BUSINESS RENEWABLES CENTRE AUSTRALIA

BRC-A Webinar
24 February 2021

Queensland Government

TRADE + INVESTMENT QUEENSLAND

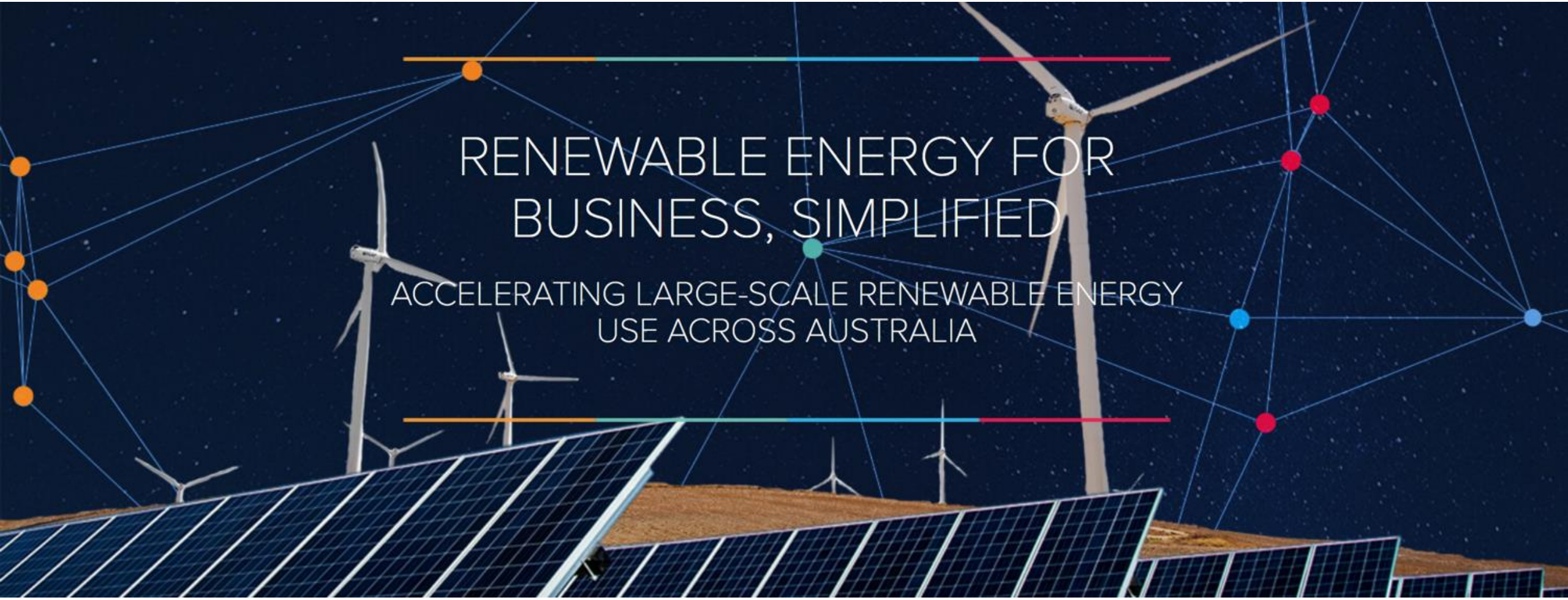
Queensland Energy Transition | Race to the Top

Business Renewables Centre Australia
@BRC_Australia

BUSINESS RENEWABLES CENTRE AUSTRALIA

Queensland Energy Transition

24th February 2021

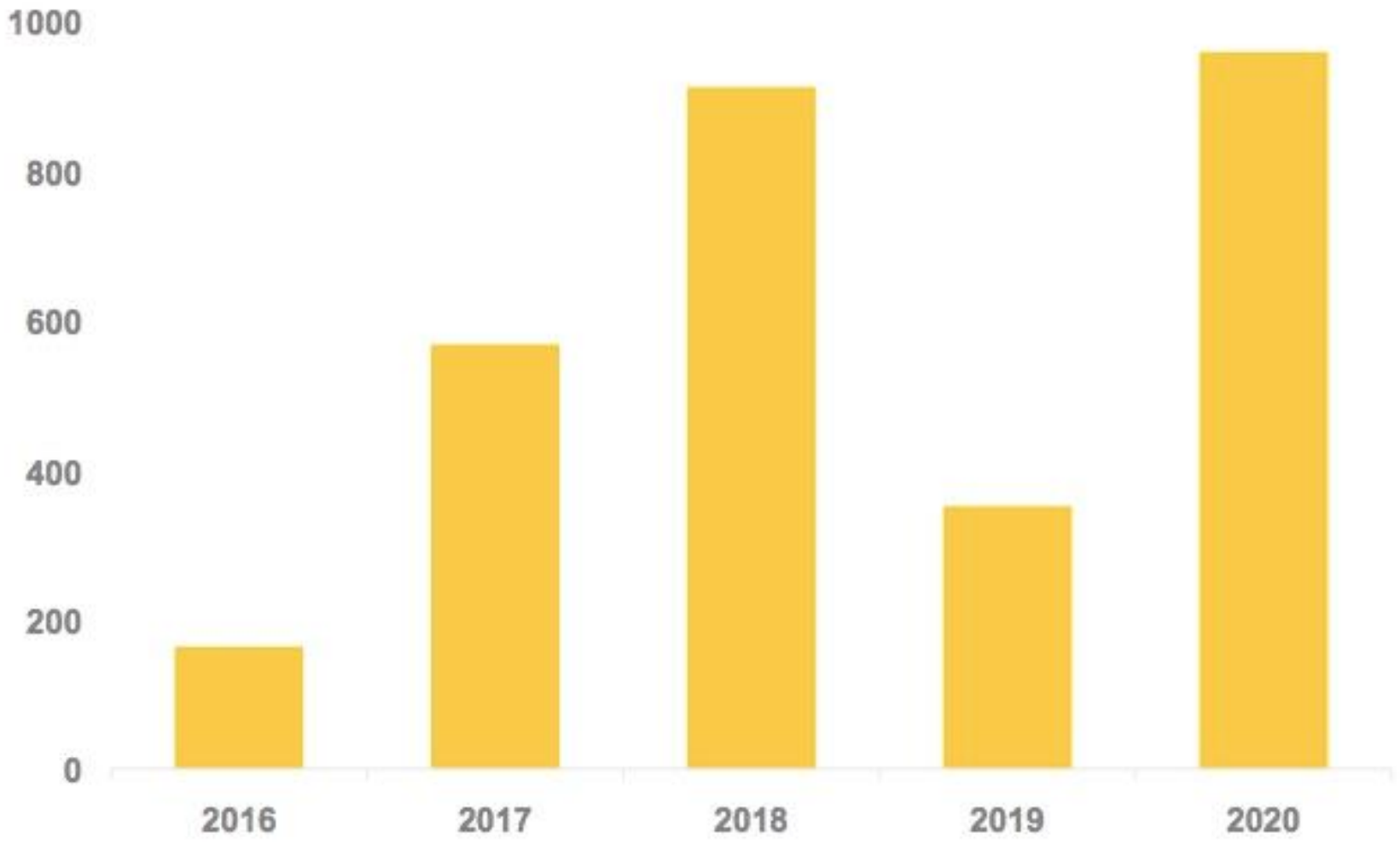


Jonathan Prendergast, Technical Director, BRCA

Corporate PPAs - Opportunities

@BRC_Australia

2020 will be a record year for Corporate PPAs



21 PPAs over 2019-20

- Large corporates (Amazon, Shell)
- Councils (City of Sydney, Adelaide, Newcastle)
- Infrastructure (Transurban)
- Retail (Coles, Aldi)
- Manufacturing (Molycop, Advanced Circular Polymers)
- Hospitality (Australian Hotels Association)

Source: BRC-A Database

Why Renewable PPAs?

