Department of State Development (DSD)

PART B ATTACHMENT 1: ABORIGINAL COMMUNITY SITES
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1.0 DEFINITIONS

- “AC” means Alternating Current;
- “APY” means Anangu Pitjantjatjara Yankunytjatjara;
- “AVR” means Automatic Voltage Regulator;
- “DC” means Direct Current;
- “DSD” means the Department of State Development;
- “HMI” means Human Machine Interface;
- “HV” means High Voltage;
- “LV” means Low Voltage;
- “NEM” means National Electricity Market;
- “PC” means Personal Computer;
- “PCBU” means Person Conducting a Business Undertaking as defined in the Work Health Safety Act 2012;
- “PLC” means Programmable Logic Controller;
- “Principal” means Executive Director, Energy Markets and Programs Division in the Department of State Development as the delegate of the Minister for Mineral Resources and Energy;
- “RAES” means Remote Areas Energy Supplies scheme of South Australia;
- “SCADA” means Supervisory Control and Data Acquisition;
- “SWER” means Single Wire Earth Return;
- “VAr” means Volt Amps reactive;
- “VPN” means Virtual Private Network;
- “WHS” means Work Health Safety.

2.0 RAES BACKGROUND INFORMATION

The South Australian Government is committed to providing reliable, safe and high quality power to all consumers supplied from electricity generation and distribution systems in remote communities of South Australia under the Remote Areas Energy Supplies (RAES) scheme. The Minister for Mineral Resources and Energy is responsible on behalf of the Government for electricity supply to 15 Aboriginal Communities in the Anangu Pitjantjatjara Yankunytjatjara (APY) lands (Amata, Iwantja, Kaltjiti, Kalka, Kanpi, Mimili, Murputja, Nyapari, Pipalyatjara, Pukatja, Umuwa, Watinuma and Yunyarinyi) as well as Oak Valley (Maralinga Tjarutja) and Yalata (Aboriginal Lands Trust), as well as 10 remote state sites (Marla, Oodnadatta, Marree, Kingoonya, Glendambo, Nundroo, Parachilna, Blinman, Mannahill and Cockburn).

This Background Information pertains to the 15 Aboriginal Communities sites.

2.1 WORKPLACE HEALTH AND SAFETY BACKGROUND INFORMATION

The Principal as the Person Conducting Business or Undertaking is responsible at each work site to:

- Provide buildings and infrastructure that minimise and control risks to health, injury or accident;
Audit all buildings and infrastructure on a regular basis to identify safety hazards and non-compliances;

Undertake risk assessments of identified hazards and implement reasonable and practicable controls to reduce the risk of injury;

Ensure that contracts contain clauses that require the Contractors to comply with the WHS Act and Regulations 2012; and

Audit the Contractors on a regular basis to ensure the Contractor is managing its WHS obligations in relation to any interaction between the Contractor and DSD workers and compliance with any DSD Site Safety requirements.

Prior to the awarding of contracts the Principal will have:

Inspected all sites;

Prepared Safety Data Sheets;

Prepared Plant & Equipment registers;

Identified hazards and risks;

Established Corrective Action Registers by site; and is

Working with best endeavors to address risks on a priority basis and put in place controls where hazards/safety issues are not able to be practicably removed entirely or resolved immediately.

3.0 APY LANDS

Anangu Pitjantjatjara Yankunytjatjara (APY) is incorporated by the South Australian 1981 Anangu Pitjantjatjara Yankunytjatjara Land Rights Act whereby the South Australian Parliament issued Aboriginal people title to more than 103,000 square kilometres of land in the far northwest of South Australia. All Pitjantjatjara, Yankunytjatjara and Ngaanyatjarra people who are traditional owners of any part of the Lands are members of Anangu Pitjantjatjara Yankunytjatjara.

The main communities on the Lands include: Iwantja (Indulkana), Mimili, Kaltjiti, Pukatja, Amata, Pipalyatjara, and Watarru. There are several homelands as well, the larger ones being Kalka, Kanpi, Nyapari and Yunyarinyi. The APY administration centre of the Lands is located at Umuwa.

Under the Act, the Executive Board is the governing body of the APY. It has 10 elected members from across the APY Lands who are elected for a 3 year term under an election supervised by the Electoral Commission of South Australia. The Executive Board chooses its own Chairperson.

The APY Executive Board oversees the activities of the various constituent groups serving the needs of the people on the Lands. It also helps shape policies regarding economic and social development.

The following websites provide additional background regarding the APY Lands in general, including information about visitor and employee permit requirements.


3.1. UMUWA

Umuwa is located on the APY Lands, 250 km north-west of Marla and 460 km south west of Alice Springs (on the southern slopes of the Musgrave Ranges).

Based on the climate records of the nearest weather station in Pukatja, Umuwa experiences average summer maximum temperatures of 34.5 degrees Celsius with an average minimum of 19.6 degrees Celsius throughout January. Whereas in winter months the maximum average temperature is 17.8 degrees Celsius with overnight lows of 3.3 degrees Celsius. Annual rainfall averages 275.2 millimetres.
3.1.1. THE CENTRAL POWER HOUSE

The CPH is located approximately 2 km west of Umuwa and is the principal Power Station supplying electricity to communities across the eastern part the APY Lands. The generation system is comprised of diesel generators producing electricity and distributing the power by pole mounted overhead reticulation.

DISTRIBUTION

Electricity is supplied to Umuwa via a town mini grid system that is connected to the CPH. Within Umuwa there is approximately 1 km of High Voltage (HV) underground distribution lines and nearly 3 km of Low Voltage (LV) underground distribution lines providing power to homes and businesses.

Electricity is supplied to the eastern towns of the APY lands from the CPH grid which runs over 330 kms of 33 kV overhead distribution lines via 3 principal feeders;

- Amata feeder, which also supplies some smaller communities (homelands) adjacent to the feeder
- Iwantja (Indulkana) feeder, including Kaltjiti (Fregon) and Mimili communities and adjacent homelands
- Pukatja (Ernabella) feeder, including Yunyarinyi and Umuwa communities and adjacent homelands.

**GENERATION**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Make</th>
<th>Model</th>
<th>Install Age (yrs)</th>
<th>Serial</th>
<th>Size kW</th>
<th>Fuel</th>
<th>Hrs upd</th>
<th>Tot Hrs</th>
</tr>
</thead>
</table>

Version 2.2 6 March 2014
• Genset 1* has recently undergone a full overhaul and crank shaft replacement as of April 2015

LOAD DATA

The CPH demand shows the following characteristics:

<table>
<thead>
<tr>
<th>Peak Load Of CPH systemkW (approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Load</td>
</tr>
<tr>
<td>Average Load</td>
</tr>
<tr>
<td>Minimum Load</td>
</tr>
</tbody>
</table>

ACCOMMODATION

**Site Manager’s House**
Fully air conditioned 3 bedroom house with separate lounge, fully equipped kitchen, laundry, bathroom and large veranda area. Nominally, it will be unfurnished at contract commencement.

