

**Supply, Installation, Testing and  
Commissioning of TAWELCO Barangay Line  
Enhancement and Household Connections**

## **TERMS OF REFERENCE**

### *Work Package 2.3: TAWELCO Barangay Line Enhancement and HH Connections*

#### **I. BACKGROUND**

Work Package 2.3: TAWELCO Barangay Line Enhancement and HH Connections is one of the fifteen (15) work packages to be implemented under Integration of Productive Uses of Renewable Energy for Sustainable and Inclusive Energization in Mindanao (I-PURE Mindanao). The said project is to be implemented by the National Electrification Administration (NEA) in collaboration with Mindanao Development Authority (MINDA) as co-implementer.

The specific objective of I-PURE Mindanao is to augment energy access and livelihood opportunities of poor off-grid, un-electrified and under-served households in rural communities in Mindanao through sustainable and renewable energy solutions.

Work Package 2.3 aims to connect selected seaweed farming communities in Tawi-Tawi in the municipalities of Sitangkai and Sibutu to the Renewable Energy Technologies (RETS) solar-hybridization Project with additional two thousand one hundred forty-nine (2,149) households to be electrified.

#### **II. RATIONALE**

In April 2020, the Department of Finance (DOF) signed the European Union Access to Sustainable Energy Project (EU-ASEP) Financing Agreement rider earmarking additional €6 Million, of which €4.5M Million can be tapped to fund livelihood and electrification projects using renewable energy solutions in the marginalized and disadvantaged communities in Mindanao.

On 08 June 2020, the Department of Energy (DOE) recommended to the Head of Development Cooperation of the Delegation of the European Union (EU) to the Philippines, NEA as Program and Fund Manager of the €4.5 Million Funding for pro-poor electrification and renewable energy innovations. This €4.5 Million was covered under the signed Addendum No. 4 to Financing Agreement N<sup>o</sup> ACA/2014/035-111 between the Republic of the Philippines and the European Union.

NEA, together with MINDA, as co-applicant and other partners namely Cotabato Electric Cooperative Inc. (COTELCO), South Cotabato II Electric Cooperative Inc. (SOCOTECO II), Tawi-Tawi Electric Cooperative Inc. (TAWELCO), Sultan Kudarat Electric Cooperative Inc. (SUKELCO), Mindanao State University – Tawi-Tawi (MSU) in coordination with the local government units (LGUs) submitted a proposal for the action entitled “Integration of Productive Uses of Renewable Energy for Sustainable and Inclusive Energization in Mindanao (I-PURE Mindanao)” on March 29, 2021.

Hence, on April 16, 2021 the EU awarded financial contribution to finance the implementation of the project through a 100% Grant Agreement signed between EU, and NEA as lead applicant.

### **III. PROJECT DURATION**

**III.1** The project duration covering the construction of the 9.930km 3-phase, 0.800km 1-phase distribution line with 10.270km underbuilt and installation of 2,149 set of house wiring materials (including service drop and kWhr Meters) shall be for a period of eight (8) months from the issuance of Notice to Proceed (NTP).

**III.2** Exact dates of delivery and/or completion should be reckoned from the date of CONTRACTOR's receipt of NTP.

**III.3** The liquidated damages shall be imposed for the inability of the CONTRACTOR to comply with the Approved Delivery Schedule, unless a written request for time extension been approved in writing by NEA.

### **IV. SCOPE OF WORK**

The CONTRACTOR shall:

1. Construct 9.930km 3-phase, 0.800km 1-phase distribution line with 10.270km underbuilt (UB) based on the approved As Plan Staking Sheets and As Plan Bill of Materials and compliant with the Philippine Distribution Code (PDC), Philippine Electrical Code (PEC) and National Electrification Administration Engineering Bulletin.
2. Install house wiring materials, kWhr meters, service drops in accordance to PEC, PDC and NEA Engineering Bulletin for 2,149 approved beneficiaries.
3. Submit weekly accomplishment report both for the distribution line and household electrification to the Project Management Unit. Template will be provided for the purpose.
4. Submit pole-to-pole pictures and per beneficiaries including house wiring materials, service drop and kWhr meters pictures. Included in the pole-to-pole and per beneficiary pictures are the coordinates of pole and beneficiary (template with sample will be provided).