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	1. Sustainability ✓	2. Hedge Value ✓	3. Cost Saving ?
Why	• Enhance brand • Meet green targets • Sustain business value	• 'Lock-in' acceptable electricity prices for portion load to support operations and planning	• Use a renewable energy PPA to save money • Often catalyst for considering PPA amidst high/rising prices
Key point	• Strongest case where organisation has targets • Emissions reductions from on-site options often have limits • PPA's can achieve targets quickly	• Doing nothing leaves an organisation exposed to wholesale electricity market volatility • Exposure to wholesale market risk can be balanced	• Expect lots of scenario modelling to test outcomes • Energy bill savings can be achieved - but cost reduction for long-term PPA cannot be 'proven' • Always an important part of discussion but risky to make sole or primary rationale

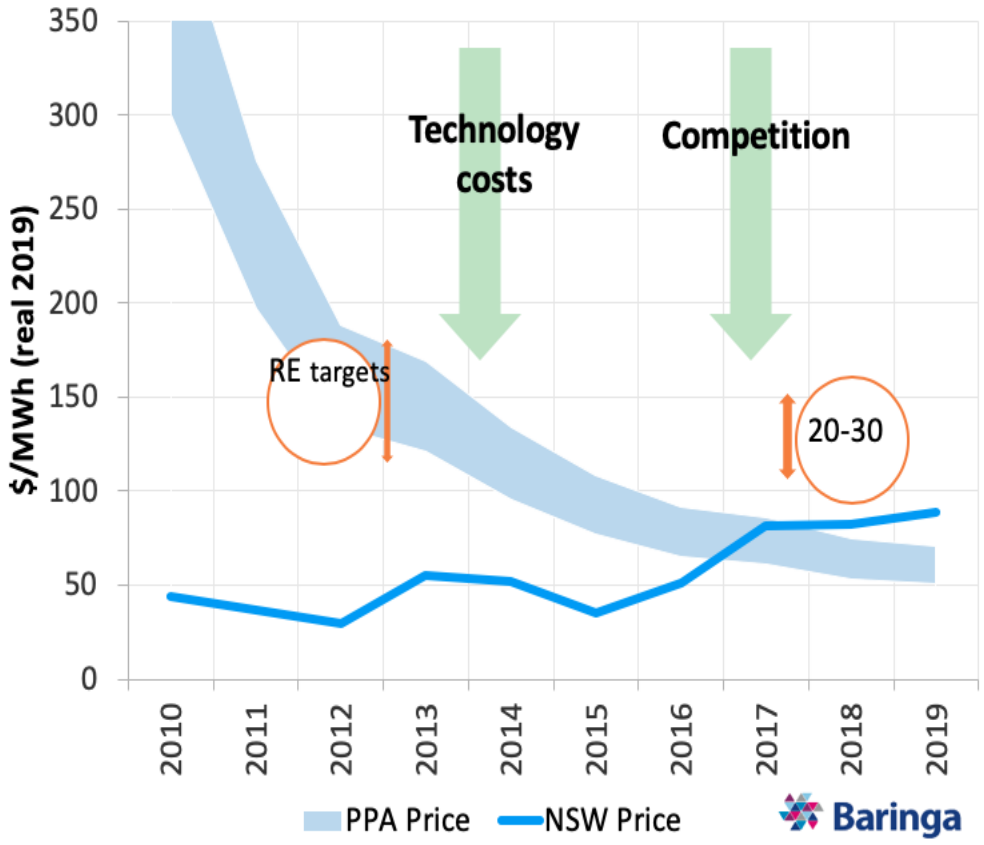
Why PPAs?

- Fastest way to reach ambitious targets
- Volatility of electricity market
- Renewable energy cost reduction: **Cheap enough for benefits to be worth the costs**

An energy buyer may seek a PPA to secure lower energy pricing as a PPA can reduce the cost of electricity below standard retail offer.

'A well negotiated PPA can potentially provide savings between 15-47% on the energy component of a typical electricity bill expected in 2020' (Energetics, 2018)

Technology costs and competition mean renewable PPAs can offer savings to market price



How does a PPA work?

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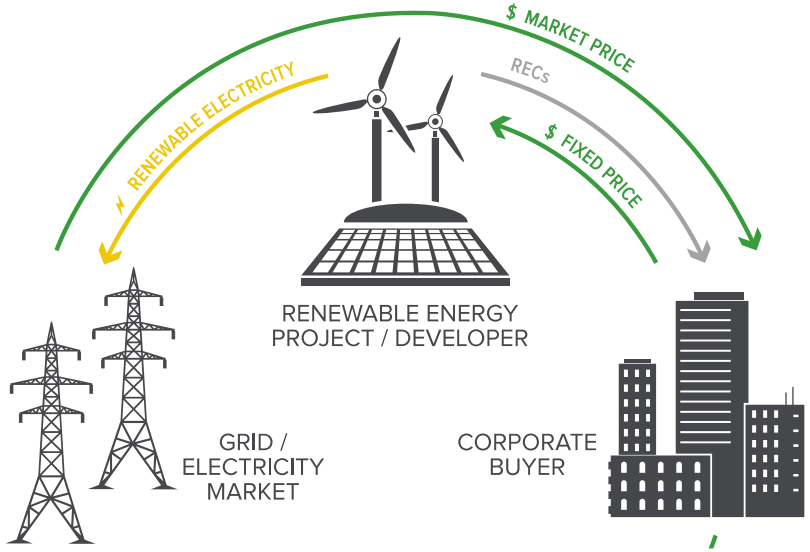
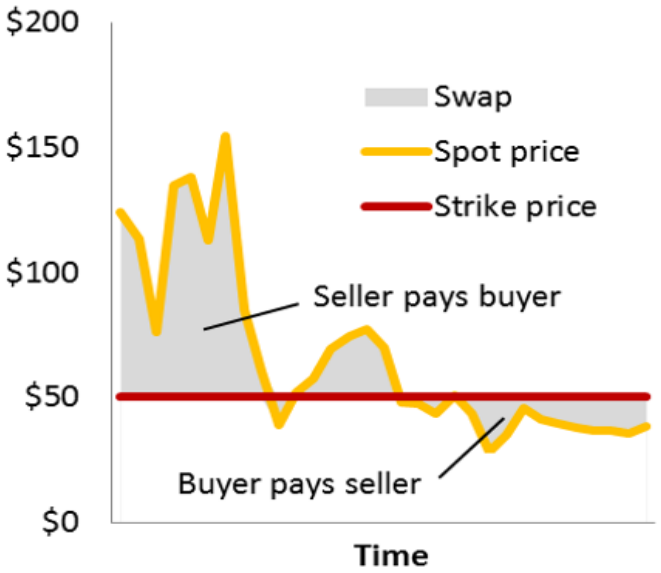
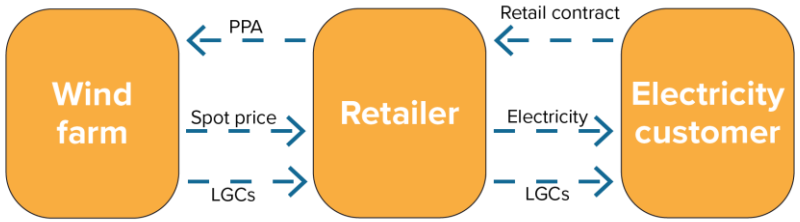
WHOLESALE