**Fleetwood Units**
2 transportable units West of the Site Manager’s House, each fully air conditioned and containing a kitchen, sitting area, bathroom and two bedrooms. The Southernmost unit has a fully equipped kitchen, the Northernmost unit has a kitchen but no oven.

**Duplex Units**
A fully air conditioned building approximately 50 metres West of the Fleetwood units and containing 2 mirror image accommodation units. Each unit has two large bedrooms with beds and built in wardrobes, a large open room containing fully equipped kitchen, dining and lounge areas, a bathroom containing bath, shower and hand basin, separate toilet, separate laundry and large external veranda areas. The westernmost unit is reserved for exclusive use of visiting DSD staff.

**Dossa Units**
A further 100 metres West of the Duplex are two transportable units connected by an enclosed veranda area. The Southernmost unit contains a small office, bedroom with two single beds, a large open room containing fully equipped kitchen, dining and lounge areas, a bathroom containing bath, shower and hand basin, separate toilet, and a separate laundry. The Northernmost unit contains 4 bedrooms with a single bed in each, shower, toilet and small
equipped kitchenette. Adjacent is a large yard used to store distribution equipment.

**Other APY Sites**

There are no dedicated accommodation units at the other APY sites, although visitor accommodation is available in most the communities for reasonable tariffs. Amata has a lined room similar to Pipalyatjara which provides shelter, but is not equipped in any way. There is also a toilet, shower and laundry trough, use as emergency stopover only. No kitchen equipment, no aircon, etc.

**WATER SUPPLY**

The CPH is supplied primarily by bore water pumped to two main storage tanks (100kL each) located on the hill to the north. Control of the tanks is managed from the CPH. Water is gravity fed to a range of tanks attached to the CPH, for CPH services and accommodation sites to provide water. The bore field is an important asset to the broader community and responsibility for the management of this will remain with the Principal. A limited amount of bore maintenance may be required to ensure continuity of supply.

**CPH Compound**
**CPH Compound:** General view of the CPH, showing very recent upgrades including; expanded diesel storage, CPH building extension, and installation underway of external radiator and exhaust system to suit CPH Unit 4 installation. The yellow container houses an auxiliary Gen. Set of 450kVA capacity. A further auxiliary Gen. Set also of 450kVA capacity was installed in June 2014.
Power Station Main Gate

Power Station
Power Station – Aux Gen. Set 1

Power Station – Diesel Fuel Tank 2
3.1.2. CPH TECHNICAL OVERVIEW

MAIN GENERATORS
The four main Gen. Sets are factory packaged Cat 3512 electronic control diesel skids rated at 1083kW each. The skid Gen. Sets are installed in individual custom designed acoustic absorbing enclosures, inside the Power Station building. The engines have standard Caterpillar electronic control injection, along with the standard monitoring and safety systems. The Caterpillar SR5 generators are controlled by Caterpillar digital AVRs.

AUXILIARY GENERATORS
There are two auxiliary generation sets which are not fully integrated with the Power Station controls, normally used in case of a capacity limitation of the main Gen. Sets. These are Caterpillar Packaged Gen. Sets rated at approximately 450kVA. They are located outdoors at one end of the main Power Station building. Due to limitations of the Auxiliary incomer feeder circuit breaker in the main switchboard the maximum useable capacity for each Auxiliary set is approximately 350kVA. These units have a ComAp proprietary Gen. Set controller used to run them at fixed load. The ComAp controller is connected to the Power Station ethernet network so that ComAp remote control software on a Personal Computer (PC) in the Control Room can be used to monitor its operation. Starting and stopping is manually initiated by the local operator.

GOVERNING
Load sharing, Volt Amps reactive (VAr) sharing and Synchronising are controlled by a Dawson Technology (Heinzmann) Sitec digital controller for each Gen. Set. The Sitec controllers communicate on a private communications network. Each Sitec controller sends a speed bias signal to the Cat engine controller/governor, and a volts bias signal to the Cat digital Automatic Voltage Regulator (AVR).

The Sitec controllers always operate in isochronous load-sharing mode, unless the Gen. Set mode selector is in MANUAL or OFF. In MANUAL the Cat governor is in speed droop mode, the AVR in reactive droop mode and the speed Raise/Lower switch is active. There is no Volts adjust control so manual mode is mainly useful for off-line engine testing.

UNIT CONTROL
Each unit is controlled by a Schneider TSX Premium Programmable Logic Controller (PLC). The PLC interrogates the Cat engine control for engine data. For Generators 1-3 this is via a dedicated (per Gen. Set) Modbus RTU on RS-485 link to a Cat proprietary gateway. Generator 4 has a direct ethernet ModbusTCP link to the Cat engine control. A ModbusTCP/RTU485 gateway
links the PLC to the unit circuit breaker control/trip unit. This is used for
generator electrical metering.
The Sitec controller is operated by discrete PLC In/Out (I/O). The engine
cooling radiator fan is Variable Speed Drive (VSD) controlled, with the speed
set point via PLC analog output.
Each unit local Human Machine Interface (HMI) is a touchscreen Schneider
Magelis PC with Citect Supervisory Control and Data Acquisition (SCADA)
software.

COMMON CONTROL
The station Common Control is by a Schneider Premium PLC. This controls
generator sequencing, load feeders, auxiliary income feeders and fuel transfer.
The Common PLC HMI is a touchscreen Schneider Magelis PC with Citect
standard SCADA software (V7.20 Service pack 4).
The control/trip unit is on the three load feeder circuit breakers and the two
auxiliary incomer feeders are linked on a ModbusRTU485 bus, which is bridged
to the PLC via a ModbusTCP/RTU485 gateway.
The four station ventilation fan VSDs, the power factor correction controller, the
power factor correction bank power meter and the station auxiliary power meter
are linked on a ModbusRTU485 bus, which is linked to the PLC via another
ModbusTCP/RTU485 gateway.
The Common Control panel also houses a ModbusTCP/RTU485 gateway for a
fibre-optic Busbar Temperature Monitor located in the main switchboard.

CITECT SCADA
The main operator station has two PCs running dual redundant Citect SCADA
systems.

