energy** is the capacity to do physical activity or work, however the term is used most widely in this document to indicate electricity generated from various sources. The unit used to measure energy is **joules, ergs and calories**.
EPWA	**Energy Policy WA** regulatory body whose policies set the standard for interaction between the market (WEM), its players, and the customer base in WA
ERA	Economic Regulatory Authority
GCE	**Geraldton Community Energy** The name of the CRE in Geraldton. GCE has been operating since 2018, although the project is in hiatus because of its involvement with a solar retail business which has since been sold. The CRE project is an aggregated solar project, and currently services 2 customers.
GTE	**Government Trading Enterprises** includes Western Power, Synergy, Horizon Power, etc. and are the government-run monopoly businesses mandated to operate to supply all Western Australians with basic services, such as power.

KE	**Katanning Energy** is a community-led and driven private company which currently tenders competitively for supply and installation of solar infrastructure to Katanning residents and businesses. It is one of the larger CRE programs in Australia.
Network	The physical assets that enable the provision of services such as power connectivity. In the context of Western Australia there are two networks, the South West Interconnected System (SWIS) and Horizon Power.
Power	**Power** in its colloquial usage refers to electricity. In physics, it is defined as the rate at which energy is used or transmitted.
PPA	**Power Purchase Agreement** The agreement by which individuals or entities contract to buy power from a generator / retailer
Project	In this case, an infrastructure intervention which moves through the stages of concept, planning, delivery and completion to deliver an operating asset.
Proponent	An organisation or individual who takes responsibility for developing a project.
PV	**Photovoltaic** referring to the technology which turns the sun's light and heat into electricity; generally referring to solar panels.
Small Towns; **Rural Communities;** **Remote Areas**	Towns with populations typically between 200 to 10,000 people; Communities living outside urban areas with fewer than 200 people; All areas outside of recognised settlements, but which include connecting infrastructure.
Smaller Cities / Regional Centres	Smaller capital cities, satellite cities and regional centres with typical populations of more than 10,000 people.
Sustainability	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
SWIS	**South West Interconnected System** refers to the transmission infrastructure network which reaches from Geraldton in the north to Esperance in the south, and is operated by Western Power, coupled with other licenced generation and retail businesses; newly augmented by Stand Alone Power Systems, Microgrids, Virtual Power Plants and community-scale batteries – newer technologies required in the transition to renewable energy generation and supply.
TRD	**Totally Renewable Denmark** is a working group auspiced by Green Skills Inc. and led by Dr Louise Duxbury as the Green Skills Senior Project Manager. The working group builds on the success of the previous Green Town Denmark Walpole project and seeks to further develop the Denmark Community Windfarm amongst other initiatives to achieve their stated goal of making Denmark 100% renewable across all sectors, 24 hours a day, by 2030.
WEM	**Wholesale Electricity Market** That electricity trading market which operates in Western Australian only.
WGV	**White Gum Valley Ecovillage** is a community group where members are residents of a housing development designed under the 'One Planet' sustainable living charter. The LandCorp development includes solar arrays and batteries which supply the different types of accommodation offered in different configurations. The community group comprises residents who seek to manage their energy assets to better effect, and also to expand the project to a net zero emissions precinct covering a broader sector of the White Gum Valley community.

EXECUTIVE SUMMARY

The town of Denmark, in the Great Southern region of Western Australia (WA), is home to the second community renewable energy (CRE) project to begin operation in Australia. It may have been the first, had not the chosen site – crown land – required agreement from both State Houses of Parliament before the windfarm could be developed there. Totally Renewable Denmark (TRD), state:

> "The community of Denmark have worked hard over more than two decades to achieve all that they have achieved. The journey has been arduous. Some of the greatest difficulties have included the paperwork required by state and federal governments and their enterprises; changes in ministers; voltage constraints imposed by regulation; and the need to seek Synergy's agreement for expansion of the Windfarm. . . . While Synergy are not interested in smaller scale renewable energy, Western Power have voltage management issues. They also don't have a clear management plan for incorporating future developments into their system, such as more renewable energy and the uptake of Electric Vehicles (EVs), which we believe they significantly underestimate."

Totally Renewable Denmark (TRD), and its predecessors, represent the most well-established CRE group in Western Australia. Denmark Community Windfarm Ltd (DCW) was commissioned in 2013 and has been supplying 40 - 50% of the energy for the town of Denmark since then. Shareholders in the wind farm, many of whom are community members, received dividends from their shares just a year after the wind turbines began operation. A Community Sustainable Living Fund, supported through a shareholding in the Windfarm, continues to offer grants to projects within the Shire which offer sustainable outcomes for Denmark. What is disappointing, is that ten years on, DCW once again comes up against roadblocks inherent in the energy frameworks and governance operating in WA, and are blocked from expanding the windfarm to double its output. Such an expansion would allow the windfarm to cover almost 100% of the electricity needs of the Shire of Denmark. As an alternative, TRD is spearheading moves to invest in community batteries for the town, and infrastructure to support the uptake of Electric Vehicles (EVs). Despite such difficulties, as TRD's story continues, they inspire other communities in WA to take up the challenge of self-sufficiency through renewable energy for themselves.

This document describes the experiences of the seven inaugural member groups of CREATE Community Energy. CREATE stands for the Community Renewable Energy Alliance of Towns and Enterprises. This peak body for CRE in WA first came together in August 2022. We subsequently met at a one day workshop in November 2022, which was supported by Energy Policy WA. Our purpose was to discuss the barriers experienced by CRE groups in WA, and offer recommendations which would streamline and ease the pathway towards CRE for many more communities.

Throughout this document we illustrate the difficulties faced by communities and put our case for receiving sustained support from the State government and their instrumentalities through planning, policy, personnel and funding. In a recent report by the Australia Institute, the Western Australian government is estimated to have spent $320 million assisting fossil fuel industries in 2022–23, with $1.4 billion budgeted for the future[1]. In this context, we do not hesitate to suggest that our State government should support its own communities in decarbonizing our

1. Australia Institute, (2023) *Fossil fuel subsidies in Australia 2023: Federal and state government assistance to fossil fuel producers and major users in 2022–23, p. 39*

towns and suburbs through funding CRE projects; projects which work to mitigate against the multiple threats of human-induced climate change, largely attributable to the use of fossil fuels.

Across Australia there are at least 105 CRE groups. State Governments in Victoria, New South Wales, the Australian Capital Territory and Queensland run programs which support local communities to address climate change, embrace decarbonization and implement the transition to renewables. Western Australia can learn much from the programs which have been put in place in those states.

Our chief recommendation is that the State government instates a Community Renewable Energy Taskforce whose sole purpose is to work with and on behalf of communities as we negotiate legislation, frameworks and relationships towards realizing our CRE projects. It is desirable that the Taskforce sits outside of the government trading enterprises (GTEs) established, and is empowered to act with or on behalf of CRE groups in negotiations and partnerships with those organizations. We envisage Regional Development Commissions and the Small Business Development Corporation working together with the Taskforce to deliver consultative and other services directly to CRE groups in their towns.

CRE is Western Australians working towards a future which is prosperous and safe because fuelled through renewable energy rather than fossil fuels. The CRE sector is largely volunteer-led, and works within communities for the benefit of communities. It is time that government extended planning, policy and funding to embrace this people's movement. This document is the beginning of that hope for the future.

