

# Commercial Solar Capability Statement







# RACQ is the majority shareholder in GEM Energy Australia.

Our investment in GEM Energy, an award winning solar and battery storage company, creates an unparalleled offering to Australia's solar energy market.

RACQ, a multi-disciplined and financially strong organisation, has been delivering services to Queensland for over 100 years with annual revenues of more than \$1.5bn. RACQ brings logistics experience and a commitment to safety and quality that complements GEM Energy's recognised capabilities in delivering technical and complex multi-site installations.

Together, our vision is to provide large and small-scale commercial businesses with integrated, turn-key energy solutions that allow for the management of energy consumption in a cost-effective and environmentally sustainable way.

This unity of two leading brands brings together the skills and capabilities of RACQ with the expertise and services of GEM Energy.

RACQ supports GEM Energy, with the aim to provide an optimal outcome for the client and for the broader community.

Debbie Thrupp RACQ General Manager Home and Energy



**GEM**ENERGY

## Unity of two leading brands



### **GEM**ENERGY



An Australian energy efficiency and renewable energy services provider, established in 2013 in Emerald. Queensland.



Diversified and integrated portfolio of solar energy-related services, including design, engineering, procurement, project management, installation, commissioning, and asset management.



Uses a network of contractors and a team of over 50 employees, including in-house consultants, engineers, project managers and quality assurance officers.





Operates nationally with capability to service any region in Australia.

3 x Clean Energy Council Design and

commercial and battery systems.

Installation award winners for large scale

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Clients include: QUBE. Cleanaway, Australia Zoo. Hutchinson Builders, Uniting Care Australia. Vicinity Centres, Catholic Education, Charter Hall and many more.

Extensive logistics experience and management

A philanthropic approach has led the RACQ

Foundation to distribute more than \$10.9 million since

2011 to assist more than 400 Queensland community groups affected by natural disaster and drought.

A 2030 Strategic Vision to provide solutions that

help members live and move securely

of large-scale contract delivery.

## RACQ

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A diverse Queensland organisation, established in 1905 and today providing Roadside Assistance, Insurance and Banking services to its 1.77 million members.



Financially sound, with revenue of \$1.8bn and net assets of \$1.5bn.



Strong corporate, commercial and government relationships supported by an active public policy and advocacy network.

## **GEM Energy Certifications**







and sustainably.



Experts in large scale National roll-outs

- Catholic Education Diocese of Rockhampton 6MW Solar and 4MWh battery storage
- Friendly Society Private Hospital 545kW Solar and LED lighting
- Vicinity Centres 700kW in Perth, 1.1MW in Taigum, 914kW in Gympie, 1.3MW for Vicinity Runaway Bay (6MW partnership)
- Catholic Education Diocese Of Townsville 5MW Solar and 8MWh battery storage
- Ingenia Communities 0 3MW across 50 sites nationally
- Uniting Care QLD Solar and LED lighting
- Cleanaway 2.4MW installed nationally





### **Other Key Clients**

### Queensland

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Spicers Retreats - 4 sites in SEQ 334kW

DFO Cairns - 1.4MW

### Northern Territory

**ARCCS** - Australian Regional and Remote

Community Services 500kW

Crocodylus Park 99kW

### Victoria

O'Brien Group Arena - 463kW

### NSW

Puliyapang - 300 Aboriginal housing estates, totalling 970kW

### Nationally

Independent Pub Group - 1.1MW



• Solar Design

Awards

& Installation

Solar Design

Awards

& Installation

Solar Design
 Installation
 Awards (Grid
 Connect over
 100kW)

Awards

 Solar Design & Installation Awards (Grid Connect with Battery Back-Up

### Australia Zoo, Sunshine Coast, Queensland. 638kW commercial solar system Clean Energy Council Solar Design and Installation Awards Winner 2019.