### **V. APPROVED BUDGET FOR THE CONTRACT (ABC)**

V.1. For and in consideration of the performance and accomplishment of the CONSTRUCTION OF 9.930KM 3-PHASE LINE, 0.800KM 1-PHASE LINE WITH 10.270KM UB AND INSTALLATION OF 2,149 SET OF HOUSE WIRING MATERIALS INCLUDING SERVICE DROP AND KWHR METER, NEA shall pay the CONTRACTOR the total amount of Twenty-Six Million Two Hundred Seventy-Two Thousand Eight Hundred Twenty Pesos and Fifteen Centavos (PhP 26,272,820.15) subject to pertinent laws on government contracts and auditing procedures.

V.2. The contract price is inclusive of all duties and taxes.

V.3. No changes shall be made on the Contract Price by reason of escalation in currency. Any adjustment in Contract Price shall be done in accordance with guidelines provided by law.

V.4. The payment of escalation costs shall be subject to the unilateral and written approval of NEA and to availability of funds.

## VI. QUALIFICATIONS

The CONTRACTOR must:

VI.1. Preferably satisfy the criteria set forth in section 2.3 of the Practical Guide to contract procedures for the European Union external actions specifically 2.3.1 the rule on nationality and origin.

a. *The Nationality Rule*

Participation in tender procedures managed by the beneficiary(ies) is open on equal terms to all natural who are nationals of and legal persons (participating either individually or in grouping-consortium- of tenderers) effectively established in a Member State or a country, territory or region mentioned as eligible by the relevant regulation/basic act governing the eligibility rules for the grant as per Annex A2a to the practical guide. Tenderers must state their nationality in their tenders and provide the usual proof of nationality under their national legislation.

This rule does not apply to the experts proposed under service tenders financed by the grant.

b. *The Rule of Origin*

If the basic act or the other instruments applicable to the programme under which the grant is financed contain rules of origin for supplies acquired by the beneficiary in the context of the grant<sup>1</sup>, the tenderer must be requested to state the origin<sup>2</sup> of the supplies, and the selected contractor will always have to prove the origin of the supplies.

For equipment and vehicles of a unit cost on purchase of more than EUR 5 000, contractors must present proof of origin to the beneficiary(ies) at the latest when the first invoice is presented. The certificate of origin must be made out by the competent authorities of the country of origin of the supplies and must comply with the rules laid down by the relevant Union legislation. Failure to comply with this condition may result in the termination of the contract and/or suspension of payment.

Where supplies may originate from any country, no certificate of origin needs to be submitted.

VI.2. Have previously worked on similar projects within the past 3 years;

- VI.3. Have demonstrated efficiency in constructing distribution line and installing house wiring materials on previous projects with Certificate of Completion as proof;
- VI.4. Have the ability to deliver signed weekly accomplishment report submitted on a timely manner via online;
- VI.5. Submit list of completed and on-going projects. The list of completed projects must be for the past three (3) years with the contract price of equal to or greater than Php 7,463,727.01 for distribution line and Php 5,672,683.07 for household connections.
- VI.6. Must submit a Single Largest Completed Contract with Certificate of Acceptance.
- VI.7. Must be PHILGEPS registered.
- VI.8. Submit the following additional documents:  
(To be submitted during Post Qualification)
  - a. DTI Business name registration or SEC registration certificate, as the case may be. For corporations, submit updated General Information Sheet;
  - b. Valid and current mayor's permit/municipal license (principal place of business);
  - c. Clearance from SSS, PAG-IBIG and PhilHealth; and
  - d. BIR Clearance for Value Added Tax registration and VAT payment.

**VII. OTHER DOCUMENTS TO BE SUBMITTED** (To be submitted during Post Qualification)

1. Certificate of origin/importation/delivery proving the materials and equipment are brand new (to be submitted upon 100% delivery)
2. Confirming statement on the delivery schedule;
3. Confirming statement on the installation schedule;
4. Confirming statement on warranty being offered;
5. List of dedicated personnel
  - a. At least two (2) forward trucks and/or any motor vehicle (include plate number);
  - b. At least two (2) crews with at least 11 linemen plus 1 foreman each; and
  - c. At least six (6) trained electricians.
6. Document stating total years in the construction of distribution line and installation of house wiring materials/household energization industry; and
7. List of organic/permanent personnel including their education and relevant trainings.

