

**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 (2,184) 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° 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 9.85km 3-phase, 9.65km underbuilt, 1.89km open secondary distribution line and installation of 2,184 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 9.85km 3-phase, 9.65km underbuilt and 1.89km open secondary distribution line 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 (service drop to be tapped at the constructed line) in accordance to PEC, PDC and NEA Engineering Bulletin for 2,184 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).
5. In accordance with the Guideline to Implement Articles 7, 8, 14 and 28 of the Magna Carta for Residential Electricity Consumers, a beneficiary shall be entitled to installation of lines if it is within 30 meters from the secondary low voltage lines. The end-user and winning bidder shall provide the NEA of a list of beneficiaries whose distance from the secondary low voltage lines is not within the cap of 30 meters. The NEA will determine the additional cost for the additional lines for these beneficiaries.

V. APPROVED BUDGET FOR THE CONTRACT (ABC)

V.1. For and in consideration of the performance and accomplishment of the construction of 9.85km 3-phase, 9.65km underbuilt and 1.89km open secondary distribution line and installation of 2,184 set of housewiring materials including service drop and kWhr meter, NEA shall pay the CONTRACTOR the total amount Thirty Million Eight Hundred Twenty-One and Sixty-Three Centavos

(PhP30,000,821.63) subject to pertinent laws on government contracts and auditing procedures.

V2. The contract price is inclusive of all duties and taxes.

V3. 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.

V4. 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 8,636,237.00 for distribution line and Php 6,364,173.82 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

	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	Within six (6) months from receipt of Notice to Proceed

	material should be at least 66.66% accomplished	
6	Construction of line and installation of house wiring material should be 100% accomplished	Within eight (8) months from receipt of Notice to Proceed
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	<ul style="list-style-type: none"> - 100% on-site delivery of materials - Certificate of Delivery issued by the NEA - Certificate of origin/importation/delivery proving the materials and equipment are brand new submitted by the Contractor 	25%
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	47 pieces
Bolt, Carriage 3/8" X 4-1/2"	320 pieces
Bolt, Double Arming, 5/8" X 18"	84 pieces
Bolt, Double Arming, 5/8" X 22"	15 pieces
Bolt, Double Arming, 5/8" X 26"	12 pieces
Bolt, Double Upset, 5/8" X 10"	83 pieces
Bolt, Oval Eye, 5/8" X 10"	31 pieces
Bolt, Oval Eye, 5/8" X 12"	53 pieces
Bolt, Oval Eye, 5/8" X 18"	22 pieces
Bolt, Machine, 1/2" X 10"	123 pieces
Bolt, Machine, 5/8" X 10"	314 pieces
Bolt, Machine, 5/8" X 12"	228 pieces
Bolt, Machine, 5/8" X 14"	106 pieces
Bolt, Single Upset, 5/8" X 10"	114 pieces
Brace, Crossarm, 28", Steel or Wood	320 each
Bracket, Clevis Deadend without Spool	29 pieces
Bracket, Mounting for Transformer Pole	10 sets
Clamp, Hot Line, #2 - #2/0 ACSR Main to #2 - #2/0	37 pieces
Clamp, Anchor Rod Bonding, Single Eye	47 pieces
Clamp, Loop Deadend, #2/0 ACSR	102 pieces
Clamp, Deadend Strain, #2/0 ACSR	60 pieces
Clamp, Guy Straight, 3 Bolt, Heavy Duty Steel	94 pieces
Clevis, Secondary Swinging without Spool	51 pieces
Shackle, Anchor, Forged Steel, Galvanized	22 pieces
Conductor, Bare, ACSR #2, AWG 6/1	267 meters
Conductor, Bare, ACSR #1/0, AWG 6/1	7,648 meters
Conductor, Bare, ACSR #2/0, AWG 6/1	30,590 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	225 pieces
Connector, Compression, YHD 300, #1/0 - #2/0 ACSR Run To #1/0 - #2/0	76 pieces

Connector, Ground Rod (Clamp) for 5/8" Steel Rod	131	pieces
Connector, Split Bolt	21	pieces
Cutout and Arrester Combination, Polymer	17	sets
Hook, Guy	94	pieces
Insulator, Pin Type, Polymer, 15KV	426	pieces
Insulator, Spool, 1-3/4", ANSI, Class 53 - 2	204	pieces
Insulator, Spool, 3", ANSI, Class 53 - 4	73	pieces
Pin, Crossarm, Steel, 1-3/8" X 14", 23KV	284	pieces
Insulator, Suspension, Polymer, 15KV	60	pieces
Link, Fuse, Universal, Bottom Head, Type K, 3 Amperes	5	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	56	pieces
Nut, Lock, Mf Type, 3/8"	320	pieces
Nut, Lock, Mf Type, 1/2"	123	pieces
Nut, Lock, Mf Type, 5/8"	968	pieces
Plate, Guy	94	pieces
Pin, Pole Top, Channel, 1" Thread, 25" Long	86	pieces
Rod, Anchor, Threaded, Double Eye, 3/4" X 8'	47	pieces
Rod, Armor, Preformed, #2/0 ACSR, Single Support	484	sets
Rod, Armor, Preformed, #2/0 ACSR, Double Support	84	sets
Rod, Tapping, Preformed, #2/0 ACSR	37	sets
Rod, Ground Steel, Galvanized, 5/8" X 10'	131	pieces
Spacer, Pipe, 3/4" X 1-1/2"	56	pieces
Staple, Groundwire, 1/2" X 2"	115	pounds
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	1,037	pieces
Washer, Round, 1-3/8" Diameter with 9/16" Diameter Hole	123	pieces
Wire, Tie, Aluminum Alloy, Soft, #4 AWG	4,768	feet
Wire, Tape, Armor, Aluminum Alloy, 0.5 " X 0.3"	71	feet
Wire, Grounding, Aluminum Alloy, 3 Strand, #4 AWG	5,416	feet
Wire, Guy, Steel, 3/8", 7 Strand	2,350	feet
Pole, Steel, 35' (3.0mm)	110	pieces
Pole, Wood, 45', Class 3, US	21	pieces
Crossarm, Steel, 3" X 4" X 8'	164	pieces