## **Services and Capabilities**

### **Services**

### **Commercial Solar Systems**

- Over 50MW of commercial projects delivered
- 3 x CEC Design and Installation Award Winners

### **Commercial Battery Storage**

- Over 15MWh of commercial batteries installed
- Off-grid and backup system design . specialists

### **Residential Solar & Battery Storage**

- Over 6,000 residential systems installed Australia-wide
- Reputation for high quality • solutions and consultations

### Capabilities

### Engineering

- Consultation
- - Power Factor Correction
  - Embedded networks
  - Microgrids

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Edge-of-grid protection •

### Financial

LED Lighting

Queensland

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### Energy modelling

- PV and BESS system design
  - On-grid and off-grid system design •
    - Financial analysis

      - Tariff reclassification
      - Solar Power Purchase Agreements • (PPAs)
      - Energy arbitrage



### Solar Carport Structures

Experts in an innovative solution that turns unutilised space into a high production power plant

### **EV Charging Installation**

• Certified electricians who are experienced in installing EV chargers in businesses and homes.

• Installed LED lighting solutions for clients including 50+ KFC locations and all catholic schools in North

### Energy Brokering & 100% Renewable **Energy Procurement**

- Providing an easy pathway for organisations to transition to 100% renewable energy without any CAPEX
- Facilitating the trading of energy • from one building to another, virtually through industry collaboration (VPPs)

- Energy brokering
  - Energy trading via VPP
- FCAS revenue generation

### **Project Management**

- Procurement
- Installation
- Quality Control

### Service and support

- Monitoring
- System Servicing Agreements



### **Commercial Solar Systems**

Comprehensive turn-key solutions including consultation, energy modelling, system design, financial analysis, procurement, engineering, project management, installation, commissioning, monitoring and system servicing agreements.

- Complex systems including ground mount, off-grid, inner city and regional
- In excess of 50MW of commercial solar PV in a variety of bespoke solutions delivered to-date
- In excess of \$160M worth of commercial projects delivered to-date

### Commercial Solar Battery Storage

GEM Energy has installed over 15MWh of storage for some of Australia's most renowned companies. GEM Energy is one of the first companies in Australia to register a privately-owned battery in the AEMO FCAS markets.

- In-house RPEQ certified engineers providing high-calibre system designs
- FCAS market experts with wholesale and ancillary AEMO market experience
- Experts in the creation of Virtual Power Plants and management of battery storage
- We have delivered Tesla battery storage to many of our commercial clients providing them with power security, financial benefits and energy independence



### **Solar Carport Structures**

- An innovative solution that turns unutilised space into a high production power plant
- Showcases a clean energy initiative to visitors that provides significant energy savings, reductions in carbon emissions on site and a more comfortable customer experience
- Suitable for all types of solar PV modules and any desired alignment or module inclination
- Fast and simple mounting solution

### Single-Axis

This structure is used if a north face is available. With one side starting considerably higher on the tilt, it is the best possible structure to maximise production.

### **Butterfly East/West**

This structure is optimal when the north face is shaded or compromised. The gutter in between the split collects any rainfall.



Single-Axis



Butterfly East/West

### Energy Brokering and 100% Renewable Energy Procurement

Renewable energy is the next step in generation, distribution, and procurement of energy in Australia. GEM Energy can provide an easy pathway for organisations to transition to 100% renewable energy without any CAPEX. Through industry collaboration, we facilitate virtual metering - the trading of energy from one building to another. This energy is recorded and used to off-set energy at another location where solar is not installed.

### VPP – what is a Virtual Power Plant?

Aggregation of dispatchable energy into the NEM through a single controlled point. The company monitoring the VPP will control and dispatch into the grid at the right times.

### **LED Lighting**

Reliable and efficient, LEDs are used in a diverse range of lighting applications, one of the main being for commercial business.

- Uses up to 90% less power than regular lighting
- Has a longer lifespan of 70,000 hours, using less power and with more savings on energy costs than regular lighting



### Consulting, Engineering, Design & Project Management

GEM Energy is one of a few solar companies to have the capacity to offer RPEQ services and Chartered Engineer capabilities in-house.

Our engineers are proficient at resolving complex requirements from our clients. For example, operating embedded network systems requiring the energy to be dispersed to multiple clients on the same premises.