## VIII. TECHNICAL EVALUATION

The Bidding documents shall be evaluated based on the financial and technical proposal. Upon the declaration of the Lowest Calculated Bid, the technical proposal shall then be evaluated to determine its compliance with the Technical Specifications.

Failure of the Lowest Calculated Bid to respond to the technical requirements, the second Lowest Calculated Bid will be evaluated to determine its compliance with the Technical Specifications.

This procedure to continue until the Lowest Calculated Responsive Bid is determined.

## IX. DELIVERABLES

	<b>DELIVERABLES</b>	<b>DUE DATE</b>
<b>Delivery of Materials</b> (Both for distribution line equipment and materials together with household energization materials)		
<b>1</b>	Delivery of at least 33.33% materials on site	Within two (2) months from receipt of Notice to Proceed
<b>2</b>	Delivery of at least additional 33.33% materials on site	Within three (3) months from receipt of Notice to Proceed
<b>3</b>	100% delivery of materials on-site	Within four (4) months from receipt of Notice to Proceed
<b>Construction, Service Dropping and Installation</b>		
<b>4</b>	Construction of line and installation of house wiring materials and service dropping should be at least 33.33% accomplished	Within four (4) months from receipt of Notice to Proceed
<b>5</b>	Construction of line and installation of house wiring material should be at least 66.66% accomplished	Within six (6) months from receipt of Notice to Proceed
<b>6</b>	Construction of line and installation of house wiring	Within eight (8) months from receipt of Notice to Proceed

	material should be 100% accomplished	
<b>Accomplishment Reports</b>		
<b>7</b>	Submission of weekly accomplishment report for distribution line and house wiring materials using approved template	Reporting starts one (1) week from receipt of Notice to Proceed
<b>8</b>	Submission of final report for distribution line and house wiring using approved template	Within two (2) weeks after completion and energization of distribution line and households

## **X. OBLIGATIONS OF THE CONTRACTOR**

The CONTRACTOR shall assume the following obligations:

- a) Ensure timely delivery of equipment and materials;
- b) Guarantee the safe keeping of equipment and materials on-site;
- c) Ensure timely installation based on the deliverables;
- d) Provide weekly accomplishment reports and final report based on the approved format and schedule;
- e) Must provide a dedicated person in-charge (PIC) as contact point and project coordinator. The PIC is liaise directly with the Project Management Unit (PMU) of I-PURE Mindanao. Template will be provided.

## **XI. PAYMENT SCHEME**

Payments to the Contractor shall be made based on the schedule below.

	<b>Contract Milestones</b>	<b>% of the Total Budget</b>
<b>1</b>	- With signed contract - With Notice to Proceed	15%
<b>2</b>	- 100% on-site delivery of materials - Certificate of Delivery issued by the NEA	25%

	<ul style="list-style-type: none"> <li>- Certificate of origin/importation/delivery proving the materials and equipment are brand new submitted by the Contractor</li> </ul>	
<b>3</b>	<ul style="list-style-type: none"> <li>- At least 55% accomplished in construction of distribution line</li> <li>- At least 55% accomplished in service dropping, house wiring installation and kWhr installation</li> <li>- Certificate of Partial Completion issued by the NEA</li> </ul>	25%
<b>4</b>	<ul style="list-style-type: none"> <li>- At least 90% accomplished in construction of distribution line</li> <li>- At least 90% accomplished in service dropping, house wiring installation and kWhr installation</li> <li>- Certificate of Partial Completion issued by the NEA</li> </ul>	25%
<b>5</b>	<ul style="list-style-type: none"> <li>- Certificate of Final Inspection and Acceptance from NEA</li> <li>- Final Accomplishment report submitted to PMU</li> <li>- Certificate of Completion submitted by the contractor both for distribution line and household energization</li> </ul>	10%
		<b>100%</b>



## **XII. PENALTIES / LIQUIDATED DAMAGES**

Failure to comply with the Terms and Conditions of the contract will result in the payment of corresponding penalties/liquidated damages in the amount equal to 1/10 of 1% of the cost of the unperformed portion for every day of delay. Once the cumulative amount of liquidated damages reaches 10% of the amount of the contract, NEA shall rescind the contract, without prejudice to other courses of action and remedies open to it.