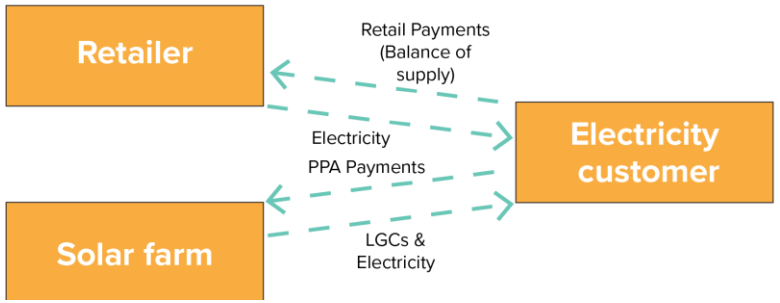




RETAIL-LINKED PPA



SLEEVED



Scale of PPAs

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Very Large	200 GWh + p.a.	Over 100 MW	Project finance over $100m	Very cost competitive PPA
Large	50-200 GWh p.a.	Over 30 MW	Project finance over $30m	Competitive PPA
Medium	20-50 GWh p.a.	Over 10 MW	Finance mix	Partial PPA
Small	Under 20 GWh p.a.	Under 10 MW	Project finance challenge	Other options

Case Study – Newcrest Mining

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Example Deals for Impact

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Deal	Project	Details
Griffith, QUT and CQU	162 Columboola Solar Farm	350 GWh solar farm for ~150 GWh of buyer demand. Facilitated by CS Energy.
ACT PPAs	Goyder Renewable Hub (SA) Berrybank Wind Farm (Stage 2) (Vic)	100 MW offtakes. Includes 50 MW and 10MW/20MWh batteries respectively in ACT
VIC PPAs	6 PPAs with Wind and Solar Farms	Included local assembly of wind turbines, and local procurement of wind towers and transformers
City of Sydney	Flow Power PPA (Bomen Solar Farm, Sapphire Wind Farm, Shoalhaven Solar Farm)	Social Impact - Included PPA with Repower Shoalhaven Community Solar project
MREP 2.0 - RMIT	29 MW Yaloak South Wind Farm	Group Deal facilitated by City of Melbourne, Lead by RMIT
Newcastle City Council	5 MW Summerhill Solar Farm	Advocating with local industry and PPAs, Hunter battery manufacturing, Renewable Energy Zone

Here comes the resources sector

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Organisation	Deal / Project	Details
GFG Alliance – Liberty Steel	280 MW Cultana Solar Farm. Plus battery / pumped hydro	
Newcrest Mining	412 MW Rye Park Wind Farm (Yass, NSW)	
BHP	CleanCo Retail PPA • 400 MW Western Downs Solar Project • 1,000 MW McIntyre Wind Farm	
Abra Base Metals	6 MW Solar / 2 MW battery PPA (plus gas)	Lead & Silver mine (WA)
Shell	120 MW Gangarri Solar Farm	
Zinc Sun Metlals	120 MW Solar Farm (QLD)	

More information

BUSINESS RENEWABLES CENTRE AUSTRALIA

www.businessrenewables.org.au

or contact:

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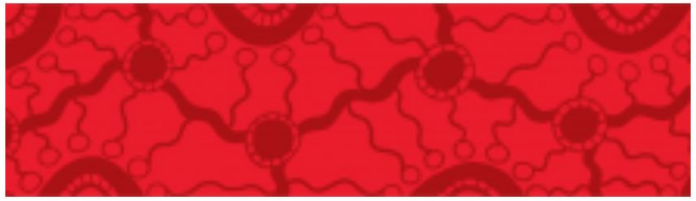
Addressing the SDGs through Corporate PPAs

Simon Currie



Goal 1: No Poverty

The black circles in the middle of the work symbolise access to finances with pathways leading to all people and all communities which would eliminate poverty. The semi-circle designs symbolise communities while the white circles attached to the thick black paths symbolise the individual.

Goal 2: Zero Hunger

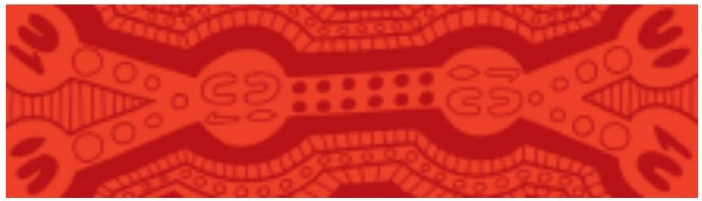
The oval shaped symbols represent coolamons filled with food and the line work connecting them symbolises the tracks made to make this food available for all. The black dot designs symbolise communities and their access to food to prevent hunger.

Goal 3: Good health and well-being

The circular designs on the left and right sides of this work represent good health and wellbeing within all communities; while the line work connecting it to the oval designs and the black dots surrounding the circle designs in the centre symbolise the paths available to good health promotion and treatment options available for everyone.

Goal 4: Quality education

The larger 'U' shaped symbols represent elders sharing and passing down their knowledge to the next generation (symbolised by the smaller 'U' shaped symbols). The line work connecting them shows the transference of knowledge to all who wish to gain a quality education.



Goal 5: Gender equality

The 'U' shapes with spears beside them symbolise males while the 'U' shapes with the coolamons beside them represent females. The line work shows the journey of them being segregated (with males generally being favoured and have been placed at the top corners of the work to symbolise this) but traveling to meeting points in the centre where everyone be equals.

energy estate

Goal 6: Clean water and sanitation

The quarter/semi circles symbols in the left and right corners of the work symbolise water holes and the line work connecting them symbolises the cleaning and filtration system rivers and streams provide to represent the importance of having clean water and sanitation systems in place.

Goal 7: Affordable and clean energy

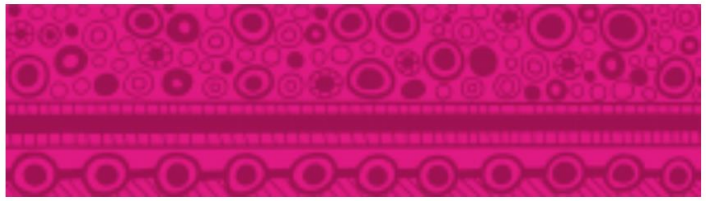
The circle design in this work symbolises the sun and the line work attached to it is the sun rays coming from the sun to provide affordable and clean energy to all. The black circles within the sun symbolises the community access to this. The black circles lines and squares within the sun rays represent the variety of options to make it available for everyone.

Goal 8: Decent work and economic growth

The line traveling upwards diagonally through the centre of the work symbolises a pathway to success and the line work below it is a mountain symbol representing growth within communities. The black rectangle designs are interpretations of shelters which symbolise the protection of access to decent work opportunities.

Goal 9: Industry innovation and infrastructure

The black circles attached to the black line running through the centre of the work symbolise new ideas or industry innovations while the line and dot work below represents the infrastructure that builds up communities. The white circles surrounding the circle design in the top half of the work symbolises the community and their access to infrastructure and involvement in progress.



