

52ST.305



TENDER FORM

The Chairman – Tender Opening Committee

PNG Power Ltd

P. O. Box 1105

BOROKO 111 NCD

Papua New Guinea

Phone: (675) 324 3381

Fax: (675) 3250791

Email: supplyhelpdesk@pngpower.com.pg

We (Full name of company).....

.....

.....

.....

hereby tender for the undermentioned goods and services subject to the conditions of tendering and at the prices quoted in the scheduled therein

TENDER No. 21/2018

CLOSING AT 4.00 PM FRIDAY 26th OCTOBER 2018

**FOR REQUEST FOR BIDDERS TO TENDER FOR A
CONTRACT TO SUPPLY EASIPAY AND CREDIT
METERS TO PNG POWER Ltd FOR A YEAR
CONTRACT.**

SUPPLY OF METERS AND METER ACCESSORIES TO PNG POWER LIMITED

TERMS OF REFERENCE

This terms of Reference (TOR) is for the total Procurement process (purchasing, stocking, and delivery), to PNG Power Limited (PPL), Port Moresby in PNG, all meter types and meter accessories in a Safe, Timely and in the most Cost Efficient manner.

BACKGROUND

1. PNG Power Ltd through the Meter Management Section of the Customers Services Business Unit is responsible for the reviewing, planning, buying, stocking, distributing and re-ordering of all Meters for PNG Power Limited's normal operational requirements throughout the country.
2. Meters and accessories are currently being bought from a few Australian based Companies with storage/ warehouse facilities and purchasing from manufacturing locations in other parts of the world.
3. Currently PNG Power Limited does not have any visibility on meters. We are not able to definitively determine usage rates, required stock levels, min/max, reorder trigger points, etc. This is a PNG Power Limited country wide issue.
4. Meters are being purchased by the PNG Power Limited's Inventory BU "as and when" requested by Customer Services Business Unit, Meter Management.
5. Current lead time for meter purchase (from time of order requisition from originating Business Unit to the eventual receipt of these meters into PNG Power Limited Stores) can take up to six months, under normal situations.
6. One contributing factor for the long lead time is the lengthy Purchase Order approval process.

7. The long lead time for meter purchases result in backlog of customers waiting for meters and as soon as an order arrives, the meters are all drawn down resulting in a nil stock situation immediately again.
8. With our current purchasing practices, PNG Power Limited is not able to keep up with customer and center demands. Customers and Centers are made to wait for long periods resulting in loss of potential revenue to PNG Power Limited and on occasions customers resorting to illegal connections, often using the absence of meters as their reason.

OBJECTIVES

It is PNG Power Limited's objective to have in place a long term binding contract/s with company/ ies in the Selling and/ or Manufacturing and/ or distribution of meters and meter accessories, hence the requirement to tender for the supply of all meter types and accessories that are currently being used by PNG Power Limited. This will be an open bid and any company (current suppliers as well new interested companies) will be encouraged to apply. There are marked advantages in having long term contract/s with supplier/s in place, some of which are;

1. Appropriate meter numbers and types are held in stock in the Port Moresby warehouse and distributed to all centers as and when required, in a timely manner.
2. When there is a smooth flow of meters consistently, PNG Power Limited will be able to have clear visibility of usage rates and plan/ budget meters' stocks for the future.
3. Where there is a consistent supply of meters, PNG Power Limited will maximize the revenue earning potential across the country.

SCOPE OF WORKS/ TERMS OF REFERENCE

General

The overall purpose of this document is to define the Terms of Reference for the supply of all meter types and accessories. The TOR the supplier/s shall undertake are as follows but not limited to:

1. Securing stock holding location in close proximity to air and sea ports and closest to Port Moresby, PNG.
2. Office/ Storage facilities of the supplier need to be close to an international sea port and international airport with regular scheduled to Port Moresby, PNG.
3. Secure and stock at all times the different meter types and accessories specified and as required by PNG Power Limited.

4. Where PNG Power Limited's required meters are not in the Suppliers warehouse stock, it will be the supplier's responsibility to bring in those meters at the quickest transport mode possible at the shortest time possible and at no additional costs to PNG Power Limited.
5. Have the demonstrated ability to hold sufficient stock in their warehouse, available to dispatch immediately upon request in writing from PNG Power Limited.
6. Other expectations;
 - I. The Supplier will dispatch all orders within forty-eight hours from the date/ time of confirmation of receipt of order.
 - A request for the supply of meters will be initiated by PNG Power Limited noting the date and time of the request.
 - The Supplier shall acknowledge receipt of the request upon receipt.
 - From the time of receipt, the supplier shall dispatch the meters within forty-eight hours.
 - The supplier shall advise PNG Power Limited of shipping plans prior to actual dispatch.
 - At the time of dispatch or immediately after the dispatch of order, supplier shall inform PNG Power Ltd of the shipping details. The email pre-alert shall include copies of invoice, BoL, AWB and dispatch documentation.
 - The supplier shall nominate a Pom based agent and provide their contact details to PPL.
 - II. All meters and accessories to be supplied must fully conform to Standards, Ratings and Specifications as supplied by and acceptable to PNG Power Limited.
 - PNG Power Limited shall make available all meter and meter accessory standards and specifications to the supplier.
 - The supplier shall only supply meters and accessories that meet those specifications.
 - Meters/ accessories that do not meet those standards shall not be supplied unless approved in writing by PNG Power is granted.
 - Any supplied meter and/ or accessory that does not meet the specifications of PPL shall be returned to the supplier at supplier's costs and replacement meters/ accessories sent to PPL warehouse Pom, at no additional cost to PPL.