## **XIII. List of Materials**

### **XIII.1 Distribution Line**

#### **XIII.1.1 Project Description: Construction of Distribution Line in Brgy. Datu Baguinda Putih to Brgy. Tongmageng, Sitangkai**

<b>MATERIALS DESCRIPTION</b>	<b>PROJECT REQUIREMENTS</b>
Anchor, Expanding, 10,000 Pounds, 8 Way, Galvanized Steel	43 pieces
Bolt, Carriage 3/8" X 4-1/2"	314 pieces
Bolt, Double Arming, 5/8" X 22"	15 pieces
Bolt, Double Arming, 5/8" X 24"	105 pieces
Bolt, Double Arming, 5/8" X 26"	9 pieces
Bolt, Double Upset, 5/8" X 10"	95 pieces
Bolt, Oval Eye, 5/8" X 9"	6 pieces
Bolt, Oval Eye, 5/8" X 10"	29 pieces
Bolt, Oval Eye, 5/8" X 12"	62 pieces
Bolt, Oval Eye, 5/8" X 18"	34 pieces
Bolt, Machine, 1/2" X 6"	28 pieces
Bolt, Machine, 1/2" X 10"	121 pieces
Bolt, Machine, 5/8" X 8"	42 pieces
Bolt, Machine, 5/8" X 10"	310 pieces
Bolt, Machine, 5/8" X 12"	35 pieces
Bolt, Machine, 5/8" X 14"	141 pieces
Bolt, Single Upset, 5/8" X 8"	14 pieces
Bolt, Single Upset, 5/8" X 10"	85 pieces
Brace, Crossarm, 28", Steel or Wood	314 each
Brace, Crossarm, 60" - 18" Drop	14 pairs
Bracket, Clevis Deadend without Spool	57 pieces
Clamp, Hot Line, #2 - #2/0 ACSR Main to #2 - #2/0	19 pieces
Clamp, Anchor Rod Bonding, Single Eye	43 pieces
Clamp, Loop Deadend, #2/0 ACSR	130 pieces
Clamp, Deadend Strain, #2/0 ACSR	100 pieces
Clamp, Guy Straight, 3 Bolt, Heavy Duty Steel	86 pieces
Clevis, Secondary Swinging without Spool	65 pieces
Shackle, Anchor, Forged Steel, Galvanized	34 pieces

Conductor, Bare, ACSR #2, AWG 6/1	302	meters
Conductor, Bare, ACSR #1/0, AWG 6/1	8,223	meters
Conductor, Bare, ACSR #2/0, AWG 6/1	32,798	meters
Conductor, Insulated, ACSR #2, AWG 6/1 (600 V)	12	meters
Connector, Compression, YHO 200, #1/0 - #2/0 ACSR Run To #6 - #2	234	pieces
Connector, Compression, YHD 300, #1/0 - #2/0 ACSR Run To #1/0 - #2/0	66	pieces
Connector, Ground Rod (Clamp) for 5/8" Steel Rod	148	pieces
Hook, Guy	86	pieces
Insulator, Pin Type, Polymer, 15KV	445	pieces
Insulator, Spool, 3", ANSI, Class 53 - 4	117	pieces
Pin, Crossarm, Steel, 1-3/8" X 14", 23KV	282	pieces
Insulator, Suspension, Polymer, 15KV	100	pieces
Link, Fuse, Universal, Bottom Head, Type K, 3 Amperes	7	pieces
Link, Fuse, Universal, Bottom Head, Type K, 6 Amperes	1	piece
Link, Fuse, Universal, Bottom Head, Type K, 15 Amperes	18	pieces
Nut, Eye, 5/8", Conventional	103	pieces
Nut, Lock, Mf Type, 3/8"	314	pieces
Nut, Lock, Mf Type, 1/2"	149	pieces
Nut, Lock, Mf Type, 5/8"	1,124	pieces
Pin, Pole Top, Channel, 1" Thread, 25" Long	163	pieces
Rod, Anchor, Threaded, Double Eye, 3/4" X 8'	43	pieces
Rod, Armor, Preformed, #2/0 ACSR, Single Support	528	sets
Rod, Armor, Preformed, #2/0 ACSR, Double Support	84	sets
Rod, Tapping, Preformed, #2/0 ACSR	19	sets
Spacer, Pipe, 3/4" X 1-1/2"	56	pieces
Transformer, Pole Type, Conventional, 25 KVA	6	units
Washer, Square, Flat, 2-1/4" X 2-1/4" X 3/16", 13/16" Diameter Hole	1,177	pieces
Washer, Round, 1-3/8" Diameter with 9/16" Diameter Hole	149	pieces
Wire, Tie, Aluminum Alloy, Soft, #4 AWG	5,136	feet
Wire, Tape, Armor, Aluminum Alloy, 0.5 " X 0.3"	83	feet
Wire, Grounding, Aluminum Alloy, 3 Strand, #4 AWG	6,319	feet
Wire, Guy, Steel, 3/8", 7 Strand	2,150	feet