Goal 10: Reduce inequalities

The top half of this work has different sized, coloured and shaped circle designs symbolising people of all race, age, gender, abilities, sexual orientation, and socio-economic background promoting reduced inequalities for all. The bottom half of the work represents past inequalities by using the same symbol repetitively connected by a black line symbolising a pathway that had to be followed. The line separating the two sets of symbols represents the pathway to reduced inequalities.

Goal 11: Sustainable cities and communities

The large black dots in this work symbolise cities while the white dots in this work symbolise people/communities who live and work in the cities. The semi-circle designs symbolise the necessities such as food, water and shelter to create sustainable communities. The line work connecting the communities and cities to the semi-circle symbols represent the pathways available to take to achieve this.

Goal 12: Responsible consumption and production

The black and white circles connected by a white path symbolises individual people and the journey or cycle of responsible consumption and production. The circle designs inside and outside this track represents whole communities and the tracks are connecting them to resources available.

Goal 13: Climate action

The straight-line work in the bottom of the work symbolises the land and mountains while the curved lines represent the rivers and streams. The semi-circle symbolises the sun and below it are symbols for wind and rain. The pathways within the sun symbolises the journey of climate action to protect our community.

Goal 14: Life below water

The line work in the bottom of the work symbolises the sand under the ocean and above it are symbols for sea life in the water. The top half of the work represents the shore line where life below the water meets the land with the semi circles symbolising the sun rays shining down.

Goal 15: Life on land

The bottom half of the work are symbols for sand and mountains representing the land we live on. The line with black dots represents the pathways we travel and the black path with white dots symbolises opportunities that are available to access on land by the community (the circle symbols in the top half of the work).

Goal 16: Peace, justice and strong institutions

The circles in the bottom half of this work symbolise individuals and the black paths connecting them represent peace for all. The rectangle designs in the top of the work are shelters/buildings which symbolise strong institutions and that justice for all is available through the pathways.

Goal 17: Partnerships for the goals

The two circle designs overlapping each other on the left and right of the work represent different communities joining together to create a strong partnership for goals beneficial to all. The circle in the centre shows this successful partnership working towards the goals, while the line work connecting them show this pathway or journey. The line work at the top of the work are representation of individual goals being achieved.

Department of Energy and Public Works

Queensland Renewable Energy Zones

Stephanie Jolly
Executive Director, Energy Policy
Energy and Public Works

24 February 2021

Queensland Government

QREZ commitment

Funding

$145 million to unlock three QREZ corridors in Northern, Central and Southern Queensland

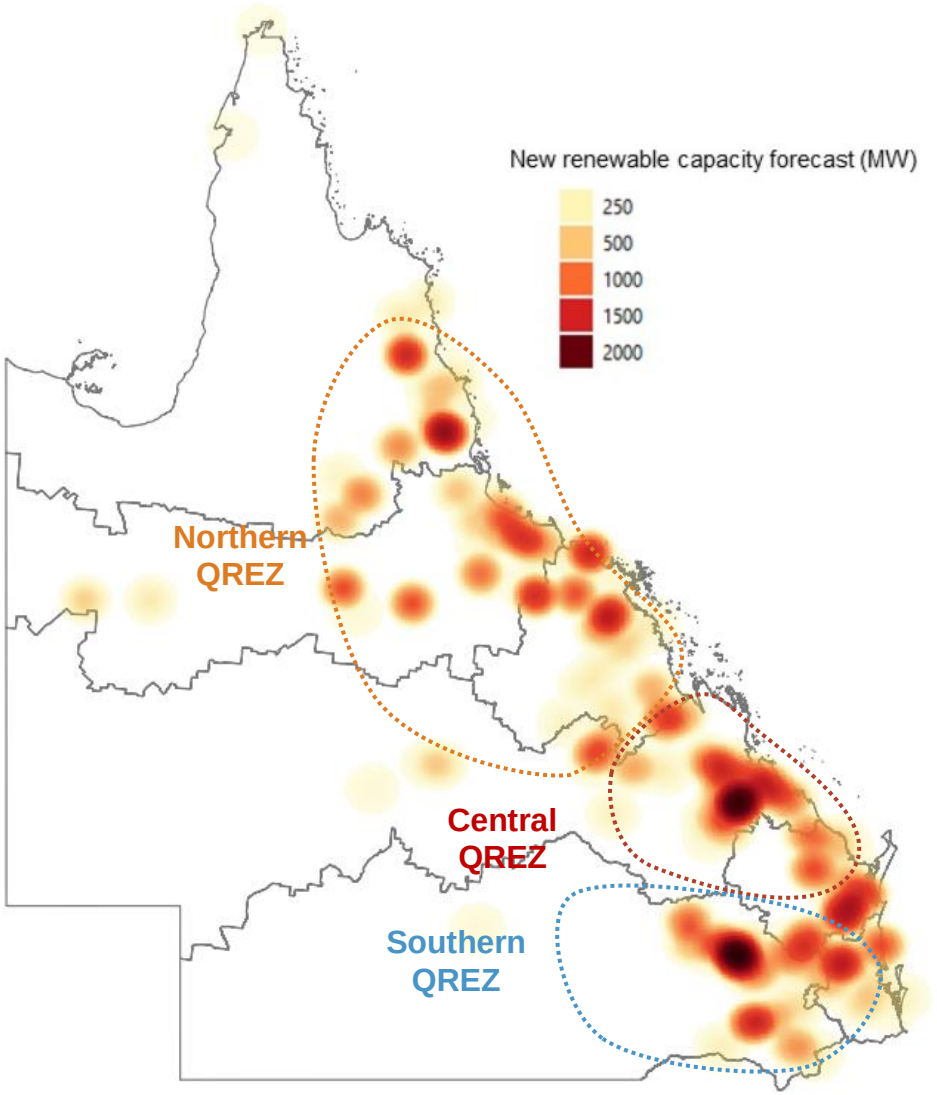
QREZ design

Demand – putting electrons to good use

- Qld Gov is taking a unique approach by looking at demand side opportunities and barriers, not just how to bring in more supply.
- Talking to business to understand their objectives around energy and decarbonisation.
- This will inform design to deliver economic benefits for communities and industry and sure up more supply.
- Each region and industry has unique opportunities and challenges

Supply – investors are ready

- 192 projects have registered their interest
- 60,699 MW of total capacity
- Projects represent more than $93.7 billion in investment and 57,000 construction jobs
- 70% of projects include storage