- III. All meters and accessories supplied shall have the PNG Power Limited logo affixed onto them. In the cases of Easipay meters, an additional "Easipay" logo shall be affixed as well.
- IV. Shipping terms will be CIP, Pom, PNG. PNG Power Limited will take ownership as soon as the cargo lands at the port of destination, being Pom. (Supplier shall pay for frt and insurance).
- V. Liaise with PPL on matters relating to the tender
 - Quantity of Meters
 - Types of meters
 - Frequency of the Orders
 - Specifications of meters and accessories

CRITICAL SUCCESS FACTORS

Some factors that are critical with respect of providing professional service to PNG Power Limited;

1. Clear and timely communication between relevant stakeholders, (PNG Power Ltd, Supplier, Shipper, Freight forwarders).
2. Inform PNG Power Limited immediately of any issues or shortfalls or expected issues or shortfall prior to the event/s occurring.
3. Timing and timeliness with respect to furnishing documents, processing requests, responding to queries and processing of payments for goods and services rendered.
4. Attention to detail and accuracy.
 - Safe, cost effective and efficiency in the handling, shipping and delivery of meters and accessories.
 - Documentation and filing of all transactions relating to these transactions.
 - Supplier/s to nominate primary person of contact in Pom, who shall be contactable at all hours and on all days for all matters relating to meter supplies.
5. Provide the services means to do the work necessary to complete the work specified as procure, supply and transport the meters in accordance with the Contract and Terms of Reference.
6. The works to be done is as per the Terms of Reference.

EXPRESSION OF INTEREST

The following are the guidelines for the companies wishing to submit their Expression of Interest (Eoi) . All submissions shall include but not limited to the following;

1. Eoi/ Proposal Application Requirements

1.1 Business Details

- Registered Business Name, Company Registration number, Tax File, GST number, physical and postal address/ esp, website, email address, number and profile of employees, schedule of shareholders and directors.
- A concise company profile

1.2 Work History

- Outline the number of years in business.
- Nature of business.
- Manufacturing/ business relationship with meter manufactures.
- Import and export experience
- Experience in shipping and logistics.
- Past PNG experience.
- Significant relevant clients.
- General background on your organization.
- Company mission and vision.

1.3 Administration

- Filing system for PPL documents
- Outline your business processes from the time an order request is received from PPL through to the actual dispatch of the order.
- All documentation relating to the order with freight forwarders shall be made available to PPL prior to arrival of the freight in Pom to ensure monitoring and prompt clearance preparations and organizing pre-clearance where possible.
- The supplier shall indicate their payment terms and conditions.

1.4 Business and Trade Reference.

- A minimum of three years.

1.5 Meter and Accessories Costs.

- A schedule of rates for the different meter types and accessories to be charged shall be made available to PPL in advance.

1.6 Logistics- Shipping and Airfreight.

- The supplier shall provide detailed relevant rates and expenses for the services that will be charged.
- The supplier shall only engage PPL approved Logistics agents, with established offices in Pom.
- Shipping terms shall be CIP. Supplier shall be responsible to deliver PPL orders to the port/s of discharge, Pom. The supplier shall bear all costs; including but not limited to transport and associated, freight agents and associated, export preparation and insurance costs.

1.7 Self-Assessment of ability to meet PPL's meter requirements safely, efficiently and effectively

- Ability to source, store and supply meters and accessories effectively, efficiently at the cheapest cost and shortest time possible.
- Competitive pricing
- Competitive Terms and Conditions
- Relative experience and sound management
- Resources (staff and specialist skills)
 - Storage facilities.
 - Staffing.
 - Agents at purchasing and delivery points.
- Strategies and methodology presented to PPL to prompt and effective service at the most cost efficient manner possible.

Ensure your EoI clearly states your company's ability to professionally carry out PPL's supply of meters and accessories.

The contractor shall then acknowledge receipt and confirm the acceptance within 5 days of the date of this TOR.



Cnr Wards Road/Cordia St. Hohola
PO Box 1105, BOROKO 111, NCD
Port Moresby, Papua New Guinea
☎ (675) 324 3200/70908000/75008000
✉ info@pngpower.com.pg
🌐 www.pngpower.com.pg

PNG Power shall not be obligated to accept any EOI, nor acquire any of the products or services included in the EOI, nor discuss the reasons why any EOI was accepted or rejected. No agreement will exist with any party until PNG Power Limited and the goods/ service providers have signed a written agreement.

Yours Faithfully,

 25/09/18
Joe Koi Nikents
Manager – Meter Management].



PNG POWER Ltd.