CONTROL OVERVIEW
Each Gen. Set has a four position MODE switch: - OFF/MANUAL/
SEQUENCE/DUTY. Normal operation is SEQUENCE. The common PLC will
monitor total station load and start and stop Gen. Sets as required by the
sequence control settings. These comprise the required sequence priority order
for starting, the normal startup load level in percent of current on-line capacity,
normal startup delay, high load start percent, high load start delay, stop load
percent, stop delay. The stop load percent is the calculated prospective load
after the designated Gen. Set is stopped. The normal minimum number of sets
on-line is one.

A set in DUTY mode is forced to run and share load, regardless of the
sequence control. This is useful for temporarily forcing extra sets on-line in
anticipation of a load transient such as feeder switching.

MANUAL mode allows the operator to start and stop a set using local controls.
The set can be put on-line by pressing the Close CB button which activates the
auto-synchroniser. The set does not automatically share load but run in speed
droop control. The speed raise/lower buttons control the load accepted. There
are no controls for voltage setting so Manual mode is most useful for off-line engine testing.

**NETWORKING**

Each unit has a 5 port Direct Current (DC) powered ethernet switch to interconnect the PLC, HMI, and circuit breaker controls. One port is used for connection to the central switch.

Generator 4 uses an additional port for the ModbusTCP link to the Cat engine controls.

The Common Controls panel has a 5 port DC powered ethernet switch to interconnect the PLC, HMI, and two ModbusTCP/RTU485 gateways (daisy chained via 2 port switch on one unit). One port is used for connection to the central switch and one port is used for Busbar temperature monitoring.

An 8 port DC powered ethernet switch is installed as a Controls Central Switch linking the four Gen. Set control panels and the common control panel.

The Controls Central Switch is connected to a 24 port Alternating Current (AC) powered Information Technology (IT) type switch (HP Procurve). This links the control system to the CitectSCADA servers, Auxiliary Gen. Set controls, and the Virtual Private Network (VPN) Router.

The VPN router is linked by fibre-optic cable and two copper-to-fibre media converters to the ADSL modem which provides external access in and out of the site network.

**REMOTE ACCESS**

Remote access to the control system is possible with suitable VPN and remote control software installed on the remote PC. When required one of the CitectSCADA stations would be remote controlled.

Access is restricted to users with correct credentials.

**UNINTERRUPTIBLE POWER SUPPLY (UPS) – BATTERY BACKUP**

The main control system is supplied by two 24VDC sealed lead acid banks with independent chargers. Each generator unit control panel and the Common control panel have feeds via steering diodes from both battery banks.

The IT equipment (VPN router, 24 port switch, Citect SCADA servers) are supplied with 240VAC from a rack mounted battery backed UPS.

**FUEL SYSTEM**

The main Fuel Storage is four 55kl tanks with auxiliary storage in two 90kl tanks. The four main tanks pump to the generator day tanks automatically controlled by level sensors within the tanks, dependant on the priority order entered on the HMI system.
The two auxiliary tanks pump to the main tanks. Transfer is started manually with the source and destination tanks selected by hand operated valves. Pump stopping is automated on high level in the receiving tanks or low level in the source tank.

**FEEDERS**
Three feeder circuit breakers in the main switchboard supply three 415v/33kV 1500kVA step-up transformers which feed the three distribution lines supplying power to communities in the APY lands.
The Amata feeder is approximately 110km, the Pukatja/yunyarinyi/Kenmore Park feeder approximately 60km, the Kaltjiti,/Mimili/Iwantja feeder approximately 170km.

**SWITCH GEAR**
The CPH power distribution board contains the following main switchgear from Schneider Electric. Each switch contains a Micrologic 5.0P

<table>
<thead>
<tr>
<th>Designation</th>
<th>Model</th>
<th>Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generator 1</td>
<td>NW 25 H1</td>
<td>1600</td>
</tr>
<tr>
<td>Feeder 1: Ernabella</td>
<td>NW 25 H1</td>
<td>480</td>
</tr>
<tr>
<td>Generator 2</td>
<td>NW 25 H1</td>
<td>1520</td>
</tr>
<tr>
<td>Feeder 2: Amata</td>
<td>NW 25 H1</td>
<td>600</td>
</tr>
<tr>
<td>Generator 3</td>
<td>NW 25 H1</td>
<td>1862</td>
</tr>
<tr>
<td>Feeder 3: Fregon</td>
<td>NW 25 H1</td>
<td>501</td>
</tr>
<tr>
<td>Generator 4</td>
<td>NW 25 H1</td>
<td>147</td>
</tr>
<tr>
<td>Aux 1</td>
<td>NW 08 H1</td>
<td>366</td>
</tr>
<tr>
<td>Aux 2</td>
<td>NW 08 H1</td>
<td>360</td>
</tr>
</tbody>
</table>

(Number of operations as at Feb 2015)

**POWER FACTOR CORRECTION**
The long, lightly loaded 33kV feeders have considerable capacitive charging current relative to the load so 33kV shunt inductive reactors are connected near the CPH and near the load communities. Total installed reactive load is approximately 800kVAr.
The Power Station also has a 415V 600kVAr inductive power factor correction unit connected to the main switchboard, automatically switched in 100kVAr stages to maintain the overall Power Station load near unity power factor.
3.2. **AMATA**

Amata Community is located at the western end of the Musgrave Ranges about 14 km south of the Northern Territory border. It lies approximately 380 km south west of Alice Springs.

In the 2011 Census, there were 467 people in Amata (Urban Centres and Localities) of these 50.7% were male and 49.3% were female. Aboriginal and Torres Strait Islander people made up 93.8% of the population.

Based on the climate records of the nearest weather station in Pukatja, Amata experiences average summer maximum temperatures of 34.5 degrees Celsius with an average low of 19.6 degrees Celsius throughout January. Whereas in winter average temperatures range from a maximum of 17.8 degrees Celsius to a low of 3.3 degrees Celsius in June. The annual rainfall averages 275.2 millimetres.

**Aerial Town Map – Amata**
FURTHER INFORMATION
The following websites provide additional background regarding Amata or the APY Lands in general, including information about visitor and employee permit requirements.

3.2.1. **AMATA POWER STATION**

The Amata community has a local Power Station with automatic control provided by ComAp controllers. The controls are arranged to start manually or automatically in case of loss of supply from CPH Umuwa and to isolate Amata from the supply feeder line. The installed capacity is sufficient to supply the community.

Remote control and monitoring is possible for supply switching and generator starting and stopping. This is achieved by opening the Amata line circuit breaker at CPH, by simulating an undervoltage signal. All generators will start and load then sequencing will take place. 10 minutes later, if generator 1 is running, generator 1 roller door will open to a fixed height for air flow and cooling. If both generators are running in the generator hall then both doors shall open. Supply from the CPH can be reinstated through the ComAp system.