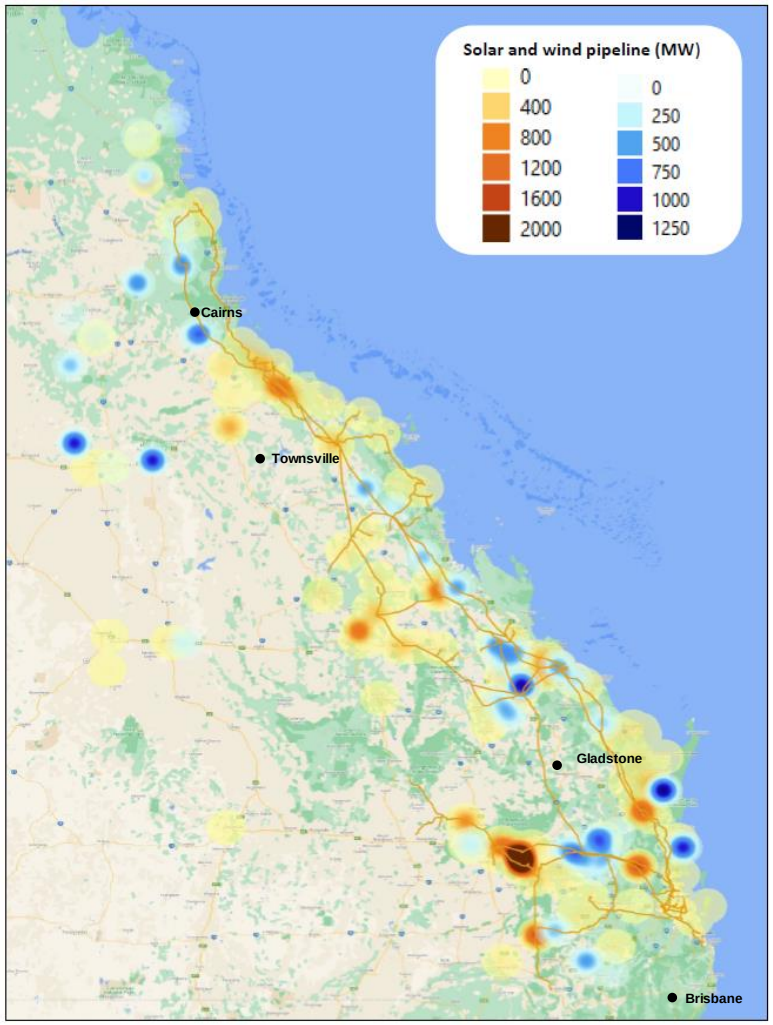


2030 Vision for Queensland

Achieving Queensland's 50% Renewable energy target will support:

- Investment across our regions
- Global competitiveness in "green" markets
- Globally competitive energy prices
- Leadership in the commercialisation of R&D in renewables and "green" products
- Highly skilled workforce to support on-going innovation and industrial growth

Potential for renewable supply to 2030



Source: DEPW – current and prospective projects

Pairing renewables with economic opportunity

Job creation

- Jobs in engineering, procurement and construction
- Jobs in ongoing operation & management
- Green manufacturing industry development

Indirect jobs

- Contracting local businesses
- Employment in upstream trades and supporting businesses

Communities

- Benefit funds finance community projects
- Co-investment and supply agreements help local groups access financial benefits

Customer benefits

- Access to cheap energy
- Greater flexibility on energy use
- Certified green energy inputs to deliver competitive green products internationally

How QREZ might benefit energy users

Energy decisions are shifting and rapidly becoming strategic business decisions:

- From cost to opportunity
- From an operational consideration to a strategic consideration
- From hidden business driver to a visible driver
- From accounting departments to the boardroom

Key areas of interest we're hearing from users:

- Potential for reduced overall cost of electricity
- Increased control over energy costs
- Increased competitiveness through green credentialling and emissions reductions
- Increased social licence and community support

PPAs are one mechanism for matching energy supply opportunities to these areas of interest

Questions:

- Where are might this mechanism be most effective?
- What are the barriers to it?

cleanco™ queensland

Renewables-linked electricity agreements

Business Renewables Centre of Australia

24 February 2021

Commercial-in-confidence

Kareeya Hydro

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Contents

- About CleanCo
- How energy users can meet targets relating to renewables and/or emissions reduction
- Why CleanCo?

Koombooloomba Dam

cleanco™ queensland

About CleanCo

- Established in late 2018 as a Queensland Government-owned corporation to help to improve electricity affordability, contribute to the achievement of Queensland's 50 per cent renewable energy target by 2030, support secure and reliable electricity generation, and create new investment and jobs.
- Commenced trading in the market on 31 October 2019 when a number of low-emission foundation assets were transferred to CleanCo from CS Energy and Stanwell.
- We have more than 1,100 MW of these assets under management in Queensland, and are targeting another 1,400 MW of new renewable projects in Queensland by 2025 (of which we have already achieved 930 MW through direct ownership and contracting offtake).
- Secured our retail electricity licence in February 2020 to be able to retail in all states in the NEM except Victoria.
- Keen to partner with large commercial and industrial companies (and government) to tailor solutions to their individual requirements.
- Our specialty is providing retail and wholesale agreements, that package an allocation of multiple renewable projects with firming capability utilising our low-emission foundation assets, to assist companies achieve their sustainability objectives in an easier and more cost-effective manner.

Wivenhoe

CleanCo's portfolio of cleaner energy assets

Foundation Assets

Wivenhoe Power Station
570 MW capacity
Pumped hydroelectric
Commenced 1984

Swanbank E Power Station
385 MW capacity
Combined cycle gas
Commenced 2002

Barron Gorge, Kareeya and Koombooloomba Power Stations
Combined 165 MW capacity
Run-of-river hydroelectric
Commenced 1957 (Kareeya)

Combined emissions intensity since inception at CleanCo **0.336**

Queensland NEM intensity **0.759**

New Renewable Projects

Western Downs Green Power Hub
400 MW capacity
320 MW PPA with Neoen
Expected to commence late 2022

MacIntyre Wind Farm
923.4 MW capacity
400 MW PPA with Acciona
Expected to commence mid 2024

Karara Wind Farm
102.6 MW capacity
CleanCo will own, Acciona to build
Expected to commence early 2023

Kaban Green Energy Hub
156.8 MW capacity
110 MW PPA with Neoen
Expected to commence early 2024

Lots of commitments being made to emissions reduction

Queensland commits to 50% renewable target by 2030

Renew Economy, 14 May 2015

NSW promises to build more renewable energy than Victoria and Queensland combined

The Guardian, 10 Nov 2020

South Australia set sights on stunning new target of 500 pct renewables

Renew Economy, 16 Dec 2020

WA sets net zero emissions target for government agencies

The Mandarin, 1 Dec 2020

Australia needs to cut emissions by at least 50% by 2030 to meet Paris goals, experts say

The Guardian, 28 Jan 2021

BHP targets 30% cut in carbon emissions by 2030

Financial Times, 10 Sep 2020

Mirvac commits to 100% renewables as RE100 experiences banner year

pv Magazine, 6 Dec 2020

Orica's 2030 emissions reduction target the 'right thing to do'

Sydney Morning Herald, 20 Nov 2020

ALDI Australia commits to 100 per cent renewable electricity

Food & Beverage Industry News, 3 Sep 2020

Big Australian polluters band together to plan how to achieve net zero emissions by 2050

ABC News, 27 Jul 2020

How can an individual end-user meet their targets on electricity?

Physical options

1. Invest in energy efficiency

- ✓ Direct reduction and highly tangible
- ✓ Reduced ongoing energy costs
- ✗ Can require a reasonable capital investment
- ✗ Can only reduce so much

2. Onsite generation (e.g. rooftop solar)

- ✓ Direct offset of energy usage
- ✓ Reduced ongoing energy costs
- ✗ Can require a significant capital investment and create more costly residual load shape
- ✗ May not have the location for significant generation

Financial options

1. Direct renewable project offtake agreement

- ✓ High profile with marketing opportunities
- ✓ Cost benefits leveraging large-scale projects
- ✗ Lots of risk – volume and/or price risk, legal risk, project risk

2. Renewables-linked retail agreement

- ✓ High profile with marketing opportunities
- ✓ Cost benefits leveraging large-scale projects
- ✓ Risks listed above generally reduced
- ✓ Easier to diversify with multiple projects
- ✓ Increased flexibility with contract duration
- ✗ Less control over choice of projects

CleanCo has been helping energy users with this style of contract

BHP's Queensland mines to reduce emissions from electricity use by 50 per cent

"BHP has signed a firm renewable power purchasing agreement to meet half of its electricity needs across its Queensland Coal mines from low emissions sources, including solar and wind."