SCHEDULE OF FORECAST REQUIREMENTS AND OFFER

ANNEX A TO:
CONDITIONS OF TENDER

LOCATION: PORT MORESBY

PAGE: 1

PART 1		REQUIREMENT					OFFER			
Item No.	Vocab No.	Description	Spec. App No.	Unit of Issue	Forecast Requirement	Unit Price	STD Pack	Comment	Reserved for internal use	
(a)	(b)	©	(d)	(e)	(f)	(g)	(h)	(i)	(j)	
1	151031	Gem Meter - CashPower 2000,Bi-Stable Latch Prepayment, 20 Digit, 240 Volts Direct Connected, Single Phase, 4 Terminal Class 2.0, 0.1 To 80 Amps Whole Current		Each	10,000					
2	151041	Link, Meter Test Block, 3 Phase, Similar to Clipsal, Type 1008		Each	300					
3	151043	ACE9000 SSP Split Single Phase prepayment meter mounted meter, BS 20 (60)A, CL 2, 230V, isolated, non polarized complete with Customer Interface Unit (CIU)		Each	1,000					
4	151047	Consumer Metering Current Transformer, Extended Range. Rated Ratio 200/5 AMP.		Each	450					
5	151048	Consumer Metering Current Transformer, Extended Range. Rated Ration 800/5 AMP.		Each	450					
6	151013A	Meter, KWH 4 Wire 5A - 200/5 C.T. Cyclometer Dial 3 x 240 Volts " Extended Range only" Meter Engraved with "PNGEC" Property Plate Serially Numbered.		Each	200					
7	151016A	Electronic (Digital) Electricity Smart Meter, KWH 3Phase, 4 Wire 1A - 15 A C.T.		Each	300					
8	151026A	Electronic (Digital) Electricity Meter, Surface Mounted, 240Volts, Direct Connected, Single Connected, 4 Terminal Class 1.0, 10 - 100AMPS Whole Current		Each	800					
9	151032A	Meter, Prepayment, 20 Digits, 240V, 50Hz, Direct Connected, Three Phase, 8 Terminal Class, 20 To 100A Current.		Each	1,000					



PNG POWER Ltd

(FAILURE TO COMPLETE AND SIGN THIS PART WILL INVALIDATE THE TENDER)

PART 2

A		BASIS OF PRICING		DESTINATION DEPOTS			
Line	Supplier			POM	LAE	RABAU	GOROKA
No.	Category			(c)	(d)	(e)	(f)
(a)	(b)						
1.	In Country						
2.	Overseas			Ex Wks/FOB	Ex Wks/FOB	Ex Wks/FOB	Ex Wks/FOB

1. EXPLANATORY NOTES:

The destination depot for this tender appears at columns c, d, e, or f. Please complete as follows:

2. OVERSEAS SUPPLIERS:

Your pricing options are already entered at line 2. Delete one option and leave that on which your price has been based under the destination depot of this Tender. If no deletion has been made, the contract will be **FOB** costs.

3. PNG SUPPLIERS:

Where your supply is sourced locally to the destination enter "**FIS**" on line 1 under that depot. Where your supply is sourced from another province to that of the destination depot, enter "**FOB**" under the destination depot with the Port of shipment.

- 3.1 Please note last line of paragraph 7 of the "Conditions and specifications for the supply of goods and materials" on "**GST**". This is a vital condition of your offer and failure to observe this condition may result in your offer declared informal and not included for consideration.

B		PRODUCT ORIGIN	
Line No.	Schedule Item Number	Country of Manufacturer	
	(a)	(b)	
1.			
2.			

C DECLARATION

In respect of the offer in Part 1 of the schedule, I make the following declaration.

- Supply will conform with the conditions of Tender as specified.
- The price basis of the offer has been clearly identified in Part 2 - A in accordance with explanatory notes.
- The country of manufacturer of the product is given at Part 2 - B.
- In accordance with paragraph 3.1 of the explanatory notes.
GST of.....% has been included.

Company Name.....
& Address.....
Fax No.....**Phone**.....
Email.....
NAME..... **Signature**.....
Title..... **Date**.....

MATERIAL SPECIFICATION

VOCAB NUMBER	ITEM DESCRIPTION
151031	GEM METER - CASHPOWER 2000,BI-STABLE LATCH PREPAYMENT, 20 DIGIT, 240 VOLTS DIRECT CONNECTED, SINGLE PHASE, 4 TERMINAL CLASS 2.0, 0.1 TO 80 AMPS WHOLE CURRENT

SPECIFICATION DETAILS

1. STANDARDS:

The meter shall comply with the relevant requirements of the Australian Standards Specification for "General Purpose Watt-hour Meters" AS1284 Part 1, 1991 as amended. Or the equivalent PNG Standards as adopted specifically covering Prepayment Meters.

2. ELECTRICAL PROPERTIES:

2.1. Current:

The rated basic current shall be 1 amperes and the maximum continuous current shall be 80 amperes.

2.2. Accuracy:

It shall be class 2.0 or 2% accuracy. The meter accuracy can be determined also By the rate of consumption as indicated by the Light Emitting Diode (LED) Indicator on the front panel which must flash at a rate of 800 flashes per Kilowatt hour.

2.3. Voltage:

The voltage shall be rated at 240 volts at 50Hz frequency and permitted to regulate 80% to 120% of nominal voltage per phase.