The Amata Power Station (comprising 2x570kVA unit approx. capacity) is available to supply the local community in islanded mode, via remote switching from CPH, in order to reduce the demand to be met by available generation capacity at CPH. The following photos are of Amata Power Station and its environment.

**Power Station – Front**
GENERATION

The Power Station uses three diesel generators. Generators are automatically controlled using a ComAp control system; each individual generator is governed by a ComAp IG-CU unit, with an additional unit controlling the system as a whole.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Make</th>
<th>Engine Model</th>
<th>Serial Number</th>
<th>Installation date</th>
<th>KW rating (approx.)</th>
<th>Hours run June 2014 (approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generator Set1</td>
<td>Caterpillar</td>
<td>C18</td>
<td>ELL00408</td>
<td>31/05/06</td>
<td>470</td>
<td>8,597</td>
</tr>
<tr>
<td>Generator Set2</td>
<td>Caterpillar</td>
<td>C18</td>
<td>G4C00374</td>
<td>11/11/06</td>
<td>470</td>
<td>18,953</td>
</tr>
<tr>
<td>Generator Set3</td>
<td>Caterpillar</td>
<td>3406C</td>
<td>9ES03701</td>
<td>20/12/01</td>
<td>250</td>
<td>22919</td>
</tr>
</tbody>
</table>
LOAD DATA

Town demand shows the following characteristics:

<table>
<thead>
<tr>
<th>kW (approx.)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Load</td>
<td>1,000</td>
</tr>
<tr>
<td>Average Load</td>
<td>250</td>
</tr>
<tr>
<td>Minimum Load</td>
<td>114</td>
</tr>
</tbody>
</table>

Average annual estimated energy fed to station from CPH: 300 MWh

Power Station – Gen. Set 1

![Power Station](image.png)
Power Station - Gen. Set 2

Power Station – Diesel Fuel Tanks
FUEL STORAGE CAPACITY
There are two 40,000 litre diesel fuel tanks at Amata.

DISTRIBUTION
Electricity is supplied via a mini grid system that is connected to the CPH grid coming from Umuwa over 150 kms away. Amata has approximately 12 kms of High Voltage (HV) overhead distribution lines and 2 kms of Low Voltage (LV) overhead distribution lines within the town providing power to homes and businesses.

COMMUNICATIONS
The Power Station has a phone line with ADSL available.

WATER SUPPLY
The Power Station is supplied with water by SA Water.
3.3. MURPUTJA, KANPI & NYAPARI

MURPUTJA
Murputja is located just over 20 kms south of the Northern Territory border at the base of the Mann Ranges. Murputja has the towns of Kanpi 7 kms to the west and Nyapari 8 kms to the east.

The Murputja homelands group includes Nyapari, Angatja and Umpukulu. The people living here are all Pitjantjatjara people with close connections to country to the west. The population of the homelands fluctuates, including a small number of Piranpa (non-Aboriginal) people who work in the community.

Aerial Town Map – Murputja

KANPI
Kanpi lies approximately 460 km south west of Alice Springs. It is located 15 km away from the Nyapari community and approximately 100 km from the nearest larger community of Amata. The Mann Ranges form a backdrop to the community.

Kanpi is part of the Murputja homelands group which includes Nyapari, Angatja and Umpukulu. The people living here are all Pitjantjatjara people with close connections to country to the west. The population of Kanpi ranges between 50 and 100 people, including a small number Piranpa (non-Aboriginal) people who work in the community to support Anangu.
NYAPARI
Nyapari is located about 20 km south of the Northern Territory border. It lies approximately 450 km south west of Alice Springs. It is 115 km east of Pipalyatjara and 95 km west of Amata.

The people living in Nyapari are mainly Pitjantjatjara people, and Pitjantjatjara is the main language spoken at home and around the community. English is learned and spoken at school and in the clinic, office and store.

The population of Nyapari ranges between 50 and 100 people, including a small number of Piranpa (non-Aboriginal) people who work in the community to support Anangu. All the people living in Nyapari are part of an extended family group.

In the 2011 Census, there were 113 people within Murputja homelands towns. Aboriginal and Torres Strait Islander people made up 93.9% of the population, of these 51.9% were male and 48.1% were female.

Based on the climate records of the nearest weather station at Yulara Aero, Murputja experiences summer maximum temperatures of an average 38.6 degrees Celsius and the average overnight low of 20.7 degrees Celsius while the winter maximum average temperatures is 23.6 degrees Celsius with overnight lows of 4.5 degrees Celsius. The annual rainfall averages 281.9 millimetres. The atmosphere is very dry because evaporation is more than ten times the average rainfall.
FURTHER INFORMATION

The following websites provide additional background regarding Murputja, Kanpi & Nyapari or the APY Lands in general, including community structure plans, information about visitor and employee permit requirements.

3.3.1. MURPUTJA POWER STATION

Murputja Power Station
**GENERATION**

The Power Station uses three diesel generators. The three generators at Murputja are automatically controlled using a ComAp control system; each individual generator is governed by a ComAp IG-CU unit, with an additional unit controlling the system as a whole.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Make</th>
<th>Engine Model</th>
<th>Installation Date</th>
<th>KW rating (approx.)</th>
<th>Hours run at Mar 2015 (approx.)</th>
<th>Energy MWh 2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen Set 1</td>
<td>Caterpillar</td>
<td>3306</td>
<td>09/01/02</td>
<td>180</td>
<td>23,888</td>
<td>190</td>
</tr>
<tr>
<td>Gen Set 2</td>
<td>Caterpillar</td>
<td>C7</td>
<td>30/05/09</td>
<td>100</td>
<td>30,023</td>
<td>300</td>
</tr>
<tr>
<td>Gen Set 3</td>
<td>Caterpillar</td>
<td>C9</td>
<td>02/01/06</td>
<td>120</td>
<td>7953</td>
<td>NA (New set)</td>
</tr>
</tbody>
</table>

**LOAD DATA**

Town demand shows the following characteristics:

<table>
<thead>
<tr>
<th>kW (approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Load   300</td>
</tr>
<tr>
<td>Average Load 101</td>
</tr>
</tbody>
</table>

*Murputja Power Station – Generator Container*
FUEL STORAGE CAPACITY
There is a single 40,000 litre diesel fuel tank at Murputja.

DISTRIBUTION
Electricity is supplied to Murputja, Kanpi and Nyapari via a mini grid system that is connected to the Power Station in Murputja. Murputja has approximately 7 kms of HV overhead distribution lines within the town. Kanpi has approximately 12 kms of HV overhead distribution lines and Nyapari has approximately 12 kms of HV overhead distribution lines within the town providing power to homes and businesses.