".... will also support the development of new solar and wind farms in Queensland – the Western Downs Green Power Hub due for completion in late 2022, and Karara Wind Farm due for completion in early 2023."

".....the newly operational solar and wind farms are expected to progressively contribute up to half the electricity requirements, with the remainder supported by CleanCo's low emissions portfolio. Combined with large-scale generation certificates, this will enable BHP to reduce Scope 2 emissions from its Queensland operations by 50 per cent by 2025."

https://www.bhp.com/media-and-insights/news-releases/2020/09/bhps-queensland-mines-to-reduce-emissions-from-electricity-use-by-50-per-cent/

Coles to source more than 90% of QLD electricity needs from CleanCo

Ten-year partnership supports renewable energy growth and creates 800 jobs

".....Coles will source more than 90% of its Queensland electricity requirements from CleanCo, after entering into a landmark 10-year agreement....."

"The Western Downs Green Power Hub, set to be Australia's largest solar farm once built, and the MacIntyre Wind Farm, one of the largest wind farms to be built in the southern hemisphere, will supply three quarters of the Coles' electricity requirements, with the remainder supported by CleanCo's low emissions portfolio."

https://www.colesgroup.com.au/media-releases/?page=coles-to-source-more-than-90-of-qld-electricity-needs-from-cleanco

CLEANCO QUEENSLAND LIMITED. ACN 628 008 159

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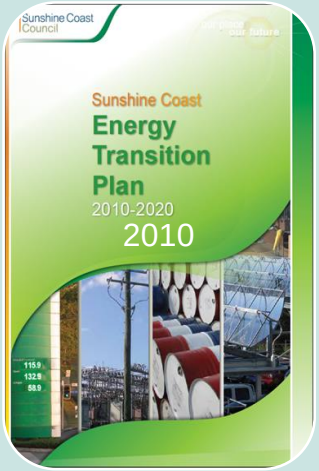
Sunshine Coast COUNCIL