Delegates from Katanning Energy, Bridgetown Energy Transition and Pemberton Clever CLOGS meet in Katanning around the plaque marking the site of the first electric light pole in Western Australia. Photo: Rose Ferrell

Community Renewable Energy Alliance of Towns and Enterprises (CREATE) Inaugural Members

Acronym	Full Name	Town/s (Shire / City)	Populations	Bus Struct (Description)	Year formed	Not for Profit	Incorporated	Not Incorporated
AMRCCE	**Augusta-Margaret River Clean Community Energy**	**Augusta, Margaret River** (Augusta-Margaret River)	**16000**	**Community Group**	**2017**	●	●	
CC	**Clever CLOGS** (Community, Locally-Organized Goals and Strategies - to tackle climate change)	**Pemberton** (Manjimup)	**900**	**Community Group**	**2021**	●		●
GCE	**Geraldton Community Energy**	**Geraldton** (Geraldton)	**40 000**	**Company Pty Ltd**	**2018**		●	
KE	**Katanning Energy**	**Katanning** (Katanning)	**3500**	**Private Company Pty Ltd** (6 investors)	**2021**		●	
TRD	**Totally Renewable Denmark**	**Denmark** (Denmark)	**6500**	**Working Group** (auspiced by Greenskills Inc. Denmark)	**2007 / 2022**	●		●
TB / BET	**Bridgetown Energy Transition** (a subgroup of Transition Bridgetown)	**Bridgetown** (Bridgetown-Greenbushes)	**2800**	**Community Group**	**2020**	●		(soon to be incorporated)
WGV	**White Gum Valley Ecovillage**	**White Gum Valley** (Fremantle)	**3300**	**Community Group**	**2022**	●		●

AUGUSTA MARGARET RIVER CLEAN COMMUNITY ENERGY

Clever CLOGS Community Locally Organised Goals Strategies

Community Organisation for Climate Action

Geraldton Community Energy
The cleaner, greener choice

Katanning Energy Renewable Energy Solutions

TOTALLY RENEWABLE DENMARK

BET

White Gum Valley Ecovillage

Acronym	Purpose / Motivation	Resource/s developed, planned
AMRCCE	Seeks to protect the environment by reducing greenhouse gas emissions and promoting clean energy in the Shire of Augusta-Margaret River	**Anaerobic digester to produce methane; Wind farm feed up to 22.5MW into Beenup substation; Zero: The Revolving Fund; EMMA partnership with Clear Energy**
CC	**Seeks to raise awareness of the threat posed by climate change. Flagship project a CRE resource for the town of Pemberton**	Existing solar PV; A hydroelectric project; mini-pumped hydro; community-scale battery & Microgrid; VPP Retirement Village; EV to grid (individual/s)
GCE	Motivated by the desire to develop renewable energy projects in the Mid West region; to divert revenue earned back through the GCE board to support community projects	**Partnership with solar installer (PVs and larger arrays, inverters, batteries)**
KE	**Want to generate power and supply own community, keeping income in the local area; a major business-infrastructure project**	Tender competitively for supply and installation of Solar PVs, inverters, batteries to power homes/businesses, building to microgrid / community-scale batteries with automated demand management to support off-grid status; become an 'energy island' which can export power to nearby towns; trade power on the WEM
TRD	After major blackout event in 2007 the Economic Regulatory Authority identified that there was no business case for investing in poles and wires to upgrade the service to the edge of grid communities of Denmark and Walpole. The community decided to work on their own solutions through energy efficiency and a renewable resource of their own.	**Denmark Community Windfarm Ltd, including a PPA with Synergy, and a licence from Western Power to return power to the grid; Community battery/ies; Modular batteries for transport (EVs)** **[Decovillage self-sufficient strata housing development]**
TB / BET	**Seek to decrease the carbon footprint of the electricity grid in a timely manner, through individual and local community action; keen that the individuals and local communities that invest money and time to achieve this goal should have some control and financial return for their efforts.**	Envisage individual and community solar power with battery storage to enhance grid stability by soaking up excess solar energy and reduce emissions by displacing fossil-fuelled power generation when the sun isn't shining.
WGV	Seek to more intentionally manage the already-installed solar power systems in their homes and establish a net zero emissions precinct in White Gum Valley.	**Rooftop Solar Array + batteries; Shared EV + charger**

There are seven CREATE member groups, of which five have active projects, while two aspire to active projects. The tables above represent an overview of some of the main features of each project as at December 2022. The movement is still young here in Western Australia. Six of the seven CREATE member groups are less than six years old. Totally Renewable Denmark (TRD) and its predecessor Denmark Community Windfarm Incorporated (DCW Inc.) is the grand old dame of the movement, having recently had a 10th birthday celebration. As established projects achieve greater successes we expect more communities in urban and regional areas will desire the benefits available through CRE projects enough to start the long hard road to a community-led energy project within their own communities.

RECOMMENDATIONS

RECOMMENDATION #1: **Community Renewable Energy Taskforce**

Establish a Community Renewable Energy Taskforce that is mandated to directly support the development of community energy projects through a well-funded program which includes specialist personnel who are able to offer technical, financial, legal, and other professional advice across the range of skills required to develop CRE projects. Taskforce personnel should be enabled to act with or on behalf of CRE in negotiations with Western Power, Synergy, Horizon Power, and others as requested by CRE groups. Taskforce personnel must be regularly available at Regional Development Commission and Small Business Development office sites in or close to CRE towns. Regional Development Commissions should support each Small Business Development office in regional areas to employ at least one staff member dedicated to supporting the transition to renewables of local businesses and community organisations, giving local CRE and projects priority assistance.

Recommendation #2: **Incentivize Partnerships between Government Trading Enterprises (GTE) and Community Renewable Energy Groups (CRE) and reward innovation**

Incentivize partnerships between Government Trading Enterprises (GTEs, particularly Western Power, Synergy and Horizon Power) to develop projects in partnership with CRE groups, and mandate these to consider community-based solutions to network problems in the first instance, particularly those which benefit communities financially, socially or from the point of view of community development and resilience in the face of emergencies. From this it follows that a streamlined approvals process for such projects be implemented. CRE groups, along with Taskforce mentors, are given direct access to personnel within Western Power, Synergy and/or Horizon power who shepherd their projects through systems of application, approval and implementation, doing so in a timely manner.

RECOMMENDATION #3: **Fund CRE Development over Incremental Stages**

Fund the costs of CRE start up phases (such as feasibility reports, business case and network studies) as a matter of course, and cover the upfront cost of CRE infrastructure on a case-by-case basis, where a recognized CRE can show a developed business plan and proposal but fails to attract other investment due to scale and / or customer base. Within all dealings, respect the principle that the Western Australian people have supplied the funding which supports the government in the first instance, and that community volunteers, through their own investment of time, skills and resources, have done the groundwork which allows the development of income through the CRE infrastructure project, in order that their community can share in this income.

UNDERSTANDING COMMUNITY RENEWABLE ENERGY

Community Energy and its Advantages

The Community Power Agency describes Community Renewable Energy (CRE) as:

> .. a community coming together to initiate, develop, operate, own and/or benefit from a renewable energy or energy efficiency project. Projects vary by technology, size, structure, governance and funding options. They grow from the diverse needs and available resources of a local community (or community of interest) and might be anything from solar panels on a school roof, to a small wind farm on the edge of town.[2]

There are currently 105 CRE projects listed on the Community Power Agency map of CRE across Australia. However, this number is likely to be slightly larger or smaller, given that CRE is driven by volunteers and projects have long incubation periods.

In the early phases projects move forward through conversations and relationships within localized spaces. Proponents, in small, loose, collegial networks, may be carrying out the groundwork to inform and educate their communities long before a groundswell of community members become confident enough to announce a project. Volunteers with sufficient commitment give up months and years of their lives as they champion the project through concept, planning, approvals, design, and construction stages to finally arrive at commissioning.