XIII.1.2 Project Description: Construction of Distribution Line in Brgy. Tongsibalo, Sibutu to Brgy. Taungoh, Sibutu

MATERIALS DESCRIPTION	PROJECT REQUIREMENTS
Anchor, Expanding, 10,000 Pounds, 8 Way, Galvanized Steel	25 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"	59 pieces
Bolt, Oval Eye, 5/8" X 10"	40 pieces
Bolt, Oval Eye, 5/8" X 12"	8 pieces
Bolt, Oval Eye, 5/8" X 18"	6 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"	160 pieces
Bolt, Machine, 5/8" X 12"	13 pieces
Bolt, Machine, 5/8" X 14"	86 pieces
Bolt, Single Upset, 5/8" X 10"	60 pieces
Brace, Crossarm, 28", Steel or Wood	140 each
Brace, Crossarm, 60" - 18" Drop	6 pairs
Bracket, Clevis Deadend without Spool	23 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	25 pieces
Clamp, Loop Deadend, #2/0 ACSR	96 pieces
Clamp, Deadend Strain, #2/0 ACSR	24 pieces
Clamp, Guy Straight, 3 Bolt, Heavy Duty Steel	50 pieces
Clevis, Secondary Swinging without Spool	48 pieces
Shackle, Anchor, Forged Steel, Galvanized	6 pieces
Conductor, Bare, ACSR #2, AWG 6/1	156 meters
Conductor, Bare, ACSR #1/0, AWG 6/1	3,450 meters
Conductor, Bare, ACSR #2/0, AWG 6/1	17,871 meters
Conductor, Insulated, ACSR #2, AWG 6/1 (600 V)	10 meters
Connector, Compression, YHO 100, #6 - #2 ACSR Run To #6 - #2	160 pieces
Connector, Compression, YHO 200, #1/0 - #2/0 ACSR Run To #6 - #2	130 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	71 pieces
Cutout and Arrester Combination, Polymer	8 sets
Hook, Guy	50 pieces
Insulator, Pin Type, Polymer, 15KV	201 pieces
Insulator, Spool, 1-3/4", ANSI, Class 53 - 2	119 pieces
Insulator, Spool, 3", ANSI, Class 53 - 4	71 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"	70	pieces
Nut, Lock, Mf Type, 5/8"	515	pieces
Pin, Pole Top, Channel, 1" Thread, 25" Long	69	pieces
Rod, Anchor, Threaded, Double Eye, 3/4" X 8'	25	pieces
Rod, Armor, Preformed, #2/0 ACSR, Single Support	283	sets
Rod, Armor, Preformed, #2/0 ACSR, Double Support	30	sets
Rod, Tapping, Preformed, #2/0 ACSR	10	sets
Rod, Ground Steel, Galvanized, 5/8" X 10'	71	pieces
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	556	pieces
Washer, Round, 1-3/8" Diameter with 9/16" Diameter Hole	70	pieces
Wire, Tie, Aluminum Alloy, Soft, #4 AWG	2,424	feet
Wire, Tape, Armor, Aluminum Alloy, 0.5 " X 0.3"	50	feet
Wire, Grounding, Aluminum Alloy, 3 Strand, #4 AWG	2,427	feet
Wire, Guy, Steel, 3/8", 7 Strand	1,250	feet
Pole, Steel, 30' (3.0mm)	29	pieces
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 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 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
Bolt, Machine, 5/8" X 14"	4 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 100, #6 - #2 ACSR Run To #6 - #2	6 pieces
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"	9 pieces
Nut, Lock, Mf Type, 5/8"	56 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
Rod, Ground Steel, Galvanized, 5/8" X 10'	3	pieces
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	57	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

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	39,570 meters
Connector, Compression, YHO 100, #6 - #2 ACSR Run To #6 - #2	2,638 pieces
Meter, KWH, 1 Phase, Class 1, 240 V, 10(60) A, Electronic, Bottom Connected	1,319 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>	1,319 sets

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

List of Materials:

MATERIALS DESCRIPTION	PROJECT REQUIREMENTS
Conductor, Duplex, #6, AWG	25,950 meters
Connector, Compression, YHO 100, #6 - #2 ACSR Run To #6 - #2	1,730 pieces
Meter, KWH, 1 Phase, Class 1, 240 V, 10(60) A, Electronic, Bottom Connected	865 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>	865 sets