- **Unit of Measure:** Each
- **Rejection:** PNG Power Ltd reserves all rights to reject whole or part of the order not complying with this specification and is not liable for any cost or loss with the return of rejects to the Supplier. Facilitation of Invoice Credit must commence between the supplier and PNG Power Ltd through the process of PNG Power Ltd Discrepancy Report provisions.

Drawing References:

Manufacturer's Product Code:


STANDARDS COMMITTEE APPROVAL

Approval by George Win:
Chairman

Signature: 

Date: 01/06/2018

DATA REVIEW ENDORSEMENT

NAME	TITLE	SIGNATURE	DATE
Grevasias Peni	Team Leader - Standards and Materials		1/6/18

SPECIFICATION DETAILS FOR VOCAB: 151031

3. **OPERATION:**

The GEM meter operates exactly the same manner as the standard Cashpower 2000 prepayment electricity meter. However instead of using a miniature breaker/isolator with manual, external lever to connect power, it utilises a bi-stable latch which is located within the meter and is not accessible from the outside.

Power is automatically connected to the load side of the meter when there is credit in the meter and automatically disconnects the power if no credit is left. Power will also be terminated if any attempt is made to tamper with the meter.

In the case of trip due to overload, the meter will try to reconnect power five times at 30 seconds intervals. If after five attempts the current is still above the limit, the unit will wait 30 minutes before repeating the procedure.

4. **FITTINGS:**

The GEM meter shall be fitted with Credit Status Display (CSD), 3 Level Credit Display – (LCD), Keypad for Credit Transfer Number Entry, Low Credit Warning Level, Credit Transfer Number Accept/Reject Indication, Tamper Indication, Lightning protection and a bi-stable latch located within the meter and is not accessible from outside to prevent tempering of the meter circuit breaker. Anti-tamper switch is mounted inside the meter box.

5. **CONNECTION:**

The connection to the meter shall be of symmetrical type and the terminals being marked as active, neutral, neutral and active (ANNA).

6. **METER ENCLOSURE:**

The IP Rating of the meter should be IP54 in accordance with IEC 60529 for indoor meters and material of should be of polycarbonate, flame retardant, resistance to spread of fire and able to withstand severe heat, and resistance to insect attack.

7. **REMOTE COMMUNICATION**

The meter should be accessed remotely utilising PLC technology and should also have options to access remotely using wireless mobile technology such as GSM, 3G and 4G. The remote communication option will enable remote monitoring, fraud detection, meter tempering and two-way communication with ability to audit meters remotely. Meter should also be TCP/IP compatible.

8. **GENERAL OPERATING CONDITIONS**

Equipment should be designed to generally operate in these conditions:

1. Annual Average Ambient Temperature	30°C
2. Maximum Ambient Temperature	40°C
3. Installation	Indoor or Outdoor (in weather proof meter box)
4. Maximum Relative Humidity	90%
5. Environmental Conditions	Humid Tropical Climate with heavily polluted atmosphere
6. Operation Altitude	Up to 1600m above sea level

9. MARKING:

It shall have a printed name as "Property of PNG Power Ltd.," and engraved or stamped with and "PPL" Number supplied by the Manufacturer on the Official Order.

10. DIMENSIONS:

The meter shall have the dimensions of height, length and width as 197mm x 137mm x 72mm respectively

11. REJECTION:

PNG Power reserves the right to reject the whole consignment should 5% or more of any one consignment of found defective.

12. SAMPLE:

Samples of the meter shall be made available to the organisation for inspection prior to the Tender closing date.



MATERIAL SPECIFICATION

VOCABULARY NUMBER	ITEM DESCRIPTION
151041	LINK, METER TEST BLOCK, 3 PHASE, SIMILAR TO CLIPSAL, TYPE 1008

Specification Detail

- GENERAL REQUIREMENTS :**

The meter test block shall provide a practical and safe method for the connection of voltage and current indicating or 4 measuring instruments to an electrical installation.

The link shall enable temporary instruments to be connected to the terminal block to check The accuracy of permanently connected instruments without interrupting the electricity supply to the consumer.
- COVER :**

An impact resistant cover shall be provided.
- TERMINALS :**

Terminals shall accommodate up to 10mm cables.
- DIMENSIONS :**

Overall - 210 x 153 x 55mm
Mounting Centres - 177 x 83mm
- REFERENCE :**

This item shall comply with the relevant requirements of :-

ESAA Specification No. : S (b) 7 – 1976 : “Specification for Current transformer Metering Test Block”.
- RIGHT OF REJECTION :**

PNG Power reserves the right to reject any Meter Test Block which do not comply with parts of this specification.

Drawing Reference:

Originated and Approved By :	Review Data			
	Date	Name	Appointment	Signature
Name Print: B. Awinachi Signature : Appointment : Regulatory Service Engineer Date : 28/1/14				

52ST400
Intr. 3/12aw



PNG POWER LTD

MATERIAL SPECIFICATION

VOCAB. NUMBER.