So why do people do it? From a more personal perspective, CRE projects achieve these things for communities. They create:

- Skills and leadership for community members
- Social cohesion as individuals and groups come together
- Energy security and income for the town, which translates to buoyant local economies
- An independent source of funding for community projects

Delegates at the Inaugural CREATE Workshop discuss Governance issues amongst members from Bridgetown Energy Transition, Clever CLOGS, Katanning Energy, Totally Renewable Denmark and White Gum Valley Ecovillage representatives. Photo: Rose Ferrell

2 Community Power Agency https://cpagency.org.au/about/community-energy/

Ultimately, this combination of advantages leads to greater self-determination for local communities. The sense of empowerment is strong, and feels good. However, the satisfaction of building something with your community for your family and friends, isn't all. What CRE really delivers, for those who take it on, is hope for the future. It is a logical response to the threat of climate change and as such, improves the mental health of individuals and communities. We stand firmly on the side of the solution, not the problem.

Important Things to know about CRE Groups

Who takes on CRE?

VOLUNTEER OPTIMIST GENERALIST SKILLED LIFE-LONG LEARNER

PASSIONATE ABOUT COMMUNITY & ENVIRONMENT AWARE OF CLIMATE CHANGE

TAKE RESPONSIBILITY FOR OUR SHARED FUTURE

The CRE movement is overwhelmingly run by volunteers. Most CRE proponents work at other jobs and fit in this volunteer work because they believe it to be the way of the future. And because they hope to avoid the clear-and-present danger posed by climate change in the 21st century. Proponents also seek to add value to their communities, and for themselves.

As Bridgetown Energy Transition have expressed:

> "We are . . . keen that the individuals and local communities that invest money and time to achieve this goal should have some control and financial return for their efforts."

What motivates many who work on CRE projects as volunteers is complex and different in all cases. However, it is possible to make a number of statements which generally describe those who are attracted to CRE. They are generally optimistic. This is vital if you are to take up one of the most challenging projects possible in Australia today.

It may be surprising to know how few engineers are involved in CRE. Proponents tend to be generalists who are willing to learn. They have skills, knowledge and some expertise in other areas but what is most notable is that these proponents see learning as a life-long journey.

CRE proponents take climate change seriously, and are drivers of change. This may be related to the next statement: that CRE as a movement has been most fully embraced by regional communities. This is not to say that there are not urban CRE proponents and projects. Perhaps the movement has been adopted more widely in the regions because it is rural and regional people who experience the inadequacies of the electricity grid system more often. Blackouts are a common occurrence in country areas. They are disruptive, expensive and always unwelcome. And they push regional Australians towards renewable energy solutions.

Australians in the regions may also see the effects of climate change more clearly. Many rely on the natural environment for their livelihoods. Regional Western Australians are increasingly aware of our own vulnerability as catastrophic natural disasters such as fires and floods have affected Australians on the eastern seaboard and in our own state.

Bridgetown Energy Transition carry the awareness that:

> "Frequent power outages in country areas are especially relevant during bushfires and other emergencies (as we have experienced recently)."

Clever CLOGS Pemberton note that:

> "Our infrastructure needs power in an emergency. The telecoms tower can only operate for two hours if cut off from the mains. When the mill caught fire recently, we were on the point of having to turn water off to the town because we had used all the water to put out the fire. If we have no electricity we can't pump water into the header tank. Access and power,.. they are our weak spots."

It is notable that while government rhetoric prefers to speak of 'adaptation', proponents of CRE are all about mitigation. Many are doubtful that 'adaptation' is a viable option. CRE proponents are largely motivated by their genuine willingness to take responsibility for and to do what they can to improve conditions for coming generations. CRE is characterized by local community members addressing local problems through their own actions.

As a proponent identified:

> "Katanning Energy (KE) was formed in 2021 by local community members because of what it saw as the economic drain of funds from Katanning because the town's electricity supply was all coming from elsewhere. Proponents guestimated that around $10 million was being lost to the city annually. Having now done the calculations to a finer grain, it seems that that amount may be more like $8 million. Still, it is a sizeable chunk of earnings for a community to give away when it could be generating power and supplying its own community, keeping all that income in the local area."

While many proponents have an entrepreneurial streak, it is notable that most of the groups in CREATE are unincorporated; and all are either not-for-profits or have some mechanism by which the community benefits from their energy venture. In the case of Totally Renewable Denmark (TRD), Denmark residents make up the majority of the shareholders of the Denmark Community Windfarm Ltd (DCW). A not-for-profit community entity holds 10% of the shares, and their earnings are paid into a Community Sustainable Living Fund which offers grants to community members to complete local projects with sustainability outcomes. This is common to genuine CRE projects across Australia.

A huge part of what CRE proponents do is engage with our communities. Whether this is through direct or indirect methods, in-person or through social media, newsletters, or other non-direct forms, we seek to inform other community members and bring them on board for what has to be a whole-of-population, systemic change. There are always more tasks along this journey. Burn out is a huge issue for our groups, where volunteers often feel stretched beyond their ability to give. This is why the support of government is so important. It is only through partnerships that CRE can deliver the full suite of benefits that it promises to communities and to Governments and to GTEs.

Criterion by which a Project can be known as a Community Renewable Energy Project

There are a number of hallmarks of a community energy project. Firstly, the project is initiated by community members, who decide together to develop a CRE project. While later, partners may be brought in, clear ownership by the community can be understood through the project's origins. Having a minimum number of local community investors and / or a community fund which is clearly intended to benefit local projects are important indicators. Projects where local residents are involved in governance is ideal, although projects where local residents are consulted, can advise and can veto decisions may also be considered a CRE project.