COMMUNICATIONS
The Power Station has a phone line with ADSL available.

ACCOMMODATION
A fully air conditioned accommodation unit based on a 12 metre shipping container. It has two single bedrooms with beds and mattresses, a bathroom containing toilet, shower and handbasin, kitchen with sink, small bench for food preparation, small refrigerator, microwave, electric jug, extraction fan, basic kitchen utensils and a small table and 2 chairs. A solar electric boosted hot water service supplies the kitchen and bathroom.

WATER SUPPLY
The Power Station is supplied water by SA Water.
3.4. PIPALYATJARA & KALKA

Pipalyatjara is located approximately 550 kms south-west of Alice Springs on the Gunbarrel Highway (a rough, unsealed road) and approximately 30 kms from the junction of the South Australian, Western Australian and Northern Territory borders (known as the Surveyor-General's Corner). The community of Kalka is situated 15 kms away. Both communities are situated within the Tomkinson Ranges.

In the 2011 Census, there were 118 people in Pipalyatjara. Of these 90 were Aboriginal and Torres Strait Islander people with 41.1% comprising of males and 58.9% females. In the same census, there were 77 people in Kalka; 69 were Aboriginal and Torres Strait Islanders. The indigenous population is made up of 46.3% males and 53.7% females.

Based on the climate records of the nearest weather station at Giles across the border and slightly to the northwest in Western Australia, Pipalyatjara and Kalka experience average summer maximum temperatures of 37.2 degrees Celsius with overnight lows of 23.5 degrees Celsius. The winter months experience a maximum average temperature of 19.9 degrees Celsius and overnight lows of 6.8 degrees Celsius. There is an average annual rainfall 284.2 millimetres.
ACCOMMODATION

A section of the storage shed and workshop adjacent to the power house has been partially lined and fitted out for short stay or emergency accommodation. There is a non-air conditioned mess which is unlined, it has a sink, benches for food preparation, refrigerator, electric stove top and oven, microwave, electric jug, basic kitchen utensils and a table and 4 chairs. An adjacent general purpose room contains two single beds and mattresses, 2 seater lounge and television and is air conditioned. A shower is located off the kitchen and there is an external toilet with hand basin, located between the shed and the power house. A hot water service supplies the kitchen and shower.

FURTHER INFORMATION

The following websites provide additional background regarding Pipalyatjara & Kalka or the APY Lands in general, including information about visitor and employee permit requirements.

3.4.1. PIPALYATJARA POWER STATION

Power Station – Front

Power Station – Control Room
GENERATION
The Power Station at Pipalyatjara uses three diesel generators. The three generators at Pipalyatjara are automatically controlled using a ComAp control system; each individual generator is governed by a ComAp IG-CU unit, with an additional unit controlling the system as a whole.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Make</th>
<th>Engine Model</th>
<th>Serial Number</th>
<th>Installation Date</th>
<th>KW rating (approx.)</th>
<th>Hours run at Mar 2015 (approx.)</th>
<th>Energy MWh 2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen Set 1</td>
<td>Caterpillar</td>
<td>3456</td>
<td>7W404618</td>
<td>20/06/07</td>
<td>328</td>
<td>17,634</td>
<td>140</td>
</tr>
<tr>
<td>Gen Set 2</td>
<td>Caterpillar</td>
<td>C15</td>
<td>PEC00102</td>
<td>17/07/12</td>
<td>330</td>
<td>10524</td>
<td>360</td>
</tr>
<tr>
<td>Gen Set 3</td>
<td>Caterpillar</td>
<td>3306PC</td>
<td>85Z04061</td>
<td>22/02/88</td>
<td>180</td>
<td>44,140</td>
<td>650</td>
</tr>
</tbody>
</table>

LOAD DATA
Town demand shows the following characteristics:

<table>
<thead>
<tr>
<th>kW (approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Load 275</td>
</tr>
<tr>
<td>Average Load 150</td>
</tr>
<tr>
<td>Minimum Load 60</td>
</tr>
</tbody>
</table>

Average annual estimated energy fed to station from CPH: 1,100 MWh

Power Station – Gen. Set 1
FUEL STORAGE CAPACITY
There are two 40,000 litre diesel fuel tanks at Pipalyatjara.

DISTRIBUTION
Electricity is supplied to Pipalyatjara and Kalka via a mini grid system that is connected to the Power Station in Pipalyatjara. Pipalyatjara has approximately 25 kms of HV overhead distribution lines and nearly 2 kms of LV overhead distribution lines within the town. Kalka has approximately 8 kms of HV overhead distribution lines and just over 2 kms of LV overhead distribution lines within the town providing power to homes and businesses.

COMMUNICATIONS
The Power Station has a phone line with ADSL available.

WATER SUPPLY
The Power Station is supplied by SA Water.
3.5. WATARRU

Watarru Community is situated approximately 550 kilometres south-west of Alice Springs. Watarru is situated at the foot of Mount Lindsay, in the Great Victoria Desert. Watarru Community is situated within the Watarru Indigenous Protected Area (12,800 km², declared 1 September 2000).

Based on the climate records of the nearest weather station in Pukatja, Watarru experiences average summer maximum temperatures of 34.5 degrees Celsius with an average low of 19.6 degrees Celsius throughout January. Whereas in winter, average temperatures range from a maximum of 17.8 degrees Celsius to a low of 3.3 degrees Celsius in June. The annual rainfall averages 275.2 millimetres.

As of early 2014, the permanent population of Watarru was found to have reduced significantly and currently only a very small number of houses are occupied with any frequency, with the main community facilities currently closed. Consequently the Watarru Power Station is currently shut down and residents are relying on small generators which are not services under this Request For Proposal. There are currently no plans at present to return the Power Station to operation.

3.6. IWANTJA (INDULKANA)

Iwantja is situated just 10 kilometres west of the Stuart Highway and approximately 360 kilometres south of Alice Springs. By road it is 1,200 kilometres north-west of Adelaide. Iwantja is supplied with energy through the CPH Grid.

In the 2011 Census, there were 395 people in Iwantja of these 47.9% were male and 52.1% were female. Aboriginal and Torres Strait Islander people made up 75% of the population.

Based on the climate records of the nearest weather station at Marla Police Station, Iwantja experiences average summer maximum temperatures of 37.1 degrees Celsius with an average low of 21.8 degrees Celsius throughout January. Whereas in winter average temperatures range from a maximum of 19.7 degrees Celsius to a low of 5.0 degrees Celsius in June. There is an annual rainfall averages 222.6 millimetres.