151043

ITEM DESCRIPTION:

ACE9000 SSP Split Single Phase prepayment meter
mounted meter, BS 20(60)A, CL 2, 230V,
isolated, non polarized complete with Customer
Interface Unit (CIU)

Item Category =

SPECIFICATION DETAILS.

1. STANDARDS:

The meter shall comply with the relevant requirements of the Australian Standards Specification for "General Purpose Watthour Meters" AS1284 Part1, 1991 as amended or the equivalent PNG Standards as adopted specifically covering Prepayment Meters.

2. ELECTRICAL PROPERTIES:

2.1. Current:

The rated basic current shall be 2 amperes and the maximum continuous current shall be 60 amperes.

2.2. Accuracy:

It shall be class 2.0 or 2% accuracy. The meter accuracy can be determined also by the rate of consumption as indicated by the Light Emitting Diode (LED) indicator on the front panel which must flash at a rate of 800 flashes per Kilowatt hour.

2.3. Voltage:

The voltage shall be rated at 240 volts at 50Hz frequency and permitted to regulate between -20% and +15% of nominal voltage per phase.

Drawing References:

Manufacturers Product code:

STANDARDS COMMITTEE APPROVAL

APPROVED BY:

Alex Oa

SIGNATURE:

DATE: 1/12/2014

DATA REVIEW ENDORSEMENT

NAME	TITLE	SIGNATURE	DATE
Upa Minga	GMCS		24/11/14



PNG POWER LIMITED

SPECIFICATION DETAILS

3. OPERATION:

The Single Phase Split meter operates exactly the same manner as the Single phase standard Actaris ACE9000 ITP prepayment electricity meter but, consist of two parts. The MCU and CIU communicate via a pair of pilot wires. The CIU is powered from the MCU through the same pair of wires. The CIU includes the key pad, LCD display and LED indicators

4. FITTINGS:

The Single Phase Split meter/MCE shall be fitted with Credit Status Display-Liquid Crystal Display (LCD), 3 Level Credit Display-Light Emitting Diode (LED), keypad for Credit Transfer Number entry, Low Credit Warning Level, Credit Transfer Number Accept/Reject Indication, Temper Indication and anti temper switch Mounted.

5. CONNECTION:

The connection to the Single Phase Meter shall be marked as Line Neutral, Line 1, Line 2, Line 3 on the supply Side and Load Neutral, Load 1, Load 2, Load 3 on the load side of the meter circuit breaker/isolator.

The meter (MCU) would typically be mounted outside a house e.g on an electricity supply pole or in a Metering box. The keypad (CIU) would be mounted in a convenient location within the consumers dwelling so that the consumer can easily monitor electricity consumption and enter new Credit Transfer numbers. The MCU and CIU communicates via a pair of pilot wires connected over distance of up to 130 meters.

6. MARKING:

It shall have a printed name as 'Property of PNG Power Ltd' and engraved or stamped with PPL number supplied by PNG Power Ltd from the Official Order.

7. DIMENSIONS:

The MCU shall have the dimensions of Height: 66mm x Length: 172mm x Width: 139mm

The CIU shall have the dimensions of Height: 129mm x Length: 29mm x Width: 109mm

8. UNIT OF MEASURE: Each.

9. REJECTION:

PNG Power Ltd reserves all rights to reject whole consignment should 5% or more of any one consignment is found defective, and is not liable for any cost or loss with the return of rejects to the Supplier. Facilitation of invoice credit must commence between the Supplier and PNG Power Ltd through the process of PNG Power Ltd Discrepancy Report provisions.

10. SAMPLE:

Samples of the meter shall be made available to PNG Power Ltd for inspection prior to the Tender closing date.

52ST403
Intr. 7/12aw



PNG Power Ltd

MATERIAL SPECIFICATION

VOCAB. NUMBER.

151047

ITEM DESCRIPTION:

CONSUMER METERING CURRENT TRANSFORMER,
EXTENDED RANGE. RATED RATIO 200/5 AMP.

Item Category = B

SPECIFICATION DETAILS.

- They shall be suitable for outdoor use and comply with AS 1675—1986.
- They shall also comply with E.S.A.A.S(B) - 1976.
- Equivalent National or International may be considered.

They shall be :-

1. Type S45
2. Rated ratio of 200/5 and shall have a range of compliance extending from 2.5% of rated Primary current.
3. Accuracy class of 0.5.
4. Minimum window diameter of 45mm.
5. Rated output of 5VA
6. Rated burden of 0.2 OHMS.
7. Suitable for use in tropical conditions.

- Unit of Measure: Each.

- Rejection: PNG Power Ltd, reserves all rights to reject whole or part of the order not complying with this specification and is not liable for any cost or loss with the return of rejects to the Supplier. Facilitation of Invoice credit must commence between the supplier and PNG Power Ltd through the process of PNG Power Ltd Discrepancy Report provisions.

Drawing References:

Manufacturers Product code:

STANDARDS COMMITTEE APPROVAL

APPROVED BY:

Alex Oz
Chairman

SIGNATURE:

DATE 26 / 3 / 2013

DATA REVIEW ENDORSEMENT

NAME	TITLE	SIGNATURE	DATE
JAMES HAVE	MRS & (A)	[Signature]	24/03/14

52ST400

Intr. 7/12aw



PNG Power Ltd

MATERIAL SPECIFICATION

VOCAB. NUMBER.