Benefits of Community Renewable Energy

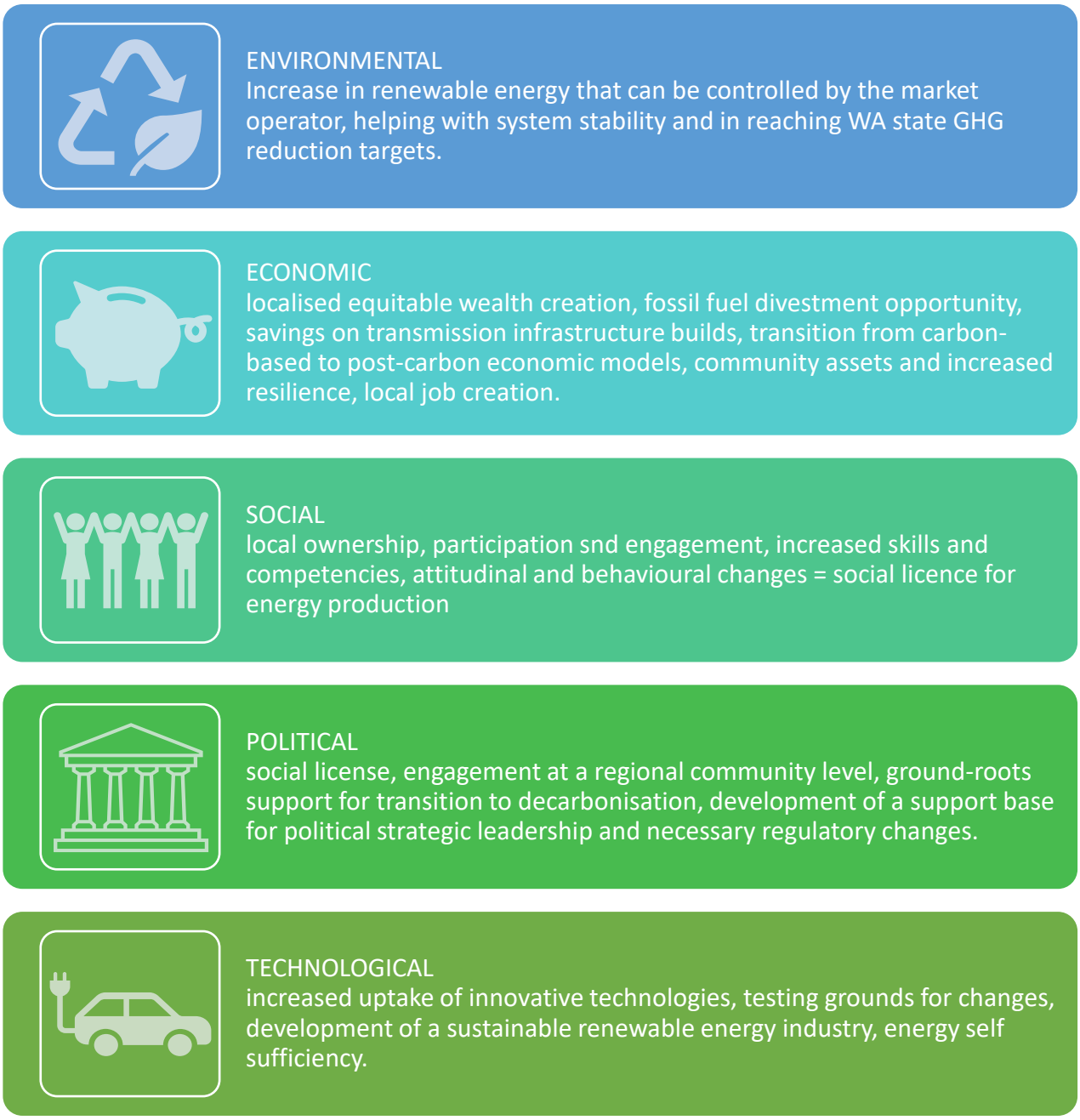

Figure 2: The Benefits of Community Energy

The figure above describes some of the benefits of CRE for society in general. What is not so easily understood or quantified is what this can mean for our future in Western Australia.

It takes imagination to envisage a situation which is different from the one we currently experience. And yet every invention of human kind began with a 'what if'.. What if communities such as Katanning did not send $8 million out of its Shire every year in electricity tariffs? What if businesses in Western Australia could choose to base themselves in the regions because – as Covid showed us – people can work quite effectively from home? What if many more people could choose to live in the regions because work was varied and plentiful, training opportunities just as available, local economies were booming?

We have already been alerted that the transition to renewables will occur because of the need to decarbonize our economy. The age of renewables is here. The next question is: What opportunities are at our doorstep when we embrace a fully decentralized energy system which is based in the regions as much as in urban areas? Perhaps we will find out when entrepreneurial and environmentally-conscious Western Australians are enabled to bring energy generation to their communities through CRE projects.

THE ISSUES AND CHALLENGES FACED BY CRE IN WESTERN AUSTRALIA

There are many challenges faced by Community Renewable Energy (CRE) projects in Western Australia. During the workshop these were investigated under the themes of financial, governance, technical and regulatory and legislative issues. However, many of the issues cross these themes, or are more directly related to the historical, economic, social and cultural/philosophical context we find ourselves in in Western Australia. The issues are therefore described here according to a process-oriented hierarchy where governance functions come before implementation. We describe our recommendations under 1. Regulation and Legislation; 2. Policy as Pathway; 3. Data is Key; 4. Education is Foundational; 5. Funding enables Action.

1. Regulation and Legislation is the Largest Barrier

The issues with the WA energy legislative framework are numerous and complex, spanning multiple agencies, legislative bodies and legislative instruments. CREATE members have had negative experiences in the areas outlined below.

Technical Constraints

Totally Renewable Denmark reported:

> "Although the Environmental Protection Authority (EPA) originally approved 4 turbines on the windfarm site, Western Power constrained the voltage to a maximum of 1.4 MW, resulting in only 2 turbines being constructed"

White Gum Valley Ecovillage reported:

> Although a LandCorp Development, . . . the group experiences an apparent lack of interest from Western Power, who do not seem to want to deal with micro-grids"

Category Constraints

Geraldton Community Energy reported:

> "it soon became clear that the legislation surrounding the supply, generation and sale of electricity within WA . . . made it very difficult"

Application, Approvals and Permits

For the proponents of CRE in Western Australia (the member groups of CREATE Community Energy - See Appendix B), regulation and legislation is a major stumbling block. The technology has now been proven. However, CRE proponents experience 'technical constraints' (such as real-world voltage limits on lines) and 'category constraints' (CREs not being licenced as generators or retailers) regularly. The approvals and permits pathway overseen by the Department of Jobs, Tourism, Science and Innovation (JTSI), Energy Policy WA (EPWA) and Western Power is onerous and costly, with no guarantees of success. This is the largest barrier to the creation of a CRE project.

Augusta Margaret River Clean Community Energy reported:

> "we will pay $2 million to complete [Western Power's] approval process, and even then we won't be able to return our power to the grid" ..

- Recommendation: Waive the costs of application to connect to the SWIS for community energy groups and their partners who meet the criteria for being a CRE project.

- Recommendation: Streamline the Western Power application process for proponents who represent community energy groups; and / or identify possible projects suitable for CRE proponents in advance of CRE application.

Support for Strata Developments as Renewable Hubs

Evermore residents and residents of the WGV Ecovillage are interested in advancing their community (including the wider White Gum Valley area) towards becoming a net-zero emissions precinct. They are experiencing difficulty in navigating different policy settings at state and federal level. Under the WA Strata Titles Act 1985, Section 77 requires strata owners to develop a 10-year plan to cover the cost of 'maintenance, repair, renewal or replacement' of major infrastructure. However, residents don't have the expertise to manage the financial estimations of such a task and find that qualified advice is difficult to find and expensive to access. Access to advice, information and professional services under a Taskforce would enable this CRE group to understand their situation and act with certainty to achieve their net-zero ambitions.

- Recommendation: Ensure funding is available to assist in transitioning strata title residences to self-sufficient renewable hubs; including access to the Taskforce and special funding as a CRE.

- Recommendation: Amend legislation to ensure that the strata title act, section 77 refurbishments are tied to actual performance and status of equipment, rather than to theoretical timeframes based on manufacturer's guidelines (in line with actual lifespan of assets, rather than predicted lifespan)

2. Policy as the Pathway

We would like to see State Government policy focus on measures to *mitigate* climate change, rather than 'adapt' only.

Totally Renewable Denmark aims to see:

> "Denmark become 100% renewable across all sectors, 24/7 by 2030"

While regulation and legislation which is no longer fit-for-purpose hampers communities' efforts to improve and ensure their own power supplies into the future, policy is the pathway to viability for renewables.

Funding to Stimulate Investment in Renewables by CRE groups and Partners

Katanning Energy found that:

> "uncertainty regarding West Australian government direction and policies with regard to renewables keeps investors shy"

To stimulate investment in CRE projects, Government policy needs to align with the vision for a renewable future. Western Australian planning and policy documents[3] tend to overlook the movement towards community energy here in Western Australia. It is clear in the experiences of CREATE member groups cited through this document, that this is disadvantageous to those groups.

- Recommendation: Write CRE into all State energy planning and policy documents as distinct and viable participants in the energy sector as generators, retailers, aggregators and trading entities.