#### STEEL MATERIALS

Pole, Steel, 35' (3.0mm)	144	pieces
Pole, Steel, 45' (4.0mm)	4	pieces
Crossarm, Steel, 3" X 4" X 8'	174	pieces

### **XIII.1.2 Project Description: Construction of Distribution Line in Brgy. Tongsibalo, Sibutu**

<b>MATERIALS DESCRIPTION</b>	<b>PROJECT REQUIREMENTS</b>
Anchor, Expanding, 10,000 Pounds, 8 Way, Galvanized Steel	10 pieces
Bolt, Carriage 3/8" X 4-1/2"	140 pieces
Bolt, Double Arming, 5/8" X 22"	3 pieces
Bolt, Double Arming, 5/8" X 24"	39 pieces
Bolt, Double Arming, 5/8" X 26"	3 pieces
Bolt, Double Upset, 5/8" X 10"	45 pieces
Bolt, Oval Eye, 5/8" X 10"	8 pieces
Bolt, Oval Eye, 5/8" X 12"	8 pieces
Bolt, Oval Eye, 5/8" X 18"	6 pieces
Bolt, Machine, 1/2" X 4"	10 pieces
Bolt, Machine, 1/2" X 6"	12 pieces
Bolt, Machine, 1/2" X 10"	58 pieces
Bolt, Machine, 5/8" X 8"	6 pieces
Bolt, Machine, 5/8" X 10"	142 pieces
Bolt, Machine, 5/8" X 12"	13 pieces
Bolt, Machine, 5/8" X 14"	66 pieces
Bolt, Single Upset, 5/8" X 10"	46 pieces
Brace, Crossarm, 28", Steel or Wood	140 each
Brace, Crossarm, 60" - 18" Drop	6 pairs
Bracket, Clevis Deadend without Spool	20 pieces
Bracket, Mounting for Transformer Pole	10 sets
Clamp, Hot Line, #2 - #2/0 ACSR Main to #2 - #2/0	10 pieces
Clamp, Anchor Rod Bonding, Single Eye	10 pieces
Clamp, Loop Deadend, #2/0 ACSR	32 pieces
Clamp, Deadend Strain, #2/0 ACSR	24 pieces
Clamp, Guy Straight, 3 Bolt, Heavy Duty Steel	20 pieces
Clevis, Secondary Swinging without Spool	16 pieces
Shackle, Anchor, Forged Steel, Galvanized	6 pieces
Conductor, Bare, ACSR #2, AWG 6/1	125 meters
Conductor, Bare, ACSR #1/0, AWG 6/1	3,450 meters
Conductor, Bare, ACSR #2/0, AWG 6/1	13,800 meters
Conductor, Insulated, ACSR #2, AWG 6/1 (600 V)	10 meters
Connector, Compression, YHO 200, #1/0 - #2/0 ACSR Run To #6 - #2	80 pieces
Connector, Compression, YHD 300, #1/0 - #2/0 ACSR Run To #1/0 - #2/0	56 pieces
Connector, Ground Rod (Clamp) for 5/8" Steel Rod	60 pieces
Cutout and Arrester Combination, Polymer	8 sets
Hook, Guy	20 pieces
Insulator, Pin Type, Polymer, 15KV	201 pieces
Insulator, Spool, 3", ANSI, Class 53 - 4	36 pieces
Pin, Crossarm, Steel, 1-3/8" X 14", 23KV	132 pieces