Aerial Town Map – Iwantja (Indulkana)
DISTRIBUTION

Electricity is supplied via a town mini grid system that is connected to the CPH in Umuwa which is over 150 kms from Indulkana. Within Indulkana there are approximately 7.5 kms of HV overhead distribution lines and just over 1 km of LV overhead distribution lines providing power to homes and businesses.

FURTHER INFORMATION

The following websites provide additional background regarding Iwantja or the APY Lands in general, including community structure plan, information about visitor and employee permit requirements.

3.7. **KALTJITI (FREGON)**

Kaltjiti is situated approximately 45 kilometres south of the Musgrave Ranges and lies west of the Everard Ranges. Kaltjiti is also situated approximately 137 kilometres from Stuart Highway. Kaltjiti lies directly south of Umuwa and Ernabella/Pukatja. The community straddles the Officer Creek, which in turn flows from South Australia's highest mountain, Mount Woodroffe. The creek is usually a dry sandy bed and only flows at times of very high rainfall. Kaltjiti is supplied with energy through the CPH Grid.

In the 2011 Census, there were 285 people in Kaltjiti of these 48.3% were male and 51.7% were female. Aboriginal and Torres Strait Islander people made up 85% of the population.

Based on the climate records of the nearest weather station in Pukatja, Kaltjiti experiences average summer maximum temperatures of 34.5 degrees Celsius with an average overnight low of 19.6 degrees Celsius throughout January. Whereas in winter average temperatures range from a maximum of 17.8 degrees Celsius to a low of 3.3 degrees Celsius in June. The annual rainfall averages 275.2 millimetres.

---

**Aerial Town Map – Kaltjiti**
DISTRIBUTION
Electricity is supplied via a town mini grid system that is connected to the CPH in Umuwa which is over 35 kms from Kaltjiti. The feed from CPH is supplied to a containerised switchboard at the generation station. Within Kaltjiti there are approximately 7 kms of HV overhead distribution lines and just under 2 kms of LV overhead distribution lines providing power to homes and businesses.

LOAD DATA
Town demand shows the following characteristics:

<table>
<thead>
<tr>
<th>kW (approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Load</td>
</tr>
<tr>
<td>Average Load</td>
</tr>
<tr>
<td>Minimum Load</td>
</tr>
</tbody>
</table>

Average annual estimated energy fed to station from CPH: 4,300 MWh

GENERATION
Generators are decommissioned due to connection to CPH distribution.

FURTHER INFORMATION
The following websites provide additional background regarding Kaltjiti or the APY Lands in general, including community structure plan, information about visitor and employee permit requirements.


3.8. MIMILI
Mimili is situated 70 kilometres west of the Stuart Highway and is approximately 1 hour's drive from Marla Bore. Mimili is situated amongst mountains in the Everard Ranges. Mimili is supplied with energy through the CPH Grid.

In the 2011 Census, there were 281 people in Mimili of these 49.4% were male and 50.6% were female. Aboriginal and Torres Strait Islander people made up 89% of the population.

Based upon the climate records of the nearest weather station at Marla Police Station, Mimili experiences average summer maximum temperatures of 37.1 degrees Celsius with an average overnight low of 21.8 degrees Celsius throughout January. Whereas in winter average temperatures range from a maximum of 19.7 degrees Celsius to a low of 5.0 degrees Celsius in June. The annual rainfall averages 222.6 millimetres.
DISTRIBUTION

Electricity is supplied via a town mini grid system that is connected to the CPH in Umuwa which is over 100 kms from Mimili. Within Mimili there is approximately 13 kms of HV overhead distribution lines and just over 4 kms of LV overhead distribution lines providing power to homes and businesses.

ACCOMMODATION

A fully air conditioned accommodation unit based on a 12 metre shipping container. It has two single bedrooms with beds and mattresses, a bathroom containing toilet, shower and hand-basin, kitchen with sink, small bench for food preparation, small refrigerator, microwave, electric jug, extraction fan, basic kitchen utensils and a small table and 2 chairs. A hot water service supplies the kitchen and bathroom.

FURTHER INFORMATION

The following websites provide additional background regarding Mimili or the APY Lands in general, including community structure plan, information about visitor and employee permit requirements.

3.9. PUKATJA (ERNABELLA)

Pukatja is in the eastern Musgrave Ranges, west of the Stuart Highway, about 30 km south of the Northern Territory border. The community sits at an elevation of 676 metres. Pukatja is about 1,400 km by road from Adelaide, including 200 km on unsealed roads. Pukatja is supplied with energy through the CPH Grid.

In the 2011 Census, there were 503 people in Pukatja of these 46.7% were male and 53.3% were female. Aboriginal and Torres Strait Islander people made up 87% of the population.

Based on the climate records of the weather station in Pukatja, the town experiences average summer maximum temperatures of 34.5 degrees Celsius with an average low of 19.6 degrees Celsius throughout January. Whereas in winter average temperatures range from a maximum of 17.8 degrees Celsius to a low of 3.3 degrees Celsius in June. The annual rainfall averages 275.2 millimetres.

Aerial Town Map – Pukatja
FURTHER INFORMATION
The following websites provide additional background regarding Pukatja (Ernabella) or the APY Lands in general, including community structure plan, information about visitor and employee permit requirements.

3.9.1. PUKATJA (ERNABELLA) POWER STATION

GENERATION
The Power Station has four diesel generators. The Generators are not currently in use, with Pukatja supplied by the CPH Umuwa.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Make</th>
<th>Model</th>
<th>Serial Number</th>
<th>Installation Date</th>
<th>KW rating (approx.)</th>
<th>Hours run as at May 2013 (approx.)</th>
<th>Energy MWh pa 2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generator Set 1</td>
<td>Caterpillar</td>
<td>3306B</td>
<td>85Z8574</td>
<td>13/09/91</td>
<td>180</td>
<td>55,700</td>
<td>25</td>
</tr>
<tr>
<td>Generator Set 2</td>
<td>Caterpillar</td>
<td>3306B</td>
<td>9NR00626</td>
<td>05/09/96</td>
<td>180</td>
<td>40,600</td>
<td>22</td>
</tr>
<tr>
<td>Generator Set 3</td>
<td>Caterpillar</td>
<td>3306B</td>
<td>9NR00425</td>
<td>11/06/96</td>
<td>180</td>
<td>20,000</td>
<td>54</td>
</tr>
<tr>
<td>Generator Set 4</td>
<td>Caterpillar</td>
<td>3406E</td>
<td>1MZ00438</td>
<td>07/06/01</td>
<td>330</td>
<td>28,700</td>
<td>96</td>
</tr>
</tbody>
</table>

DISTRIBUTION
Electricity is supplied via a town mini grid system that is connected to the CPH in Umuwa which is just over 20 kms from Pukatja. Within Pukatja there is approximately 6.5 kms of HV overhead distribution lines and just under 2 kms of LV overhead distribution lines providing power to homes and businesses.