[3] Western Australian Government, (2019). *Western Australian Climate Policy: A plan to position Western Australia for a prosperous and resilient low-carbon future*.
Western Australian Government, (2020).*Whole of System Plan Report*.
Western Australian Government, (2023).South West Demand Assessment 2023 to 2042: A future ready grid
Western Australian Government, (2020).*Distributed Energy Resources Roadmap*, amongst others.

Equivalence of reliability across urban and regional areas

Reliability is a major issue in regional Western Australia. Ageing infrastructure, local landscapes and, increasingly, unpredictable weather patterns, pose risks for reliability and stability of energy services across the state.

- Recommendation: That regional energy reliability be required to be delivered to the same standards as those in the metropolitan area.

Partner with Local CRE to Address Emergency Energy Planning

While to date the South West corner of Western Australia has not experienced floods, fires and extreme weather events to the same extent as other parts of the continent, it is clear that we live with a level of risk. While risk cannot be expunged, it is incumbent upon government to ensure that it has services in place which support communities to deal with emergencies. Power is essential to the operation of many such services, including telecommunications, health, ambulance and fire and emergency services, and is vital for such things as pumping of water and fuel, charging vehicles and equipment, refrigeration, heating and lighting of buildings which act as refuges for displaced citizens. Distributed renewable energy resources (DER) are the most logical way to ensure access to energy through localized, small-scale components which deliver energy to emergency services buildings and individuals, refuge centres and other users. Whether or not towns in the regions have their own CRE proponents and project, we propose that Government:

- Recommendation: Instruct, plan, budget for and implement renewable distributed energy resources to power health and emergency services which can be 'islanded' to ensure reliable electricity when access to normal power supplies fail.

Energy Audits

Totally Renewable Denmark, through the Green Town Denmark – Walpole project, partnered with:

> "Western Power, [who] invested in household and energy audits to identify when and what appliances were using energy at peak times; reduce peak energy demand, reduce overall energy use and emissions, and generate renewable energy and jobs in Denmark; . . . Success led to development by community members of the Denmark Community Windfarm Ltd (DCW), which was commissioned in February, 2013"

Energy Audits are foundational to enable the understanding of energy needs now and into the future. Lack of clear policy and guidelines have led to an over-abundance of household solar available to the grid, threatening its stability. While community-scale batteries are a longer term solution, a program of energy auditing for all households, SMEs and corporates across all sectors would enable consumers to make informed decisions and help balance the system into the future.

- Recommendation: Fund the widespread promotion and use of energy audits through all available media, including through educational campaigns and information sessions targeted to all sectors of Western Australian society. Include key messages explaining climate change, its potential impact, and the necessity to reduce our energy usage and therefore carbon emissions.

3. Data is Key

Katanning Energy planned for:

> "The first stage [to be] the Energy Demand stage, during which the group will complete a detailed Baseline Energy Usage Audit of the town and surrounding farms. This gives the group a solid understanding of their potential customer base, their usage and needs"

Community energy groups in Western Australia need data to understand their energy environment and context. It is only through access to data that CRE groups can build business cases which attract investment in their energy futures. Accessing data is a major problem for CREs, and can be alleviated by access to sufficient information from Western Power and Horizon Power to enable load flow studies for CRE. An alternative is a situation in which Western Power and/or Horizon undertake the assessment on behalf of every regional town as part of a broader CRE program.

CREs have been told that data is unavailable to them on grounds of privacy; because it needs to be paid for; because it can't be shared due to regulation or legislation; or simply because it doesn't exist. In some cases, after waiting weeks for data, CRE groups found it was incomplete, or not fine-grained enough to be of use.

- Recommendations: Data is made available to CRE groups and / or Taskforce members in a timely manner upon request.

- Recommendations: Western Power allows the connection of small meters onto their assets by CRE groups so that the CRE groups are able to better understand the energy flows into and out of their towns.

- Recommendation: Where data is deemed unavailable or not fit-for-purpose, GTEs, the private sector and government work together to develop new ways of gaining fine-grained data specific to location and populations in the fastest timeframe.

4. Education is Foundational

Bridgetown Energy Transition sees that:

> "There is huge untapped potential in the community to reduce energy consumption and our carbon footprint. People want to do something but don't know what to do. We need support to facilitate action and we need the barriers to reducing our energy usage to be removed. We need mechanisms to provide education to facilitate the transition to a low carbon future"

Capacity-building and Leadership require Investment

Communities who aspire to be partially self-sufficient in energy face a steep learning curve. Very few community members have the requisite skills and knowledge suitable for undertaking such projects. Thus, communities must rely on the knowledge and advice of those who will engage with their group. They are similarly hampered by the lack of skilled workers in their towns who can conduct energy audits, advise, install, operate and maintain sophisticated electrical equipment.

Yet these are the entrepreneurs in a community, who are life-long learners who already actively embrace the Government-mandated move to decarbonization and transition to renewables. And they are experts on their communities. Supporting and building capacity amongst this group of individuals is to bring them on side for strategic political actions of the future. It is not only common sense to assist them to reach their potential, it is best practice governance.

- Recommendation: Extend tailored information and support in the form of short courses, templates, webinars, and access to specialist consultants, to CRE proponents, all of which support capacity-building amongst regional CRE groups.

- Fund appropriate courses for CRE proponents, where the knowledge gained builds capacity appropriate to the CRE projects proposed.

Support through the Education Sector

Katanning Energy also finds that:

> "The lack of skilled labour is a major setback in this most heavily technical business sector, and is exacerbated in regional areas."

In preparation for a speedy transition to renewables across the board, the State Government needs to support the education sector to produce graduates at all levels who can answer the needs of a renewable future.

- Recommendation: Special funding programs are established to boost the number of students of subjects and skillsets required by the energy transition to renewables. Such funding to include apprenticeships and support for study at vocational and tertiary levels. At the same time, funding of institutions is boosted, to expand their programs while maintaining the equivalent quality of tutelage for all students across desired subject fields.

5. Funding enables Action

Policymakers need to be cognisant of the difficulty smaller communities face in attracting the investors and funding partners needed to mount an expensive infrastructure project such as CRE.

CRE groups need to work in partnership with government GTEs. Business models of GTEs need to be re-envisioned so that State Government enterprises can work effectively with CRE groups.

CREATE members have experienced very long delays in responses from GTEs whether simply making enquiries, seeking data, or pursuing approvals. Given the urgency to respond to the threat of climate change, we argue that GTEs need to be more adequately resourced and staffed to undertake the transition. Training may be needed to ensure that staff appropriately understand the importance of their roles in partnering with CRE groups.

- Recommendation: CRE projects are prioritized for staged funding on the basis of the needs of each project, in recognition and reward for the work already completed by community volunteers.

- Recommendation: Priority funding to be provided to GTEs where they partner with communities to achieve a community-driven energy project plan.

- Recommendation: In tandem with the above, Government supports (through additional staffing and resources including infrastructure expansion) GTEs to take on management, operation and maintenance of locally-owned or co-owned generation and supply infrastructure and facilities where other private distributors, generators and retailers are uninterested in supplying such a service.

- Recommendation: Address the culture of ‘protectionism’ between GTEs and replace with a culture of collaboration and innovation, opening up sites of co-learning through partnerships amongst GTEs and CREs.

There is a great need for CREs to employ community-scale batteries, microgrids and automated management systems to create local energy hubs that can be islanded so as to operate off-grid as well as be connected to the South West Interconnected System (SWIS). Mechanisms and tariffs can be set which benefit both GTEs and communities when Government adequately supports the development of this most essential infrastructure on the basis of Government’s mandated role of providing basic services – including affordable energy – to all Western Australians in line with the expectations amongst first world nations in the twenty-first century.