151048

ITEM DESCRIPTION:

CONSUMER METERING CURRENT TRANSFORMER,
EXTENDED RANGE. RATED RATIO 800/5 AMP.

Item Category = B
SPECIFICATION DETAILS.

- They shall be suitable for outdoor use and comply with AS 1675—1986.
- They shall also comply with E.S.A.A.S(B) - 1976.
- Equivalent National or International may be considered.

They shall be :-

1. Type T.
2. Rated ratio of 800/5 and shall have a range of compliance extending from 2.5% of rated Primary current.
3. Accuracy class of 0.5.
4. Minimum window diameter of 85mm.
5. Rated output of 15VA.
6. Rated burden of 0.6 OHMS
7. Suitable for use in tropical conditions.

- **Unit of Measure:** Each.

- **Rejection:** PNG Power Ltd reserves all rights to reject whole or part of the order not complying with this specification and is not liable for any cost or loss with the return of rejects to the Supplier. Facilitation of invoice credit must commence between the supplier and PNG Power Ltd through the process of PNG Power Ltd Discrepancy Report provisions.

Drawing References:
Manufacturers Product code:

STANDARDS COMMITTEE APPROVAL

APPROVED BY:

Alex Oa
Chairman

SIGNATURE:
DATE:

26 / 3 / 2013

DATA REVIEW ENDORSEMENT

NAME	TITLE	SIGNATURE	DATE
JAMES KAVE	MRSQ (A)	<i>[Signature]</i>	24/03/14




MATERIAL SPECIFICATION

VOCABULARY NUMBER	ITEM DESCRIPTION
151013A	METER, KWH 4 WIRE 5A - 200/5 C.T. CYCLOMETER DIAL 3 X 240 VOLTS "EXTENDED RANGE ONLY" METERS ENGRAVED WITH "PNGEC" PROPERTYPLATE SERIALLY NUMBERED.

Specification Detail

1. The meters shall comply generally with the relevant requirements of Australian Standard Specification for Electricity Meters A.S. 1284 Parts 1-3 as amended or the equivalent P.N.G. Standard as adopted.
2. They shall be suitable for use on 200/5 Amp. Extended range current transformers type S with a secondary current range of 2.5 to 15 Amperes.
3. They shall be fitted with cyclometer type registers that are capable of being easily rezeroed. The gearing of the register shall be made of material that shall not warp or bend in temperatures that may exist in meter locations in Papua New Guinea.
4. They shall be fitted with property plates that are printed "Property of Papua New Guinea Electricity Commission" and engraved or stamped with an "EC" number supplied by the Commission on the Official Order.
5. All meters offered should have direct reading registers, but if a Multiplying factor is used for a specified C.T. current range, then that factor must be prominently and permanently fixed adjacent to the meter register, and the appropriate current range engraved or stamped on the property plate.
6. The meters shall be fitted with extended terminal covers.
7. Sample to be made available to the Commission for inspection prior to the Tender closing date.

Drawing Reference:

Originated and Approved By:		Review Data			
		Date	Name	Appointment	Signature
Name in Print: ^{FR} P. Ireng		78/11/62	K. Venu	A/CSE	H. Venu
		21/1/00	D. Lakshmi	MSL	
Signature: ^m 					
Appointment: A/C.S.E.					
Date: 13.12.99					

MATERIAL SPECIFICATION

VOCAB NUMBER	ITEM DESCRIPTION
151016A	ELECTRONIC (DIGITAL) ELECTRICITY SMART METER, KWH 3PHASE, 4 WIRE 1A – 15 A C.T.

SPECIFICATION DETAILS

1. STANDARDS:

The Meter shall comply with relevant requirements of the Australian Standards Specification for Electricity Metering AS1284.5, 2000 General Purpose electronic watthour meters or the equivalent PNG Standards as adopted specifically covering credit meters.

2. ELECTRICAL PROPERTIES:

2.1 Voltage:

The voltage shall be 3x110V 3P 3W; 3x63.5 (110) V – 3x240 (415)V, 3PH 4W, at 50 Hz frequency and permitted to regulate 220% and +15% of nominal voltage per phase.

2.2 Current:

The secondary rated base current shall be 1 amperes and maximum continuous current shall be 10-15 amperes.

2.3 Accuracy:

It shall be of revenue class 0.5S or 0.5% accuracy. The meter accuracy can be determined also by the pulsing rate of consumption as indicated by the Light Emitting Diode (LED) indicator on the front panel which must flash at a rate of 0.1 impulses per watt hour or Wh.

2.4 Current Transformer:

It shall be suitable for use on 800/5 Amp and above. Extended range current transformers Type S with a secondary current range of 2.5 to 15 Amperes.

- **Unit of Measure:** Each

- **Rejection:** PNG Power Ltd reserves all rights to reject whole or part of the order not complying with this specification and is not liable for any cost or loss with the return of rejects to the Supplier. Facilitation of Invoice Credit must commence between the supplier and PNG Power Ltd through the process of PNG Power Ltd Discrepancy Report provisions.