LOAD DATA
Town demand shows the following characteristics:

<table>
<thead>
<tr>
<th></th>
<th>kW (approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Load</td>
<td>890</td>
</tr>
<tr>
<td>Average Load</td>
<td>475</td>
</tr>
<tr>
<td>Min Load</td>
<td>53</td>
</tr>
</tbody>
</table>

Average annual estimated energy fed to station from CPH: 4,000 MWh

WATER SUPPLY
The power station is supplied by SA Water.
3.10. **WATINUMA**

Watinuma is located on the APY Lands, 265 km north-west of Marla and approx. 470 km south west of Alice Springs. Watinuma is supplied with energy through the CPH Grid.

2011 Census population data is not available for Watinuma.

Based on the climate records of the nearest weather station in Pukatja, Watinuma experiences average summer maximum temperatures of 34.5 degrees Celsius with an average overnight low of 19.6 degrees Celsius throughout January. Whereas in winter, average temperatures range from a maximum of 17.8 degrees Celsius to a low of 3.3 degrees Celsius in June. The annual rainfall averages 275.2 millimetres.

**Aerial Town Map - Watinuma**

**DISTRIBUTION**

Electricity is supplied via a town mini grid system that is connected to the CPH in Umuwa which is approximately 15 kms from Watinuma. Within Watinuma there is less than 1 km of LV overhead distribution lines providing power to homes and businesses.
3.11. YUNYARINYI (KENMORE PARK)

Yunyarinyi is an Anangu community in the APY Lands in the north west of South Australia. It lies approximately 460 km south of Alice Springs. It is located 36 km east of Pukatja the largest community on the APY Lands. Yunyarinyi was originally established as the Kenmore Park Cattle Station and pastoral activities continue to be undertaken here. Yunyarinyi is supplied with energy through the CPH Grid.

Yunyarinyi has a population of approximately 40 to 45 people, including a small number Piranpa (non-Aboriginal) people who work in the community to support Anangu.

Based on the climate records of the nearest weather station in Pukatja, Yunyarinyi experiences average summer maximum temperatures of 34.5 degrees Celsius with an average overnight low of 19.6 degrees Celsius throughout January. Whereas in winter, average temperatures range from a maximum of 17.8 degrees Celsius to a low of 3.3 degrees Celsius in June. The annual rainfall averages 275.2 millimetres.

Aerial Town Map – Yunyarinyi
DISTRIBUTION

Electricity is supplied via a town mini grid system that is connected to the CPH in Umuwa which is over 60 kms from Yunyarinyi. Within Yunyarinyi there is less than 1 km of LV overhead distribution lines providing power to homes and businesses.

FURTHER INFORMATION

The following websites provide additional background regarding Yunyarinyi (Kenmore Park) or the APY Lands in general, including community structure plan, information about visitor and employee permit requirements.


3.12. OAK VALLEY

Oak Valley is a remote aboriginal community located on the southern fringe of The Great Victoria Desert, approximately 516kms northwest of Ceduna on Maralinga Tjarutja Lands. It is approximately 320km north of Yalata by 4WD only road, crossing the Trans Australian railway line at Ooldea.

Oak Valley was established in 1985 as a community out station for Anangu people displaced from the Maralinga Lands for the British atomic tests. Oak Valley (Maralinga) Inc. has project managed the establishment and development of the community including the provision of housing, roads and other infrastructure. Oak Valley is now serviced with a store, mechanics garage, health clinic, aged care centre, a new school and an airstrip.

The local population ranges from 80 - 100. At times during special cultural activities the population has risen to 1,500 people, with visitors from neighboring communities.

The community also has a Community Development Employment Project (CDEP) program and arts workshop for local employment and cultural development activities.

Bordering the Great Victoria Desert, Oak Valley boasts some beautiful scenery - brilliant red soil, native eucalypts and of course, the native Desert Oak which the township is named after.

The Temperature ranges from 6.5ºC in winter to 44.7ºC in summer with minimum temperatures overnight -3º in winter. The average rainfall is .75mm - 1.25mm.

Neighbouring Aboriginal Communities:

- Closest neighbouring community is Yalata which is south of Oak Valley.
- Closest community over the WA border is Tjuntjuntjara.
- Closest community north of Oak Valley is Watarru on the APY Lands.
Visitors require an access permit to travel thru the Maralinga Lands. Transit is generally restricted to the Anne Beadell Highway but if you require access to other roads a written letter addressed to the Maralinga Tjarutja Community Council is required and subject to approval.

**OAK VALLEY**

![Oak Valley Map]

**FURTHER INFORMATION**

The following websites provide additional background regarding Oak Valley, including general information and visitor and employee permit requirements.

General:  [http://maralingatjarutja.com/community.htm](http://maralingatjarutja.com/community.htm)


Relevant Legislation: Maralinga Tjarutja Land Rights Act 1984
3.12.1. OAK VALLEY POWER STATION

Power Station - Front

Power Station – Control Room
**GENERATION**
The Power Station uses three diesel generators. The three generators at Oak Valley are automatically controlled using a ComAp control system.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Make</th>
<th>Engine Model</th>
<th>Installation Date</th>
<th>KW rating (approx.)</th>
<th>Hours run at June 2014 (approx.)</th>
<th>Energy MWh 2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generator Set 1</td>
<td>Caterpillar</td>
<td>3306B</td>
<td>28/06/03</td>
<td>180</td>
<td>41,223</td>
<td>75</td>
</tr>
<tr>
<td>Generator Set 2</td>
<td>Caterpillar</td>
<td>3306B</td>
<td>28/06/03</td>
<td>180</td>
<td>42,368</td>
<td>50</td>
</tr>
<tr>
<td>Generator Set 3</td>
<td>Caterpillar</td>
<td>3312B</td>
<td>30/06/04</td>
<td>100</td>
<td>12,377</td>
<td>400</td>
</tr>
</tbody>
</table>

**LOAD DATA**
Town demand shows the following characteristics:

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<thead>
<tr>
<th>kW (approx.)</th>
<th>kW (approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Load</td>
<td>150</td>
</tr>
<tr>
<td>Average Load</td>
<td>66</td>
</tr>
</tbody>
</table>
Power Station – Gen. Set 3

Power Station – Fuel Tanks
FUEL STORAGE CAPACITY
There are two 30,000 litre diesel fuel tanks at Oak Valley.