Insulator, Suspension, Polymer, 15KV	24	pieces
Link, Fuse, Universal, Bottom Head, Type K, 3 Amperes	5	pieces
Link, Fuse, Universal, Bottom Head, Type K, 25 Amperes	3	pieces
Link, Fuse, Universal, Bottom Head, Type K, 40 Amperes	3	pieces
Nut, Eye, 5/8", Conventional	30	pieces
Nut, Lock, Mf Type, 3/8"	140	pieces
Nut, Lock, Mf Type, 1/2"	80	pieces
Nut, Lock, Mf Type, 5/8"	417	pieces
Pin, Pole Top, Channel, 1" Thread, 25" Long	69	pieces
Rod, Anchor, Threaded, Double Eye, 3/4" X 8'	10	pieces
Rod, Armor, Preformed, #2/0 ACSR, Single Support	252	sets
Rod, Armor, Preformed, #2/0 ACSR, Double Support	30	sets
Rod, Tapping, Preformed, #2/0 ACSR	10	sets
Spacer, Pipe, 3/4" X 1-1/2"	20	pieces
Transformer, Pole Type, Conventional, 25 KVA	5	units
Washer, Square, Flat, 2-1/4" X 2-1/4" X 3/16", 13/16" Diameter Hole	483	pieces
Washer, Round, 1-3/8" Diameter with 9/16" Diameter Hole	70	pieces
Wire, Tie, Aluminum Alloy, Soft, #4 AWG	2,300	feet
Wire, Tape, Armor, Aluminum Alloy, 0.5 " X 0.3"	18	feet
Wire, Grounding, Aluminum Alloy, 3 Strand, #4 AWG	2,000	feet
Wire, Guy, Steel, 3/8", 7 Strand	500	feet

#### STEEL MATERIALS

Pole, Steel, 35' (3.0mm)	60	pieces
Crossarm, Steel, 3" X 4" X 8'	77	pieces

**XIII.1.3 Project Description: Construction of Distribution Line in Sitio NPC Plant to Solar Hybrid (UNIDO) Brgy. Taungoh, Sibutu**

<b>MATERIALS DESCRIPTION</b>	<b>PROJECT REQUIREMENTS</b>
Anchor, Expanding, 10,000 Pounds, 8 Way, Galvanized Steel	2 pieces
Bolt, Carriage 3/8" X 4-1/2"	4 pieces
Bolt, Double Arming, 5/8" X 24"	6 pieces
Bolt, Double Arming, 5/8" X 26"	3 pieces
Bolt, Oval Eye, 5/8" X 10"	2 pieces
Bolt, Oval Eye, 5/8" X 12"	13 pieces
Bolt, Oval Eye, 5/8" X 18"	8 pieces
Bolt, Machine, 1/2" X 4"	2 pieces
Bolt, Machine, 1/2" X 6"	8 pieces
Bolt, Machine, 1/2" X 10"	1 piece
Bolt, Machine, 5/8" X 8"	4 pieces
Bolt, Machine, 5/8" X 10"	4 pieces
Bolt, Machine, 5/8" X 12"	2 pieces
Brace, Crossarm, 28", Steel or Wood	4 each
Brace, Crossarm, 60" - 18" Drop	4 pairs
Bracket, Mounting for Transformer Pole	2 sets
Clamp, Hot Line, #2 - #2/0 ACSR Main to #2 - #2/0	5 pieces
Clamp, Anchor Rod Bonding, Single Eye	2 pieces
Clamp, Loop Deadend, #2/0 ACSR	18 pieces
Clamp, Deadend Strain, #2/0 ACSR	21 pieces
Clamp, Guy Straight, 3 Bolt, Heavy Duty Steel	4 pieces
Clevis, Secondary Swinging without Spool	9 pieces
Shackle, Anchor, Forged Steel, Galvanized	8 pieces
Conductor, Bare, ACSR #2, AWG 6/1	7 meters
Conductor, Bare, ACSR #1/0, AWG 6/1	58 meters
Conductor, Bare, ACSR #2/0, AWG 6/1	690 meters
Conductor, Insulated, ACSR #2, AWG 6/1 (600 V)	2 meters
Connector, Compression, YHO 200, #1/0 - #2/0 ACSR Run To #6 - #2	7 pieces
Connector, Compression, YHD 300, #1/0 - #2/0 ACSR Run To #1/0 - #2/0	24 pieces
Connector, Ground Rod (Clamp) for 5/8" Steel Rod	3 pieces
Cutout and Arrester Combination, Polymer	4 sets
Hook, Guy	4 pieces
Insulator, Pin Type, Polymer, 15KV	2 pieces
Insulator, Spool, 3", ANSI, Class 53 - 4	9 pieces
Insulator, Suspension, Polymer, 15KV	21 pieces
Link, Fuse, Universal, Bottom Head, Type K, 3 Amperes	1 piece
Link, Fuse, Universal, Bottom Head, Type K, 40 Amperes	3 pieces
Nut, Eye, 5/8", Conventional	23 pieces
Nut, Lock, Mf Type, 3/8"	4 pieces
Nut, Lock, Mf Type, 1/2"	11 pieces
Nut, Lock, Mf Type, 5/8"	52 pieces