Drawing References:

Manufacturer's Product Code:


STANDARDS COMMITTEE APPROVAL

Approval by: G. Peni

Signature: 

Date: 24 / 8 / 18

DATA REVIEW ENDORSEMENT

NAME	TITLE	SIGNATURE	DATE
Eric Hengene	TL Credit Meters		03-09-18

SPECIFICATION FOR SINGLE PHASE ELECTRONIC ELECTRICITY METER**5. CONNECTION:**

The Line and Load connection to the Three Phase Meter shall be clearly marked for active and neutral connections. The Meter would be typically mounted in a meter box outside or on an electricity supply pole.

6. METER ENCLOSURE:

The IP Rating of the meter should be IP54 in accordance with IEC 60529 and material of should be of polycarbonate, flame retardant, resistance to spread of fire, able to withstand severe heat, and resistance to insects attack.

8. MARKING:

It shall have a printed name as "Property of PNG Power Ltd" and engraved or stamped with PPL number supplied by PLG Power Ltd through the Official Order.

9. DIMENSIONS:

The meter shall have the approximate Dimensions of Height: 47mm x Length: 158mm x Width: 132mm

10. UNITS OF MEASURE:

Units of Measure will be Each unit

11. REJECTION:

PNG Power Ltd reserves all rights to reject whole consignment should 5% or more of any one consignment be found defective, and is not liable for any cost or loss with the return of rejects to the Supplier. Facilitation of invoice credit must commence between the Supplier and PNG Power Ltd through the process of PNG Power Ltd Discrepancy Report provisions.



SPECIFICATION FOR ELECTRONIC ELECTRICITY SINGLE PHASE METER**12. SAMPLE:**

Samples of the meter shall be made available to PNG Power Ltd for inspection and testing prior to consideration for public Tender.

11. TYPE TEST RESULTS:

The Supplier shall make available to PNG Power Ltd Type Test Results for the type of meter offered to PNG Power Ltd for consideration and acceptance prior to deciding to accept the meter for purchase and use by PNG Power Ltd.

MATERIAL SPECIFICATION

VOCAB NUMBER	ITEM DESCRIPTION		
151026A	ELECTRONIC (DIGITAL) ELECTRICITY METER, SURFACE MOUNTED, 240VOLTS,DIRECT CONNECTED, SINGLE CONNECTED,4 TERMINAL CLASS 1.0, 10-100AMPS WHOLE CURRENT		
SPECIFICATION DETAILS			
<p>1. STANDARDS: The Meter shall comply with relevant requirements of the Australian Standards Specification for General Purpose Watt-hour Meters" AS1284 Part 1, 1991 as amended or the equivalent PNG Standards as adopted specifically covering credit meters.</p> <p>2. ELECTRICAL PROPERTIES:</p> <p>2.1 Voltage: The voltage shall be 230 volts at 50 Hz frequency and permitted to regulate 220% and +15% of nominal voltage per phase.</p> <p>2.2 Current: The rated base current shall be 10 amperes and maximum continuous current shall be 100 amperes.</p> <p>2.3 Accuracy: It shall be of revenue class 1.0 or 1% accuracy. The meter accuracy can be determined also by the pulsing rate of consumption as indicated by the Light Emitting Diode (LED) indicator on the front panel which must flash at a rate of 1000 flashes per Kilowatt hour or kWh.</p> <ul style="list-style-type: none"> Unit of Measure: Each Rejection: PNG Power Ltd reserves all rights to reject whole or part of the order not complying with this specification and is not liable for any cost or loss with the return of rejects to the Supplier. Facilitation of Invoice Credit must commence between the supplier and PNG Power Ltd through the process of PNG Power Ltd Discrepancy Report provisions. 			
<p>Drawing References:</p> <p>Manufacturer's Product Code:</p>			
<p align="center"><u>STANDARDS COMMITTEE APPROVAL</u></p> <p>Approval by: G. Peni Signature:  Date: 31/7/18</p>			
DATA REVIEW ENDORSEMENT			
NAME	TITLE	SIGNATURE	DATE
Eric Hengene	TL Credit Meters		01.08.18

SPECIFICATION FOR SINGLE PHASE ELECTRONIC ELECTRICITY METER**5. CONNECTION:**

The Line and Load connection to the Single Phase Meter shall be clearly marked for active and neutral connections. The Meter would be typically mounted in a meter box outside or on an electricity supply pole.

6. METER ENCLOSURE:

The IP Rating of the meter should be IP54 in accordance with IEC 60529 and material of should be of polycarbonate, flame retardant, resistance to spread of fire, able to withstand severe heat, and resistance to insects attack.

8. MARKING:

It shall have a printed name as "Property of PNG Power Ltd" and engraved or stamped with PPL number supplied by PNG Power Ltd through the Official Order.

9. DIMENSIONS:

The meter shall have the approximate Dimensions of Height: 47mm x Length: 158mm x Width: 132mm

10. UNITS OF MEASURE:

Units of Measure will be Each unit

11. REJECTION:

PNG Power Ltd reserves all rights to reject whole consignment should 5% or more of any one consignment be found defective, and is not liable for any cost or loss with the return of rejects to the Supplier. Facilitation of invoice credit must commence between the Supplier and PNG Power Ltd through the process of PNG Power Ltd Discrepancy Report provisions.