DISTRIBUTION
Electricity is supplied via a mini grid system that is connected to the Oak Valley Power Station. Oak Valley has approximately 125 meters of High Voltage (HV) overhead distribution lines and just over 300 meters of Low Voltage (LV) overhead distribution lines within the town providing power to homes and businesses.

COMMUNICATIONS
The Power Station has a phone line with dial-up internet available; however ADSL service is unavailable as the Telstra infrastructure does not reach the site. The power station has a satellite connection provided by Optus.

ACCOMMODATION
No dedicated accommodation unit but the community has a good visitor centre for reasonable tariff, shipping container based air conditioned sleeping quarters with 6 single bed units, each with small wardrobe and dresser. Another container has a fully equipped kitchen and a lounge, and there is an ablution unit containing shower, toilet, washing machine and hand basin.

WATER SUPPLY
The Power Station is supplied by SA Water.
3.13. **YALATA**

Yalata is an Aboriginal community located 200 kilometres west of Ceduna on the Great Australian Bight in South Australia. In 1996, the Yalata Reserve was proclaimed an Indigenous Protected Area (IPA) being an area of distinct character having significant ecological and cultural value. The reserve holds the largest expanse of untouched coastal Mallee in the south hemisphere. Under agreements between Commonwealth and State Government agencies, Yalata Community Incorporated (YCI) is committed to conserving the unique coastal and inland landscapes on the Yalata IPA.
In the 2011 Census, there were 293 people in Yalata (State Suburbs) of these 45.1% were male and 54.9% were female. Aboriginal and Torres Strait Islander people made up 89.4% of the population. The population of Yalata varies constantly, as Anangu travel regularly from community to community. The Yalata people regard themselves as the southern Anangu and speak a southern dialect of Pitjantjatjara as their first language.

The people of Yalata maintain an active cultural life and Aboriginal law is practiced by many sections of the community but the spiritual beliefs and ritual enactments of Anangu are never static.

The main population center is focused around Yalata Township and Yalata roadhouse. The community hunts within all of The Lands depending on seasonal availability. South west from Yalata along the long straight road is the Yalata Beach area, a recreation site for community members.

Yalata is Aboriginal owned land, managed by Yalata Community Inc. (YCI) and the Yalata Land Management Unit for conservation of biodiversity and the sustainability of traditional cultures. Visitors require an access permit to travel thru Yalata from the Land Management Unit.

FURTHER INFORMATION

The following websites provide additional background regarding Yalata including general information and visitor and employee permit requirements:

General:  http://www.yalata.com/
Permits:  http://yalata.org/permits.htm#COE
Relevant Legislation: Aboriginal Lands Trust Act 2013

3.13.1. YALATA POWER STATION

![Power Station Image]
Power Station – Front

Power Station – Control Room
**GENERATION**

The Power Station at Yalata uses three diesel generators. They are automatically controlled using a ComAp control system; each individual generator is governed by a ComAp IG-CU unit, with an additional unit controlling the system as a whole.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Make</th>
<th>Model</th>
<th>Installation Date</th>
<th>KW rating (approx.)</th>
<th>Hours run at June 2014 (approx.)</th>
<th>Energy MWh 2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generator Set 1</td>
<td>Caterpillar</td>
<td>C15</td>
<td>30/07/09</td>
<td>280</td>
<td>25,375</td>
<td>1000</td>
</tr>
<tr>
<td>Generator Set 2</td>
<td>Caterpillar</td>
<td>3306</td>
<td>30/05/08</td>
<td>180</td>
<td>83,508</td>
<td>170</td>
</tr>
<tr>
<td>Generator Set 3</td>
<td>Caterpillar</td>
<td>3306</td>
<td>04/07/03</td>
<td>200</td>
<td>41,693</td>
<td>270</td>
</tr>
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</table>

**LOAD DATA**

Town demand shows the following characteristics:

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<tr>
<th>kW (approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Load</td>
</tr>
<tr>
<td>Average Load</td>
</tr>
<tr>
<td>Minimum Load</td>
</tr>
</tbody>
</table>

Average annual estimated energy fed to station from CPH: 1,400 MWh
Power Station – Gen. Set 2

Power Station – Gen. Set 3
FUEL STORAGE CAPACITY
There is a single 50,000 litre double skinned diesel fuel tank at Yalata.

DISTRIBUTION
Electricity is supplied via a mini grid system from Yalata Power Station. Yalata has approximately 15 kms of HV overhead distribution lines and just over 5 kms of LV overhead distribution lines within the town providing power to homes and businesses.

COMMUNICATIONS
The Power Station uses a 3G modem to achieve ADSL equivalent data service quality.

ACCOMMODATION
No dedicated accommodation – the Yalata roadhouse is now closed as such, but there are accommodation units there of sorts, however I don’t know anything about them. Only a short drive back to Nundroo Roadhouse with motel style units

WATER SUPPLY
The Power Station is supplied by SA Water.
### 3.14. FURTHER INFORMATION

#### 3.14.1. GIS COORDINATES

The following table contains the GIS coordinates for all the above sites:

<table>
<thead>
<tr>
<th>Site</th>
<th><strong>Latitude</strong></th>
<th><strong>Longitude</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Amata</td>
<td>-26° 8' 58.056&quot;</td>
<td>131° 8' 40.902&quot;</td>
</tr>
<tr>
<td>Ernabella</td>
<td>-26° 16' 39.9864&quot;</td>
<td>132° 7' 54.087&quot;</td>
</tr>
<tr>
<td>Fregon</td>
<td>-26° 45' 59.331&quot;</td>
<td>132° 1' 40.8462&quot;</td>
</tr>
<tr>
<td>Iwantja</td>
<td>-26° 57' 57.8514&quot;</td>
<td>133° 18' 30.6828&quot;</td>
</tr>
<tr>
<td>Kalka</td>
<td>-26° 6' 59.9076&quot;</td>
<td>129° 9' 8.4522&quot;</td>
</tr>
<tr>
<td>Kanpi</td>
<td>-26° 10' 2.3916&quot;</td>
<td>130° 7' 5.8506&quot;</td>
</tr>
<tr>
<td>Mimili</td>
<td>-27° 0' 15.6456&quot;</td>
<td>132° 42' 31.7808&quot;</td>
</tr>
<tr>
<td>Murputja</td>
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<td>130° 10' 51.9594&quot;</td>
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### 3.14.2. CUSTOMER BREAKDOWN

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### 3.14.3. WEB LINKS

The following websites provide additional background regarding the APY Lands in general, including information about visitor and employee permit requirements.