Sunshine Coast Solar Farm

BRC – A Webinar 24 February 2021

To be Australia's most sustainable region – healthy, smart, creative



2012 Business Case Modelling

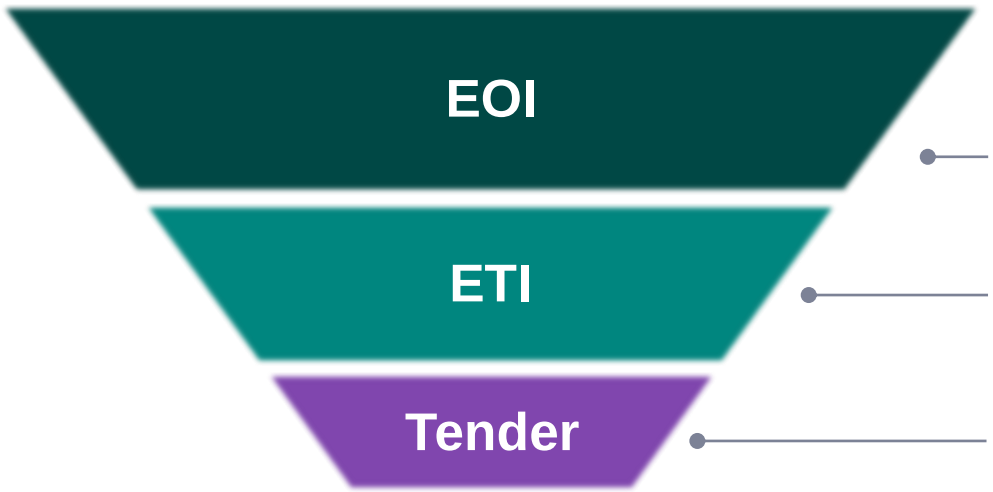
2013 Expression of Interest

2015 Tender

2016 Contract

2017 Construction

Procurement Design Construct Operate & Maintain



2013/14 - 48 Submissions, 10 interviewed – market knowledge

2014 – 4 Shortlisted Entities

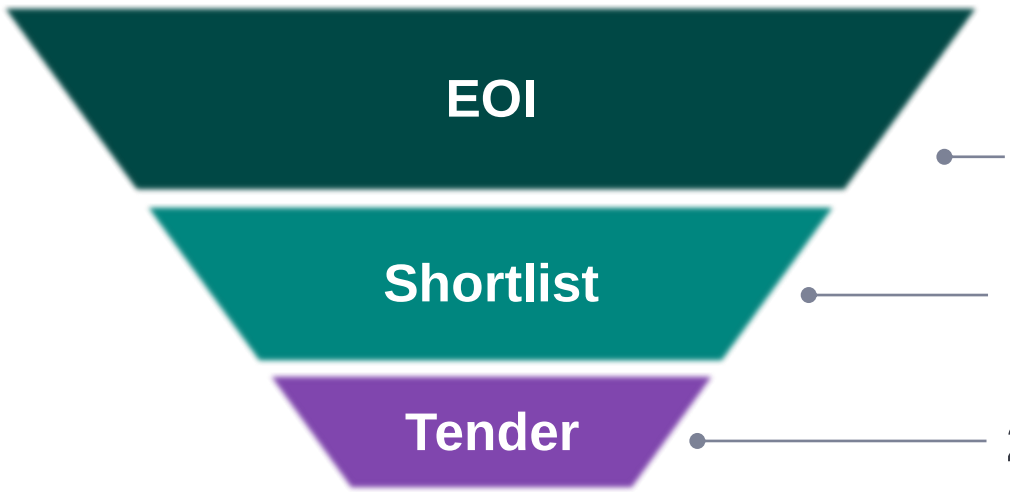
2015 – 2 Final Submissions

Preferred Supplier — **2015 – Downer Utilities**

SIGNED CONTRACT — **2016 – $37.5m for 'D&C'**

Downer
Relationships creating success

Procurement – Retail Electricity Services



2013/14 - 48 Submissions, 5 retailers – market knowledge

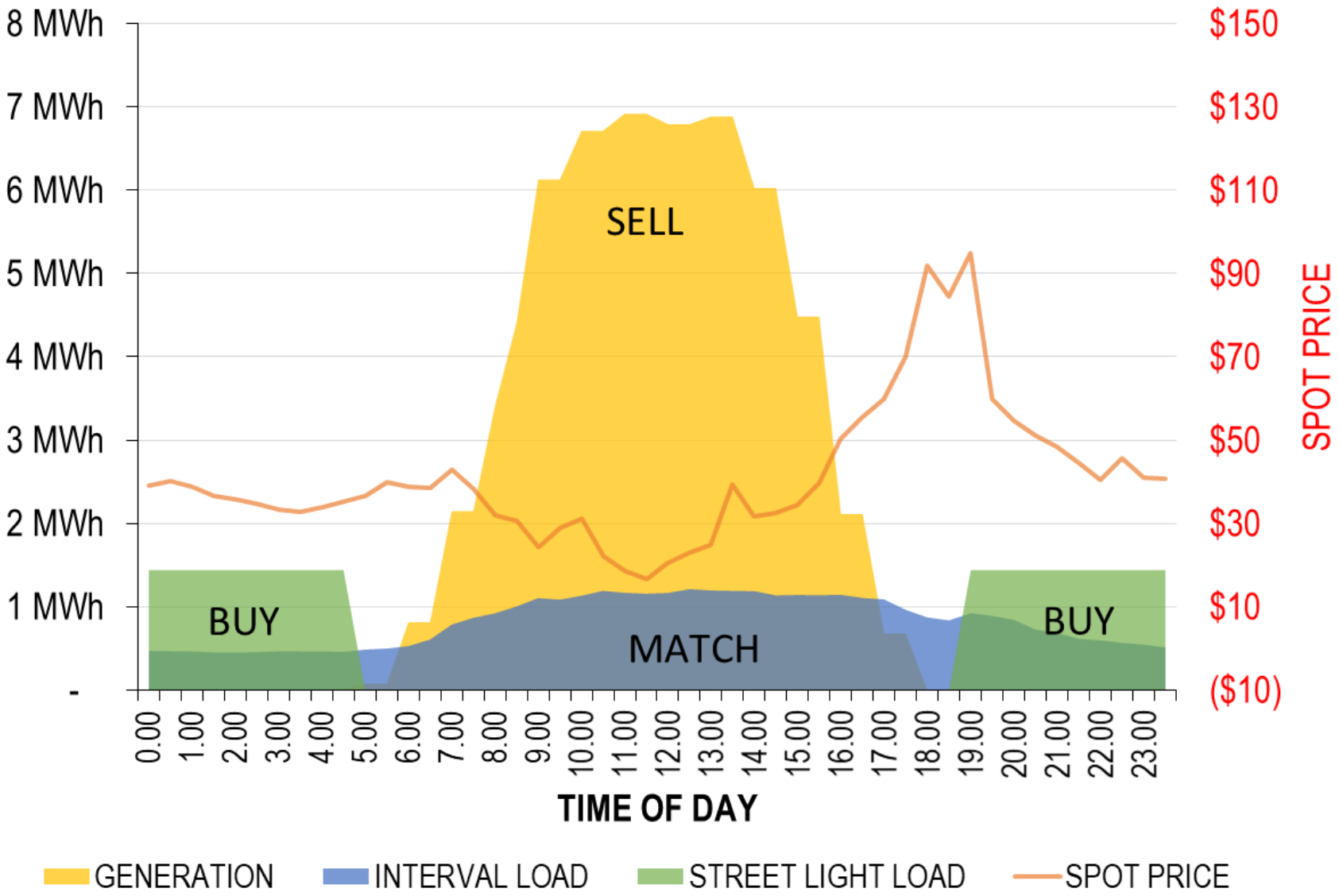
Interviewed all

2014 – 2 Final Submissions

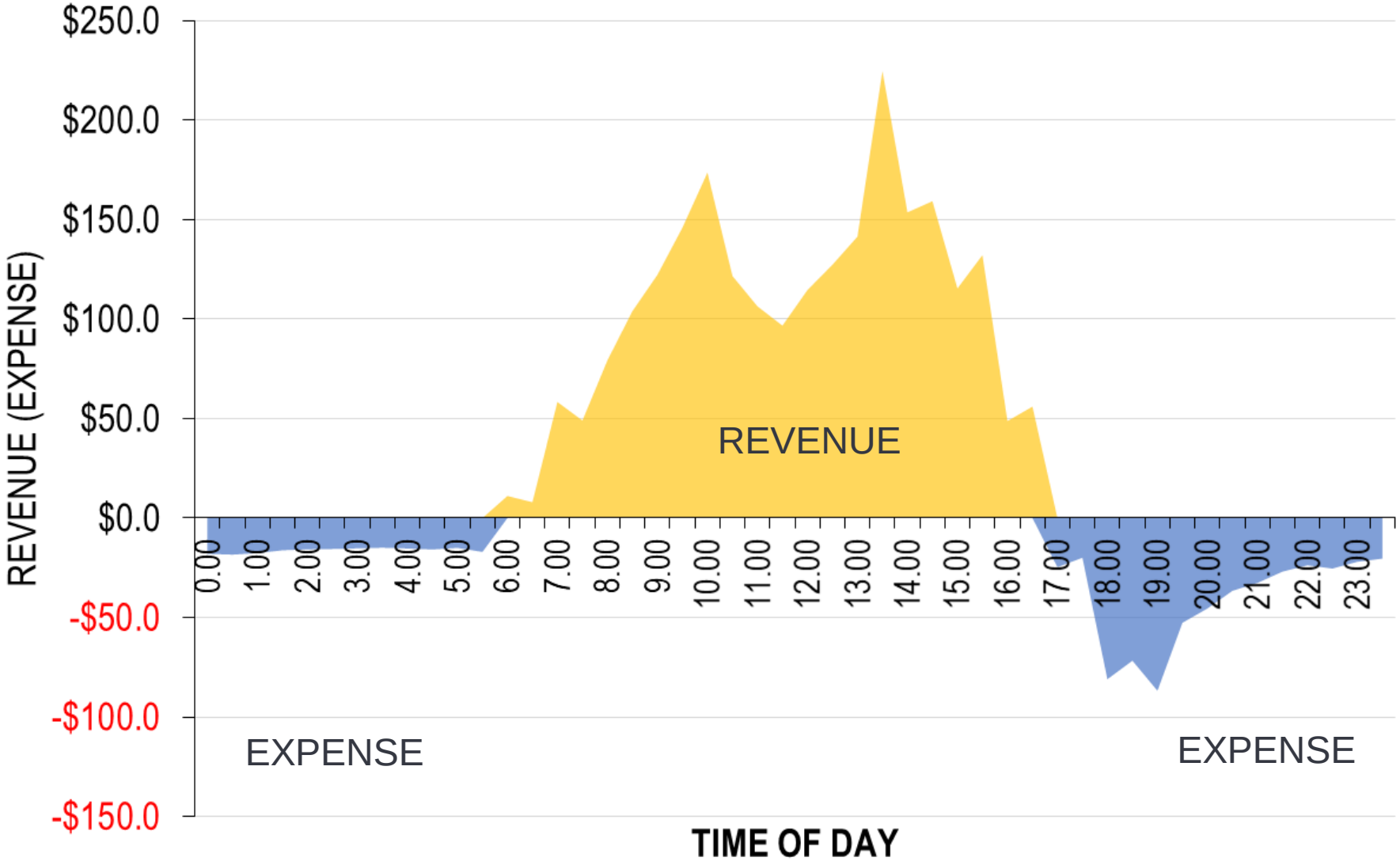
Preferred Supplier — **2014 – Diamond Energy**