SPECIFICATION FOR ELECTRONIC ELECTRICITY SINGLE PHASE METER**12. SAMPLE:**

Samples of the meter shall be made available to PNG Power Ltd for inspection and testing prior to consideration for public Tender.

11. TYPE TEST RESULTS:

The Supplier shall make available to PNG Power Ltd Type Test Results for the type of meter offered to PNG Power Ltd for consideration and acceptance prior to deciding to accept the meter for purchase and use by PNG Power Ltd.

MATERIAL SPECIFICATION

VOCAB NUMBER	ITEM DESCRIPTION
151032A	METER, PREPAYMENT, 20 DIGITS, 240V, 50Hz, DIRECT CONNECTED, THREE PHASE, 8 TERMINAL CLASS, 20 TO 100A CURRENT.

SPECIFICATION DETAILS

1. STANDARDS:

The meter shall comply with the relevant requirement of the Australian Standards specification for "General Purpose Watt-hour Meters" AS1284 Part 1, 2004 as amended or the equivalent PNG Standards as adopted specifically covering prepayment meters.

2. ELECTRICAL SPECIFICATIONS

2.1 Current:

The rated current shall be 20A (Ib) and the maximum continuous current shall be 100A (Imax)

2.2 Accuracy:

It shall be class 2 or $\pm 2\%$ from 0.1Ib to Imax. The accuracy shall also be monitored by dKW/dt as indicated by the LED indicator which must pulsate at a rate of 800 impulses per kWH.

2.1 Voltage:

The voltage shall be at 240V at 50Hz and permitted to regulate between -20% to +50% of nominal voltage per phase.

- **Unit of Measure:** Each
- **Rejection:** PNG Power Ltd reserves all rights to reject whole or part of the order not complying with this specification and is not liable for any cost or loss with the return of rejects to the Supplier. Facilitation of Invoice Credit must commence between the supplier and PNG Power Ltd through the process of PNG Power Ltd Discrepancy Report provisions.

Drawing References:

Manufacturer's Product Code:


STANDARDS COMMITTEE APPROVAL

Approval by George Win:
Chairman

Signature: 

Date: 01/06/2018

DATA REVIEW ENDORSEMENT

NAME	TITLE	SIGNATURE	DATE
Grevasius Peni	Team Leader - Standards and Materials		1/6/18

SPECIFICATION DETAILS FOR VOCAB: 151032

3. OPERATION:

The meter shall operate exactly the same manner as the standard prepayment electricity meter. However instead of using a miniature breaker/isolator with manual, external lever to connect power, it utilizes a bi-stable latch which is located within the meter and is not accessible from the outside.

Power is automatically connected to the load side of the meter when there is credit in the meter and automatically disconnects the power if no credit is left. Power will also be terminated if any attempt is made to tamper with the meter.

In the case of trip due to overload, the meter will try to reconnect power five times at 30 seconds intervals. If after five attempts the current is still above the limit, the unit will wait 30 minutes before repeating the procedure.

4. FITTINGS:

The meter shall be fitted with Credit Status Display (CSD), 3 Level Credit Display – (LCD), Keypad for Credit Transfer Number Entry, Low Credit Warning Level, Credit Transfer Number Accept/Reject Indication, Tamper Indication, Lightning protection and a bi-stable latch located within the meter and is not accessible from outside to prevent tempering of the meter circuit breaker. Anti-tamper switch is mounted inside the meter box.

5. CONNECTION:

The connection to the meter shall be of symmetrical type and the terminals be marked as active, neutral, neutral and active (ANNA).

6. ENCLOSURE:

The IP Rating of the meter should be IP54 in accordance with IEC 60529 for indoor meters and material of should be of polycarbonate, flame retardant, resistance to spread of fire and able to withstand severe heat, and resistance to insect attack.

7. REMOTE COMMUNICATION

The meter should be accessed remotely utilising PLC technology and should also have options to access remotely using wireless mobile technology such as GSM, 3G and 4G. The remote communication option will enable remote monitoring, fraud detection, meter tempering and two-way communication with ability to audit meters remotely

8. GENERAL OPERATING CONDITIONS

Equipment should be designed to generally operate in these conditions:

1. Annual Average Ambient Temperature	30°C
2. Maximum Ambient Temperature	40°C
3. Installation	Indoor or Outdoor (in weatherproof meter box)
4. Maximum Relative Humidity	90%
5. Environmental Conditions	Humid Tropical Climate with heavily polluted atmosphere
6. Operation Altitude	Up to 1600m above sea level

9. MARKING:

It shall have a printed name as "Property of PNG Power Ltd.," and engraved or stamped with and "PPL" Number supplied by the Manufacturer on the Official Order.

10. DIMENSIONS:

The meter shall have the dimensions of height, length and width as 197mm x 137mm x 72mm respectively.

11. REJECTION:

PNG Power reserves the right to reject the whole consignment should 5% or more of any one consignment of found defective.

12. SAMPLE:

Samples of the meter shall be made available to the organization for inspection prior to the Tender closing date.