Pin, Pole Top, Channel, 1" Thread, 25" Long	2	pieces
Rod, Anchor, Threaded, Double Eye, 3/4" X 8'	2	pieces
Rod, Armor, Preformed, #2/0 ACSR, Single Support	2	sets
Rod, Tapping, Preformed, #2/0 ACSR	5	sets
Transformer, Pole Type, Conventional, 25 KVA	1	unit
Washer, Square, Flat, 2-1/4" X 2-1/4" X 3/16", 13/16" Diameter Hole	55	pieces
Washer, Round, 1-3/8" Diameter with 9/16" Diameter Hole	9	pieces
Wire, Tie, Aluminum Alloy, Soft, #4 AWG	32	feet
Wire, Tape, Armor, Aluminum Alloy, 0.5 " X 0.3"	12	feet
Wire, Grounding, Aluminum Alloy, 3 Strand, #4 AWG	112	feet
Wire, Guy, Steel, 3/8", 7 Strand	100	feet

#### STEEL MATERIALS

Pole, Steel, 35' (3.0mm)	3	pieces
Crossarm, Steel, 3" X 4" X 8'	7	pieces

## XIII.2 Household Electrification

### XIII.2.1 Project Description: Installation of KWHR Meters and Housewiring Materials in Brgy. Datu Baguinda Putih to Brgy. Tongmageng, Sitangkai

List of Materials:

MATERIALS DESCRIPTION	PROJECT REQUIREMENTS
Conductor, Duplex, #6, AWG	40,170 meters
Connector, Compression, YHO 100, #6 - #2 ACSR Run To #6 - #2	2,678 pieces
Meter, KWH, 1 Phase, Class 1, 240 V, 10(60) A, Electronic, Bottom Connected	1,339 pieces
Housewiring <i>(1 set - Circuit Breaker or Safety Switch (15 Amps.); 2 pieces - Receptacle; 2 pieces - Bulb (15W); 2 sets - Tumbler Switch; 1 set - Convenience Outlet (2 gang); 2 pieces - Junction Box (plastic with cover); 5 meters - PDX Wire #10 10 meters - PDX Wire #12; 10 meters - PDX Wire #14; 1 piece - Electrical Tape and 30 pieces - Insulated, Staple Wire)</i>	1,339 sets

### XIII.2.2 Project Description: Installation of KWHR Meters and Housewiring Materials Brgy. Tongsibalo, Sibuto and Brgy. Taungoh, Sibutu

List of Materials:

MATERIALS DESCRIPTION	PROJECT REQUIREMENTS
Conductor, Duplex, #6, AWG	24,300 meters
Connector, Compression, YHO 100, #6 - #2 ACSR Run To #6 - #2	1,620 pieces
Meter, KWH, 1 Phase, Class 1, 240 V, 10(60) A, Electronic, Bottom Connected	810 pieces
Housewiring <i>(1 set - Circuit Breaker or Safety Switch (15 Amps.); 2 pieces - Receptacle; 2 pieces - Bulb (15W); 2 sets - Tumbler Switch; 1 set - Convenience Outlet (2 gang); 2 pieces - Junction Box (plastic with cover); 5 meters - PDX Wire #10 10 meters - PDX Wire #12; 10 meters - PDX Wire #14; 1 piece - Electrical Tape and 30 pieces - Insulated, Staple Wire)</i>	810 sets