- Recommendation: Innovative power projects developed in partnership with CRE groups are valued and greenlit based partially on their innovation and the learnings they deliver to GTEs, to the community/ies and to national and international communities.

Funding to Promote Energy Equity

Funding programs which support the adoption of energy-saving technologies and practices in households, small to medium enterprises and big business should be considered the "low hanging fruit" in the decarbonisation of the energy system in WA. There are multiple models by which this could be done that have been successfully implemented on the East Coast of Australia.

CONCLUSION

The very good reasons why the State Government of Western Australia, and all its instrumentalities, should support community energy now is that we are spearheading the future. CRE groups and their members are motivated and actively working to fulfil the vision for an Australia which has not yet come to pass, but which most definitely will. We are allies with government in achieving emissions reductions, in educating our communities regarding energy efficiency, in providing 'testing grounds' for renewable energy initiatives. We can become the models for forms of energy equity and energy democracy. We can be test cases in energy market participation. We are the key to safeguarding regional communities in the face of climate disasters. And by developing safe, reliable and stable energy resources for ourselves we have the potential to support the ageing South West Interconnected System (the 'grid') as it finds its new form in a world of renewable energy. Engaging effectively with the CRE sector means preparing for a prosperous future, and taking our place as a first world nation which is at the forefront of climate solutions. There is not better way forward, than to embrace CRE for every community in Australia.

APPENDICES

A. ABOUT CREATE
B. CREATE MEMBER GROUPS INFORMATION
C. THE WORKSHOP PROGRAM

A. ABOUT CREATE

Aims of CREATE Alliance

- To create a collective voice to advocate and lobby for CRE in regional and urban Western Australia
- To share information, experience and expertise in order that the vision of a just and equitable transition to renewable energy occurs more quickly in Western Australia
- To work with like-minded organizations and government to streamline the pathways and processes through which community energy and energy self-sufficiency is brought to the people of Western Australia, whether rural, regional or urban, according to their needs and purposes.

B. CREATE MEMBER GROUPS

Augusta-Margaret River Clean Community Energy (Augusta-Margaret River Clean Community Energy Pty Ltd, *Active, Approvals stage*)

Augusta Margaret River Clean Community Energy (AMRCCE), begun in 2017, is a not-for-profit incorporated community action group which seeks to protect the environment by reducing greenhouse gas emissions and promoting clean energy in their Shire. AMRCCE has led a project through which dairy waste of solids and liquids was separated, creating compost and liquid fertilizer for farmers on the Scott River plain. The project lays the foundations for a professional feasibility study into the development of a community anaerobic digester in the region for the production of methane gas.

The group has also contracted Merz Consulting and has applied for connection approvals for a wind farm to feed up to 22.5MW of power into the Beenup substation at Scott River. Lease agreements with local landowners have been prepared, and the group is now seeking a suitable partner to develop the wind farm. The community will retain a share-holding in the project, and through this, fund ongoing projects to further reduce emissions from energy consumption.

The group also signed an Electricity Marketing partnership agreement (EMMA) with Clear Energy which is currently in question due to sale of Clear Energy. The partnership was designed to supply customers with renewable energy infrastructure, and with one contestable customer, can deliver an expected reduction in emissions of 845,000 kg CO2/year, and a greater than 15% savings on average on electricity costs for that customer. The income derived from this in 2021-2022 was $3,236 in marketing fees to AMRCCE.

AMRCCE has also launched Zero: The Revolving Fund, which is based on the Citizen's Own Renewable Energy Network of Australia (CORENA) model. The fund allows Community organisations to apply for a zero-interest loan to pay for climate beneficial projects, such as installing solar panels, improving energy efficiency, switching away from fossil fuel gas use, or purchasing electric vehicles.

The resultant savings on energy/fuel bills cover the loan repayments and are returned to the revolving fund. Organisations reduce their carbon footprint immediately without diverting any of their budget away from delivering services to the local community. Once the loan is repaid, organisations can channel the money saved on power bills back into their core services.

Clever CLOGS, Pemberton (*Aspiring*)

Clever CLOGS (Community, Locally-Organised Goals and Strategies to address climate change) is a small not-for-profit community group which was begun in Pemberton, in 2021. Its purpose is to raise awareness on the threat posed by climate change. As a predominantly forested Shire, we face the threat of extreme bush fires. As an agricultural and horticultural centre, we experience variations in crop growth and food production due to climate-related weather disturbances. As a small, fringe-of-grid community, we face reliability issues through aged infrastructure. These adversely affect many of our service businesses and tourism operators – an important income for our town.

Clever CLOGS' end goal is to develop distributed energy resources (DER) to power the town and surrounds through a community-led renewables project. Ideally the project will incorporate already-existing rooftop solar, augmented by hydroelectricity through the infrastructure which is still in place from a hydroelectricity project which operated between 2006 and 2011. Because of the dispersed nature of these resources, it makes sense to incorporate a community battery with smart management technology behind a central meter to supply most of the town. If this is not possible due to legislation and regulation, we can envisage a virtual power plant behind a meter on shared Shire land. However, this would only allow us to deliver power to a restricted number of households / businesses (again, due to regulation and legislation).

Pemberton has a much smaller population than other towns who have succeeded in developing community energy projects. We have yet to see if this becomes an opportunity, or a limiting factor when it comes to attracting the necessary partnerships and funding. For this reason, the outcome of CREATE's advocacy has significant implications for our town.

Geraldton Community Energy (Geraldton Community Energy Pty Ltd, *Active, stalled*)

Geraldton Community Energy (GCE) was formed in 2018, motivated by the desire to develop renewable energy projects in the Mid West region. It was envisaged that revenue earned would be diverted back through the GCE board to support community projects. The project was largely driven by Rod Littlejohn of (then) Tersum Energy, which has now become Clear Energy.

The GCE Board signed an Electricity Marketing Agreement (EMMA) with Clear Energy, who would install roof top and larger scale solar for non-contestable and contestable customers in the Geraldton region. GCE would generate revenue through receiving a percentage from the total income from energy sold by Clear Energy.

The business model went through several iterations and it soon became clear that the legislation surrounding the supply, generation and sale of electricity within WA, the competition in the market for roof top solar, and the competitive rates offered by Synergy and other providers to contestable customers, made attracting customers very difficult. Despite Clear Energy employing a sales person in 2020/21 under the banner of GCE, they were largely unsuccessful in driving sales. The contract was terminated by Clear Energy.

At this point in time the project has stalled while we wait for advice from Clear Energy as to a pathway forward. Two customers continue to be invoiced for energy generated. We await clarity

around our position given our agreement with Clear Energy, and have felt quite hamstrung by this unresolved issue.

Katanning Energy (Katanning Energy Pty Ltd, *Active*)

Katanning Energy (KE) was formed in 2021 by local community members because of what it saw as the economic drain of funds from Katanning because the town's electricity supply was all coming from elsewhere. Proponents guestimated that around $10 million was being lost to the city annually. Having now done the calculations to a finer grain, it seems that that amount may be more like $8 million. Still, it is a sizeable chunk of earnings for a community to give away when it could be generating power and supplying its own community, keeping all that income in the local area. It is this thinking that led to the development of Katanning Energy.

The private company currently tenders competitively for supply and installation of solar infrastructure to Katanning residents and businesses, and is one of the larger community energy programs in Australia. KE is a bottom up model, where local community members are the shareholders. Through its constitution, profits are returned in various amounts and ways to the community as the business grows.