SIGNED CONTRACT — **2014 ESA**
2017 PPT

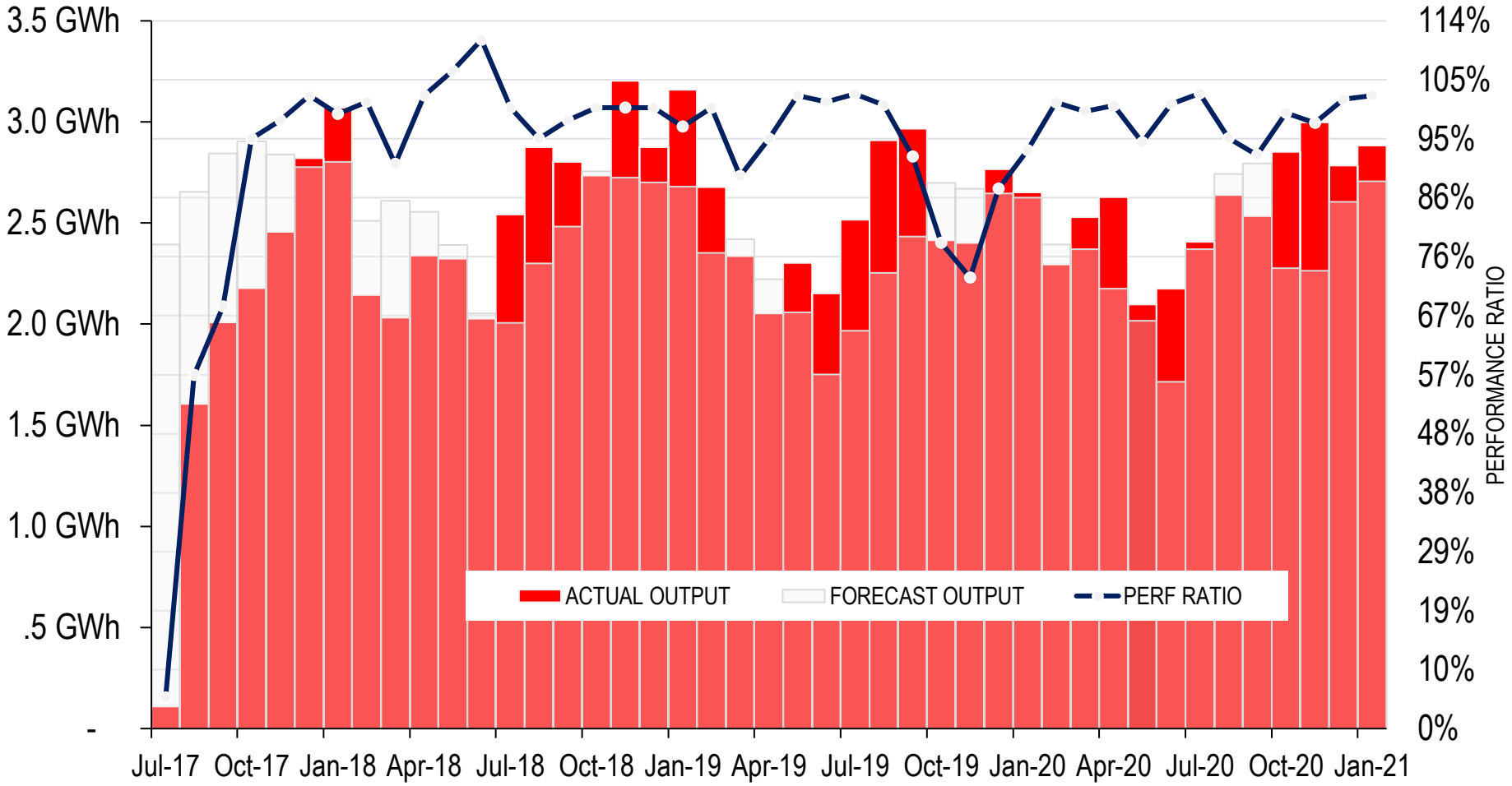
Solar Farm – typical day



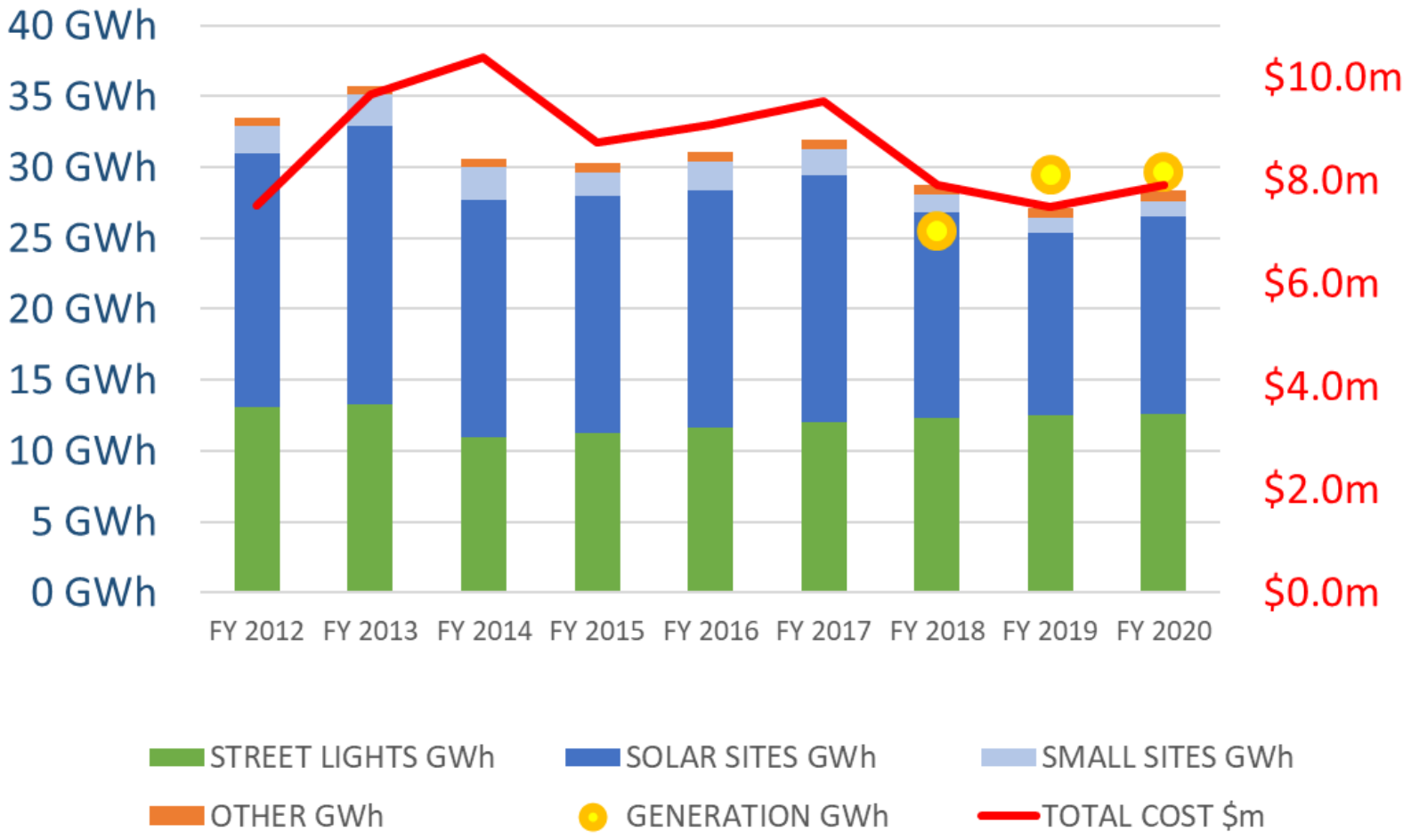
Solar Farm – typical day



Monthly generator performance v forecast



Electricity generation, usage and spend



Sunshine Coast Solar Farm

- 1st Council in Australia to build, own, & operate a Solar Farm
- 1st Council to 100% offset its electricity consumption
- 2nd Utility scale solar farm built in QLD, 7th in Australia
- 1st built without funding from the Federal or a State Government
- Enhanced Council's reputation for leadership, sustainability and innovation
  - strong interest and support from community
  - tours / presentations to 15 industry groups, 10 schools, 6 universities, 38 other Australian councils and 8 State and Federal government MPs & departments
  - Assisted with UQ's 70MW & Newcastle City's 5MW Solar Farm
- Council has saved $2.3m compared to the business as usual scenario

Thank you.

Sunshine Coast COUNCIL | Our region. Healthy. Smart. Creative.

See Council's website for further details
www.sunshinecoast.qld.gov.au