

**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^o 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 grant¹, the tenderer must be requested to state the origin² 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:
 - 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

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

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

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| | material should be 100% accomplished | |
| Accomplishment Reports | | |
| 7 | 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 |
| 8 | 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.

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

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

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

| MATERIALS DESCRIPTION | PROJECT REQUIREMENTS |
|---|-----------------------------|
| 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 |

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|---|--------|--------|
| 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. Tongсібalo, Sibutu

| MATERIALS DESCRIPTION | PROJECT REQUIREMENTS |
|--|-----------------------------|
| 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 |

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|---|-------|--------|
| 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

| MATERIALS DESCRIPTION | PROJECT REQUIREMENTS |
|--|-----------------------------|
| 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 |