KE has a renewable energy professional and various small and agribusiness owners on its board, which has enabled the group to develop a well-thought out approach and business strategy. Over stages, Katanning Energy will become a community energy network, based in Katanning. KE is a major business-infrastructure project which sets Katanning up to become an 'energy island', which can stand completely independent of the South West Interconnected System (SWIS), can export power to nearby towns as needed, and can trade power on the Wholesale Energy Market (WEM) in its own right. This is to be achieved over five stages:

The first stage is the Energy Demand stage, during which the group will complete a detailed Baseline Energy Usage Audit of the town and surrounding farms. This gives the group a solid understanding of their potential customer base, their usage and needs. The second stage is called Energy Supply, in which the company will install enough solar infrastructure to cover day time use only, ensuring it doesn't over-capitalize in the critical early stages of operation. The third stage is Energy Supply and Storage, in which additional solar infrastructure and a storage system is installed to cover non-daylight hours. At this point KE will have their own community battery.

The fourth stage is called Energy Supply, Storage and Electrification, in which solar infrastructure is boosted and sufficient storage is added so that the company can orchestrate town-wide electrification of gas heating and cooling, and also meet transport needs. This stage includes the installation of additional car / tractor chargers for electric vehicles on battery / storage sites. Finally, the plan moves to a Microgrid-enabled or Off-Grid stage, at which time each site can operate completely independently through intelligent demand management systems. Any of these sites may choose to join the Katanning Energy Network microgrid and become involved in trading energy on the WEM. However this stage relies upon regulation determined by the West Australian government.

The organization is currently being held back by several factors. These include the AS4799 Access Code, which prevents consumers from enjoying the full benefits of a solar system by limiting regional customers to only 32 Amps of draw at a time. Western Power's emphasis on offering Stand Alone Power Systems to more isolated properties is also seen as an impediment, because of the way

that it muddies the decision-making process of some agribusinesses around whether to go with Katanning Energy or stay with Western Power. The lack of skilled labour is a major setback in this most heavily technical business sector, and is exacerbated in regional areas. And finally, uncertainty regarding West Australian government direction and policies with regard to renewables keeps investors shy. In summary, the community members who have created KE have a long, long way to go on an ambitious plan. Through their efforts over the previous two years the company has increased the knowledge and skills within the community significantly, and has educated many within the town around energy usage and costs. However, the group is frustrated by the lack of support from government organisations (Western Power and Synergy), whose responsibility it is to ensure the rights of consumers are upheld, particularly in a time when the transition to renewables is mandated by the Federal government, and climate change becomes a clear and present danger to those in regional areas.

Totally Renewable Denmark

Totally Renewable Denmark (TRD) is a working group auspiced by Green Skills Inc. and led by Dr Louise Duxbury as the Green Skills Senior Project Manager. The working group is building on the success of the previous very successful Green Town Denmark Walpole project, which operated between 2007 – 2013.

The Green Town Denmark Walpole project was initiated by the community and Greens Member of Parliament at the time, Paul Llewellyn, in response to regular blackouts on the grid that crippled tourism and local businesses. A long blackout during Easter of 2007 caused the issue to become critical. When the Economic Regulatory Authority identified that there was no business case for investing in poles and wires to upgrade the service to the edge of grid communities of Denmark and Walpole, the community put a proposal to Western Power to address this challenge innovatively through reducing energy consumption, reducing peak demand and producing energy locally through renewables. Through this plan Western Power would meet its key objective of 'beating the peak' in energy demand and therefore managing the grid to almost eliminate blackouts at a fraction of the cost of upgrading the infrastructure. Western Power invested in household and energy audits to identify when and what appliances were using energy at peak times. A community education program ran throughout the project with an annual Energy EXPO, posters and other communication products to key tourism providers to reduce peak demand at high tourist times, stalls at key market days, talks, field trips and articles in local press helped engage the community with an overall reduction of energy use of 15% and a flattening of peak demand. This deferred the necessity for the significant upgrade of poles and wires originally proposed, while there has been infrastructure improvements the key infrastructure has not yet required upgrading.

The intention of the Green Town project to reduce peak energy demand, reduce overall energy use and emissions, and generate renewable energy and jobs in Denmark was achieved. It was a collaboration between Western Power, community and key stakeholders. Its success led to development by community members of the Denmark Community Windfarm Ltd (DCW), which was commissioned in February, 2013. The wind farm is operated as a public company with its 116 shareholders largely being community members. The windfarm holds long term contracts with Western Power and Synergy to deliver power into the grid. This enables the company to supports a Community Sustainable Living Fund through DCW Inc., a not-for-profit community group which has a 10% shareholding in the wind farm.

The wind farm has now been operating for 10 years, providing between 40 – 50% of the power needs of Denmark from the two 800kW Enercon E48 turbines. Each turbine is 55 metres high, with a working life 20/21 years. It is managed by the DCW Board, has a management contract with Skyfarming, and a maintenance contract with Enercon which includes using local contractors to service the turbines. DCW has a power purchase agreement (PPA) with Synergy and a network access contract with Western Power to 2035 to operate its wind farm.

Although the Environmental Protection Authority (EPA) originally approved 4 turbines on the windfarm site, Western Power constrained the voltage to a maximum of 1.4 MW, resulting in only 2 turbines being constructed. In 2021, Totally Renewable Denmark (TRD) was formed with the hope that it could encourage the building of two more turbines on the site. To date, negotiations with Western Power have failed to green light this extension. Again, the sticking point is the cost of upgrading poles and wires which Western Power demands falls to DCW. Innovative proposals to utilise additional power on the site with a battery bank behind the switchboard for use in swap out batteries for electric truck transport is being investigated. The pumped hydro power project in Walpole is an important addition to meeting the Totally Renewable Denmark objectives. Other possible projects including auditing and energy reduction, a wind turbine in another location close to Denmark, an increase in PV on homes and businesses, potential for pumped hydro located in Denmark and bulk purchase of equipment to speed up the switch to all electric home and transport are also being investigated.

TRD aims to see Denmark become 100% renewable across all sectors, 24/7 by 2030. We are driving at

- A Reduction Revolution – less energy, waste and resource use and doing more with less
- Electrify everything running off 100% renewables
- Acting to reach Denmark's low carbon future with carbon emissions approaching zero
- Generating local jobs and local investment in Denmark's low carbon future
- Inspiring action locally and in other communities

The Denmark Shire has a strong commitment to renewable energy and action in the face of climate change, and a community with appetite to sign onto this objective.

The TRD working group has received funding through the community fund to develop a program of community consultation towards producing an Action Plan This will detail next steps and allow the proponents to seek further funding to develop more renewable energy generation, storage and microgrid options for Denmark. TRD is acting as a facilitator for this to be achieved. It will require advocacy to government to support community initiatives, the development of financially and technically viable renewable energy generation and storage options to be identified, and a marketing strategy to attract the necessary investment. We are optimistic and keen to make it happen quickly.

The community of Denmark have worked hard over more than two decades to achieve all that they have achieved. The journey has been arduous. Some of the greatest difficulties have included the paperwork required by state and federal governments and their enterprises; changes in ministers; voltage constraints imposed by regulation; and the need to seek Synergy's agreement for expansion of the Windfarm. The line upgrade required to allow a further two turbines to expand onto the grid is estimated to cost $100,000 per kms for a distance of 10kms. While Synergy are not interested in smaller scale renewable energy, Western Power have voltage management issues. They also don't have a clear management plan for incorporating future developments into their system, such as more renewable energy and the uptake of Electric Vehicles (EVs), which we believe they significantly

underestimate. With impediments in policy and vision at governmental levels, TRD is driven to look at innovative ways of expanding the Windfarm and other community and business investment in energy reduction and renewable energy generation and storage.