Services include:

- Voltage rise calculation
- AC and DC system design, calculation and drawings
- Network control and protection
  methodology
- Testing and commissioning plan for the client and the DNSP
- Network connection application
- Installing, testing, and commissioning all systems
- Power quality assessment
- Design Certificate reports
- Compliance reports



## Installation Methodology

### **Pre-Mobilisation**

- 1. Project team conduct review of contract documents
- 2. Prepare site inspection scope report
- 3. Inspect site, complete inspection scope report and plan safe works methodology
- 4. Prepare design drawings
- 5. Prepare works program
- 6. Prepare site management plans
- 7. Submit network connection application and other authority approvals as necessary
- 8. Procure trades and materials
- 9. Prepare Safe Work Method Statements in coordination with the requirements of the site specific and relevant safety regulations

### **Mobilisation**

- 1. All workers are licenced and competent
- 2. Induct workers to site and sign onto SWMS
- 3. Carry out toolbox talks, identify risks associated with prevailing conditions and prepare risk assessments to manage and control risks, as necessary
- 4. Deliver materials to site and unload to temporary staging area
- 5. Deliver Rough Terrain Diesel Elevated Work Platform (EWP) to site
- 6. Deploy EWP adjacent to building in accordance with Working on or near Plant & Machinery SWMS
- 7. Install Edge Protection on all live roof edges prior to commencing

### Solar PV AC System Installation

- 1. Carry out all work at height in accordance with the relevant working at heights SWMS
- 2. Measure up and mark out Solar PV DC system in accordance with the coordinated For Construction Drawing Set
- 3. Manually handle Solar PV mounting system materials into EWP, elevate to roof and unload
- 4. Traffic and install solar mounting system materials into position in accordance with installation manual
- 5. Pre-wire and earth mounting system
- 6. Manually handle Solar PV panels into EWP, elevate to roof and unload from basket
- 7. Traffic and install Solar PV panels into position
- 8. Manually handle DC cable tray, DC cable and DC isolators into EWP, elevate to roof, extend platform and guard rail min. 2m onto roof and unload from basket
- 9. Traffic and install DC cable tray and associated fixings from solar PV system to inverter
- 10. Rough in cables in DC tray

- 11. Mount DC isolators onto Solar PV mounting system and terminate DC cables
- 12. Install cable tray covers
- 13. Affix labels on cable tray and DC isolators

### Solar PV AC & Comms System Installation

- Carry out all live electrical work in accordance with relevant Working on or near Energised Electricity SWMS and Safe Isolation Procedures by licensed and competent workers
- 2. Measure up and mark out Solar PV AC system in accordance with the coordinated For Construction Drawing Set
- 3. Mount Inverter into position and terminate DC cables
- 4. Mount distribution board adjacent inverter and terminate AC submains and contractor control cable
- 5. Mount AC cable tray and rough in AC cable between PV DB and inverter
- 6. Mount AC cable tray and rough in AC cable between PV  $$\rm DB$  and MSB  $$\rm MSB$$
- 7. Terminate AC cables
- 8. Rough in and terminate comms cable between inverter and comms port designated by others
- 9. Terminate AC cables into inverter
- 10. Affix AC and Comms labels

### **Pre-Commissioning**

- 1. Pre-commission DC systems in accordance with the DC pre-commissioning ITP
- 2. Pre-commission AC and comms systems in accordance with the AC and comms pre-commissioning ITP
- 3. Rectify any defects identified

### **Testing & Commissioning**

- 1. Test and commission DC systems in accordance with the DNSP Testing and Commissioning requirements and Network Connection Standards
- 2. Test and commission AC and Comms systems in accordance with the Ausgrid Testing and Commissioning requirements and Network Connection Standards
- Schedule Ausgrid Witness to conduct final inspection of the system; if approved system can be permanently energised

### **De-Mobilisation**

- 1. Remove rubbish and excess materials from work areas
- 2. Clean and tidy site
- 3. Finish, paint, touch up and affix labelling as necessary
- 4. Train Site Facilities Manager on Basic Start Up and Shut Down procedures
- 5. Demobilise from site

## Thank you

Phone: 1300 592 492 Email: info@racqsolar.com.au Enquire Online:







RACQ owns a majority interest in GEM Energy Australia. All goods and services are provided by GEM Energy Australia Pty Ltd (ABN: 25 164 579 382), Electrical Contractor Licence 78701 trading as RACQ Solar (GEM Energy).