A State Government focus on local community totally renewable initiatives such as Denmark would see multiple communities backing in behind the State Government climate change policy and targets for renewable energy production and consumption. This represents significant community goodwill and feeds individual and business willingness to invest in the energy reduction and renewables revolution together.

Transition Bridgetown / Bridgetown Energy Transition (*Aspiring*)

Bridgetown Energy Transition (BET) is a think tank composed of electrical engineers, off-grid home owners and people passionate about sustainability. The group has been active in the Bridgetown Community and has completed over 40 energy efficiency audits, delivering cost-savings for residents and conserving energy. BET has also facilitated the installation of over 150 KW of solar panels in Bridgetown-Greenbushes. We have also advised numerous people on the pros and cons of going off-grid.

Our main goal is to look at ways of decreasing the carbon footprint of the electricity grid in a timely manner, concentrating on what can be done by individuals and at a local community level. We are also keen that the individuals and local communities that invest money and time to achieve this goal should have some control and financial return for their efforts.

Initial research bought us to the conclusion that the best ways to achieve results in the short term would be to reduce power usage and to modify individual and local power demand and generation patterns. This would enable more individual and community solar power to be added to the local grid without causing grid stability problems. We concluded that battery storage would be a major factor in not only enhancing grid stability and soaking up excess solar energy but would also displace fossil-fuelled power generation when the sun isn't shining.

We have looked at the feasibility of a community battery in Bridgetown, funded through shares purchased by residents. However current laws and regulations make this impossible. Our current thinking is that batteries at individual premises might be a better solution. This has the added advantage that power to individual households, businesses and community organisations can be maintained during the frequent power outages in country areas. This is especially relevant during bushfires and other emergencies (as we have experienced recently).

There is huge untapped potential in the community to reduce energy consumption and our carbon footprint. People want to do something but don't know what to do. We need support to facilitate action and we need the barriers to reducing our energy usage to be removed. We need mechanisms to provide education to facilitate the transition to a low carbon future. Incentives, education and help from Government might be enough to 'push individuals over the edge' and leverage private capital.

We would like to see the installation of slow intelligent EV chargers in the streets and car parks in Bridgetown (and other towns). These could use excess solar power and could also provide grid stability services utilizing EVs that had Vehicle-to-Grid capabilities.

White Gum Valley Ecovillage (*Active*)

The White Gum Valley Ecovillage (WGV) is a housing development which, from the outset, was meant to comply with One Planet Living sustainability criteria (see - https://www.bioregional.com/one-planet-living). The Ecovillage comprises about 40 individual dwellings and three separate, multi-occupancy apartment complexes, Evermore, SHAC and Gen Y.

Purchasers were encouraged to generate their own electricity from rooftop solar arrays. Three multi-occupancy residential developments that are part of the Ecovillage also have battery systems for storing energy.

Annolies Truman and Barry Healy (residents of Evermore Apartments) and Louis De Villiers (resident in one of the individual dwellings) are activists in the project to more intentionally manage the already-installed solar power systems. They hope to establish a net zero emissions precinct.

All three are environmental activists. Annolies and Barry are both involved with the Curtin University Sustainability Project and its associated RACE for 2030 CRC around the topics of energy democracy, shared community energy, and net zero precincts.

In the WGV Ecovillage these elements of a net zero emissions precinct exist:

A single sub-station serving the Ecovillage

Substantial solar arrays on all housing

Battery storage, allowing power-sharing in the Evermore, SHAC and GenY apartments (An unknown number of other houses may also own individual batteries)

Peer-to-peer trading for Evermore, SHAC and GenY residents

The One Planet Living sustainability framework to guide residents' choices

Residents concerned about the energy transition

Three residents have set up an EV cooperative, owning and operating one EV between them.

Residents of the three apartment complexes have been left with a legacy of three different companies who are paid to manage the system and energy trading. Powerledger controls the electricity trading software. CCR (Climate Change Response) collects usage data. The collated usage data is given to a strata management company to issue power bills. Each company charges for its service.

The commercial operators have their own business dynamics and are not good at explaining information to residents who feel confused and disempowered about managing their solar assets. The group experiences apparent lack of interest from Western Power, who do not seem to want to deal with micro-grids. The experience they have had with partnerships is very disappointing.

WGV Ecovillage has existed now for 4.5 years, and some residents are asking questions about how the promise of sustainability matches the reality. Their expectations, largely gained from the promises made by LandCorp through the marketing phase, have not entirely come to fruition. Although Fremantle Council is signed up to the principles of One Planet Living, and the developers of Evermore, Yolk Developers, adopted it as their standard, its application has been inconsistent.

Yolk are thought to have used questionable accounting methods to get One Planet Living accreditation while the builders, Jaxon, are believed to have cut further corners in construction. Evermore residents have investigated the Australian Building Codes, but it seems that no one can be held accountable. This adds to greater frustration for the group.

Annolies, Barry and Louis have adopted the strategy of holding White Gum Valley-wide community meetings in order to expand the 'leadership' of the project. They seek to establish community 'buy-in'. They are hoping to find a wider network of associates with knowledge and experience in CREATE.

They convened a community meeting in December to discuss getting a community-wide storage battery. The meeting also heard a report-back from the Sharm el-Sheikh IPCC gathering from Professor Peter Newman and an introduction to the work of CREATE. There is another community battery campaign in Hilton, led by Mick Broderick, which is communicating with the WGV group.

D. The Workshop Program

The Workshop

The workshop was facilitated by Professor Petra Tschakert, of Curtin University. Working under her expert guidance were experienced facilitators and renewable energy researchers. Amongst these were Dr Tania Urmee and Dr Jonathan Whale, both of Murdoch University, Emilia Lawonski of Energetics, and Wai Wan, research student at Murdoch University. Other resource people who attended included Liz Aitken of Empire C&E; Tirthankar Banerjee of Oztron Energineering; and Mark Batty of Southern Forest Consulting. The workshop was organized by Dr Rose Ferrell, founder of the Pemberton climate action group, Clever CLOGS, and convenor of the new peak body for CRE, CREATE.

Over a single day, participants from six of the seven member groups addressed questions regarding the issues they faced in developing their projects, the solutions they had found, the opportunities in front of them, and the blockages they came up against. These were discussed under four themes – the realities of running a community energy project. The themes were: Financial; Governance; Technical and Regulatory/Legislative issues. Many of the blockages discussed were related to the context in Western Australia, where two monopoly government trading organisations (GTEs) – Western Power and Synergy – have the priority rights to transmit, generate and retail power to non-contestable customers in the South West Interconnected system.

The workshop was supported by grant funding from Energy Policy WA; with sponsorship from Murdoch University; in-kind sponsorship from Curtin University; and funds from an unnamed donor. The workshop was held on Thursday 24th November in Bridgetown, Western Australia.

References

Australia Institute, (2023) *Fossil fuel subsidies in Australia 2023: Federal and state government assistance to fossil fuel producers and major users in 2022–23, p. 39.* Authors: Rod Campbell, Liz Morison, Piers Verstegen, Morgan Harrington, Alexia Adhikari, Kristen Scicluna, Evie Simpson, Lilia Anderson.

Community Power Agency, https://cpagency.org.au/about/community-energy/, Accessed April 2023

Western Australian Government, (2019). *Western Australian Climate Policy: A plan to position Western Australia for a prosperous and resilient low-carbon future.*

Western Australian Government, (2020).*Whole of System Plan Report*.

Western Australian Government, (2020) *Distributed Energy Reources Roadmap*

Western Australian Government *, (2023).South West Demand Assessment 2023 to 2042: A future ready grid*